

# ON THE FAST-TRACK TO AN AIDS-FREE GENERATION

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THE INCREDIBLE JOURNEY OF THE GLOBAL PLAN TOWARDS  
THE ELIMINATION OF NEW HIV INFECTIONS AMONG  
CHILDREN BY 2015 AND KEEPING THEIR MOTHERS ALIVE

2016



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“PROGRESS ACHIEVED THROUGH THE GLOBAL PLAN IS EVIDENCE THAT WHEN WE COME TOGETHER THE WORLD CAN ENSURE CHILDREN ARE BORN HIV FREE AND THAT THEIR MOTHERS’ HEALTH IS PROTECTED. WE HAVE MADE EXTRAORDINARY GAINS AND WE MUST CONTINUE UNTIL WE ACHIEVE OUR GOAL OF ENDING PAEDIATRIC AIDS AND NEW INFECTIONS AMONG WOMEN.”

MICHEL SIDIBÉ, UNAIDS EXECUTIVE DIRECTOR

“UNDER THE GLOBAL PLAN, THANKS TO THE COURAGE AND CONVICTION OF MANY PARTNERS, NEW HIV INFECTIONS AMONG CHILDREN WERE REDUCED BY 60% IN 21 OF THE HIGHEST-BURDEN COUNTRIES IN SUB-SAHARAN AFRICA, AND 6 COUNTRIES CUT NEW INFECTIONS AMONG CHILDREN BY 75% OR MORE. OUR WORK FOR CHILDREN, ADOLESCENTS AND YOUNG WOMEN IS FAR FROM DONE, BUT THIS IS A TREMENDOUS ACCOMPLISHMENT.”

DEBORAH BIRX, UNITED STATES GLOBAL AIDS COORDINATOR AND SPECIAL REPRESENTATIVE FOR GLOBAL HEALTH DIPLOMACY

## FOREWORD

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Today 60% fewer children are newly infected with HIV annually compared with just six years ago in the 21 Global Plan countries in sub-Saharan Africa. Across these countries, 1.2 million new HIV infections among children have been averted since 2009, the baseline year for the *Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive* (Global Plan), and over 2 million more pregnant women have started receiving lifesaving antiretroviral therapy.

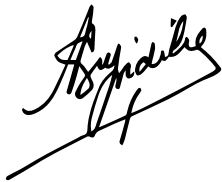
But this is much more than a statistic. It means that 1.2 million more children have had an HIV-free start—a better chance to survive, thrive and fulfil their dreams. But the impact goes even further and deeper. The powerful ripples of hope and healing that these children have sent through their families, communities and countries transcend mere quantification.

When the Global Plan was launched in 2011, much of this progress seemed unimaginable. Today, far fewer children are acquiring HIV, many more pregnant women are accessing services and staying healthy, and the opportunity to eliminate new HIV infections among children and keep their mothers alive is truly in sight.

Of the 21 Global Plan countries in sub-Saharan Africa, 7 have reduced new HIV infections among children by more than 70% since 2009 (Uganda, 86%; Burundi, 84%; South Africa, 84%; Swaziland, 80%; Namibia, 79%; Mozambique, 75%; Malawi, 71%).

Yet, there is vital unfinished business, and no time to waste. In a number of countries (Angola, Côte d'Ivoire and Nigeria), progress has been far slower, with less than a 40% reduction over this same time period. Every year, 110 000 children are still being newly infected with HIV in the 21 Global Plan priority countries in sub-Saharan Africa. More than half of new paediatric HIV infections occur during the breastfeeding period. Alarming numbers of girls and women are still being infected. Many women do not have access to the family planning services they need. And testing and treatment coverage among children remains too low.

The progress achieved under the Global Plan is worthy of celebration. It amounts to one of the greatest public health achievements of recent times, which has taken all partners pulling together to accomplish. But our work is not finished, and we must act with urgency and focus to reach our ultimate goals—controlling and then, finally, ending the AIDS epidemic by 2030.



MICHEL SIDIBÉ

UNAIDS Executive Director



DEBORAH BIRX

United States Global AIDS Coordinator and  
Special Representative for Global Health Diplomacy,  
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# EXECUTIVE SUMMARY

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*The Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive* (Global Plan) was launched in June 2011. It prioritizes a set of countries<sup>1</sup> that, in 2009, accounted for 90% of the global number of pregnant women living with HIV who were in need of services to prevent mother-to-child transmission of HIV. This report summarizes the history and development of the Global Plan, its achievements in reaching ambitious goals, lessons learned and directions for future progress to end new HIV infections among children.

## REDUCING NEW INFECTIONS AMONG CHILDREN

One of the two goals of the Global Plan is to reduce new HIV infections among children by 90% from the baseline in 2009 (the benchmark year against which progress is measured). At the end of 2015 the 21 Global Plan focus countries in sub-Saharan Africa had reduced new infections among children by 60% (compared with a reduction of only 24% between 2000 and 2008), indicating that the years since the launch of the Global Plan have seen the proportionate decline almost triple. Collectively, countries have reduced new HIV infections from 270 000 [230 000–330 000] in 2009 to 110 000 [78 000–150 000] in 2015. Nigeria has the largest number of newly infected children (41 000 [28 000–57 000]), equivalent to the numbers of the next eight countries combined. Without Nigeria, the remaining 20 countries have reduced new HIV infections among children by 69%.

Uganda has made the greatest progress, reducing new infections by 86%, followed by South Africa and Burundi (84% each), Swaziland (80%), Namibia (79%) and Mozambique (75%). Botswana, Burundi, Namibia and Swaziland had fewer than 1000 new infections in 2015. A number of countries, however, have made slower progress, including Angola, Côte d'Ivoire and Nigeria; these countries have registered less than a 40% reduction in new HIV infections among children since 2009.

Among the 21 countries, 1.2 million new HIV infections among children have been averted since 2009. This is more than a number. Behind it are countless empowered mothers living with HIV who know they have successfully protected their children. It represents thousands of families and communities who now have HIV-free children, and it represents resources that would have otherwise been spent on treatment that can be used for other family needs. Most of the progress in prevention of mother-to-child transmission of HIV has been in only the past five years—of the 1.4 million paediatric infections averted since 2000 through the provision of antiretroviral medicines to pregnant women living with HIV, 88% were prevented between 2009 and 2015.

1. Angola, Botswana, Burundi, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Ghana, India, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, South Africa, Uganda, United Republic of Tanzania, Swaziland, Zambia and Zimbabwe. India has been excluded from this analysis as data for India were not available over the Global Plan period. In addition, at the time of the report, data for Ethiopia were not finalized; therefore, draft values were used to calculate values for the priority countries but country-specific data for Ethiopia are not presented.

## ACCESS TO MATERNAL ANTIRETROVIRAL MEDICINES

The proportion of pregnant women living with HIV who received antiretroviral medicines (excluding the less efficacious single-dose nevirapine) for the prevention of mother-to-child transmission has more than doubled in the 21 priority countries, from a baseline of 36% [32–41%] in 2009 to 80% [71–90%] in 2015. Countries provided antiretroviral medicines to an additional 34 200 pregnant women living with HIV in 2015 compared with 2014. In 2015 six of the priority countries (Botswana, Mozambique, Namibia, South Africa, Swaziland and Uganda) met the Global Plan goal of ensuring that 90% or more of pregnant women living with HIV receive antiretroviral medicines.

The 80% [71–90%] coverage of antiretroviral medicines represents essentially a minimal increase from 77% [69–87%] in 2014. However, it masks significant differences in the quality of the regimen—93% of pregnant women accessing these medicines for prevention of mother-to-child transmission of HIV were actually accessing lifelong antiretroviral therapy, in accordance to the 2015 World Health Organization (WHO) guidelines, compared with 73% in 2014. Consequently, in these countries, AIDS-related deaths among women of reproductive age have declined by 43% between 2009 and 2015.<sup>2</sup>

At the end of 2015, all the priority countries, except Nigeria, are following the WHO guidelines and offering lifelong HIV treatment to pregnant and breastfeeding women. Nigeria is piloting this approach in selected regions.

## MOTHER-TO-CHILD TRANSMISSION RATES

Another target of the Global Plan is to reduce the final mother-to-child transmission rate to 5% or less among breastfeeding women, and to 2% or less among non-breastfeeding women. Together, the 21 Global Plan priority countries have reduced this rate from 22.4% [19.8–25.4%] in 2009 to a remarkable 8.9% [8.0–10.0%] in 2015. Four countries have achieved the Global Plan milestone—South Africa at 2% [1.9–2.2%], Uganda at 2.9% [2.6–3.2%], Swaziland at 3.3% [3.0–3.5%] and Namibia at 4.1% [3.7–4.5%]. Botswana, the only non-breastfeeding Global Plan priority country, has a transmission rate of 2.6% [2.4–2.7%], just above the Global Plan goal threshold of 2%.

The data suggest that non-adherence and loss to follow-up, particularly during breastfeeding, continue to leave infants vulnerable to acquiring HIV. In 2015 the rate of mother-to-child transmission at six weeks was 4.7% [4.2–5.3%] among the 21 countries, but this rose to 8.9% [8.0–10.0%] at the end of breastfeeding. This is particularly important for countries such as Angola, Cameroon, Chad, the Democratic Republic of the Congo, Ghana, Lesotho and Nigeria, where the difference between the six-week and final transmission rates are particularly large. Such differentials reflect reduced retention during the breastfeeding period, resulting in as many new paediatric HIV infections as new infections during pregnancy, labour and delivery. It indicates a need for more concerted and systematic efforts to maintain women in care, and to enable good adherence to HIV treatment until the risk of HIV transmission to the baby ends fully. Many country programmes have emphasized providing antiretroviral medicines during pregnancy and delivery, but they have not placed as much emphasis on the postnatal period or ensuring

2. In 2015 WHO and United Nations partners made a methodological change in how maternal mortality was estimated. The most recent report suggests there were 4700 maternal deaths in 2015 but does not provide a trend analysis of these deaths. For this reason, this report uses deaths among women of reproductive age.

adherence to antiretroviral therapy following birth. In addition, there is a need to develop better methods to measure adherence, especially at the national level.

#### NEW HIV INFECTIONS AMONG WOMEN

The Global Plan aspired to reduce new HIV infections among women of reproductive age by 50%, but the decline has been only 5%. Between 2009 and 2015 inclusive, there were 4.5 million [3.8 million–5.4 million] newly infected women of reproductive age in the 21 Global plan priority countries. South Africa added the largest number of new infections among women between 2009 and 2015 (1.2 million [1.1 million–1.4 million]), followed by Nigeria (770 000 [550 000–1.1 million]) and Uganda (350 000 [270 000–460 000]). The risk of mother-to-child transmission of HIV is higher among women who are not on antiretroviral therapy, and is particularly high among newly infected women who are not yet diagnosed and on treatment, due to the high levels of viraemia. It is important to intensify prevention efforts to reduce the incidence of HIV among women of childbearing age and to identify new HIV infections among women, which may occur at different points of pregnancy and breastfeeding. It is also important to recognize and respond to HIV-seronegative women whose partners are living with HIV.

#### INFANT DIAGNOSIS AND PAEDIATRIC TREATMENT

Of an estimated 1.2 million [1.1 million–1.4 million] infants exposed to HIV among the 21 priority countries, 51% [46–57%] of infants received a virological test to determine their HIV status within the first two months of life, as recommended by WHO. Of the 1.4 million [1.2 million–1.7 million] children under 15 years of age living with HIV in these countries in 2015, 51% [44–59%] received antiretroviral therapy, compared with 15% [13–17%] in 2009. The number of children accessing antiretroviral medicines has more than doubled, from 275 700 in 2009 to 727 000 in 2015. However, this means that in 2015, 49% of children who needed treatment were still not accessing treatment. This gap must be addressed urgently, since half of the infants infected with HIV will die before their second birthday if they do not receive treatment. Because almost all Global Plan priority countries are accelerating HIV treatment for mothers, this momentum should also provide an opportunity to incorporate the roll-out of paediatric diagnosis and treatment, enabling sites that provide testing and treatment for adults to provide the same for children. In addition, efforts to find children who may have been missed should be strengthened, for example through proactive provider-initiated counselling, testing of the children of people on antiretroviral therapy, and testing of children accessing paediatric services, including immunization and nutrition programmes and other programmes serving orphans and vulnerable children.

#### REDUCTION IN AIDS-RELATED PAEDIATRIC DEATHS

Fewer HIV infections among children means fewer AIDS-related child deaths. Between 2002 and 2008, before the Global Plan, the number of AIDS-related deaths among children aged 0–4 years fell by 25%, from 192 000 to 143 000. Between 2009 and 2015, the reduction in AIDS-related paediatric mortality in children aged 0–4 years was 62%, falling from 129 000 to 49 000 deaths. South Africa has made the most progress, having reduced deaths by 90%, followed by Burundi (81%) and Swaziland (80%). The least progress was reported in Angola (15%) and Nigeria (23%). The reduction in AIDS-related paediatric deaths is driven by three factors: reduction of new infections among children through prevention of mother-to-child



transmission services; increasing access to paediatric treatment; and reduction in AIDS-related deaths among women, which means that many mothers are alive and healthy to care for their children and ensure good health care and adherence to AIDS treatment.

#### VALIDATION OF COUNTRIES FOR ELIMINATING MOTHER-TO-CHILD TRANSMISSION OF HIV AND CONGENITAL SYPHILIS

Although the Global Plan prioritizes the 21 countries described in this report, it encompasses all low- and middle-income countries, and many of these have also seen intensified scale-up of services to eliminate new HIV infections among children and keep their mothers alive, both in low-prevalence regions and in concentrated epidemic areas. One key development occurred in June 2016, when Thailand, Armenia and Belarus were validated by WHO as having met the global criteria for eliminating mother-to-child transmission of HIV and congenital syphilis, joining Cuba in this achievement (1). Several other countries are in advanced stages of applying for this recognition. In addition, WHO is establishing a criterion for pre-validation to acknowledge significant progress in high-burden countries towards ending new infections among children.

#### NEXT STEPS

This is the final report of the Global Plan. It shows that countries have truly transformed themselves to address this public health challenge. They did so by mobilizing at all levels—political, financial and community—while at the same time innovating and intensifying their efforts. The Global Plan inspired its own social movement at the community, national and global levels, a movement that brought together partnerships between governments, donors, women living with HIV, industry and other stakeholders who recognized the unprecedented opportunity it presented. And although its overall goal of reducing new HIV infections among children by 90% was not met, the 60% reduction achieved is remarkable. An estimated 1.2 million children have been protected from HIV since 2009 in these countries, and hundreds of thousands of families have been spared the pain of having a child born with HIV.

As the time period of the Global Plan has come to a close, the areas of ongoing work are clear, in order to truly achieve the end of the AIDS epidemic among children. This unfinished business must focus intensely on ending new HIV infections among children at the start of life, finding and ensuring lifesaving paediatric treatment for children living with HIV, and stopping the cycle of new infections occurring among girls and women of childbearing age. The Global Plan showed that with focus, political leadership and determination matched with an embrace of science and innovations, and respect and engagement of community assets, ambitious targets can be met. Given the unprecedented achievements of countries in just the past five years, there is every belief that the world can accomplish even more in the next five years, and make good on the commitment to deliver an AIDS-free generation.

# THE INCREDIBLE JOURNEY

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THE GLOBAL PLAN TOWARDS THE ELIMINATION OF NEW HIV INFECTIONS  
AMONG CHILDREN BY 2015 AND KEEPING THEIR MOTHERS ALIVE



INDIA

SOUTH AFRICA

UGANDA

UNITED REPUBLIC  
OF TANZANIA

THE GLOBAL PLAN HAS GALVANIZED ACTION ALL OVER THE WORLD TO ENABLE WOMEN AND



CAMBODIA

KENYA

MOZAMBIQUE

NIGERIA

CHILDREN TO PROTECT THEMSELVES FROM HIV AND ACCESS HIV TREATMENT WHEN NEEDED.

# INTRODUCTION

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## A TREMENDOUS ACHIEVEMENT

The world has made tremendous progress in preventing mother-to-child transmission of HIV in the five years since the launch of the *Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive* (Global Plan) in 2011 (2):

- The number of new paediatric HIV infections has been reduced by 60% since 2009 (the baseline year for the Global Plan) in the 21 priority countries. Uganda, South Africa and Burundi have reduced new infections by 86%, 84% and 84%, respectively.
- The final risk of HIV transmission to children used to be as high as 40% without intervention. In four countries, that risk has been cut to less than 5% among breastfeeding women, and eight other countries have reduced the risk to below 10%.
- 80% [71–90%] of pregnant or breastfeeding women living with HIV accessed antiretroviral medicines to prevent HIV transmission; among these, 93% are accessing lifelong antiretroviral therapy, which benefits their own health.
- An estimated 85 other countries are within reach of eliminating new HIV infections among children and have very low numbers of mother-to-child transmission of HIV.
- Efforts to provide diagnosis and treatment of infants exposed to HIV have improved. Half the children living with HIV (51% [44–59%]) are now accessing treatment, compared with 15% [13–17%] in 2009.

This adds up to one of the great public health achievements of recent times.

Programmes expanded, services were integrated, new ways of delivering those services were introduced, and improved antiretroviral regimens were used to keep children safe from HIV and maintain maternal health. Countries are now using these tools effectively—to such an extent that the 60% decline in the number of new HIV infections among children between 2009 and 2015 was more than double the decline in the entire previous decade (3).

The scale-up of prevention of mother-to-child transmission of HIV services has also had a major impact on women's lives in these countries. When the Global Plan began, concerns for the health and lives of mothers living with HIV were somewhat eclipsed by the focus on preventing their infants from acquiring HIV. In addition, there were limited treatment and diagnostic options for children living with HIV. Within two years, scientific progress enabled maternal health to move centre-stage and allowed greater focus on children living with HIV. Providing mothers living with HIV with lifelong antiretroviral therapy in accordance with World Health Organization (WHO) guidelines is now under way in virtually all the Global Plan priority countries. Mothers living with

HIV are now beginning treatment earlier, before their immune system is damaged, and remaining on treatment for life. Children exposed to HIV are also getting better diagnosis and treatment services, even though much more work is needed to bring equity between maternal and paediatric care. With the roll-out of Option B+ and test-and-treat, increasingly women living with HIV are already on treatment before their second or third pregnancies, further optimizing infant outcomes.

### **A great convergence**

Part of the Global Plan's success stemmed from the way in which it converged with other ambitious global initiatives to improve maternal and child health, but without duplicating them. Its focus on preventing and treating HIV infection was specific, and yet its impact would resonate widely. The Global Plan's main targets supported key Millennium Development Goals (MDGs), three of which related to directly improving maternal and child health: MDG 4 (reducing child mortality), MDG 5 (improving maternal health) and MDG 6 (halt and reverse the spread of HIV). The Global Plan also supported the Global Strategy for Women's and Children's Health, which the Every Woman Every Child movement launched in September 2010 (4). With AIDS-related illnesses being the leading cause of death among women of reproductive age worldwide (5), the importance of addressing HIV demanded urgent attention.

At the same time, the African Union had put in place a number of important complementary instruments that would strengthen the implementation platform of the Global Plan. The Maputo Declaration and its Plan of Action, endorsed by ministers of health from 48 African countries in 2006, stressed the importance of sexual and reproductive health (6). The Global Plan also drew from the African Union's Campaign for Accelerated Reduction of Maternal Mortality in Africa, through which the Maputo Plan of Action was to be implemented (7).

Key building blocks underpin the success of the Global Plan. One was high-level political commitment of national and global leaders to ending new HIV infections among children. Strong partnerships bringing together technical agencies, bilateral donors, private and philanthropic sectors, faith-based organizations, civil society and women living with HIV in a common cause have been at the heart of progress. Clear and focused goals and accountability for results have contributed to the momentum and development of concrete action plans, fostering innovations and new approaches to service delivery.

But there is vital unfinished business. The scale of the challenge to eliminate HIV transmission to children was a bar set high to reduce new infections by 90%, and reduce the number of mothers dying from AIDS-related causes by 50%. Yet the momentum generated by the Global Plan is so great that those goals can now be achieved in just a few more years. It will require renewing political commitment, further strengthening the capacities and platforms that countries have built, strengthening health systems, and using proven new technologies and approaches to zero in on those areas where efforts are still faltering. For example, over half of new paediatric HIV infections occur during the breastfeeding period because not enough mothers living with HIV are being retained in care and on antiretroviral therapy, which protects against transmission. Too many women and girls are continuing to be infected, and many seroconvert during pregnancy or breastfeeding. Testing and treatment coverage among children also remains too low.

These areas are highlighted in the 2016 Political Declaration on Ending AIDS (8), which strongly reiterates the commitment to eliminate new HIV infections among children and protect their mothers' health and well-being. The Political Declaration calls for greater coverage of early infant diagnosis, quicker progress towards elimination of HIV among children, and the use of innovative systems that track and provide comprehensive services to mother–infant pairs along the entire continuum of care to improve linkage to treatment. It also calls for increasing and improving treatment adherence support, immediate and lifelong treatment for pregnant and breastfeeding women living with HIV, and engaging male partners in prevention and treatment services.

Unprecedented opportunities are available. If countries use them to build on the progress made and to close remaining gaps, they could catapult towards the goal of ending the AIDS epidemic by 2030. The 2030 Agenda for Sustainable Development is a vital platform for this renewed push to eliminate HIV infections among children and protect mothers' lives—and for accelerating unifying actions to end the AIDS epidemic. The Sustainable Development Goals feature numerous opportunities for fresh, collaborative and sustainable efforts. Sustainable Development Goal 3 (ensure healthy lives and promote well-being of all at all ages) includes specific targets that provide numerous opportunities for the health sector's joint efforts that can lead to the sustainable end of the AIDS epidemic. In addition, the United Nations Secretary-General's new Global Strategy for Women's, Children's and Adolescents' Health will galvanize global efforts to significantly reduce the number of maternal, adolescent, newborn and under-five child deaths.

#### THE NEED FOR A GLOBAL PLAN

The Global Plan's timing was an important factor in its success. An all-out drive to eliminate HIV infections among children and protect the lives of mothers needed a strong foundation of biomedical tools, scientific evidence, funding and technical support. Effective antiretroviral medicines for preventing mother-to-child transmission of HIV have been in use since 2000, but they were not widely available where the epidemic was taking its greatest toll. High medicine prices, impractical paediatric diagnostics and operational difficulties contributed to limiting the scale of effective programmes in most low- and middle-income countries.

After the United Nations General Assembly Special Session on HIV/AIDS in 2001, efforts to step up the prevention of mother-to-child transmission of HIV increased steadily. In the same year, the Interagency Task Team for the Prevention and Treatment of HIV among Pregnant Women, Mothers and Children reframed its focus to address prevention of HIV transmission in pregnant women, mothers and children and shortly after proposed the four-prong approach for prevention of mother-to-child transmission of HIV. The United States of America launched the International Mother and Child HIV Prevention Initiative in 2002, which expanded dramatically with the 2003 launch of the United States President's Emergency Plan for AIDS Relief (PEPFAR). PEPFAR set an ambitious goal of reaching 80% of pregnant women in the countries most affected by HIV with PEPFAR programmes. Improved antiretroviral medicines were being developed. When used in high-income countries, those medicines led to remarkably low rates of mother-to-child transmission of HIV. In the field, however, projects in low- and middle-income countries were revealing the implementation barriers that were impeding progress. Training and staffing constraints were a common challenge. Pregnant women were generally willing to

take an HIV test, but it was difficult to link them effectively to treatment and care services. However, a 2003 evaluation of United Nations Children's Fund (UNICEF)-supported pilot prevention of mother-to-child transmission of HIV projects in maternal and child health settings found they were feasible and acceptable (9).

By 2005 only about 16% [14–18%] of pregnant women living with HIV globally were accessing any antiretroviral medicines for prevention of mother-to-child transmission (10). Around the same time, however, several developments added impetus to the prevention of mother-to-child transmission of HIV, opening new opportunities for progress. Antiretroviral medicine prices were falling, making large-scale provision of these medicines more realistic. In 2006 a new initiative, UNITAID, also began to fund the supply of paediatric antiretroviral medicines and diagnostics to governments. By the end of 2006, 71 countries around the world were implementing national prevention of mother-to-child transmission programmes, and about half of them had national scale-up plans (11).

Soon study findings were showing that a combination of antiretroviral medicines was especially effective in preventing mother-to-child transmission of HIV, and in 2010 WHO updated its antiretroviral guidelines accordingly. Greater availability of rapid point-of-care HIV tests was boosting the prevention of mother-to-child transmission of HIV. In the same year, PEPFAR introduced plans to accelerate prevention of mother-to-child transmission in six African countries<sup>3</sup> with high burdens of HIV, with an emphasis on removing blockages in the provision of services. Meanwhile the scale-up of antiretroviral therapy for people living with HIV was gathering momentum. New service delivery methods were extending the capacity of health facilities, and productive linkages between clinics and communities were being built. It was becoming increasingly obvious that a big enough global effort could eliminate mother-to-child transmission of HIV everywhere.

### **The call for elimination: creating the Global Plan**

With the evidence of effective therapies and advances in delivering services, a call for achieving a vision of elimination of mother-to-child HIV transmission was put forward by UNAIDS Executive Director Michel Sidibé, with political leaders and implementing partners joining hands. What was missing was a comprehensive and inspiring plan, with clear targets and accountability mechanisms, that could be used to invigorate political commitment across the world, mobilize greater resources, and support a decisive drive to eliminate new HIV infections among children. A Global Plan for eliminating new HIV infections among children by 2015 and keeping their mothers alive would fill that gap. A Global Task Team, co-chaired by UNAIDS and PEPFAR, took on the task of drafting such a plan. The Global Task Team was comprised of a consortium of stakeholders from 25 countries and 30 civil society groups, private-sector partners, networks of people living with HIV and international organizations. Preparatory work began in 2010. The Global Task Team examined the feasibility of potential goals and targets, developed a business case for the plan and outlined its main components. The Global Plan would support MDGs 4, 5 and 6 and the United Nations Secretary-General's Global Strategy for Women's and Children's Health to significantly reduce the number of maternal, newborn and under-five child deaths.

3. Malawi, Mozambique, Nigeria, South Africa, the United Republic of Tanzania and Zambia.



Launched at the United Nations in June 2011 during the High-Level Meeting on HIV and AIDS, the Global Plan headlined two ambitious aspirational global goals:

- Goal 1: reduce the number of new childhood HIV infections by 90%.
- Goal 2: reduce the number of mothers dying from AIDS-related causes by 50%.

Guiding the Global Plan was a set of principles that called for placing women living with HIV at the centre of the response, ensuring country ownership, and leveraging synergies, linkages and integration with current HIV and maternal/child health programmes for improved sustainability. They also stressed the importance of shared responsibility and accountability. The Global Plan encompassed all low- and middle-income countries, but particularly prioritized the 22 countries that, in 2009, were home to 90% of pregnant women living with HIV, namely Angola, Botswana, Burundi, Cameroon, Chad, Côte d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Ghana, India,<sup>4</sup> Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, South Africa, Uganda, the United Republic of Tanzania, Swaziland, Zambia and Zimbabwe. It would use 2009 as the baseline year against which to measure progress.

#### A TRUE AND TESTED APPROACH TO PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV

The Global Plan called for a set of systematic actions and improvements to build on the four-pronged prevention of mother-to-child transmission of HIV framework that had been developed by the United Nations and implementing partners in the early 2000s (2, 12):

- Prong 1: prevention of HIV among women of reproductive age, especially within services related to reproductive health, such as antenatal care, postpartum and postnatal care and other health and HIV service delivery points, including working with community structures.
- Prong 2: provision of counselling, support and contraceptives to women living with HIV to help them avoid unintended pregnancies.
- Prong 3: ensuring access of pregnant women living with HIV to the antiretroviral medicines needed to prevent HIV infection from being passed on to their babies during pregnancy, delivery and breastfeeding.
- Prong 4: ongoing HIV treatment, care and support for women and children living with HIV and their families.

The plan outlined a range of reinforcing actions that would be taken at various levels. At the global level, the Global Steering Group would oversee and support the Global Plan process and hold key stakeholders accountable. Leaders would promote commitment to the Global Plan and help mobilize resources from development partners to fund implementation. The Global Steering Group would work with the Interagency Task Team for the Prevention and Treatment of HIV among Pregnant Women, Mothers and Children to facilitate the rapid provision of technical assistance and capacity-building support to countries, and push for more affordable and simplified HIV treatment and prophylactic regimens and delivery mechanisms.

4. India was later dropped from the progress reports, due to data challenges. Therefore, the progress reports cover 21 countries.



At the country level, national leaders would build awareness and political commitment and mobilize the necessary resources. They would also promote stronger integration of prevention of mother-to-child HIV transmission programmes with maternal, newborn and child health programmes, and with family planning services. The removal of legal and policy barriers to equitable scale-up was also their responsibility, along with leading the development of comprehensive, prioritized and costed national plans, in line with broader national HIV and maternal, newborn and child health strategies. A national steering group would oversee the development and implementation of key activities, including assessments and updates of existing national policies and plans, harmonizing the activities of various stakeholders and ensuring that the “Three Ones”<sup>5</sup> principles were applied. The minister of health or their high-level designee would chair this steering group, with participation from key stakeholders, including women living with HIV and representatives of other relevant ministries.

Processes for harmonizing policies, sharing best practices among countries and coordinating technical support were to be developed and promoted mainly at the regional level, with an emphasis on promoting south-south exchanges of best practices. Communities would help increase community awareness, define minimum standards and assist in identifying and removing barriers to service access, including by reducing stigma and discrimination. Stakeholders were to be a priority, with efforts focusing especially on marshalling and supporting community resources, including midwives, mentor mothers and other women living with HIV, peer educators and community health workers.

At the global and country levels, the Interagency Task Team for the Prevention and Treatment of HIV among Pregnant Women, Mothers and Children was reconfigured to support country-led implementation of the Global Plan with PEPFAR support. It was charged with supporting the review and updating of national plans in the 22 priority countries, and identifying major bottlenecks hindering scale-up of elimination of mother-to-child transmission of HIV programmes. It mobilized the expertise of numerous partners at the global level through thematic technical working groups and has worked to support the provision of normative and operational guidance and technical support and document best practice models, all in support of accelerating policy reform and implementation progress within countries. It tracked progress towards the Global Plan goals and targets via an up-to-date web-based “dashboard” that complemented annual reporting.

## HOW ACCOUNTABILITY WAS BUILT

The creation of a strong and comprehensive accountability framework was a core component of the Global Plan, beginning with political leadership of Global Plan countries, matched with a robust reporting mechanism for measuring progress against core indicators. Throughout the implementation of the Global Plan, ministerial meetings were convened to review and report on progress and actions in each of 21 focus countries. This emphasis on high-level leadership reinforced continuing commitment to prevention of mother-to-child transmission of HIV. Periodic stocktaking meetings of national global steering group focal points, Interagency Task Team for the Prevention and Treatment of HIV among Pregnant Women, Mothers and Children technical agencies, networks of women living with HIV and other stakeholders were also held to build on successful strategies and further accelerate action plans.

5. The “Three Ones” were formulated in 2004 by countries and comprise one agreed HIV action framework, which provides the basis for coordinating the work of all partners; one national AIDS coordinating authority, with a broad-based multisectoral mandate; and one agreed country-level system for monitoring and evaluation. The Three Ones emerged through a preparatory process initiated by UNAIDS, working in collaboration with the World Bank and the Global Fund to Fight AIDS, Tuberculosis and Malaria. The Three Ones would help enable donor and recipient countries to work together more effectively; they would also help to increase country-level coordination and to enhance efficiency in the use of resources devoted to AIDS responses (13).

The progress of countries towards reaching the goals of the Global Plan was documented annually through published progress reports. WHO and UNICEF developed the Global Monitoring Framework and Strategy for the Elimination of New Child Infections by 2015, which provided specific information on the indicators and measurement methodologies for tracking the progress made (see Table 1). The Global Steering Group, in collaboration with the Interagency Task Team on the Prevention and Treatment of HIV Infection in Pregnant Women, Mothers and Children, oversaw the overall reporting and assessment of progress against the two global goals and a set of accompanying targets:

- Global goal 1: reduce the number of new childhood HIV infections by 90%. Progress towards this goal would reflect the combined effects of the reduction of HIV transmission from mother to child (Prong 3), the reduction of HIV incidence in women of reproductive age (Prong 1), and the effects of increased use of family planning services for women living with HIV (Prong 2).
- Global goal 2: reduce the number of HIV-related maternal deaths by 50%. This would reflect progress in delivering a broad package of HIV and maternal, newborn and child health services (mainly Prongs 3 and 4). The data for this indicator were obtained from the WHO-led consortium that calculates global estimates biennially (14). However, in 2013 there were methodological changes in how the indicator was calculated. Therefore, the Global Steering Group opted to use AIDS deaths among women of reproductive age, which more appropriately estimates the survival of mothers living with HIV.
- Subgoal: to reduce AIDS-related infant deaths by more than 50%<sup>6</sup>: this would reflect focused services to children, including ensuring all children diagnosed with HIV receive antiretroviral therapy, and that children exposed to HIV receive both cotrimoxazole and antiretroviral prophylaxis.

