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WOMEN:
AT THE HEART OF THE HIV RESPONSE FOR CHILDREN

Throughout this report, the term 'children' applies to all children below the age of 18 years, including adolescents, as defined in the Convention on the Rights of the Child. The United Nations defines adolescents as persons aged 10–19 years, and youth as persons aged 15–24 years. Grouped together, 'children and adolescents' represent those aged 0–19 years.

Because HIV-related stigma persists, UNICEF takes steps to safeguard the identities of children and their mothers in accordance with their wishes and with global standards of child rights and protection. UNICEF obtains written consent from people living with the virus before identifying them as such in photographs and other media. Unless otherwise stated, people depicted in this publication, and in the accompanying materials online, should not be assumed to be living with HIV.

Note: Data in this report are drawn from the most recent available statistics from the United Nations Population Division, UNAIDS and UNICEF unless otherwise indicated. The range in parentheses after a given estimate represents the confidence bound of the estimate.

The essays in 'Perspectives' represent the personal views of the authors and do not necessarily reflect the position of the United Nations Children's Fund.

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Front cover: Happiness Mbewe and her 14-month-old son Davis Christopher from Fuka Fuka, Blantyre, Malawi, are beneficiaries of the services offered by the UNICEF-supported mothers2mothers programme.
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Foreword

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Women not only bear the brunt of the HIV epidemic, they are also at the forefront of the HIV response. I saw this first-hand on a recent visit to South Africa, where I had the privilege of meeting with young mothers living with HIV at the Soshanguve Community Health Centre in Gauteng.

These young women were brave and strong in the face of tremendous challenges. They spoke poignantly about how they had learned they were living with the virus – usually as part of a routine antenatal visit – and about the painful process of telling partners, families and friends of their diagnosis. About the fear they experienced for themselves and their children.

But they also spoke about what gives them hope. The joy of seeing their babies thriving tops the list. But almost as important is the support they are receiving from other women living with HIV.

Under the UNICEF-supported mothers2mothers programme, more experienced mothers living with HIV provide support and advice to pregnant women and mothers of HIV-exposed babies. These peer mentors offer all kinds of practical guidance and information, which the younger mothers badly need. But they also share their own stories of living and thriving with HIV, and these stories have the power to encourage and inspire.

The impact in the lives of the young mothers is remarkable. Far from being desolate about their HIV status, the young women I spoke to lit up about their ambitions: to finish school; to take a course in welding; to become a nurse, teacher or social worker. Above all, they were excited about setting an example for their children and helping to improve their prospects in life.

This is a happy story. But in sub-Saharan Africa, the HIV crisis is far from over, and women and girls are by far the most affected. In fact, women form the majority of those living with HIV in sub-Saharan Africa. This gender disparity is even more marked among adolescents: Globally, girls made up 66 per cent of the new HIV infections among those aged 15–19 in 2017.

Every one of those girls deserves a chance to make the most of her life. To survive, and to thrive. To become a productive adult. A mother to children of her own.

We have made so much progress in the global fight against HIV and AIDS. For example, services aimed at prevention of mother-to-child transmission reached 80 per cent of pregnant women living with HIV worldwide in 2017, compared with only 51 per cent in 2010.

UNICEF Executive Director Henrietta H. Fore (right) with mothers2mothers participant Karabo Sikosana and her son. Ms. Fore made a field visit to South Africa in May 2018.

But as the projections about the HIV epidemic make urgently clear, we need to do more. For unless we do, based on current trends and anticipated population growth in HIV-affected areas, there will still be around 1.9 million children and adolescents living with HIV in 2030. Over the period from 2018 to 2030, 3.7 million children and adolescents will be newly infected with the virus.

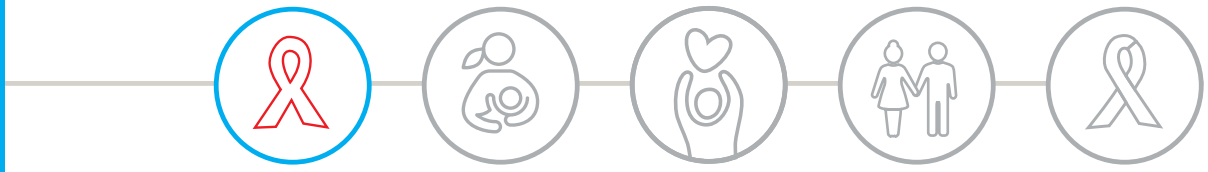
We need to redouble our commitment and our efforts, working together to find new ways of reaching the unreached. That means more investment. More innovation. More co-creation of solutions to reach those we are not yet reaching. And it also means recognizing the invaluable role women play in the response to HIV – and doing more to encourage and empower women to speak out.

This publication shares the perspectives of women from all over the world, including policymakers and researchers, doctors and campaigners who are helping lead the HIV response for women and children. Their testimonies illuminate and personalize the data and the narrative in the rest of the report.

Often these writers pay tribute to other inspirational women they have worked with – not only to individuals in leadership positions but also, as one contributor puts it, to the "thousands of women who walk dusty roads to homes, clinics and communities to give physical and emotional support to those affected by the epidemic."

If we are to achieve the HIV-free world of which we dream, we need to bring to bear all the expertise we have gained through the three decades of the HIV response – and listen to these voices of experience and hope. And act on them.

Henrietta H. Fore
Executive Director, UNICEF



1. Introduction

"I am … filled with pride, thinking about the countless people who fought for justice, called for equal access to quality health care for all – not just for those who could afford it – and helped transform the AIDS response. So often those advocates were women, remarkable women who were on the frontlines caring for families and communities and calling for change. … They are the heroines whose voices and faces are so indelibly marked in my memory. And they are the ones on whose shoulders we stand as we continue to work towards an AIDS-free generation."

– Graça Machel

Graça Machel, who contributes an essay to this publication (*see page 90*), knows what she is talking about. As an advocate for women's and children's rights for decades, she and the women she celebrates are shining examples of how the input and capacity of women have been central to the development of new ideas, standards and strategies that have benefited millions of people worldwide. The essays by women leaders and trailblazers accompanying this report illustrate the extent to which this has been true throughout the history of the global HIV response for children and adolescents.

Yet the impact of the HIV epidemic on women and their contributions to countering it have often been unrecognized and underappreciated. One reason is that HIV was early on identified as an infection that devastated communities of men who have sex with

Eurita Black and her 15-month-old daughter Tiyanjane share a happy moment at their home in Blantyre, Malawi.
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men in high-income countries. For more than two decades now, however, it has been women who have disproportionately borne the impact of HIV, both as caregivers and recipients of care, in most higher-burden settings. Women in Africa and most other regions constitute by far the largest share of caregivers, community-level workers and volunteers who provide critical HIV treatment, prevention and support services[1] – both inside and outside their families.

Indeed, women have been the 'heroines' Machel lauds – and both they and the HIV response are the stronger for it. They almost certainly will continue to exhibit such strength moving forward, both to build on and sustain successes and to forcefully confront the major gaps and challenges that could inhibit greater progress towards ending AIDS.

The gender dimension

Women make up the majority (60 per cent) of people living with HIV in sub-Saharan Africa – home to 7 out of every 10 people living with HIV in the world – and they account for 34 per cent of people living with HIV in Europe and Central Asia. Without any intervention, these women will be at higher risk of mortality and more likely to pass on the infection to their infants.

The burden of HIV in the child population is disproportionately affecting adolescents, particularly adolescent girls. Women in Eastern and Southern Africa are on average infected with HIV five to seven years earlier than men, with the risk especially high between the ages of 15 and 24.[2] In 2017 alone, 430,000 (confidence interval: 260,000–620,000) new infections occurred worldwide among children and adolescents up to 19 years of age (*see Table 1.1*). These contribute to the global total of 3.0 million (2.0–4.2 million) living with HIV in this age group, an estimated 87 per cent of whom live in sub-Saharan Africa.

TABLE 1.1

Estimates of HIV in children, 2017

Age	Number of new HIV infections			Number of children living with HIV			Number of AIDS–related deaths		
	Estimate	% of all new HIV infections in children	Low – high	Estimate	% of all children living with HIV	Low – high	Estimate	% of all child AIDS-related deaths	Low – high
0–9 years	**180,000**	**41**	**110,000 – 260,000**	**1,200,000**	**40**	**880,000 – 1,600,000**	**91,000**	**71**	**53,000 – 140,000**
0–4 years	180,000	41	110,000 – 260,000	580,000	19	420,000 – 750,000	76,000	59	44,000 – 120,000
5–9 years	–	–	–	640,000	21	460,000 – 830,000	14,000	11	8,400 – 22,000
10–19 years	**250,000**	**59**	**150,000 – 360,000**	**1,800,000**	**60**	**1,100,000 – 2,500,000**	**38,000**	**29**	**21,000 – 63,000**
10–14 years	–	–	–	610,000	20	440,000 – 790,000	17,000	13	9,900 – 26,000
15–19 years	250,000	59	150,000 – 360,000	1,200,000	39	660,000 – 1,800,000	21,000	16	11,000 – 37,000
• Adolescent girls 15–19	170,000	39	97,000 – 240,000	720,000	24	360,000 – 1,100,000	10,000	8	4,500 – 19,000
• Adolescent boys 15–19	86,000	20	35,000 – 130,000	470,000	15	230,000 – 730,000	11,000	8	5,900 – 20,000
All children aged 0–19	**430,000**	**100**	**260,000 – 620,000**	**3,000,000**	**100**	**2,000,000 – 4,200,000**	**130,000**	**100**	**73,000 – 200,000**

Note: The estimates may not add up to the total due to rounding. Among children, HIV infections are assumed to occur before age 5 only through mother-to-child transmission and between ages 15–19 through sexual transmission.

Source: UNAIDS 2018 estimates.

Globally, most (59 per cent) of the 430,000 new HIV infections that occurred in children (0–19 years) in 2017 were in the adolescent age group (10–19), and of the 250,000 (150,000–360,000) infections acquired during adolescence, most (66 per cent) were among girls (*see Table 1.1*). Similarly, most (60 per cent) of the 3.0 million children living with HIV are adolescents, and of the 1.8 million (1.1–2.5 million) adolescents living with HIV, most (1.0 million) are girls.

If these patterns continue, AIDS will become even more of a 'woman's disease' in reality and perception, which could have regressive social, cultural and economic consequences for women and girls, as well as for efforts to reduce gender inequality.

The good news is that women are engaged in both seeking HIV care and support for themselves and providing it to others, including children and adolescents. Among people living with the virus in the most affected regions, women and girls are 24 per cent more likely than men and boys to know their HIV status and 39 per cent more likely to be accessing treatment.[3]

Kady Diarra (right), a community health mobilizer in Côte d'Ivoire, raises awareness about HIV, shares advice and connects individuals to services.

Their contact with antenatal care has made it possible for countries to provide antiretroviral therapy (ART) to most pregnant women living with HIV for their own health and to reduce the risk of passing on the infection to their children.

In 2010, just 17 per cent (14–22 per cent) of pregnant women living with HIV worldwide had access to lifelong ART. In 2017, an estimated 80 per cent (61–>95 per cent) had access, thereby improving their own health on a long-term basis and dramatically lowering the risk that their babies would be born

with the virus or contract it through breastfeeding (*see Panel: Child infections and deaths are falling*). Among the many beneficial effects of this dramatic improvement is that new HIV infections among children dropped by 35 per cent between 2010 and 2017.

Progress has been slower in preventing new HIV infections among adolescents globally, and among adolescent girls and young women in sub-Saharan Africa. Every hour, 19 adolescent girls are infected with HIV. Many factors make girls and young women particularly vulnerable to HIV, including early experience of gender-based violence, unsafe behaviours related to limited access to economic opportunities, and dropping out of school for a number of reasons, including teenage pregnancy. Improving HIV responses for adolescent girls and young women will make a huge difference in their well-being, in addition to reducing their HIV risk.

Even in regions with smaller shares of new HIV infections, the absolute numbers of HIV are often large. South Asia, for example, is home to 4 per cent of the world's children and adolescents living with HIV, yet that share represents 130,000 (86,000–190,000) individuals – one third the number of new infections estimated in 2017 globally for the age group.

These analyses indicate that the epidemic is clearly neither over nor close to being truly controlled. The progress in prevention of mother-to-child transmission (PMTCT), valuable as it is, could not prevent some 91,000 (53,000–140,000) children under the age of 10 from dying from AIDS-related causes in 2017. Most of those deaths would not have occurred if these children's mothers had had access to PMTCT services and been retained in treatment and care, and if the children had been diagnosed with HIV in a timely manner and had regular access to quality ART regimens. Most of the children living with HIV are in the adolescent age group, yet among 40 countries with available data, only 43 per cent of adolescents aged 10–19 received treatment in 2016.

Child infections and deaths are falling

It is one of the most significant achievements of the worldwide response to HIV and AIDS that the number of children newly infected with HIV each year has been steadily declining ever since 2000. The consistent decline overall is evident in Figure 1.1 – a 49 per cent fall over the period from 2000 to 2017. However, there is a clear distinction to be drawn between children infected by their mothers (broadly those in the 0–4 age group in the chart) and those largely infected through contact with the virus during adolescence (those aged 15–19).* Paediatric infections remained high after 2000 before falling more steeply than adolescent infections – the former declined by 58 per cent over the period while the latter fell by 40 per cent.

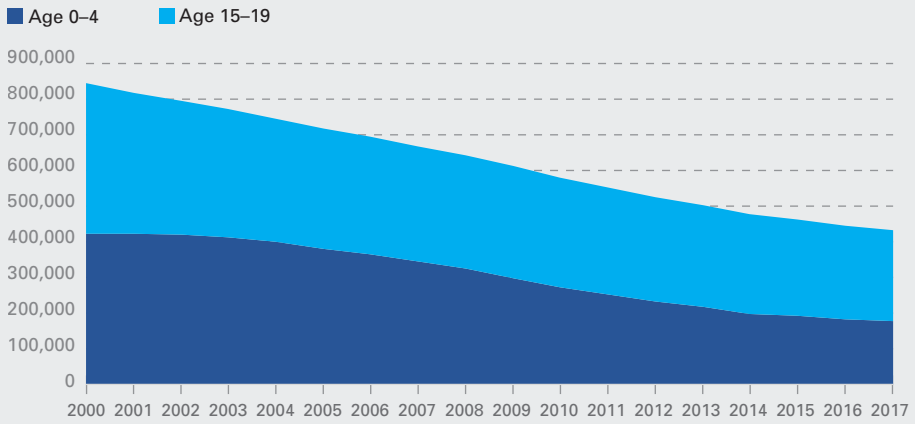
Figure 1.2 tracks the number of AIDS-related child deaths per year over the same period. The number of child deaths continued to rise until around 2005 before beginning to fall. Between 2000 and 2017, the reduction in the number of child deaths has been comparable to that in the number of new infections – a fall of 53 per cent. However, here the disparity between younger children and adolescents is stark. The number of deaths among children aged 0–9 has dropped by 65 per cent since 2000, but AIDS-related deaths among older children aged 10–19 have actually doubled as the number of children infected with HIV at birth aged into the adolescent age group. Only in the past few years has the annual number of adolescent deaths begun to fall, standing now around 17 per cent below the 2010 peak. Even among adult age groups, adolescents are the only population experiencing little reduction in the number of AIDS-related deaths.

As Figure 1.3 indicates, the overwhelming majority of children living with HIV – 87 per cent – are in sub-Saharan Africa, with 61 per cent in Eastern and Southern Africa. Of the remaining 13 per cent, about a third live in South Asia and about a quarter live in Latin America and the Caribbean.

* In Spectrum's AIDS Impact Model used by countries to estimate new HIV infections, all perinatal and post-natal infections are assumed to occur before age 5 and all sexually transmitted infections are assumed to occur after age 15. While some new infections may occur between ages 5 and 15, the numbers are negligible compared to national and global infection estimates. For consistency with other HIV indicators, UNICEF groups perinatal and post-natal infections in age group 0–9 and sexually transmitted infections in age group 10–19.

FIGURE 1.1

Number of annual new HIV infections among children, by age, 2000–2017

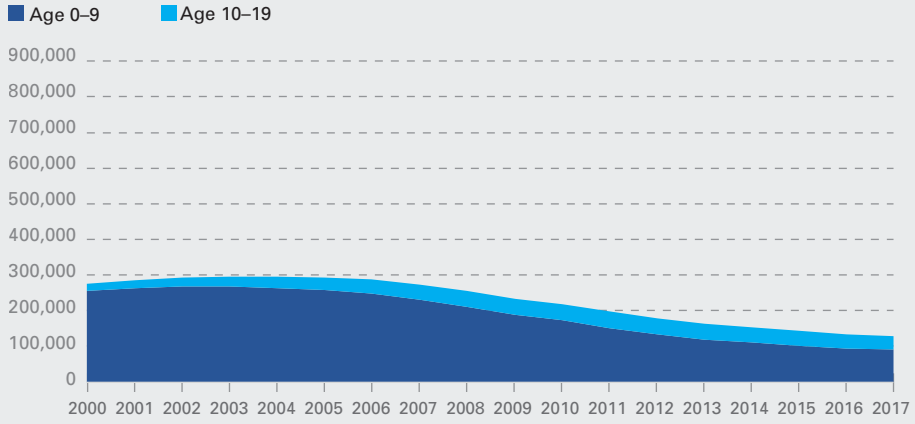


Note: In Spectrum's AIDS Impact Model used by countries to estimate new HIV infections, all perinatal and post-natal infections are assumed to occur before age 5 and all sexually transmitted infections are assumed to occur after age 15. While some new infections may occur between ages 5 and 15, the numbers are negligible compared to national and global infection estimates.

Source: UNAIDS 2018 estimates.

FIGURE 1.2

Number of annual AIDS-related deaths among children, by age, 2000–2017

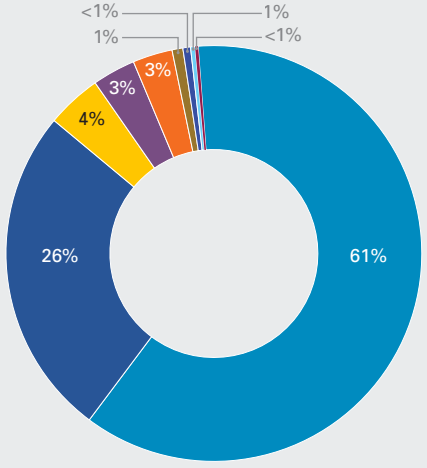


Source: UNAIDS 2018 estimates.

FIGURE 1.3

Number of children aged 0–19 living with HIV, by UNICEF region, 2017

Eastern and Southern Africa	1,900,000
West and Central Africa	780,000
South Asia	130,000
Latin America and the Caribbean	100,000
East Asia and the Pacific	93,000
North America	–
Western Europe	–
Eastern Europe and Central Asia	–
Middle East and North Africa	7,100



Globally, 3,000,000 children aged 0–19 are living with HIV.

Note: Data are not available for Eastern Europe and Central Asia, North America and Western Europe. Eastern and Southern Africa includes Sudan and Djibouti.

Source: UNAIDS 2018 estimates.

Ruslan, a seven-year-old boy living with HIV, attends regular medical consultations with his mother in Dushanbe, Tajikistan.

More intensive and aggressive efforts are needed to close these gaps to the benefit of all children and adolescents worldwide, but particularly girls. Similar efforts will help ensure that the remaining shortcomings in access to PMTCT services will be identified and addressed. Demographic trends in sub-Saharan Africa lend urgency to the need to act quickly and comprehensively. The region's child population (ages 0–19) is expected to increase by 26 per cent, from 560 million to 710 million, by 2030 (*see Panel: Child population shifts and HIV – the world in 2030*). Failure to improve on current trends could ultimately mean over 1 million children and adolescents dying from AIDS-related causes between 2018 and 2030.

Countries have already recognized the urgency, as indicated in the Start Free, Stay Free, AIDS Free framework inspired by and adopted just months after the June 2016 United Nations General Assembly High-Level Meeting on Ending AIDS. The 'Three Frees' guide the 'super-fast-track' targets set by UNAIDS, and supported by UNICEF, for the years 2018 and 2020, with the goal of ending AIDS among children, adolescents and young

Key 'super-fast-track' targets within the 'Three Frees' framework

Start Free:

- Eliminate new HIV infections among children (aged 0–14) by reducing the number of children newly infected annually to less than 40,000 by 2018 and 20,000 by 2020.
- Reach and sustain 95 per cent of pregnant women living with HIV with lifelong HIV treatment by 2018.

Source: Joint United Nations Programme on HIV/AIDS, United States President's Emergency Plan for AIDS Relief, 'A Super-Fast-Track Framework for Ending Aids in Children, Adolescents and Young Women by 2020', UNAIDS, <https://free.unaids.org>, accessed 16 June 2018.

women by 2030 (*see Box: Key 'super-fast-track' targets within the 'Three Frees' framework*).

The 'super-fast-track' targets are ambitious and according to UNICEF projections, they are unlikely to be met. For example, UNICEF estimates 160,000 new infections in children (aged 0–4) in 2020, against a target of 20,000. Even if not achieved, they signal continued and expanded attention to some of the most important gaps in HIV responses.

Future efforts should keep in mind the different ways in which women have long been exceptional. On the one hand, their exceptional contributions are exemplified in their collective involvement as carers, innovators, leaders and advocates from community through to global levels. On the other hand, women have been exceptionally vulnerable, as indicated by their disproportionate susceptibility to HIV and by the challenging gender-related barriers that lie behind this. Overcoming the latter depends on women's leadership being better recognized, supported and put to use more extensively and creatively in the next phases of the overall HIV response.

Just as women are at the heart of the epidemic, they are at the heart of the solution.

– Linda-Gail Bekker (page 74)

The centrality of women in realizing shared goals for better health and social outcomes for young children, adolescents and our entire communities is indisputable.

– Rebecca Matheson (page 92)

Stay Free:

- Reduce the number of new HIV infections among adolescents and young women (aged 10–24) to less than 100,000 by 2020.
- Provide voluntary medical circumcision for HIV prevention to 25 million additional men by 2020, with a focus on young men (aged 10–29).

AIDS Free

- Provide 1.6 million children (aged 0–14) and 1.2 million adolescents (aged 15–19) living with HIV with lifelong antiretroviral therapy by 2018. [Reach 95 per cent of all children living with HIV]
- Provide 1.4 million children (aged 0–14) and 1 million adolescents (aged 15–19) with lifelong HIV treatment by 2020. [Reach 95 per cent of all children living with HIV]

Child population shifts and HIV – the world in 2030

The world's child population (0–19 years) is projected to rise to approximately 2.7 billion by 2030, an increase of 5 per cent from its current level of 2.6 billion. Over that same period, if current trends in HIV incidence and coverage of antiretroviral therapy (ART) and prevention of mother-to-child transmission (PMTCT) continue at the same pace, the number of children living with HIV will consistently decline, as Figure 1.4 shows. But there are still expected to be 1.9 million children and adolescents living with HIV in 2030. This underlines the need to step up both prevention and treatment efforts if the goal of eliminating HIV in children is to be achieved by 2030.

The proportion of children living with HIV who are in the 10–19 age group will increase over the coming decades, from 57 per cent to 63 per cent as the number of new child infections decreases and those who were infected survive into the older age group. While there will be a 41 per cent reduction in the size of the 0–9 age group from 2018 to 2030, there will be only a 22 per cent reduction in those aged 10–19.

The demographic trends are particularly vital in relation to sub-Saharan Africa, where 87 per cent of children and adolescents living with HIV currently reside. The child population in sub-Saharan Africa is expected to grow from 580 million to 730 million, with a greater rise in the 10–19 age group (32 per cent) than in the 0–9 age group (22 per cent). The combination of child population growth, new HIV infections and increased survival among those living with HIV could result in a sustained population of children living with HIV who will require care and treatment in the coming decades. UNICEF is leading an analysis on what the demographic projections mean for the HIV response in particular regions.

New infections not declining fast enough

The numbers of future children living with HIV will partly be determined by the annual number of new HIV infections. Figure 1.5 reveals that new infections are declining at a significantly faster rate among young children than among adolescents. Based on current trends in HIV incidence, ART coverage and PMTCT coverage, the annual number of under-five HIV infections is expected to decrease by 45 per cent between 2018 and 2030. While this reduction is not occurring fast enough to reach the Start Free target, it is at least a sign that with targeted programmes and efforts to improve them, the elimination of HIV infections among children could be within reach.

The story is different for adolescents, since in many countries new infections have been decreasing too slowly or are even showing signs of increasing. Assuming continued scale-up of ART and PMTCT coverage, along with continued reductions in HIV incidence, new HIV infections among adolescents are projected to be reduced by 23 per cent between 2018 and 2030.

Based on these trends, the cumulative number of children and adolescents newly infected with HIV between 2018 and 2030 will be 3.7 million, most of whom will survive to adulthood and require adequate HIV care and treatment services.

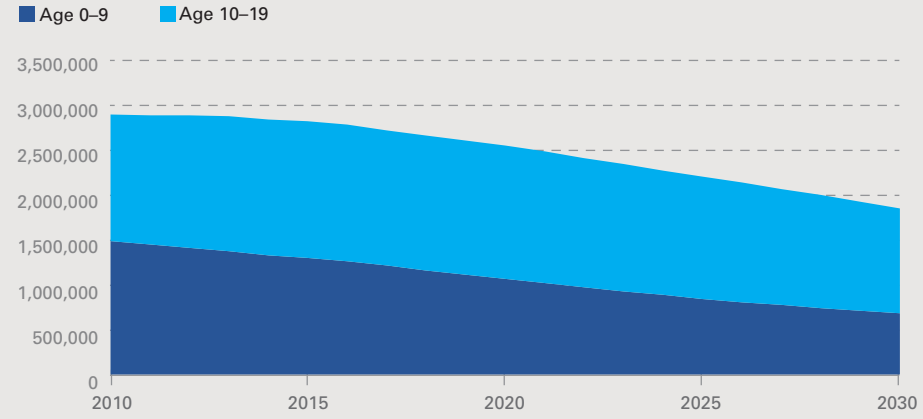
If 2030 global targets for PMTCT and ART coverage and reduction in new infections among adults are achieved, 1.4 million new HIV infections among children and adolescents will be prevented between 2018 and 2030.

Over 1 million deaths projected

If current trends continue, 1.2 million children and adolescents are projected to die from preventable AIDS-related causes between 2018 and 2030. Figure 1.6 reveals that 69 per cent of those dying will be children aged 0–9 even though deaths in this age group are expected to fall by 59 per cent over the whole period. Part of the reduction in deaths is accounted for by children living longer into adulthood, especially with the increases in ART coverage. If 2030 global targets are reached, 200,000 deaths among children and adolescents will be prevented between 2018 and 2030.

FIGURE 1.4

Estimated number of children and adolescents living with HIV, by age, 2010–2030

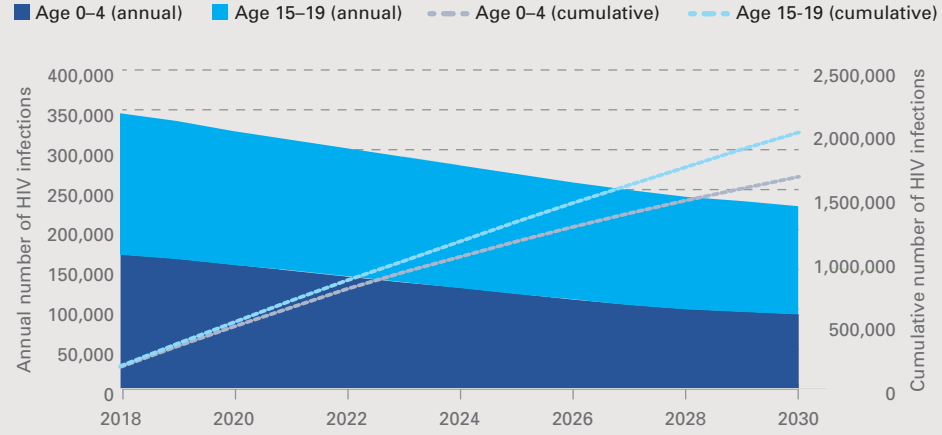


Note: This analysis represents 95 per cent of the global population and 99 per cent of people living with HIV. It was conducted using HIV estimates from 2017 and thus data for the years 2010–2016 will differ from other estimates presented in this report.

Source: UNICEF analysis of UNAIDS 2017 estimates.

FIGURE 1.5

Estimated number of new HIV infections among children and adolescents, by age, 2010–2030

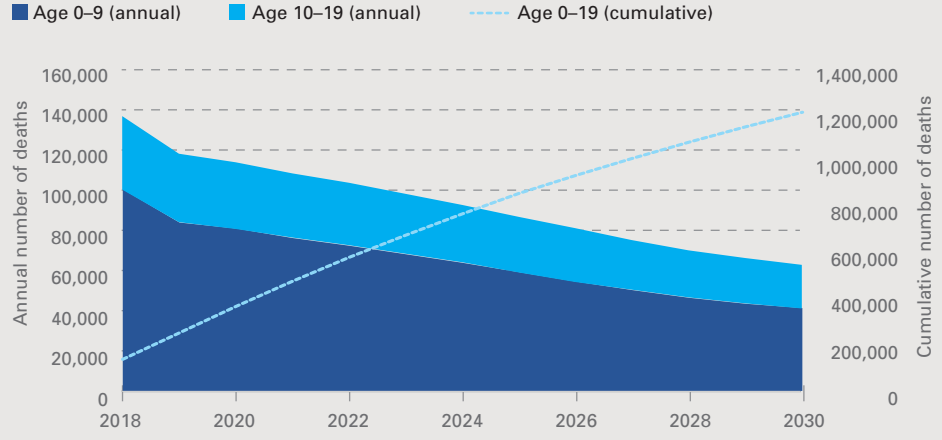


Note: This analysis represents 95 per cent of the global population and 99 per cent of people living with HIV. It was conducted using HIV estimates from 2017. In Spectrum's AIDS Impact Model used by countries to estimate new HIV infections, all perinatal and post-natal infections are assumed to occur before age 5 and all sexually transmitted infections are assumed to occur after age 15. While some new infections may occur between ages 5 and 15, the numbers are negligible compared to national and global infection estimates.

Source: UNICEF analysis of UNAIDS 2017 estimates.

FIGURE 1.6

Estimated number of AIDS-related deaths among children and adolescents, by age, 2018–2030



Note: This analysis represents 95 per cent of the global population and 99 per cent of people living with HIV. It was conducted using HIV estimates from 2017.

Source: UNICEF analysis of UNAIDS 2017 estimates.

MILESTONES in the HIV epidemic among children and adolescents

1981

United States Centers for Disease Control and Prevention (CDC) publishes the first mention of what is later determined to be HIV.

1983–1984

HIV is identified as the cause of AIDS. A blood test is developed to screen for the virus.

1985

Every region in the world has reported at least one case of AIDS. The United States Public Health Service issues the first recommendations for prevention of mother-to-child transmission (PMTCT).

1987

World Health Organization (WHO) launches the Global Programme on AIDS. The AIDS Support Organization (TASO) is established in Uganda.

1990

United States Food and Drug Administration approves use of zidovudine (AZT) to treat children with AIDS.

1992

International Community of Women Living with HIV (ICW) is established.

1995

1996

United Nations establishes UNAIDS, consisting originally of six agency co-sponsors collaborating to fight the AIDS epidemic.

Triple-combination treatment, the foundation of current antiretroviral therapy (ART), is shown to be highly effective and becomes widely prescribed in the developed world.

1998

Total number of women living with HIV/AIDS in sub-Saharan Africa surpasses that of men.

1999

WHO reports HIV/AIDS to be the leading cause of death in Africa, fourth in the world.

Uganda-United States study identifies a new drug regimen as an effective and affordable way to reduce mother-to-child transmission (MTCT) of HIV.

2000

United Nations adopts the Millennium Development Goals (MDGs), which include a specific goal to halt and begin to reverse the spread of HIV, malaria and tuberculosis.

2001

World Trade Organization adopts the Doha Declaration, allowing developing countries to manufacture generic medications to combat public health crises like HIV, thereby helping to reduce drug prices.

2002

The Global Fund to Fight AIDS, Tuberculosis and Malaria is founded in response to a United Nations General Assembly call for coordinated support to combat the spread of HIV.

2003

United States President George W. Bush launches PEPFAR (President's Emergency Plan for AIDS Relief).

WHO announces the '3 by 5' Initiative to bring HIV treatment to 3 million people by 2005.

UNICEF pilot finds PMTCT programmes feasible and acceptable in resource-limited settings.

2006

Unitaid is founded and begins funding efforts to provide countries with paediatric antiretroviral drugs (ARVs).

Male circumcision is found to reduce the risk of HIV transmission by up to 60 per cent.

2010

Malawi adopts Option B+, a protocol that recommends all pregnant women living with HIV initiate lifelong ART.

CAPRISA 004 trial shows that a microbicide gel reduces the risk of sexual transmission of HIV among women by almost 40 per cent.

United States National Institutes of Health study shows that pre-exposure prophylaxis (PrEP) reduces the risk of HIV infection.

2011

Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive is launched.

HPTN 052 trial results demonstrate that HIV treatment has significant prevention benefits.

2014

UNAIDS launches 90-90-90 targets and Fast-Track agenda aimed at averting 28 million new infections and ending the epidemic as a public health issue by 2030.

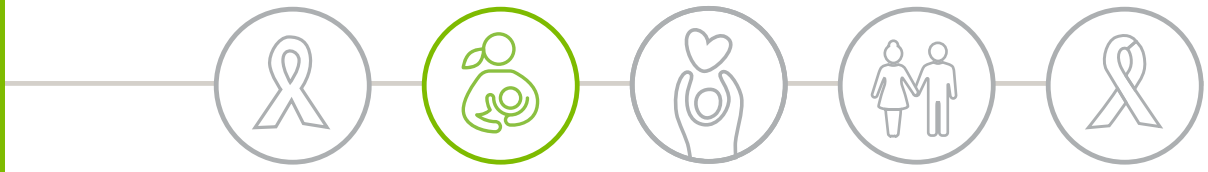
2015

One of the targets for MDG 6 to halt and reverse the spread of HIV is reached, as 15 million people are receiving ART. Cuba eliminates MTCT of HIV.

UNAIDS and Diagnostics Access Initiative negotiate a 40 per cent reduction in the global price ceiling for early infant diagnosis tests.

2016

UNAIDS and PEPFAR launch Start Free, Stay Free, AIDS Free.



2. Pregnancy and infancy

Ample evidence has accumulated since 1994 that providing antiretroviral drugs (ARVs) to pregnant women living with HIV is feasible in resource-limited settings and can greatly reduce the risk of transmitting the virus to their infants. Women all over the world are benefiting from these medicines. According to UNAIDS 2018 estimates, 80 per cent (61–>95 per cent) of pregnant women living with HIV received antiretrovirals for PMTCT in 2017.

The early push to expand PMTCT services where the needs are greatest started in 1999 when advocates, including the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), launched a call to action to expand PMTCT services in resource-limited settings. At the same time, UNICEF, under the leadership of Executive Director Carol Bellamy, launched pilot projects in 11 international sites to study the feasibility of introducing HIV services in antenatal care. Such steps helped to force the maker of zidovudine (AZT), the world's first drug approved to treat HIV, to cut its prices by 75 per cent for developing countries. In response, Botswana launched Africa's first programme to combat mother-to-child transmission (MTCT) with short-course AZT. A few years later, South Africa's Constitutional Court ruled in favour of a local civil society group's demands that the Government make another ARV, nevirapine, available countrywide to help prevent MTCT.

