policy

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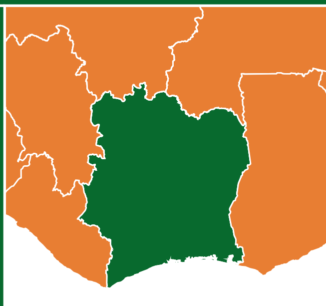
COST AND IMPACT OF SCALING UP HIV TREATMENT IN CÔTE D'IVOIRE

ACHIEVING THE 90-90-90 GOAL



Brief

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Introduction

The USAID- and PEPFAR-funded Health Policy Project partnered with the government of Côte d'Ivoire and PEPFAR on a study to estimate the cost and impact of HIV treatment scale-up by calculating the cost of antiretroviral treatment (ART) for one person per year for adults, children, and pregnant women. This annual ART cost was analyzed as a function of regimen, stage of illness at treatment initiation, retention, and response to treatment. The average cost was used to project the total investment necessary to scale up ART between 2015 and 2020 and achieve the country's 90-90-90 goal, in which 90 percent of people living with HIV know their status, 90 percent of those diagnosed with HIV are on treatment, and 90 percent of those on treatment are virally suppressed. Using the Spectrum suite of policy models,[1] the study estimated the number of lives saved and pediatric infections averted if this treatment scale-up is achieved. This study fills the critical information gap on cost as it relates to outcome. The government of Côte d'Ivoire and its development partners will be able to understand the resource needs for treatment scale-up and have the necessary data to inform decision making to effectively target available resources for HIV treatment.

Annual Cost of Treatment in Côte d'Ivoire

The study found that on average, it will cost CFA 142,431(US$288) to keep one HIV-positive adult on treatment during his/her first year of treatment and provide services according to the national guidelines. Treatment for HIV-positive children (ages 14 and younger) will cost, on average, CFA 217,603 (US$440). Prevention of mother-to-child transmission treatment (PMTCT) using Option B for an HIV-positive pregnant woman will cost CFA 85,063 (US$172), on average, between the time of treatment initiation and completion of treatment post-delivery. It will cost CFA 151,827 (US$207) to provide treatment to an HIV-positive pregnant woman with Option B+ between

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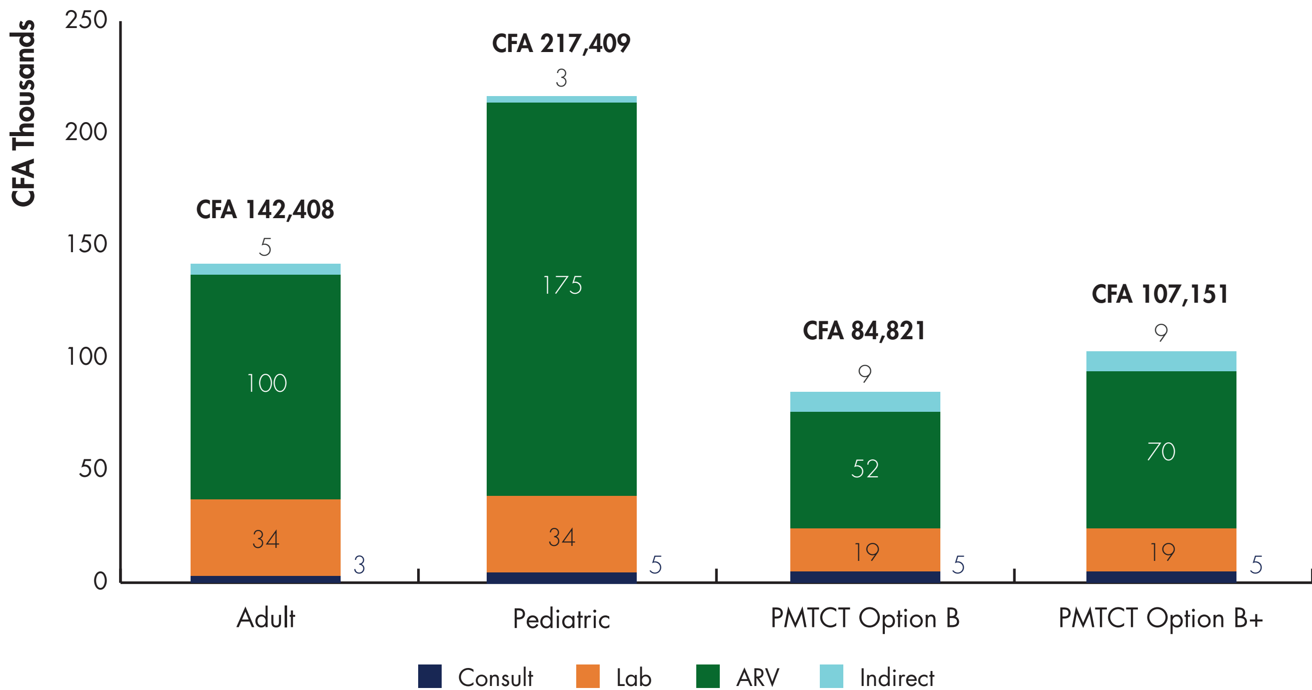
Figure 1: Cost of Full Treatment per Patient*