Each of the prongs featured at least one subordinate target (see Table 1).

Table 1

**Targets for each of the four prongs in the *Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive***

Prong 1 target	Prong 2 target	Prong 3 target	Prong 4 target
<ul style="list-style-type: none"> <li>▪ Reduce HIV incidence among women and their partners by 50%.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce unmet need for family planning among women to zero (MDG goal).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce mother-to-child transmission rate to 5% or less among breastfeeding women, and 2% or less among non-breastfeeding women;</li> <li>▪ 90% of mothers receive perinatal antiretroviral therapy or prophylaxis;</li> <li>▪ 90% of breastfeeding infant-mother pairs receive antiretroviral therapy or prophylaxis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide life-long antiretroviral therapy to 90% of pregnant women in need of antiretroviral therapy for their own health.</li> <li>▪ Provide life-long antiretroviral therapy to all children living with HIV</li> </ul>

6. The Global Plan M&E framework interpreted this as “Reduce under-5 deaths due to HIV by > 50%”, and this is what is provided in the data

Several other indicators would also be tracked, including coverage of early infant diagnosis, infant cotrimoxazole prophylaxis and the number of paediatric infections averted.

Monitoring systems had to be created or upgraded for collecting the essential data that would support accountability and inform programme planning, implementation and course correction. The ability to follow a mother and her child for their health-care needs bridged maternal child health and HIV treatment systems, and highlighted the importance of ensuring continuity of care.

Global Plan monitoring and evaluation specialists have always aspired that accountability could be based on real, robust and reliable country programme data, instead of relying on statistical models. But although country data systems have improved during the implementation of the Global Plan, they do not provide all the inputs necessary to assess programme impact. Moreover, many programme outcomes are dependent on factors such as fertility, transmission rates, antiretroviral regimen mix and adherence levels, variables that are difficult to measure routinely and comparably across sites. Therefore, models are still essential for assessing the impact of the Global Plan.

#### PUTTING IT ALL TO WORK: THE MAIN ACTIVITIES OF THE GLOBAL PLAN

The Global Plan's success depended on whether countries could achieve wide enough coverage with a package of HIV and other health services for mothers and their infants. Doing that in a comprehensive and sustained way required a series of enabling and supporting actions.

#### **Enabling and supporting activities**

A first step was to bring national guidelines and plans up to date. The Interagency Task Team for the Prevention and Treatment of HIV Among Pregnant Women, Mothers and Children supported countries to develop national and subnational elimination of mother-to-child transmission of HIV plans in line with Global Plan goals. A bottleneck analysis methodology developed by UNICEF was used in many countries to identify key subnational areas of focus and barriers to prevention of mother-to-child transmission of HIV-related interventions that required resolution in order to achieve elimination of mother-to-child transmission of HIV goals. Countries reviewed and revised their national guidelines on treatment of pregnant women living with HIV, treatment of children, and prevention of mother-to-child transmission of HIV, as WHO guidelines evolved to reflect improved science and evidence. They examined the readiness of their health-care structures to meet the ambitious goals that were set. They worked to strengthen integration of prevention of mother-to-child transmission of HIV services into maternal and child health services. All this served as a basis for the finalization of national elimination of mother-to-child transmission of HIV plans in the context of the country's maternal and child health framework. The plans were then costed so they could form the basis for mobilizing resources.

Led by the Interagency Task Team for the Prevention and Treatment of HIV Among Pregnant Women, Mothers and Children's finance and economic working group, countries carried out expenditure analyses and identified financing gaps in their action plans. Efforts to leverage and mobilize additional investments were mounted, including domestically, although the reliance on international funding proved difficult to overcome in most Global Plan priority countries. Countries re-examined what they could do with

what they had; for example, in Malawi, a Global Fund review showed that although use of antiretroviral therapy was progressing at a desired pace, prevention of mother-to-child transmission of HIV programmes were lagging far behind. This prompted a review of the programmes and led to greater financial focus for prevention of mother-to-child transmission of HIV. In addition, the development of investment cases for a “treat all” approach in prevention of mother-to-child transmission of HIV programmes provided substantive basis for countries to adopt Option B+ as national policy.

Carrying those initiatives forward required high-profile support from global and national leaders, which was vital for building awareness and political commitment—from the international stage to the communities and clinics where activities were being implemented. Under the leadership of UNAIDS and PEPFAR, global partners organized themselves towards a coordinated response. Leaders from United Nations heads of agencies, executive directors of development organizations, chairs of global boards and private-sector organizations and other high-level influencers came together to forge in the same direction. In response to the need to expedite the development and delivery of better paediatric HIV medicines formulation for children, UNITAID, the Drugs for Neglected Diseases initiative and the Medicines Patent Pool established a new collaborative, the Paediatric HIV Treatment Initiative (15). Another example was the Positive Action for Children’s Fund, launched to strengthen community engagement in support of the Global Plan (16). In addition, the African Union adopted the goals of the Global Plan and promoted them through its instruments with heads of state, ministers, regional bodies and other structures.

The Organisation of African First Ladies against HIV/AIDS became an active supporter of the Global Plan, and almost every African first lady participated in activities related to the Global Plan. The First Lady of Kenya, Margaret Kenyatta, ran marathons to raise funds for mobile maternal and child health clinics and to raise awareness of mother-to-child transmission. The First Lady of Uganda, Janet Kataha Museveni, travelled her country to promote treatment adherence and defuse stigma. The First Lady of Burundi, Denise Nkurunziza, has been mobilizing men through various entry points in order to encourage couple counselling and testing for prevention of mother-to-child transmission of HIV. The First Lady of Ghana, Nana Lordina Dramani Mahama, has led a campaign advocating for male involvement and community ownership for successful prevention of mother-to-child HIV transmission. The First Lady of Côte d’Ivoire, Dominique Ouattara, has championed both elimination of mother-to-child transmission and the need for paediatric treatment in her country and across the region, visiting clinics, using media outreach, convening meetings and supporting catalytic projects. The First Lady of Malawi, Gertrude Maseko, has made it her mission to ensure that all children living with HIV can get the treatment they need.

Marshalling sufficient human resources was a challenge everywhere. Fortunately, experiences in the scale-up of HIV treatment were confirming the effectiveness and feasibility of new service delivery models to relieve some of the strain on health systems. Most of those methods, including task-shifting and decentralization, could be put to use in programmes for eliminating mother-to-child transmission of HIV as well. Within a year of the Global Plan’s launch, the Interagency Task Team for the Prevention and Treatment of HIV Among Pregnant Women, Mothers and Children was supporting countries in conducting policy reviews to decentralize and task-shift essential HIV activities to the

primary care and community levels. Some countries also used policy and regulatory reforms to overcome shortages of qualified health professionals. In Malawi and South Africa, inadequate supplies of doctors to meet the needs for expansion of treatment spurred the training of nurses to initiate antiretroviral treatment and adoption of task shifting policies. Trained community health workers in Zambia and Ethiopia provided follow-up of patients and families, serving as a bridge between clinics and communities. In Swaziland, nurse-initiated and -managed antiretroviral therapy was introduced in 2009, with nurses receiving two weeks of training before they were certified. Although this enabled adult patients to access treatment more efficiently, however, it did not help children, as the nurses were not trained in paediatric management. Thus, there is a need for task-shifting to empower providers to manage paediatric patients (17).

In many places, however, functional integration between HIV services for pregnant women, services for maternal, newborn and child health, and family planning was lacking at first. Countries that made the most progress tended to be those that integrated or linked these services most successfully, such as Swaziland, where prevention of mother-to-child transmission of HIV was already under the Department of Reproductive Health. Swaziland made HIV services part of the basic work of maternal, newborn and child health services, especially in settings with a high prevalence of HIV. Swaziland also linked the provision of family planning more closely into HIV programmes for women living with HIV. Countries moved quickly, however, and by 2012 about 70% of countries worldwide reported they were integrating HIV testing, counselling and antiretroviral medicines provision within antenatal care services to prevent mother-to-child transmission of HIV (18). Some countries also linked HIV testing with child immunization services and offered testing in paediatric in-patient wards and as part of nutrition support programmes and community child-care services (19,20). To respond to lagging integration for child survival, the “Double Dividend” conceptual framework was launched in 2013 to accelerate, among other things, identification of opportunities or points of convergence for integrating paediatric HIV testing and treatment into existing maternal, newborn and child health services.

Countries identified the technical support and capacity-building they needed to advance these goals. Technical assistance was provided within the context of an operational support plan developed by the Interagency Task Team on the Prevention and Treatment of HIV Infection in Pregnant Women, Mothers and Children, co-convened by WHO and UNICEF with PEPFAR support, together with regional and country partners. Regional strategies for providing south-south technical assistance and support for capacity-building were developed and rolled out in southern, eastern and western Africa.

Pressure was maintained to achieve further reductions in the prices of antiretroviral medicines and diagnostic equipment. Procurement and supply chains for essential medicines and diagnostics were strengthened, a process that dovetailed with improvements introduced as part of the scale-up of national antiretroviral therapy programmes. Countries also sought to strengthen their laboratory systems and, especially, introduce point-of-care testing capacity more widely. New monitoring methods and tools were developed for measuring stepwise progress towards the Global Plan’s targets. International partners supported countries in using the tools to track programme performance. Many of these mechanisms were up and running by mid-2012 and informed the first Global Plan Progress Report, which was published that year. Some countries, including Uganda and Kenya, set up virtually real-time tracking mechanisms to identify where implementation of the Global Plan was lagging.

## **Main activities “on the ground”**

Ultimately the impact of the Global Plan depended on whether countries could provide a core set of high-quality HIV interventions on a wide enough scale based on the four prongs of prevention of mother-to-child transmission of HIV.

### **Help women and girls avoid HIV**

Few countries mounted special activities dedicated to support the Global Plan target of reducing HIV incidence in women aged 15–49 years by 50% (prong 1). The mainstay prevention programmes continued, with great expectations also placed on the preventive impact of the HIV treatment programmes that were being scaled up. Countries tried to implement various activities such as providing prevention counselling and support to women who test negative at the antenatal clinic, promoting partner testing in order to identify serodiscordance, and helping reduce incidence among adolescent girls and young women.

### **Help women and girls living with HIV avoid unintended pregnancies**

The Global Plan shared with the Millennium Development Goals the important goal of reducing to zero the unmet need for family planning (prong 2). This would enable women living with HIV to prevent unintended pregnancies. It was estimated that globally about 12% of women living with HIV did not have access to an effective method of contraception when the Global Plan was launched. That percentage had changed little in the preceding two decades (21), a trend that unfortunately continued after 2011. Actions taken in some priority countries (notably Ethiopia, Malawi, Swaziland and Zimbabwe) did lead to noticeable improvements in the provision of family planning services for couples (22,23).

For example, Ethiopia has accelerated family planning services and all women have access to free family planning services from any health facility. This is a key part of the Ethiopian Health Extension Programme package, supported by funds from the United Nations Population Fund (UNFPA). Other parts of the programme include expanded maternal and child health services such as adolescent reproductive health care, vaccinations and nutritional counselling (24).

### **Ensure HIV testing and access to antiretroviral medicines for pregnant women living with HIV**

#### **Diagnosing HIV in pregnant women**

A first, indispensable step towards the target of reaching 90% of pregnant women living with HIV with antiretroviral medicines was to diagnose those women. HIV testing during antenatal care is the major source of women’s knowledge about their HIV status, especially in low-income countries, where women often do not learn they have HIV until they are pregnant and tested as part of their maternal health care. Many of the Global Plan priority countries substantially increased testing coverage among pregnant women, mainly by making HIV testing and counselling part of the basic package of services for antenatal care, as recommended in the WHO 2013 consolidated antiretroviral guidelines (25). Widespread HIV testing campaigns and new testing methods, including community-based testing, contributed to the increases. As implementation of the Global Plan progressed, it became evident that significant numbers of women were acquiring HIV later in pregnancy or postpartum, during breastfeeding, with a higher risk of transmission since they were not detected and treated. These seroconversions also highlighted the need

to expand HIV testing interventions to include retesting women later in pregnancy or after giving birth, especially in high-burden countries. This is now the recommendation in South Africa (26).

### **Providing antiretroviral medicines and other HIV services to pregnant or breastfeeding women living with HIV**

A core target of the Global Plan was to provide antiretroviral medicines to at least 90% of the pregnant and breastfeeding women living with HIV in the Global Plan priority countries by the end of 2015. Remarkable progress on this front was achieved by integrating and linking HIV services with antenatal care and other maternal and child health services, introducing innovations that bridged staffing constraints with task-shifting, swiftly adopting the latest WHO recommendations, improving the antiretroviral regimens mothers received, and involving communities more closely in providing and monitoring services.

A hallmark of success was the leveraging of community expertise and assets, especially networks and support groups of women living with HIV, to boost outreach activities and service delivery. Mentor mothers and other women living with HIV played especially important roles in providing counselling and supporting treatment adherence. Community organizations were most effective when these groups received adequate support from the formal health system and when their capabilities and expertise were recognized.

Biomedical advances also boosted the Global Plan's impact. The phase-out of single-dose nevirapine prophylaxis (which WHO had not recommended since 2006) gathered momentum, and greater numbers of countries adopted more effective regimens for women and expanded prophylaxis for their infants. This further enhanced the benefits of the increased service coverage that countries were achieving. Perhaps the biggest game-changer was the recommendation to provide lifelong triple-medicine antiretroviral therapy to all pregnant and breastfeeding women living with HIV, regardless of their disease or immunological status. This change enabled more women to begin treatment early without the need for a CD4 count, thereby maximizing the benefits. Malawi took the lead with this approach, known as Option B+ (27), which proved so successful that WHO incorporated it into its global guidelines for antiretroviral prophylaxis and antiretroviral therapy in 2013. By the end of 2015, all priority countries except Nigeria had commenced roll-out of Option B+, and 12 countries have already achieved, or are close to achieving, full national implementation. Nigeria has agreed to adopt the WHO guidelines and implement "test and start", going beyond Option B+ to treat all women regardless of pregnancy status, and is already conducting pilots in selected areas.

### **Diagnosing infants living with HIV and providing them with treatment**

With incomplete coverage of testing, diagnosis and treatment services for women living with HIV, significant numbers of children have been at risk for acquiring HIV infection. Without early treatment, about 30% of children infected during pregnancy or delivery die within the first year of life (28,29). It is therefore essential that children born to mothers living with HIV are tested for HIV and, if their results are positive, commence treatment as soon as possible. The challenges have been technical and health systems-related, as definitively confirming that an infant exposed to HIV has acquired the infection requires a virological test, which not many countries were providing, especially outside large cities. Parents and caregivers often also failed to bring their children back for evaluation.

Efforts to decentralize infant testing and place testing capabilities in community-level health facilities, in combination with stronger traditional laboratory systems, increased, and donor organizations increased funding to support those efforts. In Kenya the Ministry of Health expanded infant diagnosis by adopting best practices from other countries. It set up high-throughput laboratories (four molecular laboratories were established) and a more efficient system for transporting blood samples. By using dried blood spots as the preferred sample type for early infant diagnosis, Kenya increased testing coverage from less than 10% in 2007 to over 40% by the end of 2012 (30). But bottlenecks still exist: in Uganda, Kiyaga and colleagues reviewed 24 sites covering 4221 children exposed to HIV and examined the extent to which health-care workers were adhering to the early infant diagnosis algorithm. Results showed poor adherence to the protocol, which led to large losses to follow-up among caregivers. Factors aggravating the losses included delays in dispatching the results back to caregivers, lack of a patient follow-up mechanism to link to care, and poor patient counselling (31).

The provision of treatment to children living with HIV has improved over the years, but so far coverage has lagged behind that of adults. In response, Global Plan priority countries have been accelerating their efforts to increase paediatric treatment by training health-care providers, enhancing testing activities in high venues such as malnutrition clinics and paediatric wards, mobilizing communities, decentralizing access and strengthening health systems. The implementation of the Global Plan also occurred at a dynamic time when WHO was rapidly updating its treatment guidelines and recommendations on age cut-offs. In 2010 WHO recommended prompt treatment of children aged under two years immediately after HIV diagnosis, regardless of symptoms. WHO revised this recommendation to children under five years of age in 2013, and then revised it again in 2015 with the recommendation that all children living with HIV receive treatment under the “treat all” strategy. There has also been rapid expansion of knowledge about HIV disease progression and the role of reservoirs, and the importance of early and prompt treatment before the virus establishes itself.

On the technical side, the Interagency Task Team for the Prevention and Treatment of HIV among Pregnant Women, Mothers and Children has prepared an optimal formulary list to guide decisions and streamline procurement of paediatric medicines at the country level. Manufacturers are developing simpler, better-tolerated regimens for children that do not require refrigeration. There was a breakthrough in May 2015 when the United States Food and Drug Administration gave tentative approval for lopinavir/ritonavir oral pellets. These pellets come packaged in a small capsule that is easily opened, allowing them to be sprinkled over a child’s food or placed directly into the mouth or in expressed breast milk. Lopinavir/ritonavir previously was only available in a tablet form that could not be broken or a liquid form that required refrigeration and had an unpleasant taste, making it extremely difficult to administer to infants. Raltegravir was approved for treatment in infants aged four weeks and older and is the first new class of medicines in a decade. Because HIV is more aggressive in children than adults, immediate treatment of all children living with HIV is a high priority.

## **Innovations that sped up progress**

### **Validation of elimination of mother-to-child transmission of HIV**

Although the Global Plan’s goals and targets were ambitious, some countries, especially in the Americas and the Caribbean, set their sights even higher, aiming at eliminating



both new paediatric HIV infections and congenital syphilis. In 2014, WHO together with UNICEF, UNFPA and UNAIDS, developed a standardized protocol and a set of impact criteria to define elimination:

- For HIV, fewer than 50 infants acquiring HIV infection per 100 000 live births and a transmission rate of either less than 5% in breastfeeding women or less than 2% in non-breastfeeding women.
- For syphilis, fewer than 50 cases of congenital syphilis per 100 000 live births.

In addition, specific levels of service delivery coverage had to be achieved:

- Antenatal care coverage (at least one visit) of at least 95%.
- Coverage of HIV or syphilis testing of pregnant women of at least 95%.
- Antiretroviral therapy coverage of pregnant women living with HIV of at least 95%.
- Treatment coverage of syphilis-seropositive pregnant women of at least 95%.

In June 2015 Cuba became the first country to receive validation that it had eliminated mother-to-child transmission of HIV and congenital syphilis as a public health problem. Cuba introduced its prevention of mother-to-child transmission programme in 1997, within a health-care system that is universal and free of charge. In 2014 Cuba reported that fewer than 100 pregnant women were living with HIV, almost all of whom received antiretroviral medicines to prevent mother-to-child transmission. Several other countries worldwide are also now preparing for validation. According to UNAIDS at least 85 countries globally have fewer than 50 new child infections per year.

### Option B+ became a game-changer

For many countries the simplicity of Option B+ was a game-changer in efforts to prevent new HIV infections among children and keep their mothers alive. The Option B+ regimen offers all pregnant or breastfeeding women living with HIV lifelong antiretroviral therapy, rather than relying on laboratory testing to determine eligibility for treatment versus time-limited prophylaxis. Pioneered in Malawi, the approach proved so successful that it was soon taken up in global guidelines issued by WHO (25). A year after Option B+ was introduced in Malawi, the number of pregnant or breastfeeding women living with HIV on antiretroviral therapy increased by 700% (32). By removing the delays and hurdles involved in determining whether a mother living with HIV was eligible for antiretroviral therapy, Option B+ made service delivery a lot simpler and easier. Greater numbers of women living with HIV could now start treatment earlier. This early treatment helps the women remain healthy, protects their next pregnancies and reduces the risk of them transmitting HIV to their partners.

### Barriers to service access were removed

The countries that achieved the most success were those that managed to overcome, or at least circumvent, barriers that impeded the wide-scale provision of high-quality services. Removing user fees was one such step. Kenya, for example, eliminated maternity fees in order to encourage women to give birth in health facilities. The percentage of births assisted by a skilled birth attendant increased in five years from 44% in 2008–2009 to 62% in 2014, which improved care for mothers and their newborns (33). Decentralization and integrating HIV services for pregnant and breastfeeding women and their infants

into broader maternal and child health service platforms has been another vital element for success. This brought services closer to communities, especially in remote areas, and simplified the steps women had to follow along the cascade of services for preventing mother-to-child transmission of HIV and protecting their own health. Clinics and communities were linked more effectively, which relieved some of the strain on formal health facilities. Community leaders and stakeholders were increasingly consulted on Global Plan activities, from village chiefs and opinion leaders to faith leaders and small support groups of women living with HIV. Community health workers were trained and enlisted in providing basic services, strengthening referral systems and supporting mothers and their families. In Ethiopia, for example, decentralized care was transferred to a cadre of 35 000 health extension workers who provided information and services to communities (34).

Telecommunication tools were also put to innovative use. Several African countries began using mobile telephone messaging services to help retain women in the cascade of elimination of mother-to-child transmission services. In Malawi, Cameroon and South Africa, mobile communication is now used to remind women to attend clinic appointments. In Nigeria, mobile telephone companies send out messages supporting prevention of mother-to-child transmission of HIV and encouraging women and families to access services. Countries are also adopting electronic results reporting systems using GPRS, SMS and smartphones to reduce turnaround time from infant testing to receipt of results.



## PROGRESS TO DATE

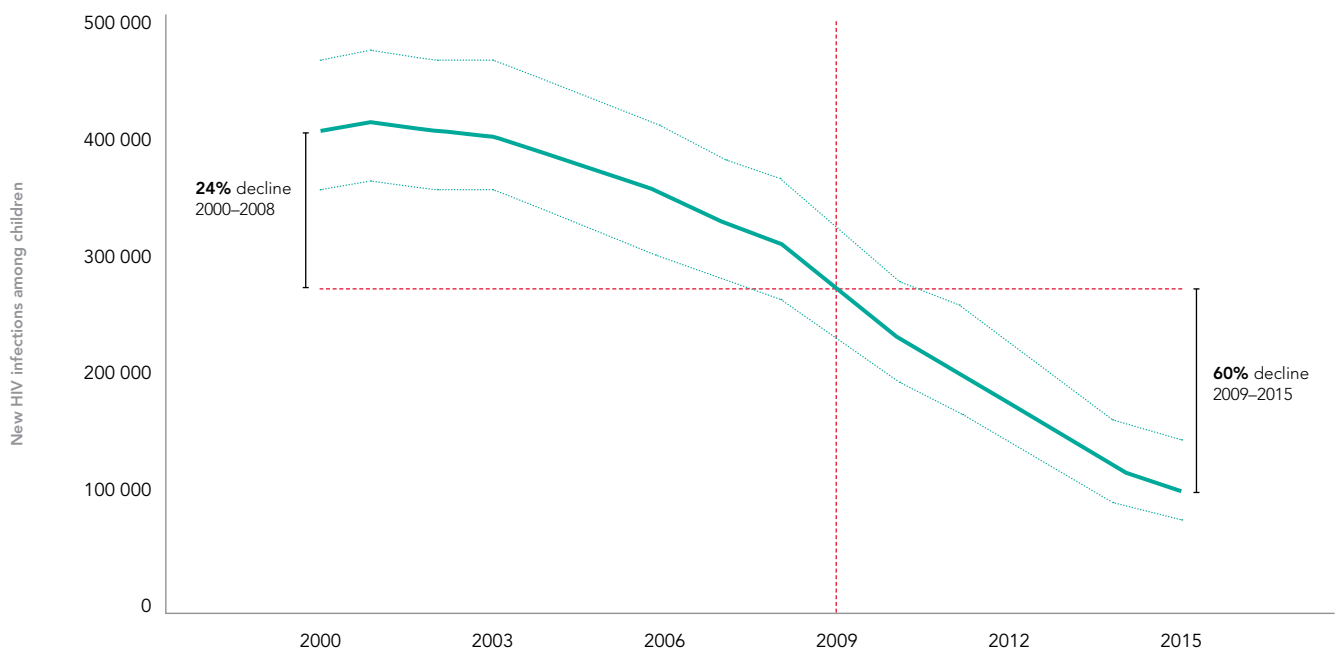
The most recent data provided on country performance in 2015 are based on country-reported data and country-developed models using Spectrum software (see Annex). Over the course of the Global Plan implementation, data on India's response were not available, and so the report covers 21 countries. In addition, data from Ethiopia were not finalized at the time of publication and thus country-specific estimates are not presented in this report, although draft values are included in the aggregated results.

### FEWER CHILDREN ARE ACQUIRING HIV

Since 2009 there has been a 60% decline in new HIV infections among children in the 21 Global Plan priority countries, a reduction from 270 000 [230 000–330 000] in 2009 to 110 000 [78 000–150 000] in 2015 (see Figure 1). The number of new HIV infections among children declined by 24% between 2000 and 2008, and by 60% between 2009 and 2015.

Figure 1

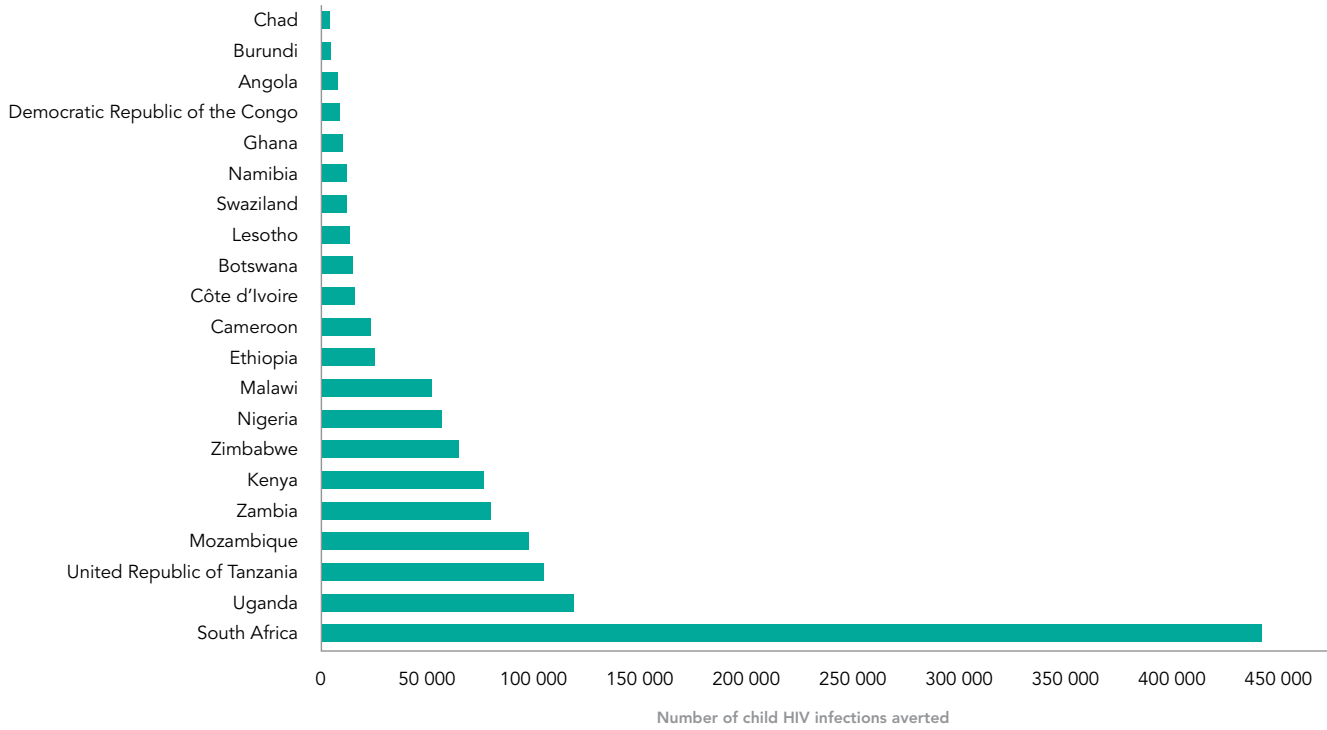
Number of new HIV infections among children in 21 Global Plan priority countries, 2000–2015



Source: UNAIDS 2016 estimates.

Figure 2

## Number of HIV infections averted among children, by country, 2009–2015

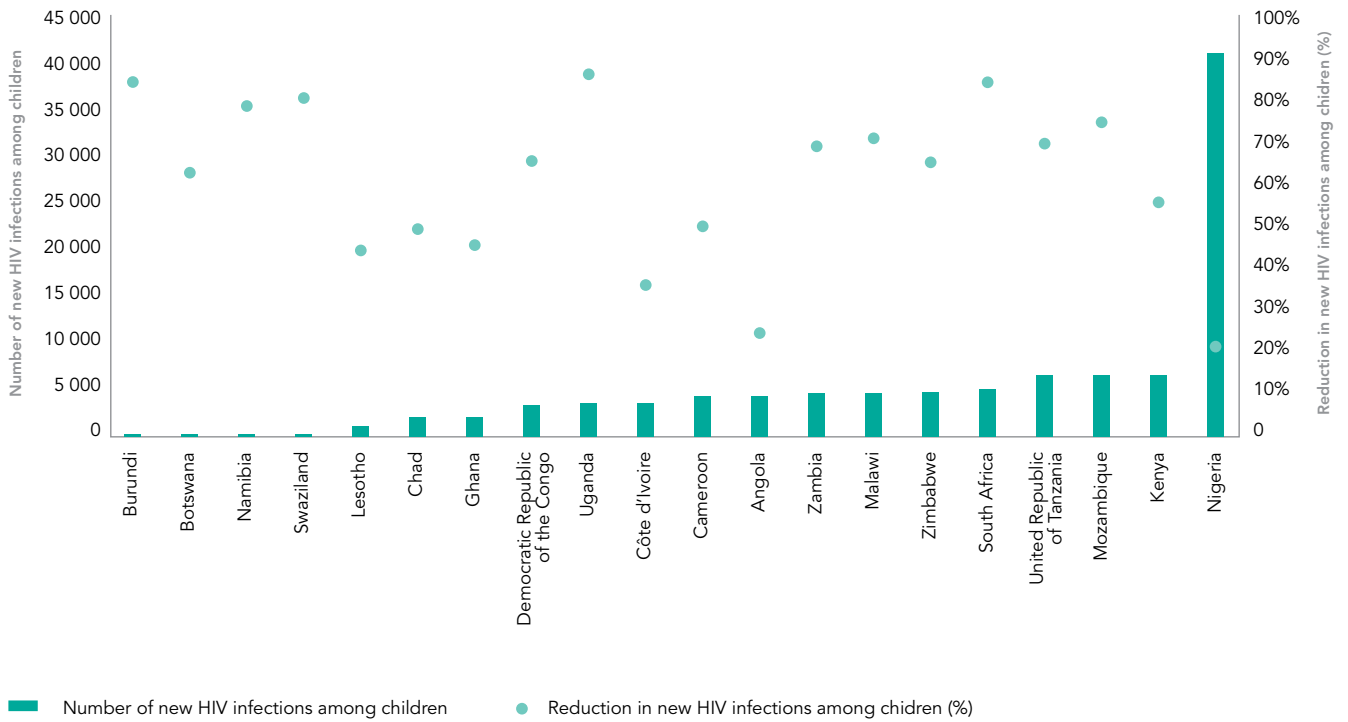


Source: UNAIDS 2016 estimates.

The overall impact of programmes to prevent mother-to-child transmission is increasing over time. Among the 1.4 million HIV infections among children that have been prevented in the 21 priority countries since 2000 by the provision of antiretroviral medicines, 1.2 million (88%) were prevented between 2009 and 2015. This includes 330 000 infections averted in South Africa, 120 000 in Uganda and 110 000 in the United Republic of Tanzania (see Figure 2).

