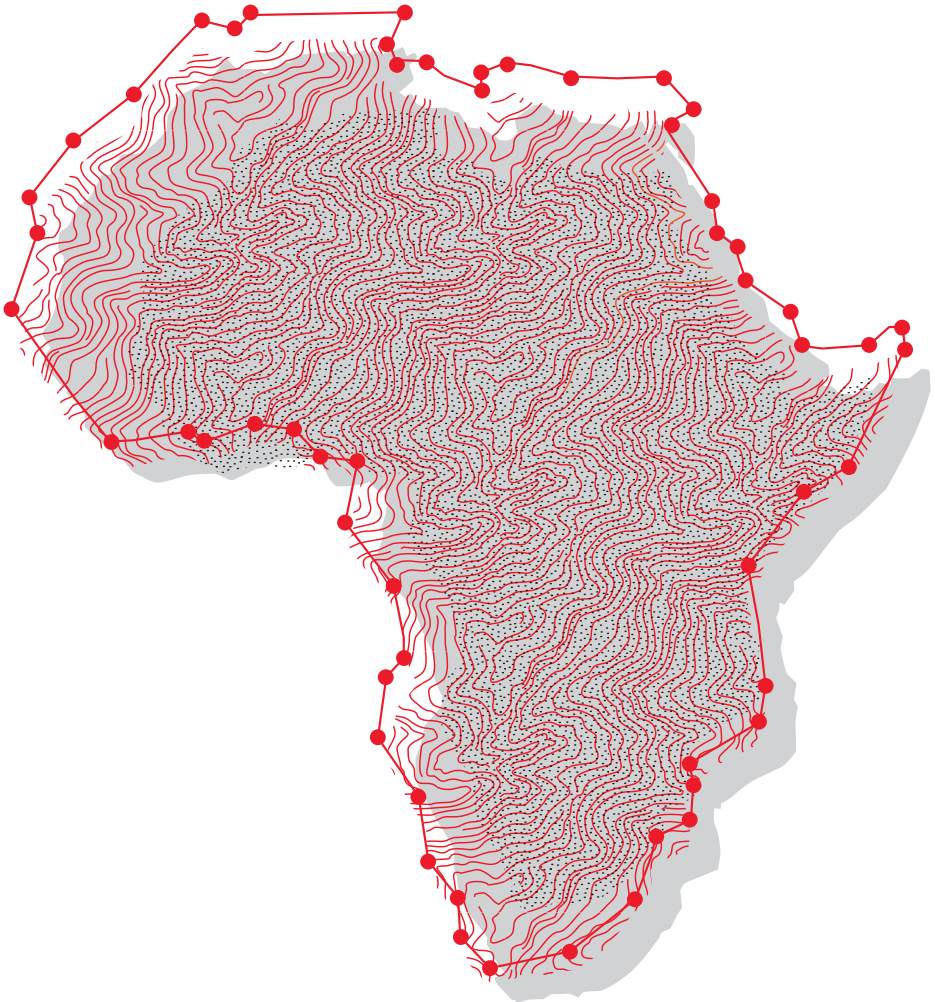
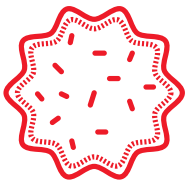
Sidaction
ENSEMBLE CONTRE LE SIDA

Access to Pediatric ART and Virological Testing

An uncertain future for children living with HIV in 11 African countries



REAL-WORLD OBSERVATIONS AND RECOMMENDATIONS



WE WOULD LIKE TO EXPRESS OUR THANKS

to the African charitable organizations partnered with Sidaction
who tirelessly contributed to our surveys between 2008 and 2018.

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Foreword

In an era when, thanks to great strides in available treatment options, millions of HIV-positive individuals around the world who once thought they would be dead 10, 20, or even 30 years ago are now able to grow old with HIV, 110,000 children and teenagers died of AIDS in 2017. Today, it remains the leading cause of death for Africans between the ages of 10 and 19.

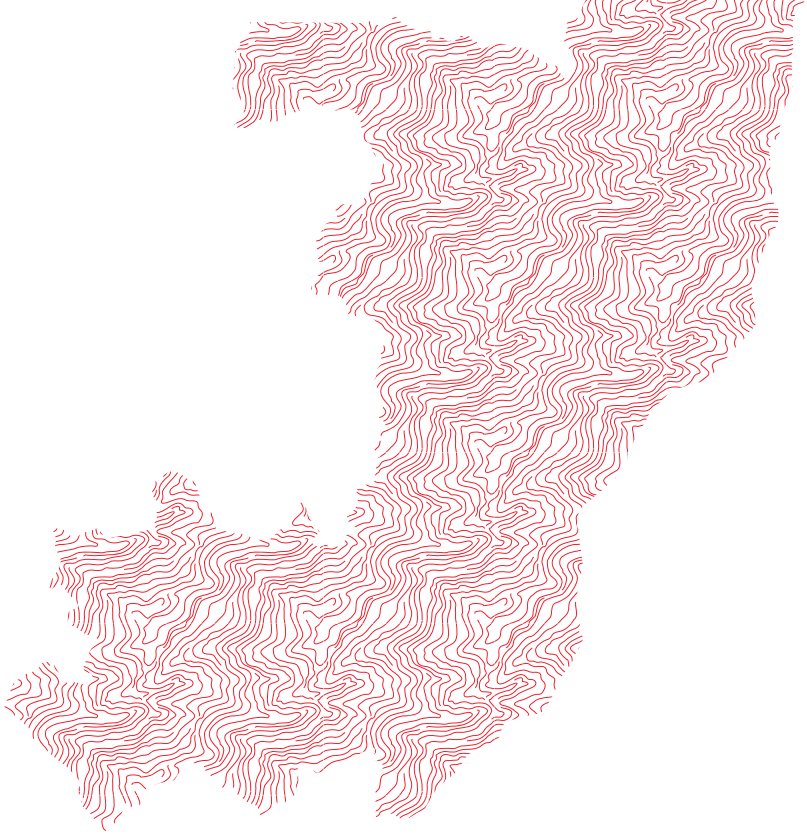
Why then is the significant drop in AIDS deaths around the world — 50% since 2005 — not reflected among young people, to such an extent that deaths among teenagers between between the ages of 15 and 19 rose 35% between 2010 and 2016. While investments in the areas of prevention and access to screening and treatment focus on key or vulnerable populations, it would seem that children and teenagers have been largely overlooked in the last 15 years. While significant efforts have been undertaken to prevent mother-to-child transmission of HIV, they have been largely unsuccessful in improving early detection of HIV in newborns and facilitating speedy access to effective, high-quality treatment throughout the life of children and teenagers living with HIV.

Gaps continue to exist, and are particularly alarming in western and central Africa, where the 11 countries included in this study on access to pediatric ART drugs are located. A mere 26% of children living with HIV in these areas have access to such treatment, and too many receive unsuitable dosage forms and insufficient laboratory monitoring, which, among other things, makes it challenging to gauge the efficacy of treatment regimens and anticipate treatment failure.

We cannot turn a blind eye to this reality. Politicians, international organizations, and a handful of pharmaceutical companies have promised to speed up the response to the epidemic spreading through this region and, among other things, improve access to treatment. Where are the resources being deployed? Where has action been taken on a national and international level? It is alarming that in 2019, the conclusion can be reached that pediatric HIV is essentially seen as a neglected disease that is of little interest to investors.

We are all responsible for ensuring that the three million children and teenagers living with HIV in the world today grow up to be healthy adults. Sidaction will use its resources and current and future programs to further this aim, and it will also work to ensure that the oft-silenced voices of those who are most concerned by this issue — primarily French-speaking young people — are heard at large international events and conferences.

