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Technical Brief on Paediatric HIV Case-Finding: Beyond Infant Testing

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Executive Summary

Despite global progress in HIV treatment for children, the gap between adult and paediatric treatment coverage continues to widen. This gap is driven primarily by barriers to HIV diagnosis in children, but in the past decade those barriers have shifted. At the start of the epidemic, the lack of access to virologic testing for HIV-exposed infants was identified as a major hurdle to initiating children on treatment. A huge global undertaking supported by funders, implementers, and industry, has brought early infant diagnosis (EID) to most HIV-exposed infants whose mothers are enrolled in programmes to prevent HIV vertical transmission across 21 sub-Saharan Africa Global Plan countries. However, as the quality and efficacy of those programmes has improved, rates of vertical transmission have fallen and so too has the EID testing positivity. There remains a need still to increase access and functional reliability of EID testing, strengthen follow-up of mother-infant pairs, and services for HIV-exposed infants; however, this technical brief focuses primarily on how programmes can identify those children who may have missed out on EID testing, who were never tested after breastfeeding or whose mothers were not enrolled in care.

Scaling-up HIV case-finding efforts for children presents several challenges, including limited access to testing services, lack of provider preparedness to offer testing to children, stigma and discrimination, policy barriers related to age of consent, and inadequate health systems. The aim of this technical brief is to offer countries a guide to address these challenges and enhance HIV case-finding for children to improve testing coverage for children at risk for HIV.

The specific objectives are twofold:

1. To describe the current challenges to scaling-up HIV testing among children (<15 years)
2. To provide a set of priority actions and context-specific strategies to accelerate HIV case identification among children.

This technical brief does not present new recommendations – rather it draws from existing guidance and best practices to serve as a resource for policy makers, implementing partners at national, regional, and global levels, community organizations, and financing and funding decision makers. The goal is to close the HIV service gaps between adults and children across the continuum of care by accelerating progress towards reaching the first of the UNAIDS 95-95-95 targets to end the HIV epidemic – that 95% of those living with HIV within all age groups know their HIV status by 2025.

A set of 10 priority actions has been identified and described in this brief, including setting appropriate paediatric testing targets, allocating resources efficiently, developing strategies for rapid catch-up and sustainable responses, tailoring testing interventions closely to the country context, expanding research into innovative approaches such as assisted HIV self-testing for children, addressing systemic inequalities and policy barriers, leveraging community-led responses, improving data-driven programming, and looking beyond infants and young children to include a focus on school-aged children (5-9 years) and younger adolescents (10-14 years). Additional resources are available regarding HIV case identification among older adolescents (15-19 years) (1,2).

Virtually all paediatric HIV infections are preventable, and no child should develop AIDS due to a lack of access to testing and treatment. On February 1, 2023, representatives of 12 African nations, who joined the newly formed Global Alliance to End AIDS in Children, met in Tanzania to sign the *Dar es Salaam Declaration for Action to End AIDS in Children by 2030*. The Declaration affirms a commitment to ending paediatric AIDS and specifically references enhanced case-finding as an urgent step to move from policy to action.

Acronyms

AIDS	acquired immunodeficiency syndrome
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral
CLHIV	children living with HIV (<15 years)
CDC	U.S. Centers for Disease Control and Prevention
DTP1	Diphtheria, tetanus and pertussis vaccine (first dose)
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EID	early infant diagnosis (of HIV)
EMTCT	elimination of mother-to-child transmission (of HIV)
FY	fiscal year
GBV	gender-based violence
HEI	HIV-exposed infants
HIV	human immunodeficiency virus
HIVST	HIV self-testing
KP	key population

MNCH	maternal, neonatal and child health
MSM	men who have sex with men
MTCT	mother-to-child transmission (of HIV)
NAAT	nucleic acid amplification test
PCR	polymerase chain reaction
pDTG	paediatric dolutegravir
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PITC	Provider Initiated Testing and Counseling
PMTCT	prevention of mother-to-child transmission (of HIV)
PrEP	pre-exposure prophylaxis
RTKs	rapid test kits
SDG	Sustainable Development Goal
STI	sexually transmitted infections
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organization



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Introduction

Over the past decade, treatment coverage for children (<15 years) living with HIV (CLHIV) has more than doubled, going from 22% in 2011 to 57% in 2022 (3). Despite this global progress, children are being left behind in the AIDS response. The gap between adult and paediatric HIV treatment coverage continues to widen and stands at 83% versus 64% in Eastern and Southern Africa and 82% versus 37% in Western and Central Africa (Figures 1 and 2).

In 2022, there were an estimated 1.5 million CLHIV below 15 years of age, including 130,000 new infections and 84,000 AIDS-related deaths in this age-group (3). By the end of 2022, there were an estimated 645,000 CLHIV not receiving antiretroviral therapy (ART) globally. These children are at risk of HIV disease progression, leading to immune system suppression and the development of AIDS. Analysis of the 95-95-95 cascade has shown that most of these

children have never been tested nor been diagnosed with HIV (3). These data continue to highlight the urgent need to improve both prevention and treatment efforts for children—to identify and address persistent inequity gaps in prevention of vertical transmission, and to increase access to high quality treatment services for children.

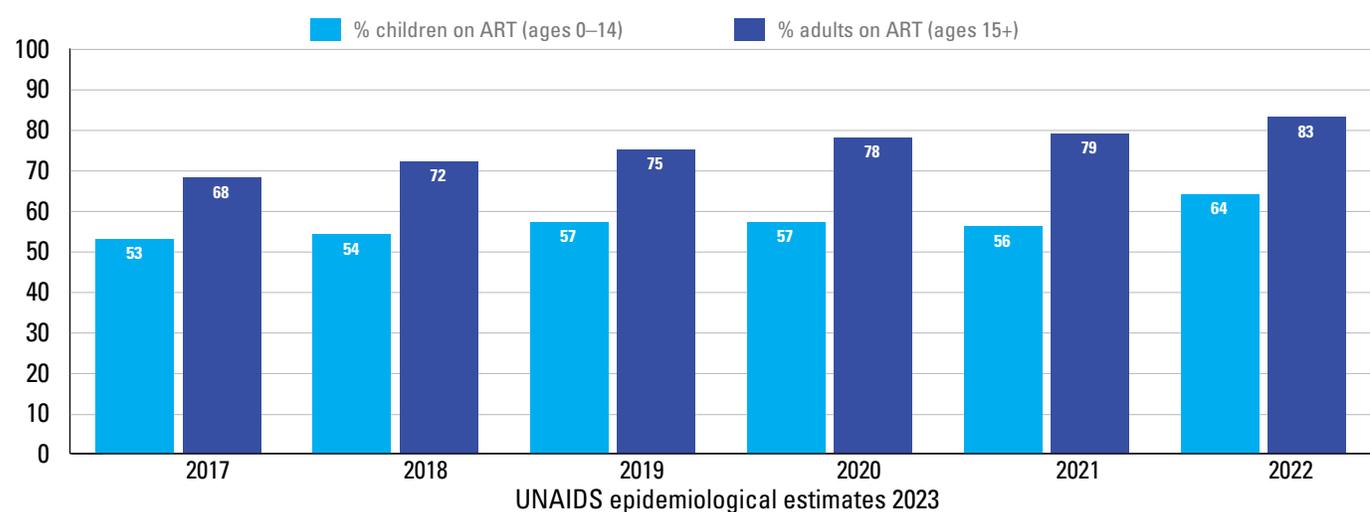
For most countries, the primary barrier to HIV treatment for children is diagnosis – a challenge that is specifically recognized as a failing in the Global AIDS Strategy 2021–2026, which calls for bold action to address inequities and prioritize access to life saving HIV services for groups historically overlooked and excluded, including children (4).

In 2022, a new global strategic initiative, “The Global Alliance to End AIDS in Children” (the Global Alliance), was launched at the 24th International

AIDS Conference in Montreal, Canada. The Global Alliance seeks to end AIDS in children by 2030 through a strategic partnership among multisectoral stakeholders¹. The Global Alliance focuses on four pillars:

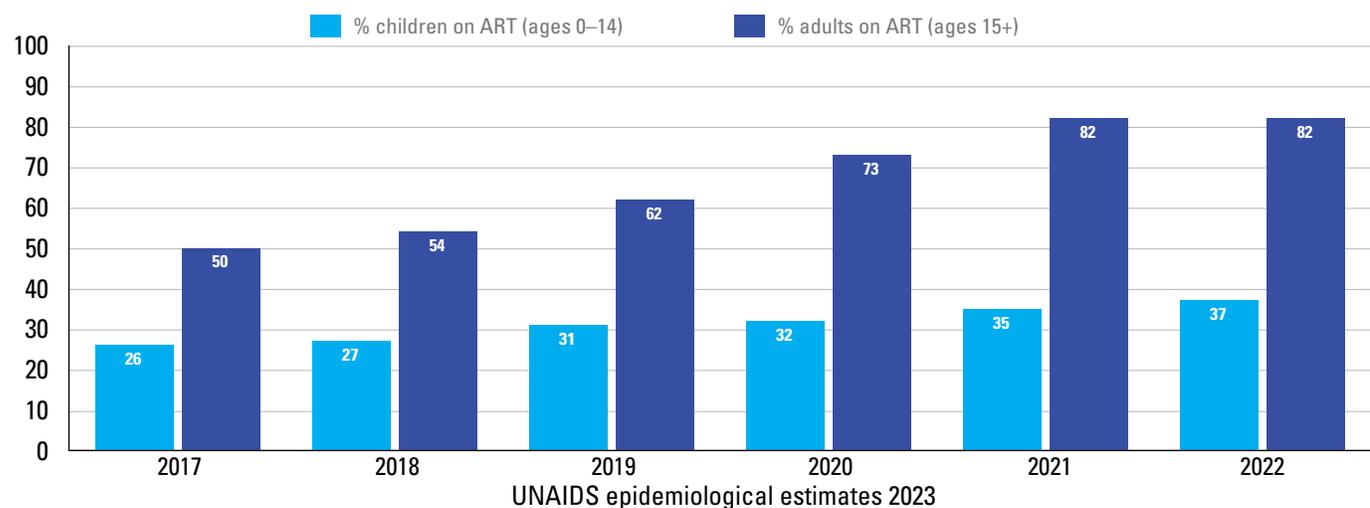
1. Accessible testing, optimized treatment and comprehensive care for infants, children, and adolescents living with and exposed to HIV
2. Closing the testing and treatment gap for pregnant and breastfeeding adolescent girls and women
3. Preventing and detecting new HIV infections among pregnant and breastfeeding adolescent girls and women
4. Addressing rights, gender equality and the social and structural barriers to services.

FIGURE 1: Trends in treatment coverage among children and adults in Eastern and Southern African Countries*



* Countries: <https://www.unaids.org/en/regionscountries/easternandsouthernafrika>

FIGURE 2: Trends in treatment coverage among children and adults in Western and Central African Countries*



* Countries: <https://www.unaids.org/en/regionscountries/westandcentralafrika>, 2022 estimates don't include data from Nigeria

¹ WHO, UNICEF, UNAIDS, The Global Fund, PEPFAR, ICW, the Network Young People Living with HIV, along with 12 governments Angola, Cameroon, Côte d'Ivoire, the Democratic Republic of the Congo (DRC), Kenya, Mozambique, Nigeria, South Africa, Uganda, the United Republic of Tanzania, Zambia, and Zimbabwe are all signatories to the alliance.



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The goal of this technical brief is to address the first of these pillars through a focus on HIV case-finding to identify and treat undiagnosed CLHIV. The aim is to provide strategic technical and implementation guidance to countries – especially those with substantial gaps in paediatric treatment, to improve paediatric HIV testing coverage with an expanded array of interventions that go beyond infant testing programmes. While strengthening prevention interventions to further decrease mother-to-child HIV transmission remains critical, this is beyond the scope of this document.

The population of interest in this technical brief is children (<15 years) at risk of having undiagnosed HIV, especially those with perinatally-acquired HIV who were not identified through early infant testing or testing at the end of the breastfeeding period. The brief highlights the importance of rapidly deploying strategies to optimize the testing and identification of CLHIV. Untested HIV-exposed children represent neglected, at-risk populations in low- and middle-income countries.

Challenges to HIV Testing and Case-Finding in Children

Scaling-up HIV case-finding efforts for children presents several challenges, including limited access to testing services, lack of provider preparedness to offer testing to children, stigma and discrimination issues affecting providers and caregivers, policy barriers regarding age of consent, and inadequate health systems. These challenges contribute to low HIV testing coverage and diagnosis among children, which, in turn, hinders the timely initiation of life-saving antiretroviral therapy and contributes to the disproportionately high mortality among children under five years living with HIV.

The main challenges to HIV case-finding in children can be considered within five areas:

- 1 **Disparities in progress towards HIV case finding between children and adults and between regions, with inadequate testing volumes to reach targets.** For the 12 Global Alliance countries, progress towards achieving the global target for knowledge of HIV status (1st 95) among CLHIV is significantly behind that of adults. Globally, only 63% of CLHIV know their HIV status

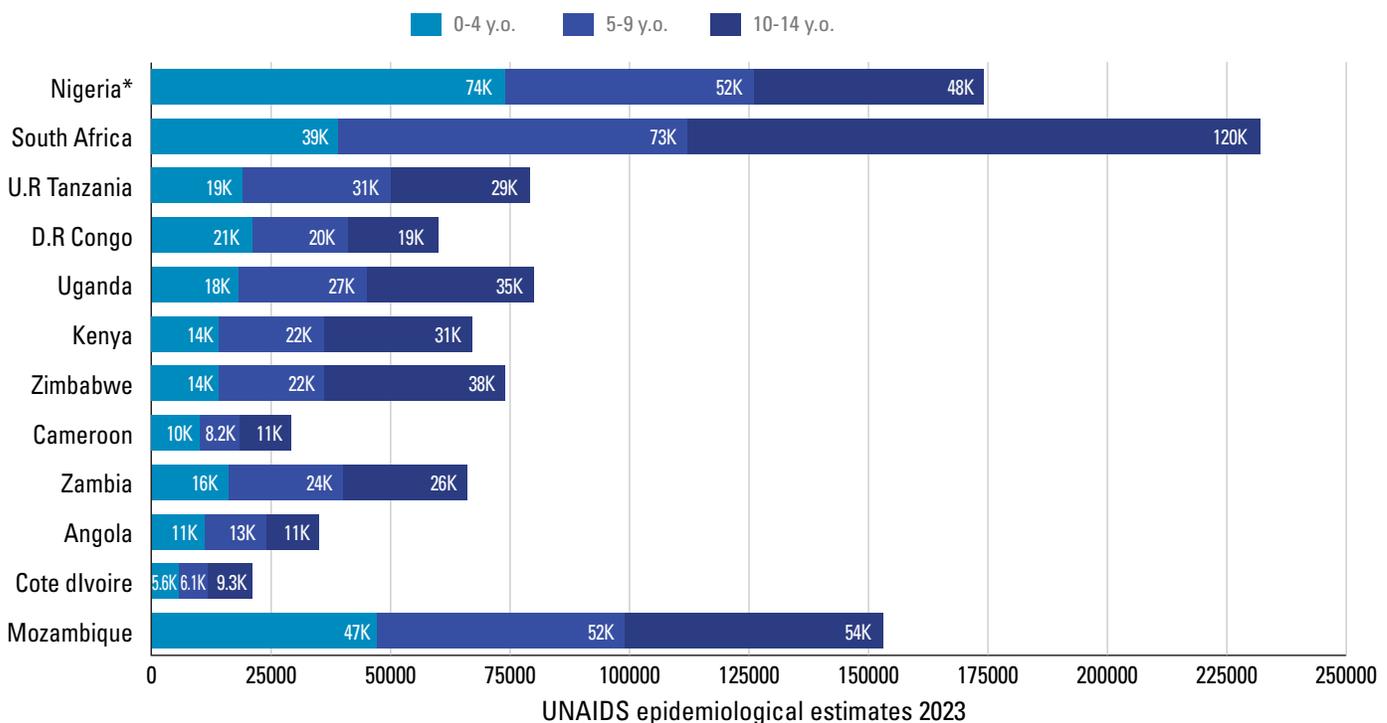
compared to 87% of adults (3). In West and Central African countries, there is a recognized gap in paediatric HIV testing compared to Eastern and Southern Africa, preventing children from achieving higher treatment coverage (5). In West and Central African countries, contextually appropriate approaches and new investment are needed. Globally, current levels of HIV testing among children are too low to achieve the global 1st 95 targets by 2030. An investment to scale-up the volume of infant and child testing using multimodal approaches, including a mix of HIV testing through point-of-care early infant diagnostics, index, outpatient, sick entry point (e.g., inpatient, TB, malnutrition, emergency, and STI), community, and assisted HIVST strategies, can help diagnose CLHIV earlier, achieve greater equity in treatment access for children, and reduce HIV-related mortality in children.

children <15 years were newly diagnosed with HIV. Overall, only 14% of children were identified through infant testing services. Among all infant samples tested, 1.3% were positive, highlighting the success of efforts to prevent vertical transmission, but also the importance of expanding paediatric testing beyond EID programmes using multimodal approaches (6). There are several missed opportunities to test young children through existing maternal, neonatal and child health programmes (7–10), such as routinely reviewing maternal status and indication for testing children at postnatal and immunization visits. Targeting these opportunities through systems strengthening and capacity building is essential to identify children earlier and address the high levels of under-5 HIV-mortality. For school-age children (aged 5–14 years) additional strategies need to be used as older children do not typically access health care services beyond routine well-child care.

2 Globally, most new vertical HIV infections among children are diagnosed late (beyond 2 years of age). Across 28 PEPFAR-supported countries and regional programmes from October 2021 to September 2022, a total of 80,446

3 Data on the status of prevention of vertical transmission and the paediatric HIV epidemic by age group is not well utilized to target the

FIGURE 3: Children living with HIV < 15 years by age group disaggregation in Global Alliance countries, 2022*



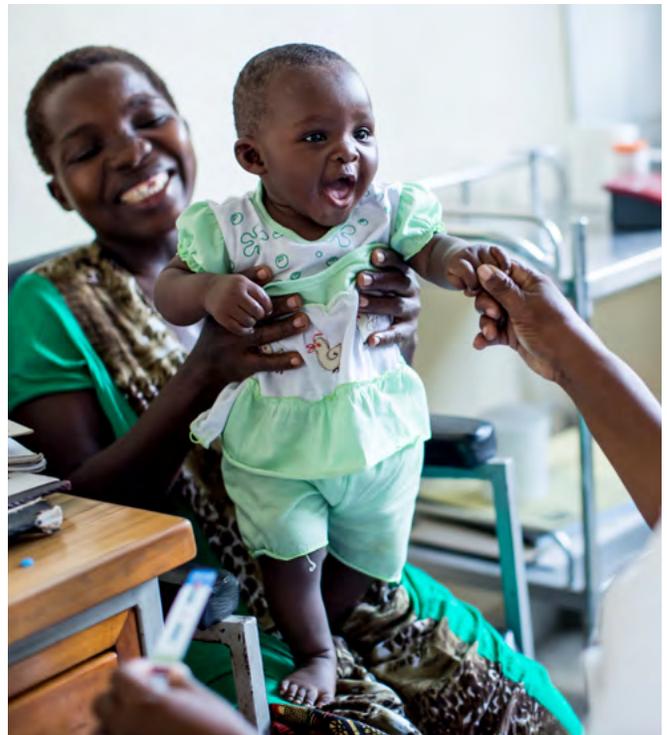
* Nigeria data presented for the year 2021.

right case-finding strategies. UNAIDS estimates of HIV burden among children provide age-specific breakdowns by country of the numbers of children living with HIV (Figure 3). These estimates are developed each year using the continuously revised Spectrum model, which calculates the burden of disease based on a set of assumptions including fertility rates, HIV prevalence, coverage of treatment services in women and children with HIV, and HIV-associated mortality in children on and off treatment. These Spectrum estimates align well with the measured prevalence of HIV among children from the PEPFAR Population HIV Impact Assessment (PHIA) surveys conducted in several countries between 2015-2017 (11). Countries can validate and refine the estimates where possible to better target investments to scale-up paediatric HIV testing and adapt case finding strategies to the age bands and subnational regions with the largest HIV treatment gaps.

4

Stigma and misconceptions persist as a major driver of poor HIV testing uptake and there are gaps in systematic approaches to reduce structural barriers to testing access for children.

Routine HIV testing at sick-child entry points, such as inpatient wards and TB clinics, has long been recommended for high HIV burden countries, but is often not implemented systematically. In addition, across all countries stigma and discrimination continue to hinder access to services even when they are available. While some CLHIV may have clinical manifestations of HIV, others may lack clinical signs and symptoms, especially children infected during breastfeeding who may appear otherwise healthy or have nonspecific signs of illness (12). Misconceptions regarding HIV risk in children are common, even among health providers and healthy-looking children may not be offered testing (13,14). Children infected postnatally during breastfeeding, which is about half of all newly infected children each year, may have slower disease progression and appear healthy even into adolescence: median survival for treatment-naïve children was 9.4 years and an estimated 25% were still alive at 16.9 years (12,15,16). One study from Zimbabwe found strong evidence that older or asymptomatic children had lower odds of being offered HIV testing (14).