This continued and steady decline in new HIV infections among children is encouraging but fell short of the Global Plan target of a 90% reduction by 2015. Four countries have reduced new infections by 80% or more: Uganda (86%), Burundi (84%), South Africa (84%) and Swaziland (80%). Three other countries have seen a decline of over 70%: Namibia (79%), Mozambique (75%) and Malawi (71%) (see Figure 3 and Table 2). A number of countries have also registered reductions of over 50%, including the United Republic of Tanzania (69%), Zambia (69%), the Democratic Republic of the Congo (66%), Zimbabwe (65%), Botswana (63%) and Kenya (55%). The case of Botswana deserves special mention: Botswana already had high rates of antiretroviral coverage to prevent HIV transmission before the commencement of the Global Plan, and so the scope of its progress has been limited by its previously established success; despite this, Botswana has reduced new infections by 63%.

Figure 3  
 Number of new HIV infections among children in 2015 and percentage reduction in new HIV infections since 2009, by country



Source: UNAIDS 2016 estimates.

Table 2  
 Percentage decline in new HIV infections among children, 2009–2015

>66% decline	33%–66% decline	<33% decline
<ul style="list-style-type: none"> <li>Burundi (84%)</li> <li>Malawi (71%)</li> <li>Mozambique (75%)</li> <li>Namibia (79%)</li> <li>South Africa (84%)</li> <li>Swaziland (80%)</li> <li>Uganda (86%)</li> <li>United Republic of Tanzania (69%)</li> <li>Zambia (69%)</li> </ul>	<ul style="list-style-type: none"> <li>Botswana (63%)</li> <li>Cameroon (49%)</li> <li>Chad (49%)</li> <li>Côte d'Ivoire (36%)</li> <li>Democratic Republic of the Congo (66%)</li> <li>Ghana (46%)</li> <li>Kenya (55%)</li> <li>Lesotho (44%)</li> <li>Zimbabwe (65%)</li> </ul>	<ul style="list-style-type: none"> <li>Angola (24%)</li> <li>Nigeria (21%)</li> </ul>

A number of countries that had been making slow progress have now registered impressive results, including the Democratic Republic of the Congo (66%), Chad (49%) and Cameroon (49%). These countries have visibly accelerated their efforts over several years, concentrating their work in high-epidemic regions. They have mobilized their political leadership at the level of the president and the first lady, with members of parliament, with local leadership and with women living with HIV. They have raised the profile of prevention of mother-to-child transmission of HIV, trained health-care providers and decentralized services. They are rolling out Option B+ and are working closely with implementers and donors to optimize their resources.

At the same time, some countries still face significant challenges. This includes Nigeria, which has the second largest HIV epidemic in the world and has the largest number of new HIV infections among children each year. The country was home to a third of all new HIV infections (41 000 [28 000–57 000]) among children in the priority countries in 2015. This is roughly equivalent to the next eight countries combined. There has been only a 21% decline in new paediatric HIV infections in Nigeria since 2009. When the data are re-analysed without Nigeria, the remaining 20 countries have reduced new HIV infections among children by two-thirds (69%).

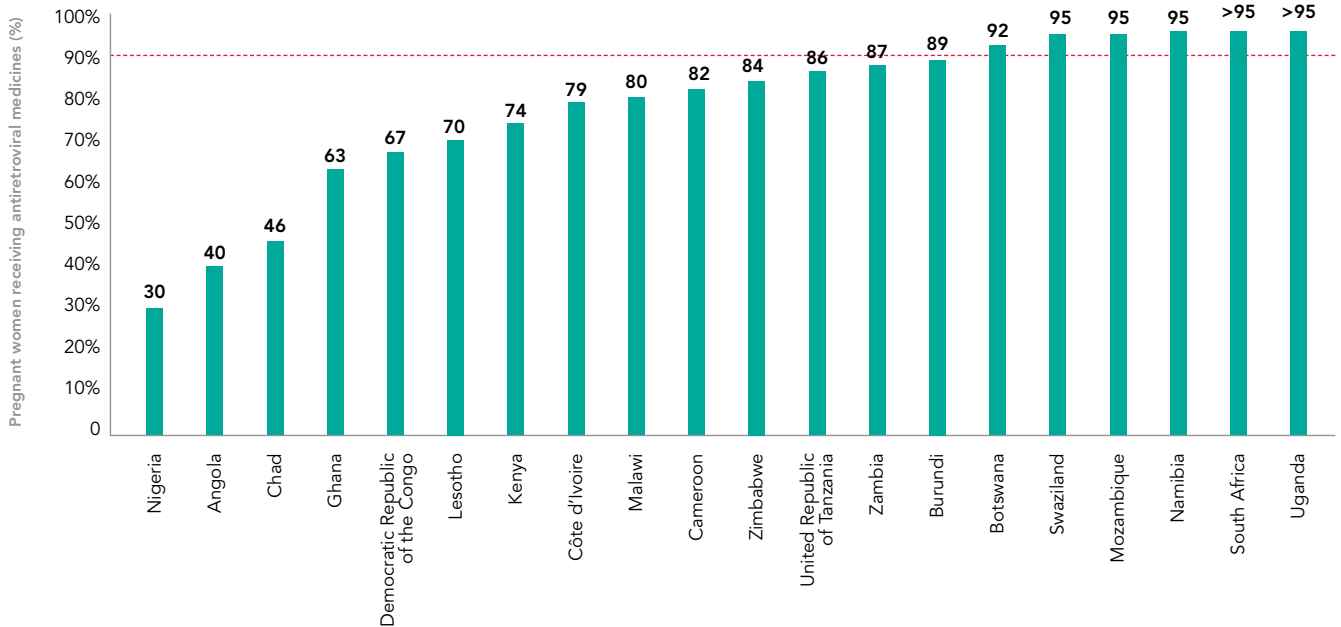
#### PREGNANT WOMEN LIVING WITH HIV ARE ACCESSING SERVICES, BUT IMPORTANT GAPS REMAIN

The proportion of pregnant women living with HIV who received antiretroviral medicines (excluding the less efficacious single-dose nevirapine) for the prevention of mother-to-child transmission has more than doubled in the 21 priority countries, from a baseline of 36% [32–40%] in 2009 to 80% [71–90%] in 2015. In 2015 six of the priority countries (Botswana, Mozambique, Namibia, South Africa, Swaziland and Uganda) met the Global Plan goal of ensuring that 90% or more of pregnant women living with HIV receive antiretroviral medicines (see Figure 4). Six additional countries provided antiretroviral medicines to over 80% of pregnant women living with HIV: Burundi (89% [74–>95%]), Zambia (87% [81–94%]), the United Republic of Tanzania (86% [69–89%]), Zimbabwe (84% [77–92%]), Cameroon (82% [74–92%]) and Malawi (80% [72–88%]).

Countries are also providing more efficacious regimens to pregnant women, adopting the 2015 WHO guidelines on the use of antiretroviral medicines for treating and preventing HIV infection (35). WHO now recommends that all people living with HIV, including pregnant women and children living with HIV, are offered immediate and lifelong treatment, regardless of disease or immunological status. The most recent WHO guidelines recommend that infants exposed to HIV are tested for HIV by six to eight weeks of age, again at the end of breastfeeding, and at any intervening point when they present with illness. In the wake of revised guidance on infant diagnosis, some countries are exploring innovative strategies such as birth testing and use of point-of-care early infant diagnosis assays. At present most of these are pilot programmes, but South Africa has modified its testing algorithm and now promotes testing at birth and at ten weeks of age in an attempt to identify more infants living with HIV and to improve linkage to early treatment.

Figure 4

Percentage of pregnant women living with HIV receiving antiretroviral medicines (either prophylaxis or lifelong therapy) to prevent mother-to-child transmission, by country, 2015



Source: UNAIDS 2016 estimates.

#### MOTHER-TO-CHILD TRANSMISSION OF HIV RATES HAVE DECLINED

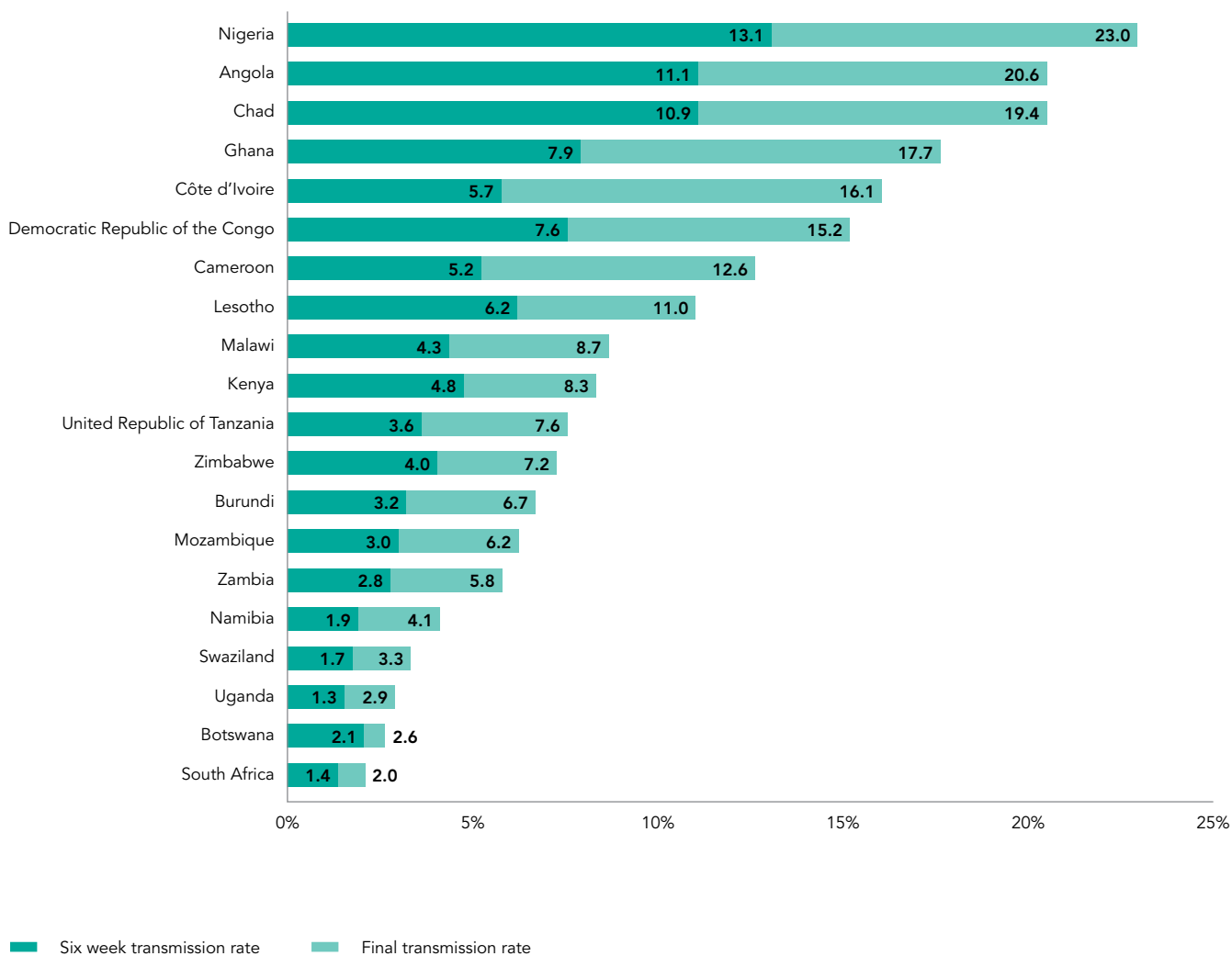
The risk of HIV transmission from an untreated mother living with HIV to her child ranges from approximately 15% to 45%, depending on the presence and duration of breastfeeding (36). One of the targets of the Global Plan is to reduce this rate to 5% or less among breastfeeding women and to 2% or less among non-breastfeeding women. In 2009, before the launch of the Global Plan, the overall transmission rate (including during the breastfeeding period) was 22.4% [19.8–25.4%] in 21 priority countries. By 2015 it had been reduced to 8.9% [8.0–10.0%], a drop of 60% (see Figure 5).

It is also noteworthy that the six-week transmission rate among the countries was only 4.7% [4.2–5.3%] in 2015, compared with 11.4% [10.1–12.9%] in 2009. This means that at six weeks, only 4.7% of infants exposed to HIV were starting life with HIV in 2015, demonstrating the quality of prevention of mother-to-child transmission of HIV interventions that countries are now implementing and the support mothers get during pregnancy. It shows that countries have the capacity to provide highly effective programmes during pregnancy. Where the same support is given to breastfeeding mothers (for example, better adherence support), countries have demonstrated that they could reduce postnatal transmissions just as significantly.



Figure 5

Six-week and final mother-to-child transmission rates, by country, 2015



Source: UNAIDS 2016 estimates.

It is also noteworthy that the six-week transmission rate among the countries was only 4.7% [4.2–5.3%] in 2015, compared with 11.4% [10.1–12.9%] in 2009. This means that at six weeks, only 4.7% of infants exposed to HIV were starting life with HIV in 2015, demonstrating the quality of prevention of mother-to-child transmission of HIV interventions that countries are now implementing and the support mothers get during pregnancy. It shows that countries have the capacity to provide highly effective programmes during pregnancy. Where the same support is given to breastfeeding mothers (for example, better adherence support), countries have demonstrated that they could reduce postnatal transmissions just as significantly.

Several countries have now met the Global Plan milestone of reducing mother-to-child transmission to 5% or less among breastfeeding women: South Africa (2% [1.9–2.2%]), Uganda (2.9% [2.6–3.2%]), Swaziland (3.3% [3.0–3.5%]) and Namibia (4.1% [3.7–4.5%]). In addition, Botswana, where non-breastfeeding is the official policy for infants born to mothers living with HIV, is close to achieving this target with a 2.6% [2.4–2.7%] final transmission rate. Seven additional countries—Burundi, Kenya, Malawi, Mozambique, the United Republic of Tanzania, Zambia and Zimbabwe—had final transmission rates of less than 10% in 2015. Several countries, however, continue to have elevated transmission rates, with the highest being in Nigeria (23.0% [17.8–30.1%]), Angola (20.6% [14.7–28.8%]) and Chad (19.4% [15.0–24.8%]). As more countries expand their services for pregnant and breastfeeding women and increase lifelong HIV treatment coverage, transmission rates are likely to continue to decline. Achieving and maintaining low transmission rates requires universal coverage across the prevention of mother-to-child transmission cascade, including high antenatal attendance, high HIV testing and counselling rates, antiretroviral therapy coverage over 90%, systems that support lifelong adherence to antiretroviral therapy and retention for mothers in the postpartum period, and active provider-initiated prevention of HIV infection among pregnant and breastfeeding women.

#### NEED FOR PREVENTION OF MOTHER-TO-CHILD TRANSMISSION REMAINS HIGH DUE TO ONGOING INFECTIONS AMONG WOMEN

The total number of women requiring prevention of mother-to-child transmission of HIV services each year in the 21 priority countries remains high, at an estimated 1.2 million [1.1 million–1.4 million] in 2015. Preventing new HIV infections among women of childbearing age not only promotes their good health but also is an important step in eliminating mother-to-child transmission of HIV. The Global Plan aimed to reduce the number of recent infections among these women in priority countries by 50% between 2009 and 2015. The data show, however, that only marginal progress has been made towards achieving this goal. In 2009, 650 000 [570 000–750 000] women of childbearing age acquired HIV; this declined to 620 000 [520 000–740 000] in 2015, a reduction of only 5%. Between 2009 and 2015 inclusive, a total of 4.5 million (3.8 million–5.4 million) women of childbearing age in the 21 reporting countries were newly infected with HIV. This population of women will need to be diagnosed and provided with services to prevent mother-to-child transmission if they decide to have children.

Furthermore, some of these infections may be occurring in women who are already pregnant or breastfeeding, but most programmes in these countries do not have systems in place to retest pregnant and breastfeeding women who were previously HIV-negative. The risk of mother-to-child transmission of HIV is higher among women who are not on antiretroviral therapy, and it is particularly high among newly infected women who are not yet diagnosed and on treatment, due to the very high viraemia associated with new HIV infection. It is also important to identify discordant partners of HIV-seronegative women, so that counselling and dual protection with condoms and other combination prevention strategies can be offered to reduce their risk of acquiring HIV. Provider-initiated couple counselling and disclosure can facilitate communication during this sensitive time. In addition, countries need to strengthen their policies on repeat HIV testing during pregnancy and breastfeeding and communicate these to both health-care providers and communities.

Additionally, due to increasing access to antiretroviral therapy, a larger number of women are living healthy lives with HIV and are able to have children, as is their right. Continued investment in services to prevent new HIV infections among children and keep their mothers alive by ensuring access to antiretroviral medicines is therefore needed, as more women living with HIV are added to the pool of those who need services.

Some countries have made progress in lowering new HIV infections among women and girls. For instance, Burundi estimates a 39% reduction in new HIV infections among women between 2009 and 2015, and Malawi, the United Republic of Tanzania, Ghana, Mozambique, the Democratic Republic of the Congo, Swaziland, Uganda and Botswana estimate reductions of 20–30% over the same period. Recently, multifaceted prevention in adolescent girls and young women has gained increased attention, which should ultimately lead to greater reductions in new infections.

### SIGNIFICANT UNMET NEED FOR FAMILY PLANNING REMAINS

All women, including women living with HIV, should have the opportunity to plan their pregnancies and have children when they want and when their health has been optimized. This is particularly important for adolescent girls, who are at increased risk for pregnancy-related complications. Family planning remains a core pillar of the four-pronged approach to comprehensive programming to prevent mother-to-child transmission. Providing appropriate counselling, support and contraceptives to women living with HIV in order to meet their family planning goals will optimize health outcomes for women and reduce the number of infants exposed to or infected with HIV. Moreover, spacing of pregnancies is beneficial to the health of both women and their children.

The Global Plan aimed to eliminate unmet need for family planning among all women, including women living with HIV, in the priority countries, thereby ensuring that all women who desire contraception have access to it. The most recent population-based surveys, however, show that although some countries (notably Malawi, Swaziland and Zimbabwe) have made noticeable improvements in their efforts to provide family planning services, 11 of the 21 priority countries do not meet the need for family planning for 20% or more of married women (Figure 6).

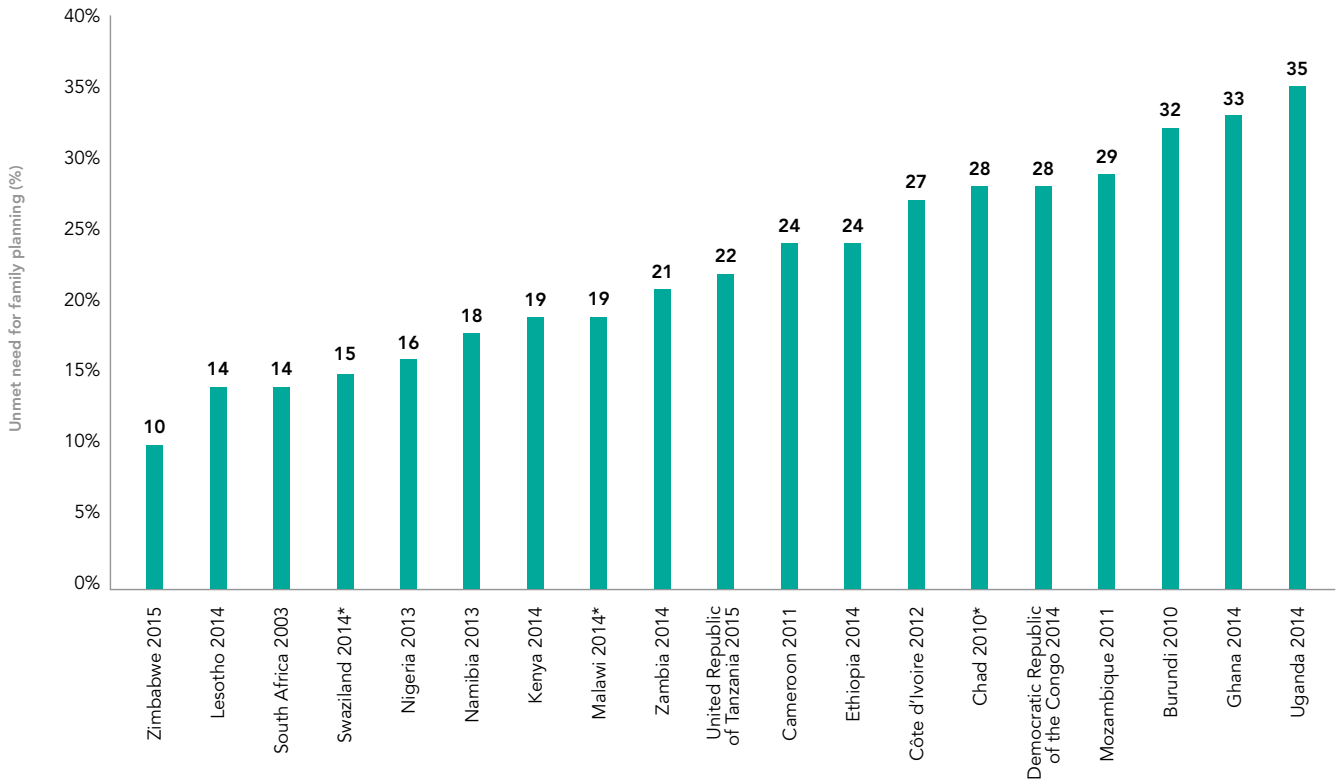
The effects of this limited response, coupled with high HIV prevalence in general, contribute to the stable numbers of women living with HIV who are pregnant in the 21 countries and in need of services to prevent mother-to-child transmission. Greater efforts are needed to hasten progress on the first two prongs of the Global Plan: primary HIV prevention for women and reducing the unmet need for family planning services.

Data assessing the unmet need for family planning are compiled from household surveys, which are conducted every three to five years, depending on the country. Some of the data reported in this report were collected five or more years ago; it is necessary to develop additional ways to measure the unmet need for family planning to provide more real-time information about the fertility desires of women.

It is important to note that the results presented here are not specific to women living with HIV. Survey data frequently are not available by HIV status, and the numbers of women living with HIV in the survey may be too small to provide reliable measures of the unmet need for family planning in that specific population.

Figure 6

Percentage of currently married women with an unmet need for family planning, most recent household surveys, 2003–2015



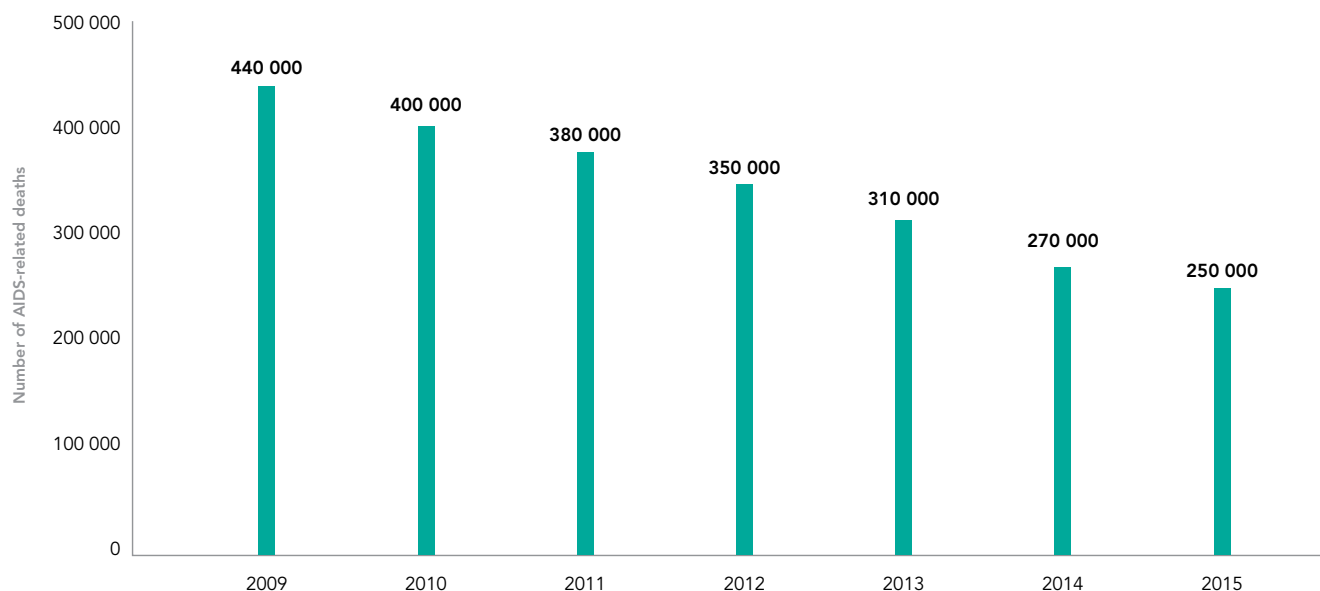
\*Denotes that the survey was a Multiple Indicator Cluster Survey (MICS), MICS are based on a slightly different definition of unmet need for family planning

Source: Household surveys, 2003–2015.

EFFORTS TO KEEP MOTHERS ALIVE AND HEALTHY ARE SHOWING RESULTS

HIV is still the leading cause of death worldwide for women of reproductive age (5). The Global Plan aspired to halve AIDS-related maternal mortality in the priority countries. Pregnant women living with HIV are also at greater risk of dying from pregnancy-related complications than women who are not living with HIV, perhaps because pregnancy increases the risk of concomitant infections or because the risk of other obstetric complications may be increased in women living with HIV. In 2015 WHO estimates that globally an estimated 4700 maternal deaths were caused indirectly by AIDS (14). However, there have been methodological changes in how these estimates have been calculated over the years, making annual estimates non-comparable and not able to provide trend estimates.

Figure 7  
AIDS-related deaths among women of reproductive age (15–49 years) in the 21 Global Plan priority countries, 2009–2015



Source: UNAIDS 2016 estimates.

Because of these changes, the Global Plan Progress Report also examined trends in deaths among women of reproductive age over the years. The results show that between 2009 and 2015 there was a 46% decline in the number of AIDS-related deaths among women of reproductive age in the 21 priority countries, due largely to greater access to treatment (see Figure 7). At the same time, there has been a significant increase in the proportion of pregnant women living with HIV who are accessing lifelong antiretroviral treatment, rising from 10% (9–12%) in 2009 to 74% (66–83%) in 2015.

A key factor in the progress towards improving the health of pregnant and breastfeeding women has been expanded access to treatment in the form of Option B+. This lifesaving approach has enabled women to begin treatment early, before their immune system is too damaged. The most recent WHO recommendations now support all people living with HIV beginning lifelong treatment when an HIV diagnosis is confirmed (35). Ensuring that women of reproductive age who are living with HIV are identified early, initiated on lifelong antiretroviral therapy, treated for opportunistic infections and tuberculosis as needed, and provided with safe perinatal care and delivery will help to further decrease mortality.

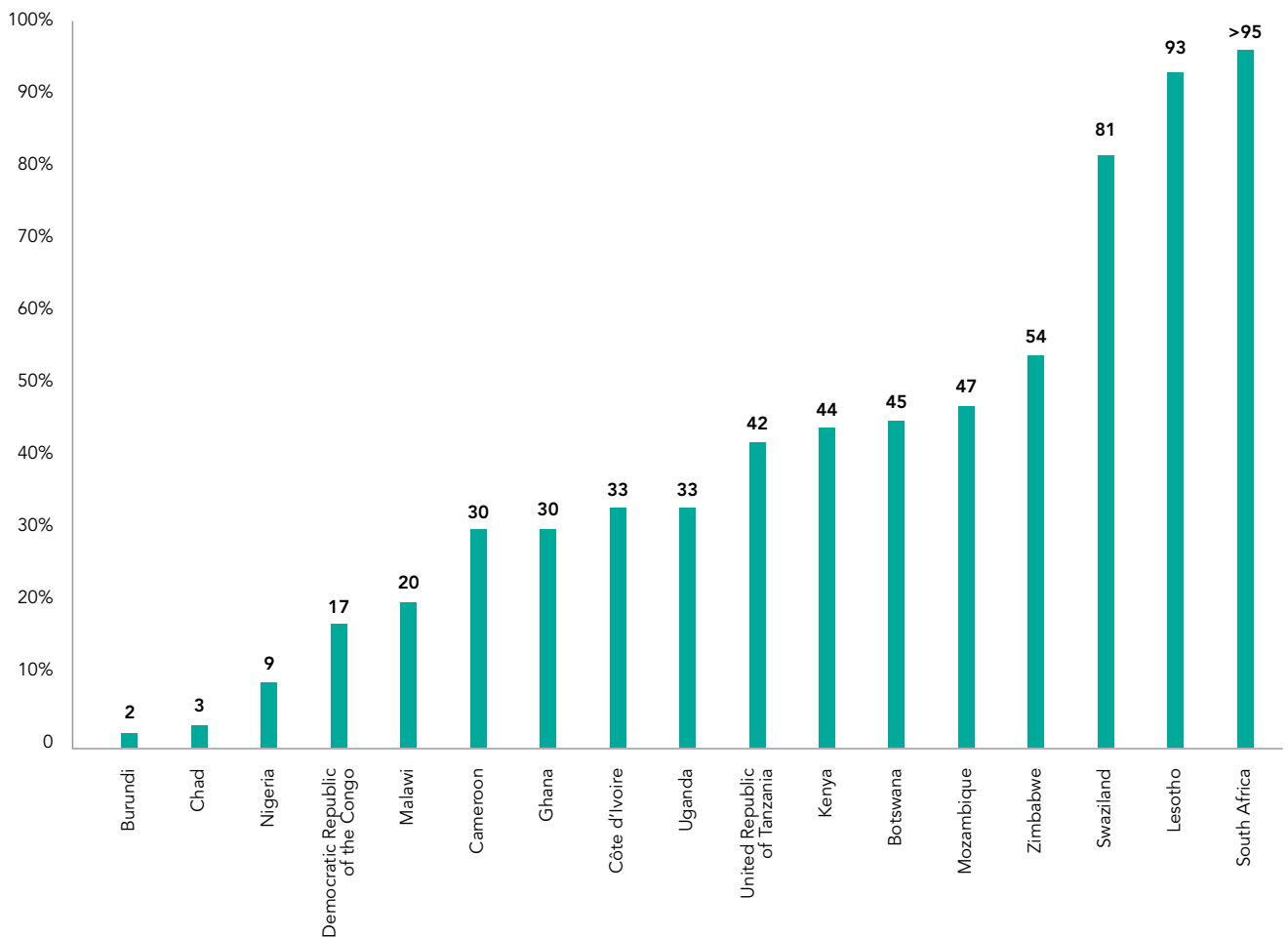
Research, however, shows that drop-out rates are high, particularly for women who start antiretroviral therapy to prevent mother-to-child transmission compared with those who begin treatment for their own health. To address this, stronger programmes to support women and retain them in care are needed to maximize the benefits of antiretroviral therapy.

## LIMITED PROGRESS IN INFANT DIAGNOSIS

WHO recommends that infants exposed to HIV are tested at the first postnatal visit, usually when they reach four to six weeks of age or at the earliest opportunity thereafter, and that infants living with HIV start treatment immediately (35). Infants infected in utero or during labour and delivery have a poorer prognosis compared with those infected during breastfeeding and require urgent antiretroviral therapy to prevent early mortality; however, identifying these infants using the common antibody HIV test is a challenge due to the presence of maternal HIV antibodies, which may persist for as long as 18 months in a child's bloodstream. HIV infection can be confirmed definitively in these infants only by using a virological test.

Figure 8

Percentage of infants born to women living with HIV receiving a virological test within the first two months of life, by country, 2015



Source: UNAIDS, UNICEF and WHO Global AIDS progress reporting 2016

In many countries, the virological test, performed on dried blood spot specimens collected at service delivery sites and then transported and tested in large centralized laboratories, has helped to decentralize testing beyond cities. However, this often leads to long waiting periods before the results are returned to the facility and caregiver, leading to high rates of loss to follow-up, delayed initiation of antiretroviral therapy, or even failure to start treatment at all. Innovative point-of-care virological tests have the potential to decentralize testing and markedly reduce the time taken for results to be available. It is necessary, however, to increase both the availability and the affordability of these tests and to strategize their optimal use to complement centralized laboratory testing. Efforts to decentralize infant testing and place testing capabilities in small health facilities, in combination with stronger traditional laboratory systems, are still under way, and some donor organizations are providing funding to make this a reality. Encouraging results are soon to be available from countries such as Malawi and Mozambique, which have piloted decentralized deployed point-of-care testing for infants exposed to HIV. The cost of virological testing for early infant diagnosis has decreased, and sample transport networks have been improved (37, 38).