Florence Thune,
Managing Director of Sidaction



Acronyms and Abbreviations

3TC	Lamivudine
ABC	Abacavir
DNA	Deoxyribonucleic Acid
ART	Antiretroviral Treatment
AZT	Azidothymidine
ATV	Atazanavir
Tab.	Tablet
ATC	Ambulatory Treatment Center
DRV	Darunavir
DTG	Dolutegravir
EFV	Efavirenz
IIN	Integrase Inhibitors
NNRTI	Non-Nucleoside Reverse-Transcriptase Inhibitors
PI	Protease Inhibitors
LPV/r	Lopinavir/ritonavir
NVP	Nevirapine
WHO	World Health Organization
PCR	Polymerase Chain Reaction
PMTCT	Prevention of Mother-to-Child Transmission
NAP	National AIDS Program
RAL	Raltegravir
DRC	Democratic Republic of Congo
RTV	Ritonavir
Or. sol.	Oral Solution
TDF	Tenofovir Disoproxil Fumarate

Introduction

Since 2007, Sidaction, through its Grandir[1] program, has conducted surveys among the pediatric HIV treatment facilities to which it provides support in western and central Africa. The aim of these surveys is to provide a sweeping overview of access to pediatric antiretroviral treatment (ART), early infant diagnosis (PCR), and HIV viral load testing. While significant strides have been made over the last 10 years, access to pediatric HIV testing/monitoring and ART still remain a key challenge that receives far too little attention in the fight against HIV and AIDS.

Since 2010, WHO has published official recommendations every 2-3 years for diagnosing and caring for pediatric HIV. The most recent recommendations were published in 2016, and WHO-recommended pediatric ART treatment regimens were updated in 2018. On the basis of these recommendations, national governments (ministries of health and/or NAPs) issue national pediatric HIV care recommendations. However, aligning national healthcare systems with these recommendations can take a certain amount of time, depending on the country in question. And without access to adequate treatments and medical products, most treatment facilities are unable to apply the latest WHO recommendations.[2]

Between 2007 and 2017, despite the fact that new pediatric ART drugs were approved for sale, suitable treatment options for children weighing between 3 kg and 25 kg remained too limited, and access to existing pediatric antiretroviral drugs remains inadequate.[3] In 2017, only 52% of HIV-positive children worldwide under age 15 had access to pediatric ART. The situation is all the more alarming in western and central Africa, where in the same year, only 26% of children under age 15 and 41% of adults[4] had access to ART.

By the end of 2018, the situation had not improved. Doctors Without Borders estimates that half of children receive suboptimal treatment (less effective and less suitable for children than WHO-recommended treatment regimens), and has called on pharmaceutical companies to make pediatric HIV treatments available and financially accessible in countries with limited resources.[5]

Without returning to the issue of the cost of treatment — which is clearly excessive — this report contributes to this call for change by sharing real-world data and observations gathered over ten years of surveys conducted in collaboration with Sidaction's African partners. The aim is to provide information regarding the availability of WHO-recommended treatments in the countries in question, and more importantly, to highlight the ways in which they are made available in medical facilities.

Methodology

Each year between 2007 and 2018, Sidaction conducted a survey of its partner charities in the Grandir program.[6] In the beginning, only 8 treatment facilities were surveyed, but over time, 17 charities in 11 African countries (western and central Africa and Djibouti) joined their ranks, for a combined total of 38 pediatric HIV treatment facilities, which, as of December 31, 2018, were caring for over 5,800 HIV+ children (nearly 5,300 of whom receive ART). Under the auspices of national healthcare programs, these facilities operate under the authority of their respective Ministries of Health, and they receive ART drugs and other medical products via a national pharmaceutical procurement system.

Conducted via an online self-report questionnaire, the survey features 96 questions on the availability of these products and treatments (76 on pediatric ART drugs, 8 on early infant diagnosis, 11 on viral load and resistance testing, and 1 on ready-to-use therapeutic food such as Plumpy'Nut). For each question, respondents were asked indicate the availability, both at a facility level (dispensaries) and at a national level (national pharmaceutical purchasing offices or national reference centers for pediatric HIV). Ten open-ended questions on access to medical products and testing were also included in the surveys.

Additional e-mail exchanges were conducted with charities regarding their survey responses to achieve more comprehensive, in-depth analysis and identify the limitations and/or obstacles that might explain the unavailability of some drugs or tests: price,[7] the existence of generic versions, quality-assurance certification recognized by the Global Fund[8], etc.

Lastly, some findings were compared to a review of medical records performed in 2018 in collaboration with 8 charities from 5 different countries.

FIRST-LINE PEDIATRIC ART
Treatment available but insufficiently diverse

WHO RECOMMENDATIONS (2016 and 2018)[9]	
2 NNRTI-based drugs	1 other type of drug (PI, IIN, or NNRTI)
From the following list: ◗ ABC/3TC 60/30 mg or 120/60 mg dispersible tablets; ◗ AZT/3TC 60/30 mg dispersible tablets.	From the following list: ◗ LPV/r 80/20 mg/mL oral solution; or 40/10 mg pellets (preferred to oral solutions since 2018, according to WHO recommendations); or 100/25 mg tablets (from 10 kg); ◗ RAL 25 mg chewable tablets; ◗ NVP 50 mg dispersible tablets and AZT/3TC/NVP 60/30/50 mg dispersible tablets; ◗ EFV 200 mg scored tablets (from 10 kg).

Note:

These doses and dosage forms[10] are appropriate for children between 3 kg and 25 kg. Above 25 kg, "adult" doses and dosage forms can be used, with the exception of certain ART drugs such as TDF, for which adult formulations are recommended for children 30 kg and above.

Since 2016, ABC has been recommended over AZT.

NVP and EFV are part of the NNRTI family of drugs. Since 2018, they are no longer the WHO's preferred treatment regimen, due to their lower efficacy and higher risk of resistance.

DTG and RAL have been preferred first-line ART drugs since 2018. However, they are still used as second- and third-line drugs in Africa, due to the time required to align national recommendations with WHO recommendations.

DTG is not featured in this list because, in practice, existing 10 mg and 25 mg doses have not been "approved" by WHO for use in children. Only 50 mg tablets have been "approved" by WHO for use in children 20 kg and over.

REAL-WORLD OBSERVATIONS

⊕ Significantly improved access to first-line pediatric ART:

In 2008, only a handful of liquid formulations (AZT oral solution, NVP oral solution, and LPV/r oral solution) and EFV 200 mg were available in the facilities surveyed. By 2018, all of the facilities had access to at least one first-line ART combination recommended by WHO since 2016.

In particular, access to WHO-preferred ART treatment regimens is on the rise:

- ABC/3TC 30/60 mg: available in 95% of facilities and 97% of countries in 2018, compared to 95% and 80% in 2016. Before 2014, it was available in less than 10% of facilities surveyed. The only country in which it remains unavailable is Djibouti.
- AZT/3TC 60/30 mg, AZT/3TC/NVP 60/30/50 mg, and EFV 200 mg: available in 90% of facilities and in virtually every country in 2018 and 2016. In 2013, it was available in only half of the facilities surveyed, despite the fact that it was already the standard pediatric treatment regimen.
- LPV/r 100/25 mg: available in 92% of facilities and 100% of countries in 2018, compared to 73% and 93% in 2016. Before 2014, it was available in less than 10% of facilities surveyed.

In addition, apart from Burundi, the facilities surveyed have noted few disparities in access to first-line pediatric ART in local facilities, compared to facilities located in the capital.

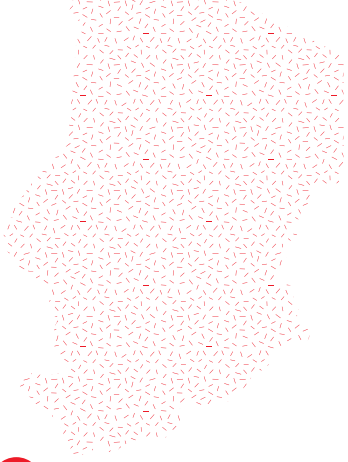
As for LPV/r, it is increasingly available in the form of oral solutions and pellets, although a number of countries have not yet made the switch from oral solutions to pellets as recommended by WHO in 2016.

- LPV/r oral solution: available in 60% of facilities and countries in 2018, compared to 60% of facilities and 80% of countries in 2016 and 50% of facilities and countries before 2013.
- LPV/r pellets: available in 18% of facilities and 34% of countries in 2018, compared to 8% and 10% in 2016. It is available in Benin, Burundi, Cameroon, and the DRC, but in some cases, this is only true at a national level. For example, in Burundi, LPV/r pellets are available in both of Bujumbura's facilities, but in only 25% of those elsewhere.

⊖ Limited choice of first-line ART combinations in some countries:

In Djibouti, without access to ABC/3TC or pediatric AZT/3TC associated with pediatric EFV, only a single variety of combination ART for pediatric use is available: AZT/3TC/NVP.