These demands and developments were based on evidence obtained through years of careful research and studies involving technical agencies, government agencies and research and academic institutions worldwide. Tens of thousands of women in dozens of countries volunteered to participate in clinical trials and other studies without any guarantee that they or their children would benefit. Without them, the pace and scope of improvement would have been much less advanced.

Lessons learned from the ongoing work of implementation have continued to guide improved PMTCT options for safeguarding the health and well-being of millions of pregnant women, mothers and their children over the past two decades. In 2002, the MTCT-Plus Initiative, the world's first multi-country HIV treatment programme, was launched at the 14th International AIDS Conference in Barcelona, Spain, under the leadership of Dr. Wafaa El-Sadr and Dr. Elaine Abrams of Columbia University in New York. As they write (*see page 72*): "MTCT-Plus was

A young mother and her son participate in a mothers2mothers programme at the Soshanguve Community Health Centre, Gauteng, South Africa.

designed to ensure that HIV-positive pregnant women identified through programmes for prevention of vertical transmission could access antiretroviral treatment for their own health, rather than solely to prevent HIV transmission to their babies." By 2010, ICAP, the implementer of the MTCT–Plus Initiative, had provided HIV care and treatment to more than 1 million people.[4]

The World Health Organization (WHO) published its first treatment guidelines for PMTCT in 2001 and continues to update them regularly to take new evidence into account. Over the years, the recommendations have evolved to widely expand eligibility and access. At one point, for example, the recommended PMTCT regimen, based on scientific evidence and cost considerations, was single-dose nevirapine administered to pregnant women living with HIV prior to giving birth and to their babies soon after birth. Today, all PMTCT clients are offered, immediately at diagnosis, treatment for life on the standard ART regimens specified in the country's HIV treatment protocol for people living with HIV. The most recently revised WHO treatment guidelines incorporate and expand the 'treat all' approach to cover all people living with HIV.

WHO, UNICEF and other partners have also concentrated on raising awareness and issuing guidance about both the HIV risks and the health benefits for children of being breastfed by women living with HIV. Prior to the wide-scale availability and use of ART for mothers living with HIV, WHO and UNICEF recommended, based on evidence, that mothers living with HIV exclusively breastfeed their infants for up to six months, unless replacement feeding was acceptable, feasible, affordable, sustainable and safe (AFASS). With lactating women now receiving lifelong ART, the recommendation currently is that they breastfeed for up to 24 months,

while receiving support to enable them to adhere to their medication, thus assuring sustained viral suppression to prevent transmission via breastmilk. These new guidelines have effectively 'normalized' ART-taking mothers living with HIV, because their recommended breastfeeding protocol is the same as that for all women.[5]

The guidance and advocacy of partners in the global HIV response for children did not begin to pay major dividends until a coordinated global initiative galvanized more tailored support to individual countries. The catalyst was the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive (Global Plan), which was launched in 2011 by UNAIDS and the United States President's Emergency Plan for AIDS Relief (PEPFAR), with support from UNICEF and other partners. By directing technical support and resources to costed elimination plans aligned to country-specific targets, the Global Plan's ambitious goals achieved impressive results. Twenty-one high-burden priority countries in sub-Saharan Africa reduced HIV infections among children by 32 per cent over the plan's five-year timespan.

Maintaining access for the 1.4 million (1.1–1.7 million) pregnant women living with HIV globally is critical to eliminating mother-to-child transmission of HIV around the world. Also needed are extra efforts to identify children who acquire HIV despite PMTCT efforts, as half of children who contracted HIV during pregnancy and delivery or through breastfeeding are not on ART. Even when diagnosed, many children are not started on ART because of systems challenges such as the limited availability of paediatric ARVs or the centralization of paediatric ART facilities far from where children and their caregivers live. PMTCT cannot be called an unqualified success until such deficiencies are addressed.

A midwife conducts an antenatal check-up for a pregnant woman in Koh Sam village, Sambo District, Cambodia.

TABLE 2.1

Estimates of women living with HIV, pregnant women living with HIV and HIV-infected infants, 2017

Age	HIV prevalence among women aged 15–49		Number of pregnant women living with HIV		Number of infants infected with HIV	
	Estimate	Low – high	Estimate	Low – high	Estimate	Low – high
Sub-Saharan Africa	5.0%	4.2% – 5.9%	1,300,000	960,000 – 1,600,000	130,000	82,000 – 200,000
Rest of the world	<0.1% – 0.4%	<0.1% – 0.5%	130,000	100,000 – 160,000	15,000	11,000 – 20,000
Global	**0.8%**	**0.7% – 1.0%**	**1,400,000**	**1,100,000 – 1,700,000**	**150,000**	**93,000 – 220,000**

Note: Due to rounding, estimates may not add up to the whole.
Source: UNAIDS 2018 estimates.

Prevention of mother-to-child transmission

The Global Plan's extraordinary impact was due in large part to its collaborative nature, with a wide range of partners focused on coordinating efforts. Women were critical to its development and implementation, whether they were leading or working for governments, civil society and community organizations, health-care facilities, donors or United Nations organizations such as UNAIDS, UNICEF, the United Nations Population Fund (UNFPA) and WHO. Some of these influential women were living with or otherwise directly affected by HIV, including advocates and experts from the International Community of Women Living with HIV (ICW) and the Global Network of People Living with HIV (GNP+), both of which have played essential roles in ensuring that the rights and needs of all women living with HIV are reflected in every aspect of the HIV response. These women offered valuable guidance based on their personal experiences and their contacts with peers who may have received PMTCT services at one point or might need them in the future.

Such contributions from women living with HIV have been influential in shaping PMTCT programming. For example, input from PMTCT clients and other women was instrumental in prompting policymakers and guideline-setters to concentrate on clients' convenience, their ease of access to services and the integration of PMTCT with other health services. In response to the growing demand for services and its impact on constrained health systems, task-shifting of HIV testing and treatment services allowed PMTCT to be scaled up and provided by nurses in antenatal care settings. Task-shifting typically was accompanied by decentralization, which brought services closer to most pregnant women. Providing HIV testing and ARVs for PMTCT at primary-health-care centres where pregnant women were already accessing care for themselves and their children was instrumental in increasing ARV coverage among pregnant women.

The collective results speak for themselves. Since 2010, 7 of the 22 high-priority countries in the Global Plan (21 in sub-Saharan Africa plus India)[6] reduced new HIV infections among children by more than 50 per cent (the Democratic Republic of the Congo, Eswatini [formerly Swaziland], India, Malawi, Namibia, Uganda and Zimbabwe). Most of the other 15 countries reported notable reductions in new HIV infections among children. However, only a handful of countries and territories had been validated by WHO as having achieved elimination by 2017, starting with Cuba in 2015, and none of them are the high-burden countries in Africa.[7]

The year after the Global Plan ended, several of the same partners that collaborated on it were involved in the conceptualization and launch of the Start Free, Stay Free, AIDS Free ('Three Frees') framework in 2016. Its Start Free pillar aims to maintain and even hasten momentum towards the elimination of mother-to-child transmission (EMTCT) goal, with a focus on 23 priority countries (the Global Plan high-priority countries plus Indonesia).[8] According to UNAIDS 2018 estimates, four of these priority countries (Namibia, South Africa, Uganda and Zimbabwe) already met the treatment target of 95 per cent ART coverage among pregnant women living with HIV in 2018, and two (Botswana and South Africa) had reduced their MTCT rates to 5 per cent (although Namibia and Zimbabwe were not far behind; *see Panel: Progress towards eliminating mother-to-child transmission)*. Despite the extraordinary progress in these countries, the sheer size of their epidemic in women means that the absolute numbers of new infections in children continue to be substantial.

These shortfalls highlight the need to continue support to PMTCT programmes and to improve their quality and effectiveness. PMTCT quality relies on improving HIV prevention information and services for HIV-negative pregnant women, as well as for breastfeeding women and their partners, and offering HIV testing multiple times for women who previously tested negative (throughout pregnancy and during breastfeeding).

Although a marked reduction in MTCT rates is in sight, substantial efforts are still required to achieve elimination of new infections in children. For one thing, meeting guideposts such as WHO's EMTCT validation criteria and Start Free targets could be jeopardized or reversed if, for example, pregnant women living with HIV do not know their status, if pregnant women and mothers receiving ART are not retained in care and do not adhere to their medications, or if women who were HIV-negative acquire infection during pregnancy and breastfeeding. One fifth of the world's pregnant and breastfeeding women in need of ART are still not receiving it, leaving a significant proportion of children at risk of acquiring HIV.

Progress towards eliminating mother-to-child transmission

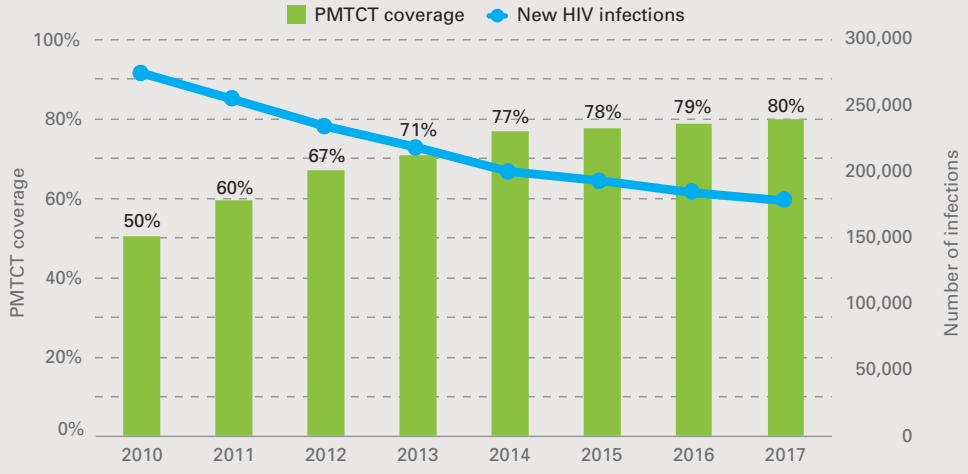
Since 2010, progress in preventing mother-to-child transmission of HIV has been particularly dramatic, as Figure 2.1 shows. Worldwide, the percentage of pregnant women with HIV who are taking antiretroviral drugs to keep them from passing the virus on to their babies went up from 51 per cent (38–62 per cent) in 2010 to 80 per cent (61–>95 per cent) in 2017 – an increase of 59 per cent over the period. This resulted in a decline of 35 per cent in the number of children aged 0–4 newly infected with HIV between 2010 and 2017. That amount of progress is impressive but, as the chart indicates, 180,000 (110,000–260,000) children aged 0–4 still became infected with HIV during 2017. The Start Free, Stay Free, AIDS Free partnership framework aims to move 23 high-priority countries towards the elimination of mother-to-child transmission, which is considered as having been reached when the MTCT rate falls below 5 per cent and the rate of new infections is below 50 per 100,000 live births.

Figure 2.2 reveals that progress in the 23 priority countries with available data has been much faster and more effective in some than in others. Only two countries – Botswana and South Africa – have achieved a final MTCT rate of 5 per cent. In South Africa, at least 95 per cent (82–>95 per cent) of pregnant women living with HIV are on effective regimens to protect their babies. However, in Botswana just 90 per cent (79–>95 per cent) of pregnant women living with HIV were on effective regimens in 2017. Other priority countries such as Angola, Indonesia and Nigeria remain a very long way from the goal.

Under the Option B+ protocol, pregnant women living with HIV are immediately offered ART for life regardless of their CD4 cell count or clinical disease status. Since the release of Option B+ guidelines by the World Health Organization in 2012 established it as the preferred option, the global scale-up of this lifelong ART regimen has been impressive (Figure 2.3). In 2017, 80 per cent (61–>95 per cent) of pregnant women living with HIV were benefiting from Option B+, compared to just 17 per cent (14–22 per cent) in 2010. Today, less effective regimens like Option A and dual ARVs make up less than 0.5 per cent of regimens used for PMTCT.

FIGURE 2.1

Percentage of pregnant women living with HIV who were on effective regimens to prevent mother-to-child transmission and number of new paediatric HIV infections, 2010–2017

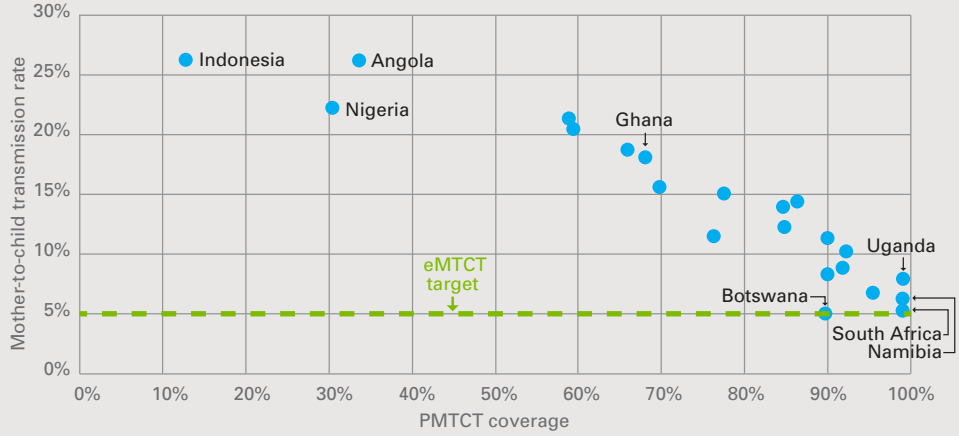


Note: PMTCT coverage includes all effective regimens for prevention of mother-to-child transmission (excluding single-dose nevirapine).

Sources: Global AIDS Monitoring 2018 and UNAIDS 2018 estimates.

FIGURE 2.2

Percentage of pregnant women living with HIV who received effective regimens to prevent mother-to-child transmission and transmission rate, Start Free priority countries, 2017

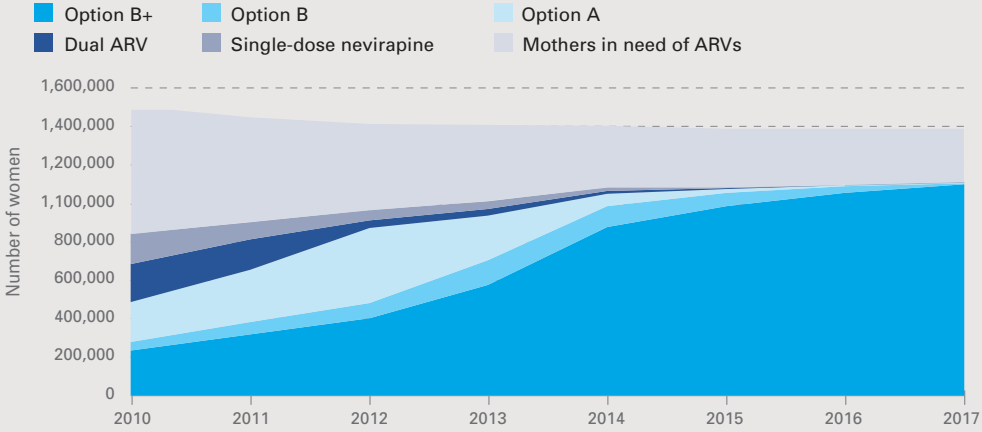


Note: Data are not available for India.

Sources: Global AIDS Monitoring 2018 and UNAIDS 2018 estimates.

FIGURE 2.3

Distribution of regimens for prevention of mother-to-child transmission, 2010–2017



Sources: Global AIDS Monitoring 2018 and UNAIDS 2018 estimates.

Retention in care is a concern, as indicated by several studies showing that pregnant and breastfeeding women on ART are retained at a lower rate than the overall adult population.[9-12] One study found that among countries with data for follow-up at one year or longer, the 12-month rate of retention for the PMTCT-specific population was 76 per cent.[13] Among the numerous concerns raised by these relatively low rates is that many women are not being retained on ART from one pregnancy to another, thereby raising the risk of transmitting the virus to future children.

This 'mentor mothers' approach epitomizes the unique opportunities and value of women-provided care and support at the community level.

Such gaps are a particular concern for high-burden countries in sub-Saharan Africa, which in 2017 was home to 91 per cent of the world's pregnant women living with HIV and 91 per cent of infants newly infected. They also underscore the fact that simply initiating pregnant women on lifelong ART (Option B+) is not enough on its own to achieve and sustain elimination.

Retention in care relies on both programmatic and behavioural factors, including the consistent availability of medicines (often a supply chain issue), adherence support (often best offered by community-based peers) and linkages to psychosocial and economic support. Among other things, quality care includes: monitoring the viral load of mothers on ART; repeat HIV testing of previously negative mothers; access to sexual and reproductive health and rights (SRHR) services, including family planning; and support services in the areas of nutrition, stigma reduction and gender-based violence.

One approach often used to help boost adherence and retention among pregnant and breastfeeding women on ART is to link a newly initiated woman with a peer who has been on ART longer and has been trained to provide information, advice and support on a regular basis, and who will also accompany her on clinic visits. This 'mentor mother' approach epitomizes the unique opportunities and value of women-provided care and support at the community level. In Malawi, which in 2011 became the first country to introduce Option B+, such mentoring under the mothers2mothers programme expanded substantially after the new treatment protocol took effect and is considered to have made a major contribution towards raising ART coverage among the country's pregnant women to 92 per cent (75–>95), according to UNAIDS 2018 estimates, and to 98 per cent, according to the recent Population-based HIV Impact Assessment (*see Panel: Reaching all pregnant women*).

Community-based organizations that are set up and run largely by and for women living with or vulnerable to HIV have a long history of influential support for PMTCT outcomes. Findings from surveys and reports focusing on clients' experiences and needs underline the value of such community-based services as community drug distribution points, village health teams and community volunteers.[14] Some groups, such as ICW, seek to strengthen resource-sharing and advocacy efforts globally, nationally and locally to protect the rights of women living with HIV and help them make informed choices about their care.

The urgent need for targeted prevention interventions, including pre-exposure prophylaxis (PrEP) in HIV-negative pregnant and breastfeeding women and treatment of HIV-positive spouses of HIV-negative women, stems from evidence that recent HIV infection carries a much higher risk of vertical transmission and that pregnant women are at heightened risk of HIV infection due to hormonal changes and biological factors.[15,16] This risk may even be higher during breastfeeding, judging from evidence showing that female HIV acquisition per sex act is elevated in late pregnancy and post-partum.[17] Unless programming investments are refocused to address adherence and reduce infections in pregnant and lactating women, the

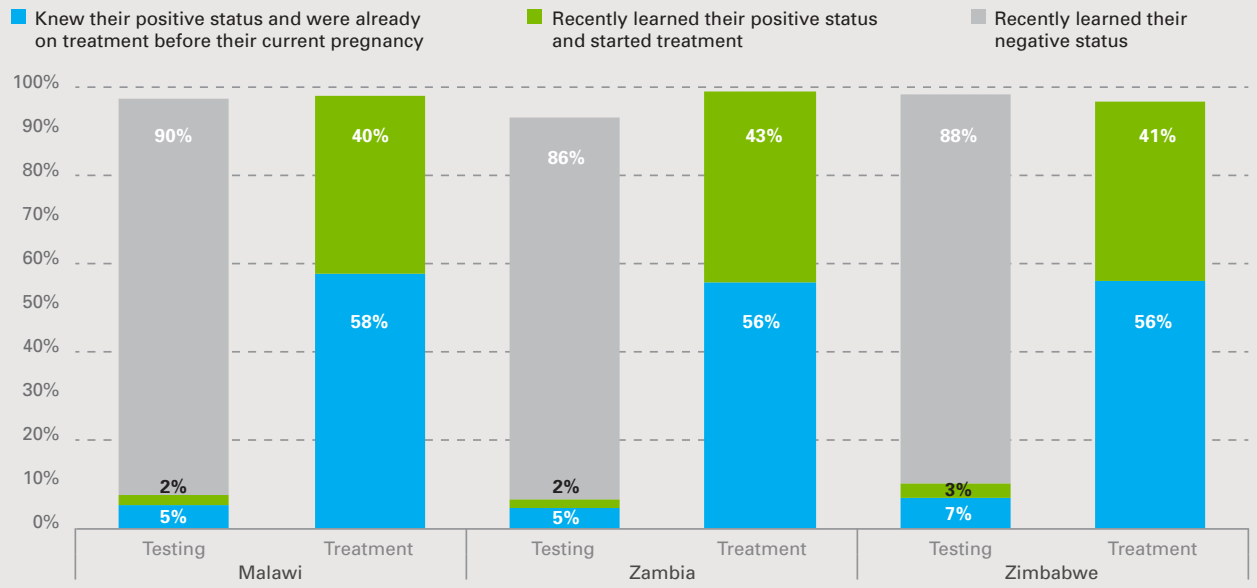
Reaching all pregnant women

In no country can it be assumed that all pregnant women know their HIV status. Yet if a woman is living with HIV, it is essential for her to know as soon as possible and begin treatment that will prevent transmission of the virus to her baby and keep her healthy. Population-based HIV Impact Assessments (PHIA) from Malawi, Zambia and Zimbabwe in 2016 revealed that, respectively, 97 per cent, 93 per cent and 98 per cent of pregnant women reported knowing their HIV status (whether positive or negative) – indicating encouragingly high levels of testing in this vital target group. In both Malawi and Zambia, 7 per cent of pregnant women knew their HIV-positive status, while in Zimbabwe 10 per cent did. In all three countries, about 70 per cent of the women living with HIV already knew this before their current pregnancy.

In 2012, WHO released global guidance on Option B+. Since then, lifelong ART coverage (excluding the less effective regimens) among pregnant women living with HIV worldwide has increased from 29 per cent (24–39 per cent) to 80 per cent (61–>95 per cent) globally and from 35 per cent (30–45 per cent) to 93 per cent (72–>95 per cent) in Eastern and Southern Africa. In countries with available PHIA data, however, self-reported ART coverage was much higher: 97 per cent in Zimbabwe, 98 per cent in Malawi and 99 per cent in Zambia. As Option B+ and adult ART programmes are rolled out, more and more women living with HIV will already be on treatment before they become pregnant, reducing the probability of transmission to their children from about 2.0 per cent to 0.2 per cent. By 2016, in the three countries surveyed, between 56 per cent and 58 per cent of pregnant women on ART were already being treated before their current pregnancy. In the context of Option B+, retention of women who started ART in previous pregnancies is vital.

FIGURE 2.4

Percentage of pregnant women who were tested for HIV or know their status and percentage of pregnant women living with HIV who are on ARVs, by the time of known positive status and time of treatment, Malawi, Zambia and Zimbabwe, 2016



Note: Denominator is all women aged 15–49 who delivered in the past 12 months.
Source: Population-based HIV Impact Assessments 2015–2016.

ambitious Start Free targets of reducing the number of children newly infected annually to less than 40,000 by 2018 and 20,000 by 2020 almost certainly will be missed by a wide margin.[18]

Infant testing, care and treatment

Early infant diagnosis and linkage to treatment for children living with HIV has long been an integral component of PMTCT programmes. Yet, the effectiveness of HIV responses relevant to infants and children under 5 is mixed. An estimated 580,000 (420,000–750,000) children under the age of 5 worldwide were living with HIV in 2017. That number would have been much higher in the absence of the rapid expansion of PMTCT services and improved access to ART among pregnant and breastfeeding women living with HIV in recent years. These factors largely explain the 35 per cent decrease in the number of new HIV infections and 48 per cent decrease in the number of AIDS-related deaths globally among children under the age of 5 since 2010 (*see Panel: Saving the under-fives*).

Despite these sharp drops in new infections, an estimated 150,000 (93,000–220,000) infants were newly infected with HIV in 2017. Of these, 90 per cent were born in sub-Saharan Africa. An additional 28,000 (18,000–39,000) children are estimated to have been newly infected after their first birthday, a result due mainly to disruption in ART adherence in breastfeeding mothers living with HIV and transmission occurring through untreated, newly acquired HIV in breastfeeding mothers who previously were HIV-negative. Of the 180,000 (110,000–260,000) young children newly infected with HIV in 2017, an estimated 53 per cent acquired the virus in utero or during delivery, while 47 per cent acquired HIV during breastfeeding.

Children are uniquely vulnerable to rapid HIV disease progression, and reports have highlighted the associated high mortality in children without access to ART: 30 per cent dying before their first birthday, 50 per cent by the age of 2 and 80 per cent by the age of 5.[19] Mortality risk among children living with HIV remains evident as a result of inequity in treatment access for children overall and across the different age bands. Globally, in 2017, of the 130,000 (73,000–200,000) children who died from AIDS-related causes, 91,000 (53,000–140,000) were under the age of 10 and 76,000 (44,000–120,000) were under the age of 5.

TABLE 2.2

New HIV infections and number of children under age 5 living with HIV, 2017

Age	Number of new HIV infections		Number of children living with HIV	
	Estimate	Low – high	Estimate	Low – high
Infants under age 1	150,000	93,000 – 220,000	110,000	70,000 – 170,000
Children aged 1–4	28,000	18,000 – 39,000	460,000	310,000 – 650,000
All children aged 0–4	**180,000**	**110,000 – 260,000**	**580,000**	**420,000 – 750,000**

Note: Due to rounding, estimates may not add up to the whole. Most infections occurring before the age of 1 are assumed to occur from infection during pregnancy or delivery, while infections occurring in children after the age of 1 are assumed to occur from breastfeeding. However, some infants under age 1 may be infected during breastfeeding.

Source: UNAIDS 2018 estimates.

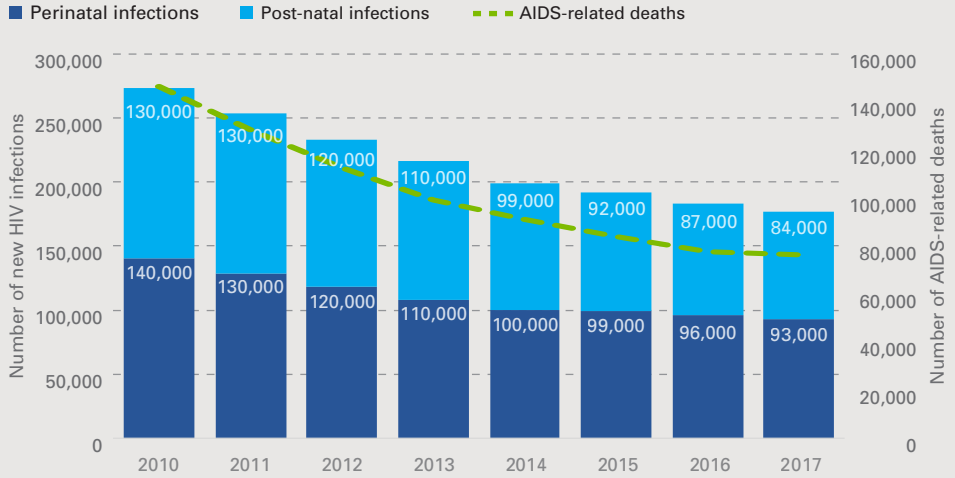
Saving the under-fives

In 2017, 180,000 (110,000–260,000) children under five were infected with HIV – one third less than the number who were infected with HIV in 2010. About 53 per cent of these infants were infected perinatally during pregnancy or delivery while 47 per cent were infected post-natally during breastfeeding. Since 2010, progress in reducing post-natal infections (a reduction of 37 per cent) has been slightly more successful than progress in reducing perinatal infections (34 per cent reduction). Still, in 2017, the overall rate of transmission of HIV from mother to child was 13 per cent (10–15 per cent).

The number of AIDS-related deaths has also been substantially reduced for children under age 5. In 2017, 76,000 (44,000–120,000) children under age 5 died from AIDS-related causes – half the number who died in 2010.

FIGURE 2.5

Number of new HIV infections by type of transmission and AIDS-related deaths among children under age 5, 2010–2017



Note: Perinatal infections include all infants who acquire HIV infection within six weeks of birth, as some infants infected during pregnancy or delivery seroconvert days later.

Source: UNAIDS 2018 estimates.

With ART, most of these deaths are preventable.[20] But HIV must be diagnosed before ART can be initiated, and neither of these actions always happens quickly and consistently. Data show that infants born to mothers with HIV are being tested with greater frequency. Recent PHIA data from Malawi, Zambia and Zimbabwe, for example, indicate that around 80 per cent of infants born to mothers living with HIV are tested before their first birthday. While such results are impressive, only about half of babies were tested early, within two months of birth (*see Panel: Fewer than half of all babies are tested early enough*).

WHO guidelines recommend early infant diagnosis (EID) – at 6 weeks or as soon as possible thereafter – for all children born to mothers living with HIV. Globally, though, just 51 per cent (41–67 per cent) were tested within this time frame in 2017. Regional and national variations are extensive. EID coverage was 62 per cent (53–80 per cent) in the world's highest-burden region, Eastern and Southern Africa, but it was just 21 per cent (16–31 per cent) in West and Central Africa, the region with the second-greatest burden.

Relatively limited progress in EID uptake stems in part from logistical, programmatic and technological complexities related to an infant diagnostic test, such as the need to send samples to specialized national or regional laboratories with the technical expertise to do the test and then ensure that results are returned to infants' mothers and health providers quickly. Policy shifts are likely needed in most countries to get beyond such challenges. Some countries transporting

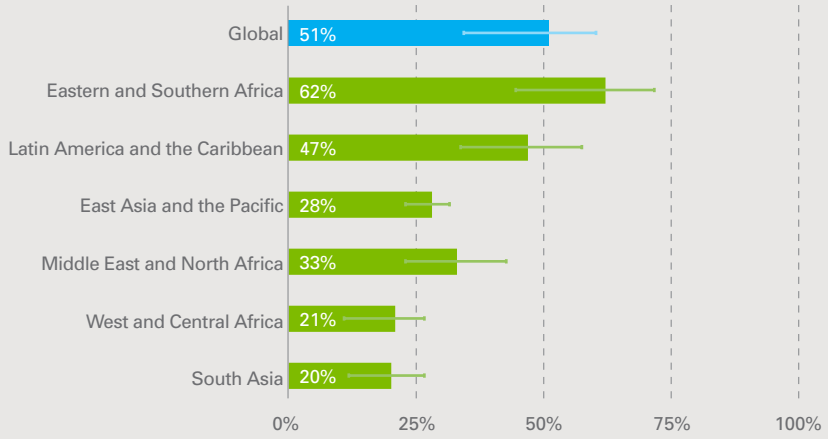
Fewer than half of all babies are tested early enough

Around 51 per cent (41–67 per cent) of infants born to mothers living with HIV (HIV-exposed infants) are tested for the virus in their first two months of life. This means that around half of the babies at risk of HIV infection are still not being tested early enough to curb the early mortality observed with vertically acquired infection, if they are tested at all. In Eastern and Southern Africa, 62 per cent (53–80 per cent) of exposed infants were tested for HIV within two months of birth. In all other regions with available data, less than 50 per cent of infants receive a timely test (Figure 2.6).

According to PHIA data from Malawi, Zambia and Zimbabwe, around 80 per cent of infants are tested for HIV before their first birthday, but only between 49 per cent and 58 per cent are tested within two months of birth (Figure 2.7). Early testing – and early initiation of treatment – is vital if unnecessary deaths are to be prevented.

FIGURE 2.6

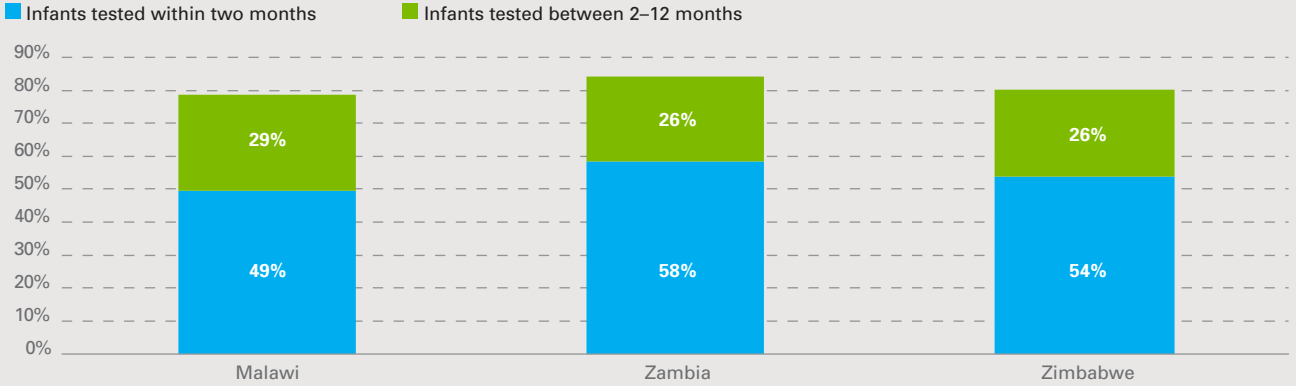
Percentage of infants born to HIV-positive mothers who were tested for HIV within two months of birth, by region, 2017



Note: Data are not available for Eastern Europe and Central Asia, North America and Western Europe.
Sources: Global AIDS Monitoring 2018 and UNAIDS 2018 estimates.

FIGURE 2.7

Percentage of infants born to HIV-positive mothers who were tested for HIV, by time of testing, Malawi, Zambia and Zimbabwe, 2016



Note: Denominator is all infants born to HIV-positive women aged 15–49 years who delivered in the past 36 months.
Sources: Population-based HIV Impact Assessments 2016–2017.

blood samples have adopted the collection of dry blood spots and the use of Short Message Service (SMS) for transmission of results, but there are still significant delays in turnaround time between the test and the receipt of results.

One promising approach is to prioritize the use of innovative point-of-care (POC) EID testing, which can be deployed to lower-level facilities and delivers results soon after testing. Confirmation is still necessary, but a positive POC result can prompt rapid initiation on ART while the confirmatory result is pending. Unitaid has been leading collaborative efforts to introduce and roll out POC infant diagnostic testing with UNICEF and other partners, including EGPAF, the Clinton Health Access Initiative (CHAI) and the African Society of Laboratory Medicine.

EID merits the extra attention it has recently been getting from policymakers, technical agencies and health-care providers. But it is only one piece of the infant-mother-HIV puzzle. About 84,000 (40,000–150,000) children acquired HIV post-natally *(see Panel: Saving the under-fives*), so a single test in infancy, at 6 to 8 weeks, might miss the HIV infection. To reduce this risk, strong and consistent efforts are needed to support mothers in remaining HIV-negative and adhering to their ART regimens not only for their own health, but for that of their babies. In addition, children born to HIV-positive mothers should be regularly tested for the virus until they have a final diagnosis, which can be obtained six weeks after the cessation of breastfeeding or at 18 months of age, whichever is later.

Both adherence among mothers and regular testing for infants are indicators of successful retention in care. Responsibility for preventing mothers from dropping out of care and trying to find them when they are missing is typically taken on by women who are serving as community health workers or are members of peer support groups in clinics and communities, and intensification of such outreach in most settings is also primarily undertaken and led by women.

Delays and failure to provide infants with treatment remain common, nearly three years after the release of revised WHO treatment guidelines recommending that all individuals, including children, diagnosed with HIV be initiated immediately on ART regardless of clinical or immunological status. Solutions must come from two sources: providers and family members or guardians. Health-care workers across the overall sector, including those working in maternal and child health facilities, should be trained and supported so they can refer and guide children's caregivers to treatment services and additional support. The caregivers, in turn, must receive support and sufficient information about all aspects of children's HIV treatment and must be made to understand that, given the young age of their charges, they are likely to be directly responsible for adherence for many years.