Figure 8 shows that coverage of early infant diagnosis remains low. Only four countries—Lesotho, South Africa, Swaziland and Zimbabwe—provided early infant diagnosis to over half the infants exposed to HIV. For all the other countries, the majority of infants were tested (if at all) after the time period recommended by WHO.

#### TREATMENT PROGRAMMES STILL LEAVE CHILDREN BEHIND

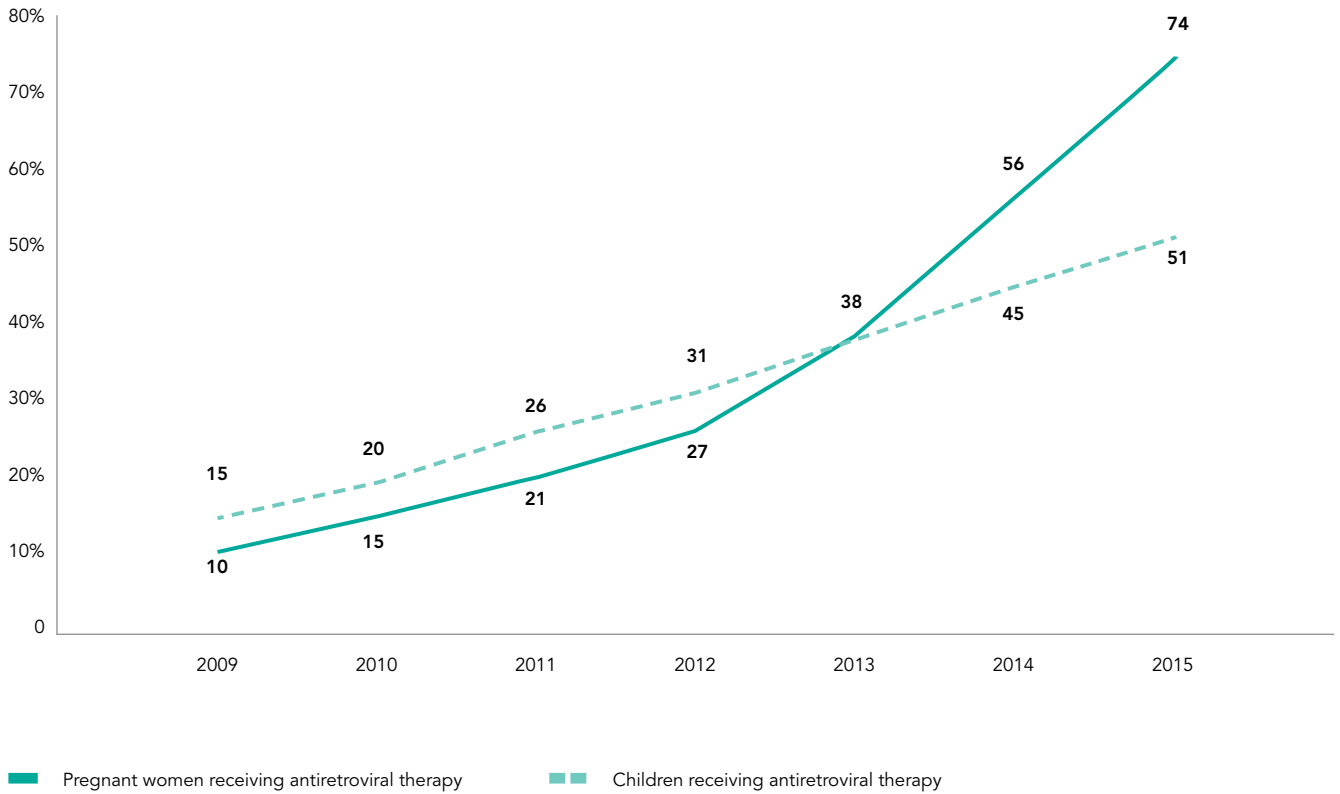
Infants and young children who acquire HIV have an exceptionally high risk of morbidity and mortality, and half of the infants infected with HIV will die before their second birthday if they do not receive treatment. The WHO 2015 guidelines promote simplicity and efficacy in paediatric treatment in order to save more lives and improve clinical outcomes. The guidelines recommend that antiretroviral therapy is initiated in all children living with HIV, before the immune system is too damaged.

UNAIDS estimates for the number of children in need of antiretroviral therapy are based on a denominator of all children under the age of 15 years living with HIV. Among the 21 priority countries, the number of children accessing antiretroviral therapy has more than doubled, from 280 000 in 2009 to 730 000 in 2015; 51% [44–59%] of children living with HIV were accessing HIV treatment in 2015 (see Figure 9). Although this represents a large increase from the 15% [13–17%] baseline in 2009, children were less likely to receive treatment than pregnant women (51% [44–59%] compared with 74% [66–83%]). Six priority countries—Botswana, Kenya, Namibia, South Africa, Swaziland and Zimbabwe—are providing treatment to more than 70% of children living with HIV, and six additional countries provide HIV treatment to over 50% of children living with HIV. Several other countries, including Angola, Chad, Cameroon, Côte d’Ivoire, the Democratic Republic of the Congo and Nigeria, have further to go to increase children’s access to treatment (see Figure 10).

There is an urgent need to accelerate treatment for children in all priority countries. Many countries have rapidly rolled out treatment for women with the introduction of Option B+, and the same acceleration approach is needed to close the coverage gap for children. This approach includes providing appropriate and simple diagnostic services,

Figure 9

Percentage of pregnant women and children aged 0–14 years living with HIV who are receiving lifelong antiretroviral therapy in the 21 Global Plan priority countries, 2009–2015



Source: UNAIDS 2016 estimates.

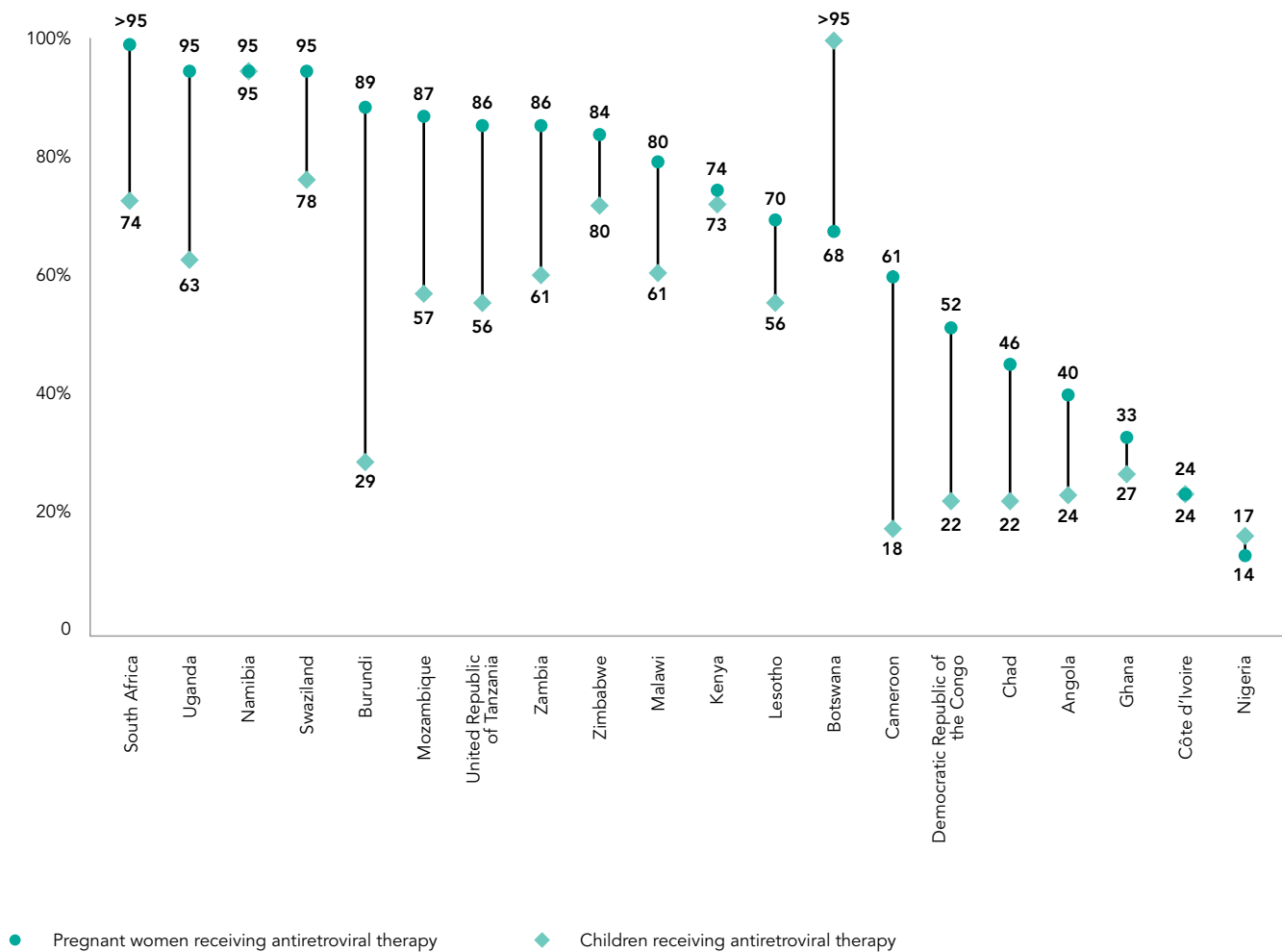
training providers at all levels of the health system in the management of children with HIV (including routine and frequent paediatric provider-initiated testing and counselling throughout the breastfeeding period), and aligning clinic visits to support retention in care and adherence for mother–baby pairs.

Low treatment coverage for children living with HIV is related to other factors in addition to the challenges encountered while ascertaining diagnosis. These include the limited range of suitable child-friendly formulations of antiretroviral medicines, poor linkage to care and treatment, and a relative paucity of providers trained in prescribing antiretroviral therapy for children. There are fewer age-appropriate antiretroviral formulations available for use in children, especially among the youngest infants. In addition, treatment costs for young children are higher than for adults, in part because the recommendations call for the use of boosted protease inhibitors in first-line treatments in order to optimize outcomes for children.



Figure 10

Percentage of pregnant women and children aged 0–14 years living with HIV who are receiving lifelong antiretroviral therapy, by country, 2015



Source: UNAIDS 2016 estimates.

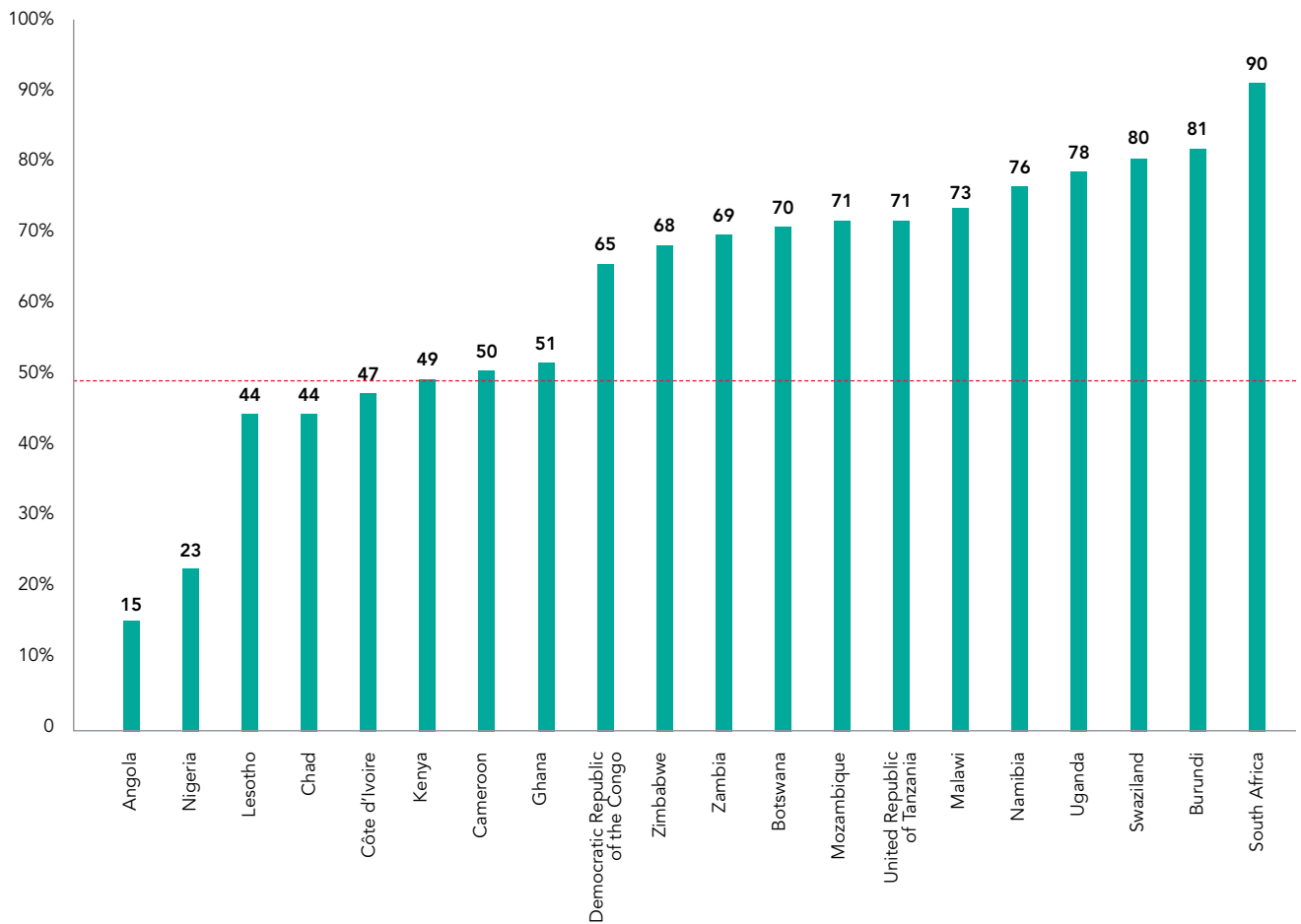
### DRAMATIC REDUCTION IN AIDS-RELATED DEATHS AMONG CHILDREN

The Global Plan aspired to reduce AIDS-related deaths among children by over 50%. The 2016 UNAIDS estimates suggest that countries have reduced deaths among children aged 0–4 years by 62%. Before the launch of the Global Plan, deaths among children under five years of age had been declining in the 21 Global Plan focus countries in sub-Saharan Africa, but at a rate of only 24%; since the launch of the Global Plan, a 62% decline has been achieved, reflecting both the rapid reduction in HIV infections among children and accelerated paediatric treatment. In 2009 an estimated 129 000 children under five years of age died of AIDS-related causes; this number reduced to 49 000 in 2015. There has been

progress across all countries, but the greatest progress has been in South Africa, which has reduced paediatric AIDS-related deaths by 90%. Twelve countries have reduced mortality by two-thirds or more. The least progress has been made in Angola and Nigeria, which have reduced their deaths by 15% and 23%, respectively (see Figure 11).

These results show the combined impact of prevention and treatment: by preventing HIV transmission, countries have reduced the number of children who acquire HIV. At the same time, countries have accelerated paediatric treatment, although there is a need for greater improvement, as only half the children living with HIV are receiving antiretroviral therapy. The combined effect of reducing transmission risk while improving access to treatment has led to these sharp declines in paediatric deaths.

Figure 11  
 Percentage reduction in AIDS-related deaths among children aged 0–4 years, 2009–2015



Source: UNAIDS 2016 estimates.



## CONCLUSIONS

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### WHAT THE GLOBAL PLAN SHOWED THE WORLD

The Global Plan showed that when strong enough political commitment and resources are marshalled around an ambitious but clear strategy, unlikely success can be achieved. Around the world, the Global Plan boosted the political visibility of paediatric AIDS and highlighted the needs of women who are at risk for HIV infection or live with HIV, and it kept the prospect of an AIDS-free generation centre-stage. The impact on the lives of women and children and their communities has been massive. Rapid expansion of services to prevent mother-to-child HIV transmission contributed significantly to global efforts to reduce mortality in children under the age of five. Interventions to protect the lives of mothers have helped reduce maternal mortality.

When the Global Plan was launched, the elimination of mother-to-child transmission of HIV was barely seen as a realistic target in low- or middle-income countries. Yet Cuba in June 2015 became the first such country to reach that milestone. Many more countries are poised to repeat Cuba's feat. Data from 17 countries and territories in the Americas indicate they may have eliminated mother-to-child transmission of HIV and syphilis, according to the Pan American Health Organization (39). UNAIDS estimates that as many as 85 countries already had fewer than 50 new infections annually among children in 2015, making them potential candidates for eliminating new HIV infections among children. Among the Global Plan priority countries, a small group has fewer than 1000 new paediatric HIV infections (Botswana, Burundi, Namibia and Swaziland) and with concerted effort could reduce them further. Several Global Plan priority countries, including South Africa, Botswana, Burundi, Namibia and Uganda, may be on the brink of qualifying for the new WHO category of pre-elimination, which means they may meet criteria for reducing the mother-to-child transmission rate to less than 5% and are providing antenatal care, testing and treatment to over 90% of pregnant women nationally.

The Global Plan's two headline goals were ambitious in scope and scale. A few countries came within touching distance, but most have built such strong momentum that they could reach those goals within a few more years—if political commitment is sustained, resources are available and new opportunities are seized.

### **Global goal: reduce the number of HIV-related maternal deaths by 50%**

The Global Plan added impetus and focus to countries' efforts to transform the delivery of health services for women and children. In the 21 priority countries, the number of AIDS-related deaths among women of reproductive age fell by 46% between 2009 and 2015. That achievement was due in large part to the significant increase in the proportion of pregnant women living with HIV accessing lifelong antiretroviral therapy, from 10% (9–12%) in 2009 to 74% (66–83%) in 2015, with 93% of these accessing lifelong antiretroviral therapy (40).

## **Global goal: reduce the number of new childhood HIV infections by 90%**

Efforts to protect children against HIV received their biggest boost ever. The number of new HIV infections among children fell by 55% globally and by 60% in the 21 Global Plan priority countries between 2009 and 2015. If Nigeria were excluded from the analysis, the reduction in new HIV infections among the remaining 20 countries would be 69%. Ninety per cent of the 1.4 million paediatric HIV infections averted since 2000 in the priority countries through the provision of antiretroviral medicines to pregnant women were averted since 2009.

Collectively, countries made remarkable progress. The number of HIV infections among children in Uganda was reduced by 86%, just four points shy of the Global Plan goal of 90% reduction in new infections. Uganda has cut its mother-to-child transmission rate from 28.7% [25.7–32.0%] in 2009 to 2.9% [2.6–3.2%] in 2015. It has reduced the number of new HIV infections among children from 25 000 [22 000–29 000] in 2009 to 3500 [<2000–6500] in 2015. South Africa, which has the world's biggest HIV epidemic, reduced new HIV infections among children by 84% between 2009 and 2015, from 32 000 [24 000–41 000] to 5000 [4500–7900], with the final transmission rate dropping from 11.6% [10.4–12.6%] to 2.0% [1.9–2.2%]. These are countries with some of the world's largest HIV epidemics, and they have been able to dramatically reduce the numbers to levels that were unthinkable just a decade ago.

## **Global sub-goal: reduce paediatric deaths by 50%**

The Global Plan was launched at a time when the likelihood that a pregnant woman living with HIV would transmit HIV to her child was 22.4% [19.8–25.4%] in the 21 priority countries in sub-Saharan Africa. By 2015, this has been cut to 8.9% [8.0–10.0%]. At the same time, only 15% [13–17%] of children who acquired HIV had access to treatment, although this has risen to 51% [44–59%] in 2015. Likewise, only 10% [9–12%] of pregnant women living with HIV were receiving lifelong treatment, but this has risen to 74% [66–83%] in 2015. These combined effects have led to a 62% drop in AIDS-related deaths among children aged 0–4 years between 2009 and 2015, exceeding the goal of the Global Plan of a 50% reduction. The reduction in AIDS-related paediatric deaths shows the synergies of a comprehensive approach to prevent transmission to children, to provide treatment to children who acquire HIV, and to enhance maternal survival. At the same time, the Global Plan enabled a better understanding of the inadequate systems to early diagnose HIV in children, to provide treatment to children, and to retain mother–infant pairs in care.

In just five years, countries implementing the Global Plan showed that:

- **Strong commitment and country ownership are indispensable.** Ownership at the country level was a priority. The Global Plan provided a solid framework for action, and supportive and facilitating mechanisms were set up, but it was up to countries to tailor their strategies to their own specific contexts and conditions. Countries marshalled the political leadership they needed to drive implementation of the Global Plan, reviewed and updated their national plans, mobilized funding, piloted innovative new approaches, and collected and reported the data that made accountability possible. Countries quickly adopted the WHO guidelines, which were also simplifying service delivery and removing diagnostic hurdles and delays,



making services more accessible. At the time of the launch of the Global Plan, South Africa was emerging from a period of significant AIDS challenges but showed the world what it could do in just five years. South Africa went from having the highest number of new infections among children to having fewer new infections than many countries with much smaller populations. In Swaziland, programmes strengthened the country's approach to integration, allowing practitioners to address all four prongs of prevention of mother-to-child transmission of HIV, and this has been quite successful. In Burundi, political leadership and ownership of the national elimination of mother-to-child transmission of HIV plan, combined with persistent efforts by the First Lady to consolidate the commitment of religious leaders, and parliamentarians and local district leadership raised and sustained the profile of prevention of mother-to-child transmission of HIV. In the Democratic Republic of the Congo, key meetings about the prevention of mother-to-child transmission of HIV are chaired by the head of state or the prime minister, sending an important signal on the importance of this effort.

- **Partnerships are essential.** Building and capitalizing on partnerships at all levels were central principles of the Global Plan. At the global level, partnerships helped steer the respective strengths of organizations towards supporting a set of shared goals. At the country level, partnerships enabled nongovernmental organizations and other civil society entities to contribute to a common initiative, with shared targets and approaches. Partnerships also enabled better technical support to countries. The effective Interagency Task Team for the Prevention and Treatment of HIV Among Pregnant Women, Mothers and Children collaboration of prevention of mother-to-child transmission of HIV implementers, led by WHO and UNICEF, provided a crucial forum to exchange ideas and foster south-south learning. At the country level, partnerships within the technical working groups also enabled stakeholders to work towards the same goals. Partnerships with the private sector such as Born Free Africa and with faith-based organizations such as Caritas Internationalis enabled further innovation and wider reach. In Zimbabwe the Children's Investment Fund Foundation has partnered with the government and the Elizabeth Glaser Pediatric AIDS Foundation to provide comprehensive services for prevention of mother-to-child transmission of HIV and paediatric treatment in nearly 80% of the country. Positive Action for Children's Fund was launched in 2009 to align with the Global Plan, with a commitment of US\$ 73 million over 10 years. Each partner brought its assets and optimized the impact of the collective effort. Political partnerships provided platforms on which the Global Plan leveraged strategic capital; for example, collaboration with the Organisation of African First Ladies against HIV/AIDS and the African Union enabled countries to reach the highest leaders, who would then amplify Global Plan efforts.
- **Countries can find solutions to obstinate challenges.** Malawi devised and implemented a simplified approach, Option B+, to enable pregnant and breastfeeding women to begin lifelong HIV treatment early, before their immune system is too damaged, protecting their health and reducing transmission risk for future pregnancies. Option B+ released the brakes on the country's programme for eliminating mother-to-child transmission of HIV. In so doing, Malawi informed the WHO guidelines and changed the global approach. Now all Global Plan focus countries have adopted Option B+ or moved forward to test-and-treat, with the exception of Nigeria, which is now piloting it. There were solutions to the challenges

of testing infants. The Elizabeth Glaser Pediatric AIDS Foundation, UNICEF and UNITAID are rolling out point-of-care diagnosis assays in several countries that will further decentralize services and bring testing, counselling and care closer to people. There were improvements in the collection and management of dried blood spots for infant diagnosis, as countries developed ways to expedite collection of samples and return results to the caregiver. There were also improvements in laboratory management information systems, which facilitated communication and utilization of data for decision-making. Countries innovated in the use of transportation systems through motor bikes, public transport systems or commercial logistics systems. Mobile telephony technologies are being used to help retain mothers in care and to support their adherence to antiretroviral therapy. At clinics, simple solutions such as streamlining patient flows are reducing waiting times. Some countries are now offering appointments and prescriptions every three months rather than every month to help relieve the strain both on clinics and nursing staff and on mothers.

The Global Plan also encouraged countries to team up and solve problems together. After hearing about the programme management dashboard being used by South Africa, a group of programme managers from Zimbabwe have contacted their South African counterparts and are discussing how the programme is organized. Due to linguistic commonalities, Brazil strengthened its collaboration with Angola and Mozambique to help accelerate their programmes, while Ethiopia supported the community engagement efforts of Namibia (including the deployment of cadres of health extension workers) and South Sudan (41).

- **Quality and coverage of key HIV services can be increased rapidly and reach everywhere.** In 2015 four out of five pregnant women living with HIV in the priority countries had access to effective antiretroviral medicines to reduce the risk of HIV transmission to their children. Globally, coverage was 77% (69–86%), up from the 36% (32–40%) coverage of effective antiretroviral medicines (excluding single-dose nevirapine) for prevention of mother-to-child transmission in 2009. At the same time, the quality of regimens has improved: 51% of pregnant women accessing antiretroviral medicines in 2009 were accessing the most effective regimens, but this had risen to nearly 93% in 2015.

In addition to improving the quality of services, countries also expanded their reach, taking them into communities and decentralizing them from hospitals to clinics and other local health facilities. This was accelerated by shifting certain tasks away from highly specialized health-care professionals to trained nurses so the tasks could be performed much more widely. The number of sites providing services for eliminating mother-to-child transmission of HIV multiplied, making the services more accessible to millions of people (19). Importantly, these approaches were not treated as “magic bullets” but required systemic changes. Therefore, countries adopted durable approaches such as task-shifting and decentralization, supporting them with stronger training, regular supervision, strengthened supply chains and better use of data. However, there remains a need to strengthen services for children, with an emphasis on age-specific responses—for example, programmes to meet the needs of older prepubescent children compared with children aged under five years. In addition, there is a need to pay greater attention to children in vulnerable situations, such as orphans, children with disabilities, key populations such as homeless children, and children in humanitarian crises.

- **Community mobilization changes everything.** The Global Plan showcased the impact of community mobilization on the HIV response. Services and other interventions were transformed, in both quality and reach, when communities were actively involved. Members of communities became engaged in new ways, both extending the last mile of bringing services into communities and with mobilization of opinion leaders and support groups for women living with HIV. Ethiopia, for example, assembled a 35 000-strong Women's Development Army that supports the delivery of decentralized health care by providing information and services to communities (34). In South Africa, thousands of community health workers have helped take elimination of mother-to-child transmission of HIV and antiretroviral therapy services into remote communities.

More than half the countries in sub-Saharan Africa now use community health workers to provide and support key HIV services such as elimination of mother-to-child transmission of HIV and antiretroviral therapy.

Networks of women living with HIV also boosted use of prevention of mother-to-child transmission of HIV services and antenatal care by educating women about their reproductive rights, by encouraging them to seek care and HIV testing, and by providing support to women living with a new diagnosis of HIV (42,43).

The Global Plan could, however, have done a better job of engaging male partners and fathers as parents who also desire healthy children and healthy families. At every step of the elimination of mother-to-child transmission of HIV cascade, greater engagement of men would improve results. The number of new infections in women, for example, cannot be reduced significantly without successfully engaging men in testing and treatment to prevent HIV transmission. Similarly, the gaps in family planning are unlikely to be met without greater involvement of men. The perception of reproductive health as being primarily the domain of women needs to change, and there should be more emphasis on promoting and facilitating couples testing. Preventing infection among pregnant and breastfeeding women—a major driver of mother-to-child transmission—is not possible without partner testing to identify HIV-negative women in discordant relationships.

- **When resources are available, success follows.** Adequate funding support was pivotal to the success of the Global Plan. Globally, a little under US\$ 19.2 billion was available for the HIV response in low- and middle-income countries in 2014, more than half of it sourced domestically (41). PEPFAR and the Global Fund to Fight AIDS, Tuberculosis and Malaria in particular provided vital funding support for Global Plan implementation. Development assistance for maternal, newborn and child health programmes also increased significantly over the past decade (44). Countries also devised ways to make the available money go further: focusing interventions where the need and potential impact are greatest helped maximize available resources, as did further reductions in the prices of antiretroviral regimens and HIV diagnostics.
- **Accountability was essential.** Setting clear goals and targets proved very important, as did the development of a valid set of indicators and a method for measuring progress. Country-level data have improved in quality and detail and have made it possible to track and monitor programme performance all along the elimination of mother-to-child transmission of HIV cascade. Countries were able to keep track of programme performances, publicize successful practices, identify weaknesses and tweak strategies.



The fact that the Global Plan generates an annual accountability report and holds vigorous discussions with stakeholders also enabled candid assessment of bottlenecks and development of solutions. The inclusion of women living with HIV has added the important dimension of remembering the reasons for the Global Plan and for ensuring it stays true to its principle of women at the centre.

- **Clear normative guidance clarifies choices.** The regular updating of normative guidance by WHO was important to help shift country programmes towards the most effective evidence-based interventions. Global and regional partners disseminated the guidance widely, which accelerated uptake—seen in the rapid adoption of Option B+ after it was incorporated into the WHO recommendations. As countries have made policy decisions to adopt new guidelines, the availability of technical support to work through operational issues has been key to facilitating their implementation.

## WHERE WE GO FROM HERE

The bold and ambitious goals of the Global Plan have brought the world close to realizing the vision of ending new HIV infections among children. What was once a dream is now poised to become a reality. The lessons of the past five years have shown what can be accomplished with commitment, resources and determination, and it is those same drivers that are needed to reach the goal of ending paediatric AIDS.

### **Keep elimination of mother-to-child transmission of HIV high on the political agenda, and secure funding for longer-term planning**

Keeping this challenge high on the political agenda is essential. Ending new HIV infections among children, and ensuring that both mothers and their children who acquire HIV receive treatment, must remain a global priority. We must make this commitment to women and children everywhere. The 2016–2021 UNAIDS strategy endorses the comprehensive Fast-Track approach to accelerate progress in the next five years into 2020 in order to acquire the momentum to end AIDS by 2030. The Global Plan priority countries have now put in motion many of the key actions to catapult them to the next stage. Although each country will need its own tailor-made approach, all can Fast-Track services, strengthen accountability, update policies and promote innovation.

It is essential to ensure adequate funding. Success into 2020 for children and mothers will require frontloading and increasing financial investments, from governments, international donors and the private sector, in order to protect the gains made and end new paediatric infections as a public health problem in the next five years.

### **Go into a targeted campaign mode to address diagnosis and treatment for children**

A targeted campaign to close the treatment gap is needed. The Global Plan has revealed that mothers are more likely than children to receive treatment. Without treatment, half the infants infected with HIV will die before their second birthdays, and so identifying children living with HIV is a matter of global urgency. An accelerated and focused campaign implemented over the next two years could narrow this gap. As these children enter adolescence, their treatment needs will evolve. A key first step will be to greatly reduce the age at which children begin treatment—now an average of four years. A campaign-mode approach will enable countries to assess their approaches to paediatric diagnosis and

treatment, home in on solutions, and move with the same momentum that has already led to the sharp reductions in new infections among children.

It is essential to find the children living with HIV who have been missed and to ensure they receive lifesaving treatment. Concerted action is needed to scale up case-finding and immediate access to treatment, beginning with early infant diagnosis to ensure the youngest do not die early in life. Heightened awareness of HIV at all points where children come into contact with the health-care system can facilitate early recognition of children exposed to or living with HIV. Because many children living with HIV may be outside health institutions, efforts to reach them, for example in programmes for orphans and other vulnerable children, nutrition programmes and schools, should be scaled up.

### **Strengthen service delivery and support full implementation of Option B+**

All women, especially those of childbearing age, should know their HIV status and receive treatment for their own health if they are diagnosed with HIV (Option B+), in accordance to the WHO guidelines. This treatment also provides protection against HIV transmission to their sexual partners and in their future pregnancies if they choose to bear children. Provider-initiated screening for HIV should become a routine element of antenatal and postnatal care and is of greatest importance where there is a known backdrop of HIV prevalence in the community.

Strengthening early and routine access to antenatal care and supporting diagnosed women to live positively can save the lives of both mothers and children. Experience has shown that greater integration of care, with stronger links between prenatal care and follow-up care for mother and baby, including early infant diagnosis, is needed to ensure a healthy future. A renewed commitment to making sure systems are in place to follow and support women to remain on antiretroviral treatment throughout the breastfeeding period is critical to eliminating transmission. To end new infections among children, it is important to remember the “human face”, and to combat stigma and discrimination in the community and clinic that can turn women away from seeking the care they need.