In Chad, without access to LPV/r syrup or pellets for children under 10 kg or to any other combination ART suitable to this weight range, doctors prescribe LPV/r 100/25 mg tablets that are not recommended by WHO for children under 10 kg, as they are difficult to swallow and cannot be dissolved, broken, or crushed. Yet an inappropriate dosage form can lead to a risk of poor treatment adherence (missed doses) and drug resistance.



"With no other forms of ART available for children under age 3 and 10 kg, national standard treatment guidelines call for a combination of ABC/3TC 60/30 mg tablets (1 tab. 2x/day) and LPV/r 100/25 mg tablets (1 tab. 2x/day) in 1/2 glass of water."
CDN (CHAD)

⊖ New pediatric ART drugs not available in surveyed countries:

Several new pediatric drugs recommended by WHO as first-line ART treatments since 2018 are unavailable in the surveyed countries: RAL in 25 mg and 100 mg tablets, RAL powder in 100 mg packets, and ABC/3TC in 120/60 mg tablets. Of these drugs, only ABC/3TC 120/60 mg tablets are available in a generic version at a price that is equivalent to other dosage forms, thus making it available via Global Fund programs. Generic versions of the others (RAL in 25 mg and 100 mg tablets and RAL powder in 100 mg packets) are unavailable, and their price remains high compared to other first-line treatments.

⊖ Abrupt changes to treatment regimens:

In several countries in which the facilities surveyed are located, pediatric ART stockouts have led prescribing physicians to abruptly alter combination treatment regimens for children or replace pediatric dosage forms with adult formulations that are harder to take. For example, they might substitute ABC/3TC for AZT/3TC (or vice versa), or prescribe TDF/3TC even though it should be reserved for second-line treatment. These temporary substitutions, followed by a return to the former treatment regimen when the previous drug becomes available again, can lead to the occurrence of drug resistance.

"Some children's treatment regimens were modified due to stockouts in the first half of 2018, while other children were able to take adult ART pills broken into the doses required for their weight, such as ABC/3TC 600/300 mg for adults." *RACINES (BENIN)*

Abrupt changes to treatment regimens is sometimes due to systemwide application of changes in standard treatment guidelines at a national level. Aligning the national healthcare system with WHO recommendations means ordering new drugs. Because previous formulations are no longer available, prescribing physicians are forced to modify all of their patients' treatment regiments, regardless of whether this means that they are unable to take into account the profile of each patient and whether there is a real need to alter treatments.

The transition from LPV/r syrup to pellets is one example. Ideally, there would be a transitional period during which both dosage forms would remain accessible for a time; the national AIDS program would provide support in changing from the old formulation to the new one, and there would be increased communication between national pharmaceutical purchasing offices and dispensaries to handle "transition inventory." In the 2018 survey, it is reassuring to note that in places where pellets are unavailable (apart from Chad and Djibouti), oral solutions are still available. But in qualitative survey responses, some facilities wrote of stockouts for both formulations in 2017, which required a change in some children's ART combinations.

"LPV/r pellets have been available at a national level since February/ March 2018, but when LPV/r syrup went out of stock, infants were treated with NVP syrup combined with pediatric ABC/3TC tablets while awaiting the arrival of the new pellets." *ANSS (BURUNDI)*

Another example was the transition from AZT/3TC/NVP to ABC/3TC + EFV, recommended as the preferred first-line ART combination since 2016. In some countries, these changes in first-line standard treatment guidelines were systematically and universally applied without adequate support for prescribing physicians, with children switched from AZT/3TC/NVP to ABC/3TC + EFV and teenagers to TDF/3TC/EFV. Among patients achieving successful virological control at the time these guidelines were changed, the impact was minimal. But for patients with uncontrolled viral loads, this change was far more detrimental. Every patient who had developed resistance to NVP remained resistant to the new ART regimen, due to cross-resistance between NVP and EFV. The new treatment protocol was therefore comparable to two-drug combination therapy (ABC/3TC or TDF/3TC) or monotherapy (for those who were also resistant to 3TC), ineffective in combating the virus and posing a risk of further drug resistance to ABC, 3TC, or TDF. For these patients, a second-line combination would have been necessary.

Two real-world observations stand out: first, in certain facilities, limited access to viral load monitoring has forced prescribing physicians to "blindly" change treatment regimens; second, in other facilities, even when prescribing physicians are aware that patients' treatment regimens are failing or their viral load is increasing, insufficient training has led them to continue prescribing first-line ART in accordance with new standard treatment guidelines. In both cases, it took several months (or years) for the decision to be made to switch to second-line ART, endangering patients' chances of success due to the risk of drug resistance mutations against the entire family of NNRTIs (AZT, ABC, 3TC, TDF, etc.).

Now, as integrase inhibitors are slated to be introduced as first-line treatments, it would be sensible to plan for the way in which these new drugs should be introduced, ensuring that doctors factor in each patient's treatment history and verify the efficacy of current ART regimens by performing viral load testing before any changes are made to treatment.

RECOMMENDATIONS

To WHO

- When updating WHO recommendations, practical advice for national governments should be included on how to implement new standard treatment guidelines at a national level, particularly in terms of transitioning from previously recommended ART drug combinations. *Examples*: training and providing support to prescribing physicians to ensure that changes in first-line treatment are made in accordance with the profile and viral load of each patient; ensuring that prescribing physicians have access to viral load testing for each child and know how to interpret the results before prescribing a new ART drug combination.

To Ministries of Health, in Concert with National AIDS Programs

- Progressively align national guidelines with the latest WHO recommendations (2018), ensuring that an adequate transitional period is provided for to take into account each patient's profile and treatment schedule, so that sudden, systematic, or inappropriate changes can be avoided.
- Factor in the latest WHO recommendations when planning purchases of new pediatric ART drugs for national-government grant requests. In particular, ensure that RAL (and, later, DTG) are purchased as first-line ART treatments.
- When ordering drugs, ensure that a diverse range of pediatric ART combinations is available in sufficient quantities.
- Ensure that viral load testing is available for all children receiving ART.
- Provide information, training, awareness-raising, and support to treatment facilities and prescribing physicians in the progressive implementation of WHO recommendations and new national standard treatment guidelines.

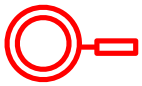
To National Pharmaceutical Purchasing Offices

- Ensure that previous pediatric ART formulations remain available during the transitional period until newly recommended forms become available in sufficient quantities, in order to prevent interruptions to ongoing treatment.
- Continue to supply previous formulations for patients in whom the new formulations are not well tolerated or whose immune profile would require their current regimen to remain in place.
- Increase communication with NAPs and treatment facilities during periods of transition between dosage forms or ART combinations; systematically send data on available and anticipated inventory to treatment facilities.

SECOND- AND THIRD-LINE PEDIATRIC ART
Underestimated levels of treatment failure and some drugs virtually unavailable

WHO RECOMMENDATIONS (2016 and 2018)

- Switch to a drug within the same family (e.g., if treatment by ABC + 3 TC fails, switch to AZT + 3 TC, or vice versa) and add a new treatment from the PI family of drugs: LPv/r (if it has not been used as a first-line treatment) or ATV + RTV or DRV + RTV. These treatments exist in pediatric doses and dosage forms for children weighing between 10 and 25 kg.
- Since 2016, WHO has recommended RAL or ATV + RTV as a second-line treatment (RAL 25 mg and 100 mg and ATV 200 mg + RTV 25 mg), and, since 2018, DRV + RTV (DRV 75 mg + RTV 25 mg).
- Perform viral load testing at least once per year. If routine viral load is greater than 1,000 copies/mL, WHO recommends a second viral load test 3 to 6 months after the first, and after improving treatment adherence. If a new treatment regimen is started, new viral load testing should be conducted 6 months after to assess its efficacy.



REAL-WORLD OBSERVATIONS

⊕ Improved access to LPV/r 100/25 mg tablets as recommended in 2013:

In 2018, LPV/r 100/25 mg tablets were available at a national level in 100% of facilities surveyed, compared to 83% in 2015 and 41% in 2014. In most of the facilities surveyed, the second-line ART treatment used is AZT or ABC + 3 TC + LPV/r, which is in line with 2013 WHO recommendations.