*Full treatment for an adult or pediatric patient is one year. For PMTCT Option B, full treatment is from the time of treatment initiation during pregnancy through treatment completion post-delivery. For PMTCT Option B+, full treatment is from the time of treatment initiation during pregnancy through the due date.

treatment initiation and delivery using the fixed-dose combination "one-pill-a-day" drug[2] (See Figure 1).

In all cohorts, antiretroviral drugs make up over 60 percent of the total treatment cost, followed by laboratory costs. The primary source of the cost difference between adult and pediatric patients is the cost of antiretroviral drugs; pediatric patients' costs are almost identical to those of adult patients for consultations, laboratory, and indirect costs. PMTCT Option B is lower in cost despite the longer course of treatment because the fixed-dose combination therapy that is used under the Option B+ is more expensive than the regimens currently used under Option B.

The costs outlined in Figure 1 have been aligned with the expected utilization of services based on Côte d'Ivoire's national treatment guidelines. In reality, the study found that patients are using fewer services. The final report of this study details the average cost of the study sample, as well as the full treatment cost based on the national treatment guidelines (Health Policy Project and the Ministry of Health of Côte d'Ivoire, 2015).

Using Patient Costs for Planning National Targets

By using the average annual cost of treatment per person in conjunction with treatment coverage goals, the study estimated the resources required to achieve universal coverage in Côte d'Ivoire. It also modeled the impacts of various coverage scenarios in terms of infections prevented and deaths averted in the future.

The government of Côte d'Ivoire is committed to the fight to gain control and turn the tide of the HIV epidemic. Côte d'Ivoire's HIV prevalence is among the highest in West Africa, at 2.7 percent (UNAIDS, 2014). The Spectrum models project that approximately 400,000 people are living with HIV in 2015. It is estimated that 112,920 people living with HIV received ART in 2013, including 5,467 children (ages 14 and under) (MSLS, 2014). Of the HIV-positive women who were pregnant, 75 percent had access to some form of PMTCT in 2013 (UNAIDS, 2014). On the other hand, ART coverage extended to only 36 percent of the adult HIV-positive population and only 8 percent of children living with HIV.

Striving to offer the highest standard of HIV treatment, the country plans to adopt the new 90-90-90 target in the upcoming HIV National Strategy for 2015–2020. The country also aims to roll out "test and offer" for the general population in the near future, where HIV-positive individuals are put on treatment immediately after diagnosis, regardless of their illness condition. It also began piloting Option B+ for pregnant women in 2015. Such an aggressive scale-up of HIV treatment services will require intensified coordination to mobilize resources and effectively target those funds for treatment scale-up and sustainability.