Driving and reflecting advancements in HIV research

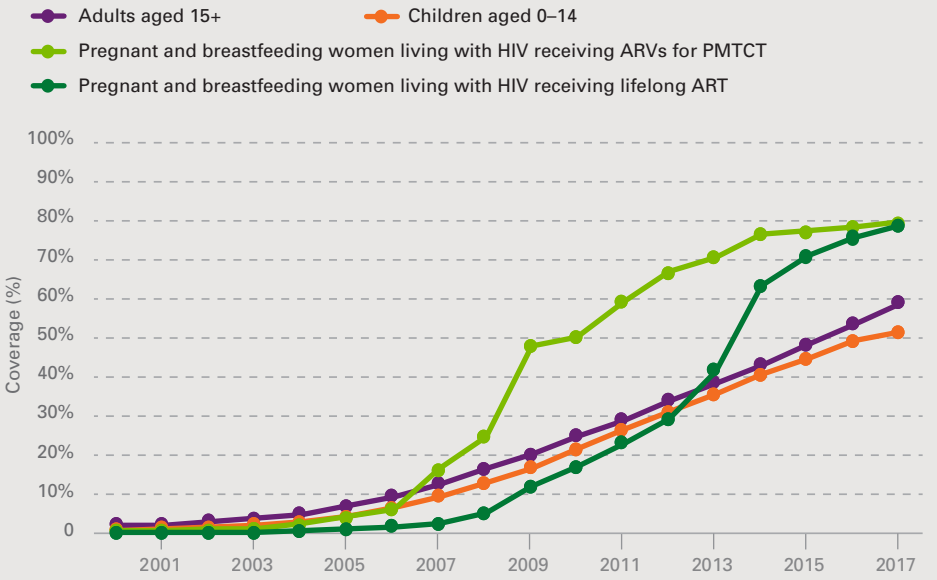
Recommendations set by the World Health Organization have a significant influence on the HIV response. The agency has played a critical role over more than three decades in establishing and revising guidelines on prevention of mother-to-child transmission (PMTCT) and paediatric and adolescent treatment that reflect the latest science and offer guidance that is framed within a public health approach.

For all populations across the first and second decades of life, treatment criteria gradually expanded as evidence emerged that early initiation of ART was safe, prolonged the lives of women and infants with HIV and was more effective at prevention of transmission than the use of prophylaxis. For PMTCT, for example, the guidelines transitioned from single-dose nevirapine (NVP) for prophylaxis to multiple ARVs to the mother and infant over the course of pregnancy and breastfeeding and finally to treatment with one pill, once a day, for life. For paediatric treatment, the recommended age at which to begin treatment gradually increased to eventually include all children living with HIV, regardless of age or whether they are symptomatic.

FIGURE 2.8

HIV treatment coverage by population, 2000–2017

As WHO refined and expanded eligibility criteria for starting ART, HIV treatment coverage for pregnant and breastfeeding women and children living with HIV notably increased.



Note: Adolescents aged 15–19 are included in the 'Adults aged 15+' population group.

Sources: UNAIDS 2018 estimates and Global AIDS Monitoring 2018.

PMTCT guidelines, including infant feeding

2001: Four weeks of either AZT, AZT/3TC or single-dose nevirapine for PMTCT.

2004: Combination AZT from 28 weeks gestation plus single-dose NVP for women for PMTCT and combination non-nucleoside reverse transcriptase inhibitor (NNRTI)-based ART for women who require treatment based on a CD4 count less than 200 or on WHO staging criteria.

2006: Addition of AZT/3TC 'tail' (drug given at the end of the course to make it more efficacious) to short-course AZT plus single-dose NVP for PMTCT in women who are asymptomatic. ART eligibility threshold raised to CD4 <350 cells/mm3.

2007: Replacement feeding if 'AFASS' (acceptable, feasible, affordable, sustainable and safe) or exclusive breastfeeding for six months followed by rapid weaning.

2009: For the first time, ARVs recommended for either mothers or their infants to prevent transmission of HIV during breastfeeding.

2010: Multi-drug ARVs and prophylaxis while breastfeeding, with single-dose NVP no longer recommended.

2010: Exclusive breastfeeding while on ARVs for 6 months and continued breastfeeding for 12 months. Weaning if nutritionally adequate diet is available or avoidance of all breastfeeding, according to national guidelines.

2012: Option B+, which recommends lifelong ART for all pregnant and breastfeeding women living with HIV regardless of CD4 count, is introduced. Options for programmes that chose not to implement option B+ include triple ARVs at 14 weeks gestation continued through childbirth and breastfeeding (Option B) or AZT/single-dose NVP with tail followed by prophylaxis to the infant (Option A).

2013: Immediate initiation of ART for life following HIV diagnosis recommended regardless of clinical or immunological status for pregnant and breastfeeding women only.

2016: Immediate initiation of ART for life following HIV diagnosis recommended for all people regardless of clinical or immunological status.

2016: If a woman is on ART, at least 12 months of breastfeeding is recommended and may continue up to 24 months or longer (similar to mothers without HIV).

2017: Data show safety and efficacy of PrEP in pregnant and breastfeeding women and that it could be considered part of a comprehensive prevention package.

Paediatric and adolescent care and treatment guidelines

2002: Treatment recommended for children with HIV whose status has progressed to AIDS and for children without AIDS based on their CD4 count; presumptive treatment for HIV-seropositive infants with signs of advanced HIV disease. Treatment is not recommended if CD4 is not available and there are no AIDS symptoms. NNRTI-based ART or triple-NRTI ART recommended.

2006: Stand-alone guidelines for children included infant diagnosis recommendations, treatment for all symptomatic children and NNRTI-based ART for all ages.

2007: 'Provider-initiated' HIV testing in health-care settings recommended.

2008: Treatment recommended for all children under 12 months with confirmed HIV; for those 12 months and older, treatment initiated based on age-based clinical or immunological criteria. For children under 18 months without confirmed HIV infection, presumptive treatment based on HIV-seropositivity and evidence of severe HIV disease. NNRTI-based ART unless infant has exposure to NVP for PMTCT, in which case protease inhibitor-based (PI-based) ART is recommended.

2010: Treatment recommended for children under 2 years immediately upon diagnosis, and for children older than 2 years based on age-related CD4 count (below 350 if younger than age 5). Treatment for infants exposed to NVP for PMTCT is lopinavir/ritonavir-based (LPV/r-based) ART; for others, NNRTI-based ART.

2010–2011: Treatment of children under age 3 with LPV/r-based ART.

2013: Consolidated treatment guidelines recommend treatment for all children under age 5 regardless of clinical or immune status, with first-line ART being LPV/r-based for children under age 3 and NNRTI-based for those 3 years or older.

2013: First-ever guidelines addressing the specific needs of adolescents living with HIV published.

2016: Treatment recommended for all HIV-infected individuals, including children, regardless of clinical or immune status.

MILESTONES in the prevention of mother-to-child transmission

1982

First case of paediatric AIDS reported to the CDC, 18 months after first report in adults.

1986

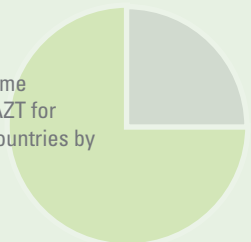
First report of post-natal transmission of HIV through breastfeeding. First reports of paediatric HIV in Africa from Jonathan Mann.

1994

PACTG 076 (Pediatric AIDS Clinical Trials Group Protocol 076) trial to administer AZT prophylaxis for PMTCT in the United States and France is so effective that it is stopped early, but a WHO consultation concludes that AZT cannot effectively be implemented in resource-limited settings.

1998

Glaxo Wellcome cuts cost of AZT for developing countries by 75 per cent.



1999

Efficacy of short-course AZT to reduce transmission demonstrated, but loss of efficacy seen over time in breastfeeding population.

Botswana launches Africa's first programme to combat MTCT with short-course AZT.

HIVNET 012 study demonstrates efficacy of single-dose nevirapine (NVP) in reducing MTCT by almost half.

Elizabeth Glaser Pediatric AIDS Foundation launches Call to Action project to expand PMTCT services to resource-limited settings.

UNICEF starts pilot projects in 11 countries to test feasibility of introducing PMTCT services in antenatal care clinics in resource-constrained settings.

2000

AZT with longer duration is found to be more effective than short-course AZT regimens in reducing MTCT in Thailand.

2001

Treatment Action Campaign in South Africa demands that the Government make NVP more widely available for PMTCT use; subsequent court order prompts setting up of national PMTCT programme.

1990 1995 2000

2011

Kesho Bora study shows that triple-combination ART during pregnancy and six months of breastfeeding is superior to short-course AZT and single-dose NVP for PMTCT.

Kisumu study shows that maternal ART post-partum reduces transmission via breastmilk; however, if maternal ART stops, breastfeeding transmission can still occur.

Malawi implements lifelong ART for all pregnant HIV-infected women (Option B+). PEPFAR and UNAIDS launch Global Plan.

2018

PROMISE trial demonstrates that post-natal transmission rates of HIV via breastmilk are similarly low with maternal ART or infant NVP, with safety of both given through 18 months post-partum.

2016

Point-of-care testing for early infant diagnosis begins to be made available, supported with Unitaid funding.

PROMISE (Promoting Maternal and Infant Survival Everywhere) trial demonstrates that ART during pregnancy results in significantly lower MTCT than dual therapy.

WHO validates elimination of MTCT of HIV in Armenia, Belarus and Thailand, one year after Cuba.

2010

Mma Bana study shows very low MTCT rates with maternal triple-combination ART during pregnancy and breastfeeding.

BAN study demonstrates that both maternal ART and infant NVP given for six months post-partum similarly reduce HIV transmission via breastmilk.

2002

Columbia University's Mailman School of Public Health launches MTCT-Plus Initiative.

2005 | 2010 | 2015

2004

Combination of short-course AZT with single-dose NVP is shown to reduce MTCT to nearly 2 per cent in non-breastfeeding population in Thailand.

2008–2009

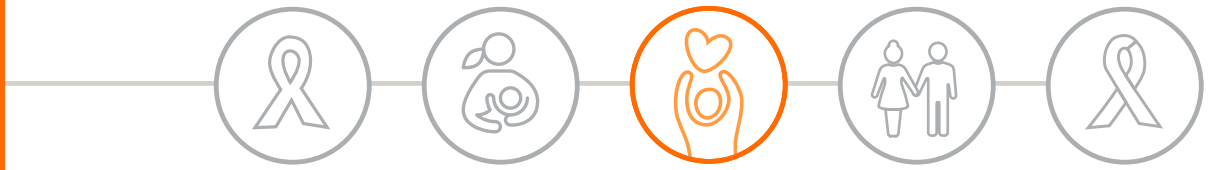
Studies show that if taken during breastfeeding, both ARV prophylaxis for the infant and combination ARVs for the mother can reduce post-natal transmission; however, transmission can occur if drugs are discontinued.

2015

South Africa institutes routine virologic testing at birth into its early infant diagnosis programme, in addition to testing at 4–6 weeks.

2017

South Africa's national birth testing programme reports in utero transmission rate of 1.1 per cent.



3. Childhood

Compared with adults, children consistently have fared worse in the global HIV epidemic. Approval of ARVs for use in children has lagged behind that for adults and testing and treatment rates for children have consistently been lower. One early example from Romania illustrates the destructive impact of these disparities and the heightened vulnerability of children to the ravages of the epidemic. After the fall of long-time Romanian leader Nicolae Ceausescu in December 1989 it was revealed that more than 10,000 children in that country had contracted HIV through unsafe injections with tainted blood. The story was particularly poignant because most of the infected children were orphans, a population that was already highly marginalized.

HIV infection in children through unsafe blood supply is less of a concern today. Yet, a persistent critical obstacle is that paediatric HIV care and treatment is not integrated in child health services available at primary-health-care facilities, partly because only doctors may be authorized to prescribe ART to children. As a result, children are frequently referred to hospitals far away from their homes for treatment initiation and care. Also, because children represent such a small market share for HIV medication, investment in the appropriate ARV dosing options has been limited. Differences in decision-making ability, power and accessibility between children and adults thus are evident every step of the way in HIV treatment, from diagnosis to consistent ART use.

Lengthy delays in treatment initiation and inadequate adherence and retention in care can have massive, irreversible consequences for children's health and overall well-being. Many do not reap the full benefits of ART because they start treatment when the effects of the disease are already advanced – one of the many reasons viral suppression rates are lower among children than adults.[21] Children with insufficiently strengthened immune systems are sicker and more frail than their counterparts and thus less likely to excel in school or more broadly in society.

Globally, about 1.8 million (1.3–2.4 million) children between the ages of 0 and 14 are living with HIV today, with 91 per cent of them residing in sub-Saharan Africa. In 2017, 110,000 (63,000–160,000) children aged 0–14 died from AIDS-related causes, 32,000 (18,000–48,000) of them children aged 5–14. While the numbers are far fewer than in adults, they are not insignificant.

At a UNICEF-supported clinic in Kenya, a technician draws blood from an infant. The sample will be tested for HIV at the clinic's lab.
© UNICEF/UN0147117/Noorani/2016

Throughout the course of the global HIV epidemic, women have been the ones primarily responsible for saving the lives of children living with and affected by HIV and caring for them as mothers, grandmothers, aunts, sisters and friends. They will continue to do so in the future, which is why women should strongly influence policy, programming and funding decisions aimed at reducing the impact of HIV among children. As advocates, women are rarely more fearless and pioneering than when trying to make a better world for those who need them the most. That description epitomizes the words and deeds of both Yana Panfilova, a young HIV activist who was born with HIV, and her mother. Discussing her early life, Yana observed: "Neither my friends nor civil society in Ukraine knew much about HIV at that time. For a majority of people, HIV was equal to AIDS. Yet my mother, who organized support groups for HIV-positive children, made me realize that HIV doesn't kill. Ignorance does" (*see page 98*).

Paediatric treatment

There is little dispute that quality paediatric treatment is not as advanced programmatically or scientifically as that of adults, as evidenced by the gaps discussed previously in this report. Just 52 per cent (37–67 per cent) of children living with HIV worldwide were on ART in 2017, compared with 59 per cent (44–73 per cent) of adults. (UNAIDS estimates consider children to be those younger than 15, and adults all those 15 and older.)

One overarching reason is that treating children is more complicated. Biomedical and scientific factors – including the variability and changes in children's weight (which is related closely to ARV availability) and ongoing changes in their health and development – make the supply, dosing and administration of ART for children more difficult.[22] The essay contributed to this report

TABLE 3.1

Number of children aged 0–14 living with HIV and number of AIDS-related deaths, 2017

Age	Number of children living with HIV		Number of AIDS-related deaths	
	Estimate	Low – high	Estimate	Low – high
Children aged 0–4	580,000	420,000 – 750,000	76,000	44,000 – 120,000
Children aged 5–9	640,000	460,000 – 830,000	14,000	8,400 – 22,000
Children aged 10–14	610,000	440,000 – 790,000	17,000	9,900 – 26,000
All children aged 0–14	**1,800,000**	**1,300,000 – 2,400,000**	**110,000**	**63,000 – 160,000**

Note: Due to rounding, estimates may not add up to the whole. In the UNAIDS estimation process, no new HIV infections are assumed to occur among children aged 5–14.

Source: UNAIDS 2018 estimates.

by Diana Gibb *(see page 84)*, a long-time pioneer of paediatric HIV drug trials all over the world, provides an insight into how difficult it was to find suitable drugs to administer to children in Africa in the early 2000s and why trials of new formulations were so vital:

> *"The idea behind all these studies was to provide evidence to ensure that children could receive drugs and care near their homes and in formulations and doses that could be easily given by caregivers and prescribed by health-care workers at primary-care-level facilities. This is crucial, because HIV-infected children are more vulnerable to rapid disease progression and early death than any other group."*

The complications around treating young children help to explain why paediatric HIV treatment is more centralized in many countries, with children often required to visit specialists in hospitals or other higher-level facilities. Suboptimal linkages and referral systems between service points as well as financial burdens contribute to delays in initiating ART and staying retained in care (*see Panel: Children are less likely than adults to be treated in sub-Saharan Africa*).

In addition, children's lack of agency, given their age, has put many of their health decisions in the hands of others who face their own challenges that may sometimes directly affect their ability to access quality care for the HIV-positive children in their charge. Some caregivers, for example, might fear being stigmatized or discriminated against, perhaps on the basis of real or assumed HIV status, if they are seen to be supporting or caring for a child living with HIV. Others might not be aware of specialized support schemes and interventions – such as those related to nutrition – that can help children better tolerate ART medicines and thus be more consistently adherent.

Despite these challenges, evidence-based activity as well as targeted advocacy over the years have improved the scope and quality of paediatric treatment services and guidance. Much of the advocacy has been initiated and sustained by local community-based organizations and civil-society organizations, including CHAI and EGPAF, and by the Global Fund, UNAIDS, UNICEF, Unitaid, WHO and others at global, regional and national levels. Many of these organizations count mothers of children living with HIV as members or work closely with them. This effort includes active engagement of the

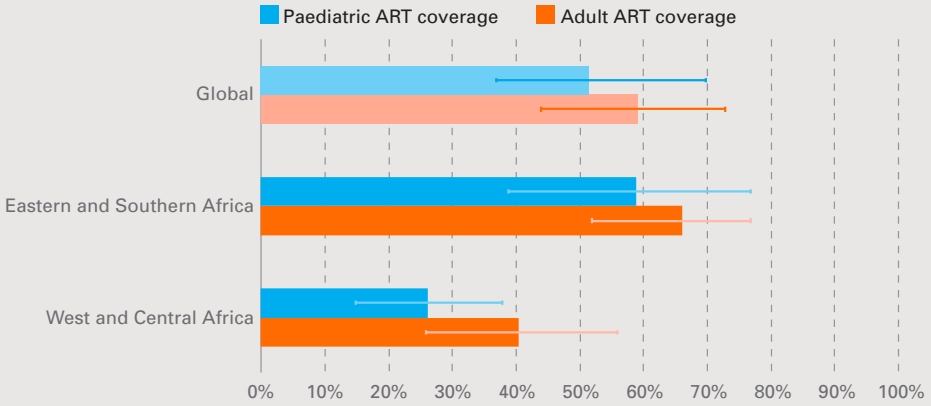
Children are less likely than adults to be treated in sub-Saharan Africa

Globally, only 52 per cent (37–70 per cent) of children living with HIV are receiving ART, compared with 59 per cent (44–73 per cent) of adults (defined here as those aged 15 and above).* However, this treatment gap varies by region. In West and Central Africa, coverage for children is 14 percentage points lower than for adults.

* These age-specific estimates reflect data compiled through the Global AIDS Monitoring system. In 2018, only 51 of 170 countries submitted data by five-year groups. For the regions above, UNAIDS 2018 estimates are reliable for age groups 0–14 and 15+.

FIGURE 3.1

Percentage of children aged 0–14 and adults aged 15+ who received antiretroviral treatment, globally and in sub-Saharan Africa, 2017



Note: Regional data on age-specific ART coverage are most reliable for Eastern and Southern Africa and West and Central Africa; thus other regions were excluded from this analysis.

Sources: Global AIDS Monitoring 2018 and UNAIDS 2018 estimates.

pharmaceutical industry, particularly to make available appropriate formulations for infants.

Some of the most important changes in treatment options and protocols have occurred since 2002, when WHO specifically addressed children in guidelines for scaling up ART in resource-limited settings that otherwise focused primarily on adults. At that point, as with adults, treatment for children living with HIV without clinical indications of AIDS was based on CD4 count. WHO's revised stand-alone guidelines for children were released four years later, in the wake of additional reports showing the efficacy of HIV treatment for children in Africa. By 2010, at the beginning of the Global Plan, WHO was recommending treatment for all children under the age of 2 immediately upon diagnosis – an early precursor of Option B+ that was considered especially urgent given the high rates of mortality among untreated infants. Incremental increases in the maximum age for 'treat all' approaches among children culminated in 2016, when the revised adult and paediatric treatment guidelines both recommended treatment for all those living with HIV, regardless of disease or immune status.

However, many children have not benefited from the treatment recommended by WHO. Integration and decentralization could be valuable approaches overall. For example, if it is not offered already, HIV testing for infants and young children in high-prevalence settings could be provided routinely during clinic visits for immunizations and other services not directly associated with HIV, including broader maternal, newborn and child health services. Such visits could also be an opportunity for caregivers to be offered support and referrals to ensure that their child or children on ART remain adherent. Case identification of infants and young children might also be enhanced by family-centred care approaches based on reaching

out to and encouraging undiagnosed family members of people living with HIV to be tested themselves. This approach has shown promise in identifying children living with HIV, many of whom have one or more HIV-positive parent.

Other policy solutions could include decentralizing paediatric treatment services to lower-level facilities and offering more entry points for treatment. For example, more space could be opened for community-based organizations to provide supportive services at the very least, or perhaps even ART delivery. Such steps could be useful in making paediatric services seem more routine, thereby helping to reduce stigma as well as overcoming some obstacles related to convenience and accessibility. They also might help to improve adherence and retention through specialized assistance and support for caregivers.

Programmatic solutions might not be enough on their own. More and better child-friendly drugs and formulations can make a big difference. Such drugs should be tailored as closely as possible to the unique circumstances and needs of children. They should be acceptable to both child and caregiver in terms of palatability and ease of administration, accessibility, storage and side effects. Careful attention should be paid to longer-term acceptability and sustainability regarding drug supply and distribution.

Closing the equity gap between adult and paediatric ART options should also be a priority. With regard to drug development and access, this could mean the roll-out of tailored new drugs and regimens that have been evaluated as safe and effective. One high-profile development in 2018 in this area is dolutegravir (DTG), which is being promoted and recommended as a replacement for tenofovir (TDF) in many adult first-line ART regimens. DTG is currently approved by the U.S. Food and Drug Administration for children weighing at least 30 kilogrammes. Studies are ongoing to assess safety, dosage and efficacy in infants and young children.

Deborah Waterhouse, CEO of ViiV Healthcare, says of her company's efforts to improve access to DTG: "This means working even harder to increase access to dolutegravir, by a range of methods from designing the necessary paediatric studies and trials, to creating dispersible formulations that children can easily take and finding appropriate generic manufacturers as partners" (*see page 100*).

Increased attention and consideration is needed to support children living with HIV to transition from paediatric care to adult care. These transitions are about much more than specific pills and ART regimens – and for some children, in fact, there will be no change in medications (at least not initially). Most transitions occur when a child is an adolescent and thus already experiencing some adolescence-specific anxieties, emotions and physical changes. Many are fearful or reluctant to end stable and longstanding relationships with their paediatric care team.[23] They and others may not be prepared to understand or accept the new and different responsibilities associated with adult HIV treatment.[24]

The risks of poor adherence and dropping out of care altogether can be heightened during and after transitions. To give them the best chance to remain healthy and thrive, all transitioning children deserve targeted support that can help them adjust, beginning with careful early preparation and continuing through the first several months or years of adult care. Social support may be helpful by encouraging young clients to confront fears of stigma or by guiding them to peer groups and facilities with prior experience with transitions. Health-care personnel should be trained in making transitions more successful, including by ensuring communication between paediatric and adult clinicians and caregivers at all levels.[25]

Children affected by AIDS

In 2017, there were an estimated 12.2 million (9.3–15.6 million) children under the age of 18 who had lost one or more of their parents to HIV. The overall figure has declined from a peak of 15.5 million (11.8–19.7 million) in 2009, a trend mostly due to the global expansion of ART coverage saving the lives of parents living with HIV (*see Panel: Children orphaned by AIDS need special protection*).

Tiara (second from left), rejected by her father because of her HIV status after her mother's AIDS-related death, has been adopted by her mother's caregiver, AIDS volunteer Yusmina.

Regional variations echo most other HIV epidemic impacts, with the most substantial effects in the poorest parts of the world where social services and safety nets generally are weak or non-existent. Of all the children orphaned due to AIDS worldwide in 2017, 79 per cent (9.7 million [7.5–12.1 million]) were living in sub-Saharan Africa.

The plight of children made orphans by AIDS began to receive substantial attention as the epidemic rapidly escalated in sub-Saharan Africa during the 1990s and countries in the region began responding to the crisis with special programmes. In Zimbabwe, in the middle of the decade, the Department of Social Welfare piloted three models of community-based orphan care: rural, urban and commercial farm models.[26] Botswana in 1999 established a National Orphan Programme to respond to the immediate needs of orphaned children, the majority of whom had been affected by AIDS.[27] Both countries, along with Malawi, were among those that sought to address the crisis by boosting community engagement.

In 2001, the United Nations General Assembly Special Session (UNGASS) on HIV/AIDS adopted a 'Declaration of Commitment' that included a pledge to "care for all whose lives have been devastated by AIDS, particularly more than 13 million orphans."[28] Three years later, UNICEF helped to facilitate the development of a framework to protect, care and support those who were then generally referred to as orphans and vulnerable children (OVC). UNICEF also launched a dedicated OVC programme funded by the UK Department for International Development. [29]

Other notable initiatives aimed at improving their overall well-being included the Children and AIDS Regional Initiative (CARI), a five-year programme (2006–2011) that coincided with the peak number of OVC worldwide in 2009. CARI's launch occurred shortly after, and in direct response to, a high-profile 2005 report finding that national governments, international partners and communities were failing to adequately provide care and support for the millions of children orphaned by AIDS and for millions of other children made vulnerable by the epidemic.[30]

In some ways, the years during the CARI initiative turned out to be a high-water mark for attention to children affected by HIV in this way. Focus on them has waned a bit in recent years, despite the high numbers of individuals who fit within the main definition. This shift has occurred as countries have concentrated HIV responses on meeting treatment and prevention targets that have limited direct relevance for such children's circumstances and needs.

The negative consequences are nevertheless significant for these children, their families, their caregivers and their societies. Most children whose lives have been affected by HIV face a host of psychological and economic challenges that make them highly vulnerable and less likely to thrive. Many have watched their mother or father (or both) get sick

and die. They may have been physically or emotionally ignored by parents trying to cope with their own physical declines. Families in which parents weaken and die from AIDS are often impoverished over time, resulting in children not having access to reliable or healthy food or health care. These and other factors may in part contribute to higher rates of impaired growth and weaker cognitive functions, many of which are apparent early on among HIV-exposed infants even if they were uninfected perinatally or post-natally.[31]

Some of these orphaned children have HIV themselves and thus require special guidance and attention if they

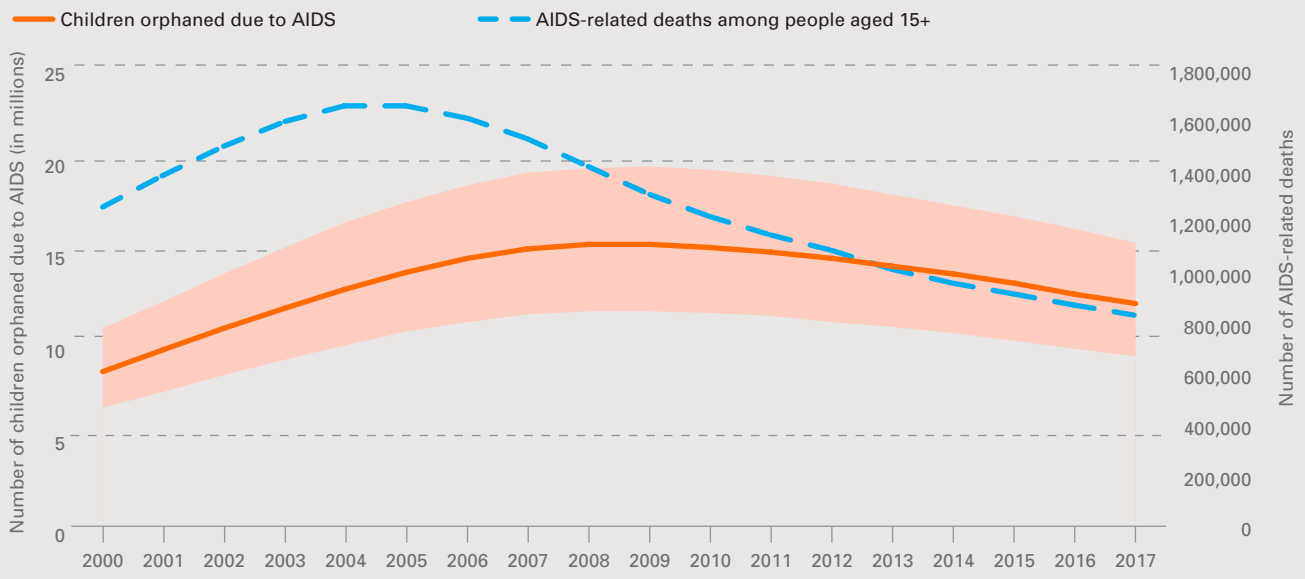
Children orphaned by AIDS need special protection

All children infected with HIV or affected by AIDS are at risk of harm and need the protection of their communities. Children orphaned by the loss of one or both parents to AIDS are clearly among those who need particular protection – in 2017, there were 12.2 million (9.3–15.6 million) children worldwide in this position, 9 per cent of the global number of orphaned children.

Figure 3.2 tracks the number of children orphaned by AIDS against the number of adult deaths from AIDS. As annual AIDS-related adult deaths began steadily declining after 2004, the number of children orphaned due to AIDS began declining just a few years later. The scale-up of antiretrovirals led to fewer adult AIDS-related deaths and thus fewer children orphaned. In addition, children who were orphaned around 2000, before the availability of antiretrovirals, may well now be adults. Nonetheless, despite improvements in adult survival, the number of children orphaned because of AIDS is still substantially higher than it was at the start of the century.

FIGURE 3.2

Number of children aged 0–17 orphaned due to AIDS and number of AIDS-related deaths among people aged 15+, 2000–2017



Source: UNAIDS 2018 estimates.

are to remain healthy. The women who care for them need as much support as possible to make sure that all children orphaned by AIDS have been tested for HIV and, if positive, are engaged in treatment and care. Whether grandmothers, aunts, other family members, family friends or strangers, these women have new and often challenging responsibilities.

In some communities and societies, faith-based organizations, many of which rely on women volunteers, continue to play an outsized role in supporting children affected by AIDS. This was apparent early in the epidemic in places such as Botswana, when organizations such as the Botswana Christian Council, the Botswana Christian AIDS Intervention Programme and the Tirisanyo Catholic Commission began providing services in communities throughout the country, ranging from family counselling and day care for orphans to providing for basic needs such as food, clothing and education.

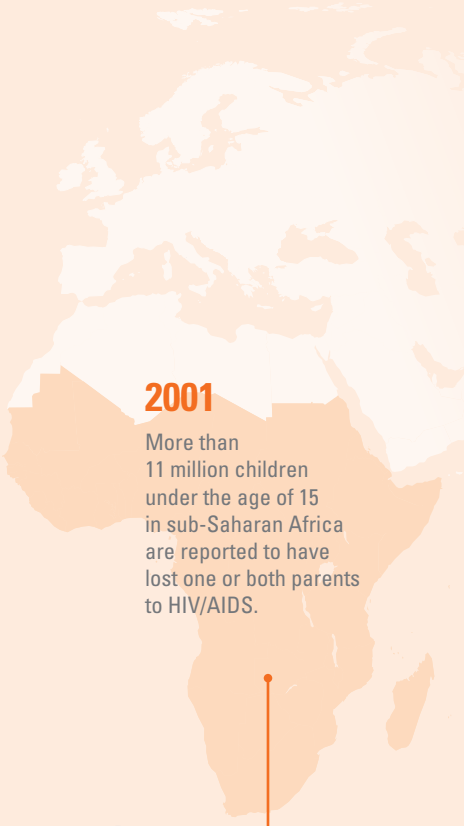
Such support is considered critical, because children's risk of experiencing negative health outcomes, including acquiring HIV later on in life, is increased by higher levels of poverty and by lagging on other development indicators. Stigma associated with the death of a parent from AIDS exacerbates such vulnerability. For example, a UNICEF analysis of recent household survey data found that the majority of adults in 4 out of 12 countries did not believe children with HIV should be allowed to attend regular school. In the 12 countries that conducted the surveys, the percentages of adults who believed children living with HIV should attend school with other children ranged from 97 per cent in Eswatini (formerly Swaziland) to 25 per cent in Turkmenistan.[32]

One key concern is that such children often cannot take advantage of educational opportunities that might help them gain the skills to build and sustain a more secure future. Many have missed months or years of school, including during their own or parental HIV-caused illnesses. However, social protection and other welfare programmes focusing on children affected by AIDS in many countries have addressed school dropout, contributing to improved school attendance by orphans. Moreover, orphanhood is but one among many factors determining children's school attendance. For example, poverty and lack of education in adults were more significantly associated with poor outcomes in children and adolescents than was orphanhood, according to one study.[33]

Given the wide range of development challenges, multi-sectoral approaches and coordination are needed to more effectively support children affected by AIDS and their caregivers. Some of the linkages that should be strengthened and expanded are those among social and nutritional support services, as well as those among health services utilized by or available to children affected by AIDS (including those specializing in paediatric health in general and, as needed, paediatric HIV). Linkages and greater support are also needed across school systems at various levels. Regular training on HIV and stigma should emphasize the unique experiences that make many children affected by HIV more vulnerable and in need of specialized support if they are to regularly attend school.

The youngest of these children might also benefit significantly from early childhood development (ECD) programmes. Health and social services personnel should be encouraged to inform caregivers about such options during their visits for children's services. Community-based groups, including networks of caregivers for children affected by AIDS, often have the type of contacts and experience to support many other of the linkages in addition to ECD.

MILESTONES in paediatric treatment, care and support



1990

First antiretroviral drug, AZT, is approved for use in children by the United States Food and Drug Administration, three years after approval for use in adults.

1997–1998

Clinical trials demonstrate the superiority of dual therapy over monotherapy for treatment of children. Triple NNRTI (non-nucleoside reverse-transcriptase inhibitor)-based ART in young infants is shown to be well tolerated and effective.

2001

More than 11 million children under the age of 15 in sub-Saharan Africa are reported to have lost one or both parents to HIV/AIDS.

1990 — 1995 — 2000

1990

First United States guidelines for treatment of HIV-infected children recommend ART for any child with a definitive diagnosis of HIV infection with substantial immunodeficiency and/or HIV-associated symptoms.

2001

United Nations General Assembly Special Session on HIV/AIDS adopts a Declaration of Commitment pledging to "care for all whose lives have been devastated by AIDS, particularly more than 13 million orphans."

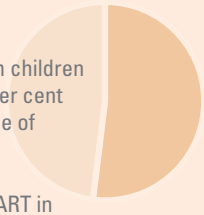
2003

Efficacy of HIV treatment in children in Africa is reported.

UNICEF convenes forum to develop Framework for the Protection, Care and Support of Orphans and Vulnerable Children Living in a World with HIV and AIDS and launches orphans and vulnerable children (OVC) programmes funded by the UK Department for International Development.

2004

Study on mortality in African children living with HIV shows 52.5 per cent mortality by age 2 in absence of treatment.



Evidence for value of early ART in children is seen: three- or four-drug ART in infants is safe and suppresses virus; superior suppression is found if initiated before the age of 3 months.

Coalition for Children Affected by AIDS is formed to help them to survive and thrive at home, in school and in their communities.

2005

Number of children orphaned by AIDS reaches 15 million worldwide but only 1 in 10 are reached by basic support services.

2006

Children and AIDS Regional Initiative, a five-year programme to improve the well-being of orphans and vulnerable children affected by HIV and AIDS, is launched.

2008

CHER study in South Africa demonstrates that initiation of ART in asymptomatic infants aged 6–12 weeks significantly decreases morbidity and mortality.

2009

Number of children orphaned by HIV and AIDS reaches an estimated worldwide peak of 15.5 million.