⊖ Difficulties identifying second- and third-line ART needs for children under 25 kg:

The facilities surveyed said that they treated very few children under 25 kg requiring second-line ART, and no children under 25 kg whatsoever requiring third-line ART. Yet, after reviewing 2018 case histories from technical assistance provided by Sidaction, among children aged 0-19, the failure rate for first-line ART is estimated at 20-30%. Second- and third-line ART needs would therefore seem to be underestimated. Treatment facilities wrote of obstacles faced in evaluating treatment failures and drug resistance for the switch to second- or third-line ART. Regarding the choice of third-line ART, these included a lack of access to drug resistance testing (genotyping), while for the switch to second-line ART, obstacles included delays resulting from inconsistent and often difficult

access to viral load testing (laboratory reagents out of stock, poorly maintained testing equipment, excessively centralized viral load monitoring, etc.).

"It is very difficult to evaluate treatment regimens when there is a suspicion of therapeutic failure. We have access to CD 4 counts and viral load measurements, but not free of charge — in spite of a presidential decree. In our country, which is in a financial crisis, financial problems are often a real issue." *AVENIR POSITIF (CONGO)*

"Viral load measurements and CD 4 counts are available before changing treatment lines. However, the lack of availability of genotyping in Togo is a serious obstacle in the switch to third-line ART." *EVT (TOGO)*

"The equipment (at the Serefo Bamako) was accessible for second-line ART failures until 2016, but it has been out of order for over two years." *ARCAD-SIDA (MALI)*

⊖ Second- and third-line drugs recommended by WHO since 2016 remain unavailable:

Some facilities have access to second- and third-line ART in at least one national reference center, to which they can refer children if needed or receive treatment supplies upon request. This is a feasible short-term option, but it is bound to prove inadequate in the long run, as the number of children experiencing first-line ART treatment failures is already significant — and it will only grow over time. This means that all treatment facilities need access to several second-line pediatric ART combinations. As for third-line ART treatments, they should remain available on a national level.

"For both children and adults, access to third-line ART is not simple. We currently have 4 such patients, but we do not have access pediatric raltegravir or pediatric darunavir — just darunavir for adults at the general hospital in Douala, but it has been out of stock for the last 2 months." *SWAA LITTORAL (CAMEROON)*

What's more, WHO-recommended second- and third-line ART treatments (aside from LPV/r) are not available in any of the facilities surveyed, whether locally or nationally. This is despite the fact that pediatric ATV (ATV 200 mg) and pediatric DRV (DRV 75 mg) exist in generic versions at accessible prices.

In some countries, such as Mali, national recommendation were quickly changed to include these treatment regimens, but with no access to pediatric ATV, DRV, or DTG, the standard second-line treatment remains LPV/r. In addition, in the absence of third-line treatments, patients over 10 kg who began first-line ART with LPV/r are sometimes prescribed EFV as a second-line treatment. Yet, a risk of treatment failure exists for children who began first-line ART with NVP, as there is a significant risk of cross-resistance between NVP and EFV.

In other countries (including Togo, Benin, Congo Brazzaville, and the DRC), national second-line ART recommendations are still aligned with those published by WHO in 2013: AZT or ABC + 3 TC + LPV/r, if LPV/r was not prescribed as a first-line ART treatment.

RECOMMENDATIONS

To Ministries of Health, in Concert with National AIDS Programs

- Align national recommendations with the WHO's 2018 second- and third-line pediatric ART recommendations and perform viral load testing on children and teenagers every 6 months to account for higher levels of treatment failure.
- Quantify second- and third-line ART treatment needs on a national level for children under 25 kg.
- When submitting funding requests, include:
  - access to diverse appropriate ART treatment based on the quantification of second- and third-line ART needs;
  - access to viral load testing for all children receiving ART;
  - support for medical teams in detecting first-line ART treatment failures in children;
  - access to at least one genotyping machine per country, with funding for maintenance, reagents, and trained operators.
- Provide assistance and training to prescribing physicians on how to prescribe viral load testing, diagnose treatment failures, respond to detectable viral loads, and prescribe second- and third-line ART when needed.

To National Pharmaceutical Purchasing Offices:

- Guarantee the availability of second-line pediatric ART drugs in all pediatric ART treatment facilities, or, failing this, at least in the most important facility in each city.
- Guarantee the availability of third-line ART drugs recommended at a national level in at least one reference facility in the country or region.

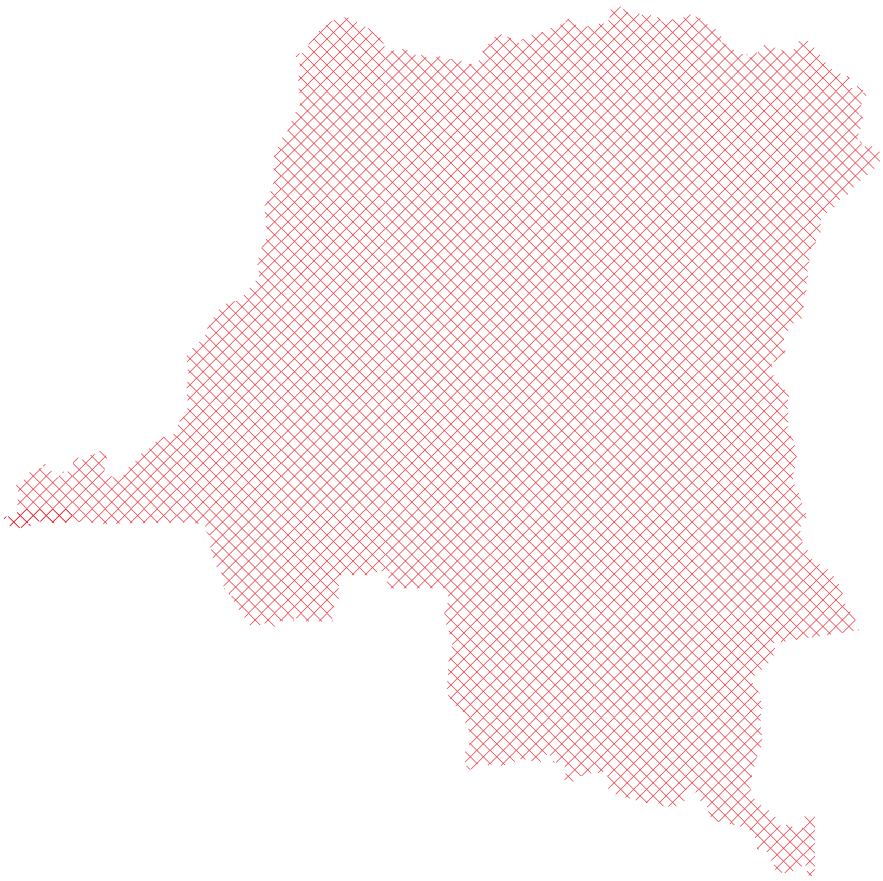
HIV-TUBERCULOSIS COINFECTION

For HIV-tuberculosis coinfections, WHO recommends:

Either, prescribing a special ART combination: AZT + 3 TC + ABC in pediatric doses and dosage forms for children weighing between 3 kg and 25 kg. This combination, which is useful for treating children coinfected with HIV and tuberculosis, remains largely inaccessible: it was available in 5% of treatment facilities and 13% of countries in 2018, compared to 5 % and 18% in 2016. Only Burkina Faso, Congo-Brazzaville, Mali, and DRC had access to it at a national level, and only the SOS SIDA treatment facility in Bukavu, DRC had any on-site.

Or, for children already treated with an ART regimen containing LPV/r, increasing the dose of RTV by using 25 mg RTV tablets or 100 mg RTV powder. None of the facilities surveyed in 2018 had access to 25 mg RTV tablets or 100 mg RTV powder (neither in the facilities themselves nor at a national level).

Recommendation: The National AIDS Program, in concert with national pharmaceutical purchasing offices, must ensure that pediatric treatments for HIV/TB coinfected children are available in every pediatric HIV treatment facility.



VIRAL TESTING
Increased access to early infant diagnosis of HIV but inadequate access to viral load testing

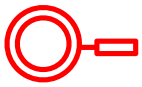
WHO RECOMMENDATIONS (2016 and 2018)

On early infant diagnosis of HIV for children born to HIV+ mothers:

- Screen children using PCR (which looks for HIV DNA in the baby's blood) at the age of 6 weeks (or at birth).
- Provide the results of this PCR test no later than 4 weeks after testing, directly to the child's mother, so that ART can begin as soon as possible.

On viral load testing:

- Perform viral load testing 6 and 12 months following the start of treatment, then every year thereafter.