### **Stop new HIV infections among girls and women and rejuvenate family planning**

To stop the cycle of new HIV infections among children, a commitment to primary prevention of HIV infection among girls and women must be renewed and strengthened. The Global Plan has contributed to increasing access to treatment for women but has lagged behind in reducing the number of new infections among women of childbearing age. Many women acquire HIV during pregnancy and breastfeeding, a time that jeopardizes their own health and also increases risk of HIV transmission to children due to the high viraemia. Provider-initiated advice can help women who test negative during antenatal care to remain negative. It can also enable discussions of partner testing in order to identify discordant men. Helping women and girls avoid HIV is a task we must not fail and that will require strong country leadership and local action to ensure women have the rights and protection to live free of HIV. Equally, it is essential to empower women living with HIV to avoid unintended pregnancies, through counselling and appropriate provision of contraceptives. Only then will we be finally on the road to ending the AIDS epidemic among children while at the same time safeguarding the health of mothers.

Critical to continued progress will be eliminating all new HIV infections among children, finding children living with HIV and providing them with lifesaving treatment, and stopping the cycle of new infections among girls and women of reproductive age.

## ANNEX: A NOTE ON MEASUREMENT

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### PROGRAMME DATA

The programme data required for the Global Plan Progress Reporting mechanism includes the number of women accessing antiretroviral medicines during pregnancy and breastfeeding, the regimen provided, whether cotrimoxazole was provided, whether children living with HIV received antiretroviral therapy, and whether infants exposed to HIV received early infant diagnosis.

All countries have systems that count the number of women who come in for antenatal care services. Within antenatal care, nurses complete registers on whether women are tested for HIV and the results of the test (or whether the woman has already been diagnosed as living with HIV). In most countries, the antenatal care register is a paper-based ledger from which the clinics aggregate data and send them to the district for submission to the national level. Further information is collected within a register specific to the antiretroviral regimen that women are provided. Few of the Global Plan priority countries have comprehensive registers that follow mother–infant pairs after delivery to measure adherence during breastfeeding or the duration of breastfeeding.

Based on these systems, countries report on the number of women accessing antiretroviral medicines during pregnancy and delivery. Many countries, however, are not able to identify women who might have moved during the pregnancy and who were subsequently retested or reinitiated on antiretroviral medicines at a new clinic, resulting in women being counted twice. Similarly, women who miscarry are potentially not removed from the registers of programmes to prevent mother-to-child transmission. In recent years, countries have made improvements to their reporting systems, which has resulted in fluctuations in the reported numbers of women accessing antiretroviral medicines (due to changes in the accuracy of the reporting). Countries such as Kenya, Malawi and Zimbabwe have conducted comprehensive reviews to correct data from previous years and provide a more accurate measure of annual changes. Many other countries, however, have been unable to correct data because of a lack of unique identifiers that would identify women who appear twice in the monitoring system.

The data on what happens to mother–infant pairs after delivery are weaker than the data available from antenatal care. As a result, the estimates of antiretroviral medicine coverage during breastfeeding are often rough estimates, and consistent monitoring systems have not been put in place to follow mother–infant pairs longitudinally after delivery. A concerted effort to address this issue has been a focus for partners in the Interagency Task Team Monitoring and Evaluation Working Group. Data on retention will also be valuable for understanding impact if antiretroviral therapy programmes collect and report data on retention separately for breastfeeding women. This will be an important improvement to the data previously requested on postnatal prophylaxis under Options A and B.

A number of efforts are under way to improve the quality of data captured by countries' monitoring and evaluation systems. Attention is now focused on supporting countries to develop longitudinal follow-up clinic registers to improve retention and adherence to treatment for mother–baby pairs. This will also enable assessment of the impact of programmes to prevent new HIV infections among children and keep their mothers alive using empirical data and the validation of modelled HIV estimates.

## MODELLING DATA

UNAIDS and partners support countries to estimate the impact of HIV on their populations each year. The programme data on women accessing antiretroviral medicine and the regimens received are included in models of the HIV epidemic in individual countries. The models use country-specific information on the demographics of the country—including age-specific fertility rates over time, HIV prevalence from antenatal clinics and household surveys, and numbers of people accessing antiretroviral therapy—to calculate these estimates. A number of assumptions inform the models, including the probability of transmission from mother to child given the mother's antiretroviral regimen and CD4 level.

The country models are created using Spectrum software by estimates teams in each country. The members of the estimates teams vary by country, but they primarily include national experts from the ministry of health or the AIDS coordinating body, programme managers, survey and census specialists and development partners. Every year, the country teams update the files with the latest programme data and any additional surveillance data to inform the trends in the epidemic. The software and assumptions informing the calculations are also improved every year. In the estimates produced in 2016 (referred to as the 2016 estimates), a number of improvements were made to the models that will change the indicators related to prevention of mother-to-child transmission of HIV.

The most important changes in 2016 are related to the estimated transmission to children. The UNAIDS Reference Group on Estimates, Modelling and Projections commissioned a study to update the probability of transmission to the child for different antiretroviral regimens. This was an update to a 2012 study on the same topic. The updated transmission probabilities were significantly lower for women who seroconverted during pregnancy, reducing the overall number of children ever infected with HIV.

In addition, the new model used newly available data on the age at which children were started on antiretroviral therapy. This improved the estimates of survival among children living with HIV. This change also reduced the estimated number of children living with HIV.

As a result of these two changes, the number of children living with HIV is lower than in previous rounds of estimates. Coverage of antiretroviral therapy in children is thus closer to adult coverage in recent years and historically.

## USING THE ESTIMATES AND TREND ANALYSIS

In light of the improvements to the data and assumptions used to create the estimates each year (a “round”), users of the data should not compare results from one round with those from another round. Instead, a full historical set of best estimates is created for each round, allowing for a comparison of trends over time from within the same round. For more information on the process for creating national HIV estimates, please see <http://www.unaids.org>.

## MEASURING IMPACT

One of the outputs of the software is the estimated population-level mother-to-child transmission rate. The population-level rate implies that it includes all pregnant women in the country and is not limited to women attending antenatal clinics and enrolled in programmes to prevent mother-to-child transmission. In addition, it estimates all pregnant women living with HIV and not only those who are diagnosed with HIV.

A population-level measure is difficult to capture through standard programme data since some women do not attend clinics and the status of other women is not known. Two countries have made progress in overcoming this measurement challenge by conducting surveys of mother–infant pairs attending immunization clinics. Although these measures capture only early transmission and not potential breastfeeding transmission, they are still useful for understanding the impact of programmes to prevent mother-to-child transmission. These direct measures of mother-to-child transmission should be adapted by other countries to improve measures of programme impact.

In South Africa, an evaluation of the programme to prevent new HIV infections among children and keep their mothers alive was conducted by measuring HIV prevalence among mother–infant pairs during immunization. The six-week transmission rate in 2013 was measured to be 3.5% [2.9–4.1%] (45). This compares well with the estimated 2.8% [2.6–3.1%] transmission rate at six weeks in 2013 from the model.

Zimbabwe collected data from a sample of 9000 mother–infant pairs attending immunization clinics in 5 of its 10 provinces in 2013. The HIV status of mothers and their children was determined to measure the transmission rate between 9 and 18 months of age. The study also used verbal autopsy to capture mothers or infants who died between the birth and the time of measure. The study estimated that 8.8% of children exposed to HIV were infected by the age of 9–18 months. This value does not reflect the final transmission rate, since the median duration of breastfeeding in Zimbabwe is 18 months. A number of the children will have been tested closer to 9 months of age. Assuming the risk of transmission among women accessing antiretroviral therapy is approximately 0.13% per month, a rough calculation suggests the additional exposure of 10–15 months would result in an additional 1–2% transmission. This result supports the modelled estimate 9.8% [8.9–10.9%] final transmission rate presented in this report.

Similar efforts need to be supported in all priority countries.



COUNTRY  
FACT SHEETS

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# ANGOLA

Angola has shown slow progress with a decline of 24% in the number of new HIV infections among children since 2009. There has been improvement in programme coverage of women receiving antiretroviral medicines to prevent mother-to-child transmission, with coverage rising from 17% in 2009 to 40% in 2015. The final mother-to-child transmission rate remains high at 21%, and the number of women newly infected with HIV has remained relatively unchanged, decreasing by 5% since 2009. Paediatric treatment is an area for continued focus, as only 24% of children living with HIV were provided with antiretroviral therapy.



4300

NEW INFECTIONS AMONG CHILDREN IN 2015



4 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



24%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

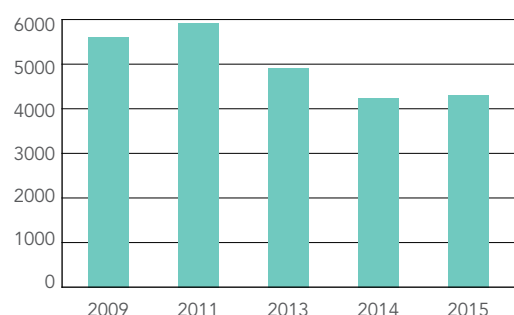


21%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

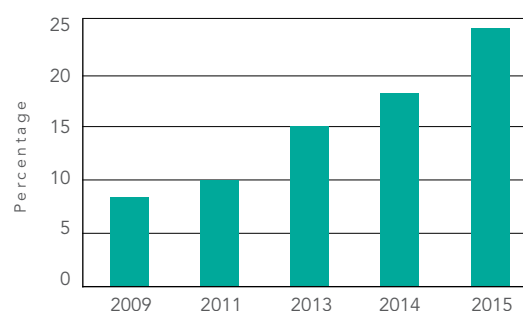
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

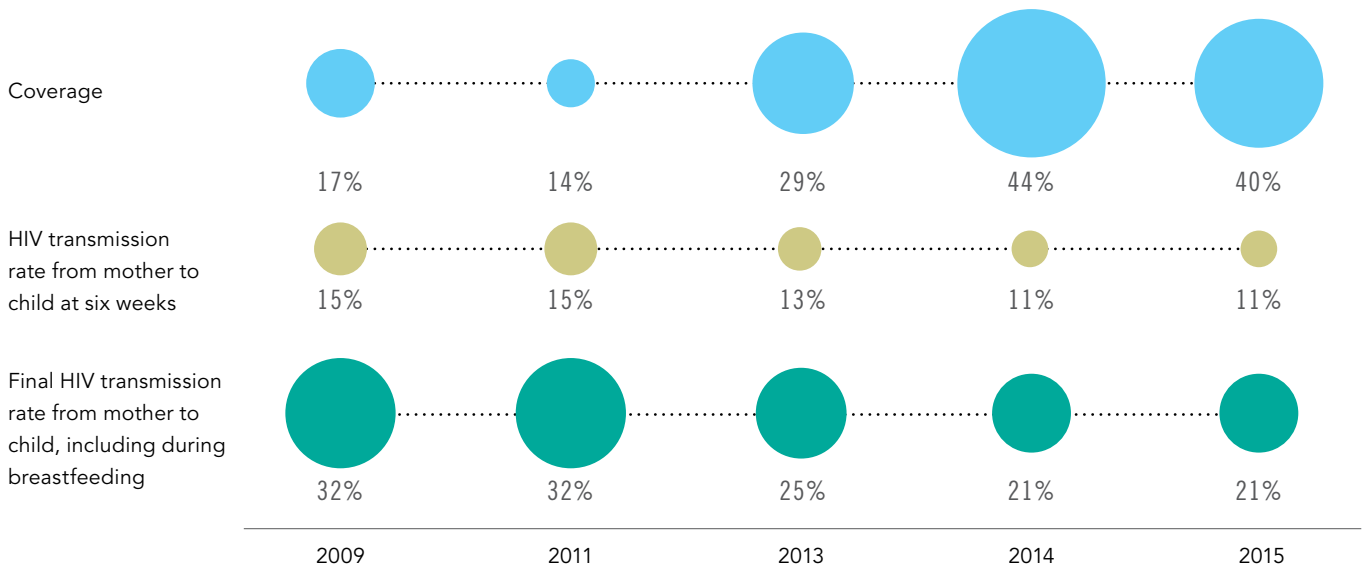
Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy





## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



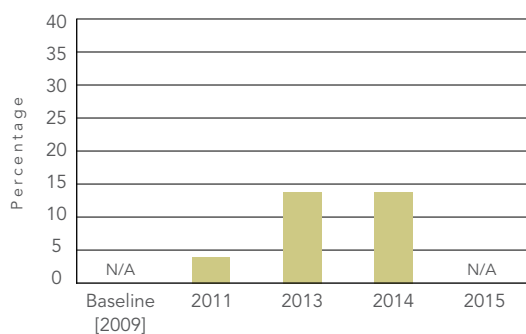
## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 5% since 2009



## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# BOTSWANA

Since 2009 Botswana has reduced new HIV infections among children by 63%, with an estimated 330 new infections among children and a mother-to-child HIV transmission rate down to 3% in 2015. During 2015 more than 90% of pregnant women living with HIV accessed antiretroviral medicines for the prevention of mother-to-child transmission; of that group, 68% received lifelong antiretroviral therapy. Botswana has one of the best paediatric treatment coverage rates, with over 95% of children living with HIV accessing antiretroviral therapy, although only 45% of infants exposed to HIV receive timely infant diagnosis of HIV. Botswana has been a leader in innovating national HIV service delivery models, including provider-initiated testing and nurse-initiated antiretroviral therapy programmes.



330

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



63%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

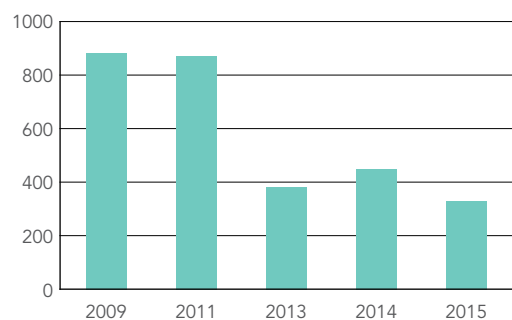


3%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

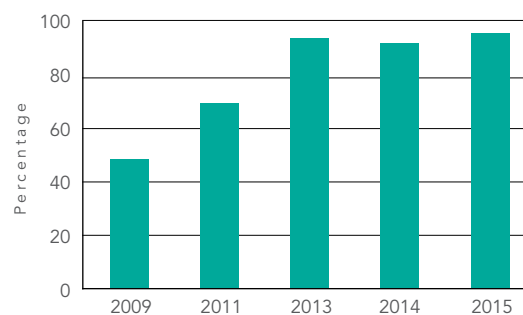
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



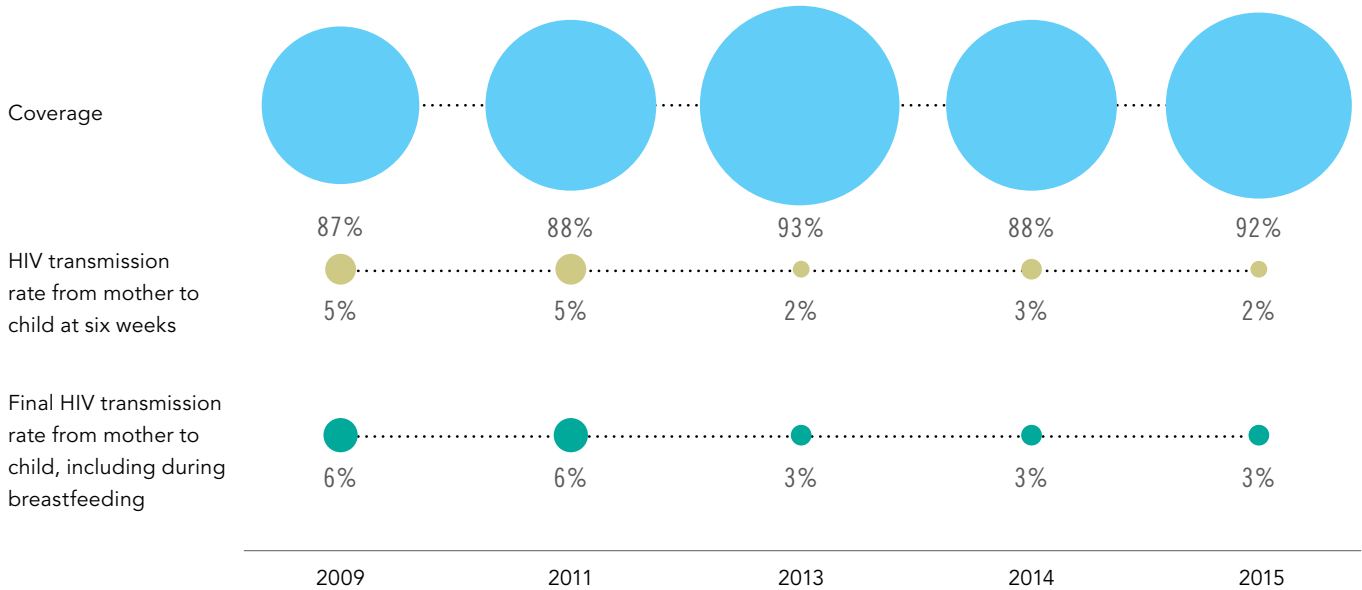
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



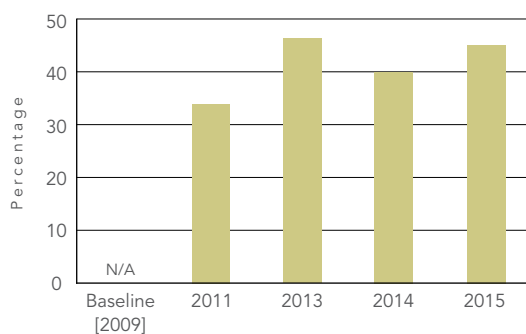
## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 21% since 2009



## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# BURUNDI

Burundi had fewer than 300 new infections among children in 2015. Since 2009 Burundi has seen a 39% reduction in the number of new HIV infections among women, the highest among the focus countries. In 2015, 89% of pregnant women living with HIV accessed antiretroviral medicines to prevent mother-to-child transmission. Challenges remain in sustaining access to antiretroviral medicines for new mothers throughout breastfeeding, as the transmission rate increases from 3% at six weeks to 7% after breastfeeding ends. Paediatric diagnosis and treatment are areas for continued focus, as only 2% of infants exposed to HIV received early infant diagnosis of HIV, and 29% of children living with HIV accessed antiretroviral therapy.



290

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



84%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

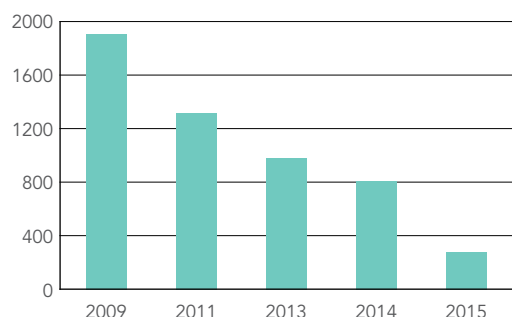


7%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

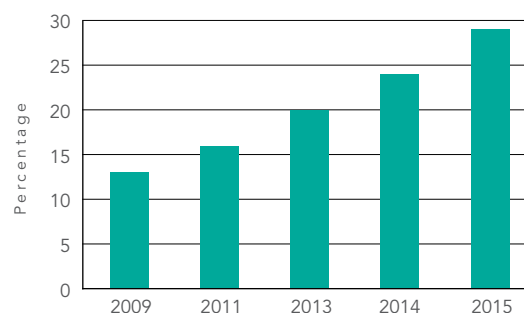
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



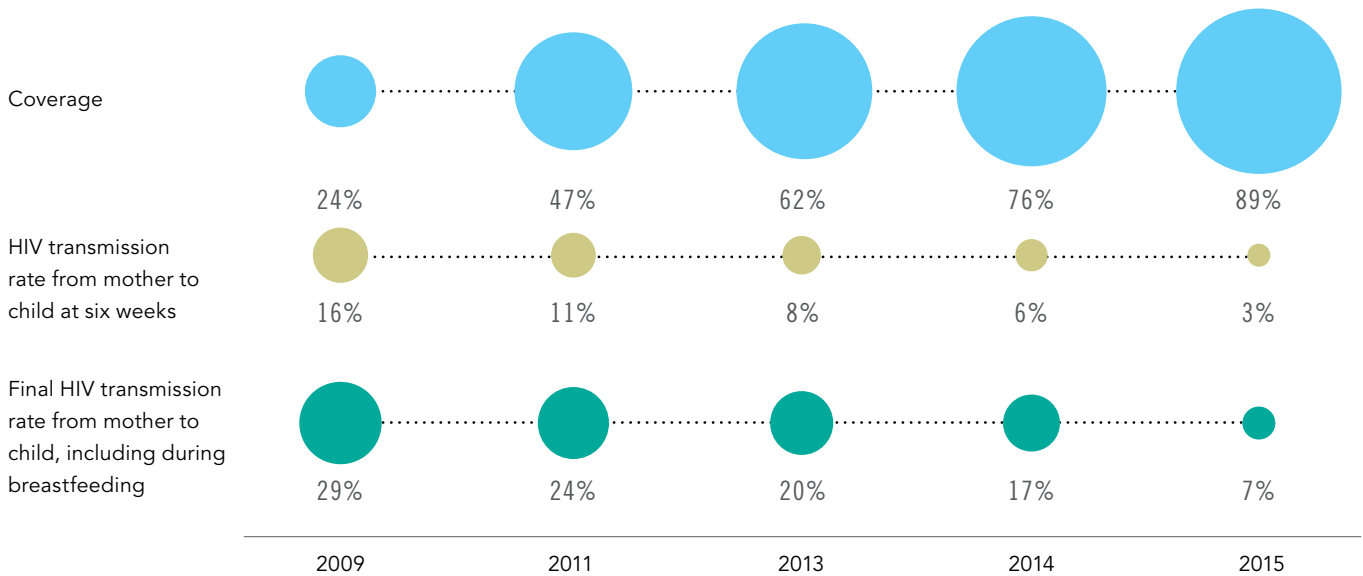
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



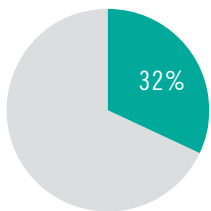
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

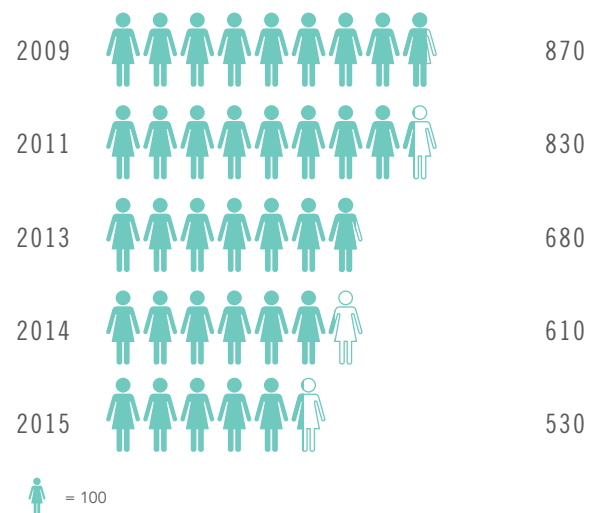
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2010, all currently married women (aged 15–49 years).

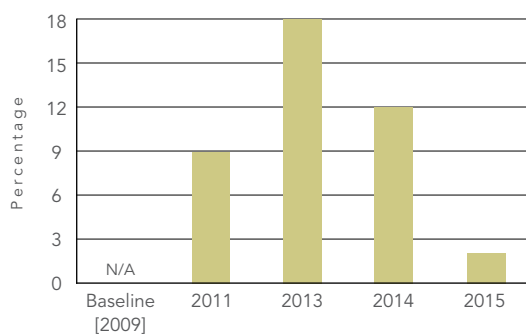
## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 39% since 2009



## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# CAMEROON

Cameroon has shown a decline of 49% in the number of new HIV infections among children since 2009. In 2015 an estimated 82% of pregnant women living with HIV accessed antiretroviral medicines for the prevention of mother-to-child transmission. Challenges remain in maintaining women on antiretroviral medicines throughout the breastfeeding period, as the mother-to-child transmission rate of 5% at six weeks rises to 13% after breastfeeding ends. Paediatric diagnosis and treatment are areas for continued attention: in 2015, only 30% of infants exposed to HIV received early infant diagnosis of HIV, and 18% of children living with HIV received antiretroviral therapy. Cameroon is strengthening the capacity of home-based and community-based organizations to increase demand and support for prevention of mother-to-child transmission services.



4100

NEW INFECTIONS AMONG CHILDREN IN 2015



8 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



49%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

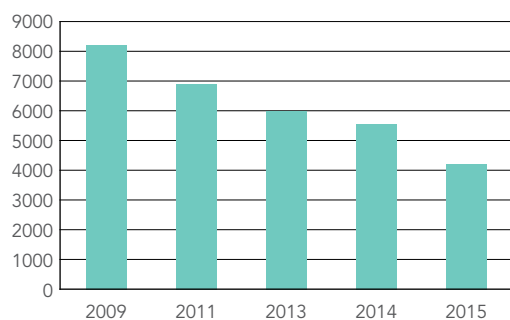


13%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

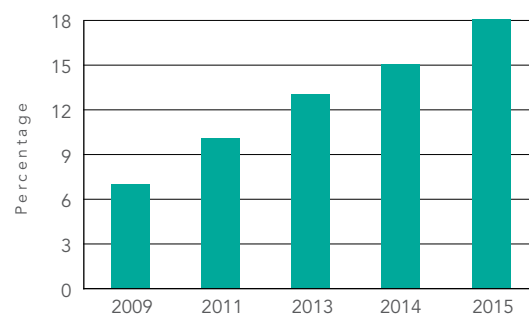
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



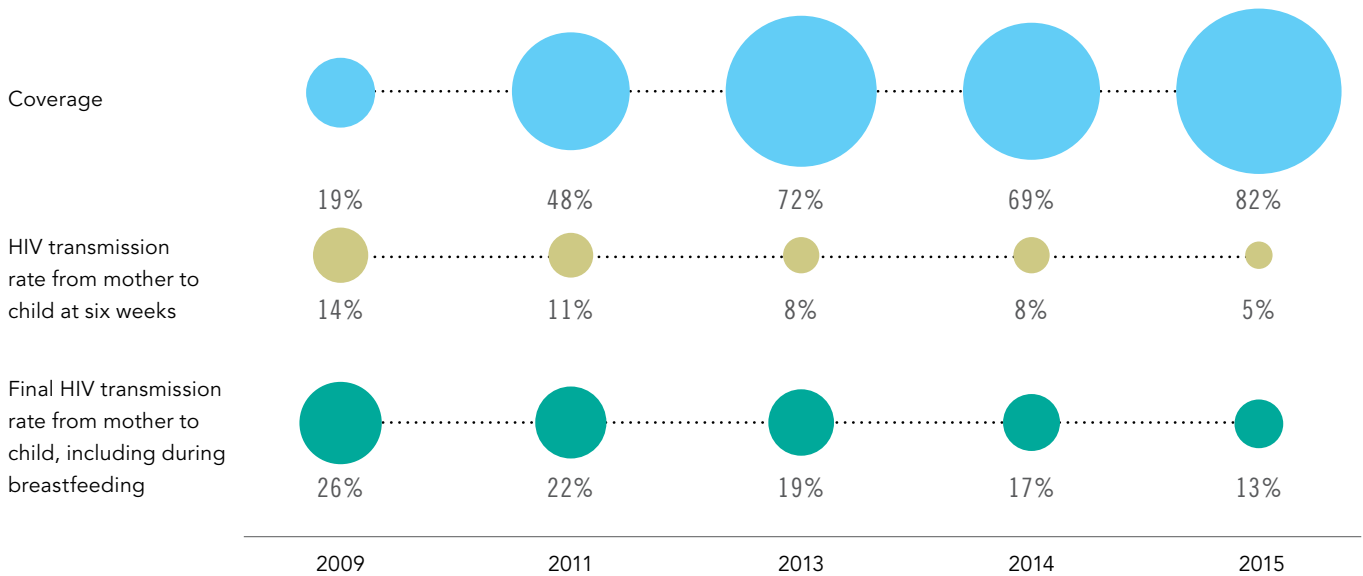
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



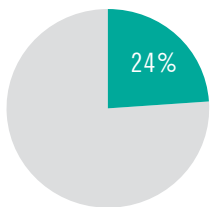
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

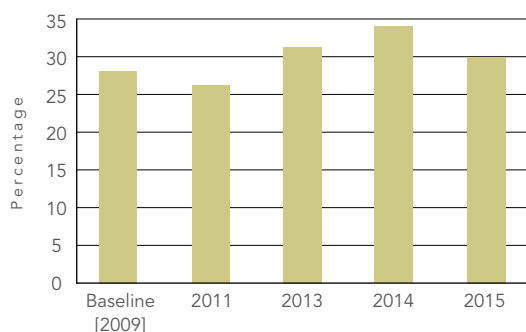
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2011, all currently married women (aged 15–49 years).

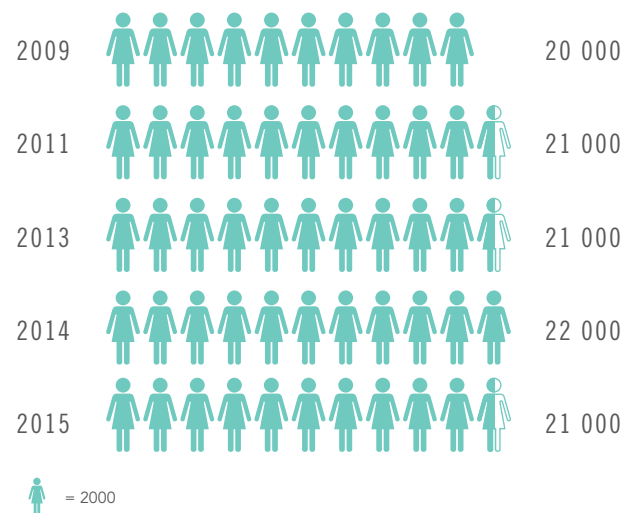
## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV increased by 5% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# CHAD

Chad has achieved a 49% decline in the number of new HIV infections among children and an 18% reduction in the number of new HIV infections among women since 2009. In 2015 an estimated 46% of pregnant women living with HIV accessed antiretroviral medicines for the prevention of mother-to-child transmission. The final mother-to-child transmission rate remains high at 19%, indicating that stronger retention in care and adherence to antiretroviral therapy during the breastfeeding period is required. Paediatric diagnosis and treatment are areas for continued attention: in 2015 only an estimated 3% of infants born to women living with HIV received early infant diagnosis, and 22% of children living with HIV received antiretroviral therapy.