2010–2011

Lopinavir-ritonavir-based ART in children under 3 years of age is found to be superior to nevirapine-based ART.

2013

Report of 'Mississippi baby'– first paediatric 'cure'/ remission in an infant with very early treatment (first hours of life) – puts functional paediatric cure on the agenda.

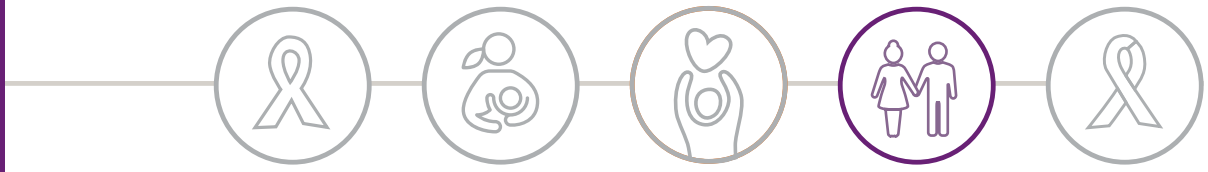
2016

PEPFAR, the world's largest donor of OVC programmes, reaches more than 6.2 million OVC and their caregivers worldwide.

2017–2018

Initial results from trials of very early ART (first week of life) in infants in Africa (South Africa, Botswana) show significant decrease in HIV reservoir.

2005 2010 2015



4. Adolescence

"Currently adolescents around the world continue to experience the highest rates of new HIV infections and AIDS-related deaths. Much more needs to be done with urgency in this group to meet the United Nations Sustainable Development Goal of ending AIDS as a public health threat by 2030."

— Quarraisha Abdool Karim (page 70)

Most references to the 'success' of HIV responses in recent years come with at least one key caveat: lagging results, sometimes substantially so, among adolescents. This caveat is often accompanied by an additional observation about gender disparities, as adolescent girls and young women are at much higher risk of HIV infection than their male counterparts.

Among adolescents overall, AIDS-related mortality has increased since 2000, while it has dropped among adults and younger children. In 2017 alone, an estimated 21,000 (11,000–37,000) adolescents aged 15–19 died of AIDS-related causes. Most, if not nearly all, of them were likely to have been infected vertically, with the failure to keep them alive through the adolescent years due to failures in improving their access to HIV testing, in making quality ARVs available on a consistent basis and in giving them sufficient support to stay on treatment and transition to adult care. Annual new HIV infections have declined only slightly since 2010, by an average rate of 2.6 per cent each year. Surveys indicate low levels of knowledge about HIV and the specific risk behaviours – such as age-disparate sex, transactional sex and condomless sex – that could make adolescents vulnerable to acquiring and transmitting the virus (*see Panel: Adolescents are not being adequately protected*).

A variety of different factors are behind the relatively poor outcomes among adolescents and young people. One is that, early in the epidemic, they were ignored as a distinct population with specific risks and needs that could or should be considered

A 13-year-old girl living with HIV, in Odienné, Côte d'Ivoire. She lost both parents to AIDS-related illnesses.
© UNICEF/UN0148029/Dejongh/2017

separately from those of adults. Vestiges of that categorization remain, with most HIV epidemiological data (including that managed by UNAIDS) continuing to use the years 15–49 to refer to adults. In 2000, a notable step was taken to carve out discrete niches for adolescents and young people when indicators for the Millennium Development Goals referred to measuring the prevention of HIV infection among 15–24-year-olds. But it was later, in 2013, that WHO issued the first-ever set of guidelines addressing the specific needs of adolescents living with HIV.[34] Still, however, assessing adolescents' ART access and how it affects their health and mortality remains difficult because of limited global reporting of HIV treatment for adolescents.

The evolution of HIV prevention strategies, priorities and preferences over the years has had substantial impacts on adolescents and young people even though many have not been tailored specifically for them. Some approaches have been more politically motivated than others, such as campaigns promoting abstinence and delaying sexual debut. Others have been based more on evidence and 'meeting people where they are', including by improving access to condoms among young people based on the recognition that many start engaging in sexual activity during adolescence.

Most current strategies now focus on combination prevention, which refers to making available as many relevant tools as possible to meet all the prevention-related needs of vulnerable people. These include biomedical interventions such as pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP) and voluntary medical male circumcision. They also include counselling and comprehensive sex education aimed at improving knowledge, changing behaviour and increasing access to social protection programmes and SRHR

TABLE 4.1

HIV epidemiology among adolescent girls and boys aged 15–19, 2017

Age	Number of new HIV infections		Number of adolescents living with HIV		Number of AIDS-related deaths among adolescents	
	Estimate	Low – high	Estimate	Low – high	Estimate	Low – high
Girls aged 15–19	170,000	97,000 – 240,000	720,000	360,000 – 1,100,000	10,000	4,500 – 19,000
Boys aged 15–19	86,000	35,000 – 130,000	470,000	230,000 – 730,000	11,000	5,900 – 20,000
All adolescents aged 15–19	**250,000**	**150,000 – 360,000**	**1,200,000**	**660,000 – 1,800,000**	**21,000**	**11,000 – 37,000**

Note: Due to rounding, estimates may not add up to the whole. Adolescents aged 15–19 are considered here because sexual HIV transmission begins to occur in this age group, changing the epidemiological dynamics.

Source: UNAIDS 2018 estimates.

services (*see Panel: HIV prevention and protection tools are not reaching enough adolescents*).

Over the past half-decade or so, countries and their partners in HIV responses have increasingly perceived how far adolescents are being left behind and that failure to improve results among them will hinder achievement of epidemic control. Countries have committed to the 90-90-90 treatment targets as a key strategy for epidemic control, aiming for 90 per cent of people living with HIV to be diagnosed, 90 per cent of those diagnosed to be accessing ART and 90 per cent of those accessing treatment to achieve viral suppression by 2020. The Fast-Track initiative and its associated targets, including the 90-90-90 treatment targets, were endorsed in the Political Declaration on HIV and AIDS released at a United Nations General Assembly High-Level Meeting on Ending AIDS in June 2016. The recent PHIA conducted by PEPFAR in a number of countries indicates that adolescents are lagging behind adults, particularly in the first 90.[35]

Regardless of how successful countries are at scaling up overall access to prevention and treatment services (including in meeting the Fast-Track targets), insufficient efforts to curb the epidemic among adolescents and young people would also make future sustainability nearly impossible. Improving HIV responses and getting closer to ending AIDS therefore rely more on better results among adolescents and young people than among any other group.

This underlying principle is behind initiatives such as All In to End Adolescent AIDS, which was launched in 2015 by UNICEF and UNAIDS with other partners. 'All In' focuses on 25 priority countries that are home to most of the world's adolescents living with or at risk for HIV. Its partners are using data and evidence to inform programmes for adolescents and, through joint reviews of data, understand the key factors driving the epidemic in this group and the level of current responses. The information collected is being used to promote policy and programme changes.[36]

Although HIV is its primary motivating factor, 'All In' emphasizes a broader analysis and identifies integrated solutions across the health and development sectors. More creativity and flexibility are needed to begin to make a difference and to forestall further setbacks to young people's health and human rights. At the very least, all adolescent-focused interventions should be acceptable to them and fit into their lives as conveniently as possible. Among the useful approaches are: including HIV

Adolescents are not being adequately protected

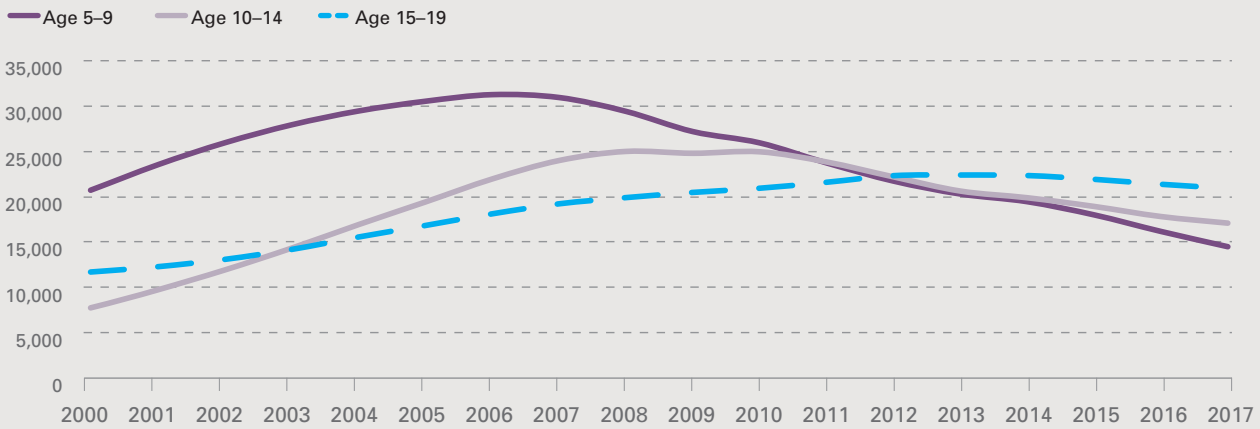
Figure 4.1 demonstrates how the epidemic is affecting three different age groups of children and adolescents. Children aged 5–14 living with HIV are likely to have contracted the virus before birth, during delivery or during the breastfeeding period. Some of the older children in this age group were born before the adoption of Option B+ and other, more effective treatment options, and they have started to 'age out' of the 5–14 cohort – while fewer young children are aging in to it, thanks to the success of PMTCT interventions.

That at least partially explains why AIDS-related deaths in the 5–9 age group reached a peak in 2006 but have been declining steadily ever since, and by 2017 were at a lower level than in 2000.

As for the 10–14 age group, AIDS-related deaths climbed steeply right up to 2010 before beginning to decline, although as of 2017 they were 122 per cent higher than at the beginning of the century. For adolescents aged 15–19, a group that inevitably includes many who are newly infected as well as those who have lived their whole lives with HIV, AIDS-related deaths are still at their peak, having not decreased at all between 2010 and 2017. This age group of adolescents is being less well protected than any other. Tragically among them, those born with HIV in the early 2000s missed out on the protection offered by effective PMTCT, and those who acquired HIV in adolescence did not benefit from HIV prevention services that could have saved their lives.

FIGURE 4.1

Number of AIDS-related deaths among children aged 5–19, by five-year age group, 2000–2017



Source: UNAIDS 2018 estimates.

prevention information and referral to services as part of comprehensive sexuality education; lowering age-of-consent laws and policies for access to SRHR services and HIV testing; and integrating HIV awareness messages and services into youth-centred entry points, such as sports events, youth drop-in centres and mobile service units.

The overarching broad and integrated approach of 'All In' could be a useful entry point into another barrier to improved HIV outcomes among adolescents: their ability and willingness to disclose their HIV status. Disclosure for people of all ages is a personal act with personal consequences. Most people rightly worry about potentially adverse effects such as stigma, rejection or even physical violence.

HIV prevention and protection tools are not reaching enough adolescents

Globally, only 41 per cent of adolescent girls aged 15–19 know where to get tested for HIV; the proportion of boys in this age group is unknown owing to insufficient data. However, Figure 4.2 indicates that boys in the three regions where HIV is most prevalent are more aware than girls of where to get tested – though they are also less likely to take the test and find out the result. Adolescent knowledge of where to go for a test is low in all regions and actual uptake of testing by this age group is much lower, ranging from 23 per cent for girls in Eastern and Southern Africa to just 1 per cent for boys in South Asia. This suggests that factors other than knowledge may be stopping adolescents from taking an HIV test, including a lack of adolescent-friendly services, requirement of parental consent to access services, social norms or the stigma attached to HIV. But it is clear that boys may be encountering more such barriers than girls.

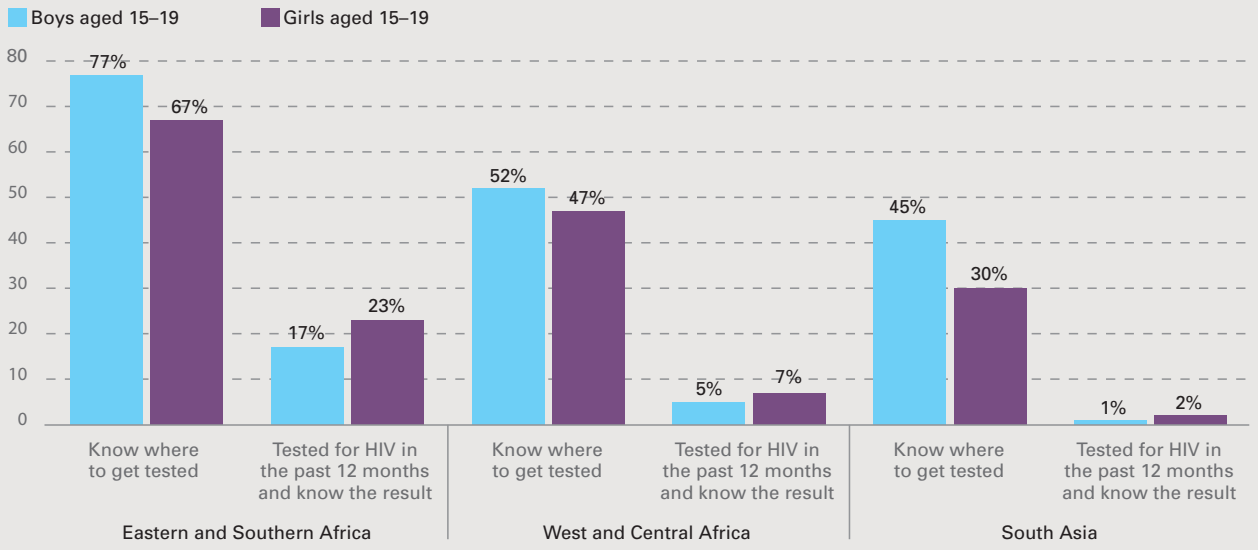
Condom use among adolescents and young people with multiple partners remains extremely low in South Asia and sub-Saharan Africa, as Figure 4.3 shows.

In sub-Saharan Africa, adolescent boys and young men are substantially more likely than adolescent girls or young women to report condom use. In South Asia, by contrast, the group reporting the highest level of condom use is girls aged 15–19, though women aged 20–24 in the region use condoms less than any other group in the survey.

These data suggest that targeting of sexual health and HIV prevention services to adolescents by age and by sex would be effective, though issues of

FIGURE 4.2

Percentage of adolescents aged 15–19 who know where to get tested for HIV and who were tested in the past 12 months and received the result, by sex, three regions, 2013–2017



Note: Data were included if survey was conducted after 2012 and if data were published before 31 March 2018. Survey must have been nationally representative and denominator must have been at least 25 unweighted cases. Surveys were included if they had data for both boys and girls. Regional aggregations were only possible if the countries with available data represented at least 50 per cent of the regional population.

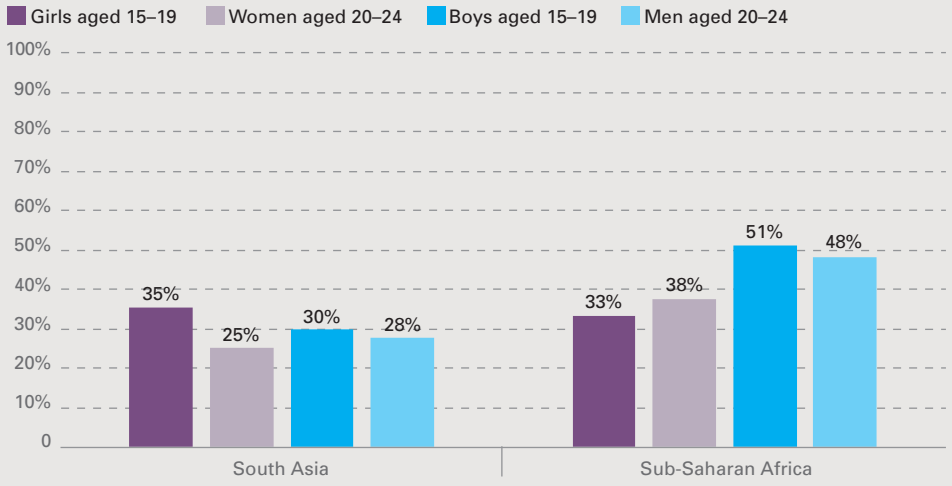
Sources: UNICEF databases of population-based surveys, including Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), Population-based HIV Impact Assessments (PHIA) and AIDS Indicator Surveys (AIS) conducted from 2013–2017.

gender equity and female empowerment may also need to be addressed in the local context. In any event, sexual and reproductive health services need to be more tailored to adolescents.

The lack of progress in condom use means that other methods of preventing HIV in younger populations need considering – including pre-exposure prophylaxis (PrEP) and female-controlled prevention methods, even though these cannot prevent pregnancy or other sexually transmitted diseases. Of the 104 countries reporting (Figure 4.4), 60 have PrEP available and 23 provide it through a national policy (to all ages, however, rather than specifically to adolescents). The majority of countries that report provision of PrEP as a national policy are in Eastern and Southern Africa, Latin America and the Caribbean, and the Middle East and North Africa.

FIGURE 4.3

Condom use among adolescents and young people aged 15–24 with multiple partners in the past 12 months, by age and gender, South Asia and sub-Saharan Africa, 2013–2017

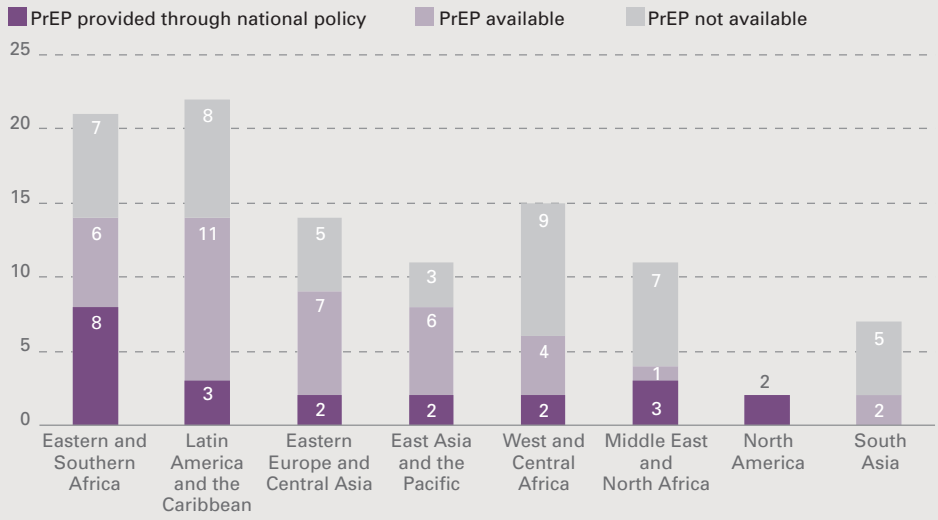


Note: Data were included if survey was conducted after 2012 and if data were published before 31 March 2018. Survey must have been nationally representative and denominator must have been at least 25 unweighted cases.

Sources: UNICEF databases of population-based surveys, including DHS, MICS, PHIA and AIS conducted from 2013 to 2017.

FIGURE 4.4

Number of countries with available pre-exposure prophylaxis by region, 2017



Note: Western Europe was excluded because only one country reported. Between 6 and 22 countries reported per region. No countries reported from Western Europe. If PrEP is not available through a national policy, it is available through research, pilot projects or private providers.

Source: Global AIDS Monitoring 2018.

Adolescents and young people participate in a UNICEF-supported life skills event including HIV-related awareness raising and training in Djibouti.
© UNICEF/UN0199066/Noorani/2018

Our HIV-positive adolescents are having children themselves – a third generation at risk.

– Lucie Cluver (page 80)

Adolescents tend to be even more concerned about such impacts than others because of several vulnerability factors. For example, many are still living with parents and do not have the financial or other resources to leave settings where they might be stigmatized or harassed if family members, peers or others knew they were living with HIV. From a psychological point of view, many adolescents also have not developed deep reservoirs of self-esteem or confidence that can help them face what they believe might be socially destructive information that others will use to define them.

Yet, keeping one's HIV status hidden has its own negative consequences for adolescents – some of which they might not recognize. Disclosure can reduce anxiety and isolation and open up options for psychological support and other resources. It can also help those on ART stay adherent by making them more likely to accept their status and be receptive to adherence support from and with peers. Prevention benefits can be widespread: Adolescents who are more adherent to treatment are less likely to transmit HIV to others, and those who have disclosed their status may feel more comfortable using condoms and taking other prevention measures when having sex (because they have less fear of being identified as HIV-positive).

Findings from a study among 200 adolescents (aged 15–19) living with HIV in Zambia signal both the importance of disclosure among young people and the need for as much post-disclosure support as possible. The study's authors concluded: "Despite initial emotional distress experienced after the disclosure, knowing one's own HIV serostatus was found to be a crucial turning point for adolescents to improve motivation for self-care. HIV serostatus disclosure to adolescents requires follow-up support involving parents/primary caregivers, health workers, and peers."[37] In a separate article focusing on the psychological challenges that adolescents living with HIV face, researchers also stressed the importance of supportive structures in a range of areas: "ALHIV [adolescents living with HIV] need safe environments to practice disclosure skills. Interventions should enable them to make optimal use of available psychosocial resources even under constraining conditions such as disruptive family structures."[38]

Adolescents are also likely to benefit significantly from more funding for innovations that have been shown to reduce their risk and vulnerability, such as social protection schemes involving cash transfers, self-testing and PrEP. These interventions cost money – although they may be cost-effective in

the long run by contributing to declining numbers of new infections. In particular, HIV self-testing is likely to be a game changer in improving HIV testing among adolescents and their partners.

The Global HIV Prevention Coalition, launched in October 2017, offers a new framework for future targeted prevention work, including among adolescent girls and young women and adolescent key populations. Its 10-point action plan, the HIV Prevention 2020 Road Map, aims to accelerate HIV prevention at country level, including by focusing on structural barriers not directly related to health or HIV. As noted by UNAIDS at its release: "The road map identifies factors that have hindered progress, such as gaps in political leadership, punitive laws, a lack of services accessible to young people and a lack of HIV prevention services in humanitarian settings. It also highlights the importance of community engagement as advocates, to ensure service delivery and for accountability."[39] Clarity on country targets and high HIV incidence in geographies and populations will be important moving forward.

Adolescent girls and young women

As far as risk of HIV infection is concerned, as bad as the situation may be for adolescent boys and young men, this is easily eclipsed by what their female counterparts face as they move through their adolescent years. Every year since 2000, females have accounted for at least two thirds of annual new HIV infections among all those aged 15–19 worldwide. Such gender disparity accounts for why more than 60 per cent of the 1.2 million (660,000–1.8 million) adolescents aged 15–19 living with HIV around the world in 2017 were female.

Girls and women, whatever their age, are more biologically susceptible to HIV acquisition than men in heterosexual relations. But this slightly elevated risk is intensified by social, cultural, economic, legal and political considerations. Daniela Ligiero, a long-time global campaigner to end sexual violence against girls, is even more precise in her analysis of the core of the problem: "I believe that at the very centre of the HIV epidemic is the fact that we are not empowering adolescent girls to make decisions about sex – any decisions" (*see page 88*).

In many societies with high HIV prevalence, women and girls have few or no decision-making rights or any say in who or when they will marry, whether they may attend or stay in school, or even whether or when they may travel outside their houses on their own. They are denied opportunities to inherit or own land, earn their own money or participate meaningfully in governing or political processes. Abuse and violence directed at women is frequently embedded in their societies, making it virtually impossible for perpetrators to be punished even when clear evidence is available. Women who complain or try to report such incidents risk further violence that could be much worse.

Adolescent girls and young women who grow up and live in such environments often have limited ability to learn about even basic sexual and reproductive health issues, including HIV. Globally, recent data indicate that only 41 per cent of adolescent girls aged 15–19 know where to get tested for HIV. In Eastern and Southern Africa and in West and Central Africa, only 23 per cent and 7 per cent, respectively, have been tested for HIV in the past 12 months and know the result.

Even when they have some knowledge, they may be unable or unwilling to act on it by seeking out additional information and services, including testing for HIV and sexually transmitted infections or using preventive tools such as condoms. Gender marginalization and powerlessness often continue to limit their control over their own bodies and health even if they have access to such information and services. Their husbands, boyfriends or other sexual partners might refuse to use a condom, for example, and become physically or emotionally violent when requested to do so. In some countries, more than 10 per cent of girls aged 15–19 reported having experienced forced sex.

Early marriage and early sexual debut in some communities with high HIV prevalence may intensify

"If we want to end AIDS, we must take a more holistic approach that includes tackling the gender inequality that puts girls and young women at increased risk of HIV infection."

– Mabel van Oranje (page 96)

adolescent girls' HIV vulnerability. Among all young women aged 20–24 in countries with available data, a median of 45 per cent had sex before they were 18 and 11 per cent before they were 15 years old (*see Panel: Early sex, early infection*). Some studies show that HIV infection rates among married adolescents tend to be greater than among their unmarried, sexually active peers.[40] More effective HIV prevention entry points are needed to reach these girls and young women and, where possible, their husbands. Gender disparities around sexual debut, whether centred around marriage or not, point to a broader need to improve prevention programming among adolescent girls and young women and their male counterparts.

Poverty and lack of opportunity both result from these underlying factors and further contribute to high levels of HIV vulnerability among adolescent girls and young women. Studies have shown that in some societies with high HIV prevalence, including in sub-Saharan Africa, HIV transmission is fuelled in part by intergenerational sex involving young women and men 10 or more years older.[41] Many of these interactions are transactional in nature, with the men offering money or other 'gifts' in exchange for the kind of sex they want (often unprotected). Because they are older and thus more likely to have had more partners, these men are more likely to be living with HIV than younger males. Transmission becomes cyclical in nature and difficult to stop: Older men have sex with young women, who then

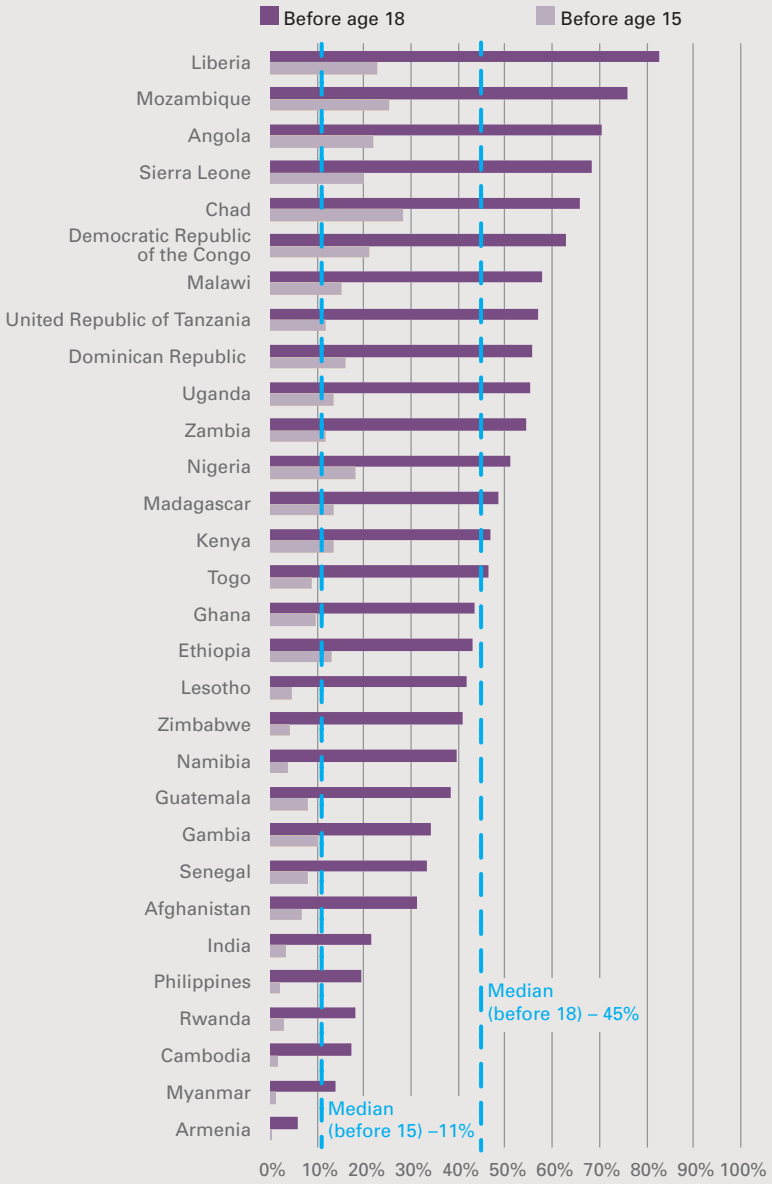
Early sex, early infection

In 2017, 250,000 (150,000–360,000) adolescents aged 15–19 became newly infected with HIV, 66 per cent of them girls. Today there are 1.2 million (660,000–1.8 million) adolescents aged 15–19 living with HIV. Teenagers urgently need better information and protection, the more so because a high proportion of those in countries with high HIV prevalence report having sex before the age of 15. Among countries with available data, a median of about 45 per cent of young women aged 20–24 reported having had sex before they turned 18 and 11 per cent reported having had sex before they turned 15 (Figure 4.5). In five African countries – Angola, Chad, the Democratic Republic of the Congo, Liberia and Mozambique – more than one in five young women reported having had sexual intercourse before the age of 15.

In sub-Saharan Africa, 14 per cent of girls and young women aged 15–24 and 10 per cent of boys and young men aged 15–24 had sex before the age of 15. Similar gender patterns are seen in South Asia, where 2 per cent of girls and young women and 1 per cent of boys and young men had sex before the age of 15. Teenage experience of early sex is, however, very different across cultures and countries, as Figure 4.6 makes plain. While in some countries girls are much more likely to have sex before the age of 15, in other countries boys are much more likely to do so, as in the Dominican Republic, Kenya, Lesotho and Zambia. It is clear from these statistics that interventions aimed at preventing HIV need to be targeted at the earliest years of adolescence, must be sensitive to both gender and the local context, and should be linked to sexual and reproductive health and rights.

FIGURE 4.5

Percentage of women aged 20–24 who had first sexual intercourse before ages 15 and 18, 30 countries, 2013–2017

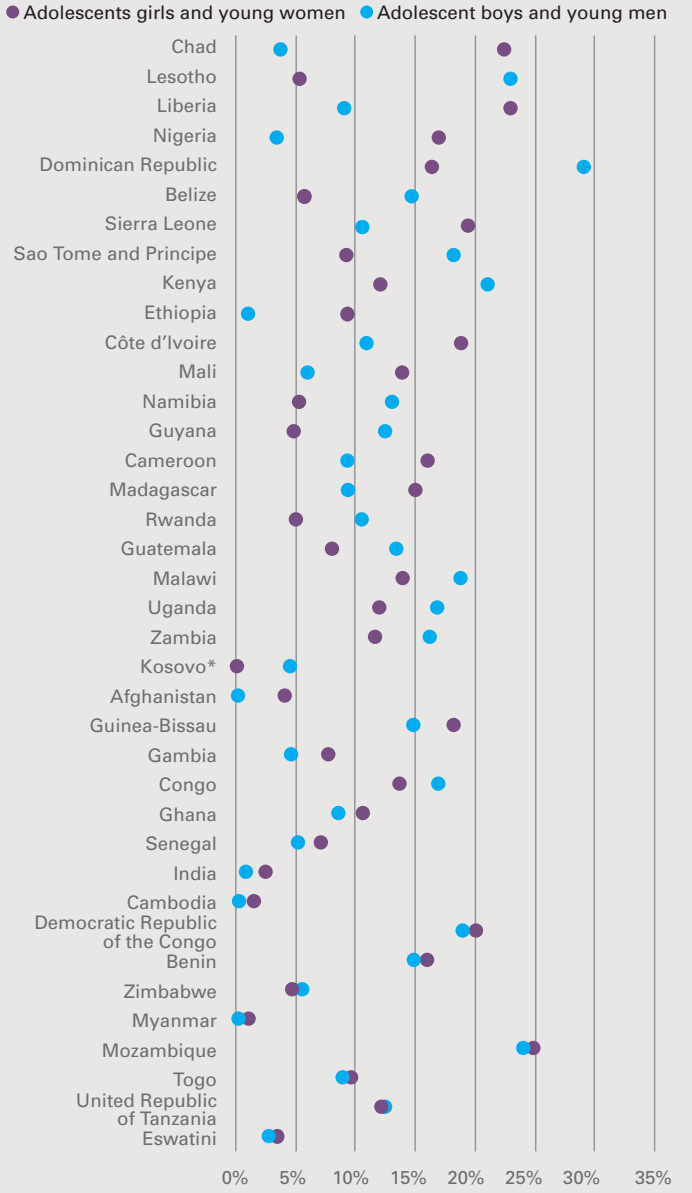


Note: Data were included if survey was conducted after 2012 and if data were published before 31 March 2018. Survey must have been nationally representative and denominator must have been at least 25 unweighted cases. Surveys were included in this analysis if they included indicators on sexual debut before ages 15 and 18.

Sources: UNICEF databases of population-based surveys, including DHS, MICS, PHIA and AIS conducted from 2013–2017.

FIGURE 4.6

Percentage of adolescents and young people aged 15–24 who had first sexual intercourse before age 15, by sex, 37 countries, 2013–2017



Note: Data were included if survey was conducted after 2012 and if data were published before 31 March 2018. Survey must have been nationally representative and denominator must have been at least 25 unweighted cases. Surveys were included in this analysis if they included indicators on sexual debut before ages 15 and 18.

*The reference to Kosovo in this figure should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Sources: UNICEF databases of population-based surveys, including DHS, MICS, PHIA and AIS conducted from 2013–2017.

Forced sex and sex with older partners are factors in HIV transmission

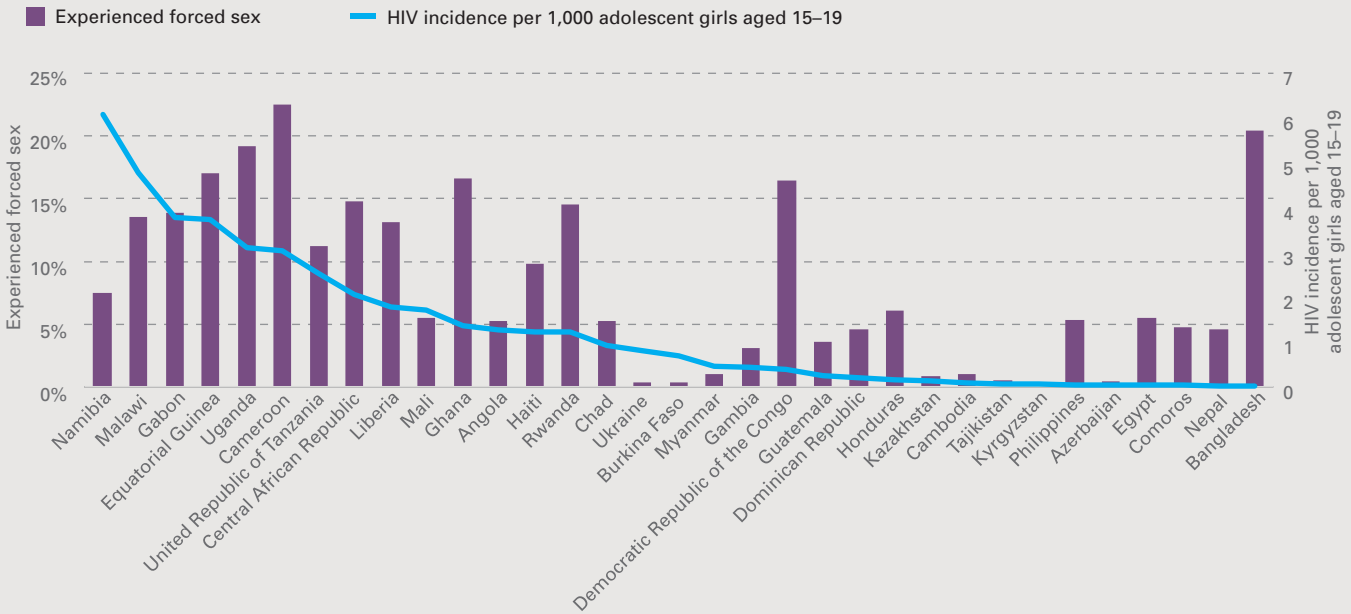
HIV can be transmitted through forced intercourse as well as consensual sex – and the risk of HIV acquisition has been shown to be greater in adolescents who experienced forced sex. The percentage of girls aged 15–19 who have been raped or forced to have sex is alarmingly high in some countries – around one in five girls in Bangladesh, Cameroon and Uganda, for example. Moreover, national household surveys have consistently reported high rates of sexual violence in many countries that also face a high HIV burden.