REAL-WORLD OBSERVATIONS

⊕ Significantly improved access to early infant diagnosis, with results obtained in under three months:

Except in Congo-Brazzaville, where early infant diagnosis is possible on a national level, but takes over 3 months to obtain results, remarkable improvements in access to this testing have been achieved. PCR was accessible at a national level for only 60% of facilities in 2008, compared to 79% in 2011 and 2013. Since 2016, this number has reached 100%. In most of the countries, it takes 1 to 2 months to receive results. In Cameroon and Chad, results arrive even faster, with facilities surveyed stating that they receive results in under a month. In Togo and Côte d'Ivoire, results take longer, arriving between 2 and 3 months.

⊕ Significantly increased availability of viral load testing at least 10 months per year:

Since 2010, great strides have been made in access to viral load testing that is accessible at least 10 months per year at a national level (except in Congo-Brazzaville). In 2008, only 10% of facilities had access to such testing, compared to 43% in 2011, 67% in 2015, and 84% in 2018. Most facilities have access to these tests via the nearest reference hospital (either in the capital or in other large cities). Some facilities have access to them via research facilities or private laboratories — often free of charge.

Disparities in access to PCR and viral load testing between capital cities and local facilities:

Although 2 facilities in Bujumbura, Burundi have access to testing, only 63% of the country's rural facilities have access to viral load testing, and 25% wait 2 to 3 months before receiving PCR results (compared to 1 to 2 months in the capital city). Other facilities surveyed mentioned similar disparities in their qualitative responses to the 2018 survey.

"Access to early infant diagnosis and viral load testing is better in the capital than elsewhere for several reasons: the distance between the facility and the regional capital (where testing equipment is located), a poor system for transporting samples to far-off facilities, and a shortage of suitable supplies in terms of medical products and reagents for laboratories outside of the capital." *ARCAD/SIDA (MALI)*

"The capital receives preferential treatment. Nothing is done in terms of viral load testing, and few children are monitored outside of the capital." *SOLIDARITÉ FÉMININE (DJIBOUTI)*

In practice, obstacles to accessibility exist:

Beyond the "theoretical" availability of viral load testing in at least one reference facility in the country (the existence of one or more machines to which treatment facilities can send samples and receive results free of charge), actual access to such testing is available in only 6 out of 11 countries[11] where the facilities surveyed are located.

- **Available equipment but with no resources to operate it:** Some funding programs or specific projects provide countries with viral load testing equipment. However, the budget needed to operate and maintain it remains limited. In these cases, when machines are not operated, families are forced to have viral load testing conducted by private laboratories, which charge high rates (approximately 40 euros per test).

  "Mondou's viral load equipment was donated by the Mondou Poitiers cooperative consortium. It has a limited testing capacity and the reagents are not permanent, which is why viral load testing is only performed for patients with proven clinical and immunological failure." *CDN (CHAD)*

- **Laboratory reagents out of stock:** Even when facilities have testing equipment at their disposal, access to viral load testing is sometimes constrained by a shortage of reagents.

  "Viral load monitoring is not available in every country due to a shortage of reagents, except in ATCs operated with the support of the French Red Cross." *SERMENT UNIVERSEL (CONGO-BRAZZAVILLE)*

- **Additional costs associated with testing:** Some families lack the necessary resources to travel to the healthcare facility or hospital to have samples taken. In these cases, reimbursing travel costs can be a great help, as well as adjusting the time and date of the blood test to take into

account patients' other medical appointments. Making blood samples coincide with patients' trips to the doctor's office and pharmacy allows them to reduce travel time and expenses.

- **Limited flexibility in scheduling blood sampling, particularly in rural areas:** Treatment facilities often ask patients to come at fixed times so that the samples do not have to wait more than 4 hours. Yet greater flexibility in terms of scheduling would make it easier for patients — particularly those from rural areas — to travel to have blood samples taken. Samples can be kept at least 24 hours, and can even be left in the refrigerator for days on end.

⊖ Some test results may not arrive:

- **A long, risky journey for samples:** Volatile security situation, poorly maintained roadways, etc.

  "The situation in terms of security is always fragile in the countryside. Poor road conditions and a shortage of clean means of transportation often make the journey impossible. When we transport samples to the capital (from Bukavu to Kinshasa), the time needed before receiving results is unknown (often over 3 months)..." *SOS SIDA (DRC)*

- **Blotting paper needed to collect samples out of stock.**

- **Network for delivering and transporting samples inadequately coordinated with local facilities.**

  "Viral load testing equipment is only available in Brazzaville and Pointe Noire. There is no way of transporting the samples so that local facilities can access this type of testing." *SERMENT UNIVERSEL (CONGO)*

  To combat this urgent issue, some facilities have organized an efficient sample delivery network that synchronizes delivery of samples with the collection of results.

  "The strategy used by the Racines facility makes it possible to receive viral load test results within one month — and sometimes even within 2 weeks — because we take weekly group blood samples that we send to the reference laboratory every Wednesday, and the person delivering our samples comes back every time with viral load test results that were delivered before." *RACINES (BENIN)*

  This synchronized system (once every one or two weeks) requires someone in the charity organization to be given responsibility and trained, and it also requires the partner laboratory to accept it.

- **Disparities between the number of samples sent and equipment capacity.** In the case of high-capacity machines, samples are sometimes set aside while awaiting the arrival of enough samples to begin testing. By contrast, reference laboratories often receive so many samples that they lack the human and/or material resources to process them.

- **Results often arrive slowly, are not sent automatically, and sometimes contain errors.**

  "Sometimes, results are sent to another treatment facility." *RACINES (BENIN)*

  "Prescribing physicians often need to go pick up results, which is not always simple. We receive results through informal contacts with the laboratory, which sends them to us by text message when we ask." *SOLIDARITÉ FÉMININE (DJIBOUTI)*

Best Practice

Urgently notify doctors (by telephone or text message) when early infant diagnosis comes back positive:
AMC (Togo): *"Although getting test results back can take quite a while, laboratories don't hesitate to call the treatment facility to tell us when a patient tests positive so that treatment can start as soon as possible".*

Systematically send results with modern communications technology:
In Kenya, a website exists that allows medical teams to log in to access their patients' results. In Cameroon, in a pilot project, SMS printers inform parents when PCR results become available.

RECOMMENDATIONS

To Ministries of Health, in Concert with National AIDS Programs:

- Guarantee access to early infant diagnosis and viral load testing free of charge, and—for those living in more remote areas—ensure that transportation to the facility where blood samples are drawn is free of charge.
- In association with national pharmaceutical purchasing offices, schedule the necessary purchases of reagents and consumables needed for testing (in particular, blotting paper for early infant diagnosis).
- Require a maintenance contract for viral load testing equipment to ensure that equipment is checked at least every 6 months.
- Adapt the size and choice of viral load testing equipment or early infant diagnosis equipment to the number of samples sent in by treatment facilities, as well as to the laboratories' capabilities in terms of structure, dedicated and trained personnel, cold-chain management, and geographic location: point-of-care tests (such as GeneXpert) for smaller local facilities without cold-chain management, open platforms (such as Biocentric/Hein) for medium-sized sites requiring cold-chain management, closed platforms (such as Roche or Abbot) for larger structures or national laboratories with large patient files and/or overseeing several facilities.

- In each laboratory, assign enough staff for the anticipated workload.
- Implement a system for taking samples and a secure transportation network for delivering samples and returning results that is properly suited to the context (in terms of security, geography, road conditions, etc.) and that makes it possible to cover more remote or inaccessible facilities: test tubes or blotting paper, depending on the storage conditions, testing equipment in the vicinity, delivering groups of samples at the same time, providing more flexible days and times for taking samples, sending results by phone (text message) and/or internet (e-mail or online platforms, etc.).

To National Pharmaceutical Purchasing Offices and Reference Laboratories:

- Ensure that reagents and consumables remain consistently available and that maintenance is performed on equipment to allow compliance with national recommendations on laboratory monitoring for children receiving ART treatment.