Scenarios for HIV Treatment Scale-Up

The study used the Spectrum models to project population growth, the number of people living with HIV, the number of people on treatment, the number of new infections, and the number of deaths due to HIV between 2015 and 2020, based on planned ART treatment coverage. The study team modeled two scenarios: (1) status quo—treatment coverage grows at historical rate; and (2) 90-90-90—treatment coverage increases so that 90 percent of those who know their status are on treatment by 2020, and the roll-out of PMTCT Option B+ is complete by 2020.

Under scenario 1, HIV treatment coverage grows constantly at the average rate observed between 2009 and 2015. Adult ART coverage will increase only 3 percentage points to 39.3 percent, while pediatric ART coverage increases 7 percentage points to 14.7 percent by 2020. Given the impressive increase in PMTCT coverage over the last six years (from 44% in 2009 to 75% in 2015), the status quo scenario expects PMTCT to grow consistently to reach 100 percent coverage by 2020. With the intended rollout of Option B+, Option B coverage would decline as sites adopt Option B+; the study assumed that by 2020, 50 percent of pregnant women will be covered by Option B+.

In scenario 2, Côte d'Ivoire must make a monumental effort to increase the HIV treatment coverage exponentially to the 90-90-90 coverage goal. The coverage must rise to 81 percent for both adults and children, from 36 percent and 8 percent, respectively. The coverage target for the total HIV population will be 81 percent, since the 90-90-90 goal states that 90 percent of people living with HIV will know their status, and 90 percent of those people will be on treatment. For PMTCT, treatment coverage in 2020 will be 100 percent, with the move from Option B to Option B+ complete by 2018 (see Figure 2).