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HIV testing for children has not received adequate resources to identify CLHIV yet on treatment.

In 2020, PEPFAR testing frameworks emphasized strategies that had a high yield/HIV-positivity (17). This may have contributed to a hesitancy to test children, who are inherently a low-yield population, as HIV prevalence is lower among children than adults. Now, there is currently a shift away from focusing on high testing yield/positivity toward maximizing the absolute number of HIV diagnoses and broadening the scope to support HIV testing for prevention and treatment (18), recognizing that all people who test can benefit from services appropriate to their status. As well, there is a growing recognition that case-finding of CLHIV may require more intensive resources (19). Programmatically, budgets often cover multiple populations, effectively merging funding for paediatric and adult services. This can result in a lack of population specific resources to address the unique needs of CLHIV, including HIV case identification. Additionally, last-mile efforts are often more costly, yet needed to close critical gaps to advance health equity for children.

Priority Actions to Improve Testing and Case-Finding in Children

To overcome the challenges noted above, and achieve the 95-95-95 global targets for children, innovative approaches, stronger collaborations, and accelerated progress are needed. This may involve strengthening health systems and community-based testing

programmes, integrating HIV testing and treatment services into maternal and child health programmes, and using digital technologies to expand access to testing and treatment services. It may also require addressing the social and structural determinants

FIGURE 4: Process and priorities to formulate an action plan to improve HIV testing and case finding in children



of health, such as poverty, gender inequality, and discrimination, that hinder the uptake of HIV services among children and their families.

A set of 10 priority actions are proposed for consideration by national partners to formulate a comprehensive approach to accelerate paediatric HIV case-finding. Government can convene stakeholders to discuss these actions and develop country plans which are data informed and context specific. Each priority action is outlined below, and Figure 4 describes the planning process and shows how the priority actions align to create a roadmap for progress.

1 Set appropriate age- disaggregated targets for programme scale-up. National programmes could ensure that annual paediatric targets for case identification are ambitious and set high enough to close the estimated paediatric treatment gaps. Inadequate target setting is an important contributing factor to low paediatric HIV case identification and treatment coverage among CLHIV. It is also important to look closely at sub-national data in order to set age-disaggregated targets for specific districts, provinces, or populations where the paediatric testing coverage is especially low and where there might be value in pursuing intensified approaches to close testing gaps.

2 Allocate adequate resources, including additional human resources and testing commodities. Funders and national partners can work together to ensure that country plans are adequately funded and supported. Among the countries of the Global Alliance there is significant political momentum to achieve results for children and this can be harnessed to prioritize paediatric testing and achieve greater equity between children and adults for the 1st 95. More HIV tests will be needed to identify the remaining undiagnosed children; programmes can quantify the need, recognizing that due to lower overall HIV prevalence among children than adults, more tests may be required to identify one new case in children compared with adults. This may require the allocation of additional resources to procure sufficient paediatric testing commodities, and to invest in the training and capacity building needed to increase the cadre of community- and facility-based health workers who are able to

perform testing in children (20–23). Collaboration and coordination across supply chain partners, including Ministries of Health, the Global Fund, PEPFAR, and other partner organizations, is essential to ensure a robust supply of testing commodities, prevent stock outs, and promote sustainability planning.

Within the context of resource constraints where it is not possible to increase funding, strategies to enhance paediatric testing may include reviewing the current allocation testing resources, budgetary earmarks for paediatric testing and case-finding to increase the overall volume of testing commodities across facility and community programmes; increased flexibility at the health facility level to reallocate testing commodities across programmes to ensure testing kits and reagents are available at service points for paediatric testing; and increased flexibility in administrative regulations governing who is allowed to conduct paediatric HIV testing, to permit greater task sharing for paediatric testing – for example by lay providers and testing counsellors. Sustainability planning is essential to maintain funding for paediatric HIV testing services, for example by increasing commitments from national programme budgets. Programmes can invest in capacity building, national and subnational technical working groups, the designation of paediatric focal persons, accountability mechanisms, and paediatric champions within national resource mobilization efforts.

3 Develop a catch-up campaign to identify undiagnosed CLHIV in order to reach agreed targets as rapidly as possible and keep children alive. A catch-up rapid response testing campaign can be developed to quickly identify previously undiagnosed children living with HIV and link them to treatment. In addition to optimizing existing services, such as EID and universal testing in paediatric wards and sick-child clinics, the rapid response campaign may also include more intensive efforts to get to scale, such as child-focused community testing days, accelerated roll out of family index testing, or time-limited routine offer of HIV testing to all well-child clinic attendees at or around specific age points.

4 Develop a maintenance plan for sustainability. Once catch-up has been achieved, a maintenance plan can be developed that is less resource intensive and more focused on specific interventions where children living with HIV first enter into care, such as enhanced and expanded EID and end of breastfeeding testing. Family index testing for the children of newly identified parents living with HIV will remain a cornerstone for identifying children once the goals of 95-95-95 are met for all populations.

5 Use the epidemic and programme context to identify targeted interventions. WHO recommendations and programme experience from a range of settings provide a menu of different testing interventions and approaches that may be useful to identify children living with HIV whether in the context of a catch-up strategy or a maintenance strategy. Selecting the best interventions and entry-points for testing can be determined by national and/or subnational consensus and by close review of the available data on the burden of disease in children and where the need may be greatest (i.e., larger gaps in HIV treatment coverage, or ART coverage <70%). Figure 4 illustrates how HIV prevalence (24,25) and paediatric HIV treatment coverage (5) can help in decision making. To bring down the age at diagnosis, settings with a high burden of HIV may consider a final maternal retest at 18 months or the end of breastfeeding, school entry testing for all children to ensure a known HIV status in high prevalence settings, audits to characterize children diagnosed ≥ 5 years to better target and address testing gaps, and offering HIV testing to any adolescent presenting to health facilities with an unknown HIV status or greater than one year since their last HIV test to address undertesting in this population.

Testing interventions and approaches:

■ **Infant testing**

- + Optimize coverage of early infant diagnostic testing using PCR or other nucleic acid tests according to the national protocol. This may include birth testing, testing at six weeks of life, and testing at other recommended time points.



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- + Include final outcome testing after cessation of breastfeeding as an intrinsic part of infant diagnosis and support enhanced monitoring of mother-infant pair indicators through to the end of breastfeeding to ensure a final diagnostic test at 18 months, or 3 months after cessation of breastfeeding, whichever is later. To improve coverage of final outcome testing for HIV exposed infants (HEIs), countries may consider policies to integrate HIV testing with expanded program on immunization (EPI) services, especially with the second measles vaccine or other EPI services that occur around that age.
- + Utilize all available testing platforms in country, including lay-provider point-of-care and laboratory-based testing to strengthen and expand the EID testing network. Where lay-provider testing is not yet available, consider policies to support the expansion of lay-provider testing approaches.
- + Implement strategies to identify all mothers living with HIV to ensure all HIV-exposed infants are identified and tested. Examples include maternal retesting to identify incident HIV in pregnant and breastfeeding mothers and testing of mothers who did not receive ANC or give birth in a health facility (28).

FIGURE 5: Decision-making framework to guide the scale-up of paediatric HIV testing



ENSURE AN ENABLING ENVIRONMENT: ADDRESS ABUSE AND HARM, COMMUNITY-FACILITY LINKAGES, AGE OF CONSENT POLICIES, AND STIGMA AND DISCRIMINATION

WHO Guidelines on HIV Prevention, Testing, Treatment, Service Delivery, and Monitoring, July 2021²⁶

RECOMMENDATIONS

The addition of nucleic acid testing (NAT) at birth to existing early infant diagnosis testing approaches can be considered to identify HIV infection among HIV-exposed infants (conditional recommendation, low-certainty evidence).

Point-of-care nucleic acid testing should be used to diagnose HIV among infants and children younger than 18 months of age (strong recommendation, high-certainty evidence).

Rapid diagnostic tests for HIV serology can be used to assess HIV exposure among infants younger than four months of age. HIV-exposure status among infants and children 4–18 months of age should therefore be ascertained by HIV serological testing the mother (conditional recommendation, low-certainty evidence).

Rapid diagnostic tests for HIV serology can be used to diagnose HIV infection among children older than 18 months following the national testing strategy (strong recommendation, moderate certainty evidence).

An indeterminate range of viral copy equivalents should be used to improve the accuracy of all nucleic acid–based early infant diagnosis assays (strong **recommendation, moderate-certainty evidence**).

GOOD PRACTICE STATEMENTS

National regulatory agencies are encouraged not to delay the adoption of point-of-care early infant diagnosis by conducting further evaluations but instead to adopt a rapid and streamlined registration and national approval process for immediate implementation.

■ Testing in Well-child clinics

- ✦ In high-prevalence settings (i.e., >1% HIV in general population), offer testing to all children with an unknown HIV status. Consider integrating HIV testing with immunization and other routine child health preventive services (26).



- ✦ If a child has a documented HIV-negative status, additional testing is not recommended unless there is a new exposure (e.g., sexual violence, traditional circumcision, etc.).
 - ✦ In the context of resource constraints, across all HIV prevalence settings, a WHO systematic review noted that validated screening tools can screen-in children and increase HIV testing and diagnoses among children that may otherwise be missed, especially in entry points where testing coverage and/or provider willingness to test is low (27).
- #### ■ Testing in Outpatient Sick-child or Acute Care settings
- ✦ In high-prevalence settings, strategically offer, expand, and scale-up paediatric HIV testing, including systematically implemented provider-initiated opt-out HIV testing approaches for children with undocumented HIV status.
 - ✦ In low-prevalence settings, offer HIV testing to all children who present with signs, symptoms, or medical conditions indicative of HIV infection, including TB, viral hepatitis, sexually transmitted infections, HIV-exposed children, symptomatic infants and children.



- + If resources are limited in either high- or low-prevalence settings, programmes can consider exposure screening or development, local validation, and use of risk assessment tools to assess maternal HIV status and identify children with clinical signs or symptoms and/or historical risk factors to screen-in children for HTS or prompt providers to offer HIV testing, where they might be otherwise skipped (27,29,30).

■ **Testing in inpatient, TB and malnutrition wards**

- + In high-prevalence settings, ensure HIV testing is offered to all children presenting for inpatient or malnutrition services (26). PEPFAR recommends offering HIV testing to all children with signs/symptoms of TB or STIs (30).
- + Training and supportive supervision, and use of monitoring and evaluation tools to monitor and track testing coverage at sick entry points, are needed.
- + Programmes can consider implementing continuous quality improvement interventions to improve testing coverage for children with these conditions or presenting with clinical signs and symptoms.

WHO Guidelines on HIV Prevention, Testing, Treatment, Service Delivery, and Monitoring, July 2021²⁶

RECOMMENDATIONS

In settings with a high burden of HIV infection, infants and children with unknown HIV status who are admitted for inpatient care or attending malnutrition clinics should be routinely tested for HIV (strong recommendation, low-certainty evidence).

In settings with a high burden of HIV infection, infants and children with unknown HIV status should be offered HIV testing in outpatient or immunization clinics (conditional recommendation, low-certainty evidence).

HIV testing services, with linkages to prevention, treatment and care, are recommended for adolescents from key populations (strong recommendation, very-low-certainty evidence).

Adolescents should be counselled about the potential benefits and risks of disclosing their HIV-positive status and empowered and supported to determine whether, when, how and to whom to disclose (conditional recommendation, very-low-certainty evidence).

In settings with a high burden of HIV infection, HIV testing services, with linkage to prevention, treatment and care, are recommended for all adolescents (strong recommendation, very-low-certainty evidence).

In settings with a low burden of HIV infection, HIV testing services, with linkage to prevention, treatment and care, should be accessible to adolescents in low and concentrated epidemics* (conditional recommendation, very-low-certainty evidence).

**Now referred to as settings with a low burden of HIV infection.*

■ Family Index testing

- ✦ Testing the biological children of adults living with HIV is a valuable approach for identifying CLHIV that is effective in all epidemic contexts.²
- ✦ Rapid and at-scale implementation of index testing is a standard of care and can also be especially useful as a catch-up strategy.
- ✦ Address implementation challenges to enhance the success of index testing programmes. For example, a more family-focused approach may be needed to work with parents living with HIV, especially if a parent is part of a key population, to address their specific needs to test their children. Children whose parents are living with HIV may not live with their biological family and strategies are needed to overcome testing barriers due to children living geographically distant from their parents.
- ✦ Consider strategies to link index testing to insurance and social protection schemes.
- ✦ Testing non-biological children (i.e., orphans) living in the households of index clients can be included in index testing services, as these orphans have similar HIV risk profiles to biological children (31,32).
- ✦ Rolling out index testing will require innovative approaches to train health care providers and educate parents and the community at large on the benefits of early testing of children and the risks to delaying testing.
- ✦ Combined facility-based and community-based efforts may be needed to reach all families, especially those who are unable to present to facilities for child testing. Programmes may consider creating follow up registers for all paediatric contacts without a documented test result for enhanced tracking and tracing in the community.

WHO Guidelines on HIV Prevention, Testing, Treatment, Service Delivery, and Monitoring, July 2021²⁶

GOOD PRACTICE STATEMENTS

In all settings, biological children with a parent living with HIV (or who may have died of HIV) should be routinely offered HIV testing services and, if found to be either infected or at high risk of infection through breastfeeding, should be linked to services for treatment or prevention and offered a broader package of voluntary provider-assisted referral.

Governments should revisit age-of-consent policies, considering the need to uphold adolescents' rights to make choices about their own health and well-being (with consideration for different levels of maturity and understanding).

■ Community-based models to expand access to HIV testing and case-finding for children under 15 years

- ✦ Community-based models that engage community health workers, lay testing counselors, service providers for orphans, case managers, organizations serving key populations, faith communities, peer support groups, women's groups or youth led organizations in providing testing to adults can be enhanced to extend testing services to children.
- ✦ Harnessing the power of communities is also critical to support initiatives on paediatric HIV messaging, women's empowerment, and male engagement.
- ✦ Countries may consider ways to integrate with existing MCH outreach services, collaborate with traditional birth attendants, complement community services, engage faith-based communities, or replicate other evidence-based interventions.
- ✦ Clinic and community programmes may consider developing memorandums of

² <https://www.pepfarsolutions.org/resourcesandtools-2/2021/10/5/index-testing-for-biological-children-and-adolescents-It19yo-of-plhiv-clinical-and-ovc-partner-collaboration-to-expand-testing-services?rq=pediatric%20index>

understanding to strengthen referral networks and the coordination of clinical care to improve HIV testing access.

- + Engaging communities in demand creation activities is essential to the design of family-centered testing programmes which are sensitive to the everyday needs of families.

6

Expanded research for the use of assisted HIVST among children 2-14 years. Oral mucosal HIV self-tests (HIVSTs) administered by caregivers to test their children is a promising approach for testing children 2 years and older. Currently, there is insufficient evidence for WHO to make a recommendation on this approach. While studies have not found evidence of social harm (33), additional research is needed to gather more evidence and inform policies on how best to use HIVSTs to screen children for HIV and refer those with a positive HIVST for confirmatory testing.

People with reactive HIVST results, including children, need to be linked to provider-delivered testing services for HIV diagnosis using a three-test algorithm. Despite high sensitivity and specificity overall, in low-prevalence settings a reactive HIVST has a low positive predictive value. Since HIV prevalence in the general paediatric population is low, the use of HIVSTs among all children could result in a high number of children who screen reactive yet are confirmed HIV-negative. HIVSTs may be especially useful for screening HIV exposed children at the end of breastfeeding or as a tool for roll out of family index testing – settings where the prevalence of HIV is much higher than in the general child population. Policies supportive of provider-assisted and caregiver-assisted HIVST could expand testing options for parents, allowing children to be screened in the privacy and safety of their home (34–36), but it is important that research efforts include provider trainings and caregiver resources to properly interpret test results and ensure that any child with a reactive test receives confirmatory testing (18).

Observational studies and early programmatic experience with different models of assisted HIVST in children demonstrate interest among caregivers (37) with ≥96% of caregivers able to

correctly collect the oral fluid, insert the flat pad into solution, use a timer, and interpret the result with a demonstration from a healthcare worker (38). Assisted HIVST is a promising solution that merits further evaluation.

7

Address environmental determinants of health, including stigma and discrimination, gender-based violence (GBV), and persistent policy barriers. Stigma, discrimination, GBV, and persistent policy barriers may also contribute to undertesting among children. Programmes are encouraged to use national data from Stigma Index Surveys to better understand the types of local stigma and discrimination present to inform programmatic interventions, including ways to promote patient-provider interactions that are welcoming, judgement free and family-friendly. Community engagement remains important to reduce stigma and improve the reach of programmes. Some programmes use a 2x1 strategy for home testing, where two households are tested to reduce stigma. Programmes can utilize multiplex testing or integrated disease management approaches to reduce HIV-related stigma that may hamper access to testing.

For children that are confirmed to be living with HIV, it is important for programmes to provide psychosocial support to parents/caregivers regarding child disclosure. The Elizabeth Glaser Paediatric AIDS Foundation has developed a disclosure toolkit in three languages that programmes can use in supportive supervision with frontline workers to build capacity for disclosure support (39). In addition, WHO has guidance on disclosure for children up to 12 years of age (40). Older children who test HIV positive may need additional support with disclosure, to navigate relationships with friends and family. When appropriate, providers can engage trusted adults, who may be parents, other family members, teachers, or community members, to support children as they learn to manage living with HIV.

8

Launch community-led demand creation strategies and monitoring. Programmes can partner with affected communities to develop and disseminate better messaging on the urgency of paediatric testing and the availability of affordable

and effective treatments for children living with HIV. Demand creation strategies can target providers in facilities or the parents/caregivers of children at risk for HIV in community settings. Ethical, community-led monitoring approaches can support strengthening or redesign of service delivery strategies to best meet community needs and drive accountability. In the development of demand creation strategies, it is important to consider the use of human-centered design to generate messages and testing services that speak to the hopes, concerns, and needs of parents/caregivers and motivate them to bring their children in for testing.

9

Improve data collection and use to inform HIV testing programmes for children <15 years.

- **National programmes collaborate with UNAIDS to provide inputs to inform the Spectrum estimates on CLHIV.** Programmes can utilize continuous quality improvement efforts to improve the quality of existing data (e.g., HIV testing data, treatment data, vital registration data and HIV-prevalence data) to improve estimates and country-level profiles that show the number and distribution of undiagnosed CLHIV. This will guide the development of an optimal mix of testing strategies for children.
- **Improve data and reporting on HIV testing coverage in children <15 years to measure progress towards the 1st 95.** Programme data typically captures the number of tests administered. However, data for the denominator (total number of eligible children at entry point) is often missing, or not linked, providing an incomplete picture of testing coverage. Enhanced documentation of children eligible for HIV testing at different entry points (e.g., inpatient settings, TB programmes, presenting with malnutrition or growth problems, final outcome testing in prevention of vertical transmission programmes) will assist programme managers to more accurately design plans and combined approaches to close the testing gap in children. Consider systematic ways to integrate data capture, reporting, and visualization into evolving electronic medical records to facilitate timely use of routine data at

the facility-level and streamlined reporting into national databases.

10

Identify strategies to identify, link, and reengage younger adolescents 10-14 years living with or at risk of HIV infection to integrated health services.

Some approaches commonly used among older adolescents (15-19 years) may also prove beneficial to younger adolescents (10-14 years). A number of promising adolescent-focused approaches can support reaching and linking both HIV-positive and HIV-negative adolescents to needed services. Adolescent models include creating and prioritizing youth-responsive service points (including flexible service hours); integrating HIV services with sexual and reproductive health family planning services, and mental health services; community-based models that engage adolescents; integrating HIV and other sexual and reproductive health education into school curricula; social-networking and peer-led models, HIV self-testing, digital health interventions, including mobile apps, to promote testing; and family and partner index-testing, among others.

Programmes can plan for and support the needs of younger adolescents, especially those 10-14 years who remain undiagnosed, where there will be a mix of CLHIV with perinatally acquired HIV and other sources of transmission (i.e., sexual, nosocomial, traditional practices, and abuse). Special considerations may include first line support services, counseling, mandatory reporting, and information messages developed and delivered according to the needs of younger adolescents (10-14 years). Monitoring of paediatric testing services in facilities and communities, by trained providers and caregivers, could be prioritized and include essential monitoring for any related social harms.

Policy changes to support such approaches may also be necessary, such as reducing the age of consent for HIV testing (2), access to HIVSTs and treatment. Programmes may consider school-based testing and/or integrated health services to improve access among adolescents and promote greater wellbeing.