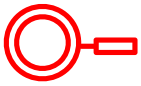
To Pediatric HIV Treatment Facilities:

- Offer to send a staff laboratory technician to the reference laboratory if that would make it possible for samples to not be put on hold.
- In association with laboratories, organize an efficient delivery network for samples, and train and assign a staff member to oversee the network.
- In association with laboratories, coordinate and facilitate quick response times for sending results by telephone and/or text message, urgently notifying doctors when patients test positive, etc. (anonymously, using patient codes).
- Ensure families are aware of the importance of viral load testing for their children.
- Inform NAPs of any issues (problem with sample delivery network, samples set aside by laboratories for later processing, results not sent, etc.) to resolve them together and prevent them from reoccurring.
- Create and implement a procedure for addressing positive PCR results or detectable viral loads as quickly as possible: informing prescribing physicians, calling patients, making the decision to initiate treatment or modify the patient's ART regimen in accordance with national standard treatment guidelines.

SUPPLY CHAIN
Understanding weak links to achieve better risk management

RISK MANAGEMENT

It is crucial to be able to transport treatments smoothly from central national structures to treatment facilities. While problems and unforeseen circumstances are inevitable, risk management and quality assurance allow such issues to be spotted, resolved, and avoided in the future. To this end, ART treatment centers act as "observatories", in that they are on the front lines to report these types of issues.



REAL-WORLD OBSERVATIONS

Communication issues between treatment sites and procurement officials

Most of the facilities surveyed stated that communication with their procurement official[12] was not an issue. However, good communication does not make it possible to plan for or remedy stockouts. In several countries, the national pharmaceutical purchasing office and/or National AIDS Program does not systematically provide information on the nature and duration of stockouts. More often than not, treatment facilities become aware of the stockout at the time of delivery and personally have to contact procurement officials.

"Yes, we have points of contact, but in practice, it is not easy to immediately get information on how soon ART drugs will be resupplied." *SERMENT UNIVERSEL (CONGO-BRAZZAVILLE)*

"We are not informed beforehand that a given drug will be out of stock. It is only afterward that we personally begin making calls to our contacts in pharmacies to get information on the status of supplies, and sometimes we have to make calls all the way to Bamako."
AKS (MALI)

Nor are they systematically informed of the resupply date, which can increase the stockout time at a treatment facility level and increase the risk of sudden, temporary switches to new ART combinations for patients. In addition, bureaucratic procedures (reports detailing the active patient file, quantities of remaining ART drugs, and ensuing new orders for ART drugs) sometimes slow the resupply process.

"The availability of ART drugs in treatment facilities themselves depends greatly on the complexity of the reports to be filed, even if they are available at a national level."
RACINES (BENIN)

No buffer stock results in improvised alternatives when drugs go out of stock

When protracted stockouts occur, communication issues become particularly problematic. Procurement officials do not always propose appropriate alternative treatment regimens for the full length of the stockout.

"The National AIDS Program regularly informs Racines [of stockouts]. We often turn to them when problems arise, and they offer alternative treatment regimens that correspond to the ART drugs available. But despite the fact that we have intermediaries who are able to give us information on resupply dates, these dates often turn out to be wrong, and the alternatives often cause issues for us." *RACINES (BENIN)*

At times, it is the local medical team itself that finds alternatives, "juggling" between the drugs that are in stock.

"During two stockouts, the pharmacists at the facilities had been informed beforehand, but it is was each facility that took measures to ensure children were provided with treatment." *ARCAD/SIDA (MALI)*

Other sites build up "buffer" stocks to plan for out-of-stock drugs.

"The treatment unit is directly in contact with the national pharmaceutical purchasing office. We keep extra inventory on hand for times when ART drugs go out of stock. For 2 months of ART, we order 3 months of supplies: 2 months for treatment, and 1 for reserve inventory. Our goal is to build up a pediatric ART buffer stock composed of drugs listed in the preferred national treatment guidelines for first-line pediatric ART (ABC/3TC + LPV/r or ABC/3TC + EFV). This process is currently under way." *SWAA LITTORAL (CAMEROON)*

Best practice

Some facilities are part of a **national early warning system** that allows inventory issues at a facility level to be quickly spotted and can sometimes allows facilities in different regions or countries to assist each other with inventory issues.

Centre SAS, in Côte d'Ivoire: *"This system was put in place in 2006 by the platform of organizations working to fight against HIV, malaria, and tuberculosis in collaboration with the Global Fund. When our community counselors see that an ART prescription cannot be filled because the drugs are out of stock at a treatment facility, they inform the early warning manager. He or she, in turn, informs the chief pharmacist of the region and the medical district. They both double-check the information, then send it to the authority responsible for overseeing procurement inventory. When it is notified of the issue, this authority checks whether the product in question is available in other regional facilities or in other regions, so that the facility or region affected by the stockout can be resupplied. Two examples: recently, ABC 600 mg/3TC 300 mg went out of stock in two facilities in the Bouaké district. The early warning system was deployed and drugs were brought in from the Gagnoa district, which apparently had 'excess' inventory, to Bouaké, around 5 days after the initial warning."*

RECOMMENDATIONS

To Ministries of Health, in Concert with National AIDS Programs and National Pharmaceutical Purchasing Offices:

- Assign one person per team in pharmaceutical purchasing offices to inform treatment facilities of drug availability in real time.
- Institute a simplified pathway for treatment facilities to fill out and send reports (state of active patient file state and ART drug inventory, facility needs) to national authorities — i.e., an online submission system, with the possibility of sending simplified notifications via alternative messaging services (text messaging, WhatsApp, etc.) for cases when computer equipment breaks or internet quality is poor.
- Implement an effective pathway passing information down from national authorities to healthcare facilities: speedy and detailed advisories must systematically be sent to facilities that dispense ART as soon as an ART drug or reagent has gone out of stock or been resupplied. Example: systematic monthly notifications with inventory levels for each item: green if the situation is normal, orange if the situation is strained (risk of stockout), and red for products currently out of stock, along with the anticipated date on which the product is expected to be resupplied.
- Institute an early warning system to allow rapid detection of inventory issues at individual facilities and remedy them, when possible, by obtaining assistance from other facilities or regions.
- If protracted stockouts occur with no possibility of temporary assistance, provide information and support to treatment facilities in modifying ART combinations to suit patients, particularly for children under 10 kg.

To Pediatric HIV Treatment Facilities:

- Train a staff member and task him or her with sending documents required for ART treatment orders within the NAP's deadlines.
- If possible, build up a pediatric ART buffer stock for at least 1 month of treatment.
- Inform procurement officials of any issues with ART drugs going out of stock.
- If the only choice is to modify an ART combination, apply the NAP's recommendations, verifying, for each patient, that the proposed ART combination is well suited to the patient (no risk of treatment non-adherence or failure due to drug resistance).

Conclusion

This ten-year survey shows clear improvements in pediatric HIV/AIDS care in the 11 countries it concerns. Yet these improvements are woefully inadequate. Paired with real-world observations from our partners from the Grandir program, an evaluation of the current situation confirms that western and central Africa suffers from delayed access to pediatric ART treatments and virological testing. Today, children 25 kg and under living with HIV do not have access to ART that is sufficiently diverse, appropriate, and available so as to guarantee that they receive effective care. Compared to the adult ART treatments, delays in children's treatments are striking. Notwithstanding any technical barriers, they are plainly a sign of a lack of political and strategic will to ensure that treatment for children is made a real priority.

Today, a lack of financial, human, and technical resources makes it unfeasible, in real-world conditions, to apply WHO recommendations and bring national guidelines into line with them. Worse still, these failures lead to complications in treatment and care for children, who are switched to inappropriate ART combinations that pose an increased risk of drug resistance. These risks play a crucial role in public health, population dynamics, and development, and regional and international organizations working in the fight against HIV must stand up and face them head-on.

No longer should pediatric HIV be overlooked when addressing the major aspects of the fight against AIDS. Quite the opposite, in fact—it should be a central aspect of the work being done each and every day with the aim of one day putting an end to the HIV epidemic. Suitable resources and programs need to be mobilized at every level. This should come in the form of lower pediatric ART costs, greater diversity in available ART formulations, funding for the purchase and maintenance of virological testing equipment, the implementation of guarantees for adequate inventory and management of the active patient file, and the institution of procedures that are properly suited to the real-world context (transitional period, early warning system, etc.).

To ensure that these measures are effective, they must also be part of a broader policy of guaranteeing free access to healthcare throughout the treatment process (screening, ART treatment, laboratory monitoring, etc.), including any programs that make it possible to reduce (or eliminate) additional costs that stand in the way of treatment (transportation, lodging in the capital, etc.).