2000

NEW INFECTIONS AMONG CHILDREN IN 2015



5 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



49%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

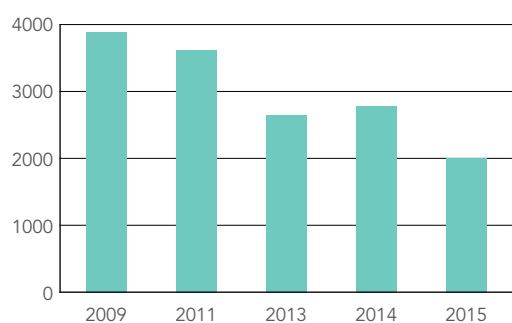


19%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

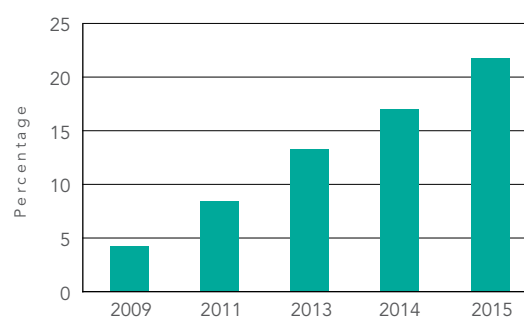
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

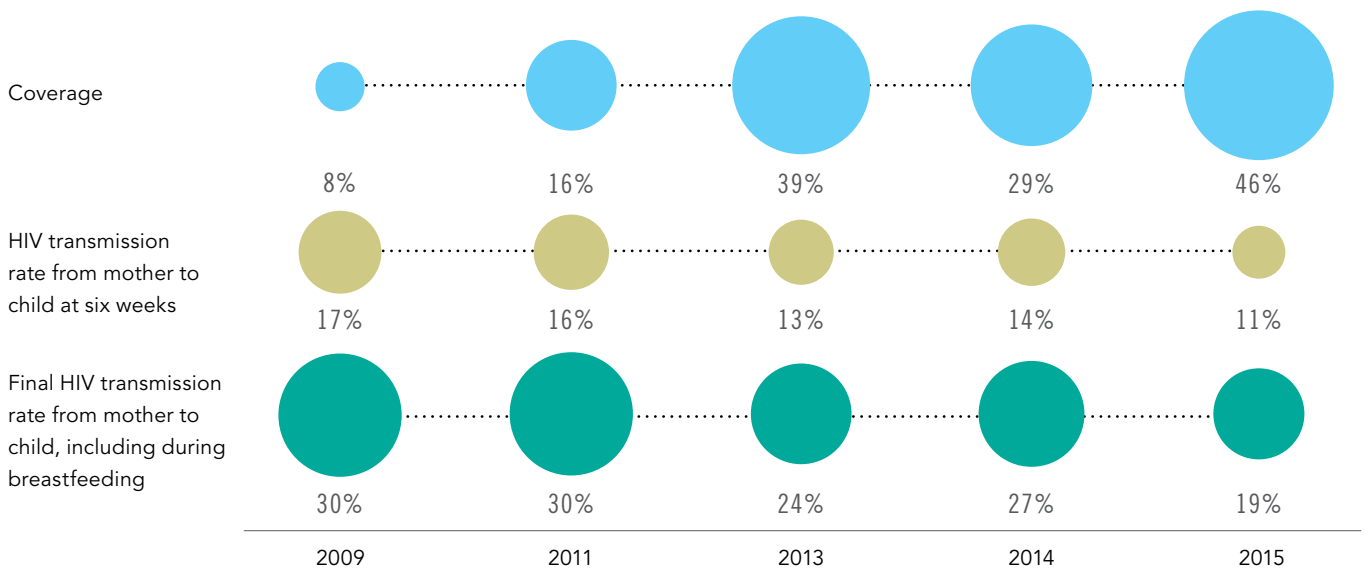
Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy





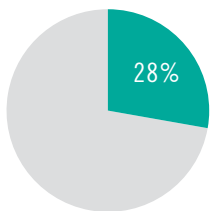
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



Source: Multiple Indicator Cluster Survey, 2010, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

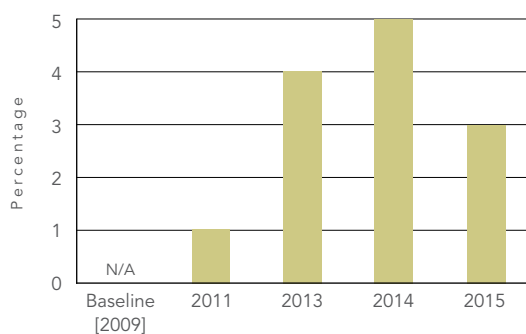
The number of women (aged 15–49 years) acquiring HIV decreased by 18% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# CÔTE D'IVOIRE

Côte d'Ivoire has made steady progress in providing access to antiretroviral medicines to pregnant women living with HIV, with coverage increasing from 39% in 2009 to 79% at the end of 2015. New HIV infections among children have reduced by 36% since 2009, and the number of new infections among women has decreased by 19% over the same time period. Programmatic challenges remain in maintaining women on antiretroviral therapy throughout breastfeeding, as the mother-to-child transmission rate of 6% at six weeks rises to 16% at the end of the breastfeeding period. Areas for continued strengthening include scaling up early infant HIV diagnosis, which currently has a coverage level of only 33%, and scaling up paediatric treatment, as only 24% of children living with HIV have access to antiretroviral therapy.



3600

NEW INFECTIONS AMONG CHILDREN IN 2015



8 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



36%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

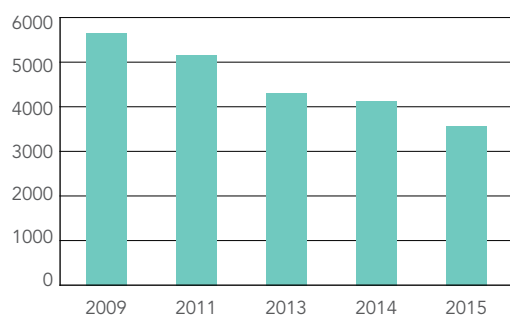


16%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

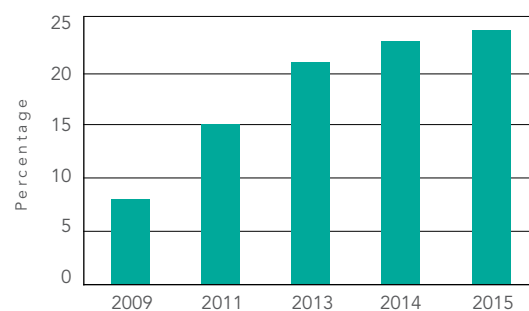
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



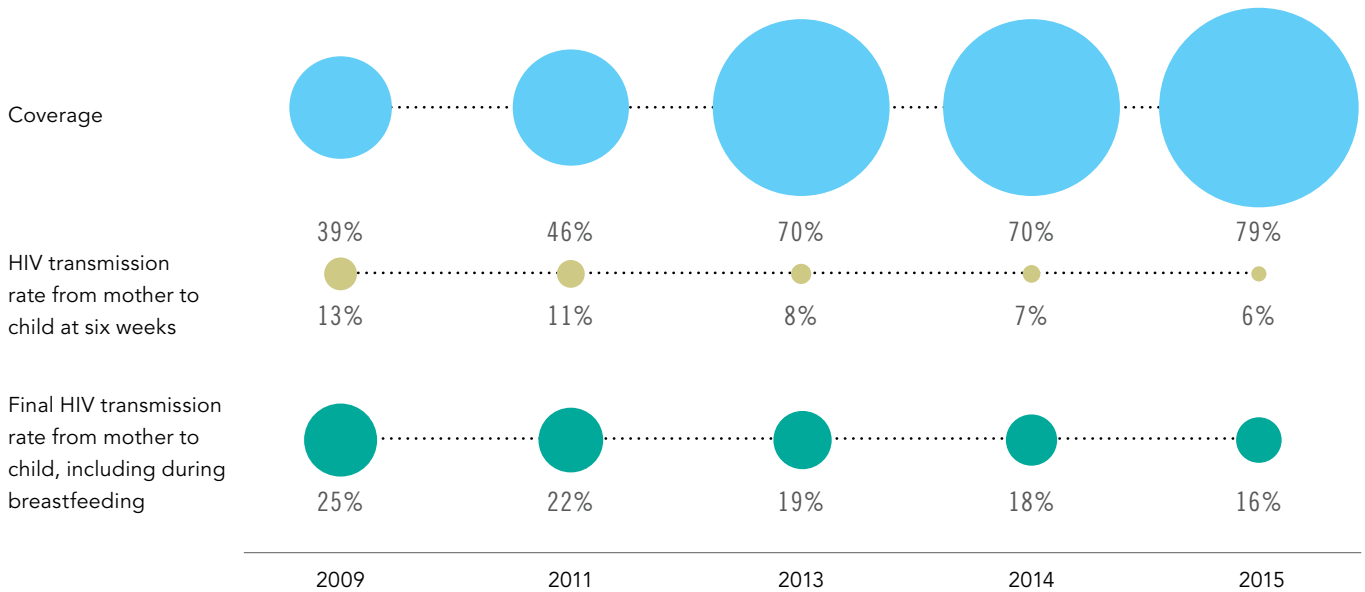
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



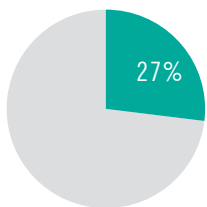
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

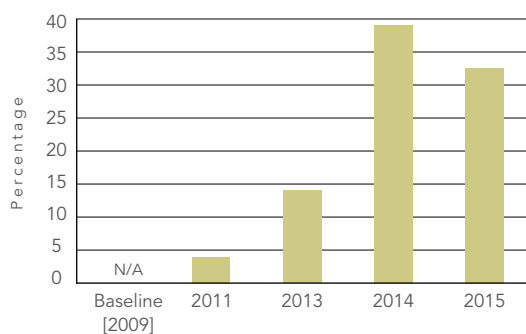
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2012, all currently married women (aged 15–49 years).

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 19% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# DEMOCRATIC REPUBLIC OF THE CONGO

The Democratic Republic of the Congo has achieved a 66% reduction in new HIV infections among children since 2009. The percentage of pregnant women living with HIV who are accessing antiretroviral medicines to prevent mother-to-child transmission of HIV increased dramatically to 67% in 2015. Programmatic challenges remain in maintaining women on antiretroviral therapy throughout breastfeeding, as the mother-to-child transmission rate of 8% at six weeks rises to 15% at the end of the breastfeeding period. Paediatric diagnosis and treatment are areas for continued focus: in 2015 only 17% of infants exposed to HIV received early infant diagnosis, and 22% of children living with HIV accessed antiretroviral therapy.



3300

NEW INFECTIONS AMONG CHILDREN IN 2015



7 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



66%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

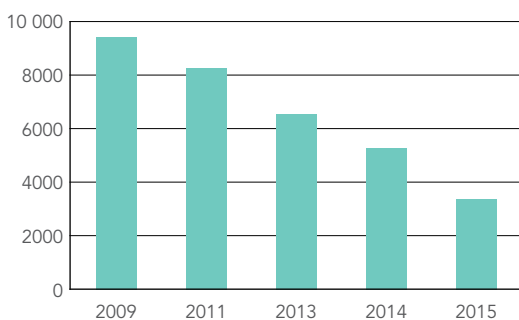


15%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

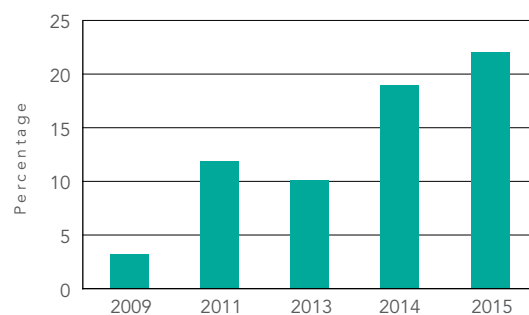
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



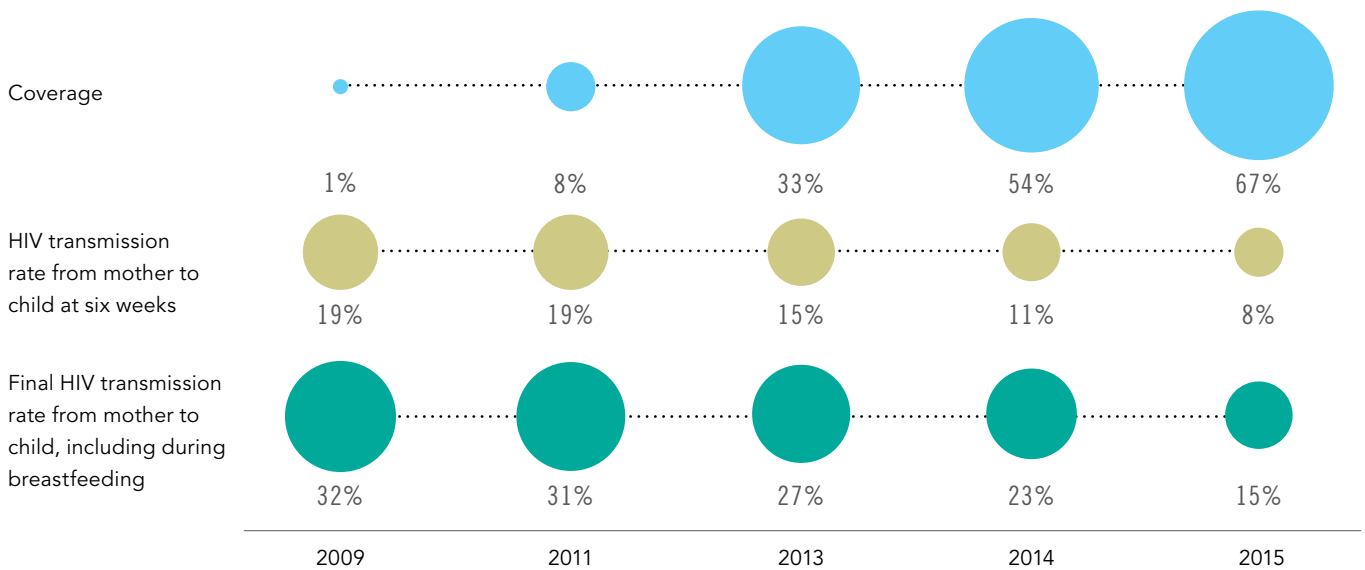
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



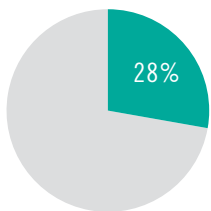
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

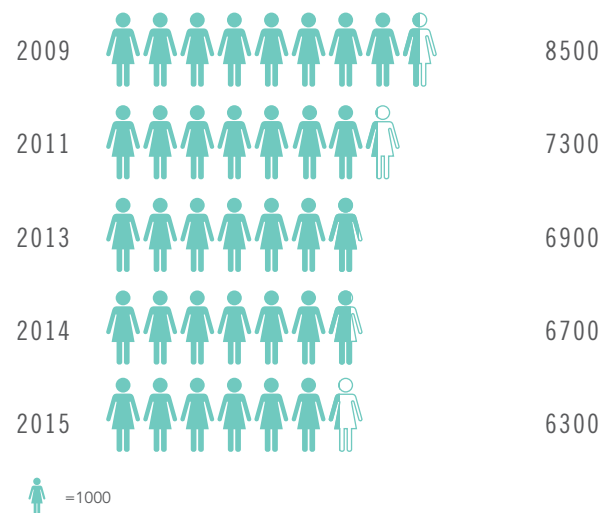
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

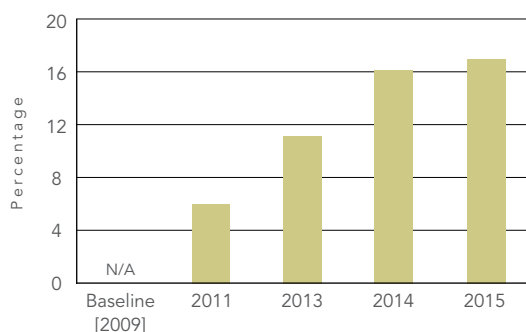
The number of women (aged 15–49 years) acquiring HIV decreased by 26% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# GHANA

Ghana has reduced new HIV infections among children by 46% since 2009. In 2015 an estimated 63% of pregnant women living with HIV accessed antiretroviral medicines for the prevention of mother-to-child transmission. Challenges remain in maintaining women on antiretroviral medicines throughout breastfeeding, as the mother-to-child transmission rate of 8% at six weeks rises to 18% at the end of breastfeeding. This indicates a need for greater support for retention in care and adherence to treatment during the breastfeeding period. Paediatric diagnosis and treatment are also areas for continuing focus: in 2015 only 30% of infants exposed to HIV received a virological test by two months of age, and 27% of children living with HIV accessed antiretroviral therapy.



2200

NEW INFECTIONS AMONG CHILDREN IN 2015



6 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



46%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

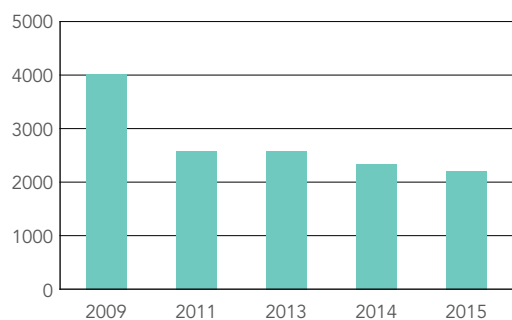


18%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

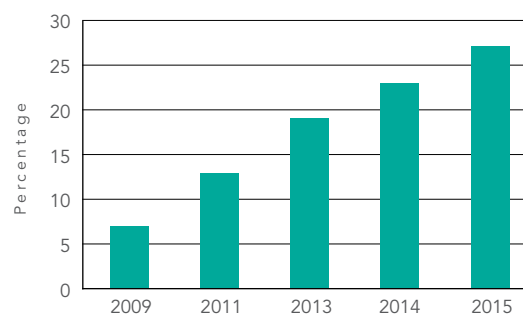
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



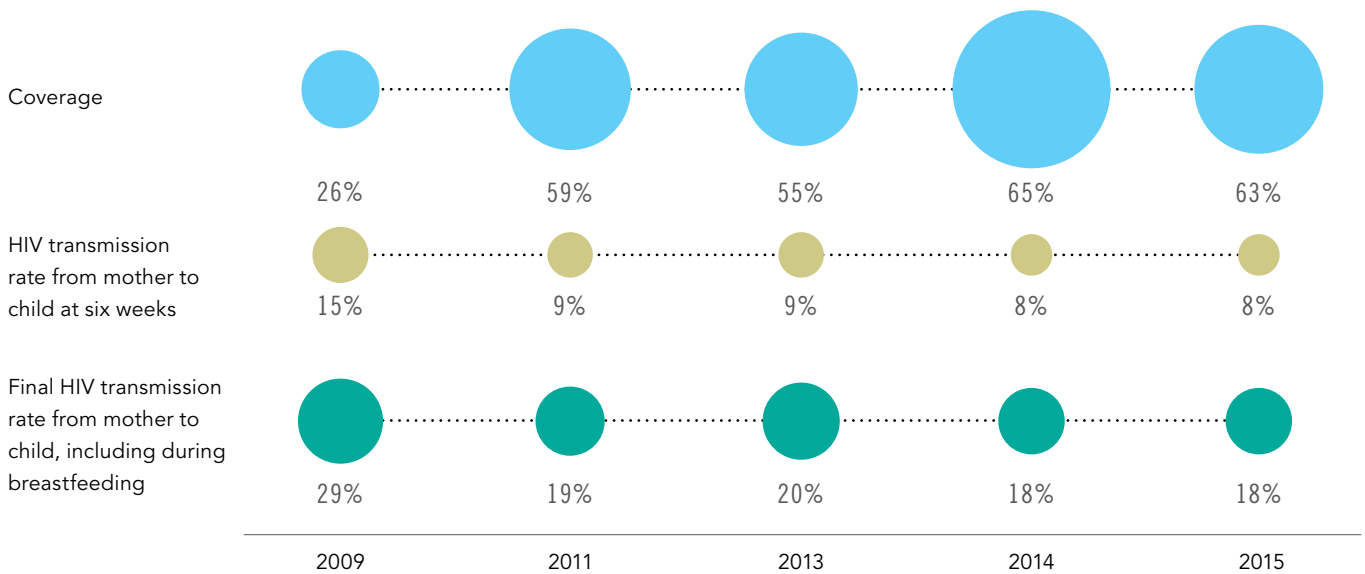
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



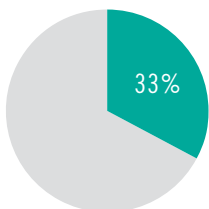
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

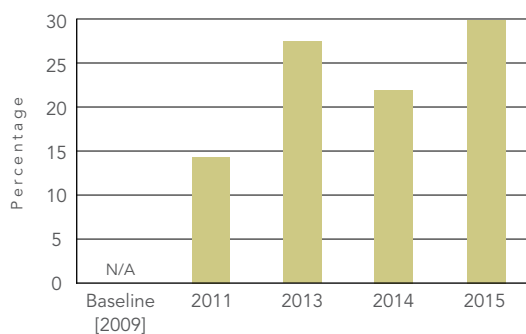
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

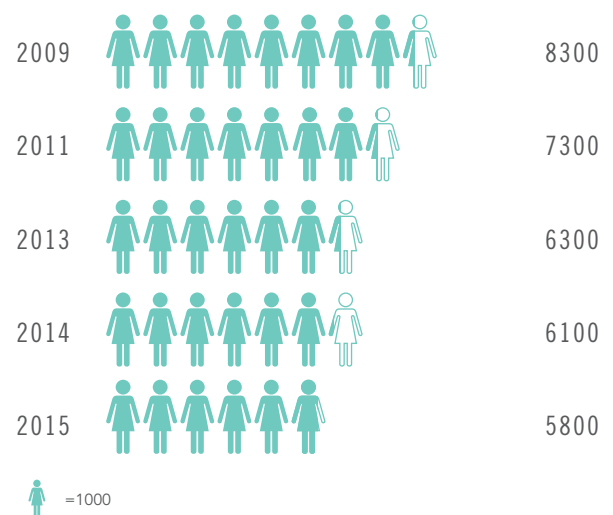
## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 30% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# KENYA

Kenya has reduced the number of new paediatric HIV infections by 55% since 2009. An estimated 74% of pregnant women living with HIV are receiving antiretroviral medicines, and national scale-up of the Option B+ strategy for lifelong treatment is under way. Kenya continues to make progress on retaining women on antiretroviral medicines throughout the breastfeeding period, as the mother-to-child transmission rate of 5% at six weeks now rises to only 8% at the end of breastfeeding. Paediatric care is increasing, with 44% of infants exposed to HIV receiving early infant diagnosis and 73% of children living with HIV receiving treatment. Removal of maternity user fees has led to a 50% increase in institutional deliveries, and a rapid response initiative to identify and re-enrol pregnant women living with HIV who were lost to follow-up is among the innovations that have been undertaken.



6600

NEW INFECTIONS AMONG CHILDREN IN 2015



7 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



55%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

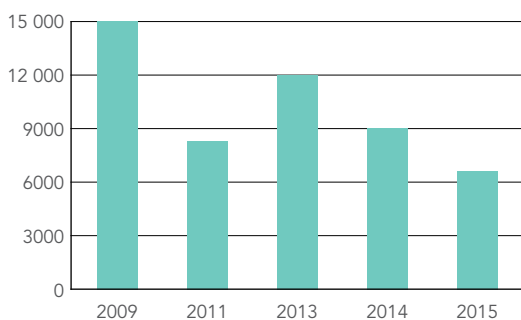


8%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

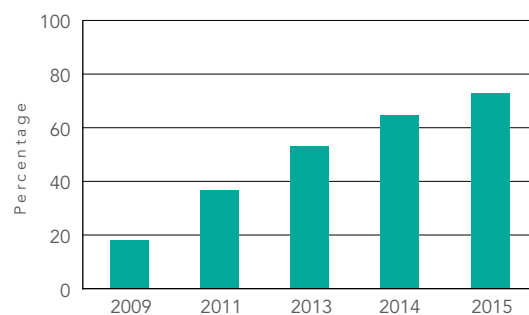
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

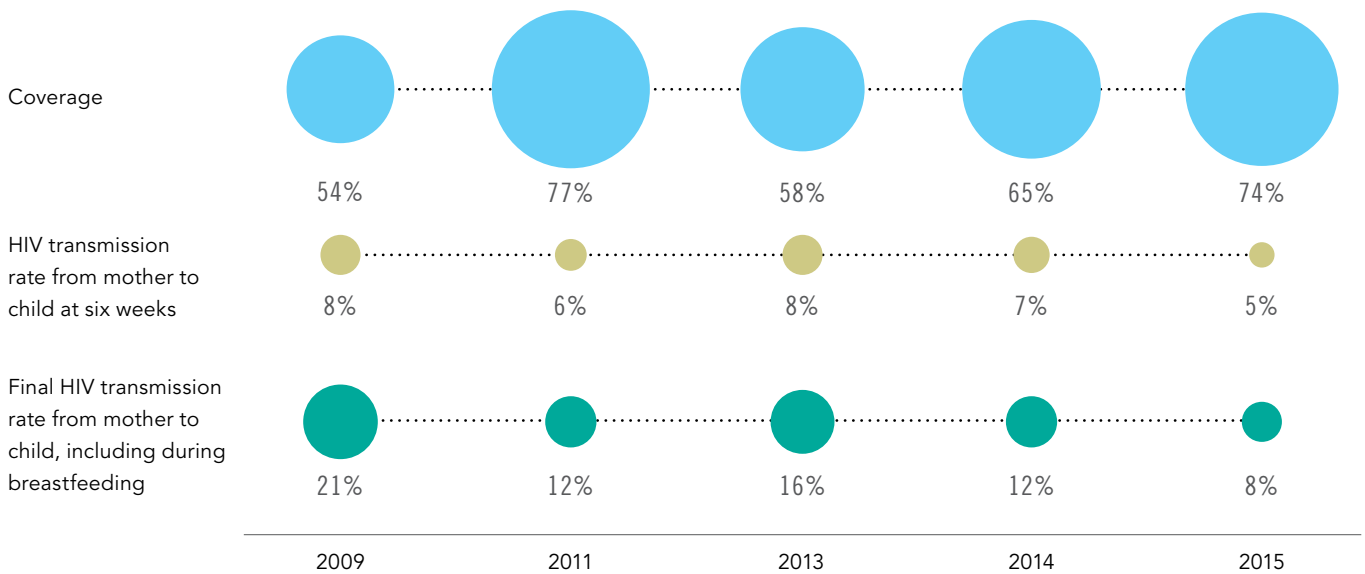
Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy





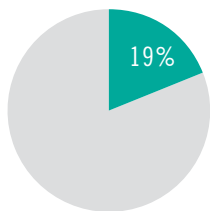
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

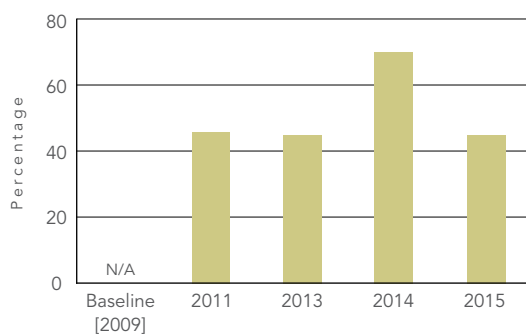
## WOMEN ACQUIRING HIV

The number of women (15–49 years old) acquiring HIV decreased by 3% since 2009



## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# LESOTHO

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Lesotho has reduced new paediatric infections by 44% since 2009, with an estimated 1300 new child HIV infections in 2015. Lesotho currently employs the Option B+ strategy as its national policy for preventing new HIV infections among children and keeping mothers healthy. In 2015, 70% of pregnant women living with HIV received antiretroviral medicines. Challenges remain in maintaining women on treatment throughout the breastfeeding period, as the mother-to-child transmission rate of 6% at six weeks rises to 11% at the end of breastfeeding. Paediatric treatment is also an area for continued attention. In 2015, 93% of infants exposed to HIV received an early infant diagnosis test by two months of age, but only 56% of children living with HIV received antiretroviral therapy.



**1300**

NEW INFECTIONS AMONG CHILDREN IN 2015



**7 OUT OF 10**

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



**44%**

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015



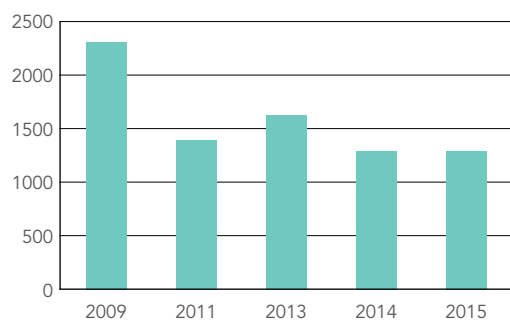
**11%**

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

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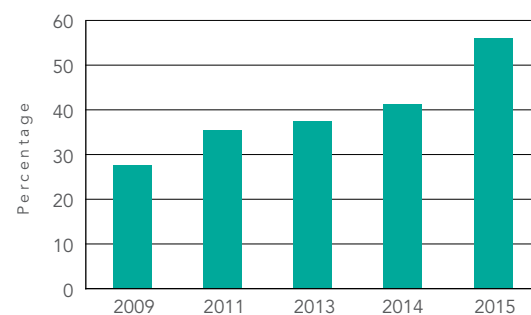
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



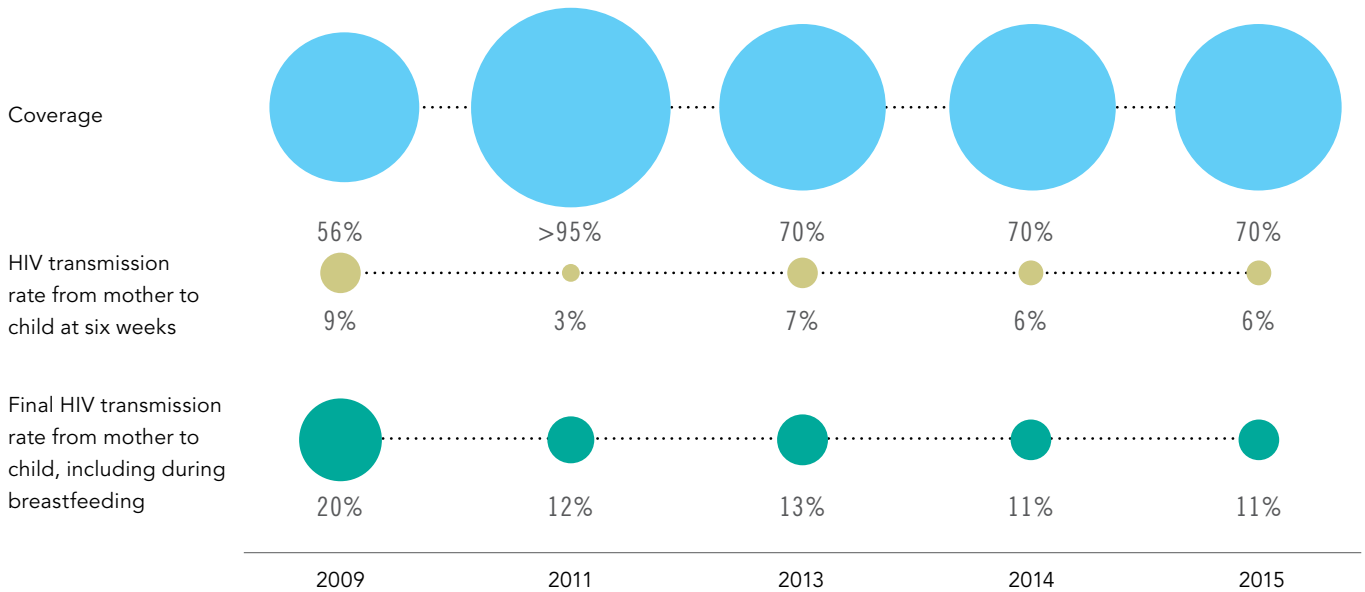
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



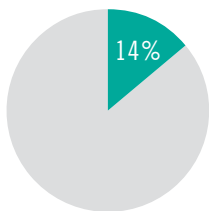
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

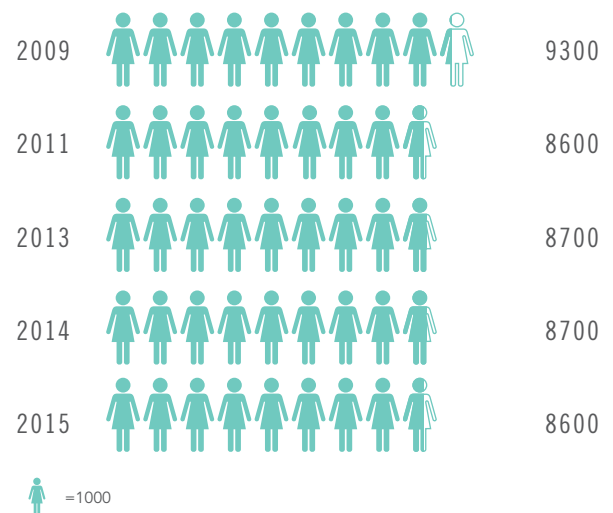
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

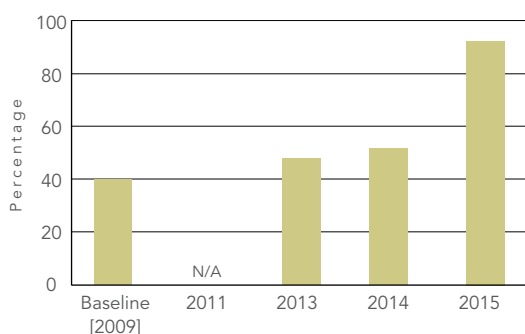
The number of women (15–49 years old) acquiring HIV decreased by 8% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# MALAWI

Malawi has achieved a decline of 71% in the number of new HIV infections among children since 2009. There has been a 34% reduction in the number of new HIV infections among women during that time. Since introducing Option B+ in 2011, the percentage of pregnant women living with HIV who are receiving antiretroviral medicines to prevent new HIV infections among children has increased from 21% in 2009 to 80% in 2015. Areas for continued attention include scaling up early infant diagnosis of HIV and scaling up paediatric treatment, as only 20% of infants received an early infant diagnosis test by two months of age and only 61% of children living with HIV accessed antiretroviral treatment in 2015.