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Annexes

**FACT SHEETS IN THE GLOBAL ALLIANCE TO END
AIDS AMONG CHILDREN COUNTRIES***

ANGOLA

Figure 1: Estimated children living with HIV by age group, 2022

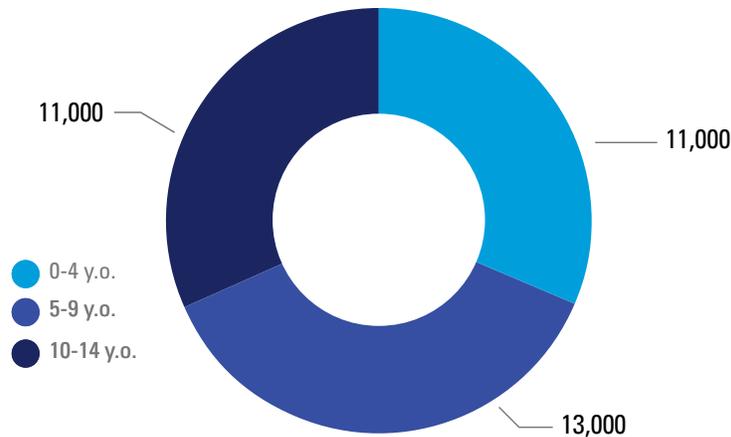


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

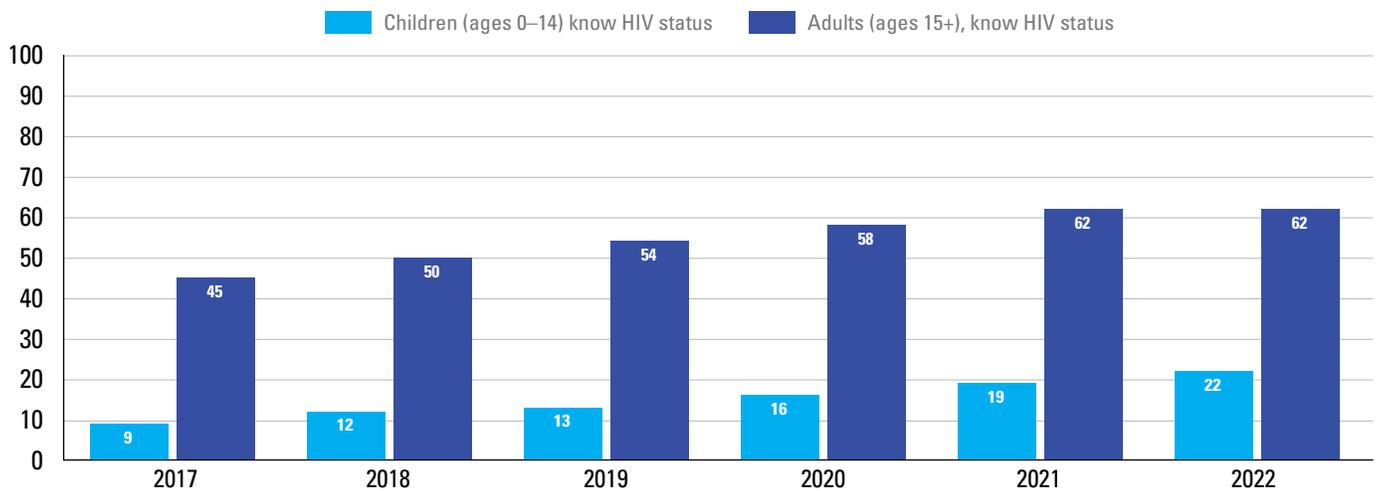


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

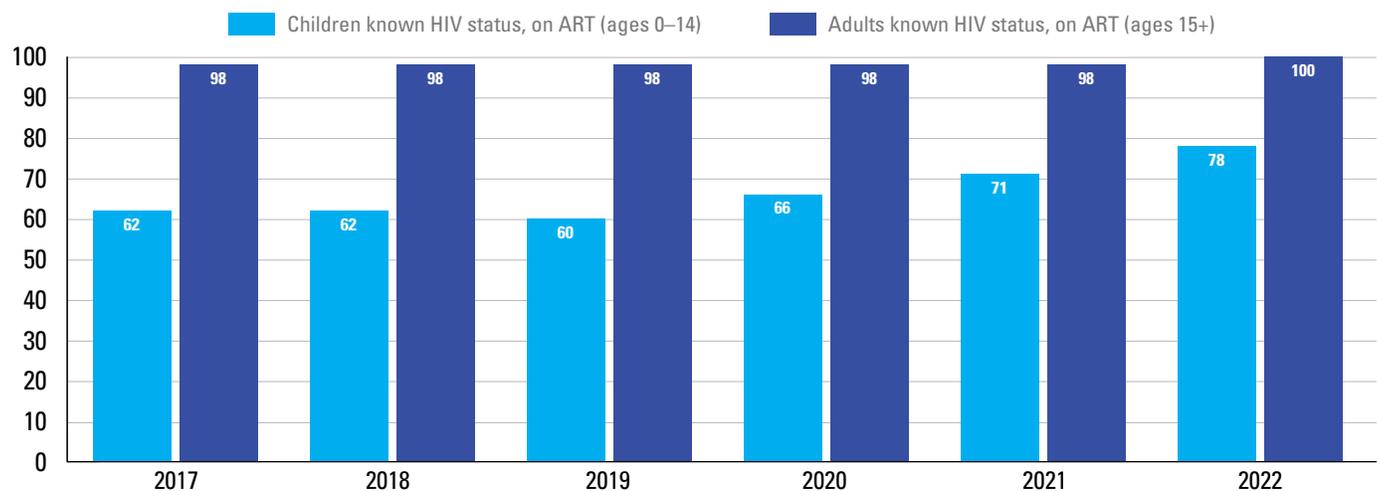


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

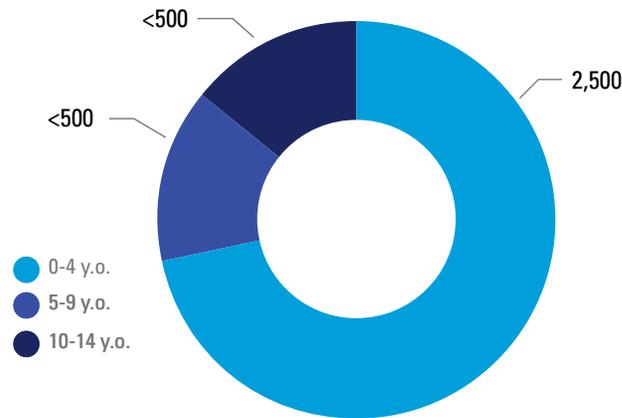


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

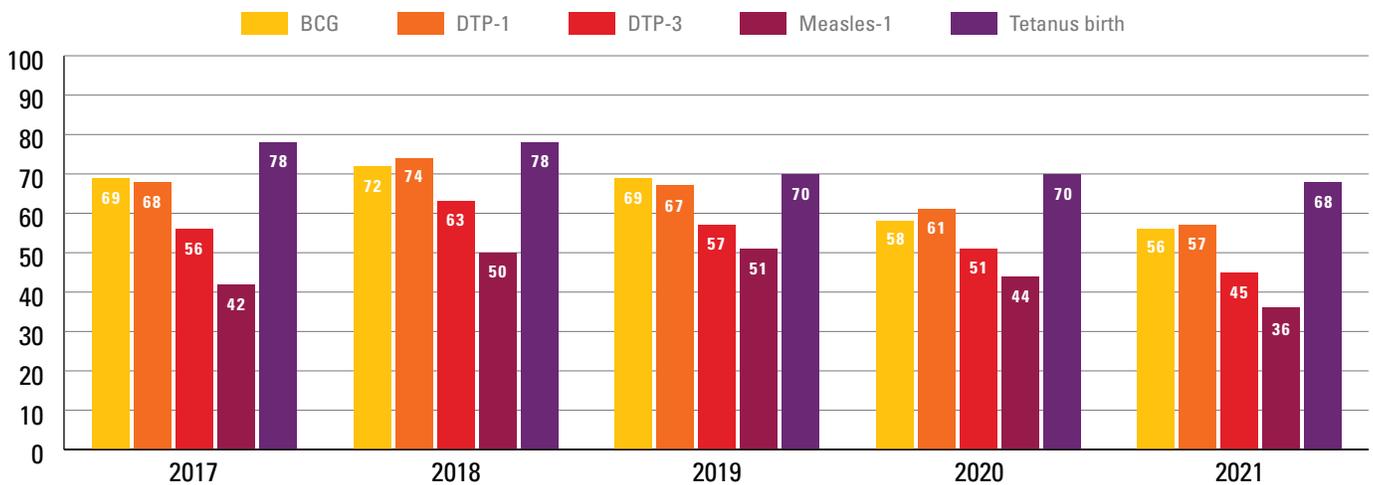
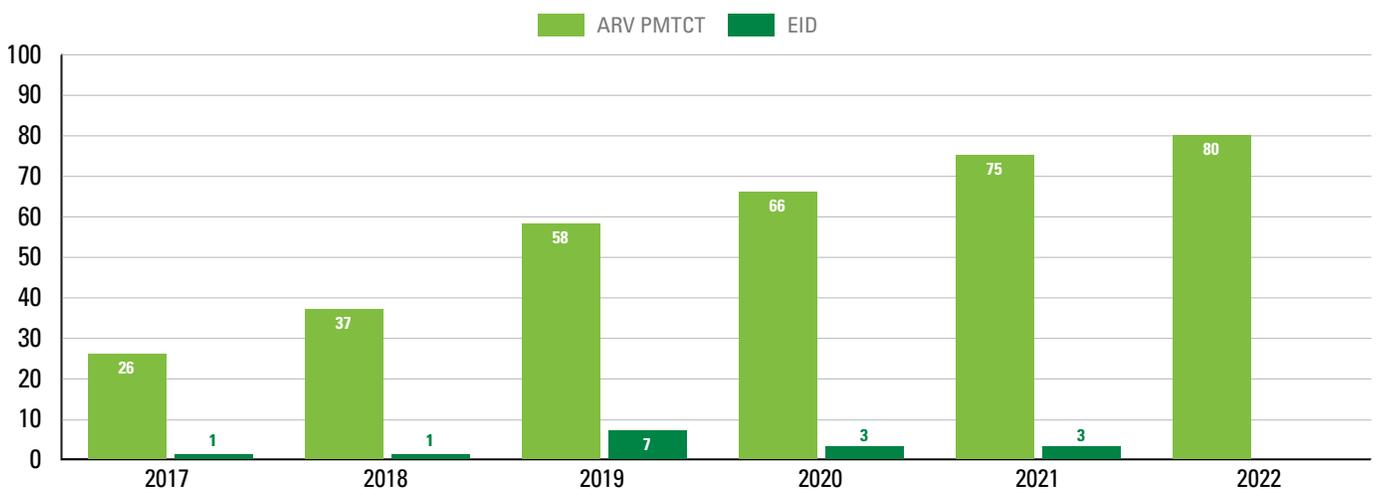


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



CAMEROON

Figure 1: Estimated children living with HIV by age group, 2022

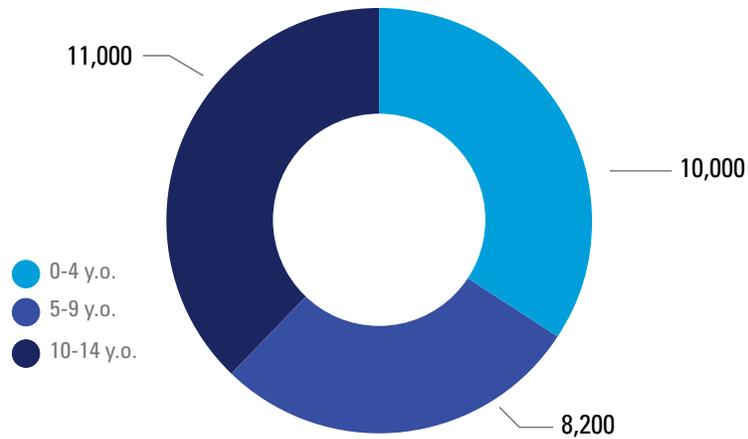


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

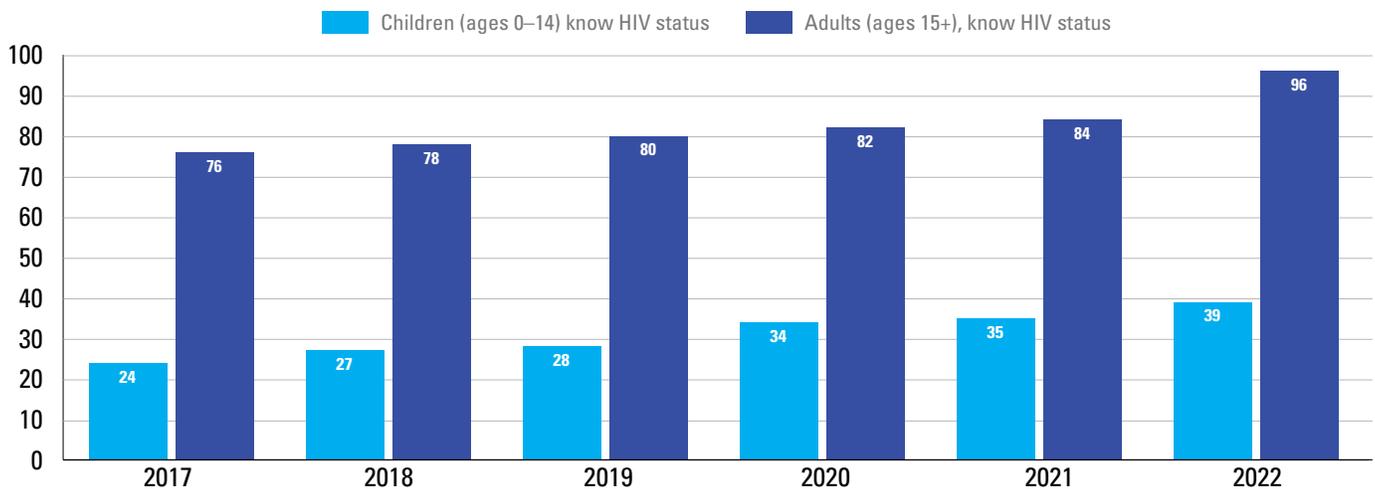


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

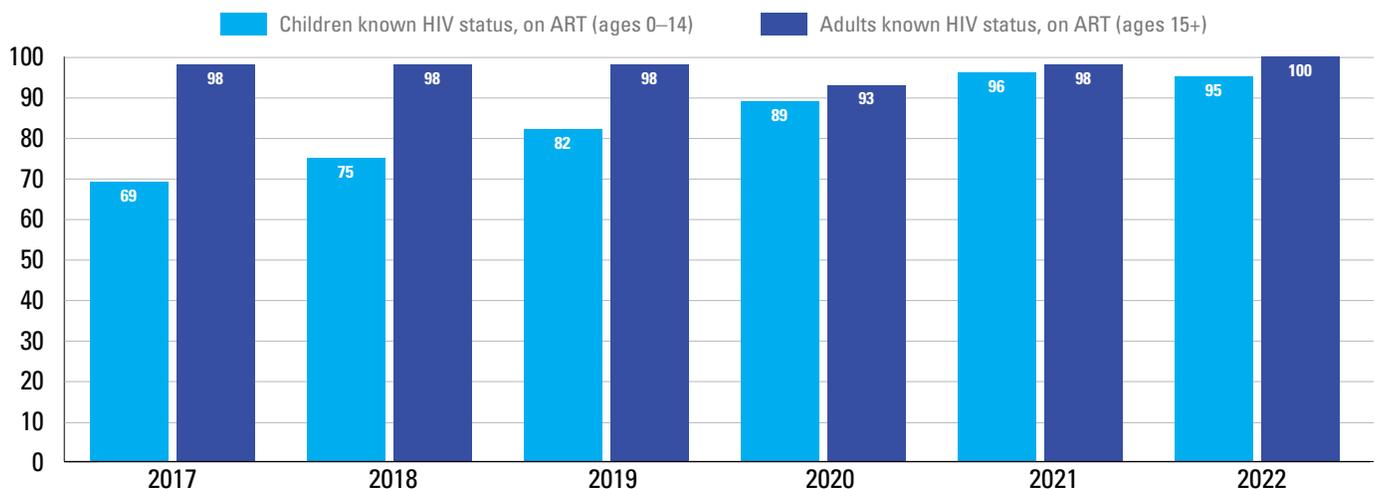


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

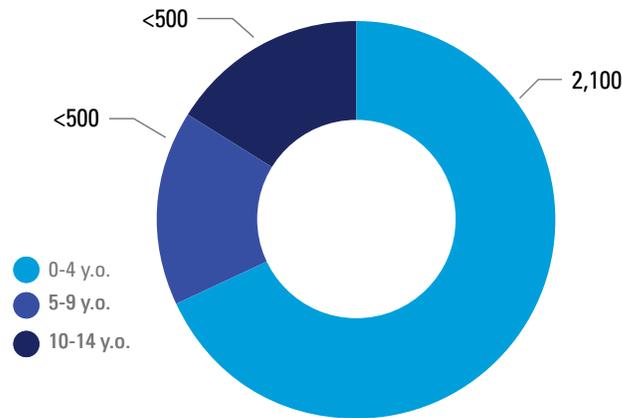


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

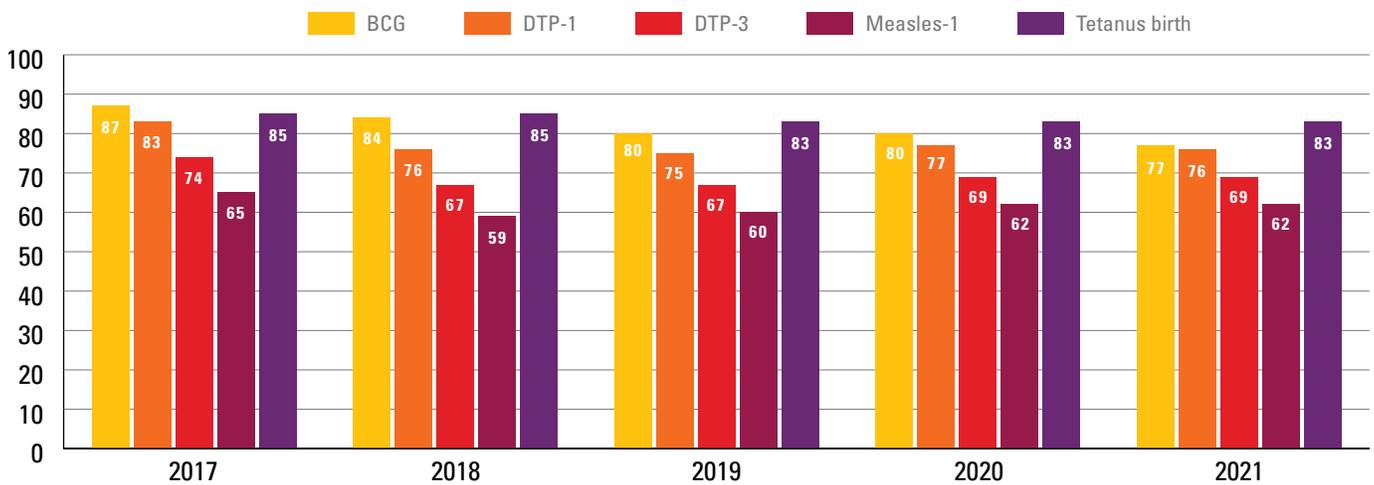
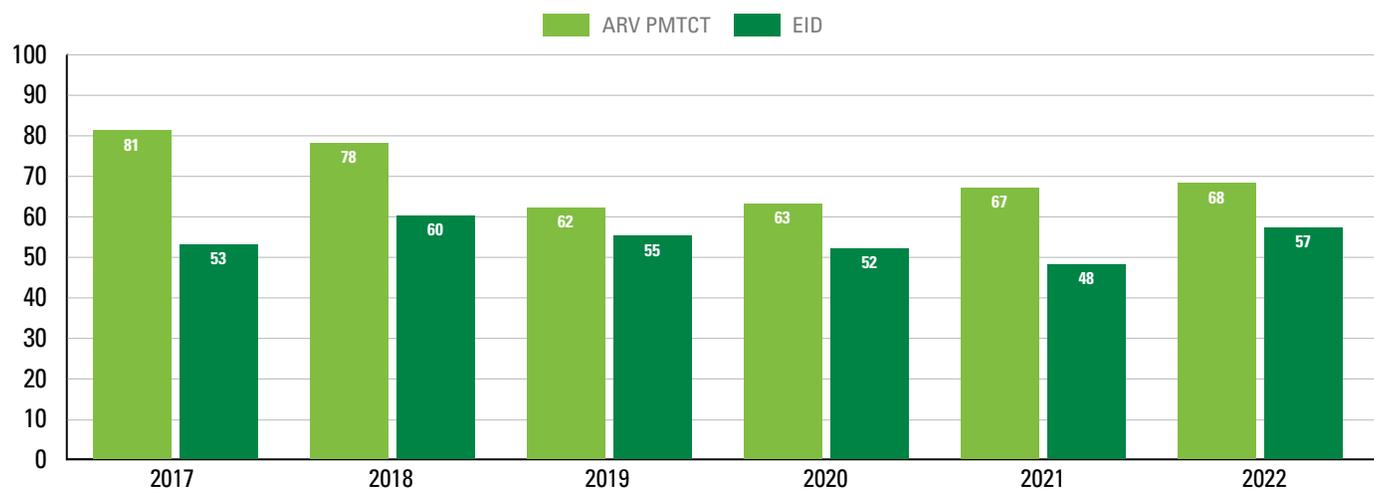