Access to early infant diagnosis of HIV, as well as children's access to proper treatment and laboratory monitoring throughout their childhood and teenage years, are indispensable if HIV-positive children are to grow up to become healthy adults. This is an individual health issue, of course, but it is also a broader public health issue, as AIDS is currently the leading cause of death for Africans between the ages of 10 and 19.

Detailed Results

Pediatric ART Treatments (Tables 1 and 2)

This report focuses on the 15 pediatric ART drugs used in first- and second-line ART treatment regimens for children between 3 kg and 25 kg (in accordance with 2016 and 2018 WHO recommendations). Drugs in bold are those considered to be priorities for applying WHO recommendations in 2018.

DTG is not included because, in practice, existing 10 mg and 25 mg doses have not been "approved" by WHO for use in children. Only 50 mg tablets have been "approved" by WHO for use in children 20 kg and over.

Drugs reserved for PMTCT or neonatology (3TC oral solution, AZT oral solution, NVP oral solution, NVP 50 mg tablets) are also not included, as the facilities surveyed are not reference facilities for PMTCT (except in Appendix 2, because they were used as a curative ART treatment before other formulations were made available).

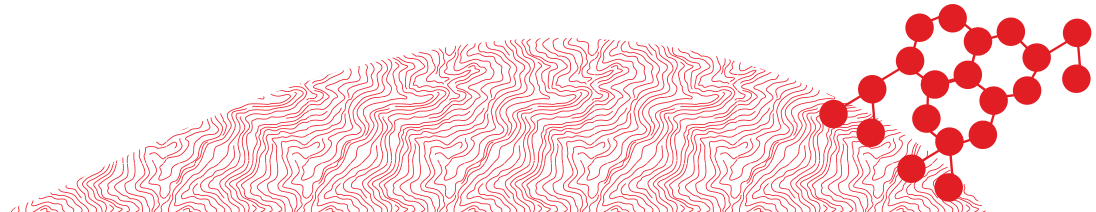
For each country, the table shows availability at a "national" level—i.e., whether patients have access to this treatment from at least one treatment center in the country (generally at the level of the national pharmaceutical purchasing office or in a "reference facility" in the capital city)—and at the level of the facilities surveyed. Facilities in and around the capital city are distinguished from "local" facilities in smaller cities or rural areas.

Early Infant Diagnosis and Viral Load Testing (Tables 3 and 4)

The report focuses on access to early infant HIV diagnosis and viral load testing in at least one reference laboratory in the country, with a system for delivering samples and obtaining results if testing is not available in the facility itself.

For PCR, the time needed to obtain results is specified: under 1 month, 1 to 2 months, or 2 to 3 months. When more time is required, PCR is considered to be unavailable.

Viral load testing is shown as available if it is accessible at least 10 months per year and results can be obtained in under 2 months. A distinction is made between access to this testing at "national" and "local" facilities only when there is a difference between the two.



Availability of pediatric ART nationally and in local treatment facilities, according to partner charities surveyed in 2018

	First-line pediatric ART (3-25 kg)					
	AZT/3TC **Tablets:** **60 mg/** **30 mg**	AZT/3TC/NVP Tablets: 60 mg/ 30 mg/ 50 mg	**ABC/3TC** **Tablets:** **60 mg/** **30 mg**	**LPV/r** **Pellets:** **40 mg/** **10 mg**	LPV/r Oral solution: 80 mg/ 20 mg	**LPV/r** **Tablets:** **100 mg/** **25 mg**
BENIN on a national level	Available	Available	Available	Available	Available	Available
1 facility in Cotonou	100%	100%	100%	100%	100%	100%
BURKINA FASO on a national level	Available	Available	Available	Unavailable	Available	Available
1 local facility (Bobo-Dioulasso)	100%	100%	100%	0%	100%	0%
BURUNDI on a national level	Available	Available	Available	Available	Unavailable	Available
2 facilities in Bujumbura	100%	100%	100%	100%	0%	100%
8 local facilities (Gitega, Kayanza, Kirundo, Makamba, Muyinga, Ngozi, Ruyigi)	75%	100%	100%	25%	0%	100%
CAMEROON on a national level	Available	Available	Available	Available	Available	Available
1 facility in Douala	100%	100%	100%	0%	0%	0%
CONGO-BRAZZAVILLE on a national level	Available	Available	Available	Unavailable	Available	Available
2 facilities in Brazzaville and Pointe Noire	50%	100%	100%	0%	100%	100%
2 local facilities (Dolisie and Nkayi)	100%	100%	100%	0%	0%	50%
CÔTE D'IVOIRE on a national level	Unavailable	Unavailable	Available	Unavailable	Available	Available
1 local facility (Bouaké)	0%	0%	100%	0%	100%	100%
DJIBOUTI on a national level	Unavailable	Available	Unavailable	Unavailable	Unavailable	Available
1 facility in Djibouti	0%	100%	0%	0%	0%	100%
MALI on a national level	Available	Available	Available	Unavailable	Available	Available
7 facilities in Bamako	100%	100%	100%	0%	100%	100%
2 local facilities (Sikasso and Koutiala)	100%	100%	100%	0%	100%	100%
DRC on a national level	Available	Available	Available	Available	Unavailable	Available
1 local facility (Bukavu)	100%	100%	100%	100%	0%	100%
CHAD on a national level	Available	Unavailable	Available	Unavailable	Unavailable	Available
1 local facility (Moundou)	0%	0%	100%	0%	0%	100%
TOGO on a national level	Available	Available	Available	Unavailable	Available	Available
6 facilities in Lomé	100%	100%	100%	0%	100%	100%
2 local facilities (Kpalimé and Sokodé)	100%	100%	100%	0%	100%	100%

			Second- and third-line ART (10-25 kg)				HIV-TB Coinfection	
EFV Tablets or capsules: 200 mg	**RAL Chewable tablets 25 mg**	RAL Chewable tablets: 100 mg	**ATV Capsules: 200 mg**	**DRV Tablets: 75 mg**	RTV Oral solution: 80 mg/mL	**RTV Tablets: 25 mg**	**AZT/3TC/ ABC**	**ABC Tablets: 60 mg**
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Available	Unavailable	Available	Available
100%	0%	0%	0%	0%	0%	0%	100%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
88%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Available	Available	Unavailable	Unavailable	Unavailable	Unavailable	Available	Available
100%	0%	0%	0%	0%	0%	0%	50%	0%
0%	0%	0%	0%	0%	0%	0%	100%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Available	Available
100%	0%	0%	0%	0%	0%	0%	0%	0%
100%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Available
100%	0%	0%	0%	0%	0%	0%	0%	100%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
Available	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable
100%	0%	0%	0%	0%	0%	0%	0%	0%
100%	0%	0%	0%	0%	0%	0%	0%	0%