4800

NEW INFECTIONS AMONG CHILDREN IN 2015



8 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



71%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

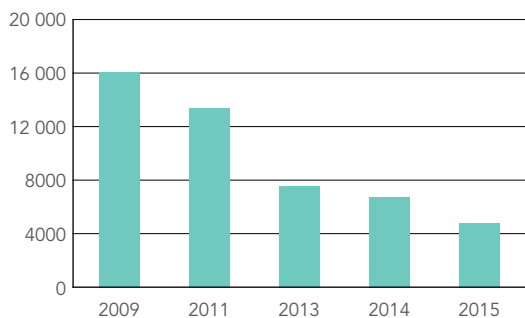


9%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

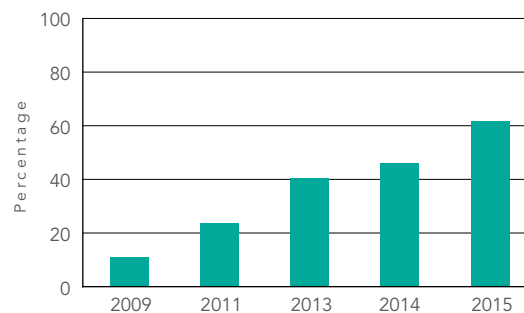
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



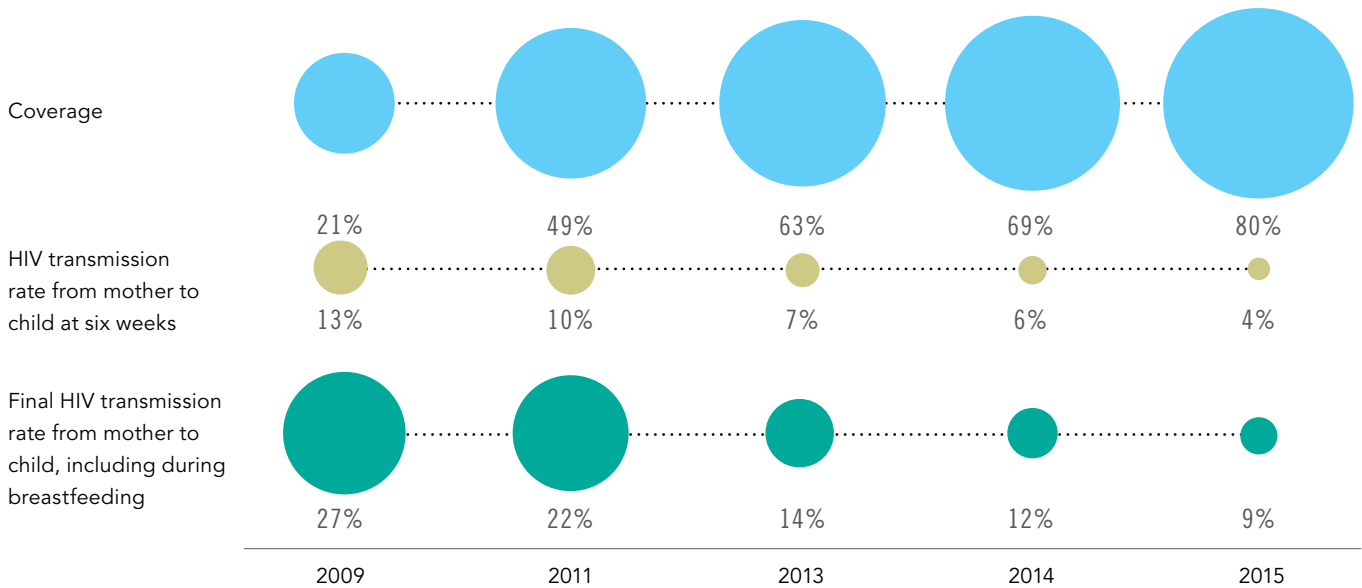
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



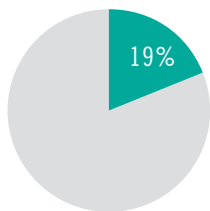
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

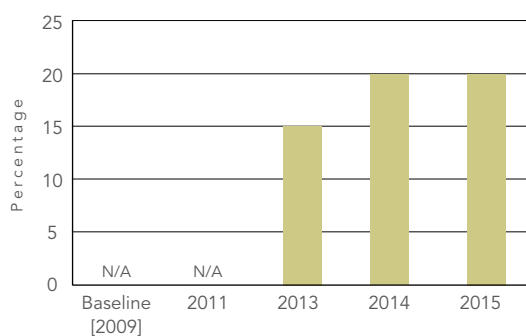
The number of women (aged 15–49 years) acquiring HIV decreased by 34% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# MOZAMBIQUE

Mozambique has achieved a 75% reduction in new HIV infections among children since 2009. In 2015 an estimated 95% of pregnant women living with HIV received antiretroviral medicines to prevent mother-to-child transmission, making Mozambique one of the six focus countries that have achieved the Global Plan goal of 90% coverage for pregnant women. A challenge remains in retaining women in care and providing them antiretroviral medicines through the breastfeeding period, as the transmission rate rises from 3% at six weeks to 6% at the end of breastfeeding. Paediatric diagnosis and treatment are also areas for continued focus, as 47% of infants exposed to HIV received early infant diagnosis and 57% of children living with HIV accessed antiretroviral therapy in 2015.



6600

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



75%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

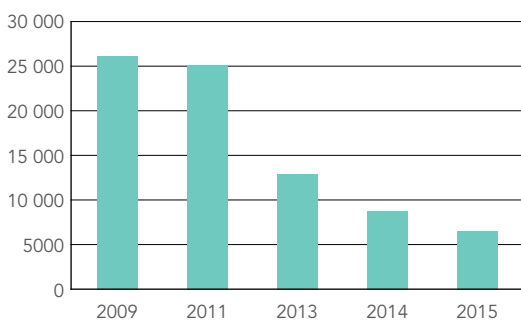


6%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

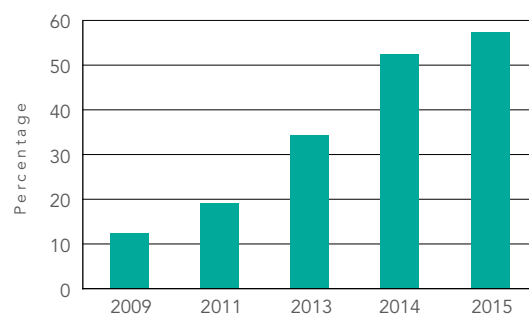
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



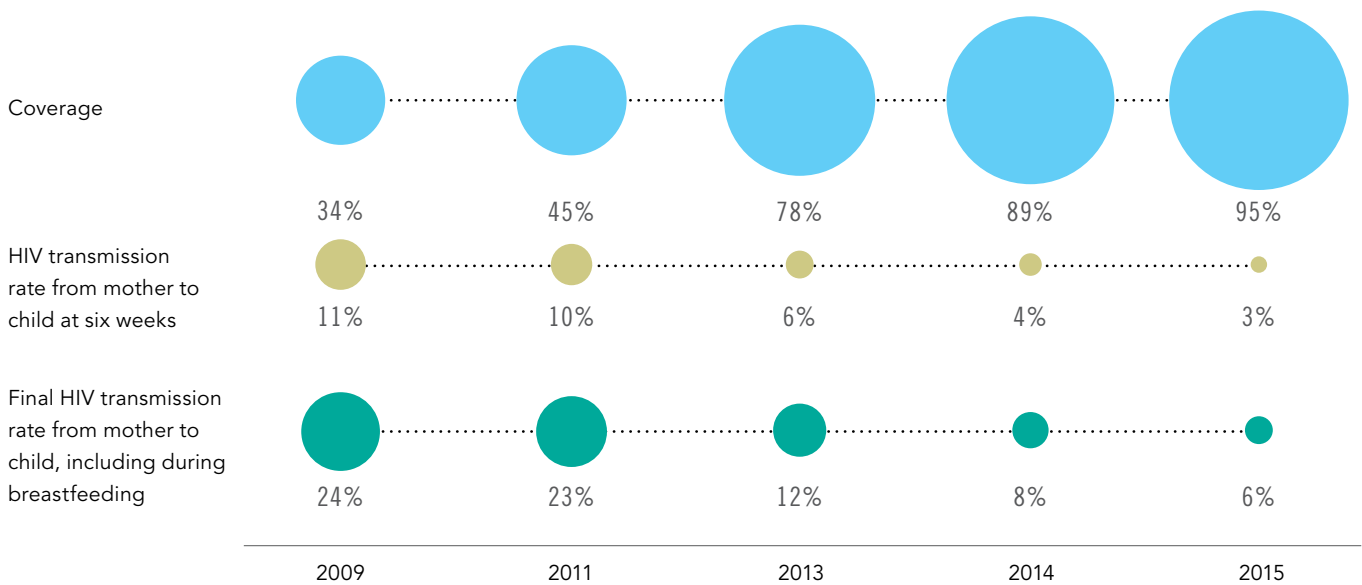
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



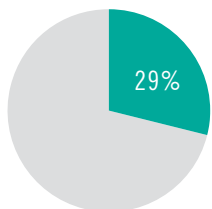
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

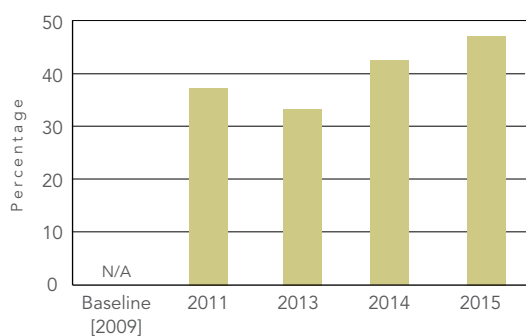
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2011, all currently married women (aged 15–49 years).

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 26% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# NAMIBIA

Namibia has reduced new HIV infections among children by 79% since 2009. Namibia provides antiretroviral medicines to 95% of pregnant women living with HIV, meeting the Global Plan goal of 90% coverage. Continued attention to the provision of antiretroviral medicines to women throughout the breastfeeding period will address differences in mother-to-child transmission rates, which rise from 2% at six weeks to 4% after breastfeeding ends. Namibia has the highest rate of children receiving paediatric treatment among the priority countries: in 2015 over 95% of children living with HIV received antiretroviral therapy.



370

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



79%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

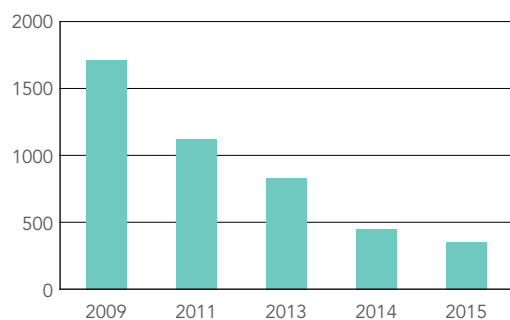


4%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

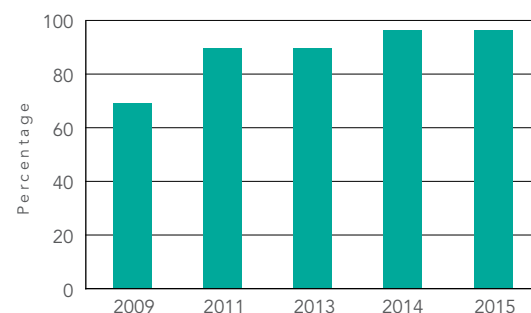
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

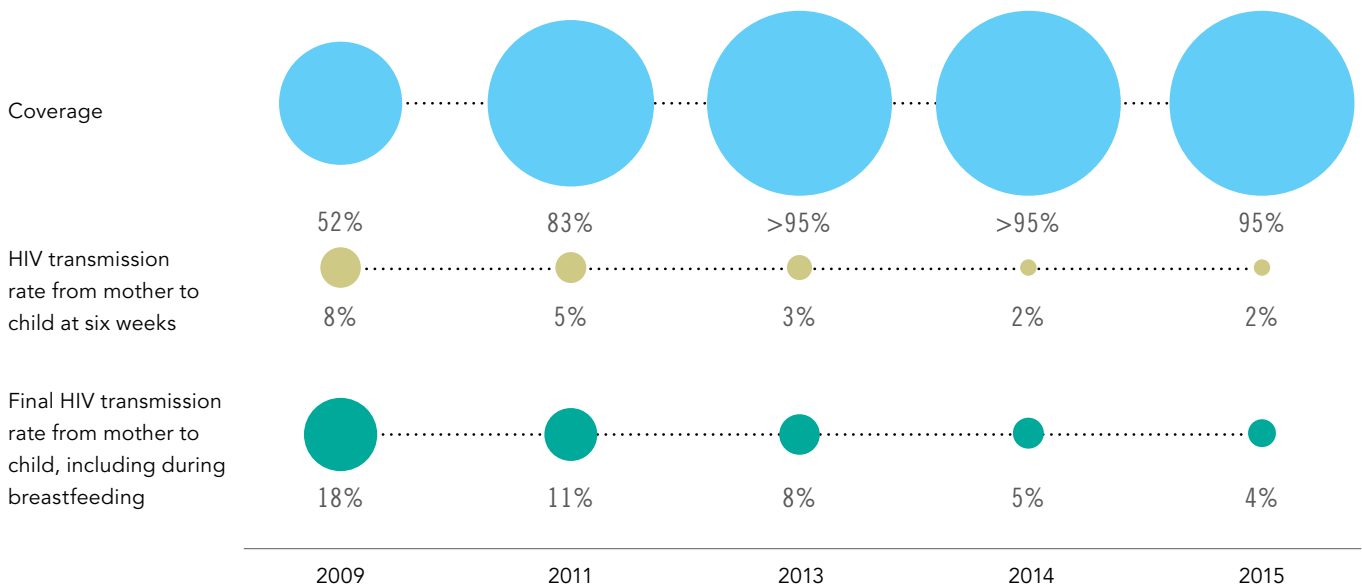
Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy





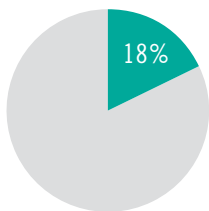
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

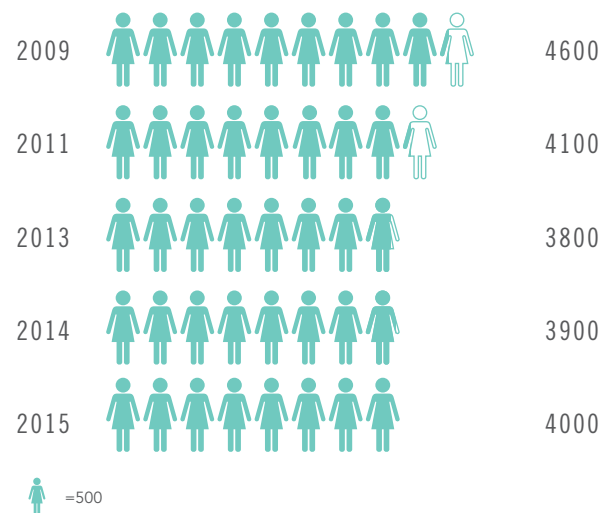
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2013, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

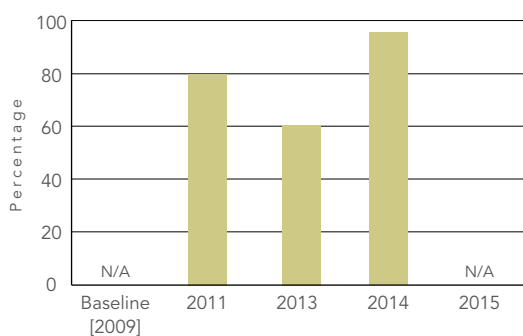
The number of women (aged 15–49 years) acquiring HIV decreased by 14% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# NIGERIA

Nigeria had an estimated 41 000 new HIV infections among children in 2015. Antiretroviral coverage for pregnant women living with HIV was 30%, up from 14% in 2009. In June 2016 Nigeria adopted Option B+ as its national policy for preventing mother-to-child transmission. The mother-to-child transmission rate is 13% at six weeks but rises to 23% at the end of breastfeeding, indicating challenges in retention of women throughout the breastfeeding period. Innovative approaches at the state level are being undertaken to reach and engage more women in care. Challenges also remain in paediatric diagnosis and treatment: in 2015 only 9% of infants exposed to HIV received early infant diagnosis, and 17% of children living with HIV accessed antiretroviral therapy.



41 000

NEW INFECTIONS AMONG CHILDREN IN 2015



3 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



21%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

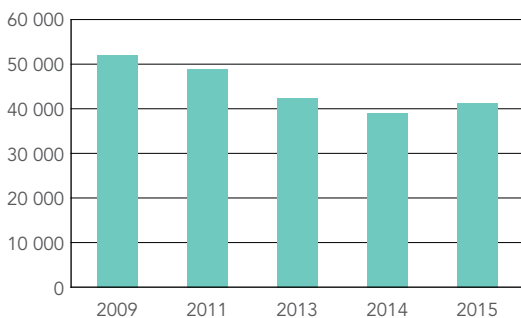


23%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

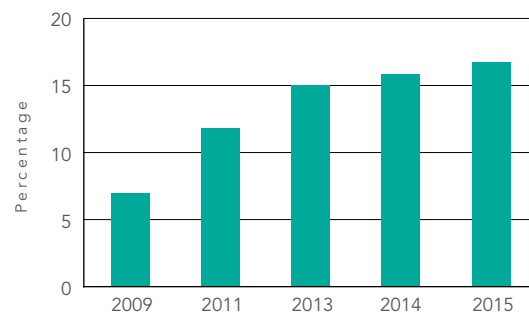
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



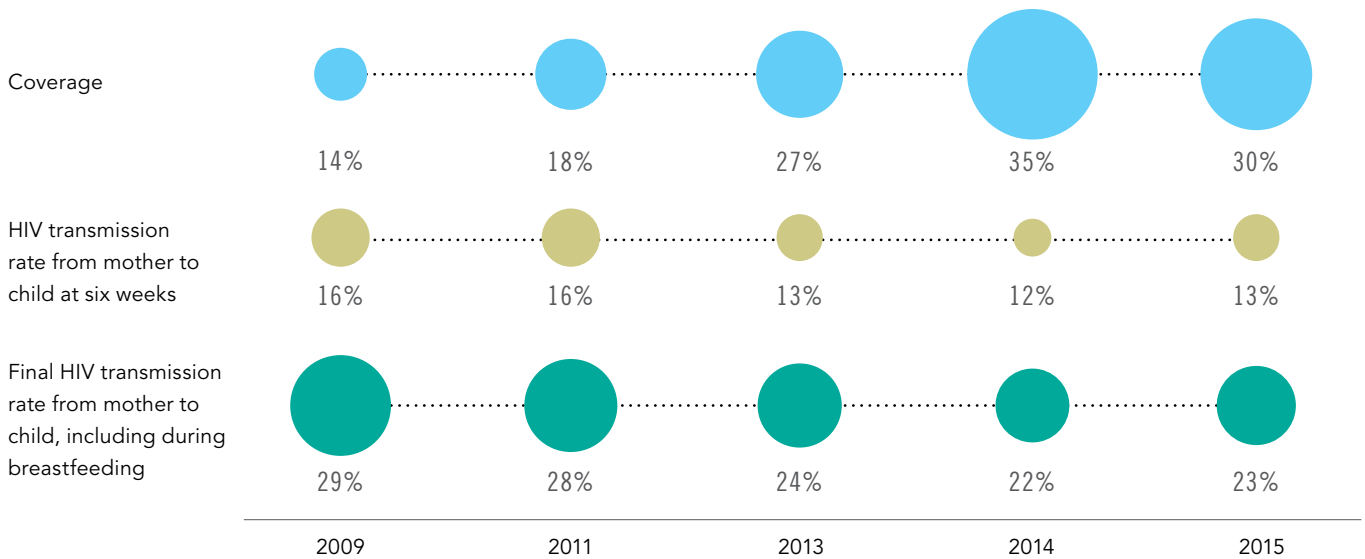
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



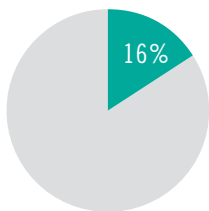
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2013, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

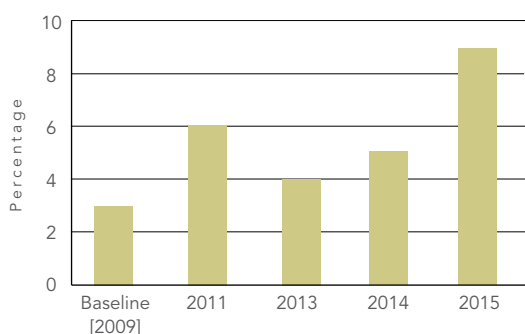
The number of women (15–49 years old) acquiring HIV decreased by 3% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# SOUTH AFRICA

South Africa has reduced new HIV infections among children by 84% since 2009, the second highest reduction among the Global Plan focus countries. By 2015 South Africa had also exceeded two major Global Plan milestones: an estimated final transmission rate of 2%, and provision of antiretroviral medicines to more than 95% of pregnant women living with HIV. South Africa has been implementing Option B+ since 2013. In 2015 over 95% of infants exposed to HIV received an early infant diagnosis test by two months of age, and 74% of all children younger than 15 years living with HIV received antiretroviral therapy. New infections among women of reproductive age have continued to increase, however, and cumulatively 1.2 million acquired HIV between 2009 and 2015, indicating the need to strengthen primary prevention.



5100

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



84%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

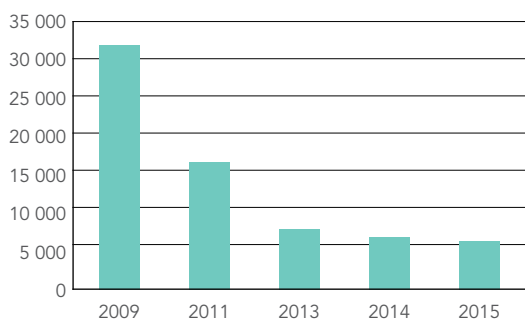


2%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

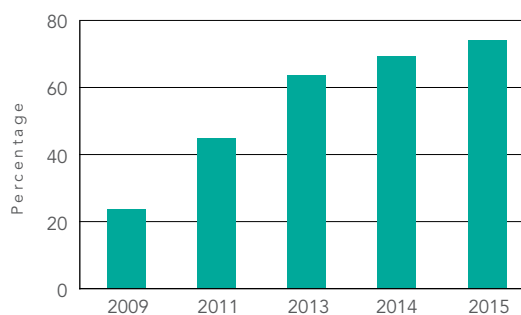
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



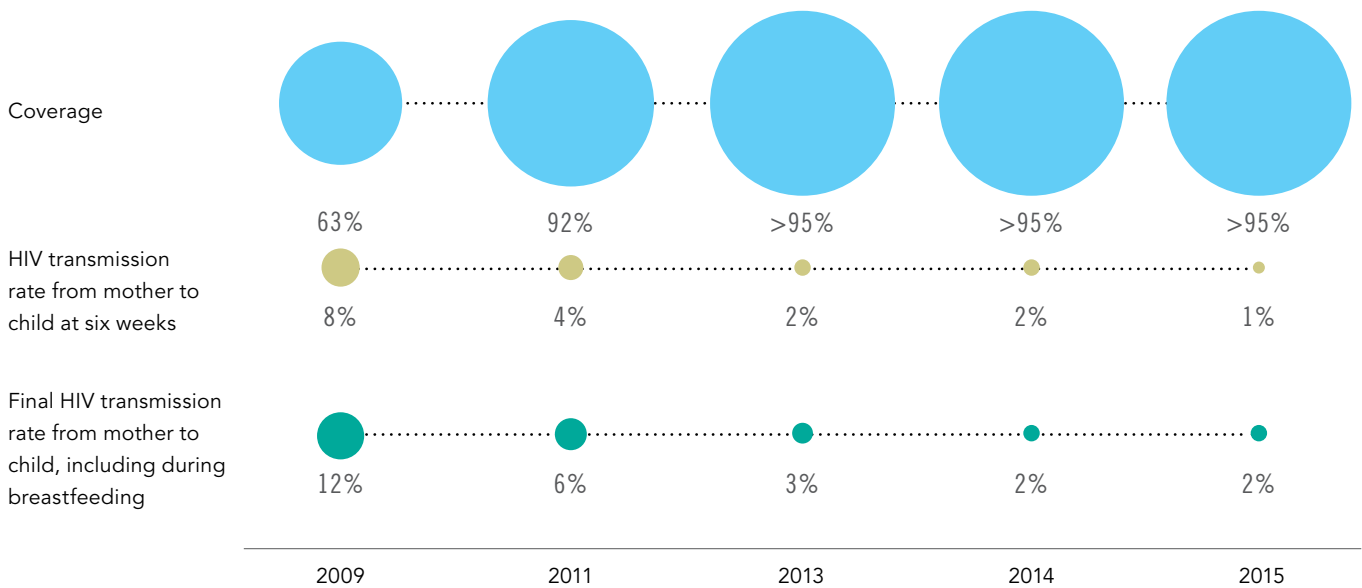
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



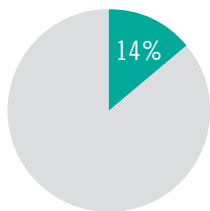
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

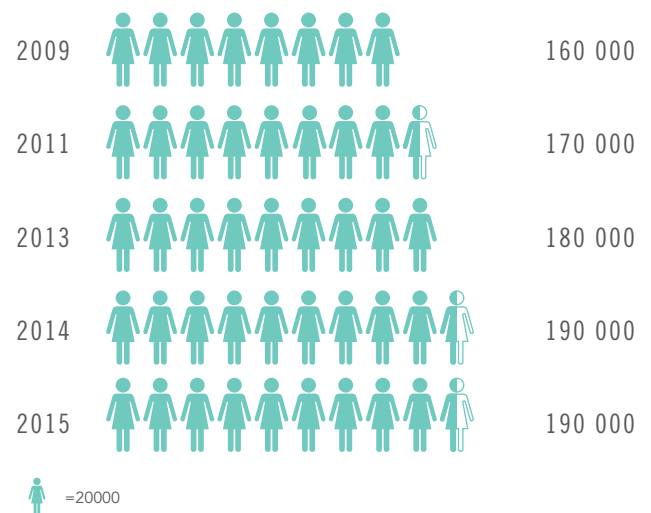
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2003, all currently married women (aged 15–49 years).

## WOMEN ACQUIRING HIV

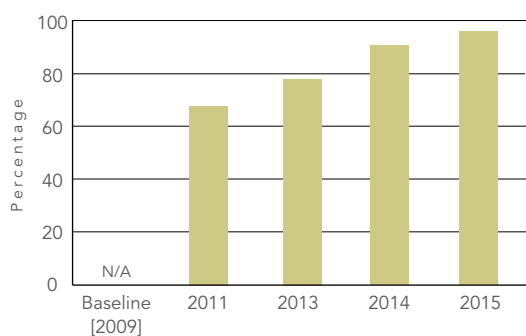
The number of women (15–49 years old) acquiring HIV increased by 18% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



# SWAZILAND

Swaziland reduced new child HIV infections by 80% between 2009 and 2015. Swaziland has achieved the Global Plan goal of 95% of pregnant women living with HIV receiving antiretroviral medicines. It has also reached the Global Plan milestone of reducing mother-to-child transmission to under 5% among breastfeeding women, with a final transmission rate of 3% at the end of 2015. Swaziland started implementation of Option B+ in 2014. It also provided early infant diagnosis to an estimated 81% of infants exposed to HIV, one of the highest rates among the focus countries. Paediatric treatment, however, requires continued attention, as an estimated 22% of children living with HIV are not receiving antiretroviral therapy.



370

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



80%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

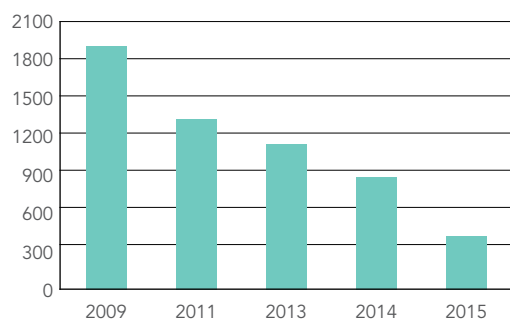


3%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

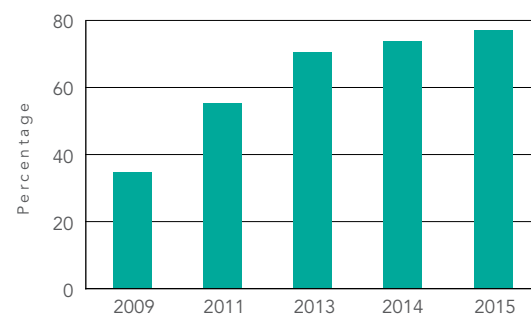
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



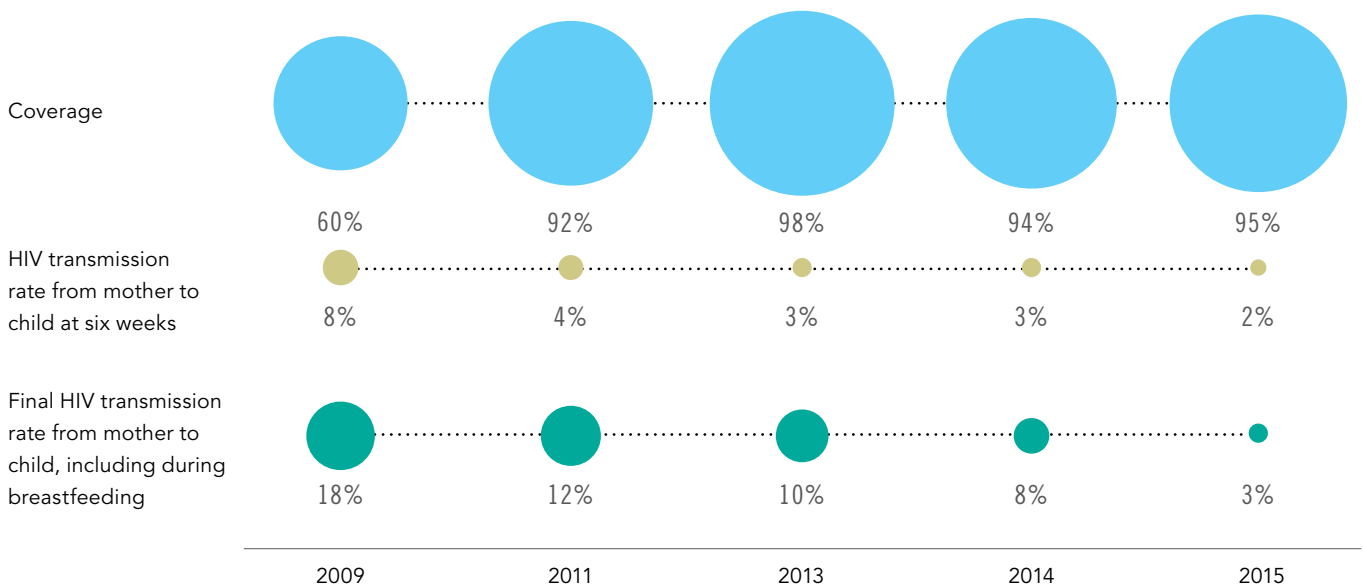
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



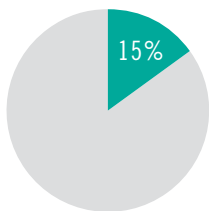
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

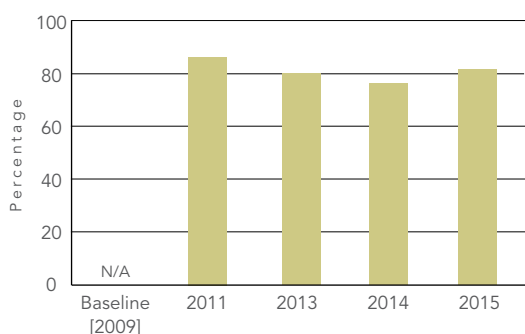
Percentage of unmet need for family planning



Source: Multiple Indicator Cluster Survey, 2014, all currently married women (aged 15–49 years).