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



COTE D'IVOIRE

Figure 1: Estimated children living with HIV by age group, 2022

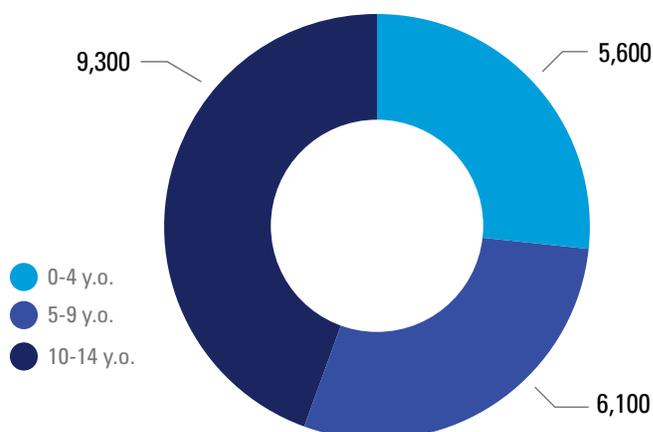


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

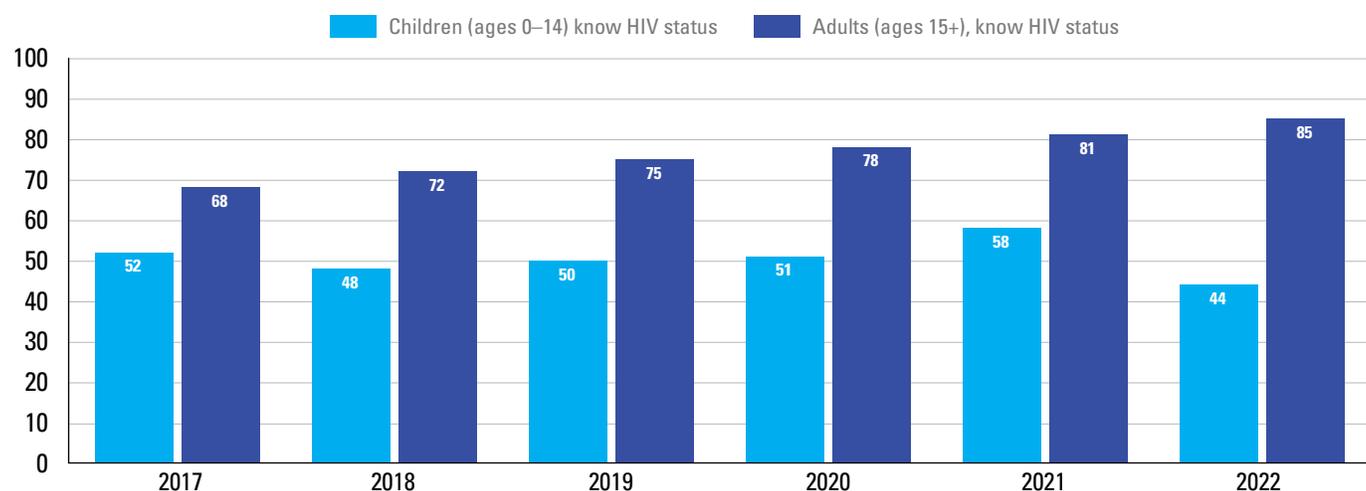


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

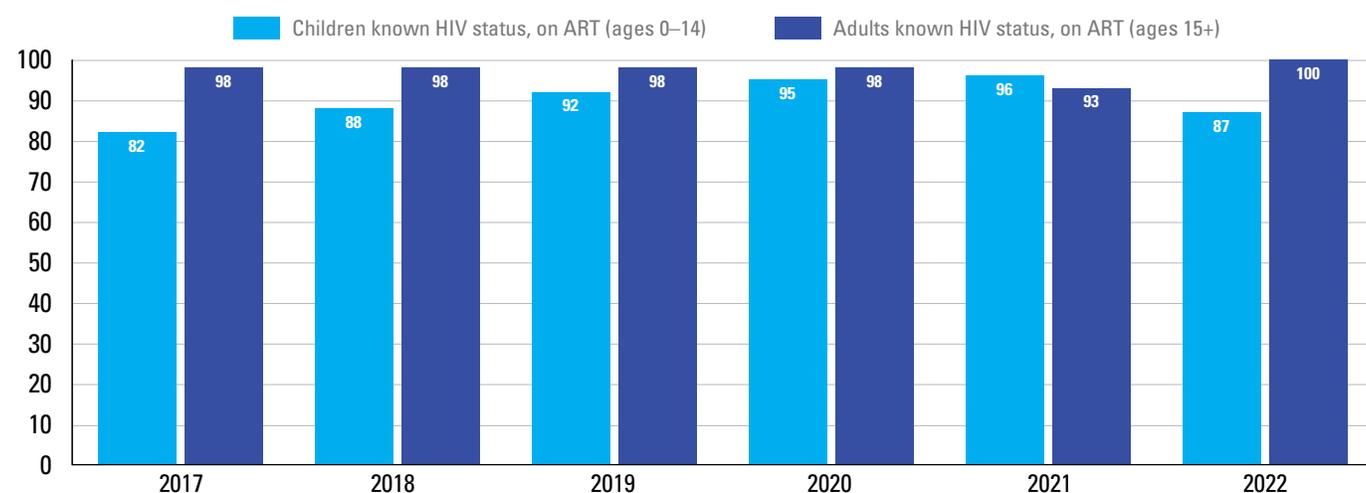


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

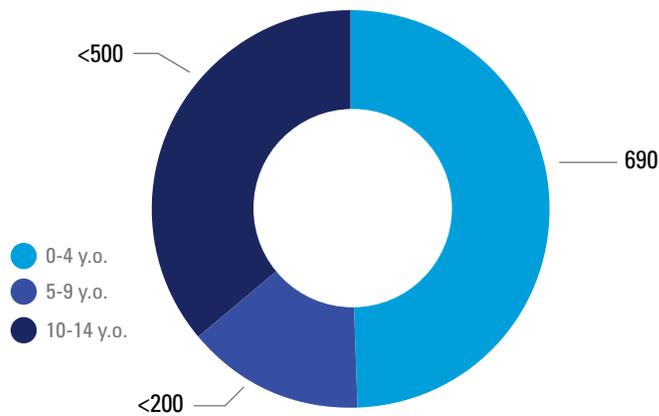


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

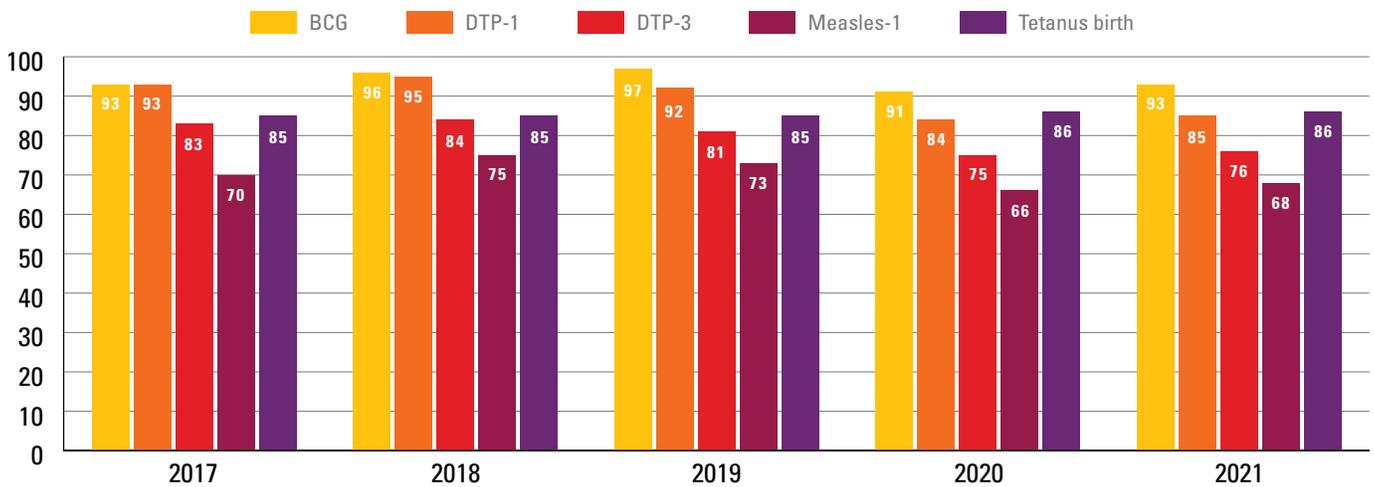
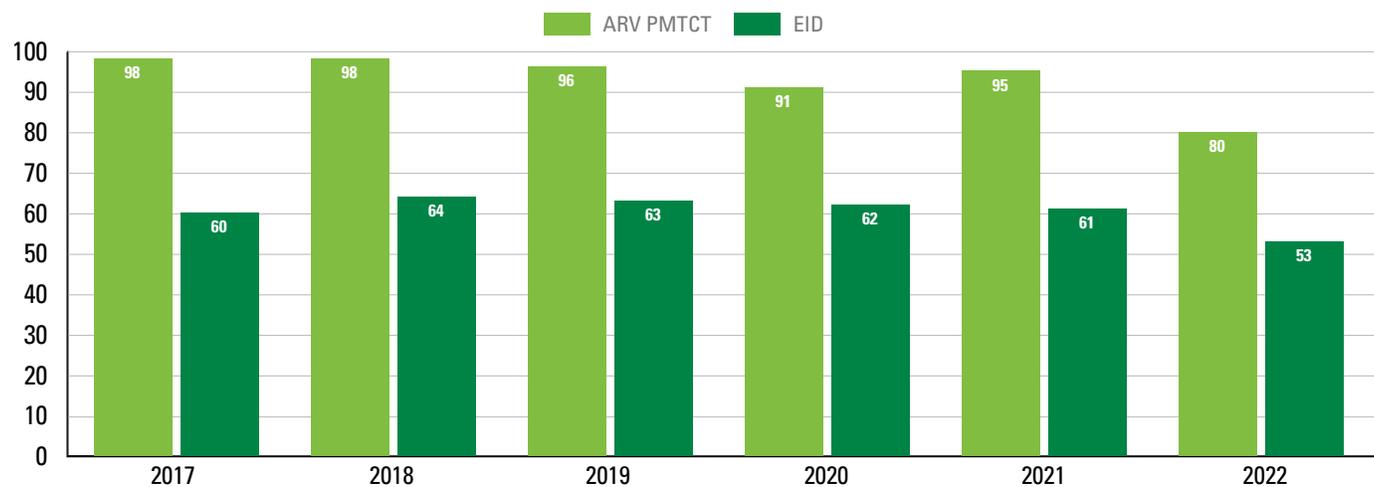


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



DEMOCRATIC REPUBLIC OF CONGO

Figure 1: Estimated children living with HIV by age group, 2022

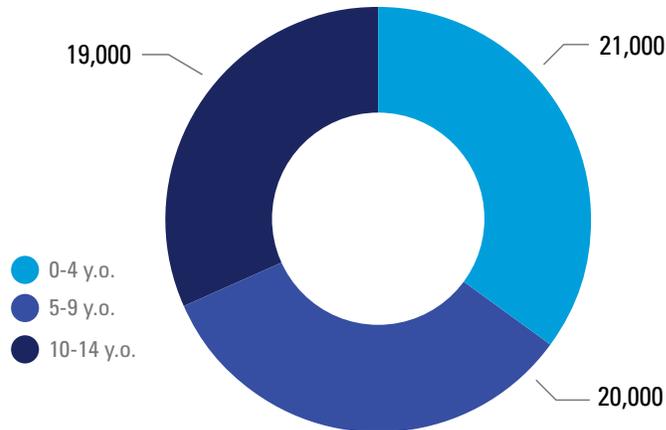


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

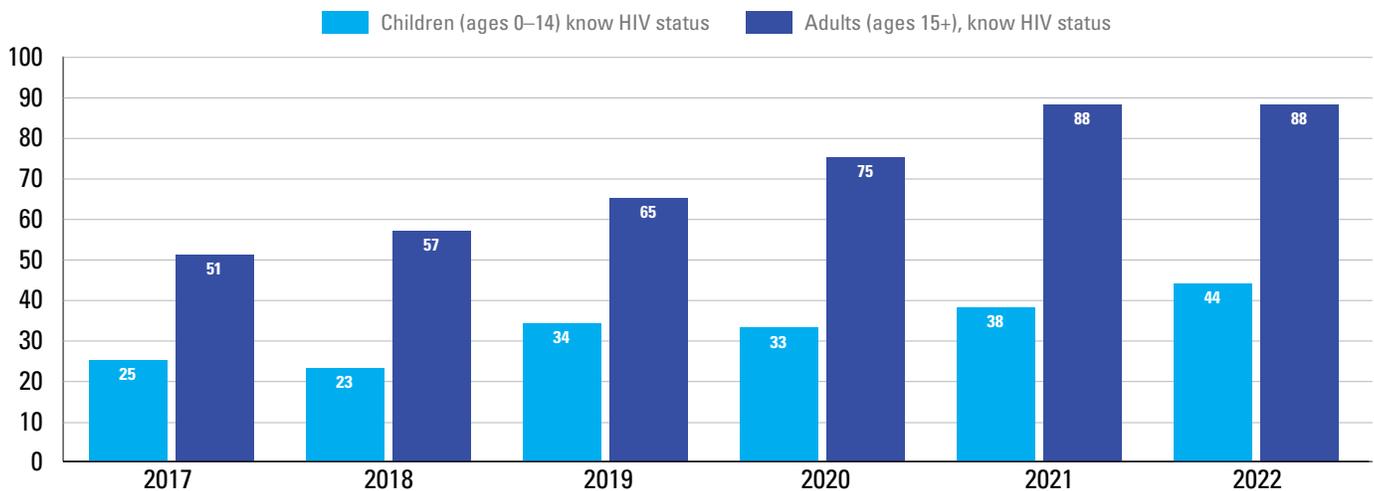


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

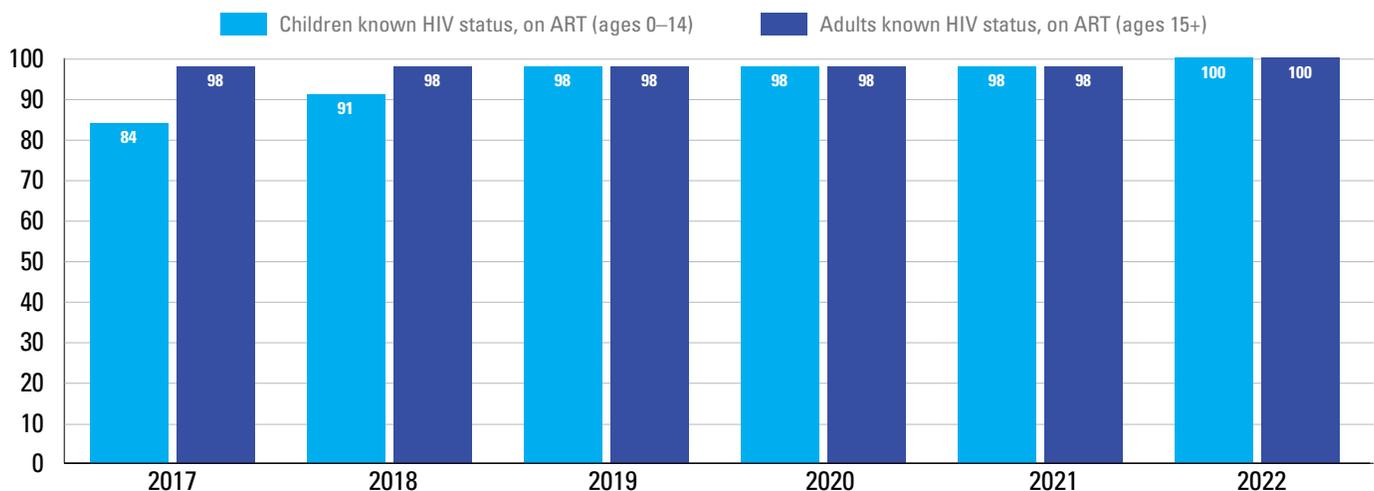


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

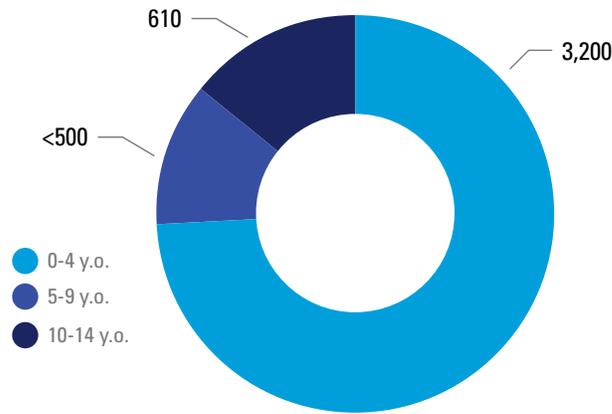


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

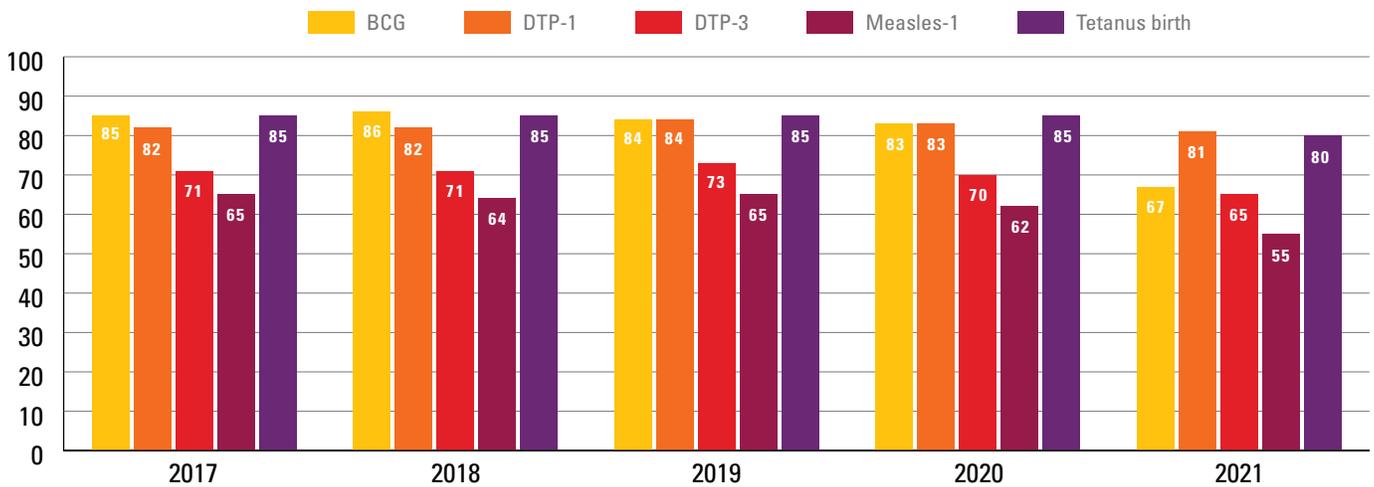
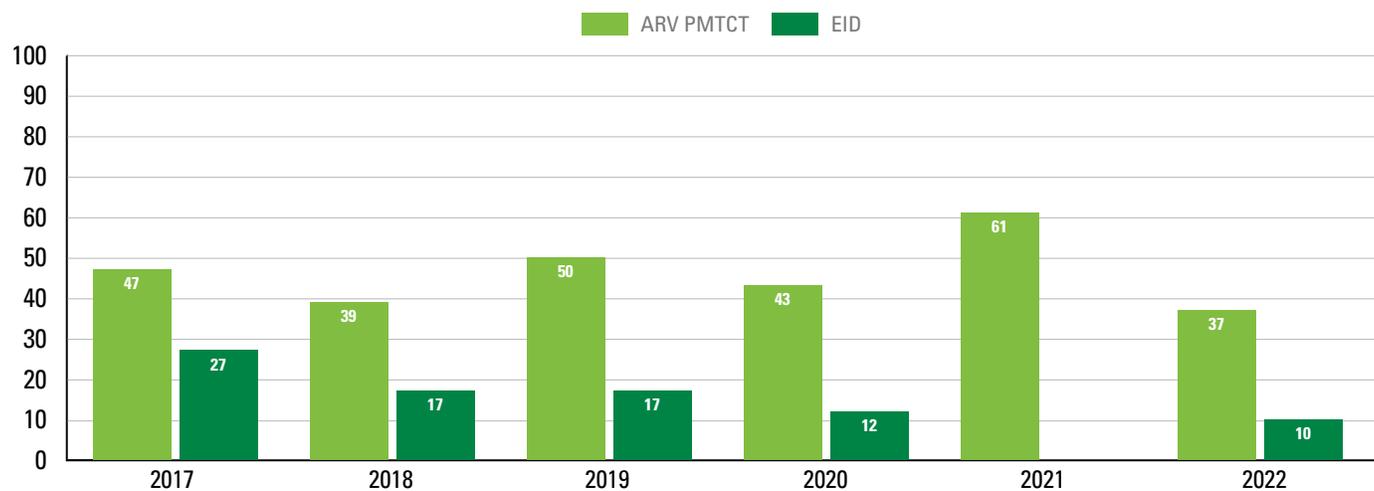