However, tracking the incidence of HIV against the incidence of forced sex, as in Figure 4.7, suggests that, while the epidemic in Eastern and Southern Africa is being fuelled to some extent by gender-based violence, this is not the case in other regions. Even within Eastern and Southern Africa, Namibia has an extremely high incidence of HIV among adolescent girls but a relatively low incidence of forced sex. The evidence nevertheless underscores the vital importance of preventing gender-based violence in high-incidence countries and of targeting HIV prevention initiatives at all adolescents, not just those who are sexually active.

An adolescent's early experience of sex may well not be with another adolescent: Among 33 countries with available household survey data, a surprisingly high proportion of girls aged 15–19 had had sex with a partner at least 10 years older. This is most common in West and Central Africa, where it applies to two in five girls of that age. Figure 4.8 indicates that sex between teenage girls and a substantially older partner is much more common in some countries than others, with over a third of girls in Gambia, Guinea, Senegal, Nigeria, Chad and Mali falling into this category. Figure 4.9 suggests that economic factors often contribute to this pattern: In Nigeria, Benin, Guinea-Bissau and Mexico, the poorest girls are at least 10 per cent more likely than the richest girls to have slept with a much older partner.

FIGURE 4.7

Percentage of girls aged 15–19 years who ever experienced forced sex (2005–2016) and HIV incidence (2017) among girls aged 15–19, 33 countries

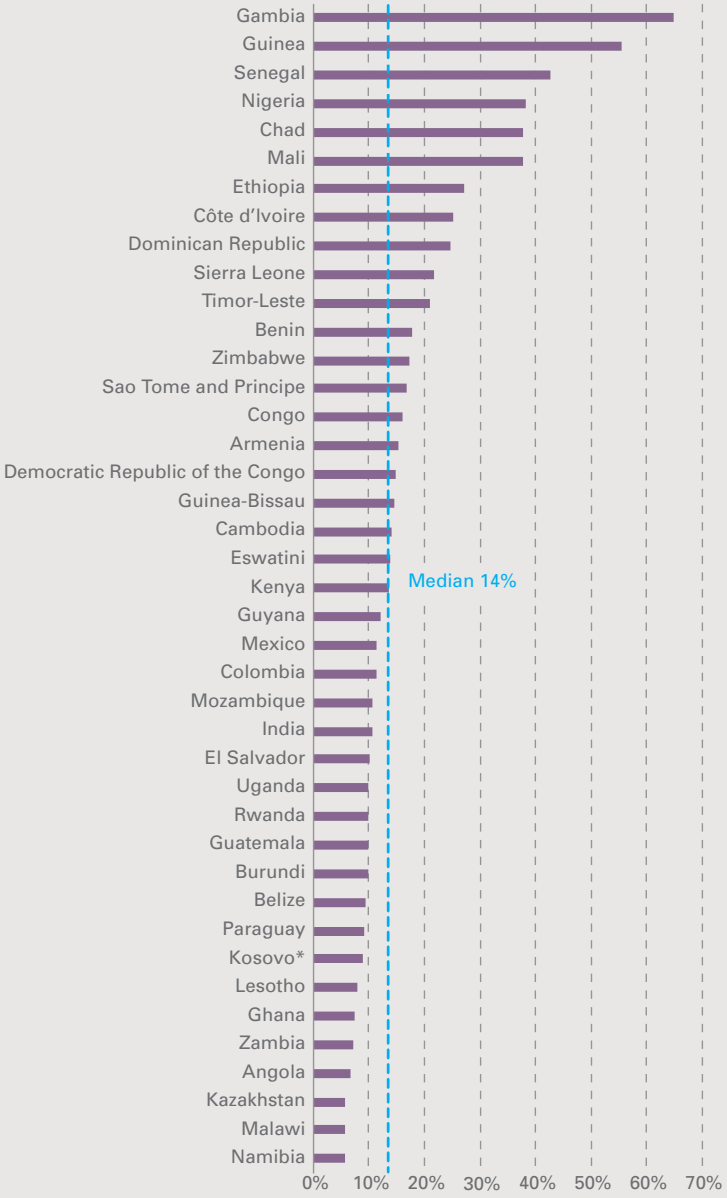


Note: Data for Afghanistan, Bangladesh, Burkina Faso, the Central African Republic, Colombia, Côte d'Ivoire, Egypt, Jordan, Mali and Peru refer to ever-married girls who have experienced forced sex committed by a husband or partner. Survey must have been nationally representative and denominator must have been at least 25 unweighted cases. Countries were included in this analysis if they had data on forced sex and HIV incidence among girls aged 15–19.

Sources: UNAIDS 2018 estimates (HIV incidence) and UNICEF global databases, 2017, based on DHS, MICS and other nationally representative surveys, 2005–2016.

FIGURE 4.8

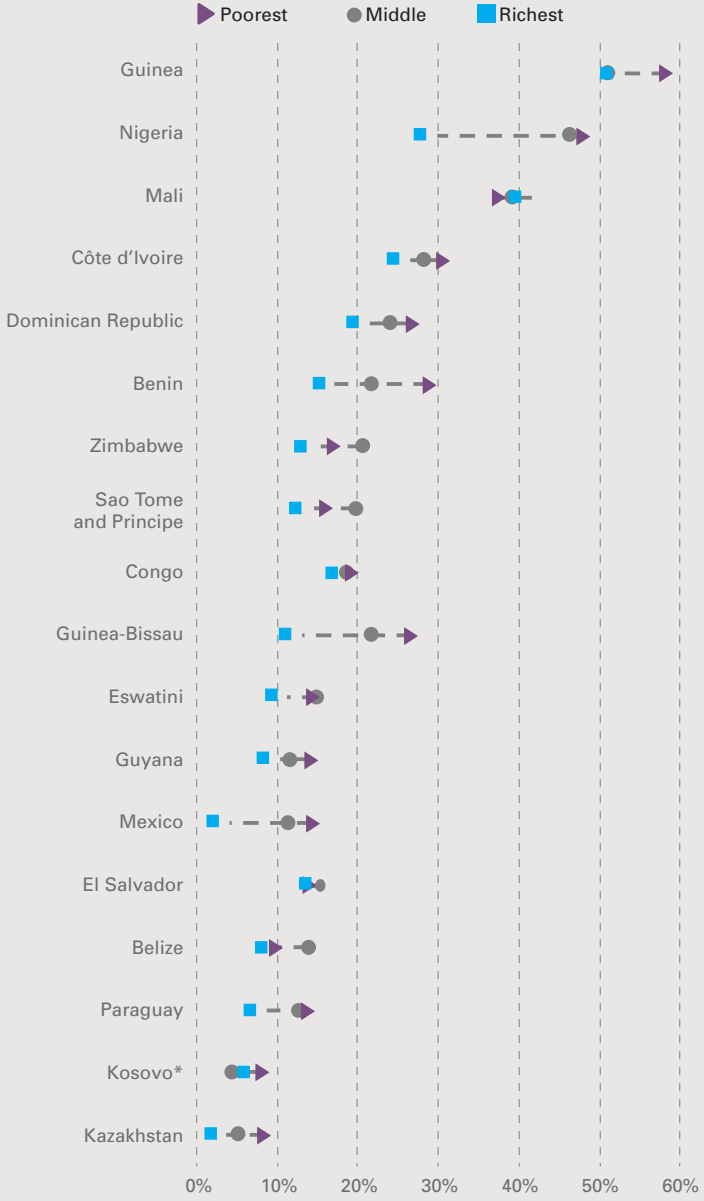
Percentage of girls aged 15–19 who had sex with a partner at least 10 years older in the past year, 40 countries, 2013–2017



Notes: Data were included if survey was conducted after 2012 and if data were published before 31 March 2018. Survey must have been nationally representative and denominator must have been at least 25 unweighted cases. Wealth categories of 'poorest', 'middle' and 'richest' are defined by quintiles in the wealth index used in household surveys.

FIGURE 4.9

Percentage of girls aged 15–19 who had sex with a partner at least 10 years older in the past year, by wealth category, 17 countries, 2013–2017



*The reference to Kosovo in these figures should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Sources: UNICEF databases of population-based surveys, including DHS, MICS, PHIA and AIS conducted from 2013–2017.

may unknowingly be infected when they have sex with their male peers in the same age group (*see Panel: Forced sex and sex with older partners are factors in HIV transmission*).

Success in efforts to meet the HIV prevention and support needs of adolescent girls and young women will rely on actions, reforms and improvements to address gender gaps across a broad health and development spectrum. The centrality of gender and women's rights in the 2030 Agenda for Sustainable Development and associated Sustainable Development Goals (SDGs) has opened up space and created opportunities for progress in areas ranging from women's uptake of sexual and reproductive health (SRH) services to employment, education and decision-making independence.[42] Equity in opportunity is a first step toward equity in access and information, including for young women vulnerable to HIV.

It is hoped that the SDGs will further reinforce improvements already under way in some countries, as indicated by measures such as girls' primary school enrolment and completion. Women have played major roles in these efforts as well as in the design, roll-out and monitoring of programmes and initiatives that prioritize reduction in HIV risk and vulnerability among adolescent girls and young women. The All In to End Adolescent AIDS initiative is one such effort, as was the Global Plan and its successor approach, the 'Three Frees' framework. Formal and informal networks of young people, some of whom are openly living with the virus, are involved in raising awareness about HIV in countries around the world; they include the National Coalition of People Living with HIV in India, the Uganda Network of Young People Living with HIV and the National Network of Adolescents and Youth Living with HIV/AIDS in Brazil.[43]

Leading donors such as the Global Fund and PEPFAR have introduced specialized projects (and thus allocated substantial new funds) aimed at reducing HIV vulnerability and risk among adolescent girls and young women. PEPFAR's DREAMS (Determined, Resilient, Empowered, AIDS-Free, Mentored,

HIV in young key population groups

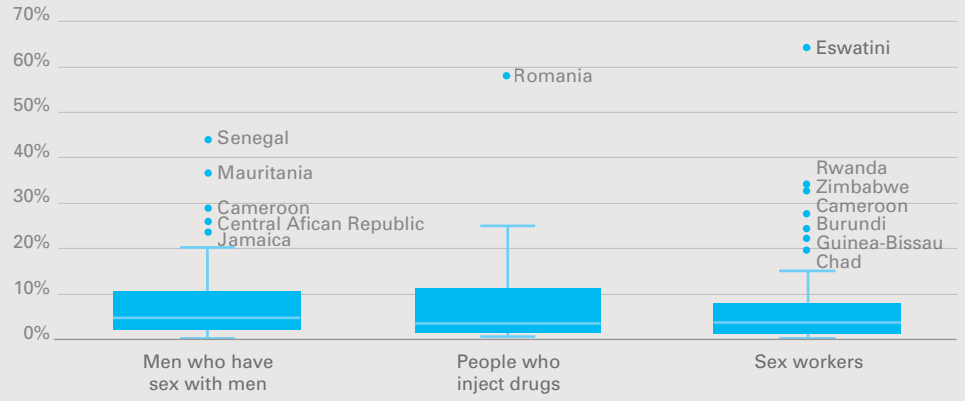
Preventing HIV in young people necessitates special attention to three key population groups: men who have sex with men (MSM), people who inject drugs and sex workers. While there have been global efforts to estimate the size of these key populations at national levels, little attention has been paid to young people (under 25) in these groups. UNICEF is currently attempting to build the evidence base for these young key populations.

In 116 countries reporting, HIV prevalence is consistently higher for young people in these key groups than for the general population. Figure 4.10 shows the range of national results for each of the three key populations. The middle 50 per cent of countries have HIV prevalence ranging from 2 per cent to 11 per cent for young MSM, 1 per cent to 11 per cent for young people who inject drugs and 1 per cent to 8 per cent for young sex workers. Prevalence is extremely high in Senegal among MSM (44 per cent), in Romania among young injecting drug users (58 per cent) and in Eswatini (formerly Swaziland) among young sex workers (64 per cent).

Figures 4.11 and 4.12 report on condom use by two of these key populations. For young men who have sex with men, the overall median condom use is 61 per cent, though results in Western Europe are generally lower than in other regions, possibly because there is greater use in that region of pre-exposure prophylaxis. Condom use among young sex workers is consistently higher than among young MSM across regions, with overall median use of 85 per cent, though it is generally lower in East Asia and the Pacific and Eastern and Southern Africa.

FIGURE 4.10

HIV prevalence among young people under age 25 who identify as sex workers, people who inject drugs or men who have sex with men, by population, 2011–2016



Note: For each of the three populations, country-level estimates represent at least 60 per cent of the global population aged 15–24. Country estimates are excluded if total sample size is less than 100 in countries with a population of more than 250,000 and if programme data are reported from an unrepresentative context. In the absence of complete programme data, biobehavioural surveys are recommended for key populations at risk of HIV infection every three years. However, due to lack of data availability, data from 2011–2017 are included here. Each dot outside the boxplot represents the result for a particular country within a region.

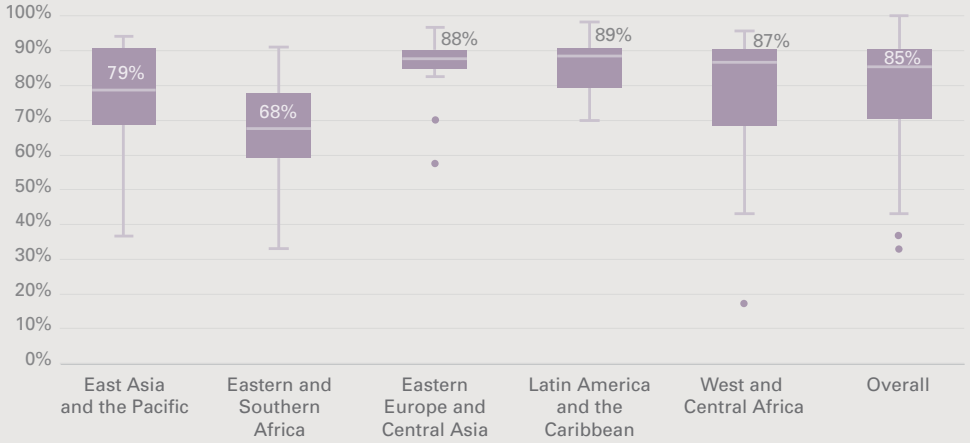
FIGURE 4.11

Percentage of young people under age 25 identifying as men who have sex with men who report using a condom, 2011–2016

Note for Figures 4.11 and 4.12: Country estimates are excluded if total sample size is less than 100 in countries with a population of more than 250,000 and if programme data are reported from an unrepresentative context. In the absence of complete programme data, biobehavioural surveys are recommended for key populations at risk of HIV infection every three years. However, due to lack of data availability, data from 2011–2017 are included here. Median by region is shown in the data label. This analysis was only possible if the region consisted of at least 10 countries with available and at least 40 per cent of the regional population aged 15–24 was represented in country estimates. In Figure 4.12, each dot outside the boxplot represents the result for a particular country within a region.

FIGURE 4.12

Percentage of young people under age 25 identifying as sex workers who report using a condom, 2013–2016



Source for Figures 4.10, 4.11 and 4.12: Global AIDS Monitoring 2017, consisting of research and survey findings submitted by national authorities.

"We know that going to school reduces girls' vulnerability to HIV. … A girl who is educated can also educate boys and men. She is more likely to know her right to control her own body and to tell a man: 'If you don't wear a condom, you won't be having sex with me.' "

– Angélique Kidjo (page 86)

and Safe) initiative is focusing on 15 countries that collectively account for the majority of annual new infections among adolescent girls and young women globally. At its core is a package of interventions that go beyond the HIV and health sector to address the structural drivers that directly or indirectly increase girls' HIV risk, including poverty, gender inequality, sexual violence and lack of education.[44]

Efforts such as DREAMS can only achieve sustained results when supported and championed by women in communities where the real work must be done. Even in the most repressive and challenging environments, women have spoken out about their needs and rights and those of their daughters, sisters, mothers and friends. They and their allies at national and global levels, including community-based groups and networks of women's health and rights advocates, can and should be at the forefront of ongoing efforts to remove legal, policy and other barriers that perpetuate gender inequality in HIV, so as to bring about broader health and other development outcomes as they pertain to adolescent girls and young women.

Key populations

To be an adolescent or young person who is a member of one or more key populations[45] is to face even greater challenges in terms of HIV risk and vulnerability. The few studies that have offered estimates of their numbers underscore the challenges. Global reports, for example, have estimated HIV prevalence to be above 4 per cent for young gay men under the age of 25, and over 5 per cent for individuals in that age range who inject drugs[46] (*see Panel: HIV in young key population groups*).

Being female further adds to the already high levels of risk and marginalization. Adolescent sex workers, for example, risk exploitation, physical and emotional harm, and lack of empowerment based not only on their young age but also on their gender and behaviour. Stigma in all its permutations (from parents, peers and society in general, as well as self-stigmatizing) is one of several reasons many young key populations do not seek out HIV prevention, care or treatment services or related social and health services that could keep them safe and healthy. Most also fear the consequences of the criminalization of same-sex practices, sex work and drug use – which could include being denied health services altogether or being reported to the police.[47]

The extent of risk and impact can be difficult to assess. Data are limited for all key populations, and disaggregated data that give reliable information about the size of adolescent key populations and their HIV prevalence and risk are almost non-existent. However, sufficient information has been available for years showing that key populations' share of people living with HIV is almost always higher, sometimes several times so, than the general population in most countries. In Ghana, for example, a survey in 2011 estimated that nearly 18 per cent of men who have sex with men (MSM) in the country were living with HIV, while the comparable prevalence among the general population was less than 3 per cent.[48]

Some global estimates show even greater disparities. HIV prevalence among sex workers, for example, has been estimated as being 12 times greater than among the general population.[49] MSM and people who inject drugs are up to 24 times more likely to acquire HIV than adults in the general population.[50] A study published a few years ago concluded that, in 15 countries surveyed, transgender women were

A young sex worker pauses at an HIV/AIDS awareness booth at the Taung Pyone Festival, Myanmar.

49 times more likely to be living with HIV than a non-transgender person.[51]

Such disproportionate impact is why key populations and their partners reportedly accounted for an estimated 45 per cent of the 1.9 million new HIV infections worldwide in 2015.[52] However, reaching key populations and meeting their HIV prevention and treatment needs has always been complicated, in all settings, by their tendency to be marginalized, ignored and oppressed and, in some places, subject to sanctioned arrest, abuse or even killing. Such barriers have contributed to rates of ART initiation that are far lower than among the general population, a situation that is harmful to their own health and frustrates efforts to maximize the preventive effect of ART among those more likely to transmit HIV. Data limitations make it difficult to know the full scope of service gaps in most countries, but reports to UNAIDS indicate that an average of 24 per cent of people who inject drugs, 21 per cent of sex workers and 14 per cent of MSM living with HIV were enrolled on ART in 2015.[53] For the same year, in comparison, UNAIDS estimated overall global coverage of ART to be 46 per cent of all those living with HIV[54] (*see Panel: Young people who inject drugs are at grave risk*).

Because key populations make up such a large share of people living with HIV and annual new infections, progress in meeting all high-profile targets – including the overarching UNAIDS Fast-Track targets and the more narrowly tailored 'Stay Free' and 'AIDS Free' targets – will be constrained unless more successful efforts are made to reach them in all aspects of HIV responses. One problem with identifying solutions, however, is that not enough is known about population sizes, where they live and what specific services and support they would find most beneficial and acceptable.

As noted earlier, the lack of data is even more pronounced among young key populations, who are less likely than their older counterparts to be open or even slightly revealing about their risk behaviours and activities. They therefore may find it difficult to take advantage of critical SRH services even though their collective risk factors are much greater than those of their peers from outside the key population who are also going through sexual debut. Young key populations have rarely been the subject of extensive methodical studies that can provide reliable and useful information for policymakers and advocates. Some steps are being taken, including by UNICEF, to meet this urgent need to build an evidence base for young key populations.

Key populations and their contexts differ greatly regarding barriers and needs, which means that most priority activities and strategies should be context-specific, even though some may have broader applications. Wherever they live, for instance, most young key populations might benefit from the removal or reform of age-of-consent laws and policies for HIV testing, ART initiation and access to SRH information and services, including condoms. Expanded access to PrEP and supporting services (including peer-based adherence support) could have transformative effects among young key populations in most settings. So too could school-based sexuality education that includes non-judgmental, evidence-based information about all HIV risk behaviours and relevant prevention options.

Innovation is likely to be especially useful in terms of communication and messaging, which increasingly means maximizing the reach and impact of social media and phone-based apps. Digital technology can expose young people to greater risk as well as opportunities, however. Many young key populations find and communicate with each other through such mediums: Young MSM chat and look for dates and sex; sex workers of all ages are connected with clients through them; young people who inject drugs use them to find supplies.

Yet social media platforms and apps should not be viewed solely as risk-enhancing tools. If used in appealing, careful ways that validate concerns about confidentiality and anonymity, social media platforms and apps can be effective ways to reach young key populations with HIV-related information, support and referrals for testing, counselling and other services. Policies, practices and products should aim to protect young people from harm without compromising their independence or ability to freely discuss and find information that can benefit their health and overall well-being.

Supporting young key populations in safe, empowering ways is an approach deserving more attention. Groups and networks of young key populations have been established in many countries and they have even been making their voices heard in restrictive and confining environments. Youth LEAD is a network of young key populations in countries throughout the Asia-Pacific region, while YouthVoicesCount (YVC) links MSM and transgender women in the same region.[55] Young people also have leadership roles in pan-African networks of key populations that are seeking ways to overcome the distinct health, social, cultural and legal obstacles that adolescent and young key populations face. They include networks convened by the African Men for Sexual Health and Rights (AMSHeR), the African Sex Worker Alliance (ASWA), the Coalition for African Lesbians (CAL) and the Southern African Trans Forum (SATF).[56] These groups have the strongest incentives to identify and lead advocacy strategies aimed at expanding access to the most useful, relevant and acceptable HIV-related services for their populations.

Young people who inject drugs are at grave risk

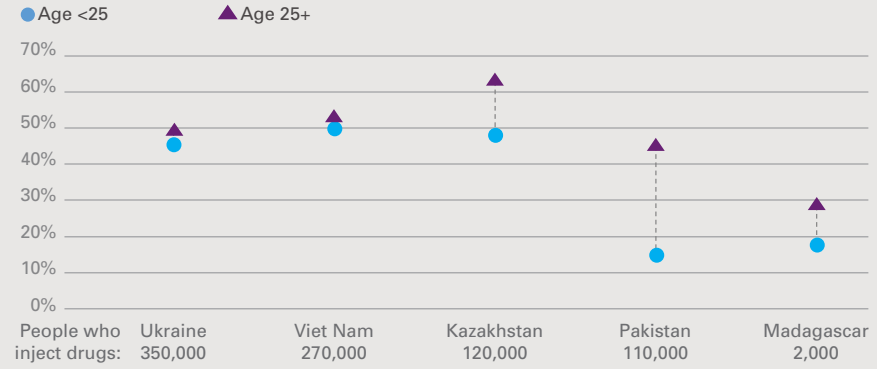
People who inject drugs have always been a population at chronic risk of HIV infection, and they can act as a bridge to the general population in terms of spreading HIV through sexual intercourse. A study of five countries between 2011 and 2016 (Figure 4.13) indicates that young people (those under 25) who inject drugs are consistently less likely to know their HIV status than older people who inject drugs. Even those who regularly inject drugs can follow practices that reduce their risk of contracting HIV, such as using sterile injecting equipment ('safe injection') and wearing condoms during sex. In 30 of the 35 countries with available data, at least 60 per cent of young people injecting drugs practised safe injecting. However, in only six of those countries did at least 60 per cent of young drug users who had sex use condoms.

Young people injecting drugs might be expected to show higher HIV prevalence in countries with low rates of safe injecting and condom use than in others, but Figure 4.14 indicates that there is no such predictable pattern. In Estonia, where 25 per cent of young people who inject drugs are living with HIV, around 58 per cent used a condom for sex but only 3 per cent practised safe injecting. In Myanmar, Pakistan and the United Republic of Tanzania, by contrast, at least 80 per cent practise safe injecting but only 30 per cent use condoms – and each of these countries has an HIV prevalence above 10 per cent in this population. Egypt, meanwhile, has low rates for both practices but still has low prevalence of HIV. In some high-prevalence countries, recent high rates of safe behaviours may be the result of successful HIV prevention interventions –- though the impact remains unclear in the absence of reliable estimates of HIV incidence in this population.

Since they are at particular risk and likely to be sexually active, there is a manifest need to prioritize HIV counselling and testing for these young populations, as well as a need to encourage them to practise safe injecting and condom use.

FIGURE 4.13

Percentage of people who inject drugs who know their HIV status, by age group, five countries, 2011–2016

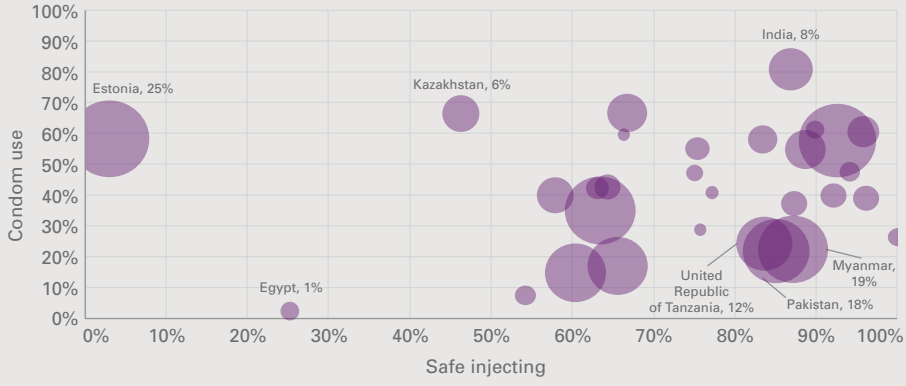


Note: Country estimates are excluded if total sample size is less than 100 in countries with a population of more than 250,000 and if programme data are reported from an unrepresentative context. In the absence of complete programme data, biobehavioural surveys are recommended for key populations at risk of HIV infection every three years. However, due to lack of data availability, data from 2011–2017 are included here.

Source: Global AIDS Monitoring 2017, consisting of research and survey findings submitted by national authorities.

FIGURE 4.14

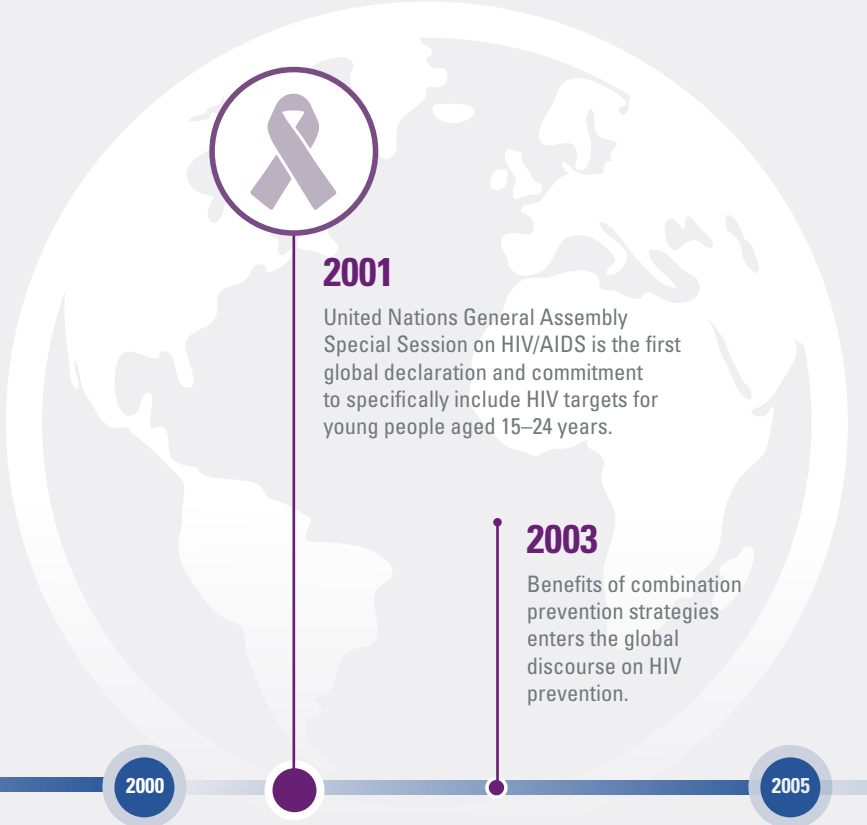
Percentage of young people under age 25 who inject drugs who practice safe injecting and use condoms, of those who had sex and injected drugs in the past month, sized by HIV prevalence, 35 countries, 2011–2016



Note: The size of the bubble represents the relative HIV prevalence among young people under age 25 who inject drugs. Country estimates are excluded if the total sample size is less than 100 in countries with a population of more than 250,000 and if programme data are reported from an unrepresentative context. The chart includes data from 2011–2017. Countries were included in this analysis if they estimated that at least 5,000 people who inject drugs resided in that country. These data represent 47 per cent of the global population aged 15–24. Safe injecting is defined as using sterile injecting equipment the last time the individual injected drugs, of those who injected drugs in the past month. Condom use among people who inject drugs is defined as using a condom at last sexual intercourse among those who injected drugs and had sex in the past month.

Source: Global AIDS Monitoring 2017, consisting of research and survey findings submitted by national authorities.

MILESTONES in adolescent HIV prevention, treatment and care



1995

WHO, in collaboration with the United Nations Population Fund (UNFPA) and UNICEF, publishes *Programming for Adolescent Health and Development*, with recommendations for global action.

2000

MDG 6 specifically includes 15–24-year-olds, with indicators for measuring HIV prevalence among them and proportion with comprehensive, correct knowledge of HIV.

2001

United Nations General Assembly Special Session on HIV/AIDS is the first global declaration and commitment to specifically include HIV targets for young people aged 15–24 years.

2003

Benefits of combination prevention strategies enters the global discourse on HIV prevention.

2006

UNAIDS Inter-Agency Task Team (IATT) on Young People publishes a systematic review underscoring the need to decrease HIV prevalence among young people.

Male circumcision is found to reduce the risk of female-to-male HIV transmission by up to 60 per cent.

1995 2000 2005

2008

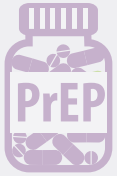
Call to Action for more focus on prevention is published in *The Lancet.*

2009

UNESCO publishes first global guidelines on comprehensive sexuality education.

2010

A third phase of a PrEP trial reveals that drugs used to treat HIV may also be effective in preventing infection.



CAPRISA 004 trial shows that a microbicide gel reduces the risk of sexual transmission of HIV among women by almost 40 per cent.

United Nations Secretary-General launches the Global Strategy for Women's and Children's Health.

UNAIDS releases strategy describing combination prevention.

2011

Results from the HPTN 052 trial demonstrate that HIV treatment has significant prevention benefits.

2013

WHO issues the first-ever guideline addressing the specific needs of adolescents living with HIV.

United Nations Secretary-General's High-Level Panel of Eminent Persons on the Post-2015 Development Agenda emphasizes equity, empowerment, and engagement of adolescents and youth.

2014

PEPFAR's DREAMS partnership is launched in 10 high-burden countries in sub-Saharan Africa.

2015

UNICEF and UNAIDS launch the 'All In' platform to galvanize global action around HIV and adolescents.

2016

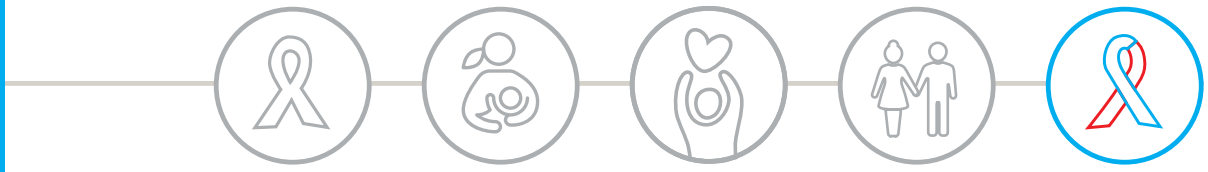
The Global Strategy for Women's, Children's and Adolescents' Health (2016–2030) is launched.

UNAIDS and PEPFAR launch Start Free, Stay Free, AIDS Free.

2017

The new Global Fund Strategy 2017–2022 commits increased funding for programming in support of women and girls.

At its first meeting, the Global HIV Prevention Coalition launches the HIV Prevention 2020 Road Map to accelerate achievement of the targets of the 2016 Political Declaration on Ending AIDS.



5. Conclusion

Two complementary themes in this report are central to successful, coordinated efforts to take the world's response to HIV among children and adolescents to the next level along a solid, supported trajectory towards epidemic control that meets the highest quality human rights and equity standards. One is the dynamism and exceptionality of women across all aspects of the HIV response since the epidemic was first identified in the early 1980s. The other is the remarkable and ongoing development of new tools, medicines, approaches and emboldened advocacy that is driving progress and saving countless lives, families and communities.

Few individuals are better placed to highlight the connections between those two themes than Dr. Lynne Mofenson, a top technical advisor at EGPAF who spent a quarter century focusing on HIV at the United States National Institutes of Health (NIH) beginning in the late 1980s. In a rumination on the past few decades (*see page 94*), she underscores what she and her colleagues, many of them women, have helped to make possible:

> *"In over 30 years of paediatric HIV research, I have been privileged to observe a paradigm shift in the paediatric epidemic – from a 40 per cent risk of transmitting a fatal viral infection from mothers to breastfeeding infants, and half of those infants who became infected dying before age 2, to the possibility of virtually ending new paediatric HIV infections in the next decade, and children living with HIV now surviving into adulthood and having families of their own."*

Optimism based on such observations is embedded in the viewpoint of Gunilla Carlsson, the current UNAIDS deputy executive director, who has a unique perspective from previous work in both politics and development. Simply put, she says, "Just as it was possible to more than double the number of children living with HIV accessing treatment between 2010 and 2016, it is possible to achieve treatment for all" (*see page 78*).