Figure 2: HIV Treatment Coverage Scale-up Scenarios

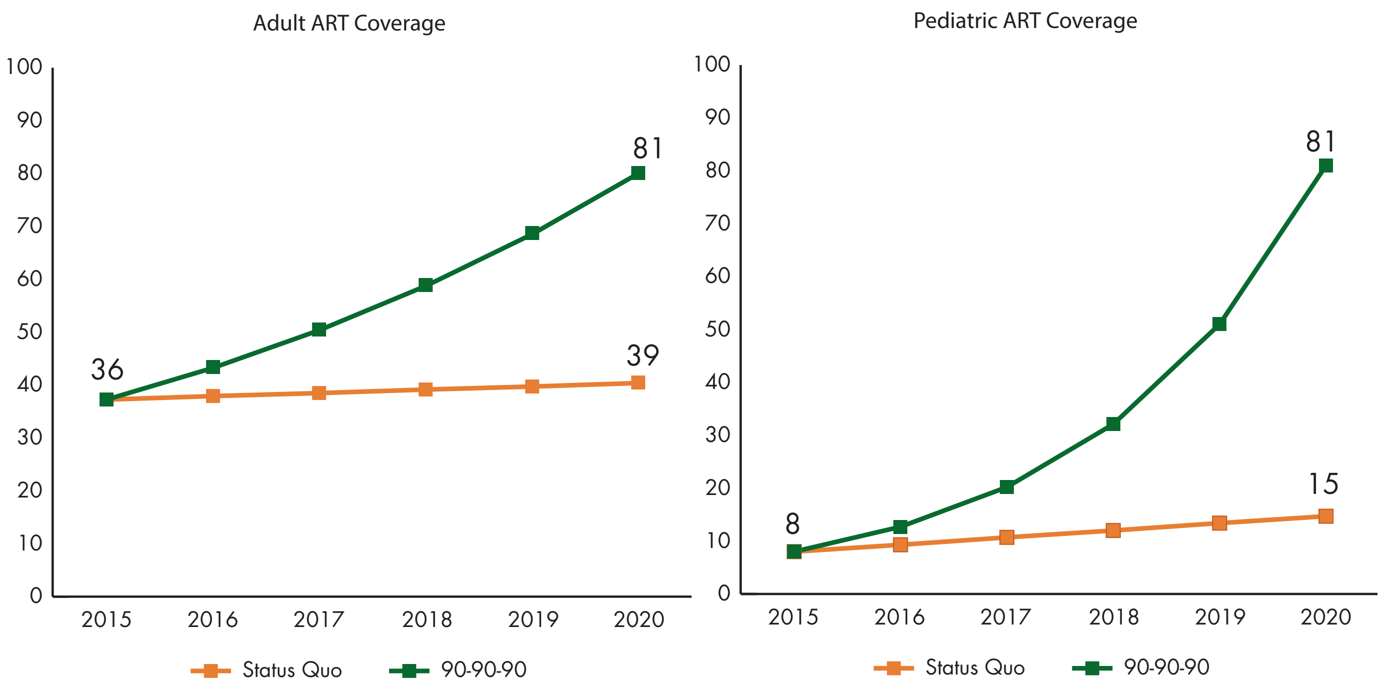
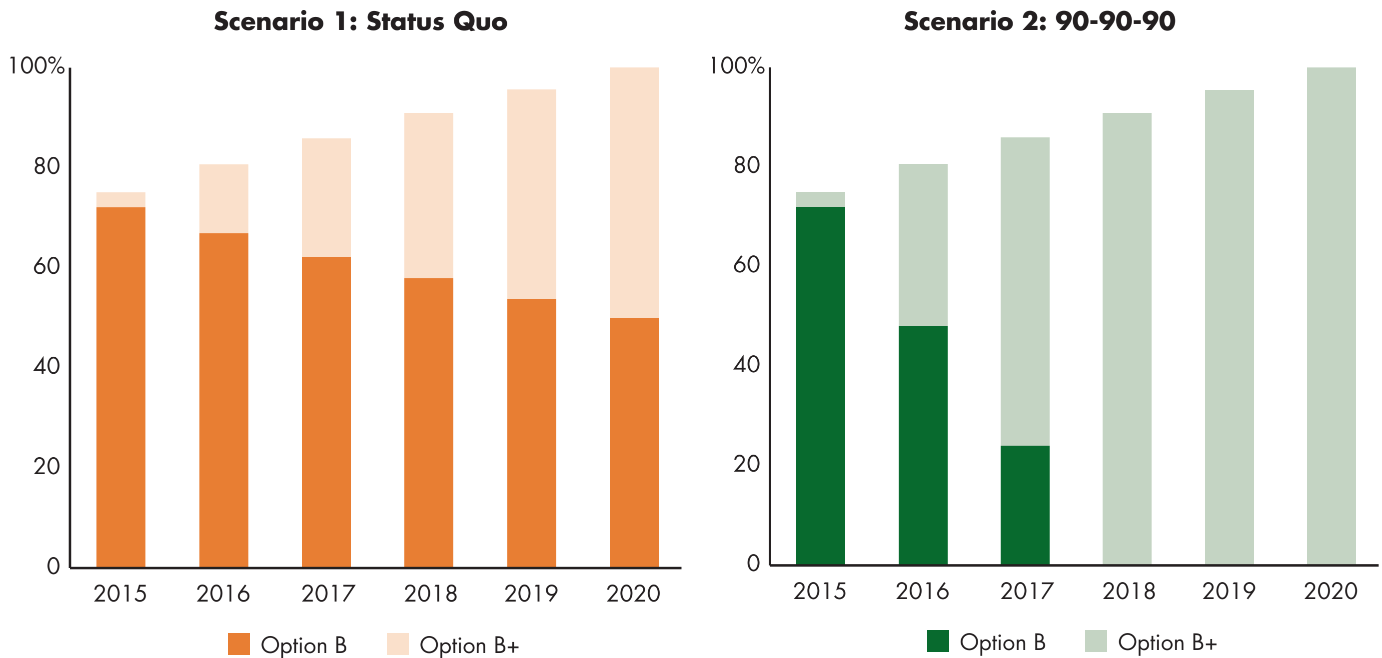