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



KENYA

Figure 1: Estimated children living with HIV by age group, 2022

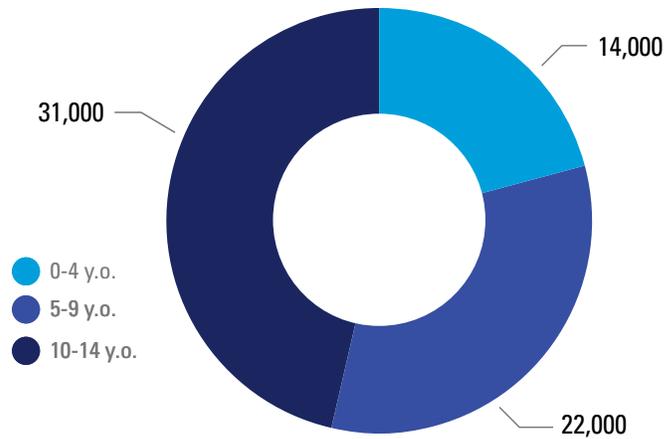


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

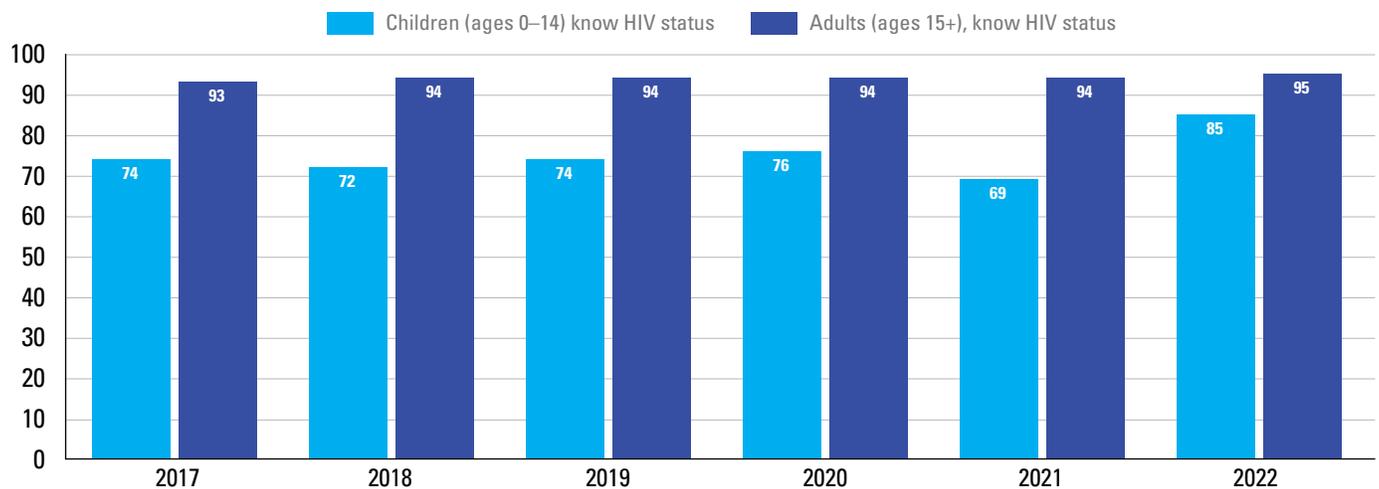


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

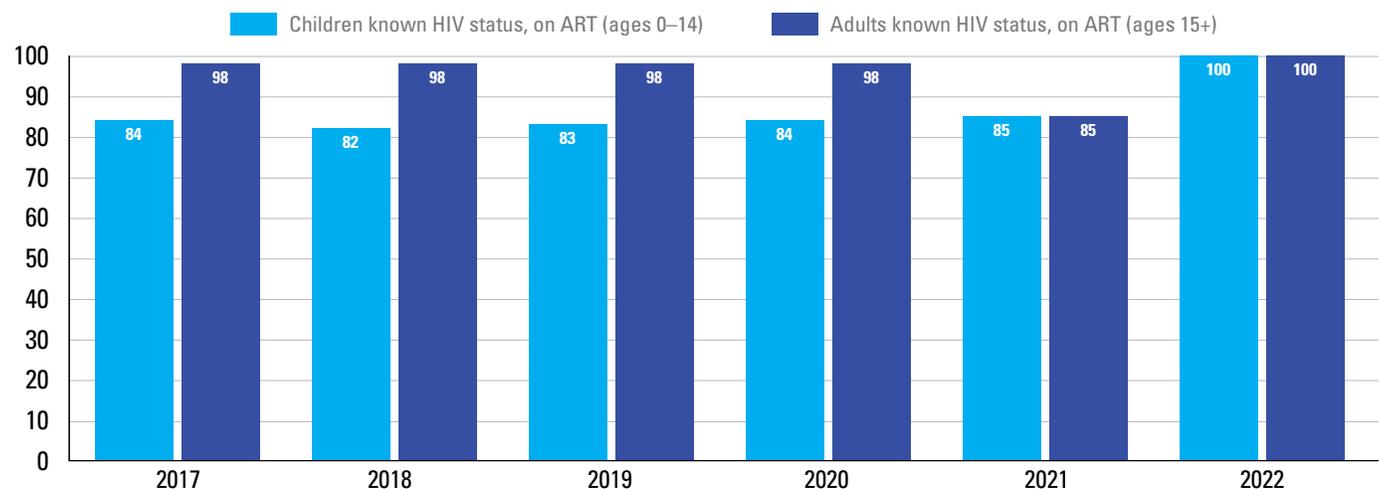


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

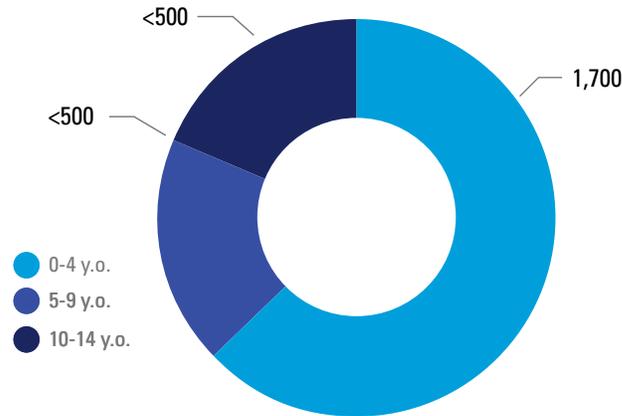


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

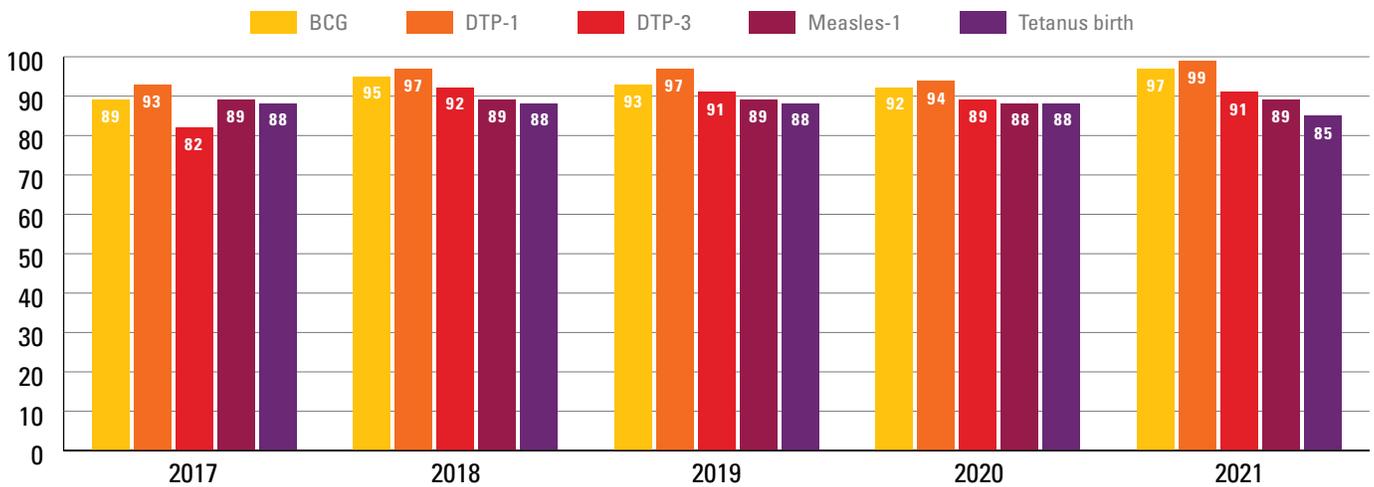
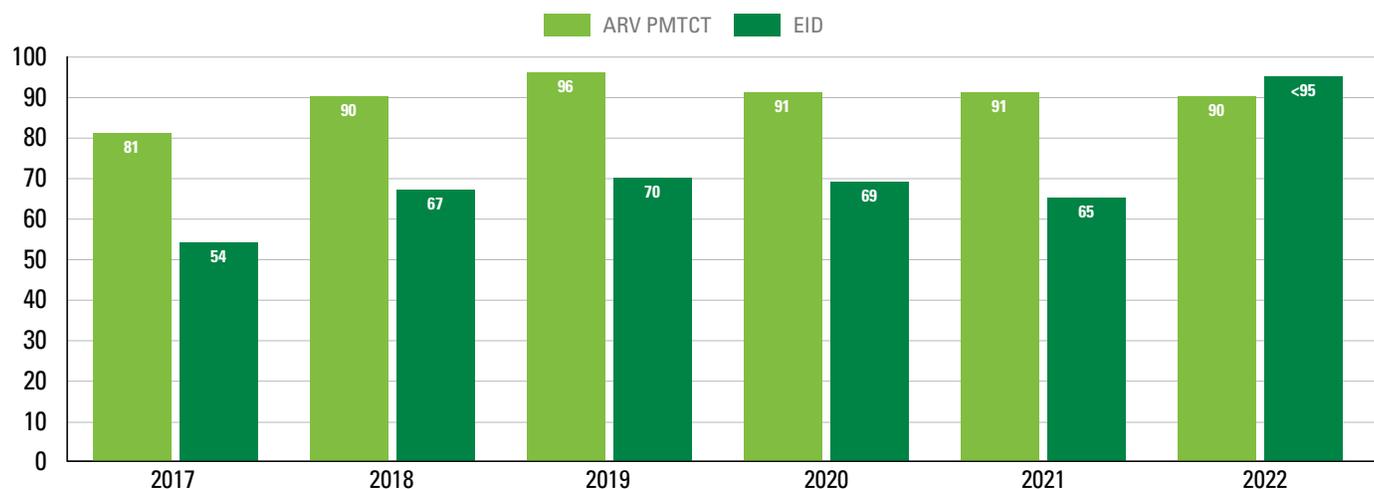