The momentum launched by the Global Plan, the Fast-Track initiative, the 2030 Agenda for Sustainable Development and other galvanizing movements has propelled the world closer to that vital goal of treatment for all. It is possible that sufficient political will, innovative and well-resourced programmes, and the virtuous preventive benefits of ART together

Agustina Seuk and her three-year-old daughter, Putri, in the small room the family rents on the outskirts of Kupang, Indonesia. Agustina is HIV-positive and pregnant with her second child. Her HIV treatment is provided by the Government of Indonesia, free of charge. Agustina is driven by her love for her children. "I have to stay healthy for them," she says.

could bring HIV and the response to it to a stalemate. This would mean, on the one hand, that no new infections would occur among children and adolescents and that all of those already living with the virus would be on treatment. On the other hand, in the absence of a cure, they and the tens of millions of others living with HIV would be required to take ARVs for the rest of their lives. This is not an optimal solution but it is a realistic one for today's optimists – and for all the children, adolescents and other people living with and vulnerable to HIV whose risks of poor health will have plummeted.

Attaining the target of treatment for all is by no means a given, since the people yet to be reached are often the hardest to reach, as Debrework Zewdie, who has spent decades at the heart of the HIV response, points out *(see page 102)*:

> *"We have come such a long way and yet still most of the people who need antiretroviral treatment in poor countries are without it. In any given country, the populations lacking access to treatment are likely to be poor women, children and adolescents. The marginalized groups are still the last to receive treatment."*

Alinafe, 9 months old, was exposed to HIV when her mother was pregnant with her. She tested free of HIV thanks to the PMTCT services her mother received during pregnancy in Malawi.

Keren Dunaway, a young Honduran who has lived with HIV throughout her life, adds: "There are still children who are being discriminated against, there are children who do not have medication, there are children who are being abused and there are children who do not know they have rights" (*see page 82*).

As has been noted in this report, efforts to further improve responses targeting children and adolescents face growing demographic trends in areas affected by HIV and AIDS. The United Nations Population Division projects that Africa's child population will expand to 820 million by 2030.[57] The potential consequences can be seen by projections of impact if current (inadequate) trends in HIV responses continue, including 1.2 million children and adolescents dying from preventable AIDS-related causes globally between 2018 and 2030.

Some of that deadly toll would result from failures to make the kind of dramatic, sustainable progress needed in preventing HIV, especially among adolescents and young people. Projections suggest that eliminating child HIV infections is within reach with a bit more continued push and focus. But new infections among adolescents are anticipated to decline by just 23 per cent by 2030. In that year, an estimated 140,000 adolescents will still be infected with HIV annually, a worrying number at a time when the child population in sub-Saharan Africa is expanding and thus creating an even larger vulnerable risk pool in years to come.

The Fast-Track agenda sets a path that, if followed, could come close to mitigating some of the major impacts of this demographic trend. For example, if 2030 global targets for PMTCT and ART coverage and reduction in new infections among adults are achieved, an estimated 1.4 million new infections among children

The leadership of first ladies

As women of influence, first ladies around the world have used their unique position and leadership and worked with civil society and public and private institutions to create positive change for citizens in their countries on many fronts. Many have taken up the cause of HIV and AIDS, and as such have been tremendous allies and advocates.

Graça Machel was First Lady of Mozambique (1975–1986) and South Africa (1998–1999) (*see page 90*). While First Lady of the United States (2001–2009), Laura Bush travelled to PEPFAR-assisted countries in Africa, Asia, Latin America and the Caribbean, spotlighting the success of United States efforts to combat HIV/AIDS.

She continues her advocacy today through the George W. Bush Presidential Center's affiliate organization, Pink Ribbon Red Ribbon, a partnership to end AIDS and cervical cancer. In 2010, Carla Bruni-Sarkozy, then First Lady of France, launched the Born HIV Free initiative with the Global Fund to mobilize public support for its work and for a world where no child is born with HIV.

The Organisation of African First Ladies against HIV/AIDS (OAFLA) is the largest such organization of first ladies united around a single cause. It was established in 2002 to respond to the symptoms of the HIV/AIDS crisis in Africa and today has expanded to address poverty and gender inequality as the epidemic's root causes.

In 2018, OAFLA and the African Union launched the Free to Shine campaign, working with a number of key partners. The campaign reinforces the political commitment of African nations to end childhood AIDS and keep mothers healthy, with a focus on eliminating mother-to-child transmission of HIV.

In other regions, First Lady of Panama Lorena Castillo de Varela is a UNAIDS Special Ambassador who has worked tirelessly to counter stigma and discrimination in all its forms in order to build an inclusive society. Akie Abe, First Lady of Japan, has been outspoken on the need to raise awareness and improve knowledge of HIV and AIDS in Japan and throughout the region.

and adolescents could be prevented between 2018 and 2030. Other estimated benefits include preventing 200,000 deaths among children and adolescents between 2018 and 2030.

Such estimates indicate that scaled-up and improved HIV treatment and prevention responses among children and adolescents rely on countries making more substantial progress in meeting the Fast-Track targets. That is almost certainly true, and countries can and must recommit to meeting their Fast-Track commitments. But as this report also seeks to emphasize, the Fast-Track agenda is only one component of a broader approach that is needed to ensure and sustain the kind of improvement vital for vulnerable children and adolescents. Advocacy, financing and programme prioritization are essential in a number of other specific areas across the first and second decades of life. Priority action areas include the following:

- **The message of 'finishing the unfinished business' of PMTCT can and should resonate widely, as it is an achievable goal**. Countries that have been validated as having eliminated MTCT or are on the verge of doing so can offer powerful adaptable lessons in how it can be done in a wide range of contexts, including in countries that are lagging significantly. Substantial global will and interest among donors and technical agencies exist for supporting countries as they aim to reach and surpass the 'last mile' in elimination, including in regard to early infant diagnosis and subsequent linkage to treatment.

- **Children living with HIV will be able to thrive and survive only if they are treated early with age-appropriate formulations.** Although the number of children living with HIV is dwarfed by the number of adults, the paediatric ART gap is inequitable and should not be allowed to persist. Donors, pharmaceutical companies and governments should prioritize the development of more appropriate, affordable formulations for children. The health risks of doing otherwise will be substantial not only for the children themselves, but for other young people who might face high risks of HIV transmission from other youth with poorly suppressed viruses or HIV drug resistance resulting from weak adherence.

- **For adolescents and young people to be reached and supported more successfully, human rights and gender should be at the core of the delivery of comprehensive services that are targeted to adolescents and young people and appropriate for them.** This report highlights the poor prevention and treatment results among adolescents. Emphasis on Fast-Track targets alone can only do so much. There are more, and more complicated, barriers to adolescents' ability to obtain access to the type of HIV-related services that can reduce gender-enhanced vulnerability. Strong, targeted efforts to reduce stigma and gender-based violence can be critical. So too can more direct policy and advocacy priorities, such as revising age-of-consent laws to ensure that adolescents and young women have high-quality information about HIV and access to HIV testing and SRH services, as well as the assurance that they can have access whenever they want in a confidential manner.

- **More and better data are essential.** Programmes and strategies that aim to improve HIV responses among children and adolescents ideally should be based on the most recent and reliable evidence. Routine and sustainable programme data can help improve modelled estimates and provide a cost-effective alternative to household surveys. Only consistent and reliable data can lead to useful solutions; treatment data that are disaggregated by age and sex can help to expose gaps and needs among adolescents that remain hidden and unexplored in many countries. Responses among adolescents and country efforts overall are likely to be even more effective when age-specific data are used among key populations.

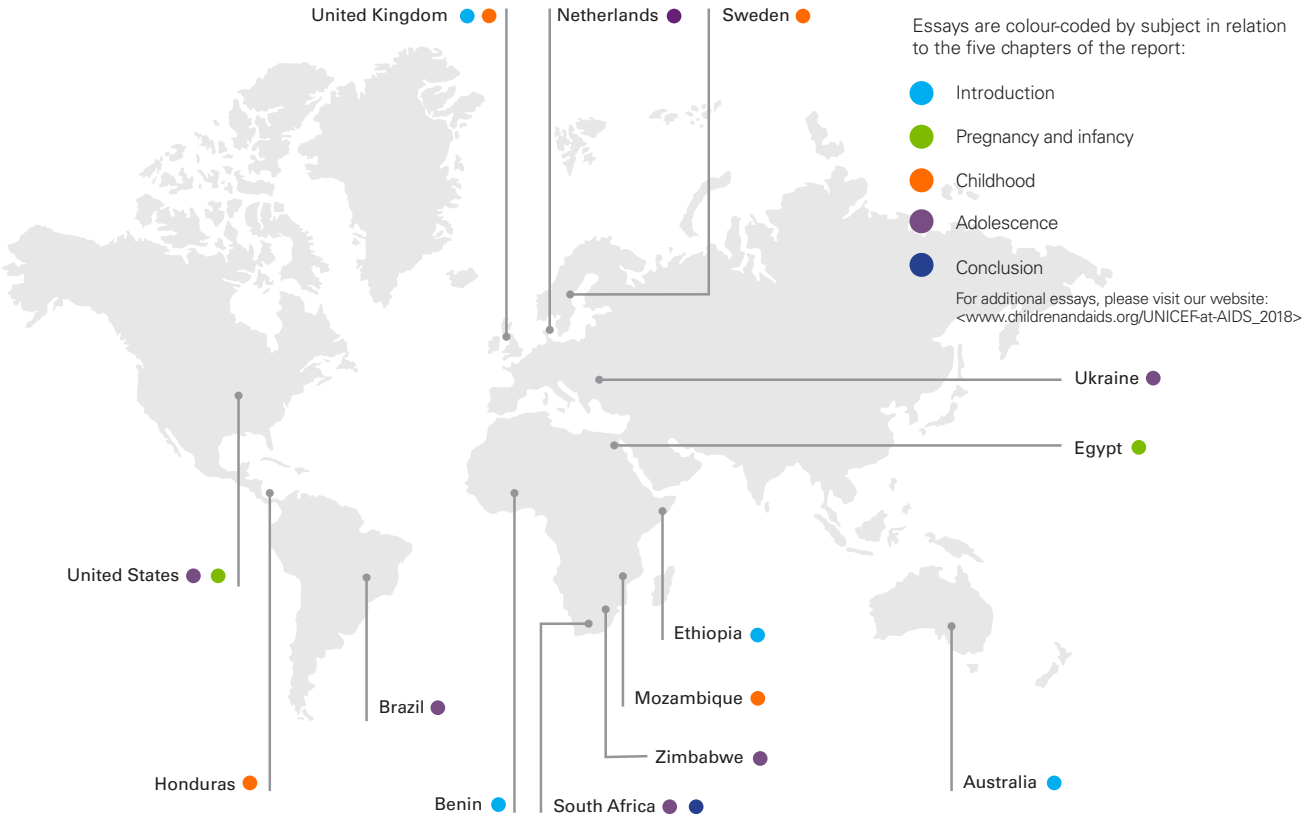
The priority areas and approaches above require more intense and focused advocacy and attention, with targeted efforts needed to ensure that HIV and the challenges and needs of children and adolescents are recognized and addressed across the full spectrum of the SDGs. Women have been doing this for years, including through their transformative work on PMTCT and by making concerted and successful efforts to increase awareness and uptake of SRH services, boost girls' retention in school and change policies and laws that reinforce gender disparities and gender-based violence. Their leadership in such areas as well as others relevant to HIV responses offers an opportunity for more rapid and successful removal of longstanding obstacles and the development of core structures and systems that promote the health and human rights of children and adolescents.

What this means in practice can be difficult to specify, partly because contexts, and thus national and local solutions, differ. Regardless of context, though, the opinions and insights of women and girls must be solicited more extensively and used as the basis of new interventions, strategies and approaches. Similarly, the role of women should not only be further acknowledged and celebrated, but also given the space to expand and lead. A comment by Dr. Adele S. Benzaken (*see page 76*), the director of the Brazilian Ministry of Health's Department of STIs, HIV/AIDS and Viral Hepatitis, highlights the qualities that have put women at the centre of HIV responses and thus makes them critical to the future: "I think it is safe to say that so many remarkable women have assumed leadership in the HIV response for children because women are undoubtedly resourceful, sensitive and creative facing adversity – and this means new energy and strength in the response going forward."

Perspectives

Essays and reflections from 19 remarkable women leaders who have dedicated their lives' work to the HIV response for children. UNICEF is honoured that so many women generously contributed their essays, and we are inspired by their personal stories.

In putting together this collection, UNICEF reached out to 40 women leaders in all parts of the world representing academia, the arts, science and medicine, the nonprofit and private sectors, government, the United Nations and communities. Almost half of them accepted our invitation to contribute an essay. Although not all regions could be represented here, we feel that the diversity of the essays is representative of women around the world working in common cause towards ending AIDS for children and for all.



Quarraisha Abdool Karim

Quarraisha Abdool Karim, PhD, is associate scientific director of the Centre for the AIDS Programme of Research in South Africa, associate professor of clinical epidemiology at Columbia University in New York and Honorary Professor of Public Health at the University of KwaZulu-Natal, South Africa. Since 2017 she has been UNAIDS Special Ambassador for Adolescents and HIV.

Using science to address the drivers of the epidemic

Innovative science and medical technology make momentous contributions to disease prevention and global health. Generating new knowledge is a team effort, and multi-disciplinary partnerships and synergistic collaborations around the world have enabled us to achieve unprecedented progress in our response to HIV and AIDS.

As an infectious diseases epidemiologist, I have spent the past three decades dedicated to understanding and reducing the rate of new HIV infections and AIDS-related deaths in women in Africa. The technologies that my team and I have developed are already reducing the high rates of infection in young women in South Africa, and preventing infection in their infants and partners.

Young women in Southern and Eastern Africa present the single greatest challenge in the AIDS epidemic in Africa. One of the first population-based HIV surveys in Africa, which I undertook in 1990, demonstrated the disproportionate burden of HIV infection in young women. Since then, our team's efforts have focused on unravelling the underlying biological and behavioural reasons contributing to the up to six times higher rates of HIV infection in young women 15–24 years of age than in their male peers.

HIV prevention options are primarily controlled by men, leaving young women with limited options to protect themselves if they are unable to negotiate safer sex practices with their male partner. The results of our research, published in 2010, changed

that by demonstrating that the topical use of the antiretroviral agent tenofovir, a method that women can control, was effective in reducing rates of infection. This discovery provided the first evidence for what is today known as pre-exposure prophylaxis (PrEP) for HIV prevention, and this initial finding, together with other studies on oral tenofovir, formed the basis for the World Health Organization's 2015 recommendation to provide PrEP as standard treatment for all those at high risk of acquiring HIV. Notably, PrEP is the only new technology for preventing sexual transmission of HIV to have appeared in the past decade.

Since 2010, our team's findings have continued to advance our understanding of how the virus spreads and the critical role of genital health in HIV acquisition.

Our study looking at who is infecting whom within a rural community in KwaZulu-Natal through sequencing viruses isolated from recently infected individuals identified in a population-based survey, provided a granular understanding of how age-disparate relationships facilitate the spread of HIV in hyper-endemic HIV epidemic settings in Southern and Eastern Africa.

These findings have informed the UNAIDS HIV prevention strategy and served as the basis for the 2016 World AIDS Day report *Get on the Fast-Track: The life-cycle approach to HIV*. A large-scale prevention programme for women in Africa – funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR) and called Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) – was also developed based on this research. On World AIDS Day 2017, the same research achievements were cited by UNAIDS Executive Director Michel Sidibé in appointing me UNAIDS Special Ambassador for Adolescents and HIV.

The spread of HIV around the world is uneven. Although South Africa accounts for less than 1 per cent of the global population, it is home to almost 15 per cent of global HIV infections. KwaZulu-Natal, on the east coast of South Africa, bears the brunt of the epidemic. When I undertook my first HIV prevention studies in 1989, I could not have predicted the eventual magnitude of the epidemic in my home province, nor that AIDS would become a leading cause of death in young women. In some communities where I continue to work, by the time they reach 25 years of age, every other woman is infected with HIV. I did not know what a threat HIV would pose to my country as it stood on the brink of democracy, nor how important my skills and experience as an anti-apartheid activist would be in taking on this new struggle.

In the response to HIV and AIDS, large numbers of women are engaged in research and care provision. In Africa, in formal and informal settings, the bulk of health care is delivered by female health-care workers. This is not surprising: The extent and immediacy of the HIV challenge, with its very visible impact on mothers and infants, may have served as an impetus for the early engagement of women. The social movements that emerged in the very early days of the epidemic in response to slow scientific progress, stigma, discrimination and the violation of human rights remain unprecedented, as does the global solidarity.

Despite these glimmers of hope, the challenges of preventing HIV and AIDS-related deaths in adolescents are far from over. The enormous success of preventing mother-to-child transmission (PMTCT) has enabled infants to survive paediatric infection or exposure and reach adolescence. The current convergence of vertical and horizontal transmission routes in adolescents in a continent where approximately 60 per cent of the population is under 30 years of age needs special attention or we risk reversing the PMTCT gains and survival benefits achieved to date.

Currently adolescents around the world continue to experience the highest rates of new HIV infections and AIDS-related deaths. Much more needs to be done with urgency in this group to meet the United Nations Sustainable Development Goal of ending AIDS as a public health threat by 2030. Keeping adolescents healthy, educated and growing up in safe environments are sound investments for today and tomorrow.

Saving mothers, saving children

As the HIV epidemic unfolded in the United States in the late 1980s and early 1990s, the paediatric wards at Harlem Hospital Center in New York City bore witness to the devastating impact of HIV on children and families. On the 17th floor of the hospital, infants and young children were succumbing to this new disease, filling hospital beds with what would go on to be recognized as classic manifestations of untreated perinatal HIV infection – wasting, chronic diarrhoea, encephalopathy, severe pneumonia and a shockingly rapid demise. In parallel, their mothers, aunts, fathers and grandmothers were also being ravaged by HIV, crowding the clinics and filling the hospital wards a few floors below. Against a backdrop of severe poverty, high rates of unemployment, heroin and crack cocaine epidemics, and a severely frayed social network, HIV threatened the fundamental underpinning of the Harlem community – the family.

We were two young women physicians, one caring for children and the other treating infectious diseases in adults, who arrived at Harlem Hospital Center at the height of the epidemic in this community, each having travelled a distinct path. Born and raised in Egypt, Wafaa was driven by an ethos of service. As a young child, she spent weekends and summers almost in the shadow of the pyramids, where her parents, both physicians, ran a programme for adolescents from less fortunate circumstances. Playing, working and learning side by side with these young people, she learned critical life lessons about equality, opportunity and service. By the time she arrived in Harlem, she was well suited to tackle the myriad health and social issues confronting these very ill patients.

At the same time, Elaine had travelled a somewhat shorter path to Harlem. A native New Yorker, she came to the hospital to train in primary care paediatrics with Dr. Margaret Heagarty, one of the first women to break the glass ceiling of academia and a vocal advocate for the health and social needs of poor children. Daughter of a Holocaust survivor who as a young girl was hidden in France from the Nazis by brave individuals willing to risk their own lives, Elaine also carried the mantle of service and was committed to caring for the most vulnerable children and families. As HIV took hold in Harlem, more and more children were spending their short lives in hospital rooms; the severe inadequacies of the medical treatments and social service systems quickly revealed themselves.

Together with teams of dedicated health professionals and community partners, we were honoured to shape the response to HIV, providing quality medical care, testing new treatments and strategies through clinical trials and studies, developing innovative programmes to support families and advocating locally, nationally and globally to mobilize the response to HIV. Recognizing the unparalleled power of peer support, Wafaa developed Positive Links, a programme that trained women with HIV to provide information and psychosocial support to other women coping with HIV infection. At the same time, Elaine tirelessly pushed the envelope on paediatric diagnosis and treatment, ensuring that children were included in the agenda to find effective approaches to prevent and treat HIV infection.

As time passed and successes in the HIV response accrued, the imperative to address the burgeoning health needs of the millions of people living with HIV in poor countries became increasingly pressing. Dr. Allan Rosenfield, then dean of Columbia University's Mailman School of Public Health and a leader in woman's health, mobilized resources to establish the MTCT-Plus Initiative, the first multi-country family-focused antiretroviral treatment programme in Africa and Asia.

For the two of us, it was time to build on our years of experience in Harlem and again join forces to tackle this new challenge. Launched early in 2002, MTCT-Plus was designed to ensure that HIV-positive pregnant women identified through programmes for prevention of vertical transmission could access antiretroviral treatment for their own health, rather than solely to prevent HIV transmission to their babies. As in Harlem, 'the family' became the centre of concern, and peer support, community mobilization and attention to the behavioural and psychosocial needs of children were essential services. HIV treatment and support were also offered to all the women's HIV-positive family members, including their children, partners and others. MTCT-Plus provided undisputable evidence that treatment of HIV-positive infants, children and adults including pregnant women in poor countries could and should be done.

In the three decades since we began our work, the response to the HIV epidemic has evolved dramatically. Large global investments, by the President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis and Malaria, have enabled access to treatment for more than 24 million individuals, including more than 14 million orphans and vulnerable children. ICAP, the centre where we work at Columbia's Mailman School of Public Health, has become a global health leader making major contributions in the HIV response. Over its 15-year history, ICAP, in collaboration with partners worldwide, has supported HIV testing and counselling for some 29 million people, including almost 8 million pregnant women, and has enabled access to HIV treatment and care for well over 3 million people. Together with our colleagues around the world, we are determined to continue using every opportunity to remind the world that every child deserves a healthy start and that all children need healthy mothers and families to thrive.

Dr. Elaine Abrams

Dr. Elaine Abrams is a professor of paediatrics and epidemiology at Columbia University and the senior director for research at ICAP.

Dr. Wafaa El-Sadr

Dr. Wafaa El-Sadr is an infectious disease specialist, epidemiologist and the founder and director of ICAP at Columbia University. She is also University Professor of Epidemiology and Medicine and holds the Dr. Mathilde Krim-amfAR Chair of Global Health at Columbia University.

Preserving the health and potential of the greatest resource: Youth

Adolescents really matter! As I reflect on these very important words, my mind turns to four trains of thought:

(1) Every week around the world, almost 6,300 young women and girls 15–24 years old become newly infected with HIV[1] – each infection preventable and each a failure of our systems to deliver tailored, wrap-around, adolescent-friendly health services. Unless we rejig our systems to provide demedicalized, sero-neutral, community-based and age-bundled health and well-being services to young people in a way that makes them accessible, relevant and understandable, then we are wasting our time and theirs.

Young people have been telling us for decades what they need. My mother used to say: "There are none so deaf as will not hear!" All adolescents have the right to health services, but helping them prioritize health and engage in services is challenging when they feel invincible, their prior experience in health care is limited and their concern about privacy is high.[2] Among the key lessons learned in the HIV response is that health services must be tailored to young people's needs and preferences and must be offered in an integrated package that includes comprehensive health checks relevant to them and takes into consideration their other priorities such as education and economic opportunities, which if unaddressed lead to poor health and well-being.[2,3]

(2) When I think back to how I was in my late teens – full of hope and dreams of a bright future – I feel desperate that the youth of today should not be denied a similar sense of hope. Yet we know in this increasingly crowded, overly urbanized world, that job prospects are restricted, opportunities are scarce and young people, especially in low- and middle-income countries, face an increasingly uncertain future. These economic constraints contribute in powerful ways to young people's vulnerabilities. Young South African women are often at the mercy of older men who can provide opportunities they would otherwise be denied in return for sexual favours. Young women are vulnerable to school dropout, early marriage, and gender and power dynamics that make negotiating safe sex difficult and transmission of HIV easy. Approximately 16 million girls 15–19 years old in developing regions give birth annually, even though we know that pregnancy during adolescence increases the risk of complications for mother and child, with childbirth the leading cause of death among women in this age group.[4–6] Minimizing health risks for adolescent girls, including but not limited to HIV infection, will require an unprecedented, well-resourced, multi-sectoral effort that includes making education for girls a priority.

(3) Just as women are at the heart of the epidemic, they are at the heart of the solution. As scientists, researchers and programme implementers, women have been at the forefront of the most important scientific advances in the HIV response, including prevention of mother-to-child HIV transmission, the use of antiretroviral therapy for HIV prevention, the use of microbicides and other female-controlled prevention methods, and the identification of the link between HIV infection and gender-based violence.

Linda-Gail Bekker

Linda-Gail Bekker, PhD, is the deputy director of the Desmond Tutu HIV Centre at the Institute of Infectious Disease and Molecular Medicine at the University of Cape Town. She is also the chief operating officer of the Desmond Tutu HIV Foundation and president of the International AIDS Society. She is both a professor of medicine and a researcher studying the HIV/TB co-infection epidemic.

Women's contributions to scientific advances in HIV and other public health challenges are important for several reasons. Firstly, scientific challenges as urgent as the search for an HIV cure or a preventive vaccine are too important to foreclose contributions by half of the world's collective brain trust. Secondly, the involvement of women in leadership positions makes it more likely that women's issues will be effectively addressed: We need women's scientific leadership to ensure that the unique needs of women figure prominently in the scientific agenda. I have worked as a physician scientist in sub-Saharan Africa for the past 25 years, and I see a great need to support, rather than punish, women who choose to mix career and family, as well as a need to invest in the next generation of women leaders. This will strengthen workplace cohesion and productivity and ensure that we have a steady pipeline of women science leaders and colleagues for the future.

(4) Finally, the overwhelming sense of responsibility for my own 16-year-old son, Oliver, makes me feel even more moved to act. He is smart, funny, full of potential. As a mother, I have great hopes for his future. My task is to impart to him a sense of right and wrong, of justice and of love and tolerance. Thereafter, it is his story to tell, his life to live. I know that mothers everywhere feel the same. How do we create a more equal, more just, less intolerant world for him and others to live safely in? Archbishop Emeritus Desmond Tutu said: "Children are a wonderful gift. They have an extraordinary capacity to see into the heart of things and to expose sham and humbug for what they are." He also admonished us to see the world as a place where our humanity is bound up with that of others, because it is only then that our humanity becomes manifest. Young people can be a force for good. They can expose the hypocrisy and cynicism of a tired world. When we harness the curiosity, honesty and frankness of youth, we move the world forward. We find new solutions to old problems and we unleash new energy for world-worn situations. Investing in young people is to unleash a triple dividend – an investment in youth for today, an investment in adults of tomorrow and in the parents of the future.

Hope and health for Brazil's most vulnerable

I must admit that I have always thought of myself as an intrepid person.

As the Brazilian, Jewish, Amazon-born daughter of an Austrian father and a Moroccan mother, I learned early on how to be versatile – and I have remained so for the length of my 40-year career. Throughout my lifelong commitment to public health, I have been a doctor, an activist, a health manager and an NGO leader, working towards prevention and treatment of sexually transmitted infections (STIs), HIV and AIDS among women, children and other vulnerable populations such as sex workers and indigenous peoples.

From the beginning, I have been motivated by the idea of fighting discrimination among the people who face it most. It is to the people living on the fringe of society that my attention has always been drawn.

In the 1970s, when I became a doctor, I thought that working in a public health service would be enough to help the women in my community better deal with their bodies and their sexuality, but I soon found out that I was wrong.

A PhD in public health also proved insufficient: I needed to go where people were, even if that meant working on the streets.

So, in the 1990s – while coordinating Amazonas' first state department of STIs, HIV and AIDS – I founded an NGO to help local sex workers, both women and children. This NGO fought discrimination and strove to teach sex workers how to prevent STIs, while offering the sexually exploited children among them alternatives to life on the streets.

Dealing with the social and economic vulnerabilities that often lead children and adolescents to face sexual violence and prostitution is extremely challenging. To me, the HIV response for children means using education – not only at school, but in workshops that empower youngsters through peer-to-peer education in their own venues, for example – to expand outreach and awareness, taking local and personal specificities into account.

I think it is safe to say that so many remarkable women have assumed leadership in the HIV response for children because women are undoubtedly resourceful, sensitive and creative facing adversity – and this means new energy and strength in the response going forward. Women's increasing leadership in their various and crucial roles in contemporary society must surely lead to an enhanced HIV response for children throughout the world: Women are natural leaders wherever they may be.

Following my work with women and child sex workers on the streets of Manaus, I moved on to projects involving a different vulnerable population: indigenous peoples in the Brazilian Amazon, where we worked hard to empower communities to fight for their citizenship and to combat and face syphilis, HIV and other STIs, as well as vertical transmission of these diseases. During this period, we introduced Brazil's first rapid test for syphilis, with dramatically positive, yet local, results. This rapid test proved to be the best way to keep children from being born with congenital syphilis.

Years later, now as head of the Brazilian Ministry of Health's Department of Surveillance, Prevention and Control of

STIs, HIV/AIDS and Viral Hepatitis, which is directly responsible for the national HIV programme, I am again focused on ending HIV and STIs among young people and vulnerable populations in Brazil.

Here, through ongoing cooperation between the government and civil society, we have put forward actions focused on youngsters, scaling up efforts to prevent HIV and protecting human rights among vulnerable populations through peer-to-peer training, awareness campaigns and workshops preparing young people to become leaders in the HIV response within their own communities.

This is all part of Brazil's combination prevention approach to HIV, which offers multiple alternatives for prevention and testing, enhancing early diagnosis and strengthening linkages to universal treatment and care as a tool for treatment as prevention.

The country's combination prevention response also includes pre-exposure prophylaxis (PrEP), available to selected adults in 11 Brazilian states since December 2017 and in all states by July 2018, and post-exposure prophylaxis (PEP). PEP has been available in Brazil since 1999 for occupational accidents and sexual violence and, since 2013, also for those exposed to the risk of HIV following consensual sex and is now available throughout 1,304 health services in 652 municipalities. Dispensation of PrEP has increased from 11,000 units in 1999 to over 87,000 in 2017.

A nationwide trial concerning the use of PrEP for adolescents – put forward by Unitaid – is now under way, and its results will be incorporated into the national programme in 2019.

As for vertical transmission, we have interrupted it by establishing the use of the antiretroviral drug raltegravir – instead of efavirenz, which is much less efficient – in treating pregnant women living with HIV, leading them to an undetectable viral load. We have also introduced certification of Brazilian municipalities that have eliminated vertical transmission. Curitiba is the first city to do so, and others are following in its path.

These positive results renew our hope for the future of the HIV response for children. Worldwide, new perspectives are being established, but there's still a lot to do. Women's leadership is crucial to this response.

I am proud of the progress Brazil has made, and I am glad to say that – as a woman, a mother and a professional focused on the HIV response for women, children and other vulnerable groups – I am just as excited as I was 40 years ago to face this challenge in my country and worldwide.

Dr. Adele S. Benzaken

Dr. Adele Schwartz Benzaken is the director of the Brazilian Ministry of Health's Department of STIs, HIV/AIDS and Viral Hepatitis. She is an advisor to PAHO and member of the Committee for Validation of Elimination of Vertical Transmission of HIV and Congenital Syphilis in Latin America and the Caribbean. She has worked at UNAIDS Brazil and managed several institutions in the Brazilian state of Amazonas.

Gunilla Carlsson

Gunilla Carlsson became deputy executive director of UNAIDS and assistant secretary-general of the United Nations in February 2018. She was formerly a member of the Swedish Parliament (2002—2013), a member of the European Parliament (1995—2002) and Swedish Minister for International Development Cooperation (2006—2013). She served on the United Nations High-Level Panel on the Post-2015 Development Agenda and on the board of the GAVI Alliance.

Children first: A call to action

We all start off as children. We depend on our parents, our caregivers and communities to give us the best start we can have in life, to protect our health, foster our growth and support our development. We count on our governments to enable this to happen, providing essential, life-saving and life-enabling services.

Yet, it seems that at one point we forget. We forget as adults what it means to be that vulnerable. To be fully dependent on others for your well-being. And so we do not do enough to protect, respect and empower children.

Children living with HIV are especially vulnerable. It is estimated that 1.8 million children are living with HIV, and that only 52 per cent of them have access to the life-saving medicines they need. While this is an improvement compared to 22 per cent in 2010, it still means that about half the children in need of treatment do not have access to it. This means that we are failing almost half of all children living with HIV.

But, this is a failure that can be fixed. Just as it was possible to more than double the number of children living with HIV accessing treatment between 2010 and 2017, it is possible to achieve treatment for all. To do so, we must adopt a multi-layered approach that includes making HIV diagnosis, testing and treatment available closer to where the children most affected live; training health workers to provide effective HIV services for children living with HIV; strengthening community support systems; and developing more medicines specifically adapted to the needs of children, while keeping them at an affordable price.

We must also recognize that children living with HIV do not live in isolation and that their other needs, including access to the full spectrum of health

care, education, family and community support, must be met. As a former vice chair of the GAVI Alliance, I have seen up close the difference that vaccines make. Since 2000, GAVI support has contributed to the immunization of close to 640 million children. In 2016 alone, 62 million children were immunized with GAVI-supported vaccines. This is literally saving lives, enabling children to live and thrive.

Supporting work with children has always been central to me because I know how much having the support of my parents meant to me. Coming from a farming family, we did not have a lot of money, but still we had each other, we had health care, we had education. This was the privilege I had because I was born in Sweden. But, really, this should not be considered a privilege. It is a human right – for all people, for all children, to have access to health and to education. Children, especially very young ones, cannot fight for it, which means that we, each and every one of us, must stand up and demand more and better for the children of the world.

That is why I am honoured to now be serving UNAIDS as deputy executive director and, through it, contributing to the global efforts to achieve zero new HIV infections, zero AIDS-related deaths and zero AIDS-related discrimination.

Along with these targets, the Start Free, Stay Free, AIDS Free framework embraces a life-cycle approach towards achieving an AIDS-free generation, with a focus on the first 24 years of age. From primary prevention and early infant diagnosis, to treatment access and ongoing prevention, the framework recognizes the need for continued support to children from the moment they are born, as they continue to grow.

Moreover, it makes clear that this is an effort we can all engage in. Whether we do it by becoming engaged in our local communities to provide support to children living with HIV, by campaigning for greater vaccine access, by promoting children's right to education or other efforts, we all have a role to play when it comes to protecting children. The cost of not doing so is too great. And yet the rewards for doing so are even greater: healthy children, who then grow into healthy adults and fully productive, empowered members of their community.

"We all start off as children. … We forget as adults what it means to be that vulnerable."

Cash, care and clinics: Vital in the response to adolescent HIV

You don't get to choose the most urgent global crisis of your lifetime, you just get to choose whether you rise to meet its challenge.

I never meant to work on HIV, nor on social protection. In 2002 as a trainee social worker, I went home to South Africa, planning to do youth probation. What I saw there changed my career, and my life. At the time, we had no publicly available ART, and every child I worked with was sick, every parent was dead or dying. I asked how I could best help, and the answer surprised me. NGOs and governments wanted research – reliable evidence of what they could do to help the millions of children affected by HIV and AIDS.

Nine thousand interviews later, Africa's children and adolescents had told our research teams from Oxford University and the University of Cape Town how tough things were. AIDS orphanhood has major negative impacts on mental health, education and sexual risk. Living with an AIDS-unwell caregiver has equal or worse impacts. We had identified the need, but not yet the solutions. And then, one dusty day in Addis Ababa, UNICEF's Rachel Yates and Patricia Lim Ah Ken presented us with a challenge. They had a hunch that cash transfers for poor households might reduce HIV risks for adolescents, but no evidence yet. It took us 18 months to test this, but the results were remarkable. South Africa's child support grant substantially reduced adolescent girls' risks of transactional and age-disparate sex,[1] which were shown by Quarraisha Abdool Karim's research to be a crucial risk in HIV infection.[2]

But cash alone wasn't enough. We found that adolescent boys and girls who received both social protection – cash transfers, free school and school meals – and psychosocial care – mainly good parental support – had even lower risks.[3] For HIV-positive adolescents, taking life-saving medication can be a daily struggle. But with combinations of food provision, family care, enough money to get to the clinic and support groups, retention in HIV-care rose by 50 per cent.[4] Working with research leaders such as Lorraine Sherr, we learned that combining biomedical advances with socio-economic support gives adolescents the best chance to beat the pandemic.[5]

Cash and care programmes now reach millions of Africa's adolescents, through initiatives such as DREAMS, INSPIRE and UNICEF and USAID's orphans and vulnerable children services; through national governments in the region; and through NGOs such as PATA (Paediatric-Adolescent Treatment Africa), REPSSI (Regional Psychosocial Support Initiative) and the International AIDS/HIV Alliance. Years ago, Douglas Webb, then at UNICEF, told me that research is irrelevant without political capital. He was right. I have seen what can happen when United Nations agencies, African policymakers and donors work together, with evidence as an essential tool.