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (15–49 years old) acquiring HIV decreased by 13% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# UGANDA

Uganda has achieved an 86% reduction in HIV infections among children since 2009, with 95% of women living with HIV accessing antiretroviral medicines to prevent mother-to-child transmission. A final mother-to-child transmission rate of 2.9% was achieved in 2015, meeting the Global Plan milestone of reducing mother-to-child transmission of HIV to below 5% among breastfeeding women. Programmatic challenges remain in following up mother-baby pairs, as only an estimated 33% of infants exposed to HIV received timely infant diagnosis of HIV, and 63% of children living with HIV accessed antiretroviral therapy in 2015.



3500

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



86%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

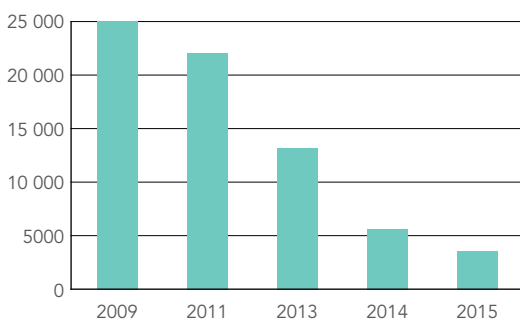


3%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

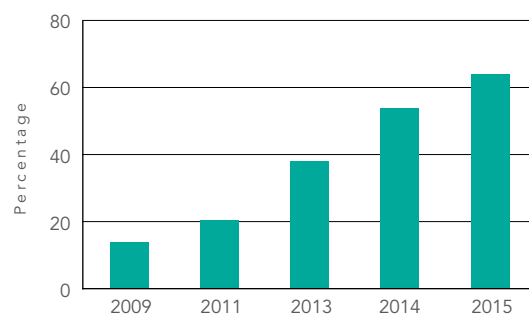
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

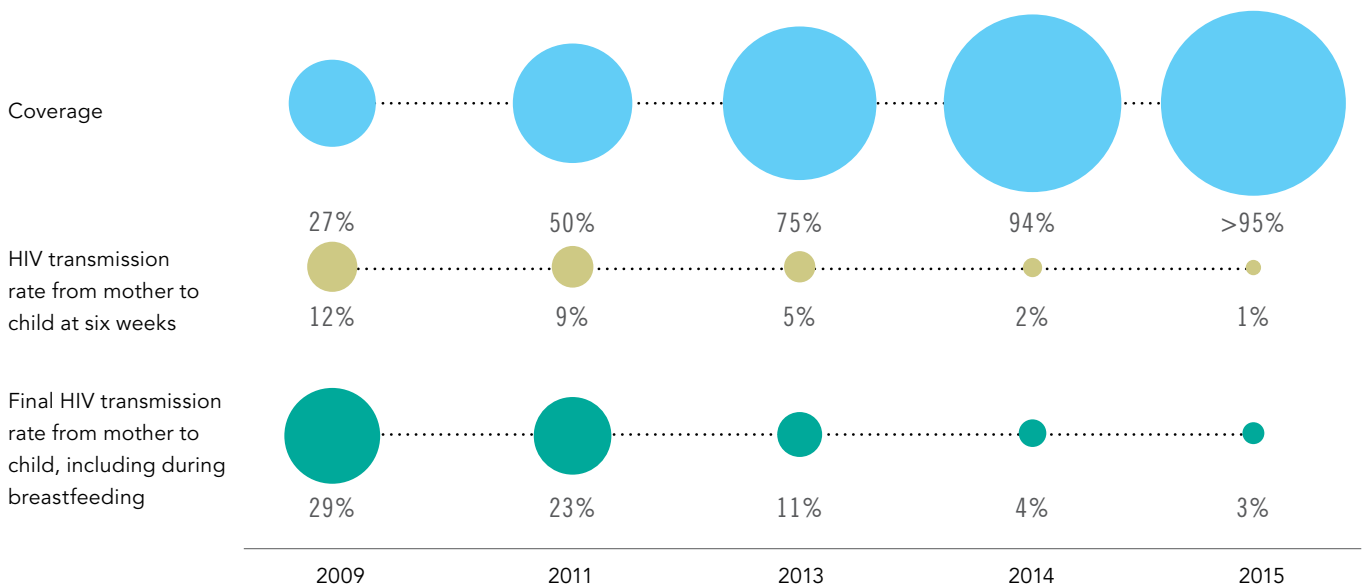
Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy





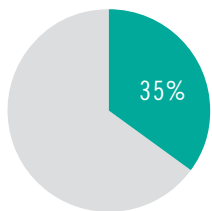
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

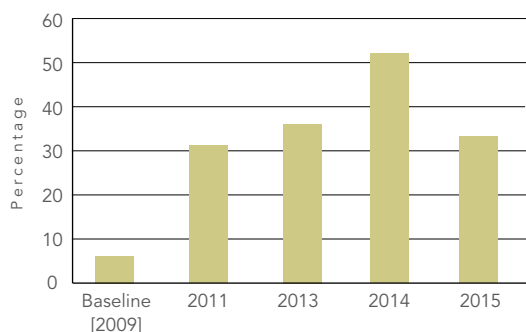
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 22% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# UNITED REPUBLIC OF TANZANIA

The United Republic of Tanzania has achieved a 69% reduction in new HIV infections among children since 2009, and has increased the percentage of pregnant women living with HIV accessing antiretroviral medicines to 86% in 2015. Programmatic challenges remain in retaining women in care and providing them with antiretroviral therapy throughout the breastfeeding period, as the six-week mother-to-child transmission rate rises from 4% at six weeks to 8% at the end of breastfeeding. Paediatric treatment and diagnosis require continued attention, as only 42% of infants received early infant diagnosis of HIV, and 56% of children living with HIV accessed antiretroviral therapy in 2015.



6500

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



69%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

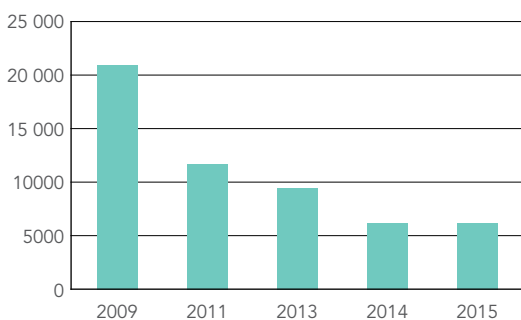


8%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

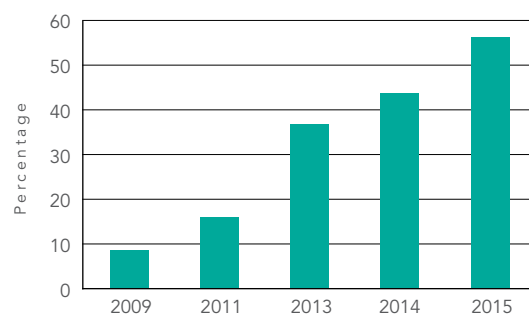
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



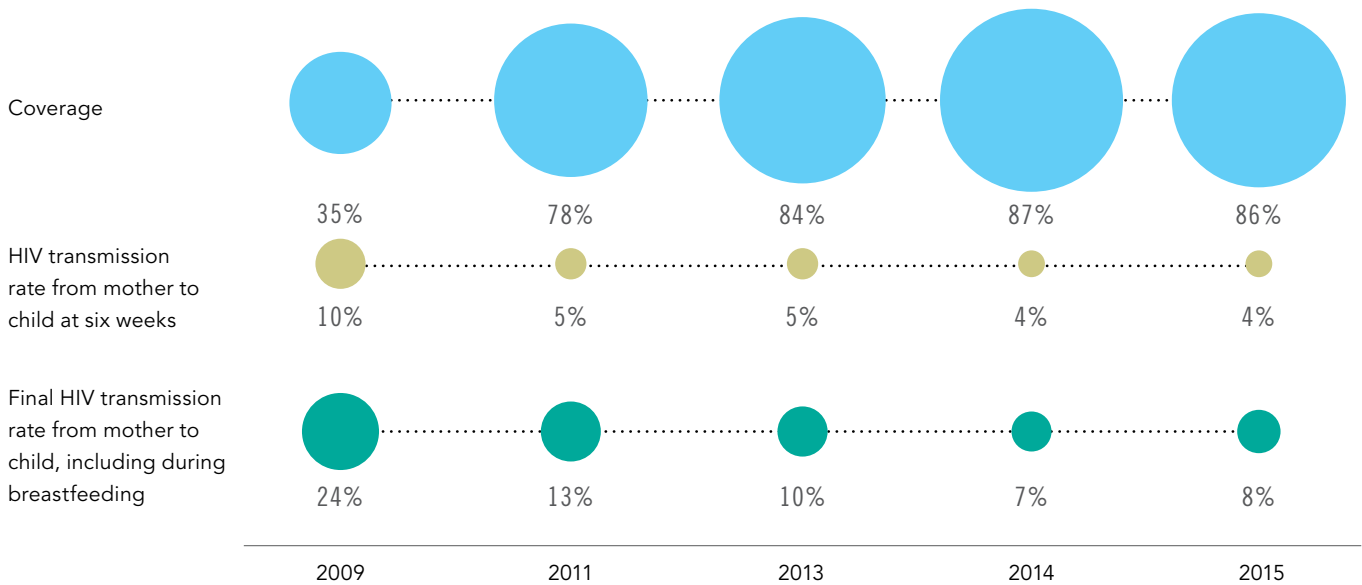
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



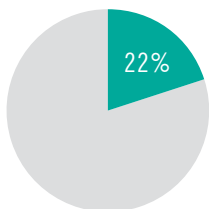
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

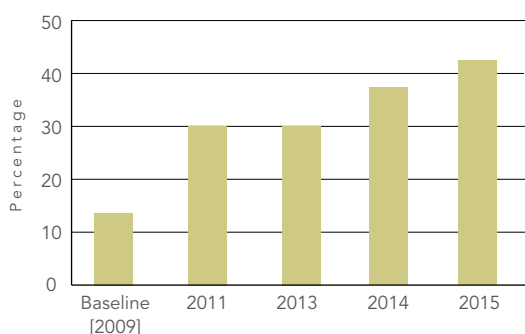
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2015, all currently married women (aged 15–49 years).

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 33% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# ZAMBIA

Zambia has achieved a 69% reduction in new HIV infections among children since 2009. Coverage of antiretroviral medicines to prevent mother-to-child transmission of HIV was 87% in 2015. Programmatic challenges remain in retaining women in care and providing them with antiretroviral medicines throughout the breastfeeding period, as the mother-to-child transmission rate of HIV rises from 3% at six weeks to 6% at the end of breastfeeding. Zambia provides antiretroviral therapy to 61% of children living with HIV.



4700

NEW INFECTIONS AMONG CHILDREN IN 2015



9 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



69%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

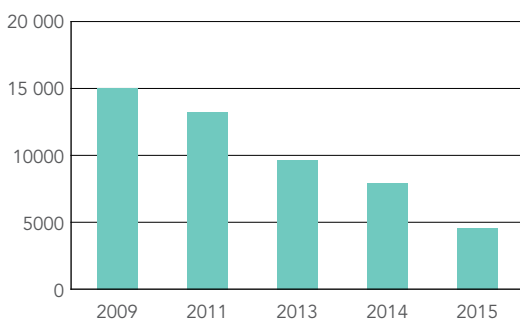


6%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

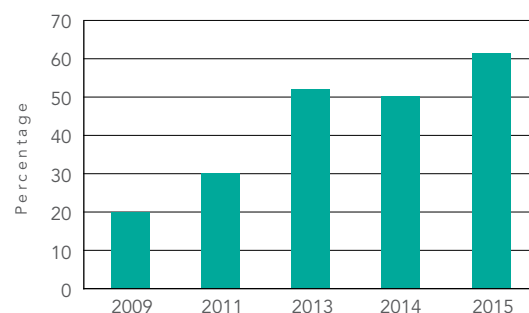
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



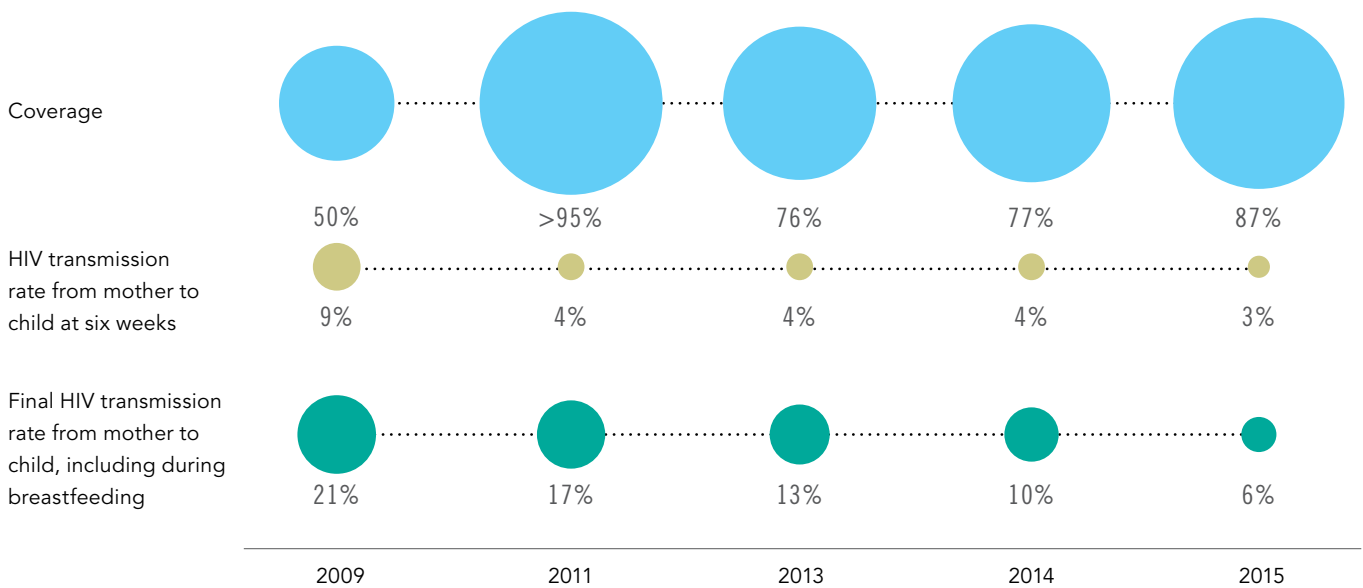
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



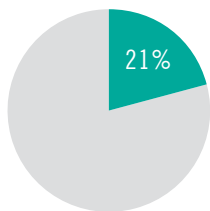
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

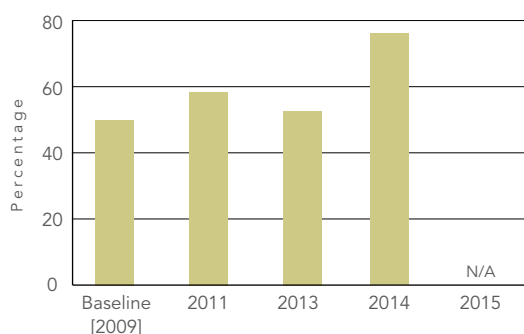
Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2014, all currently married women (aged 15–49 years).

## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



## WOMEN ACQUIRING HIV

The number of women (aged 15–49 years) acquiring HIV decreased by 1% since 2009



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.

# ZIMBABWE

Zimbabwe achieved a 65% reduction in new HIV infections among children between 2009 and 2015. An estimated 84% of pregnant women living with HIV received antiretroviral medicines to prevent mother-to-child transmission in 2015. Zimbabwe has adopted Option B+, and this is reflected in increasing progress in reducing mother-to-child transmission. However, there still remains a challenge with retaining women on antiretroviral medicines throughout the breastfeeding period, as the mother-to-child transmission rate of 4% at six weeks rises to 7% at the end of breastfeeding. Paediatric diagnosis and treatment require continued attention: in 2015 only 54% of infants exposed to HIV received an early infant diagnosis test, although 80% of children living with HIV accessed antiretroviral therapy.



4900

NEW INFECTIONS AMONG CHILDREN IN 2015



8 OUT OF 10

PREGNANT WOMEN LIVING WITH HIV ACCESSING ANTIRETROVIRAL MEDICINES TO PREVENT MOTHER-TO-CHILD-TRANSMISSION OF HIV



65%

DECREASE IN THE NUMBER OF NEW HIV INFECTIONS AMONG CHILDREN, 2009–2015

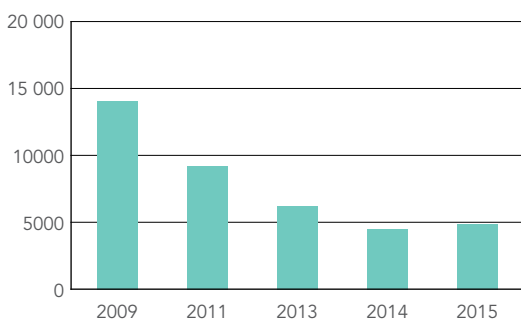


7%

RATE OF MOTHER-TO-CHILD HIV TRANSMISSION, INCLUDING DURING BREASTFEEDING

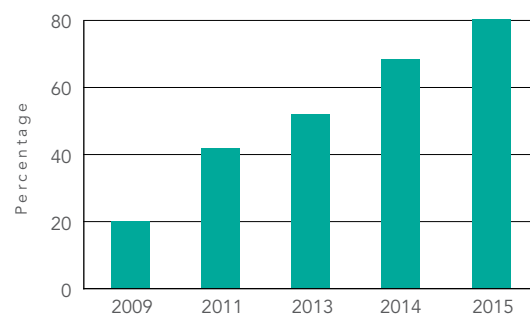
## NEW HIV INFECTIONS AMONG CHILDREN

Number of new HIV infections among children (aged 0–14 years)



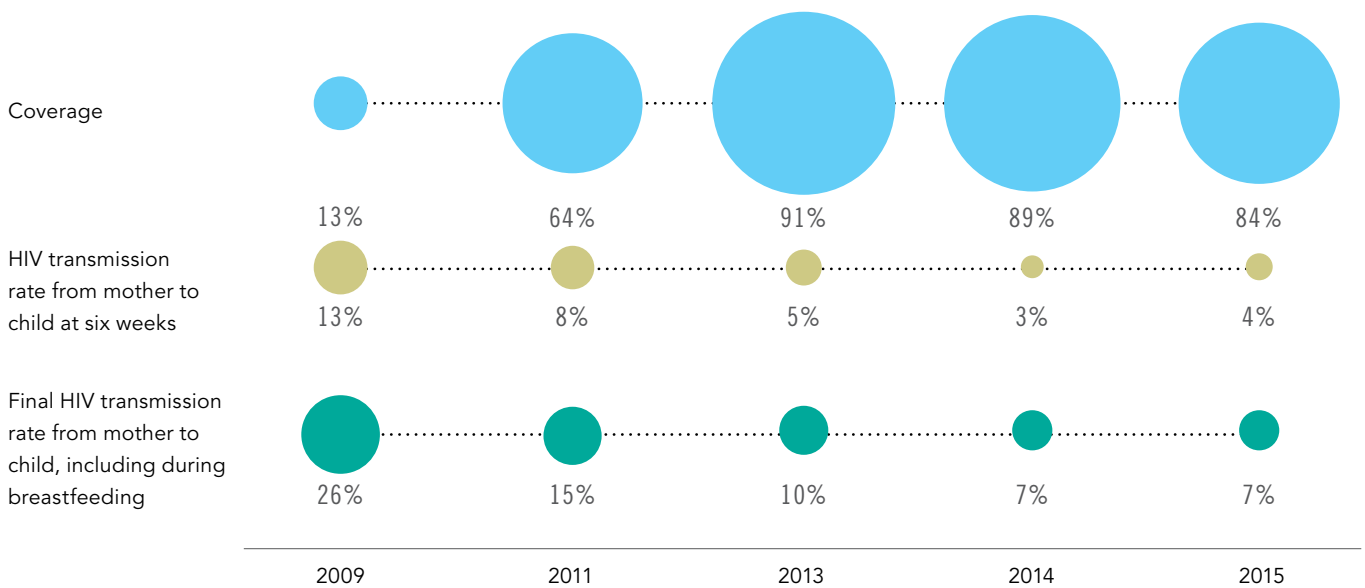
## ANTIRETROVIRAL THERAPY COVERAGE AMONG CHILDREN

Percentage of children (aged 0–14 years) living with HIV who have access to antiretroviral therapy



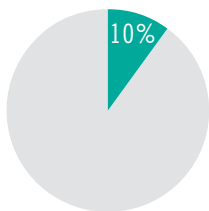
## COVERAGE VERSUS TRANSMISSION

Increasing coverage of antiretroviral medicines has translated into decreasing rates of HIV transmission from mother to child



## FAMILY PLANNING—UNMET NEED

Percentage of unmet need for family planning



Source: Demographic and Health Survey, 2015, all currently married women (aged 15–49 years).

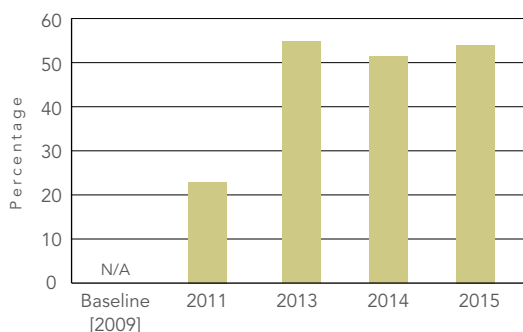
## WOMEN ACQUIRING HIV

The number of women (15–49 years old) acquiring HIV decreased by 17% since 2009



## EARLY INFANT DIAGNOSIS

Percentage of infants born to women living with HIV receiving a virological test by two months of age



Source: UNAIDS 2016 estimates, unless otherwise noted. Every year, countries update their HIV estimates, including the historical trends of those estimates. The 2016 results reflect updated surveillance and programme data and improved models. The 2016 estimates are likely to differ to estimates produced in earlier years and are believed to be more accurate. Paediatric antiretroviral therapy coverage is based on all children living with HIV, while in previous years it was restricted to children eligible for antiretroviral therapy.





SUMMARY

TABLES

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**OVERAL TARGET 1**

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**Number of HIV-positive women delivering**

**New HIV infections among children (0-14)**

	2009	Low	High	2015	Low	High	2009	Low	High	2015	Low	High
<b>Angola</b>	18 000	12 000	24 000	21 000	15 000	29 000	5600	3800	8000	4300	2300	7100
<b>Botswana</b>	14 000	13 000	15 000	13 000	12 000	14 000	<1000	<1000	1200	<500	<200	<1000
<b>Burundi</b>	6500	5300	7700	4400	3300	5300	1900	1500	2300	<500	<100	<1000
<b>Cameroon</b>	32 000	28 000	36 000	33 000	29 000	36 000	8100	6900	9400	4100	2800	5600
<b>Chad</b>	13 000	11 000	16 000	10 000	8000	13 000	3900	3100	4800	2000	1300	3000
<b>Côte d'Ivoire</b>	23 000	19 000	27 000	22 000	19 000	26 000	5700	4700	6600	3600	2600	4600
<b>Democratic Republic of the Congo</b>	30 000	25 000	38 000	22 000	17 000	27 000	9600	7800	12 000	3300	1900	4800
<b>Ethiopia</b>	...	...	...	...	...	...	...	...	...	...	...	...
<b>Ghana</b>	14 000	12 000	17 000	12 000	10 000	15 000	4000	3300	4900	2200	1600	2900
<b>Kenya</b>	72 000	61 000	85 000	79 000	67 000	92 000	15 000	12 000	19 000	6600	4100	9800
<b>Lesotho</b>	11 000	10 000	13 000	12 000	10 000	13 000	2300	2000	2600	1300	<1000	1600
<b>Malawi</b>	60 000	53 000	66 000	55 000	50 000	61 000	16 000	14 000	19 000	4800	3400	6500
<b>Mozambique</b>	110 000	86 000	140 000	110 000	82 000	130 000	26 000	19 000	35 000	6600	2700	15 000
<b>Namibia</b>	9700	8700	11 000	9100	8300	10 000	1700	1500	2000	<500	<500	<1000
<b>Nigeria</b>	180 000	140 000	240 000	180 000	140 000	230 000	52 000	38 000	70 000	41 000	28 000	57 000
<b>South Africa</b>	280 000	250 000	300 000	250 000	230 000	270 000	32 000	24 000	41 000	5100	4500	7900
<b>Swaziland</b>	11 000	9600	11 000	11 000	11 000	12 000	1900	1600	2100	<500	<500	<1000
<b>Uganda</b>	88 000	79 000	98 000	120 000	110 000	130 000	25 000	22 000	29 000	3500	1600	6500
<b>United Republic of Tanzania</b>	89 000	98 000	130 000	86 000	84 000	110 000	21 000	24 000	34 000	6500	5600	13 000
<b>Zambia</b>	73 000	67 000	80 000	81 000	75 000	88 000	15 000	13 000	17 000	4700	3400	6100
<b>Zimbabwe</b>	55 000	48 000	62 000	68 000	62 000	75 000	14 000	12 000	16 000	4900	3700	6300
<b>PMTCT high-burden countries</b>	1 200 000	1 100 000	1 400 000	1 200 000	1 100 000	1 400 000	270 000	230 000	330 000	110 000	78 000	150 000

Data for Ethiopia were not finalized at the time of publication.

Source: UNAIDS 2016 estimates.

Source: UNAIDS 2016 estimates.

	PRONG 1 TARGET						PRONG 2 TARGET		PRONG 3 TARGET					
	New HIV infections among women (15–49)						Unmet need for family planning among married women		Percent of women receiving PMTCT (excluding single dose NVP)					
	2009	Low	High	2015	Low	High		Year of survey	2009	Low	High	2015	Low	High
Angola	13 000	8400	18 000	12 000	7600	19 000	NA		17	12	24	40	29	57
Botswana	6000	5500	6500	4700	4000	5500	NA		87	80	95	92	86	>95
Burundi	<1000	<500	1300	<1000	<200	<1000	32	2010	24	20	29	89	67	>95
Cameroon	20 000	18 000	22 000	21 000	17 000	25 000	24	2011	19	17	22	82	73	91
Chad	4200	2900	6000	3400	2200	5200	28	2010	8	6	9	46	36	60
Côte d'Ivoire	14 000	11 000	16 000	11 000	7900	15 000	27	2012	39	33	45	79	67	91
Democratic Republic of the Congo	8500	5800	11 000	6300	3500	9000	28	2014	1	1	2	67	53	82
Ethiopia	...	...	...	...	...	...	24	2014	...	...	...	...	...	...
Ghana	8300	6800	10 000	5800	4400	7400	33	2014	26	22	31	63	53	74
Kenya	41 000	33 000	49 000	39 000	29 000	56 000	19	2014	54	45	64	74	63	86
Lesotho	9300	8500	10 000	8600	7500	9700	14	2014	56	51	62	70	64	77
Malawi	23 000	18 000	28 000	15 000	11 000	21 000	19	2014	21	19	23	80	73	89
Mozambique	54 000	43 000	68 000	40 000	28 000	54 000	29	2011	34	27	43	95	74	>95
Namibia	4600	3900	5300	4000	3100	4800	18	2013	52	46	57	95	87	>95
Nigeria	110 000	85 000	150 000	110 000	77 000	150 000	16	2013	14	10	18	30	23	39
South Africa	160 000	140 000	180 000	190 000	160 000	220 000	14	2003	63	57	69	>95	94	>95
Swaziland	6700	6200	7100	5800	4900	6900	15	2014	60	54	65	95	87	>95
Uganda	56 000	50 000	62 000	43 000	33 000	57 000	35	2014	27	24	30	>95	88	>95
United Republic of Tanzania	39 000	35 000	43 000	26 000	22 000	30 000	22	2015	35	39	51	86	77	>95
Zambia	30 000	27 000	34 000	30 000	26 000	34 000	21	2014	50	45	54	87	81	94
Zimbabwe	39 000	35 000	42 000	32 000	26 000	38 000	10	2015	13	11	15	84	77	92
PMTCT high-burden countries	650 000	570 000	750 000	620 000	520 000	740 000	NA		36	32	41	80	71	90

Source: UNAIDS 2016 estimates.

NA - Not available.  
Source: Household surveys, 2003-2015.

Source: UNAIDS 2016 estimates.

## PRONG 3 TARGET

## PRONG 3 TARGET

## Final mother to child transmission rate

Among HIV+ women delivering, the percent receiving  
lifelong antiretroviral therapy

	2009	Low	High	2015	Low	High	2009	Low	High	2015	Low	High
Angola	32	23	45	21	15	29	10	9	12	74	66	83
Botswana	6	6	7	3	2	3	0	0	0	40	29	57
Burundi	29	24	34	7	5	8	30	28	32	68	63	73
Cameroon	26	22	29	13	11	14	9	7	11	89	67	>95
Chad	30	24	36	19	15	25	11	10	13	61	55	68
Côte d'Ivoire	25	21	29	16	14	19	8	6	9	46	36	60
Democratic Republic of the Congo	32	26	40	15	12	19	6	5	7	24	20	28
Ethiopia	...	...	...	...	...	...	...	...	...	...	...	...
Ghana	29	24	35	18	15	21	3	2	3	71	61	83
Kenya	21	17	24	8	7	10	0	0	0	33	28	39
Lesotho	20	18	22	11	10	12	31	26	37	74	63	86
Malawi	27	25	30	9	8	10	16	14	17	70	64	77
Mozambique	24	19	31	6	5	8	5	5	6	80	73	89
Namibia	18	16	20	4	4	5	7	6	9	87	67	>95
Nigeria	29	22	38	23	18	30	14	12	15	95	87	>95
South Africa	12	10	13	2	2	2	3	3	5	14	10	18
Swaziland	18	16	19	3	3	3	18	17	20	>95	94	>95
Uganda	29	26	32	3	3	3	17	16	19	95	87	>95
United Republic of Tanzania	24	26	34	8	7	9	0	0	0	97	88	>95
Zambia	21	19	23	6	5	6	7	8	10	86	84	>95
Zimbabwe	26	22	29	7	7	8	17	15	18	86	80	93
PMTCT high-burden countries	22	20	25	9	8	10	2	1	2	84	77	92

Source: UNAIDS 2016 estimates.

Source: UNAIDS 2016 estimates.

PRONG 4 TARGET

	ART coverage among children (0–14)						Percent of infants born to women living with HIV receiving a virological test within two months of birth			AIDS-related deaths among children (0–4)		
	2009	Low	High	2015	Low	High	2015	Low	High	2009	2015	% decline
Angola	8	5	11	24	16	34	...	...	...	2200	1900	-15
Botswana	48	43	53	>95	85	>95	45	42	49	<500	<200	-70
Burundi	13	12	15	29	25	36	2	2	3	<1000	<200	-81
Cameroon	7	6	8	18	17	21	30	27	34	3900	2000	-50
Chad	4	3	5	22	17	27	3	3	4	1900	1000	-44
Côte d'Ivoire	8	7	10	24	20	28	33	29	39	2700	1400	-47
Democratic Republic of the Congo	3	3	4	22	18	27	17	14	22	4700	1600	-65
Ethiopia	...	...	...	...	...	...	...	...	...	...	...	...
Ghana	7	6	8	27	23	33	30	25	36	1800	<1000	-51
Kenya	19	17	23	73	58	84	44	38	52	5900	3000	-49
Lesotho	27	25	29	56	51	61	93	85	102	<1000	<1000	-44
Malawi	13	12	14	61	56	69	20	18	22	7100	1900	-73
Mozambique	12	9	16	57	42	82	47	37	60	9600	2800	-71
Namibia	67	60	74	>95	86	>95	...	...	...	<1000	<200	-76
Nigeria	7	5	9	17	12	23	9	7	12	25 000	19 000	-23
South Africa	23	21	25	74	68	82	>95	>95	>95	24 000	2400	-90
Swaziland	36	34	39	78	74	84	81	75	88	<1000	<200	-80
Uganda	14	13	16	63	55	71	33	30	37	9600	2100	-78
United Republic of Tanzania	10	9	12	56	59	81	42	34	43	9000	2600	-71
Zambia	20	19	22	61	55	67	...	...	...	6300	2000	-69
Zimbabwe	20	18	22	80	70	89	54	50	60	5900	1900	-68
PMTCT high-burden countries	15	13	17	51	44	59	51	46	57	130 000	49 000	-62

Source: UNAIDS 2016 estimates.

Source: Global AIDS Response Progress Reporting, 2016

Source: UNAIDS 2016 estimates.

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