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



MOZAMBIQUE

Figure 1: Estimated children living with HIV by age group, 2022

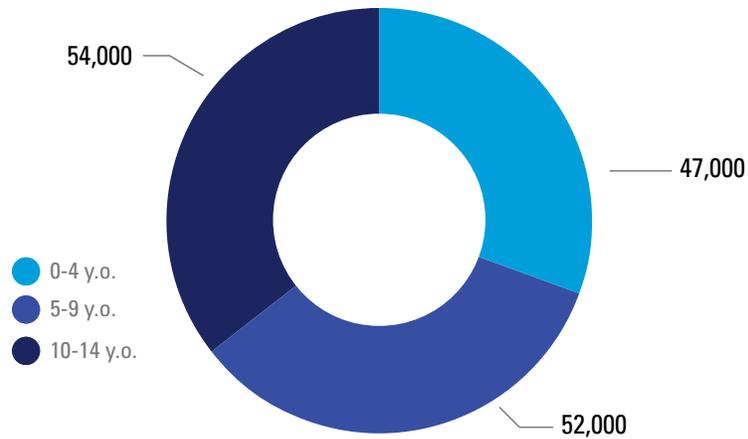


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

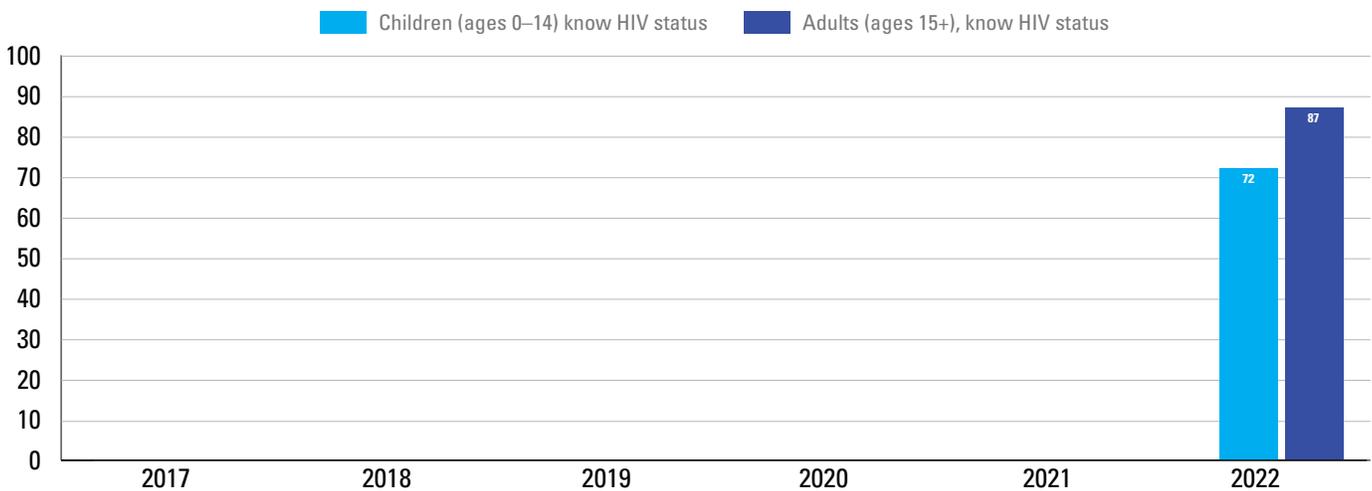


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

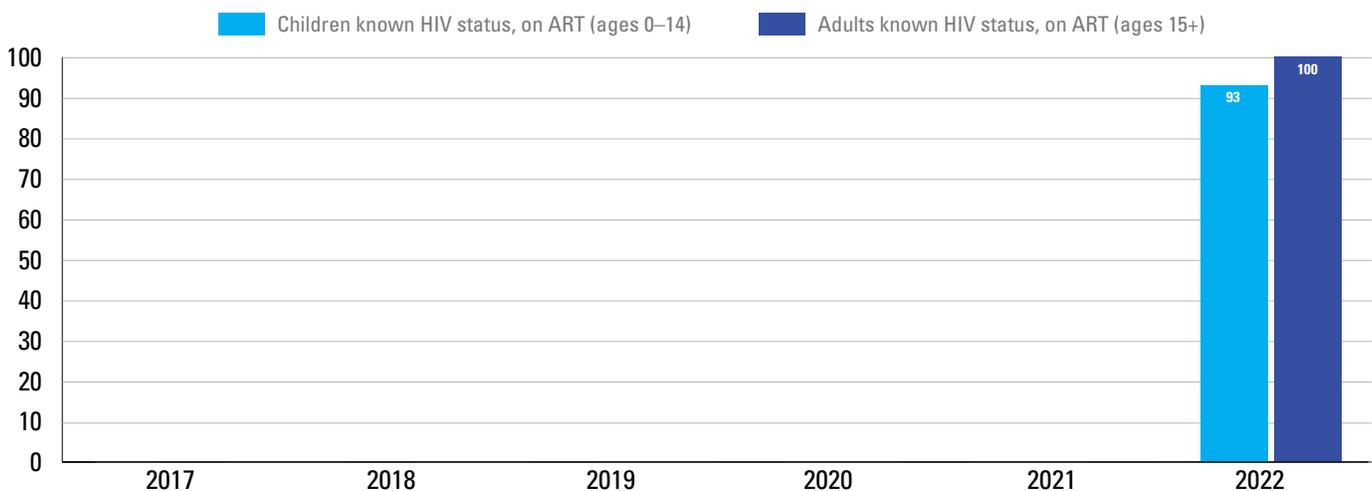


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

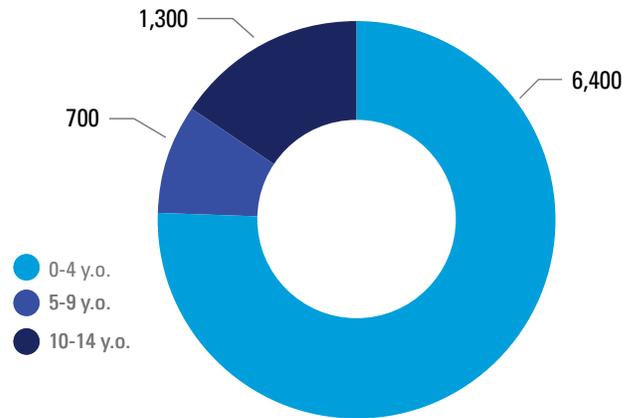


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

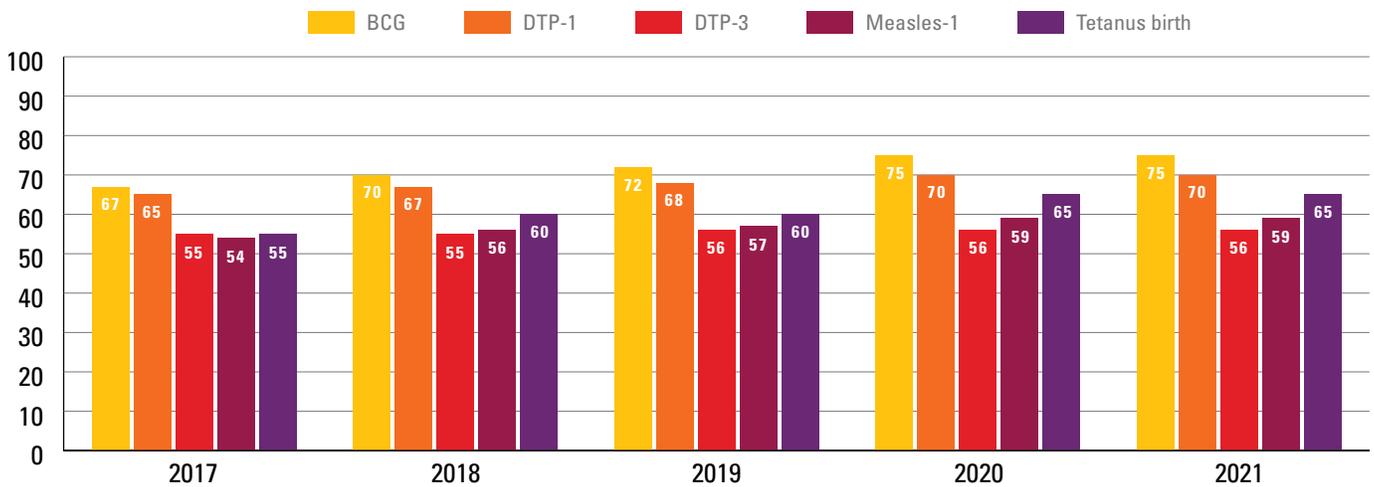


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



NIGERIA

Figure 1: Estimated children living with HIV by age group, 2021

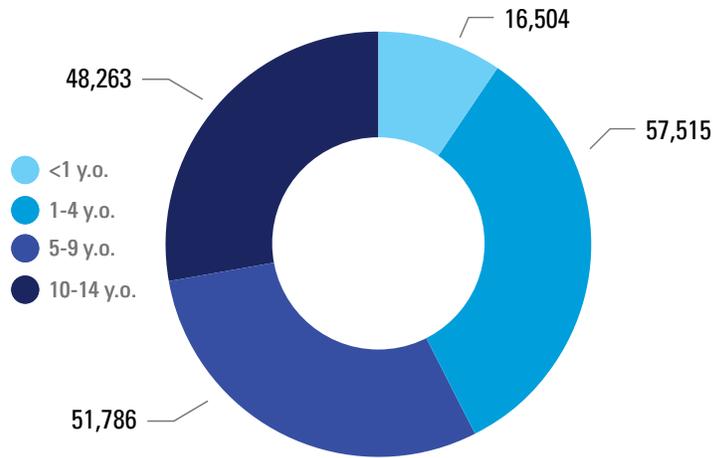


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2021

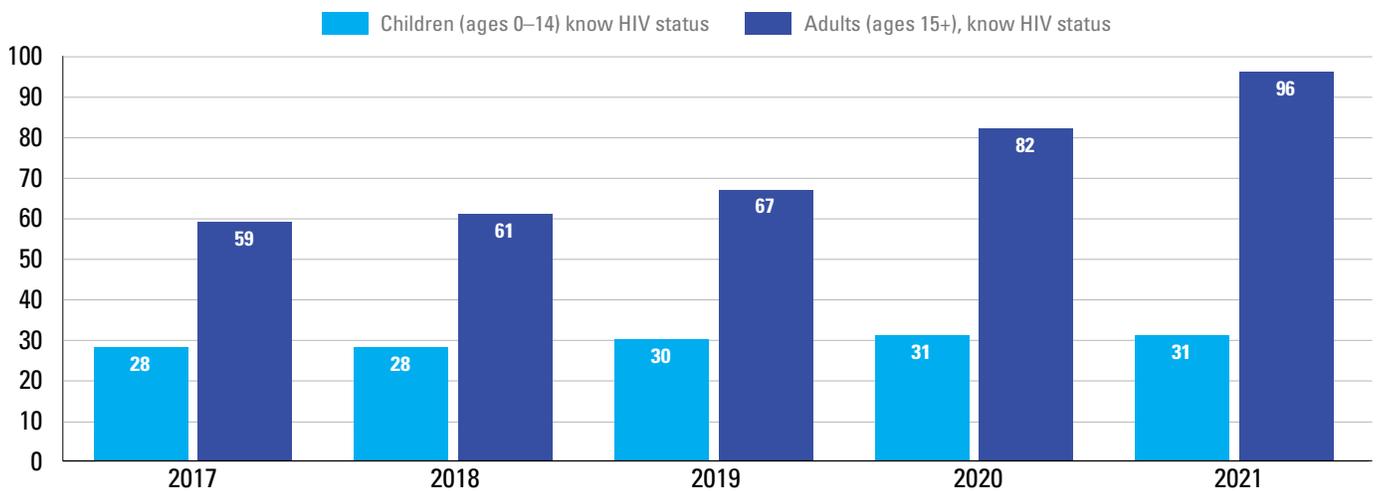


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2021

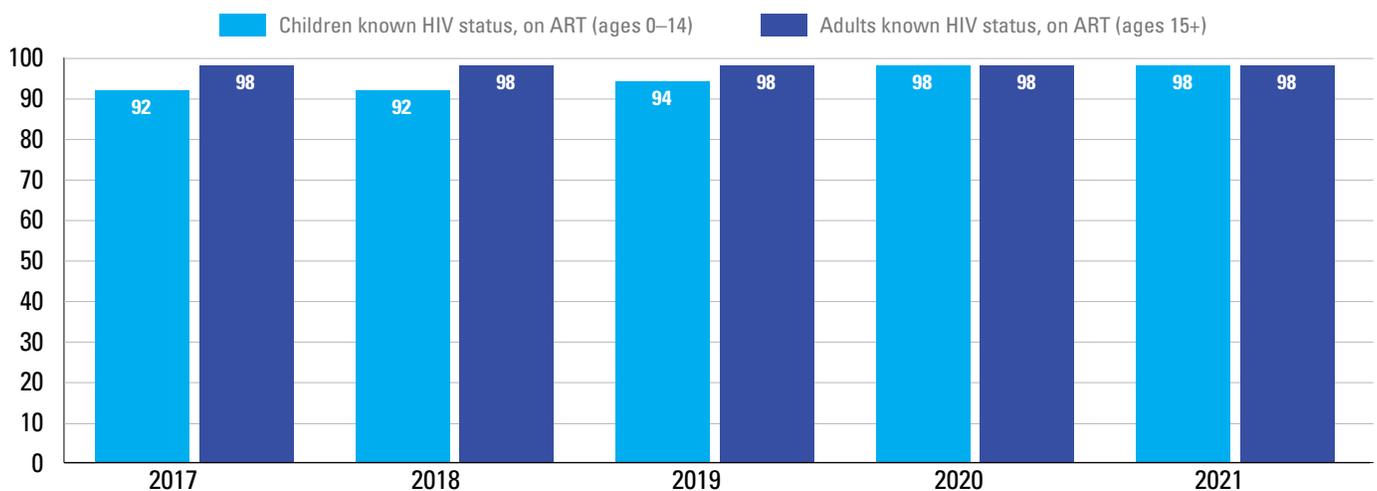


Figure 3: Estimated AIDS-related deaths among children by age group, 2021

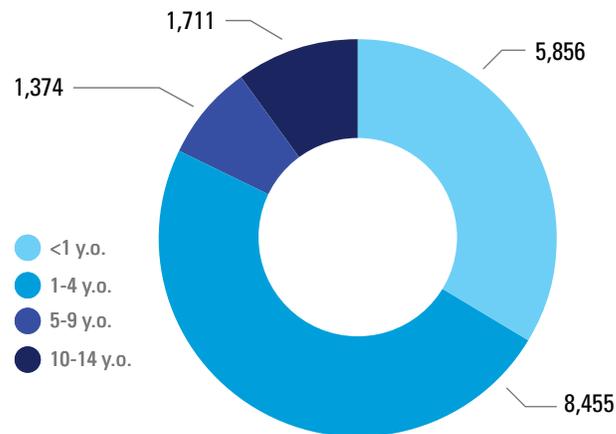


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

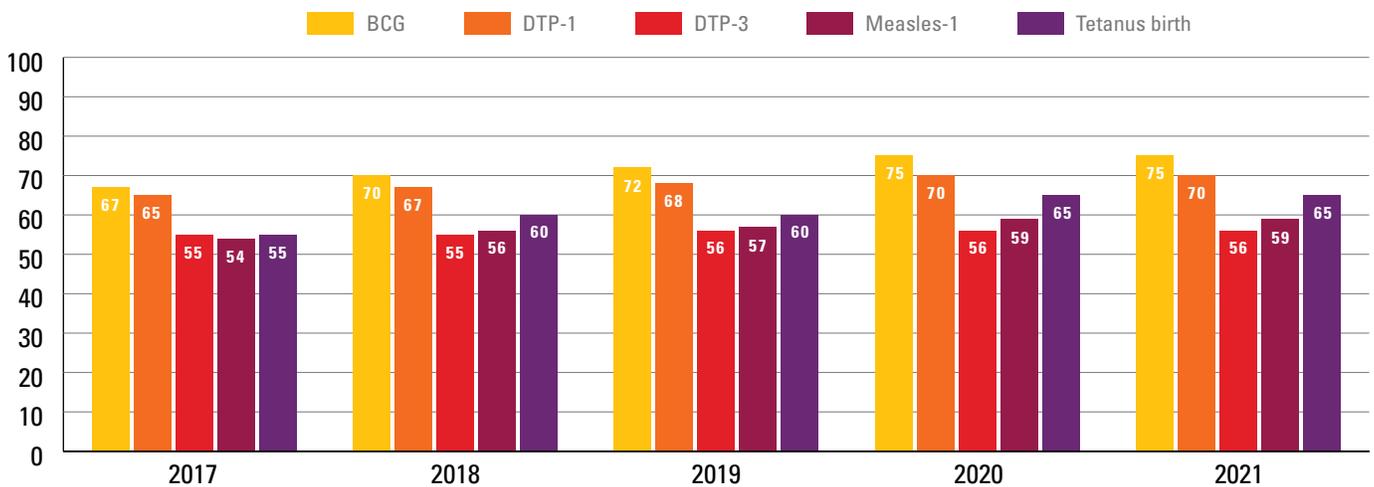
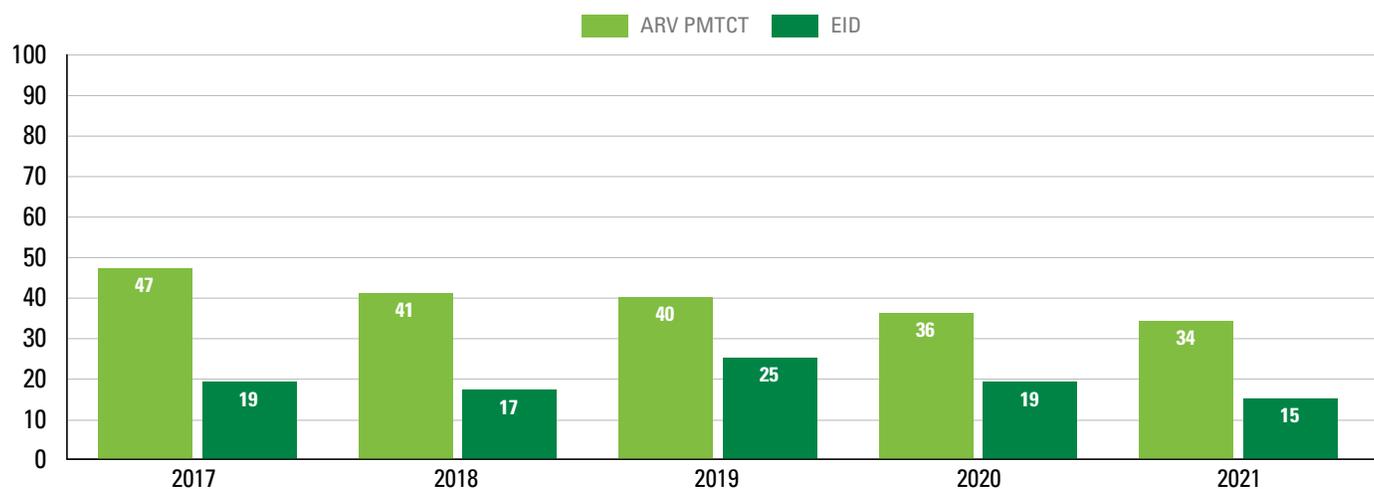


Figure 5: Trends in PMTCT and EID coverage (2017-2021)



SOUTH AFRICA

Figure 1: Estimated children living with HIV by age group, 2022

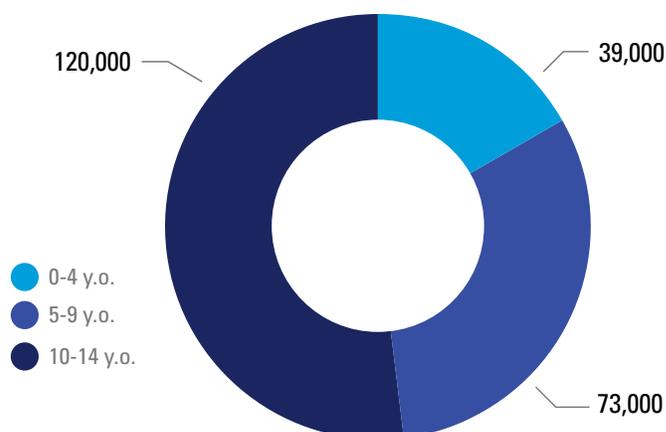


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

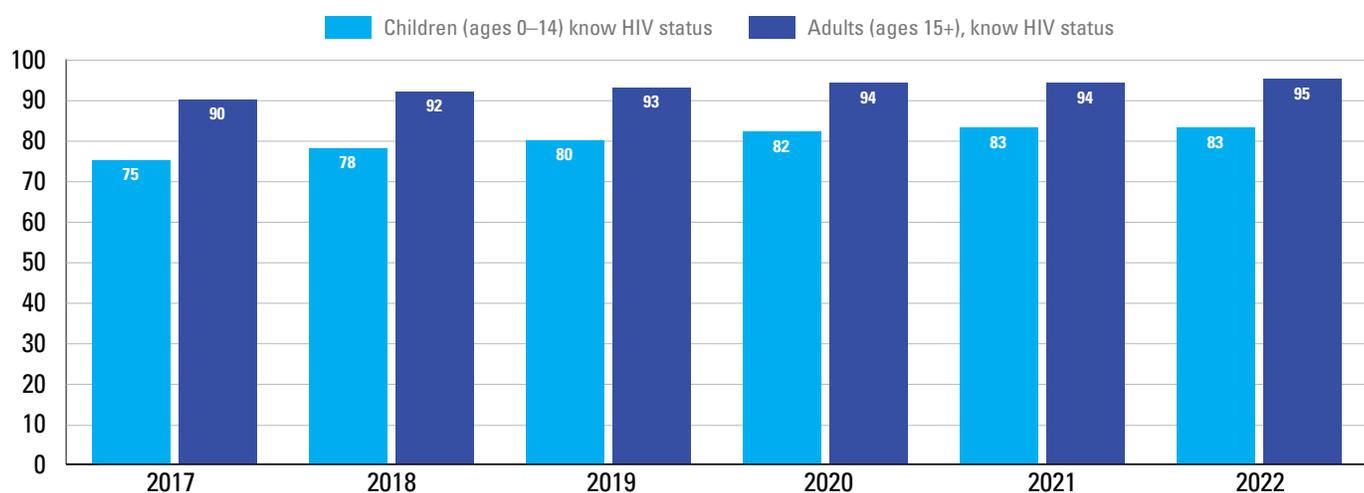


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

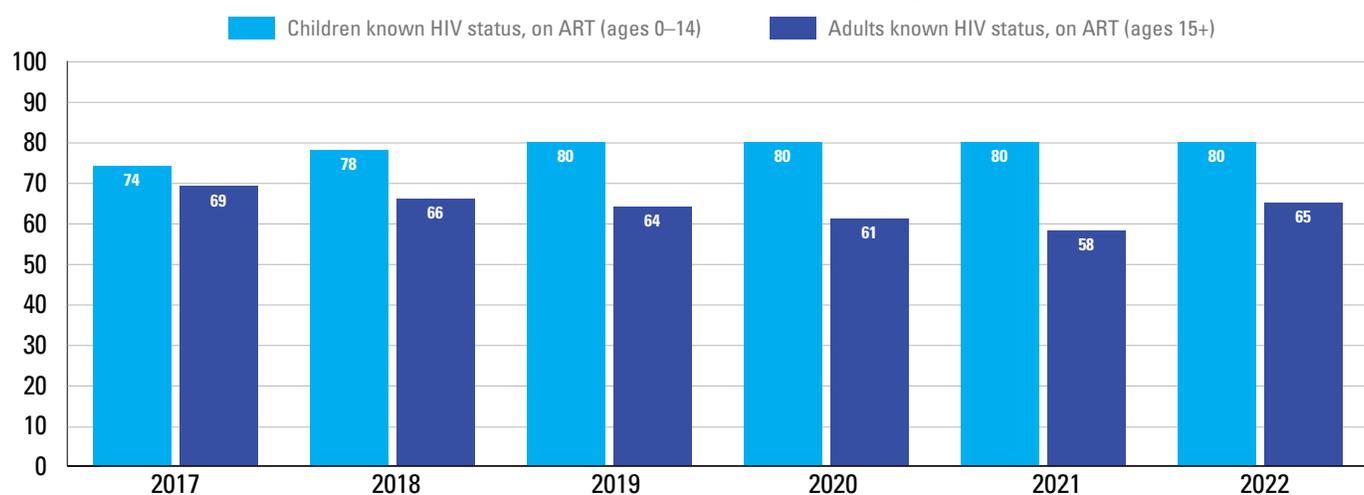


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

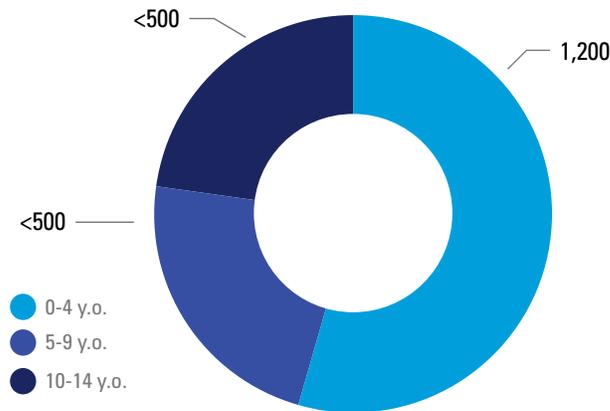


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

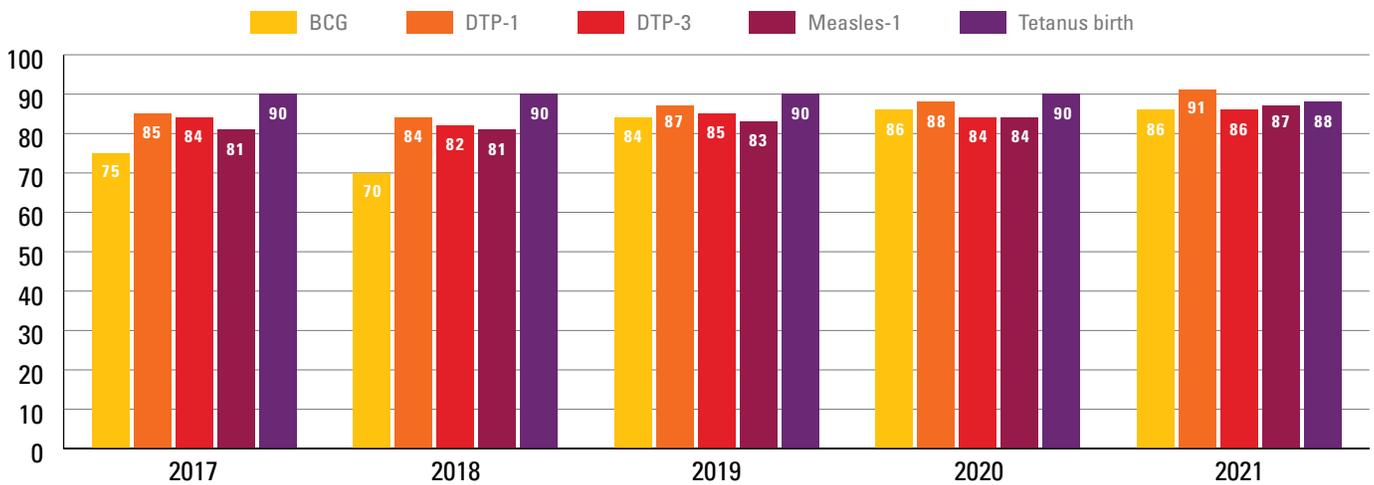
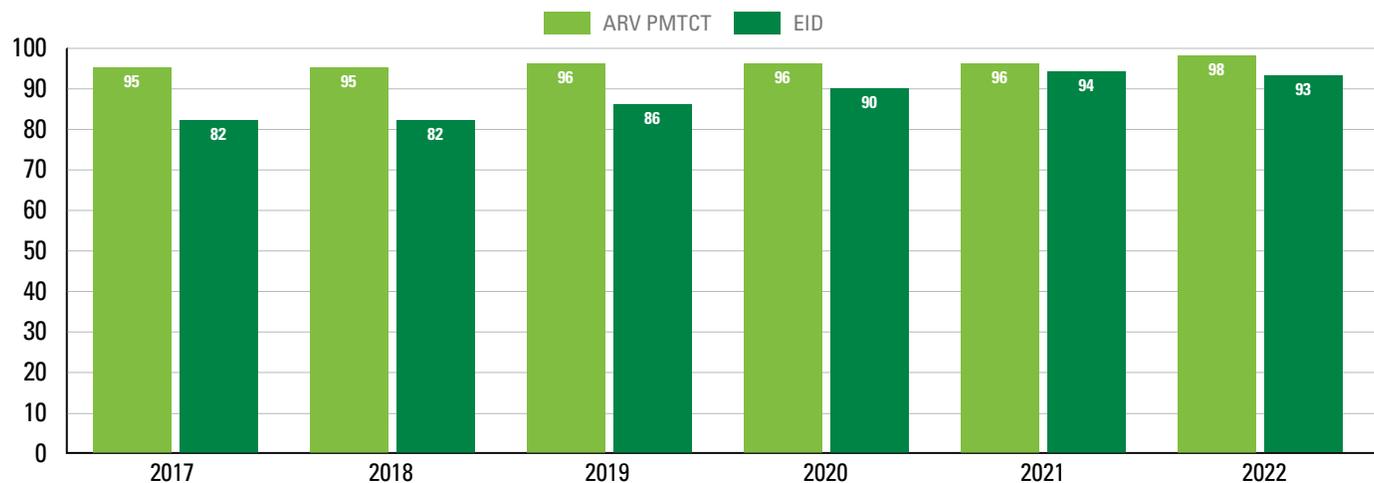