And HIV-sensitive social protection has reached these millions through the leadership of women and men with remarkable foresight and tenacity. Many were at UNICEF, such as Chewe Luo,

Lucie Cluver

Lucie Cluver is a professor at Oxford University and the University of Cape Town. She works closely with a team of partners, postdoctoral, doctoral and master's researchers. They collaborate with the South African government, UNICEF, USAID-PEPFAR, UNDP, UNAIDS, WHO and the Global Fund, and with international NGOs, to provide evidence that can improve the lives of children and adolescents in sub-Saharan Africa.

working with thought leaders at UNDP, UNAIDS and UN Women. Some inspired me in ways they probably never realized. I remember walking up a freezing Lesotho mountain with Gretchen Bachman. She and her colleagues at USAID-PEPFAR told me that we had to combine HIV clinical care with women's economic empowerment, child stimulation and food provision. I argued that it was impossible, but years later realized that they were right. I remember Charlotte Watts in London, Theresa Betancourt on a wobbly Dar es Salaam ferry and Linda-Gail Bekker in a hospital in Cape Town, all saying that impact mattered more to them than academic prestige.

But I have also seen three hidden driving forces behind women's leadership. First, the power of unselfish mentorship by senior academics – Lorraine Sherr and Frances Gardner have given me unfailing support; they are the kind of researchers I want to be. Second, the skill of working behind the scenes – for example, Marissa Vicari at the International AIDS Society establishing the CIPHER fellowship to bring young academics into the field of paediatric HIV and Heather Doyle and Daniela Ligiero quietly ensuring that funds addressed gender violence as well as medication. And third, the daily commitment of thousands of women who walk dusty roads to homes, clinics and communities to give physical and emotional support to those affected by the epidemic.

I have learned – the hard way – that rigorous research is often slow and expensive. This means that we must identify the evidence we will need in five years' time, and start now. There will be an estimated 435 million adolescents in Africa by 2050. Our HIV-positive adolescents are having children themselves – a third generation at risk. We are working with thought leaders Anurita Bains and Laurie Gulaid at UNICEF ESARO to understand the most effective ways to support these young mothers, fathers and their children.

And we are moving into a new political era of the HIV response for children, that of the Sustainable Development Goals. This is both terrifying and an exceptional opportunity. A few months ago, in a New York tower, Mandeep Dhaliwal of UNDP told me that we have the global agenda to make change, but we need the research evidence to operationalize it. So we have a new challenge: to ensure that children affected by AIDS benefit from the wide-ranging provisions of the SDGs and are not left behind in the global response. And with these leaders – the dedicated women and men who all chose to meet the challenge of children and HIV – I know that this is possible.

Keren Dunaway

Keren Dunaway is a 22-year-old Honduran who has been an activist against stigma and discrimination and for the rights of children living with HIV for 14 years. Her work has included editing a children's magazine and she has been a UNAIDS intern. One of her proudest achievements was speaking at the opening of the International AIDS Conference in Mexico City in 2008, at age 12.

Life as a child activist

Having HIV in the 1990s meant automatic exclusion from your social circle, discrimination and a lot of stigma. It was even more difficult in developing countries, where HIV was, in the minds of many, a death sentence – because despite being a step away from entering the millennium, ignorance flooded Latin American countries. When our family was diagnosed in 1996, my parents began to sell their things and say goodbye to friends and relatives. In those days there was no possibility of antiretroviral therapy because it would not exist in my country until three years later, with the arrival of AZT as a donation by the church. The state-approved drug did not arrive until 2003. As you can imagine, having a positive test result in Honduras before 2000 was to be denied the possibility of a full life. The terror overwhelms you, but the love of living is too strong to let you sink.

In 1999, we created the Fundación Llaves because we were tired of seeing our friends die, tired of seeing children sick instead of playing because they lacked medicine and tired of our rights being violated because of the absence of a special law. I was one of these children. When I was a baby, I spent the first year of my life in the hospital with pneumonia, but the worst was at age 8, when I had acute pancreatitis as a side effect of an ARV drug. I left the hospital weighing 30 pounds.

Spending my childhood sick, and suffering moments of discrimination when all I wanted to do was play with my friends, was what made me decide to put a stop to this. Without even wanting to, I became a model and even an inspiration for many girls and boys with my same condition, because, after my recovery from pancreatitis, I became someone who spoke openly about my experience of living with HIV. I was often invited to give newspaper, radio and television interviews, so it was a

wonderful opportunity for me to meet other girls and boys, for them to get to know me and for us to help each other be children.

The work I did with Fundación Llaves helped to attract attention and led to a government-level decision to improve the list of paediatric medicines, so that other children would not have the serious side effects that I had and would be able to take pills that were kid-friendly. I hated to take my pills, not out of shame, not because I did not accept my condition and not because I did not want to take care of myself, but because they were so big that it hurt to swallow them and they had a horrible taste, a taste that should not be given to a child. I remember crying and begging my parents to smash them into powder and dilute them in juice. For this reason, my parents insisted that the government buy specifically paediatric medicines, so that I and the other boys and girls would not have to use adult medicines.

I'm not sure if my mother and I achieved a global impact, but regionally I like to think that we did, by sensitizing the First Ladies of Latin America and some presidents with whom we participated in different international events, by giving lectures in schools so children would know what it means to live with HIV and not to be afraid of it, and above all, by focusing attention on the need to improve health services for children with HIV and to make HIV testing more efficient for pregnant women to prevent more children from becoming infected.

Certainly, the participation of such notable women as the First Ladies and others has played a role in raising awareness and decreasing taboos about HIV and about sexuality and its diversity, more than many men in power are able to do. Although new infections in children and girls are declining, it is necessary to pay attention to the health of adolescent boys and girls, especially sexual health and education, because every day there is a teenage pregnancy. Teens do not know where to buy a condom or how to use it, they have misconceptions of what consent is and they don't know that they can say no.

We women with HIV have walked a very hard road that has seen change for the better but not enough. There are still children who are being discriminated against, there are children who do not have medication, there are children who are being abused and there are children who do not know they have rights. We have more work to do, but every day we become more united and every day we fight together to get where we want to be.

"I hated to take my pills ... because they were so big that it hurt to swallow them and they had a horrible taste, a taste that should not be given to a child."

Working together to find solutions for children

I have worked in paediatric HIV for nearly 30 years, seeing the first HIV-infected children in the United Kingdom in the late 1980s and working in Africa since the late 1990s. In 1989, I set up the family clinic at London's Great Ormond Street Hospital for Children (GOSH), the first to care for HIV-infected children and families together. The children came from more than a dozen countries, mostly in sub-Saharan Africa, and many of them died, because we had no anti-HIV medicines.

Alongside my clinical work, I was privileged to work with Professor Catherine Peckham at the Institute of Child Health, UCL, on studies in HIV-infected children and pregnant women, including studies on antenatal HIV testing. I witnessed the dramatic effect antiretroviral (ARV) drugs given to the mother had on reducing mother-to-child-transmission (MTCT) of HIV, making a strong case for implementing universal offer of HIV testing to pregnant women.

At GOSH, we continued to see newly-diagnosed HIV-infected children whose mothers had 'slipped through the net' of MTCT prevention programmes. As more ARVs became available for treatment, I undertook research evaluating paediatric ARVs with PENTA (Paediatric European Network for Treatment of AIDS) at the Medical Research Council (MRC) Clinical Trials Unit under Professor Janet Darbyshire. Many families in the UK joined these early PENTA trials, which had begun in 1991; by the late 1990s, I witnessed first-hand how triple-drug ARVs could transform chronically sick children at risk of death into healthy children living normal lives.

But what about sub-Saharan Africa, where an estimated 90 per cent of HIV-infected children lived and where there were no ARVs in the early 2000s? Great strides were being made in MTCT prevention research in Africa, but there was little for children already HIV-infected; most, it was assumed, would die before their fifth birthday.

In the late 1990s, the antibiotic cotrimoxazole had been shown to benefit HIV-infected adults in West Africa. A series of cotrimoxazole trials began in Zambia (where antibiotic resistance was high), including the CHAP (Children with HIV Antibiotic Prophylaxis) trial, which I led with Zambian colleagues at the University Teaching Hospital, Lusaka, in the early 2000s. The trial was stopped early when it showed that cotrimoxazole nearly halved deaths in over 500 children compared to placebo. At this time, adult ARVs were just arriving in Zambia as three drugs in one pill from generic companies. At the CHAP trial results meeting, attended by hospital staff, families and Ministry of Health representatives, it was suggested that children from CHAP should be among the first to receive ARVS. But how could adult ARV fixed-dose combination (FDC) drugs be given to children? What should the formulations be? What were the correct dose ratios? How might one break unscored adult tablets in four?

I wrote to Yusuf Hamied, Chairman of Cipla Ltd. in India, asking whether the company would make scored dispersible 'baby' FDC ARVs for children. By now, we had information from Zambia and Malawi that ratios of the adult FDC Triomune were incorrect for children; quarter adult tablets were difficult to cut accurately and had low nevirapine levels.

With Cipla, we designed the first children's dispersible scored FDC, Pedimune, and with our Zambian colleagues and funding from the European and Developing Countries Clinical Trial Partnership studied

the new formulation in the CHAPAS-1 trial, the first to evaluate FDCs for HIV-infected children. CHAPAS-1 found that Pedimune Baby/Junior dispersible scored tablets had appropriate drug ratios for children and were easier for caregivers to administer and health-care workers to dispense than liquids. The randomization also showed that starting full-dose nevirapine was safe in young children. The trial team assisted Cipla in submitting data to the United States Food and Drug Administration, resulting in licensing of this first ARV FDC in 2007, followed by wide distribution in sub-Saharan Africa, particularly through the Clinton Foundation, and PEPFAR-supported programmes.

The CHAPAS-1 team then expanded and with partners in Uganda developed the larger CHAPAS-3 trial. Further collaborations between African research teams also included Zimbabwe and the ARROW trial, which I also led, funded by the UK MRC Clinical Trials Unit. These trials, in addition to addressing pragmatic questions about management of HIV-infected children, provided important data on new baby pills, including once-daily dosing (also licensed by the FDA, enabling wide implementation). Another new formulation was lopinavir/ritonavir minitabs (CHAPAS-2 trial), which was studied within the ARROW trial and also resulted in FDA registration. The idea behind all these studies was to provide evidence to ensure that children could receive drugs and care near their homes and in formulations and doses that could be easily given by caregivers and prescribed by health-care workers at primary-care-level facilities. This is crucial, because HIV-infected children are more vulnerable to rapid disease progression and early death than any other group.

Capacity-building has been a core activity of these trials, particularly building partnerships with African female leadership. Together, we have enabled sustainable North-South and South-South research partnerships that have endured for nearly 20 years. We have also engaged with policymakers and communities to allow rapid dissemination of results as they become available, via scientific journals, policy briefs, informational films and supplying evidence to WHO guidelines.

Through all of this, I have been privileged to work with remarkable African women who have championed research for women and children and risen to lead their research groups, contributing significantly to reducing MTCT and increasing survival of HIV-infected African children. Together, we are now bringing these lessons to other areas, including tuberculosis and antibiotic resistance.

Diana Gibb

Diana Gibb is a paediatrician, professor of epidemiology and leader of the Paediatric Research Programme at the MRC Clinical Trials Unit at University College London. Since the early 1990s, she has coordinated multi-country paediatric HIV trials in Europe, Thailand and South America, expanding to Africa in 1999 and recently to India. Her focus has lately widened to tuberculosis, malaria and antimicrobial resistance.

Angélique Kidjo

Three-time Grammy Award winner Angélique Kidjo, the West African singer and songwriter, is a UNICEF Goodwill Ambassador and passionate advocate for girls' education. Her Batonga Foundation supports secondary school and higher education for girls in Africa. She received the prestigious 2015 Crystal Award given by the World Economic Forum in Davos and the 2016 Amnesty International Ambassador of Conscience Award.

The future is female

For the past 16 years, I have been privileged to be a UNICEF Goodwill Ambassador and to be able to use my position as an artist and musician on the international stage to draw attention to the need for action in support of children's and women's rights. I have visited UNICEF programmes in many African countries as well as in Syria, Haiti and, most recently, Lebanon. But one of my most memorable trips was the very first, in 2002, when I travelled to Tanzania to meet children orphaned by AIDS.

Initially I was devastated by visiting children in that orphanage. Here were children of all shapes and sizes who had lost their parents to the disease. Some were HIV-positive, infected with the virus through no fault of their own and it broke my heart to see that.

But the children themselves were so positive, so full of hope, and they inspired me: They made me see that there is always hope so long as you are drawing breath. We adults don't listen enough to children and they really have a great deal to teach us – they often see things more clearly, with a vision untouched by hypocrisy or vested interest. And I came away from that visit feeling not despair but hope that together we could do something about not only their situation but that of all the children in Africa and the rest of the world affected by HIV and AIDS.

I know that in recent years we have made a lot of progress in slowing down the spread of HIV – especially in Eastern and Southern Africa. But there are still far too many children being infected. Not only that, but they all too often go undiagnosed and so do not receive the treatment they need to keep them alive.

In my own country, Benin, the coverage of effective antiretroviral treatment to prevent mothers passing on HIV to their

babies is almost universal. I am proud of that achievement but I know that we are not nearly as successful in preventing adolescents, particularly teenage girls, from being infected, and the same holds true right across the African continent and beyond.

I believe education is one of the keys to turning this situation around: We know that going to school reduces girls' vulnerability to HIV. It raises their awareness of HIV and how to prevent it as well as helping to protect them from child marriage. A girl who is educated can also educate boys and men. She is more likely to know her right to control her own body and to tell a man: "If you don't wear a condom, you won't be having sex with me."

I know how much education did for me and I have always been passionate about the difference going to school can make in girls' and women's lives. It was why I set up the Batonga Foundation in 2006 to support girls with the knowledge and skills they need to become agents of change in their communities and in their own lives.

In my work as a UNICEF Goodwill Ambassador, I have had the chance to meet women all over the African continent who have been infected with HIV. Some were infected through rape or through sex work. Many were living in poverty. And all of them experienced some form of HIV-related stigma and discrimination.

I know that addressing all the factors that put women and girls at risk of HIV will be no easy task. We need to make girls and women secure enough economically that they don't have to turn to sex work. We need to make sure they have the right information about how HIV is transmitted and how to protect themselves. And, of course, we need to make sure they have access to any services or medicines they need to keep healthy. Above all, we need to foster girls' and women's empowerment – and education is again often the best route to that.

Back on that first trip to Tanzania as a Goodwill Ambassador, then UNICEF Executive Director Carol Bellamy told me: "Every drop from everybody, one day is going to make an ocean." And I really believe that. If we all pull together we can ensure that the next generation of children is AIDS free.

"I know that in recent years we have made a lot of progress in slowing down the spread of HIV – especially in Eastern and Southern Africa. But there are still far too many children being infected."

Girls and sex: Losing the taboo, empowering a generation

In what is now seen as one of the largest successes in the history of public health, the past decade has brought hope for ending the HIV epidemic – showing that with high levels of commitment and significant resources it is possible to reverse the trajectory of an epidemic that once seemed unalterable. For example, there has been significant progress in HIV prevention for several groups, such as newborns, and massive numbers of people are now on treatment, living full and long lives.

But for other populations the epidemic has at best stalled, and at worst continues to rage. This is unfortunately true for adolescent girls and young women in many countries of sub-Saharan Africa. According to UNAIDS, in the hardest hit countries, adolescent girls and young women are up to eight times as likely to have HIV as their male counterparts.

To be truly effective, we need to acknowledge what for so many is an uncomfortable truth: that adolescent girls and young women have sex. The key is to understand when, with whom and under what circumstances these sexual relations take place.

I believe that at the very centre of the HIV epidemic is the fact that we are not empowering adolescent girls to make decisions about sex – any decisions.

Society disenfranchises girls in two distinct yet highly complementary ways: It doesn't empower them to say yes to sex, and it also doesn't empower them to say no. The reality is that both the power to say yes and the power to say no to sex are critical, interlinked and essential to effective HIV prevention.

On the one hand, significant numbers of adolescent girls are choosing to have sex. However, driven by shame, fear of punishment and reprisal, or worse, many of them keep their sexual activity secret from the adults in their lives. To truly empower these girls, we must overcome taboo and denial to reach them with sexual education, information and quality services that meet their needs. For them, empowerment means the ability to say yes to sex if they so wish – without shame or fear and with ample information, services and HIV prevention tools (such as condoms or PrEP) to support that decision.

On the other hand, a large group of adolescent girls don't get to choose if, when or with whom they have sex. Data from the Violence against Children Surveys[1] show that more than 30 per cent of girls experience sexual violence before age 18, and almost one in four who have sex before the age of 18 describe their first sexual experience as forced or coerced. The sad truth is that many of these girls are children between the ages of 10 and 14. This sexual violence is perpetrated primarily by men and boys: husbands, boyfriends, trusted adults, family members and strangers. It happens at home, at school, in communities, on the street.

In recent years, it's been encouraging to see a few organizations – UNICEF and UNAIDS among them – begin to prioritize adolescents in the context of the HIV epidemic.

The breakthrough came in June 2014, and I was lucky to be part of it. I will never forget the exhilaration I felt as a small group of us worked with

Ambassador Deborah Birx, the then newly appointed United States Global AIDS Coordinator, to discuss what could be done to truly bring down HIV incidence among adolescent girls and young women. What would it mean to put them and their needs at the centre? To follow all the evidence, while also innovating by offering a holistic package of interventions, instead of one-off programmes?

A little more than six months after we started the discussions, formed a working group and put together the basic strategy, the United States Government launched DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women), the single-largest commitment of resources to prevent HIV among adolescent girls and young women ever.

As a social scientist, I have known for a long time that success in reducing HIV among adolescent girls would require the expertise of disciplines far beyond those of epidemiologists and medical doctors alone. DREAMS, therefore, is about multiple solutions surrounding one problem.

Don't get me wrong. There are plenty of challenges with DREAMS. But this is a critical step, one that in only two years of programming has already begun to show a significant impact, with a 25–40 per cent decline in new HIV diagnoses among young women in Africa.[2] The Global Fund to Fight AIDS, Tuberculosis and Malaria has followed suit, with HER, a programme that will also invest significant resources in preventing HIV among adolescent girls and young women.

Effectively using these resources will require us to leave our biases and opinions at the door and be bold enough to truly use evidence to guide the way. It will mean tackling not only sexual and reproductive health, but also sexual and gender-based violence and the empowerment of girls and women.

Centuries of secrecy, taboo and harmful gender norms stand in the way. But very few interventions in global development have the kind of large-scale and lasting effect that empowering girls to truly make decisions about sex will have – these go way beyond HIV, to include unintended pregnancy and a variety of associated consequences, such as school completion and economic empowerment. A positive ripple effect ensues, benefiting girls themselves as well as entire families, communities and nations.

Daniela Ligiero

Daniela Ligiero, PhD, is CEO of Together for Girls, a global, public-private partnership dedicated to ending violence against children, especially sexual violence against girls. She served as senior gender advisor for PEPFAR, where she helped launch DREAMS, the first PEPFAR programme to focus exclusively on HIV prevention for adolescent girls and young women, and as chief of HIV/AIDS for UNICEF Brazil.

Graça Machel

Graça Machel is an internationally known advocate for women's and children's rights. She is the founder and current chair of the Graça Machel Trust, a pan-African advocacy organization focused on child health and nutrition, education, women's economic empowerment, leadership and good governance. She is also a founding member of The Elders, an independent group of global leaders working together for peace and human rights.

Women: Day-to-day heroines of the AIDS response

It was during the late 1990s that we started to see how AIDS was devastating southern Africa. We felt desperate witnessing the ruin caused by the disease. Without access to lifesaving treatment, women, men, mothers and fathers were becoming sick and dying in overwhelming numbers.

It was particularly heartbreaking to witness the impact the epidemic was having on children. In the early 1990s, I led a team under the leadership of the United Nations Secretary-General to document the impact armed conflict was having on children around the world. Less than 10 years later, it was astonishing to realize that even in countries unaffected by conflict, so many children were losing their parents to this disease, having to care for a sick caregiver or bravely fighting the virus in their own bodies.

Everyone was affected – a neighbour, a friend, a family member. Mozambique, the country I and others of my generation had fought to liberate from colonialism, was becoming ravaged. There was so much stigma and discrimination against those living with HIV that my family and I spoke publicly to the media when my brother-in-law, the brother of my late husband Samora Machel, died too quickly, too young. In 2005, when Madiba's[1] son Makgatho died of AIDS, we decided to announce it to the world, following the brave example that Zambian President Kenneth Kaunda had set when he became one of the first African leaders

to openly speak about HIV following the death of his son to AIDS-related illness in the late 1980s.

Like Kaunda, we wanted to speak publicly so that living with HIV or dying of AIDS wouldn't be something that happened to other people somewhere else. It affected each and every one of us, regardless of race, class or education.

We knew that trying to dispel the stigma that has often been associated with the disease was important but it was not enough. Madiba tried for some years to persuade the South African Government to act and eventually launched the 46664 campaign, named after his prison number on Robben Island, to raise awareness of HIV and funds to address it. We invited leading AIDS scientists and activists of the day to discuss a plan for combating the disease in South Africa and helped to arrange funding for two programmes providing antiretroviral treatment.

In Mozambique, the Foundation for Community Development, a non-governmental organization I founded in the 1990s to advance social development for Mozambicans, became involved in supporting communities caring for children orphaned by AIDS and in education and prevention programmes for young people, and worked to end the social isolation experienced by many with the disease.

As I reflect now on those early days, I am struck by how often and how easily we used the language and imagery of war. It seems odd now, considering where we are in the trajectory of the epidemic, but at the time it felt just like that: like we were being attacked and we needed to retreat, regroup and fight back. We have come a long way since then.

Thinking back, I am overwhelmed with sorrow and distress thinking about the thousands – the millions – of lives we lost unnecessarily. But I am also filled with pride, thinking about the countless people who fought for justice, called for equal access to quality health care for all – not just for those who could afford it – and helped transform the AIDS response.

So often those advocates were women, remarkable women who were on the front lines caring for families and communities and calling for change – the nurses who cared for people who were desperately sick or lying near death in overcrowded hospital wards; the home-based care workers who valiantly marched door to door to ease the pain of the sick even though they knew they had little to offer but a painkiller and a warm hand; the neighbours who helped orphaned children make it to school; the activists who took to the streets to ensure treatment was available for all; and the grandmothers who bravely buried their own children who had succumbed to the disease and brought up their grandchildren with pride and joy. They are the heroines whose voices and faces are so indelibly marked in my memory. And they are the ones on whose shoulders we stand as we continue to work towards an AIDS-free generation.

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Graça Machel (right) and UNICEF Executive Director Henrietta H. Fore

The key to progress: Engage, listen to and trust women

Women are community leaders, teachers, farmers, builders, health-care workers, religious and government leaders, lovers, sisters and friends, as well as the mothers of the next generation. Women directly and indirectly influence the health and social status of our children, including their access to fundamental human rights. The centrality of women in realizing shared goals for better health and social outcomes for young children, adolescents and our entire communities is indisputable.

The global face of HIV is largely female. In 2017, 54 per cent of all adults living with HIV were female, and adolescent girls and young women constituted 62 per cent of all young people aged 15–24 living with HIV.[1] Despite evidence of global progress in addressing the epidemic, the reality is that women living with HIV continue to face serious barriers to accessing quality treatment, care and support and to realizing our full human rights, including sexual and reproductive health rights. These barriers include harmful gender norms, bias, social stigma and discrimination, denial of treatment including access to sexual and reproductive health services, misinformation, lack of informed consent, and forced and coerced sterilization.

Sexism and gender-based violence increases the vulnerability of women and girls to HIV. Intimate partner violence has been documented as both a cause and a consequence of HIV. Harmful gender norms limit young women's educational and economic opportunities and frequently bar their access to needed sexual and reproductive health services and supports. Added to the inequality faced by women and girls in general, the stigma and discrimination they experience when living with HIV has an influence that reaches far beyond their own lives.

Interventions that take women's voices and lived experience into consideration have been proven not only to improve their own lives, but also to impact positively on the health, development and well-being of their children throughout their lives.[2] Yet barriers to the full participation of women persist, and nowhere are they more damaging than within the HIV response.

Engage women

The International Community of Women Living with HIV (ICW)[3] was formed 25 years ago, by a group of passionate and deeply concerned women, to challenge the persistent failure to recognize and prioritize the voices, experiences and issues of women in the discourse surrounding the response to HIV and AIDS. ICW focuses on gender inequality as a primary obstacle to the success of the HIV response and prioritizes efforts to listen to, trust and support the transformative leadership of women.

Although the benefit of their meaningful participation is increasingly recognized, women living with HIV all too often continue to be an afterthought, tokenized or added to programmes, discussions and policy development or evaluation processes at the last minute or to fill in a diversity gap. This is regrettable, because their perspectives in decision-making can be a powerful contribution towards the achievement of better quality health programmes and services, a contribution that institutions should recognize and create more opportunities to include.

ICW's community mobilization work stresses engagement and education, providing women and girls with the latest information about health and their human, sexual and reproductive health rights (SRHR), because the evidence shows that when women are better informed, they make better choices that benefit them and the health outcomes of children. Misinformation or conflicting information has a detrimental impact on safe feeding practices and early infant diagnosis, for instance. ICW's advocates therefore have consistently demanded clear information and responsive messaging about nutrition, health, women's and adolescents' SRHR, including menstrual hygiene, antenatal and newborn care, breastfeeding and vaccinations to enable women and their babies to thrive.

Listen to women

In support groups, national, regional and even global networks, ICW members have acted as a bellwether, raising concerns about stigma and discrimination, treatment, care and support, sexual and reproductive health, maternal survival and well-being, prevention of mother-to-child transmission, early infant diagnosis, breastfeeding and gender-based violence. Women living with HIV have documented their experiences, conducted participatory and community-led research to understand the nuances of surviving and thriving with HIV, and struggled against harmful, dismissive, patriarchal norms that belittle, marginalize and frequently silence their voices.

In turn, the ICW global office and regional networks have partnered with UNICEF, other United Nations agencies and other stakeholders to document and generate vital information and evidence. The community-led and participatory research conducted by network members listening to the voices of women living with HIV has also strengthened partnerships with researchers and informed articles published in such scholarly journals as the *Journal of Acquired Immune Deficiency Syndromes* and *The BMJ*.

Trust women

Women living with HIV have a fundamental role to play in realizing desirable outcomes for our children and adolescents, particularly young women. Yet too often gender bias and harmful gender norms undermine the autonomy and agency of women both to act in their own best interest and to secure the health, rights and well-being of their children. It is time for the HIV response to recognize and respect women's agency and autonomy as the only way to ensure whole and healthy individuals and children. The time has come to truly engage women, to listen to them and to trust them.

Rebecca Matheson

Rebecca Matheson has a background in social work and currently works as the global director of the ICW secretariat based in Nairobi. She is an advocate for policies and programmes that work for all women and girls and that integrate sexual and reproductive rights, health and HIV. She has been living with HIV for 23 years.

Dr. Lynne Mofenson

From the time she joined the National Institutes of Health in 1989 to her retirement in 2014, Dr. Lynne Mofenson was responsible for programme planning and the development and scientific direction of research studies and clinical trials in domestic and international paediatric, adolescent and maternal HIV/AIDS infection. She is currently senior HIV technical advisor at the Elizabeth Glaser Pediatric AIDS Foundation.

Paediatric HIV infection: From epidemic to elimination?

The United States Centers for Disease Control and Prevention reported the first paediatric AIDS cases in 1982, 18 months after the first report in adults.[1] However, my first experience with HIV in children, although I didn't know it at the time, was in 1977. As an intern at Boston Children's Hospital, my first hospital admission was a one-year-old boy, born to drug-using parents, who had failure to thrive, persistent thrush, recurrent fever and diarrhoea, and multiple bacterial infections. His initial diagnosis was "psychosocial failure to thrive," but it became clear that he had an immune deficiency of unknown aetiology, with leucopenia, anaemia, low T-lymphocytes (then called E-rosette cells) and hypergammaglobulinaemia. Despite intensive support, he died with pneumococcal sepsis, pneumonia and fungal meningitis; the autopsy reported oesophageal candidiasis, myeloid hypoplasia with lymphoid follicle deficiency and thymic dysplasia, findings we now know are typical of HIV. In 1983, J. Oleske and colleagues reported having seen similar children born to mothers with recognized risk factors for AIDS in Newark since 1979.[2] Thus, my first patient – and first death – as a new physician was actually the beginning of a career dedicated to treatment and prevention of HIV in children, first as a clinician, then as a researcher in paediatric and maternal HIV at the United States National Institutes of Health (NIH).

In 1989, when I joined NIH's National Institute of Child Health and Human Development, one in every four

pregnant women living with HIV passed the virus to her infant, and HIV in children was a death sentence: Studies indicated 25 per cent mortality before age 2 in infected infants in the United States, and more than 50 per cent in Africa.[3,4] We knew the primary source of HIV in children was transmission from mother to child; thus, a primary goal of NIH research was to develop effective strategies to prevent perinatal transmission. Zidovudine (AZT) had been approved for adult treatment in 1987; despite relatively high toxicity, given the extraordinary mortality of paediatric HIV and high perinatal transmission risk, paediatric and obstetric researchers proposed giving AZT to pregnant women living with HIV. This was highly controversial, and the United States Food and Drug Administration (FDA) held a public meeting to discuss the ethics of giving AZT to pregnant women before approving the Pediatric AIDS Clinical Trials Group Protocol 076 trial.

The trial began in 1991 but was stopped early in February 1994, when AZT was shown to reduce transmission by nearly 70 per cent compared to placebo, providing the first demonstration of 'treatment as prevention'.[5] Implementation in the United States was rapid. Within a year, guidelines for AZT use in pregnancy and universal counselling and voluntary HIV testing for all pregnant women in the United States were published, the FDA approved an AZT label indication for prevention of perinatal transmission and Medicaid, the federal health insurance programme for low-income citizens, required coverage for AZT in all states. Within three years, the annual number of new paediatric infections had decreased by 75 per cent from a peak of 1,750, and by 2013, fewer than 100 new paediatric HIV infections were estimated to have occurred annually in the United States.[6]

Treatment for infected children was also critical, given the elevated, rapid mortality in children. AZT received FDA approval for paediatric use in 1990, three years after approval for adults. Clinical trials enabled rapid progress from mono- to dual- to triple-drug antiretroviral therapy (ART), and these advances were accompanied by a rapid decrease in mortality, from 7.2 deaths per 100 child-years in 1994 to 0.8 deaths in 2000.[7]

HIV in African children was first described by Jonathan Mann in 1986.[8] By 1999, an estimated 1.3 million children were living with HIV and AIDs, with an estimated 620,000 new infections that year alone. It was clear that NIH-funded research needed to shift its focus to the developing world. The initial objective was prevention of perinatal transmission: In 1999, trials demonstrated that a shorter AZT regimen reduced transmission by 50 per cent, and a simple intrapartum/newborn single-dose nevirapine regimen reduced it by 47 per cent.[9-12] Clinical trials, and associated WHO guidelines, moved from mono-drug prophylaxis to dual combination AZT plus single-dose nevirapine prophylaxis, to three-drug ART. Extending prophylaxis through the breastfeeding period was critical to enable safe, prolonged breastfeeding by HIV-positive women and increase HIV-free infant survival, as breastfeeding is the cornerstone of infant survival in low-resource settings. With current recommendations for life-long ART for all HIV-positive individuals, perinatal transmission in breastfeeding populations can be reduced from 40 per cent to well under 5 per cent.[13,14]

Clinical trials to define optimal treatment for infected children in low-resource settings were also a critical need. The landmark South African CHER (Children with HIV Early Antiretroviral Therapy) trial, begun in 2005, demonstrated that early HIV diagnosis and ART in asymptomatic young infants 6–12 weeks old reduced early infant mortality by 76 per cent and led in 2008 to the revision of WHO universal ART guidelines for children.[15]

In over 30 years of paediatric HIV research, I have been privileged to observe a paradigm shift in the paediatric epidemic – from a 40 per cent risk of transmitting a fatal viral infection from mothers to breastfeeding infants, and half of those infants who became infected dying before age 2, to the possibility of virtually ending new paediatric HIV infections in the next decade, and children living with HIV now surviving into adulthood and having families of their own.

Let girls be girls – and not brides

Imagine that you are a 13-year-old girl. One day, when you come home from school, your parents tell you that you will be married the next day – to a man you have never met. You are shocked – and sad. You will have to say goodbye to your friends and your family. You will drop out of school and probably soon be having children. You will also be saying goodbye to your dreams of becoming a nurse, a police officer, a member of parliament.

Over the years, through my work with Girls Not Brides: The Global Partnership to End Child Marriage, I have heard many, many stories of young girls facing this devastating situation. I have heard them describe the emotional and physical violence they endure from the man who has suddenly become their partner in life. My heart breaks each time a young girl talks about how she fears night-time – because of the forced sexual relations that come with the darkness.

I have spent more than two decades working on HIV and AIDS issues, focusing primarily on the so-called 'key populations' that are often forgotten or ignored, including sex workers, intravenous drug users, men having sex with men, and prisoners. Little did I know that adolescent girls suffer some of the same disproportional risks and unacceptable neglect.

However, since I co-founded Girls Not Brides in 2011, with the help of members of The Elders (a group of global leaders such as Graça Machel and Archbishop Desmond Tutu), I have learned a lot about the destructive consequences of child marriage for girls who would rather be in school and playing with their friends than in a marital bed and doing chores. What strikes me time and time again when I meet girls in such circumstances is how vulnerable they are, not only to harmful societal traditions, but also to domestic violence, abuse and sexually transmitted infections, including HIV.

Every year, 12 million girls are married off before the age of 18 – one every three seconds or so. This happens across countries, cultures and religions.

Many people assume that marriage protects against exposure to sexually transmittable infections. But it seems this is not true for child brides. For several reasons, many related to the inequality between men and women, adolescent girls are disproportionally affected by the AIDS epidemic. This is clearly shown by a figure I find truly shocking. According to UNAIDS, in Eastern and Southern Africa, young women aged 15–24 accounted for 25 per cent of new HIV infections in 2017, although they make up only 10 per cent of the population! Globally, adolescent girls and young women (aged 10–24) are twice as likely to acquire HIV as boys and men in the same age group.[1]

While there has been little formal research into the links between child marriage and HIV, the evidence suggests some of the following as factors increasing the vulnerability of child brides to infection:

- Child brides are exposed to both more frequent sex and more unprotected sex than their unmarried peers, in part because of social pressure to prove their fertility;

- Girls who marry as children are more likely to describe their first sexual experience as forced, and are also more likely to experience intimate partner violence than those who marry later, both of which increase their risk for HIV;

Mabel van Oranje

Mabel van Oranje is the initiator and chair of Girls Not Brides: The Global Partnership to End Child Marriage. A human rights activist, she has been actively engaged in the fight against HIV/AIDS for over two decades. She serves on the (advisory) boards of the European Council on Foreign Relations, Global Witness, the Jo Cox Foundation, the Malala Fund, the Open Society Foundations, The Elders and others.