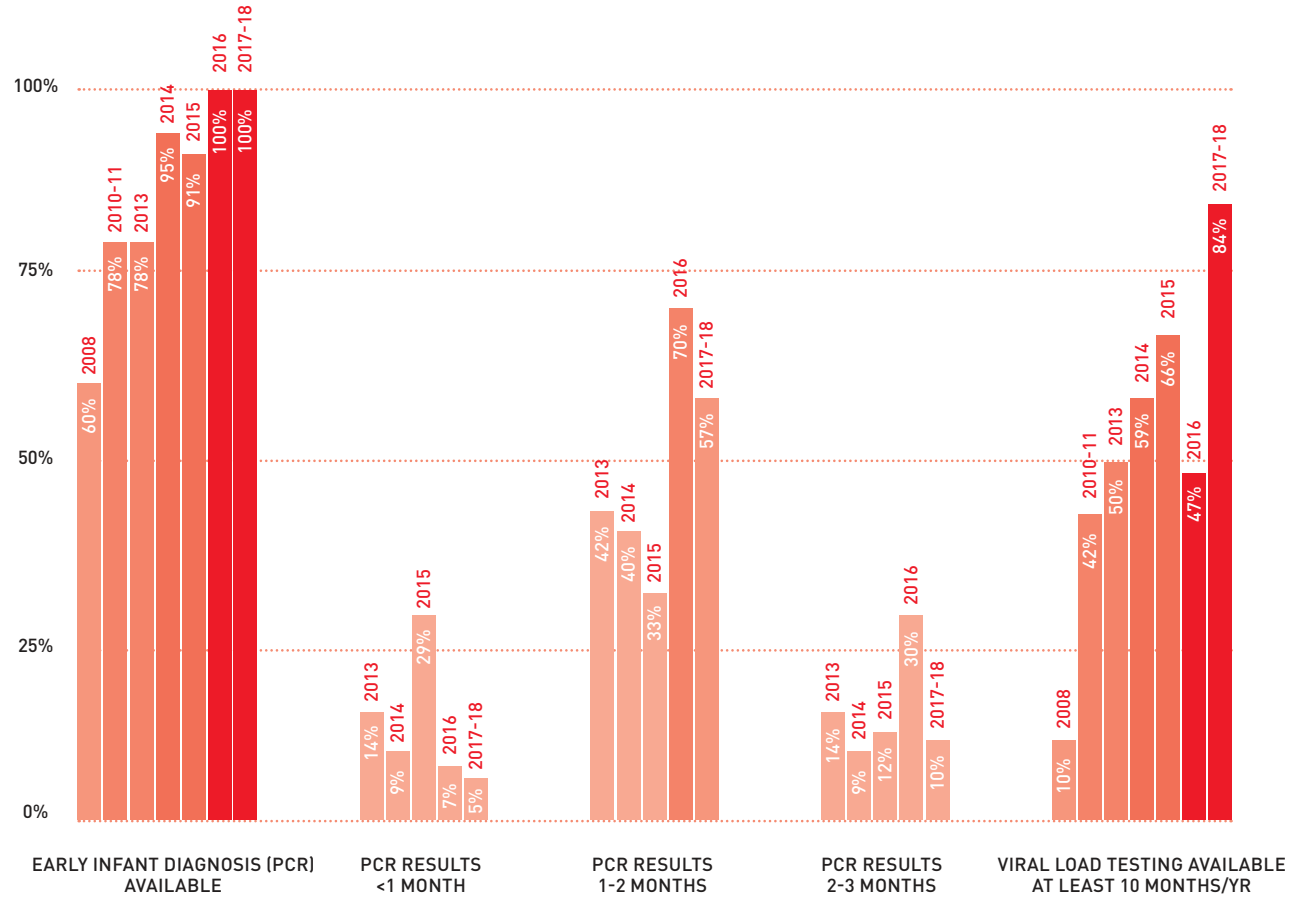
Availability of first-line pediatric ART treatments at treatment facilities surveyed by Sidaction over 10 years

	2007	2008	2009	2010-11	2013	2014	2015	2016	2018
AZT Or. sol.: 10 mg/mL (50 mg/5 mL)	75%	80%	100%	78.5%	100%	59%	25%	30%	31.5%
NVP Oral powder: 10 mg/mL (50 mg/5 mL)	100%	50%	100%	93%	93%	82%	33%	55%	58%
EFV Tab. or capsule: 200 mg	75%	50%	69%	43%	50%	64%	87.5%	87.5%	92%
LPV/r Or. sol.: 80 mg/mL LPV/ 20 mg/mL RTV	37.5%	60%	54%	64%	50%	50%	21%	57.5%	68%
LPV/r Tab. 100 mg LPV/ 25 mg RTV	0%	20%	15%	21%	7%	14%	46%	72.5%	92%
AZT/3TC Tab. 60 mg AZT/ 30 mg 3TC	0%	0%	0%	71%	43%	68%	79%	77.5%	81.5%
NVP Tab. 50 mg	0%	0%	0%	14%	0%	14%	12.5%	25%	37%
ABC/3TC Tab. 60 mg ABC/ 30 mg 3TC	0%	0%	0%	7%	7%	64%	62.5%	80%	95%
3TC Or. sol 10 mg/mL	0%	0%	0%	0%	86%	36%	8%	27.5%	3%
AZT/3TC/NVP Tab. 60 mg AZT/30 mg 3TC/ 50 mg NVP	0%	0%	0%	0%	57%	73%	100%	87.5%	92%
LPV/r Pellets or other solid oral forms 40/10 mg	0%	0%	0%	0%	0%	0%	0%	7.5%	13%

Availability of early infant diagnosis (PCR) and viral load testing at a national level, according to partner charities surveyed in 2018

	PCR Results received <1 month	PCR Results received 1-2 months	PCR Results received 2-3 months	Viral load available at least 10 months per year
BENIN 1 facility in Cotonou		Available		Available
BURKINA FASO 1 local facility (Bobo-Dioulasso)		Available		Available But no results returned
BURUNDI 2 facilities in Bujumbura		Available		Available
BURUNDI 8 local facilities (Gitega, Kayanza, Kirundo, Makamba, Muyinga, Ngozi, Ruyigi)		Available in 63% of facilities	Available in 25% of facilities	Available in 63% of facilities
CAMEROON 1 facility in Douala	Available			Available
CONGO-BRAZZAVILLE 2 facilities in Brazzaville and Pointe Noire 2 local facilities (Dolisie and Nkayi)	Unavailable			Unavailable
CÔTE D'IVOIRE 1 local facility (Bouaké)			Available	Available
DJIBOUTI 1 facility in Djibouti		Available		Available
MALI 7 facilities in and around Bamako and 2 local facilities (Sikasso and Koutiala)		Available		Available
DRC 1 local facility (Bukavu)	Unavailable			Available but limited access (no testing equipment in the province)
CHAD 1 local facility (Moundou)	Available			Available but limited access due to limited reagent stocks
TOGO 6 facilities in and around Lomé and 2 local facilities (Kpalimé and Sokodé)			Available	Available but long delays in receiving results (3-6 months)

Availability of PCR and viral load testing at a national level according to facilities surveyed by Sidaction over 10 years



Endnotes

[1] Program for the prevention and care of childhood AIDS in Africa, co-funded by the Agence Française de Développement and coordinated by Sidaction and Initiative Développement, http://www.grandir.sidaction.org/

[2] Grandir survey reports 2007-2016, http://www.grandir.sidaction.org/

[3] MSF Access Campaign, "Overcoming access barriers to affordable, lifesaving diagnostics and treatments for HIV and opportunistic infections," July 2018, https://msfaccess.org/stopping-senseless-deaths

[4] ONUSIDA, July 2018, UNAIDS, http://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf

[5] MSF press release, "VIH : les enfants, toujours privés de médicaments adaptés," December 2018, https://www.msf.fr/communiques-presse/vih-les-enfants-toujours-prives-de-medicaments-adaptes

[6] List of partner charities: Racines (Benin, 1 facility); REVS+ (Burkina Faso, 1 facility); ANSS (Burundi, 4 facilities); SWAA Burundi (Burundi, 6 facilities); SWAA Littoral (Cameroon, 1 facility); Serment Universel (Congo-Brazzaville, 3 facilities); Avenir Positif (Congo-Brazzaville, 1 facility); Centre SAS (Côte d'Ivoire, 1 facility); Solidarité Féminine (Djibouti, 1 facility); ARCAD SIDA (Mali, 7 facilities); Kénédougou Solidarité (Mali, 2 facilities); SOS SIDA (DRC, 1 facility); CDN (Chad, 1 facility); EVT (Togo, 3 facilities); AMC (Togo, 3 facilities); ACS (Togo, 1 facility); CRIPS (Togo, 1 facility).

[7] MSF Access Campaign: latest report on access to treatment, "Stopping senseless deaths," (July 2018)

[8] List of WHO-prequalified ART treatments (Nov. 2018) and List of ART treatments authorized for purchase on projects funded by the Global Fund (November 2018)

[9] Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection (June 2016), https://www.who.int/hiv/pub/arv/arv-2016/en/ THE 2018 OPTIMAL FORMULARY AND LIMITED-USE LIST FOR PEDIATRIC ARVS (July 2018) http://apps.who.int/iris/bitstream/handle/10665/273153/WHO-CDS-HIV-18.15-eng.pdf?ua=1

[10] A dosage form is the form in which a drug is marketed for use (tablets, capsules, suppositories, oral suspensions, etc.).

[11] See results table at the end of this report.

[12] Generally working at the National AIDS Program, procurement officials act as the liaison between ART dispensaries and national pharmaceutical purchasing offices.

For 25 years, Sidaction has been centered around a single essential principle: bringing together research and charity organizations. Our central aim is to work in every area concerned by the fight against AIDS, thanks to our interdisciplinary, worldwide expertise on this disease.

Together, the net amounts collected by Sidaction allow it to fund both research programs and charitable organizations that provide assistance to people living with HIV in France and abroad.

Sidaction
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