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



UNITED REPUBLIC OF TANZANIA

Figure 1: Estimated children living with HIV by age group, 2022

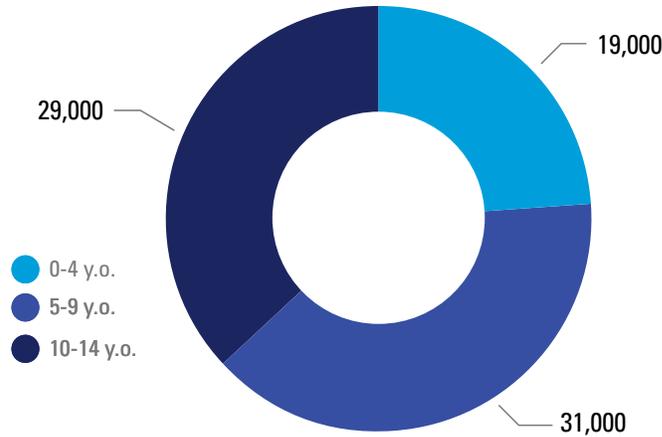


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

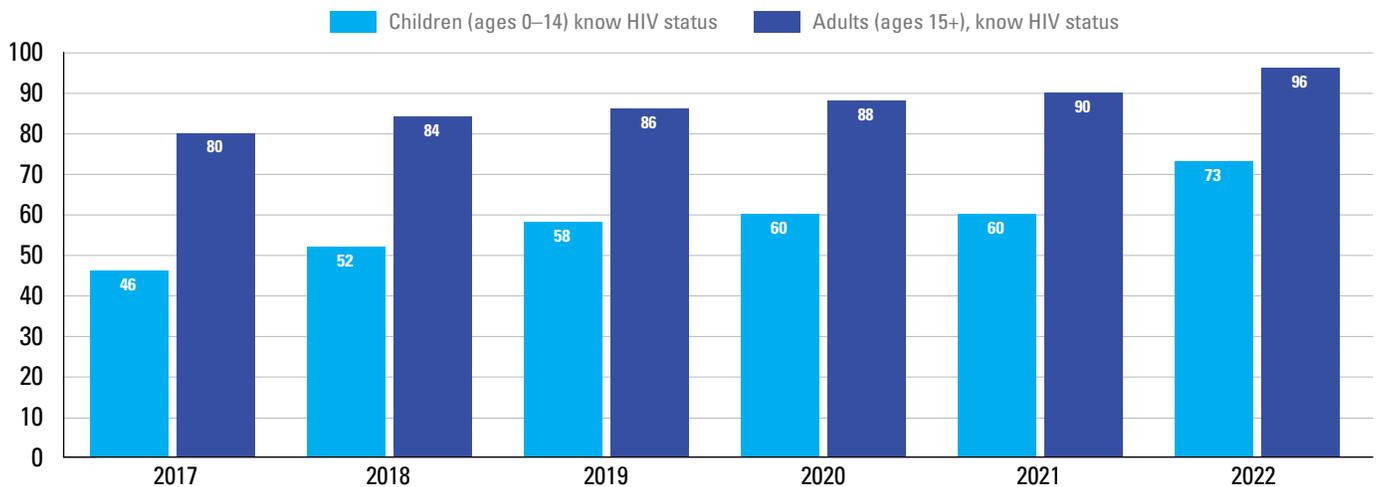


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

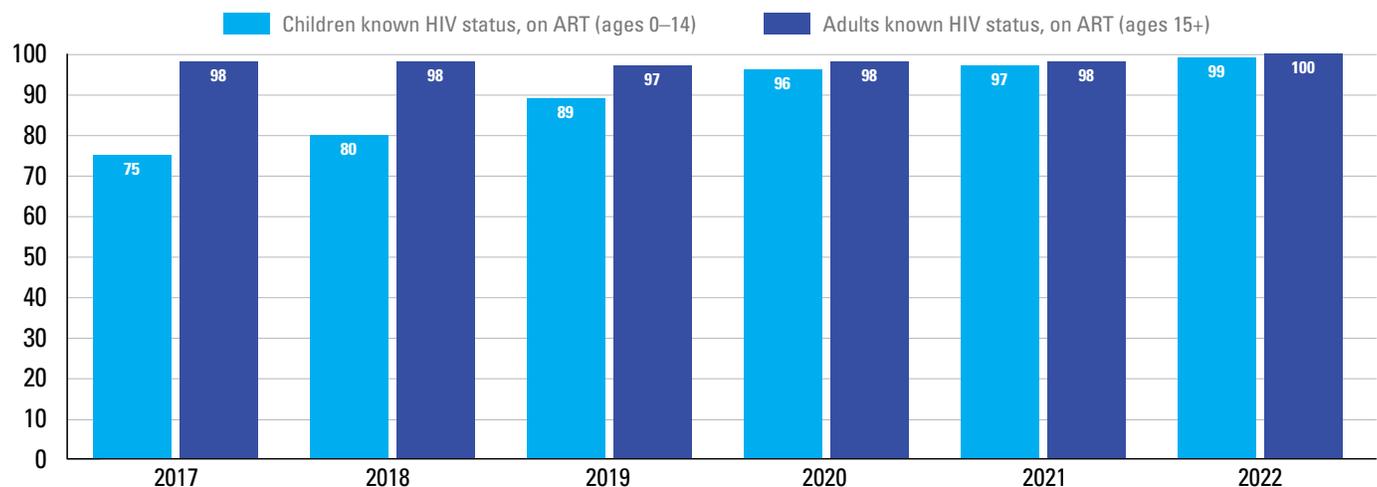


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

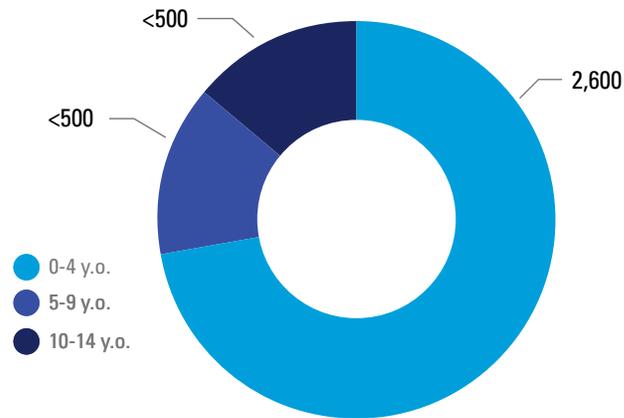


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

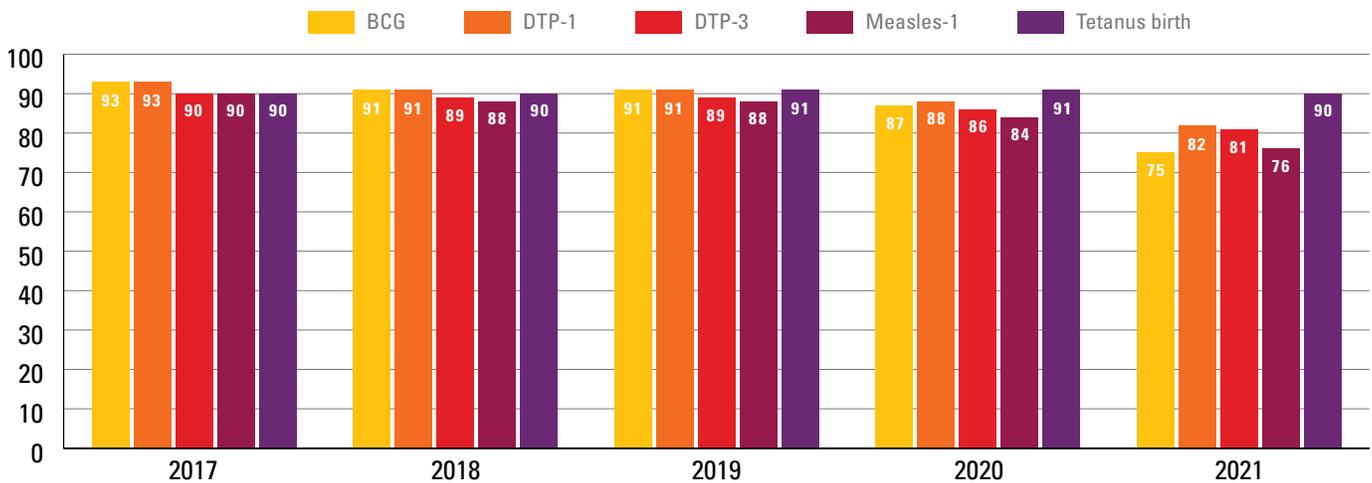
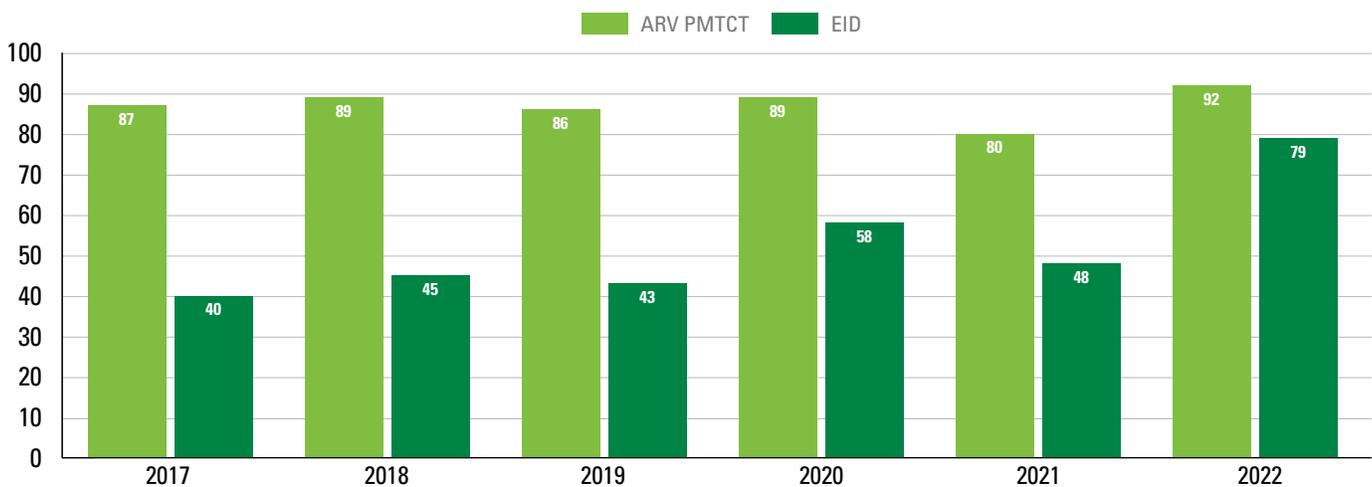


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



UGANDA

Figure 1: Estimated children living with HIV by age group, 2022

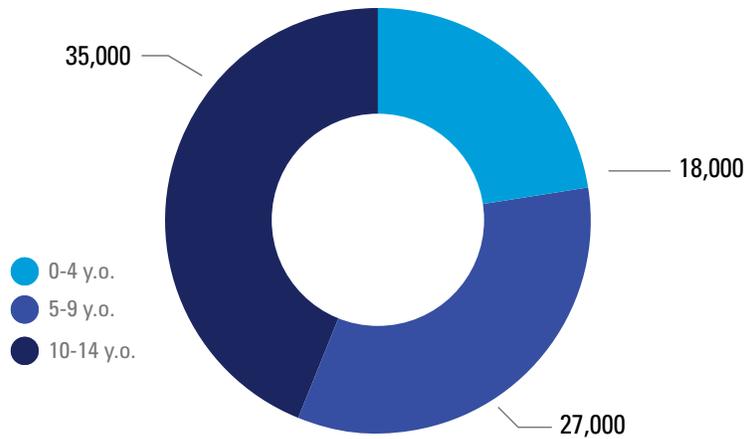


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

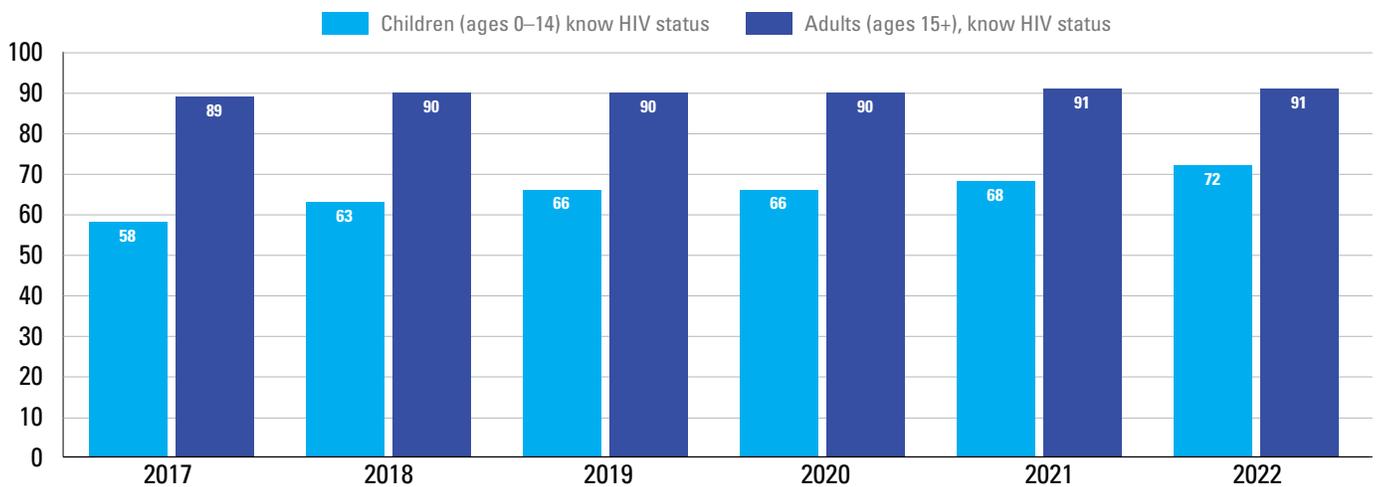


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

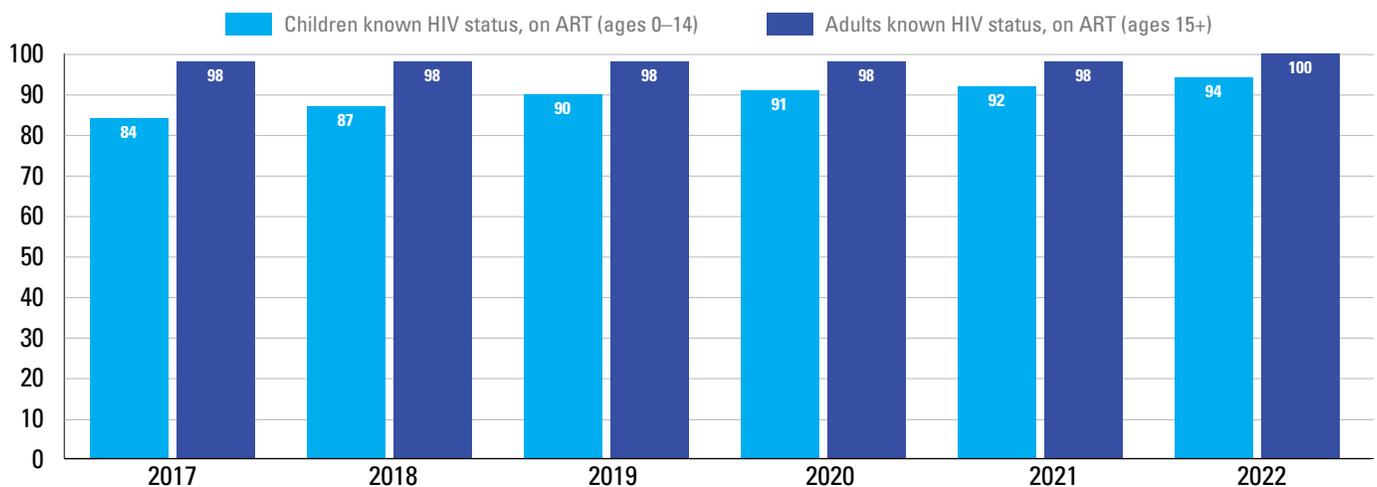


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

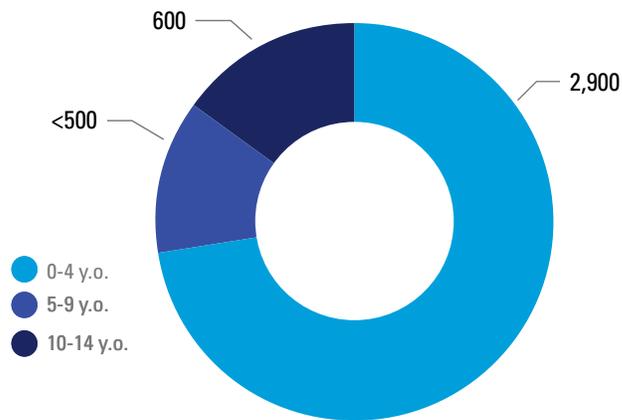


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

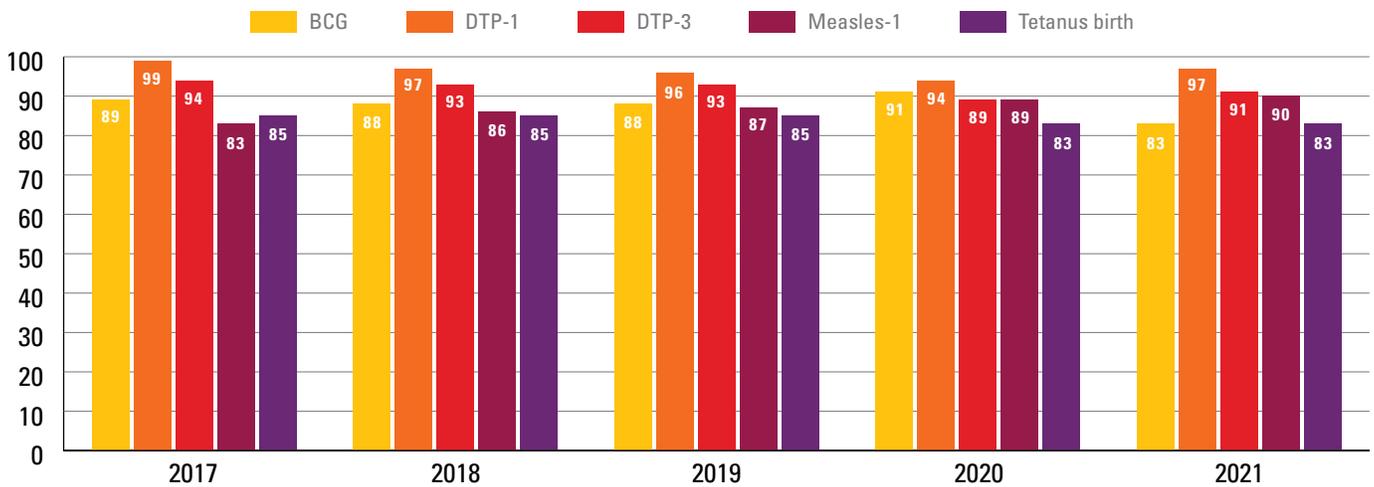
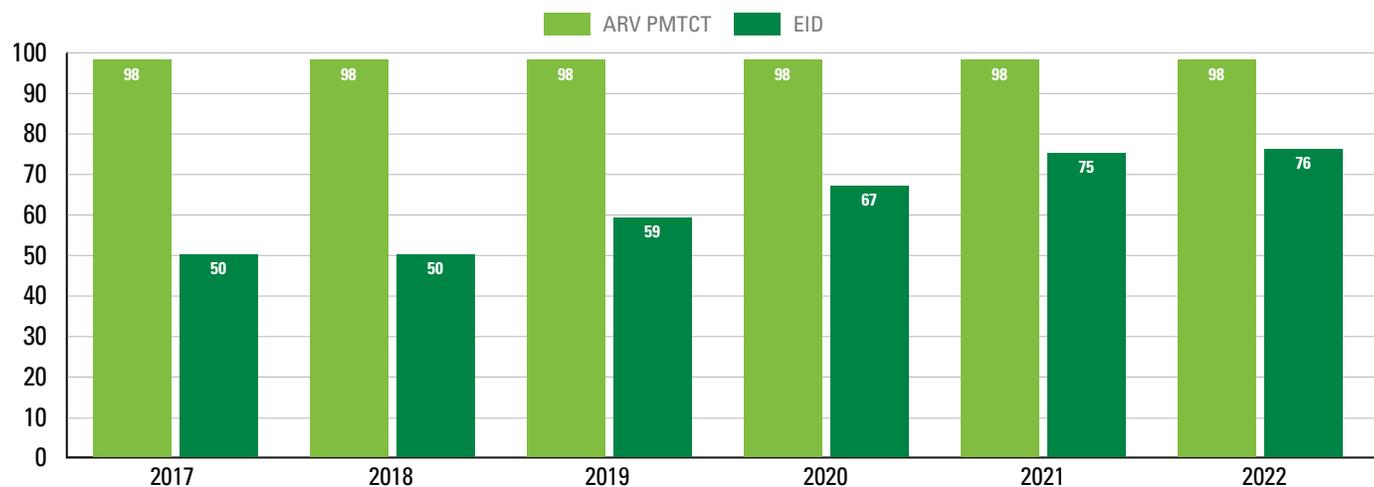