Figure 2: HIV Treatment Coverage Scale-up Scenarios (cont'd)



Cost and Impact of HIV Treatment Scale-Up

To achieve the 90-90-90 target and a 100 percent rollout of the Option B+ approach for PMTCT, Côte d'Ivoire must invest approximately CFA 147 billion (US$297 million) over the next five years, leading up to 2020 (see Figure 3). Comparatively, remaining at status quo will require an investment of approximately CFA 104.6 billion (US$211.5 million). This increased investment over the five years under the 90-90-90 scenario will save more than 35,000 lives and prevent more than 6,000 children from becoming infected via mother-to-child transmission, relative to the status quo, in which treatment coverage increases at the historical pace.

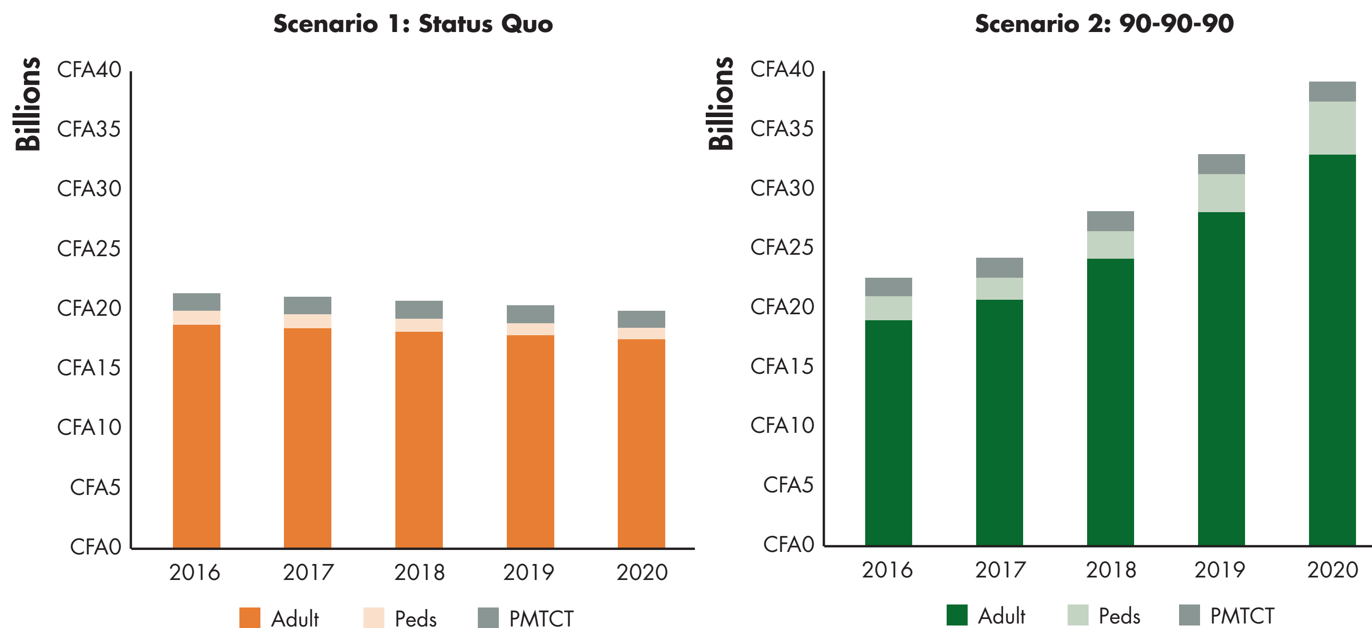
Study Reveals Room for Efficiency and Effectiveness Gains