- Child brides have limited knowledge or power to negotiate safer sex, to protect themselves, to make health-care decisions and to procure basic supplies or services such as condoms or STI/HIV testing;

- Often the husbands of child brides are older and have already been sexually active, which raises their risk of having acquired HIV;

- Adolescent girls may be more biologically susceptible to HIV infection than women; and

- Child brides have a higher risk of acquiring HIV because, according to new evidence, women are most vulnerable to HIV infection during late pregnancy and the post-partum period, and child marriage increases the number of pregnancies a woman has.

For me, the lessons are clear. We need to work much harder to ensure that HIV prevention initiatives and sexual and reproductive health services target and reach adolescent girls – married and unmarried – even though these girls are not always easy to reach. We need to keep girls in school and give them economic opportunities so that marriage is not their only option. And we need to engage boys, men, families and communities to change long-standing norms about the role of girls and women in society.

If we want to end AIDS, we must take a more holistic approach that includes tackling the gender inequality that puts girls and young women at increased risk of HIV infection. This will take time and effort. However, just because it is difficult, doesn't mean we should ignore it. Far from it.

If we can keep girls in school, keep them out of marriages and harmful relationships, and protect them from HIV infection, they will be better educated, healthier and more prosperous. That's not only good for these girls – but also for their families, their communities and their countries. We will all be richer for it.

Yana Panfilova

Yana Panfilova is a student at the Academy of Labour, Social Relations and Tourism in Kyiv and an HIV activist. The founder of Teenergizer, she has been a member of the Steering Committee of the Global Network of Young People Living with HIV (Y+) since 2015. She was a speaker at the United Nations General Assembly 2016 High-Level Meeting on Ending AIDS.

Teens: Together, we are louder, together we are heard

My name is Yana Panfilova. I am from Ukraine, and I was born with HIV, on 20 October 1997. Now I am a founder of Teenergizer, an organization for teenagers (including those who are HIV-positive), but during my childhood, I thought that I would die. Neither my friends nor civil society in Ukraine knew much about HIV at that time. For a majority of people, HIV was equal to AIDS. Yet my mother, who organized support groups for HIV-positive children, made me realize that HIV doesn't kill. Ignorance does.

When I was in school, a friend's grandmother gossiped about me, telling my classmates and teachers that I was a drug dealer. This happened after she saw me taking my therapy pills. Also, during a discussion of HIV in my biology class, my teacher said to everyone, "I hope you'll never meet an HIV-positive person in your life." To put it briefly, I began experiencing inequalities and discrimination in my daily life. But discrimination was not the only problem. Self-stigmatization also aggravated the situation. For instance, when I was taking photos with my HIV-positive friends, I thought that we were supposed to hide our faces so that we could not be identified. Of course, it was impossible to say who was the person living with HIV when you looked at a photo. Yet this fear was making self-acceptance impossible.

In short, I was part of the generation for whom society had no expectations and no frame of reference. At some point, financial support for HIV-positive teenagers stopped completely. This

made me dream about a movement where HIV-positive teenagers could work with other teenagers without hiding themselves. The movement would be a safe space for all adolescents in Ukraine.

As a child, every New Year I had an opportunity to make a wish that would be fulfilled. My wish was to have a meeting of all the HIV-positive youth of Ukraine. The very next week, we managed to organize a meeting attended by 10 HIV-positive children. For me, this was a step towards accepting my status and becoming an activist. As for HIV-positive teenagers, it was the first meeting of the future Teenergizer team.

I reached out to my friends and to strangers. I told them that we could change things together. I talked about Teenergizer whenever it was possible. And you know what? Things started to change in our region of Eastern Europe and Central Asia. To be honest, things were not that inspiring at the very beginning. We did not find any support from stakeholders. People in government were nodding, smiling, promising to help. However, we received nothing from them. Basically, they still ignore us. But now we have a strong community ready to act.

Speaking about my organization, we now have two directions. The first one is HIV. The second one is the self-development of all teenagers. I decided not to limit the work of our organization only to HIV and AIDS. A simple message hides behind this idea: HIV-positive teenagers are just teenagers. We are not monsters, we don't need 'special friendship' or 'special understanding'. By separating ourselves from others, we cause discrimination against ourselves. We keep forgetting that HIV doesn't make you another person. It is JUST a virus. That is why half of our team is HIV-positive and half is not. We are all equal.

Five years ago, we united the youth of Eastern Europe and Central Asia to fight the HIV epidemic. Now, we are ready to become part of an even greater effort. Our organization will take part in the HIV community's most global event – AIDS 2018. What I know for sure from my experience is that being united is the only way we can be heard. For HIV-positive teenagers from our region, this will be an even more unique experience: It will be the first time in our lives that we will participate in such a global event. I hope that, empowered by the conference, our teenagers will return home to give a chance to the next generation of adolescents. An even bigger effort is yet to come.

"I reached out to my friends and to strangers. I told them that we could change things together."

Leaving no person behind

Growing up in Birmingham, England, I, like many of my friends, began my working life in the automotive industry. But it was when I had the opportunity to join what was then Glaxo Wellcome that I knew I had found the right place for me. The company had a huge focus on HIV and was at the forefront of the development of treatment options, such as the discovery of AZT. I can vividly remember the excitement in 1997, when the first combination therapy with a fixed dose (lamivudine/zidovudine) was approved. It is hard to overstate the impact: Over the course of just a decade, infection with HIV had been transformed from a devastating and life-threatening disease to a condition that could be managed through efficacious treatments. It was an amazing introduction to what has become a personal journey through the world of HIV.

Two decades later and I have the honour of being the CEO of ViiV Healthcare. Each day I come to work committed to our mission "to leave no person living with HIV behind." It is a simple mission, but one that has far-reaching consequences for the way we run our company. My 1,000 colleagues, our partners and I live that mission through our work every day.

I believe passionately that the private sector has an integral role to play in tackling HIV. With an estimated 1.8 million new infections per year globally, HIV is unfortunately a disease that is far from controlled. I want to be transparent: We are a business that generates revenue from selling medicines to health systems in countries that have the ability to pay for them. But for those who do not, we have developed a different model to ensure that every person living with HIV has access to our medicines.

To accomplish this, we work with many partners committed to making a difference, including the Elizabeth Glaser Pediatric AIDS Foundation, the Bill & Melinda Gates Foundation, USAID and PEPFAR, to name but a few, and have invaluable relationships with a host of academic and community groups. We also have a policy through which we grant generic manufacturers voluntary licences for our medicines, which enables them to manufacture and supply generic versions. Our most recent licence, for our core medicine dolutegravir, includes all least developed, lower-middle-income and sub-Saharan-African countries for adults and also many upper-middle-income countries for children. At the time of licence, this covered 94 per cent of adults and 99 per cent of children living with HIV in the developing world.

This approach allows us to be true to our mission, while generating a fair return for our shareholders, and it enables us to invest billions of pounds into research and development. It is this cycle that continues to result in the development of new, innovative and much needed treatments for people living with HIV. We have a portfolio of medicines to treat those who are newly infected through to those who are highly treatment experienced. We also invest in long-acting medicines, prevention and cure research.

Despite significant advances in prevention and treatment, the HIV epidemic continues to disproportionately affect those with the least resources. The vast majority of the estimated 37 million people living with HIV live in sub-Saharan Africa. It is a sobering fact that infection rates have begun to rise again, particularly among adolescent girls.

Paediatric HIV treatment has been tackled by an impressive coalition of partners including governments, non-governmental organizations, supranational organizations, religious

Deborah Waterhouse

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bodies and private companies. Through a concerted effort, prevention of mother-to-child transmission has been significant. Effective PMTCT programmes require a number of interventions for women and their infants, including safe and effective antiretroviral therapy, and this is where we play a pivotal role.

There have been successes but we must not be complacent. Paediatric treatment in the field of HIV has historically been challenging: Diagnosis may be delayed, treatment options have been suboptimal due to fewer paediatric formulations of medications, retention in care is often difficult and stigma can be pervasive. This is why I was proud to stand shoulder to shoulder with many partners at the Vatican in November 2017 to formulate an action plan to improve access to HIV medicines for children in resource-poor settings. For ViiV Healthcare, this means working even harder to increase access to dolutegravir, by a range of methods from designing the necessary paediatric studies and trials, to creating dispersible formulations that children can easily take and finding appropriate generic manufacturers as partners.

We also have a deep commitment to helping those who represent people living with HIV. Our Positive Action programmes support more than 300 programmes addressing the needs of people living with HIV. For adolescent girls, this can mean supporting community interventions that tackle such challenging issues as early marriage, sex work and gender-based violence. I had the privilege of seeing these efforts first-hand in Zambia earlier this year, where I had the opportunity to work with a group of passionate and committed women on the independent governance board that evaluates financial grants on behalf of ViiV Healthcare. I also spent time with a few of the many grass-roots organizations that can make an impact with a small amount of money.

Organizations such as UNICEF should be very proud of the work they continue to do to help bring about an AIDS-free world. At ViiV Healthcare we remain singularly focused on discovering and developing innovative treatments and prevention options for HIV and our commitment to leave no person living with HIV behind.

Galvanizing investment to end AIDS

This is a vital moment for the movement against HIV and AIDS, where I have spent almost my entire working life. I am a clinical immunologist and was a bench scientist in Ethiopia at the beginning of the epidemic, in the early 1980s. I vividly remember the first AIDS case I saw in Ethiopia – a 24-year-old woman who was so emaciated her younger sister had to carry her into the hospital. Nobody knew what was wrong – she was vomiting, she couldn't eat, she had diarrhoea. I remember our sense of hopelessness in those early years. We had nothing: We didn't know what this disease was and we had no diagnostic tests, let alone any form of treatment.

In 1992, after a year as a MacArthur Fellow at Harvard, I moved to the AIDS Control and Prevention (AIDSCAP) Project, funded by USAID, for which I worked in 16 African countries until 1994. This was a big change for me. First, we had money to fund our work. Second, there was a diagnostic test – at least you could test a blood sample and tell the person that he or she was infected. But we still had very little by way of treatment, and of the existing resources, not much was going to children, adolescents or women.

Most of the AIDS policies then were dictated from the North to the South. If something worked in the United States and the funding agency was from there, that was the approach pursued, regardless of the local context. Seeing this, I knew I had to step up a level and become involved with HIV and AIDS strategy, programmes and policies globally.

When I was hired by the World Bank in 1994, it was as a specialist in adolescent reproductive health, not in HIV and AIDS, where my heart was. But a foothold in the organization was the important thing, and sure enough, in less than six months I became the focal point for the World Bank's HIV/AIDS programme.

The challenge was that the World Bank's economists at the time considered the Bank a development, not a health, agency and resisted involvement with the disease – providing treatment in poor countries would be a bottomless pit. What convinced them was the disease's demographic impact. Botswana's life expectancy had declined dramatically since 1985, when the first case of HIV was identified, and we asked, "Isn't life expectancy a measure of development?" Any economist would have to answer yes. Then we asked, "Wouldn't something that reduces life expectancy be a measure of development?" Again the answer was yes.

The result was that in the year 2000 the Bank dedicated a billion dollars to fight HIV and AIDS in Africa, the first serious funding of a global HIV/AIDS programme. That was a huge achievement. For the first time sub-Saharan African countries could establish their own nationwide programmes against the disease rather than accept piecemeal projects governed by the donors' agendas. By 2010, when I moved over to the Global Fund to Fight AIDS, Tuberculosis and Malaria, the World Bank had a fully fledged HIV/AIDS programme on every continent.

In the beginning it was difficult to be a black woman in an organization such as the World Bank: I certainly had to prove myself. What saved me was that I had spent time working as a scientist in Africa and Asia, so I could speak about the epidemic with authority. And I did so with passion, because I knew that millions of people were dying and that this organization could dedicate hundreds of millions of dollars to saving them.

I believe that being a woman and a mother gave me an extra motivation. As I moved from country to country and saw so many women struggling to keep their children alive and their family going, I couldn't help but wonder how I could make a difference. I distinctly remember eight of us – all African women who had become ministers or heads of organizations – finding ourselves in the corridors at AIDS conferences and asking ourselves "What can we do?", "What if our children were infected?" Our answer was to set up the Society for Women and AIDS in Africa in 1988. But there were similar examples in Asia and the Caribbean, where fabulous women were mobilized against the epidemic. This is not to say that men were not involved: I have seen remarkable solidarity between men and women in this movement, indeed, the best of humanity.

We have come such a long way and yet still most of the people who need antiretroviral treatment in poor countries are without it. In any given country, the populations lacking access to treatment are likely to be poor women, children and adolescents. The marginalized groups are still the last to receive treatment.

We have made a huge leap in a very short time: A disease has been identified, a diagnostic test has been put in place and treatment has been found. But there is still so much to do, even as we are seeing funding drop off because there is a feeling the battle has been won. In the era of the Sustainable Development Goals, it is time that countries put their own money into fighting the disease rather than rely on external funding. I worry that the momentum built up in the early years of this century may be receding, and that is something that should concern everyone.

Debrework Zewdie

Debrework Zewdie, PhD, has more than 35 years of work experience including 20 years with the World Bank as director of its global AIDS programme and three years as deputy general manager and chief operating officer of the Global Fund. She is currently Distinguished Scholar at the City University of New York's Graduate School of Public Health and Health Policy.

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Mabel van Oranje

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Annex: Statistical table

NOTES ON THE DATA

Data sources

UNAIDS 2018 estimates: Each year, 160 countries (representing 98 per cent of the global population) complete a Spectrum file to model the HIV epidemic and estimate certain key indicators. Model inputs include population statistics, survey data and HIV programme data. UNAIDS, WHO and UNICEF, along with other collaborating partners, review the input data. Country estimates are aggregated to the regional and global level.

Global AIDS Monitoring 2018: In order to monitor the HIV response and progress towards achieving global goals, countries submit national and subnational data on a host of indicators to the Global AIDS Monitoring (GAM) system. Annual submissions are reviewed and validated. Data consist of programmatic data for HIV prevention, testing and treatment. Other indicators require data from population-based surveys and surveys focused on key populations at risk of HIV infection. For a full description of GAM indicators, see: <www.unaids.org/sites/default/files/media_asset/2017-Global-AIDS-Monitoring_en.pdf>.

UNICEF global databases: UNICEF maintains databases to manage all survey-based data related to the HIV response. Surveys include Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), Population-based HIV Impact Assessments (PHIA) and AIDS Indicator Surveys (AIS). Surveys are included in the database if they are household-based and nationally representative. Data points are presented in this report only if they are based on at least 25 cases. Data are aggregated to regional level if the countries with available data represent at least 50 per cent of the regional population.

UNICEF HIV projections: In 2017, UNICEF undertook an analysis to project epidemic trends based on UNAIDS 2017 estimates. The analysis assumed that current trends in HIV incidence, ART coverage and PMTCT coverage will continue at their current rates until 2030 and used the United Nations Population Division's World Population Prospects to apply these epidemic trends to demographic projections. This way, key HIV indicators were modeled until 2030. The number of people living with HIV, number of new HIV infections and number of AIDS-related deaths were estimated for children and adolescents aged 0–19 years from 2010–2030.

UNICEF-defined regions

For publication purposes, UNICEF divides the world into nine geographic regions: East Asia and the Pacific, Eastern and Southern Africa, Eastern Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, North America, South Asia, West and Central Africa, and Western Europe. The Eastern and Southern Africa region includes Djibouti and the Sudan.

HIV epidemiology among children and adolescents, 2017

Countries and territories	Number of new HIV infections (thousands)									Number of people living with HIV (thousands)									Number of AIDS-related deaths (thousands)								
	Children 0–4			Adolescent boys 15–19			Adolescent girls 15–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Afghanistan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Albania	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Algeria	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Andorra	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Angola	5.5	3.7	7.1	0.6	<0.5	1.4	1.9	<0.5	3.4	22	16	26	5.1	2.6	7.3	8.6	4.4	12	3.0	2.0	3.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Antigua and Barbuda	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Argentina	<0.5	<0.5	<0.5	0.7	<0.5	1.8	<0.5	<0.5	0.6	0.5	<0.5	0.6	2.2	1.4	3.2	1.6	1.4	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Armenia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Australia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Austria	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Azerbaijan	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bahamas	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bahrain	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bangladesh	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barbados	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Belarus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Belgium	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Belize	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	2.8	<0.5	<0.5	1.7	<0.5	<0.5	2.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benin	0.7	<0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	4.7	2.6	7.8	2.0	0.9	3.4	3.0	1.3	5.2	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bhutan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bolivia (Plurinational State of)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	1.0	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bosnia and Herzegovina	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Botswana	0.6	<0.5	0.9	<0.5	<0.5	1.1	1.5	<0.5	3.0	5.3	4.2	6.4	6.0	3.6	8.3	9.2	5.5	13.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Brazil	0.7	0.5	1.5	4.8	1.2	12	3.4	2.2	5.2	7.7	4.4	11.0	17	9	28	14	9.4	18	0.6	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Brunei Darussalam	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bulgaria	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Burkina Faso	0.7	<0.5	1.0	<0.5	<0.5	1.0	0.7	<0.5	1.4	5.7	3.7	7.3	4.6	2.9	6.2	5.6	3.4	7.7	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Burundi	0.7	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	5.4	3.7	6.9	3.4	2.3	4.2	4.2	2.7	5.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cabo Verde	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cambodia	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	1.5	2.3	1.7	1.4	2.1	1.7	1.5	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cameroon	4.5	2.6	6.3	0.7	<0.5	1.9	3.6	0.8	6.2	27	20	33	11	6.5	16	20	11	27	2.8	1.7	3.8	<0.5	<0.5	0.7	<0.5	<0.5	0.8
Canada	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Central African Republic	1.1	0.8	1.4	<0.5	<0.5	0.6	0.6	<0.5	1.0	6.1	4.6	7.4	3.4	1.9	4.7	4.3	2.4	5.8	0.6	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chad	1.3	0.8	1.9	<0.5	<0.5	0.6	0.7	<0.5	1.3	8.2	6.0	10.0	3.9	2.4	5.2	5.3	3.0	7.3	0.7	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chile	<0.5	<0.5	<0.5	0.5	<0.5	1.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	1.4	0.9	2.0	1.0	0.9	1.2	–	–	–	–	–	–	–	–	–
China	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Countries and territories	Number of new HIV infections (thousands)									Number of people living with HIV (thousands)									Number of AIDS-related deaths (thousands)								
	Children 0–4			Adolescent boys 15–19			Adolescent girls 15–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Colombia	–	–	–	–	–	–	–	–	–	1.0	0.8	1.3	3.3	2.1	5.2	1.6	1.3	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Comoros	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Congo	1.7	1.2	2.2	<0.5	<0.5	<0.5	0.9	<0.5	1.7	7.1	5.0	8.9	1.9	1.0	2.6	4.2	2.1	6.0	1.1	0.7	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cook Islands	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Costa Rica	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Côte d'Ivoire	3.8	1.5	7.5	<0.5	<0.5	0.9	2.0	<0.5	4.5	26	16	36	12	6.9	18	17	9	27	2.6	1.4	4.1	0.7	<0.5	1.1	0.6	<0.5	1.0
Croatia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cuba	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cyprus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Czech Republic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Democratic People's Republic of Korea	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Democratic Republic of the Congo	4.8	2.5	7.1	<0.5	<0.5	1.0	1.8	<0.5	3.7	33	23	40	17	12	21	21	13	30	2.6	1.5	3.7	0.7	<0.5	1.0	0.8	<0.5	1.2
Denmark	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Djibouti	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dominica	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dominican Republic	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	0.7	0.5	0.9	1.2	0.8	1.9	0.9	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ecuador	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	0.9	<0.5	1.6	0.6	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Egypt	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.9	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
El Salvador	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Equatorial Guinea	0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.7	1.9	3.3	0.7	<0.5	1.0	1.0	0.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Eritrea	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	0.5	1.1	0.5	<0.5	0.7	0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Estonia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Eswatini	0.9	0.6	1.2	<0.5	<0.5	<0.5	1.1	<0.5	1.8	8.9	7.7	10.0	3.7	2.5	4.8	7.3	4.1	9.4	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethiopia	5.5	2.6	8.8	<0.5	<0.5	1.1	1.8	<0.5	4.3	37	23	51	29	18	38	32	19	47	2.8	1.4	4.5	1.0	0.6	1.7	1.0	<0.5	1.7
Fiji	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Finland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
France	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Gabon	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	2.2	1.6	2.7	0.6	<0.5	0.8	1.5	0.7	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Gambia	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	1.0	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Georgia	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Germany	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ghana	3.4	2.0	4.7	<0.5	<0.5	0.6	1.9	<0.5	3.6	20	15	24	7.4	4.6	9.7	12	6.6	16	2.5	1.6	3.2	<0.5	<0.5	0.6	<0.5	<0.5	0.5
Greece	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grenada	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Guatemala	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	1.3	1.2	1.5	1.2	0.8	1.7	1.0	0.9	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Guinea	1.5	1.0	2.0	<0.5	<0.5	0.6	0.9	<0.5	1.7	7.5	5.8	9.0	2.5	1.4	3.5	4.5	2.3	6.6	0.6	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Guinea-Bissau	0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.0	2.1	3.6	1.0	0.6	1.3	1.2	0.7	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Guyana	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

HIV epidemiology among children and adolescents, 2017 (continued)

Countries and territories	Number of new HIV infections (thousands)									Number of people living with HIV (thousands)									Number of AIDS-related deaths (thousands)								
	Children 0–4			Adolescent boys 15–19			Adolescent girls 15–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Haiti	1.0	0.6	1.4	<0.5	<0.5	<0.5	0.7	<0.5	1.3	5.4	4.2	7.0	2.2	1.3	3.3	3.9	2.1	5.9	0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Holy See	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Honduras	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.7	<0.5	1.0	0.6	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hungary	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Iceland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
India	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Indonesia	3.1	2.6	3.8	4.1	1.1	12	2.5	1.9	3.7	12	11	14	10	6.6	17	6.6	5.6	8.5	2.1	1.7	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Iran (Islamic Republic of)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.8	<0.5	<0.5	0.6	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Iraq	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ireland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Israel	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Italy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Jamaica	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	0.5	1.2	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Japan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Jordan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kazakhstan	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Kenya	8.0	4.6	13	1.7	<0.5	5.4	6.4	1.3	14	65	47	82	45	29	60	61	37	85	3.4	2.0	5.5	1.1	0.7	1.7	1.0	0.5	1.6
Kiribati	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kuwait	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kyrgyzstan	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Lao People's Democratic Republic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Latvia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lebanon	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lesotho	1.4	1.2	1.6	<0.5	<0.5	0.8	1.5	<0.5	2.5	11	8.8	12	5.3	3.4	7.1	9.1	5.3	12.0	0.8	0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Liberia	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	2.1	1.6	2.7	1.6	0.9	2.3	2.3	1.2	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Libya	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Liechtenstein	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lithuania	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Luxembourg	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Madagascar	<0.5	<0.5	<0.5	0.7	<0.5	1.9	<0.5	<0.5	0.8	1.0	0.9	1.2	2.0	1.2	3.1	1.4	1.1	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Malawi	4.9	3.0	6.7	0.7	<0.5	1.6	4.5	1.0	7.3	46	35	54	25	15	32	38	22	48	2.5	1.5	3.3	<0.5	<0.5	0.7	<0.5	<0.5	0.7
Malaysia	<0.5	<0.5	<0.5	1.0	0.8	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	2.2	3.2	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maldives	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mali	2.0	1.6	2.5	0.5	<0.5	1.4	1.6	1.0	2.6	10	8.4	12	3.9	2.9	5.3	7.0	5.4	9.0	0.9	0.7	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Malta	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Marshall Islands	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mauritania	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mauritius	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mexico	<0.5	<0.5	<0.5	1.8	0.5	4.7	0.8	0.6	1.1	1.8	1.6	2.0	5.4	3.5	8.1	2.7	2.4	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Countries and territories	Number of new HIV infections (thousands)									Number of people living with HIV (thousands)									Number of AIDS-related deaths (thousands)								
	Children 0–4			Adolescent boys 15–19			Adolescent girls 15–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Micronesia (Federated States of)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Monaco	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mongolia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Montenegro	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Morocco	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mozambique	18	10	27	4.2	<0.5	11	9.8	1.6	19	120.0	86	160.0	45	22	68	61	32	90	8.4	4.5	13	1.6	0.8	2.7	1.5	0.7	2.4
Myanmar	0.8	0.6	0.9	1.2	<0.5	3.2	1.1	0.8	1.7	5.8	5.0	7.1	5.0	3.2	7.1	5.3	4.4	7.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Namibia	0.6	0.5	0.7	<0.5	<0.5	0.7	0.8	<0.5	1.3	7.8	6.1	9.0	4.4	2.7	5.9	5.9	3.6	7.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nauru	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nepal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	0.6	0.9	<0.5	<0.5	0.6	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Netherlands	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
New Zealand	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nicaragua	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Niger	0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.3	1.9	2.6	1.2	0.9	1.6	1.5	1.1	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nigeria	36	19	58	19	1.4	59	28	4.8	60	160	93	250	100	35	180	130	53	220	21	10	34	2.8	1.2	5.5	2.6	1.0	5.1
Niue	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Norway	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Oman	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Pakistan	1.0	0.8	1.1	<0.5	<0.5	1.3	0.6	<0.5	0.9	3.3	2.9	3.8	1.1	0.6	1.5	1.5	1.2	1.9	0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Palau	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Panama	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Papua New Guinea	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.4	1.9	2.8	0.9	0.5	1.3	1.1	0.7	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Paraguay	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	1.4	<0.5	<0.5	1.0	–	–	–	–	–	–	–	–	–
Peru	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	0.7	0.5	1.1	1.4	0.8	2.6	1.0	0.7	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Philippines	<0.5	<0.5	<0.5	2.6	0.7	7.0	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	5.6	3.1	7.7	0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Poland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Portugal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Qatar	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Republic of Korea	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Republic of Moldova	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Romania	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Russian Federation	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rwanda	0.9	<0.5	1.2	<0.5	<0.5	<0.5	0.7	<0.5	1.4	6.5	4.3	8.6	4.8	3.1	6.5	6.7	3.8	9.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Saint Kitts and Nevis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Saint Lucia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Saint Vincent and the Grenadines	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Samoa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
San Marino	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

HIV epidemiology among children and adolescents, 2017 (continued)

Countries and territories	Number of new HIV infections (thousands)									Number of people living with HIV (thousands)									Number of AIDS-related deaths (thousands)								
	Children 0–4			Adolescent boys 15–19			Adolescent girls 15–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Sao Tome and Principe	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Saudi Arabia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Senegal	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.1	2.5	3.7	1.7	1.3	2.1	1.9	1.4	2.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Serbia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Seychelles	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sierra Leone	0.6	<0.5	0.9	<0.5	<0.5	0.8	0.5	<0.5	1.1	4.2	3.3	5.1	1.6	0.8	2.6	2.5	1.2	4.0	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Singapore	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Slovakia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Slovenia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Solomon Islands	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Somalia	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	1.0	1.1	<0.5	<0.5	0.6	0.6	0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
South Africa	13	11	22	9.2	0.7	23	41	6.7	75	160	120	210	130	72	180	220	120	310	6.3	3.6	11.0	2.4	1.3	4.3	2.7	1.3	5.2
South Sudan	1.8	0.9	3.0	<0.5	<0.5	1.1	0.9	<0.5	1.8	10	7.3	13	3.5	1.7	5.3	4.8	2.5	7.4	1.3	0.8	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Spain	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sri Lanka	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
State of Palestine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sudan	0.6	<0.5	1.0	<0.5	<0.5	2.0	0.6	<0.5	2.0	2.4	1.7	3.3	1.7	0.5	4.2	2.1	0.8	4.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Suriname	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sweden	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Switzerland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Syrian Arab Republic	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tajikistan	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thailand	–	–	–	–	–	–	–	–	–	1.2	1.0	1.5	4.3	3.0	5.7	4.1	3.4	5.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
The former Yugoslav Republic of Macedonia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Timor-Leste	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Togo	1.2	0.5	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	8.1	4.9	12	3.4	1.8	5.3	4.2	2.1	6.7	0.7	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tonga	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Trinidad and Tobago	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tunisia	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Turkey	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Turkmenistan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tuvalu	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Uganda	7.6	6.4	8.6	0.9	<0.5	2.3	6.5	1.3	11	65	57	71	27	18	35	46	28	61	3.2	2.5	3.9	0.8	0.6	1.1	0.7	<0.5	1.1
Ukraine	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.8	0.6	1.1	3.2	2.8	3.7	1.5	1.3	1.8	3.6	2.9	4.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
United Arab Emirates	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
United Kingdom	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
United Republic of Tanzania	11	7.2	15	2.6	<0.5	6.0	7.0	1.0	13	82	65	98	41	25	54	55	31	77	4.8	2.5	7.2	1.3	0.7	1.9	1.1	0.6	1.7
United States	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Countries and territories	Number of new HIV infections (thousands)									Number of people living with HIV (thousands)									Number of AIDS-related deaths (thousands)								
	Children 0–4			Adolescent boys 15–19			Adolescent girls 15–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19			Children 0–9			Adolescent boys 10–19			Adolescent girls 10–19		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Uruguay	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uzbekistan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Vanuatu	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Venezuela (Bolivarian Republic of)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Viet Nam	–	–	–	–	–	–	–	–	–	3.9	3.1	4.7	1.5	1.0	2.1	1.7	1.4	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Yemen	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zambia	7.3	5.4	9.3	1.4	<0.5	3.6	6.2	1.2	11	50	43	57	25	17	33	40	25	54	2.9	2.1	3.8	0.6	<0.5	0.9	0.6	<0.5	0.9
Zimbabwe	4.3	2.4	6.3	1.1	<0.5	2.8	4.0	0.8	7.3	48	36	58	32	21	43	42	26	56	1.7	1.0	2.7	0.8	<0.5	1.2	0.7	<0.5	1.1
SUMMARY INDICATORS																											
East Asia and the Pacific	5.5	4.3	6.7	11	5.2	28	5.8	3.9	9.1	32	21	50	36	25	56	25	20	34	3.0	1.3	7.8	<0.5	<0.5	0.8	<0.5	<0.5	<0.5
Latin America and the Caribbean	3.5	2.5	5.5	12	3.1	32	7.8	4.7	13	24	14	40	43	26	69	34	24	47	2.1	1.0	5.2	<0.5	<0.5	1.1	<0.5	<0.5	0.7
Middle East and North Africa	<0.5	<0.5	0.7	0.8	<0.5	2.0	0.7	<0.5	1.2	2.3	1.5	3.7	2.5	1.6	4.0	2.3	1.7	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
South Asia	4.9	3.2	7.3	6.9	1.7	19	4.6	2.4	9.1	42	25	68	47	29	76	39	26	60	2.5	1.1	5.7	0.8	<0.5	1.7	0.6	<0.5	1.2
Sub-Saharan Africa	160	98	240	49	3.7	130	140	25	270	110	460	170	620	270	960	900	490	1,300	82	46	140	18	9.0	32	17	8.4	29
Eastern and Southern Africa	94	62	140	25	1.9	66	97	17	180	760	330	110	440	200	650	660	370	920	43	25	73	11	5.8	19	11	5.6	18
West and Central Africa	67	36	100	23	1.8	70	46	8.4	93	350	130	600	180	72	310	250	120	390	39	20	71	6.7	3.1	13	6.1	2.8	11
World	180	110	260	86	35	130	170	97	240	1,200	880	1,600	770	450	1,100	1,000	580	1,500	91	53	140	20	11	33	18	9.3	31

DEFINITIONS OF THE INDICATORS

Number of new HIV infections: Number of new HIV infections that occurred in 2017.

Number of people living with HIV: Number of people living with HIV in 2017.

Number of AIDS-related deaths: Number of people who died from AIDS-related causes in 2017.

MAIN DATA SOURCES

Number of new HIV infections: UNAIDS 2018 estimates.

Number of people living with HIV: UNAIDS 2018 estimates.

Number of AIDS-related deaths: UNAIDS 2018 estimates.

NOTES

– Data not available.

Due to rounding, estimates may not add up to the whole.

Regional data are not available for Eastern Europe and Central Asia, North America and Western Europe. World includes all regions.

Among children, HIV infections are assumed to occur before age 5 only through mother–to–child transmission and between ages 15–19 through sexual transmission.

Abbreviations

AFASS	acceptable, feasible, affordable, sustainable and safe
AIDS	acquired immunodeficiency syndrome
AIDSCAP	AIDS Control and Prevention Project
AIS	AIDS Indicator Survey
AMSHeR	African Men for Sexual Health and Rights
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral
ASWA	African Sex Worker Alliance
AZT	zidovudine
BAN	Breastfeeding, Antiretrovirals and Nutrition study
CAL	Coalition for African Lesbians
CARI	Children and AIDS Regional Initiative
CBOs	community-based organizations
CD4	cluster of differentiation or designation 4: white blood count measure of eligibility for ART treatment
CDC	United States Centers for Disease Control and Prevention
CEO	chief executive officer
CHAI	Clinton Health Access Initiative
CHAP	Children with HIV Antibiotic Prophylaxis
CHER	Children with HIV Early Antiretroviral Therapy
CIPHER	Collaborative Initiative for Paediatric HIV Education and Research
DFID	United Kingdom Department of International Development
DHS	Demographic and Health Survey
DREAMS	Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe
DTG	dolutegravir
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EID	early infant diagnosis
EMTCT	elimination of mother-to-child transmission
FDA	United States Food and Drug Administration
FDC	fixed-dose combination
GAM	Global AIDS Monitoring
Global Plan	Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive
GNP+	Global Network of People Living with HIV
HER	HIV Epidemic Response
HPTN	HIV Prevention Trials Network
HIV	human immunodeficiency virus
IATT	Inter-Agency Task Team
ICW	International Community of Women Living with HIV
INSPIRE	INtegrating and Scaling up PMTCT Through Implementation REsearch
LPV	lopinavir
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey

MRC	Medical Research Council
MSM	men who have sex with men
MTCT	mother-to-child transmission
NGO	non-governmental organization
NIH	United States National Institutes of Health
NNRTI	nonnucleoside reverse transcriptase inhibitor
NVP	nevirapine
OAFLA	Organisation of African First Ladies against HIV/AIDS
OVC	orphans and vulnerable children
PAHO	Pan American Health Organization
PATA	Paediatric-Adolescent Treatment Africa
PENTA	Paediatric European Network for Treatment of AIDS
PEP	post-exposure prophylaxis
PEPFAR	United States President's Emergency Plan for AIDS Relief
PHIA	Population-based HIV Impact Assessment
PI-based	protease inhibitor-based
PMTCT	prevention of mother-to-child transmission
POC	point-of-care
PrEP	pre-exposure prophylaxis
PROMISE	Promoting Maternal and Infant Survival Everywhere
REPSSI	Regional Psychosocial Support Initiative
SATF	Southern African Trans* Forum
SDGs	Sustainable Development Goals
SMS	Short Message Service
SRH	sexual and reproductive health
SRHR	sexual and reproductive health and rights
STI	sexually transmitted infection
TDF	tenofovir
Three Frees	Start Free, Stay Free, AIDS Free framework
UCL	University College London
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VMMC	voluntary medical male circumcision
WHO	World Health Organization
Y+	Global Network of Young People Living with HIV
YVC	YouthVoicesCount

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