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



ZAMBIA

Figure 1: Estimated children living with HIV by age group, 2022

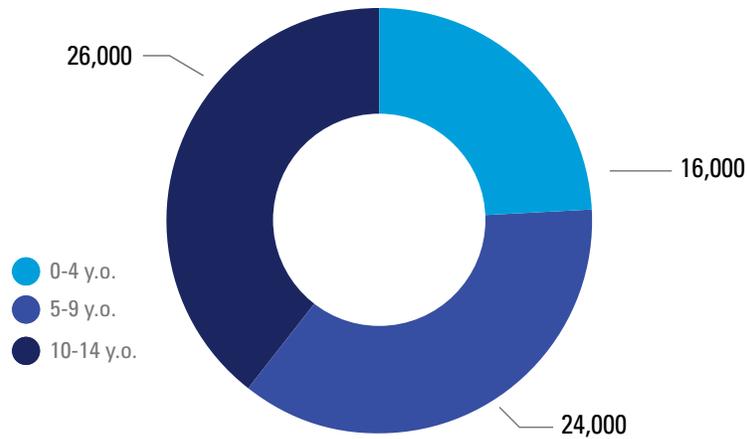


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

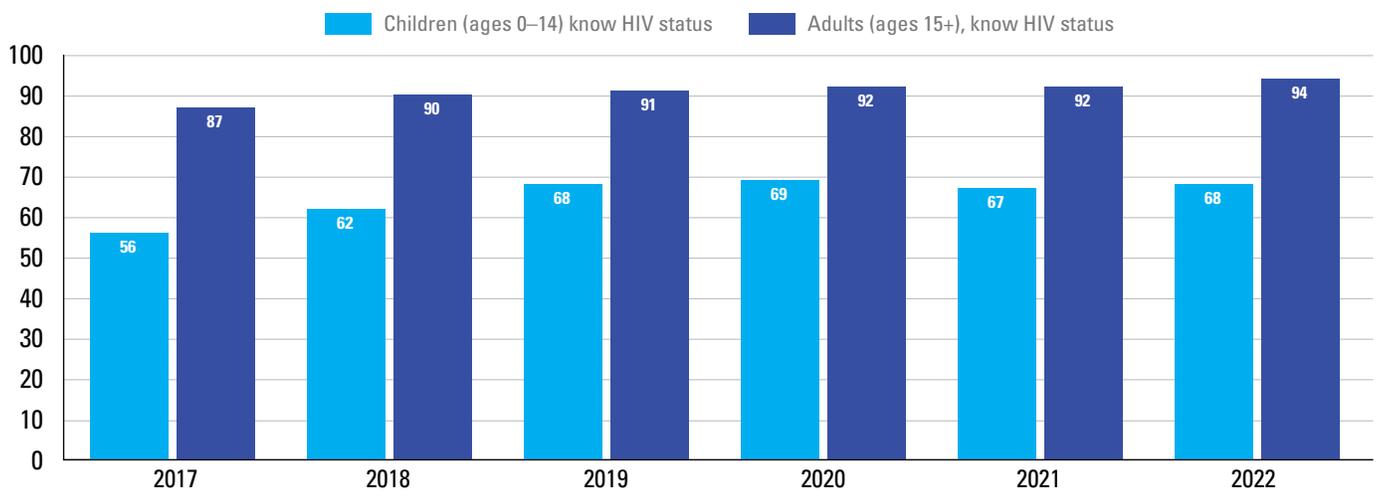


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

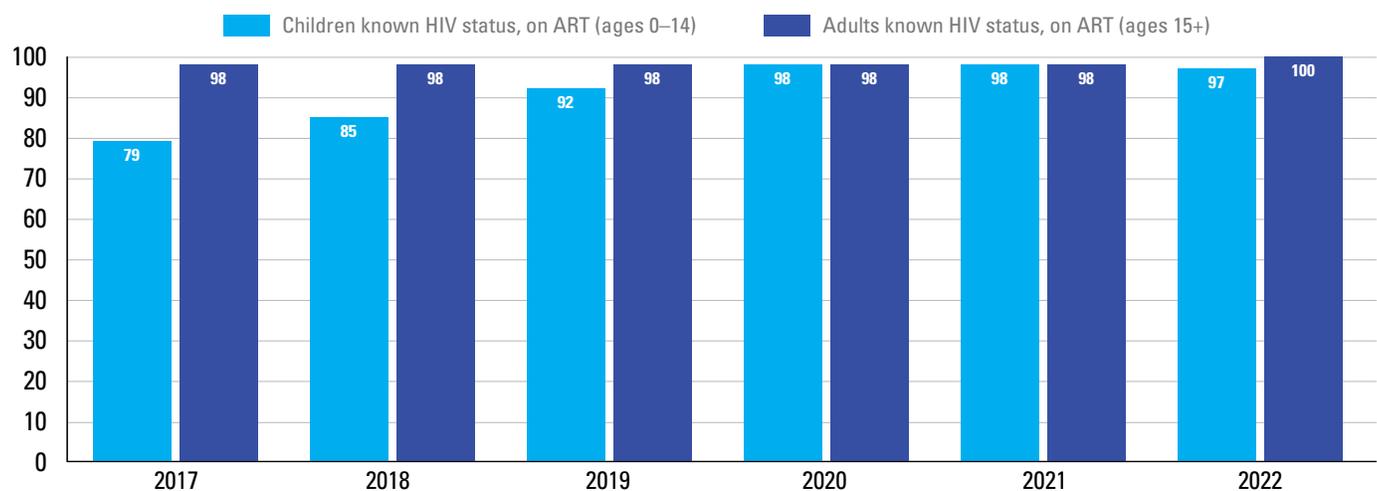


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

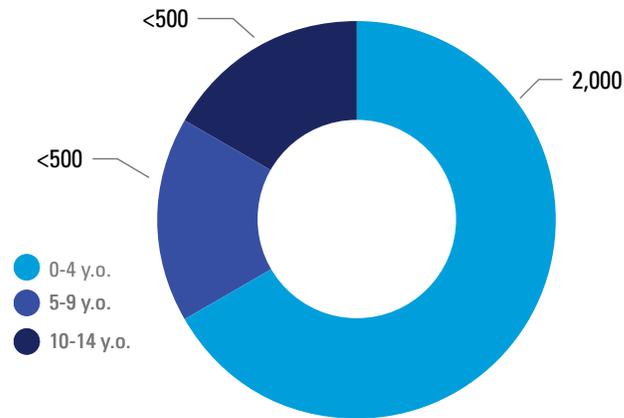


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

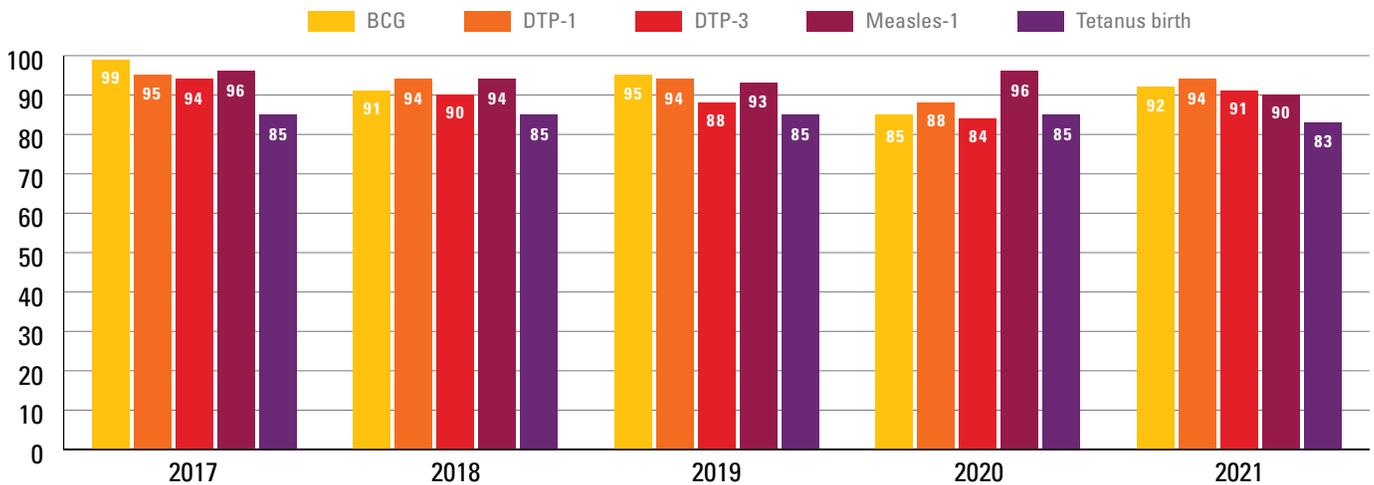
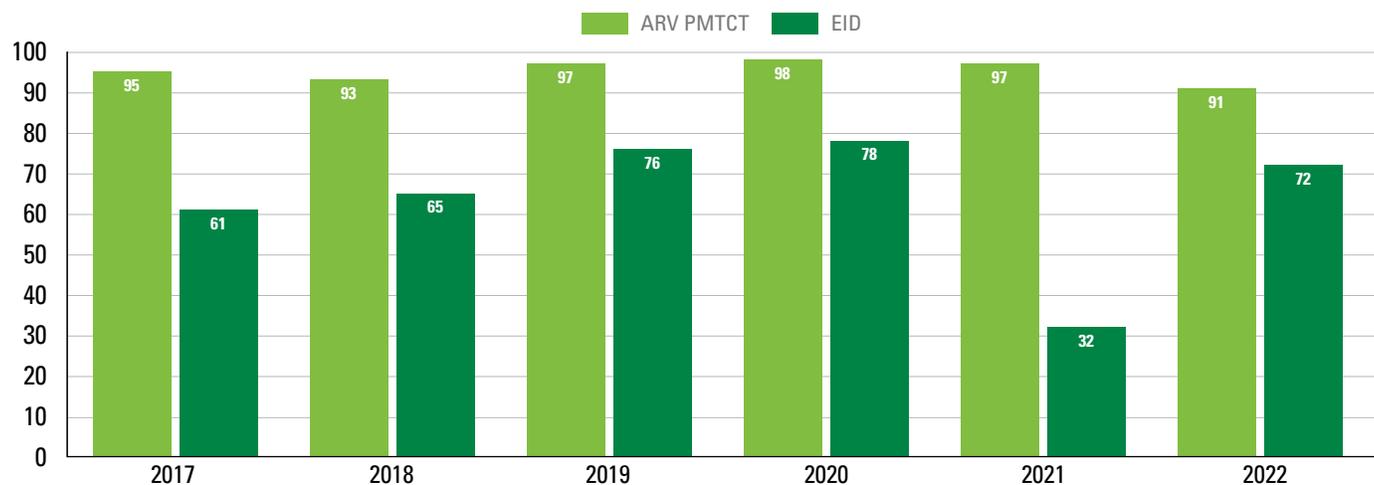


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



ZIMBABWE

Figure 1: Estimated children living with HIV by age group, 2022

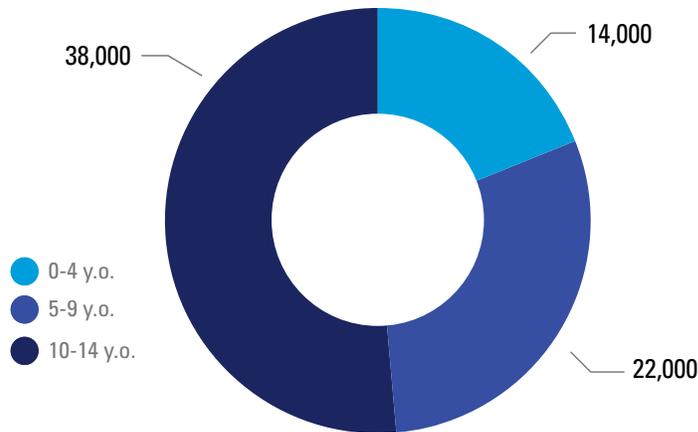


Figure 2a: FIRST 95: Estimated trends in knowledge of HIV status among adults and children, 2017-2022

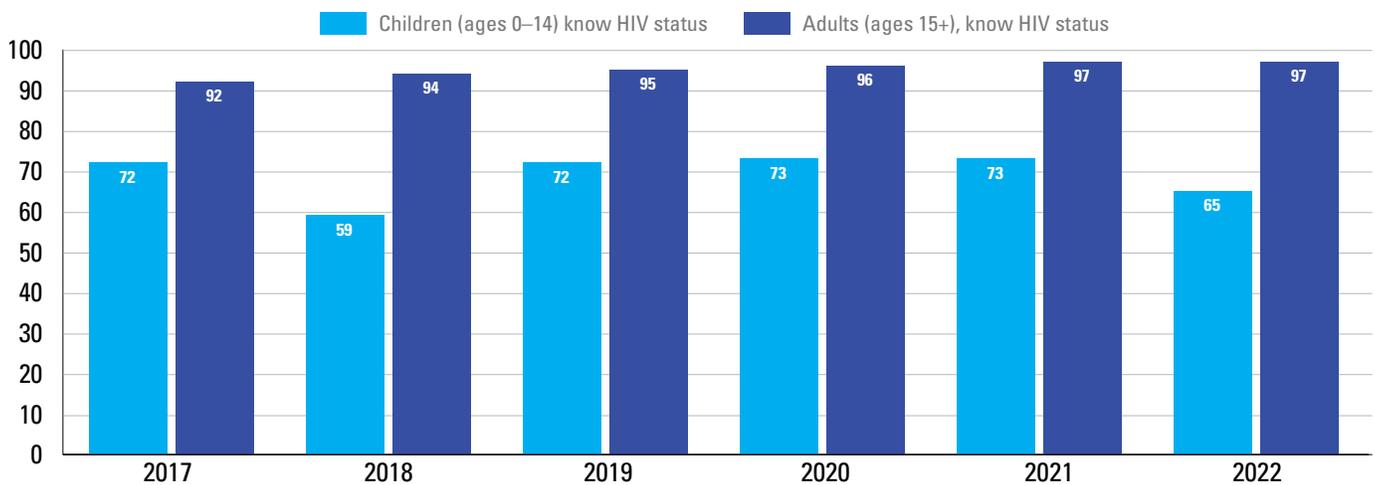


Figure 2b: SECOND 95: Estimated trends in linkage to treatment among adults and children, 2017-2022

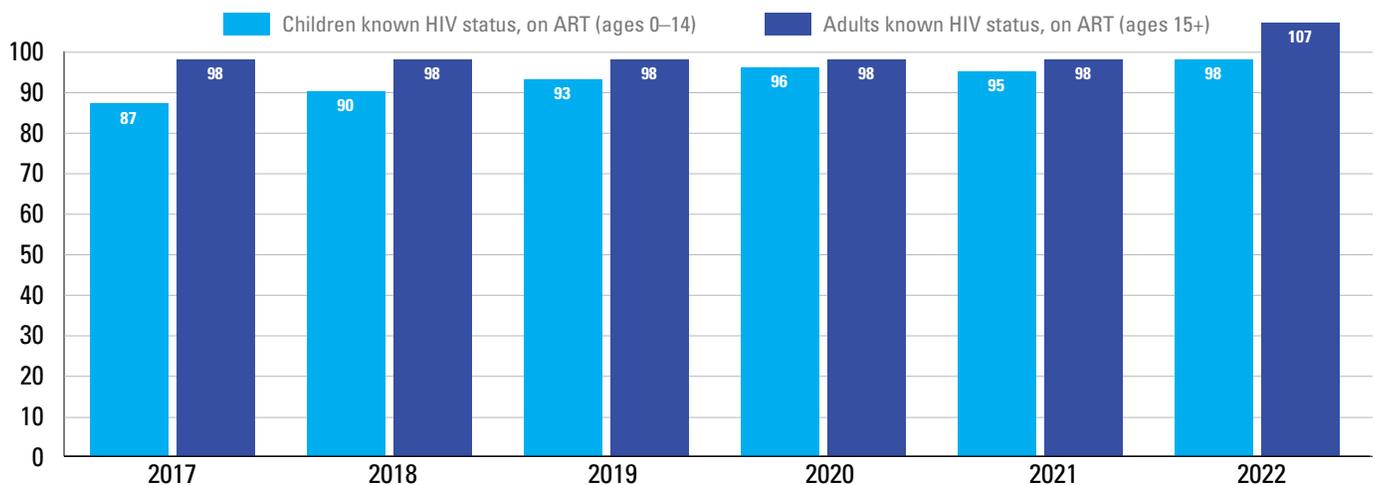


Figure 3: Estimated AIDS-related deaths among children by age group, 2022

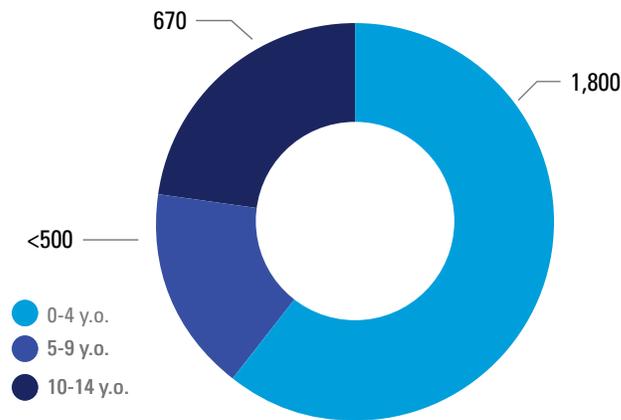


Figure 4: Trends in immunization coverage and opportunities for infant HIV testing on the MCH platform (2017-2021)

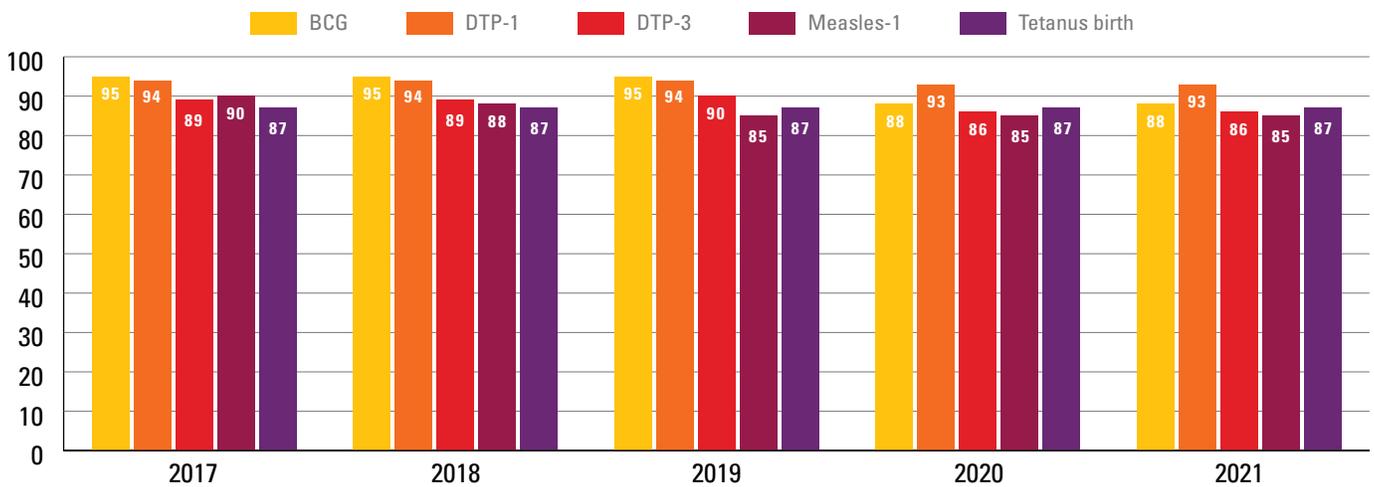
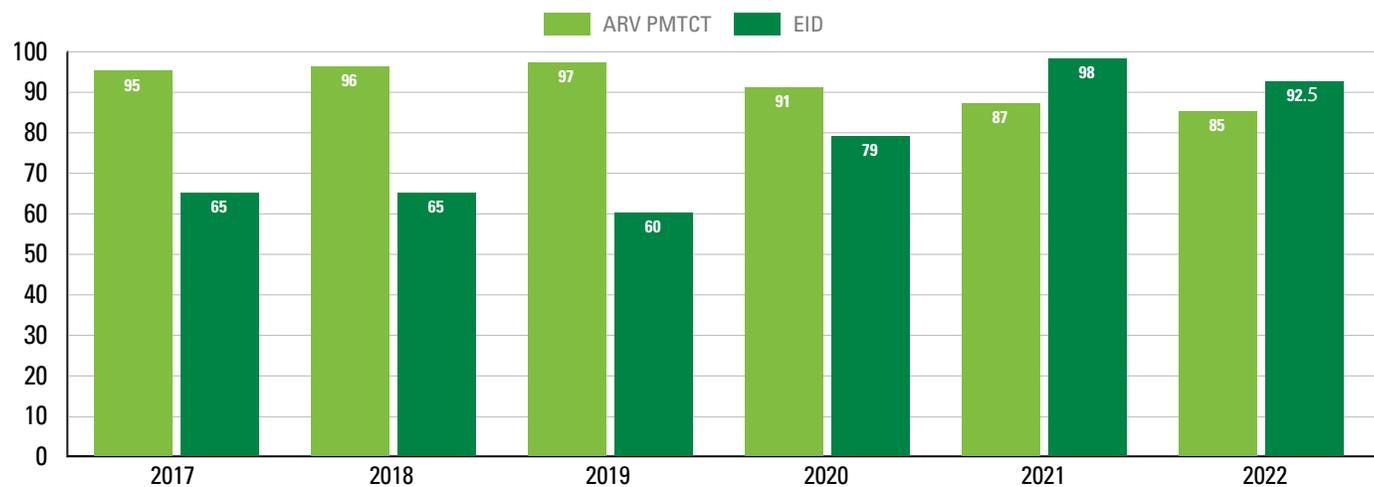


Figure 5: Trends in PMTCT and EID coverage (2017-2022)



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**Elizabeth Glaser
Pediatric AIDS Foundation**
Fighting for an AIDS-free generation



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