There is room to improve efficiency while increasing funding for HIV treatment so that investments allow more people to start and stay on treatment, and successfully improve health outcomes. Currently, Côte d'Ivoire spends CFA 290,797 (US$588) per adult, CFA 446,086 (US$902) per child, and CFA 326,404 (US$660) for each pregnant woman to yield one successful responding patient. This metric—Positive Outcome Production Cost (POPC)—divides the total cost of treating the entire cohort of patients (adults, children, or pregnant women) by the number of patients who had positive treatment outcomes. The more effective the country is in yielding positive treatment outcomes, the lower the POPC will be. In Côte d'Ivoire, the POPC is more than double the average annual cost of treatment; for example, POPC for adults was CFA 290,797, compared to CFA 142,431 calculated by the study for the cost of the full package of annual treatment. This difference in costs shows that there are significant resources "lost" within the treatment cascade.

Programmatic Recommendations for Successful, Efficient, and Sustainable HIV Treatment Scale-Up

The government of Côte d'Ivoire's initiative to increase financing for HIV treatment will significantly improve the well-being of its population. In conjunction with resource mobilization, there are several opportunities

Figure 3: Annual Project Investment on HIV Treatment, by Scenario



to improve the efficiency and quality of HIV treatment that can catalyze the treatment scale-up efforts:

- Treatment scale-up requires incremental increases in financial resources, from CFA 22.6 billion (US$45.7 million) in fiscal year 2016 to CFA 39.1 billion (US$79.1 million) by fiscal year 2020. The government of Côte d'Ivoire should consider developing a resource mobilization strategy to identify opportunities and advocate for additional HIV funding from the government and development partners, and identify opportunities for private sector contributions.
- The study found that significant numbers of patients, especially children, are not being put on treatment and are being lost to follow-up throughout the treatment cascade. Côte d'Ivoire is on the right track to reduce pre-treatment patient loss by proceeding with the adoption of the "test and offer" guideline and the rollout of Option B+. In conjunction with these efforts, further research should be conducted to assess where patients, especially children, are being lost along the HIV treatment cascade from identification through viral suppression.
- Achieving cost reduction for antiretroviral medicines will be critical, as these make up the largest portion of the total annual treatment cost. The study found that regimens not aligned with the national treatment guidelines are still being dispensed. To improve treatment outcomes, the government of Côte d'Ivoire should ensure that patients are given treatment in accordance with the national treatment guidelines. Streamlining dispensation of drugs will also improve the country's ability to make bulk purchases, which can lead to cost reductions.
- Laboratory monitoring also requires further alignment with national treatment guidelines. According to the study data, many patients receive only one lab test after initiating treatment, which can delay identification of treatment failure and shifting to alternative regimens. The government of Côte d'Ivoire should ensure that laboratory staff at the sites are trained to perform routine lab monitoring tests per the national treatment guidelines and that data managers enter data correctly, accurately, and frequently.
- Viral load monitoring is currently being piloted in Côte d'Ivoire. Full rollout will be critical for the

country to monitor whether it is truly achieving its 90-90-90 goal (the last component requires that 90 percent of those on treatment are virally suppressed). Viral load monitoring will also require financial investment, which should be kept in mind as resources are mobilized for HIV.

- This study leveraged a nationwide rollout of the electronic health record system, which provides a great opportunity for further data analysis and research. The government of Côte d'Ivoire should ensure that facility staff have the capacity to input correct and complete data, and routinely analyze them to yield valuable insights about the successes and challenges of HIV treatment.

References

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Notes

1 Spectrum is a suite of policy modeling software that includes the AIDS Impact Model, which estimates the impact of HIV treatment scale-up, such as number of HIV infections and AIDS deaths projected based on treatment coverage. It can be accessed at http://www.healthpolicyproject.com/index.cfm?id=software&get=Spectrum.

2 The PMTCT Option B treatment guideline requires that all pregnant women who are HIV-positive receive treatment during pregnancy and while breastfeeding. After breastfeeding, if the woman is not eligible based on other adult treatment criteria, the treatment is stopped. Under Option B+, the pregnant woman is initiated on treatment for life and will continue to receive treatment as part of the regular adult cohort after the baby is born.

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