



Saving Lives, Transforming the Economy:

Making "Treat All" Real
and Saving 23,000 More
Batswana from HIV by 2030

December 2018



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Providing HIV treatment to noncitizens residing in Botswana is a longstanding issue that has gathered increased interest with the formulation and launch of the Treat All Strategy, in June 2016. Since then, discussions among Botswana's development partners—namely, the United Nations agencies and the United States President's Emergency Plan for AIDS Relief (PEPFAR)—and between these partners and the Ministry of Health and Wellness (MOHW) have taken place. We are grateful for these earlier conversations, because they set the stage for recognition by both the leadership of MOHW and the development partners of the impact that noncitizens' access to HIV treatment or the lack thereof could have on Botswana's HIV epidemic control timeline and goals.

The dialogue among these leaders remained constant throughout the years, with more and more questions to answer and solutions to explore. It culminated in a request by the MOHW in August 2018 for this policy brief, which is intended to explore the issue further and weigh some solutions. For that, Richard Matlhare, of the National AIDS Coordinating Agency (NACA); Moses Ketile, of MOHW; Martin Oveberedjo, of the World Health Organization (WHO); Jyothi Raja Nilambur Kovilakam, of UNAIDS; Jacinta Barrins, of the United Nations Resident Coordinator Office (UNRCO); Dan Craun-Selka, of PEPFAR; Michelle Rolland, of the United States Centers for Disease Control and Prevention (CDC); and Kenneth Sklaw, of the United States Agency for International Development (USAID) deserve particular appreciation for their continued leadership on the issue and for making key staff from their offices available to participate on the Core Analysis Team that developed this policy brief.

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This policy brief was formulated based on the objective analysis of existing data, and the diligent consideration of global best practices in the HIV/AIDS field and the nature and socioeconomic and political context of the HIV epidemic in Botswana. It does not reflect in any instance the organizational views, policies, and/or objectives of any particular organization represented on the Core Team.

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Cover: A tree leans into a lake in Botswana. Photo: © 2013 MPSA of PSA, courtesy of Photoshare.

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ABBREVIATIONS

ART	antiretroviral therapy
ARV	antiretroviral
BCPP	Botswana Combination Prevention Project
MCP	multiple concurrent partnerships
MOHW	Ministry of Health and Welfare
NACA	National AIDS Coordinating Agency
NDP	National Development Plan
NGO	nongovernmental organization
NSF III	National HIV and AIDS Strategic Framework 2018–2023
PMTCT	prevention of mother-to-child transmission of HIV
SADC	Southern African Development Community
TB	tuberculosis
US\$	United States Dollar

EXECUTIVE SUMMARY

Botswana has a considerable burden of HIV, with the third highest HIV prevalence globally. However, through bold leadership, the country is a global trailblazer in responding to the AIDS epidemic, and is on the cusp of realizing an AIDS-free generation.

In June 2016, informed by a rigorous investment analysis, a “Treat All” policy was launched to provide all people living with HIV (PLHIV) in Botswana—regardless of disease state—with free, publicly-financed lifesaving treatment. By “leaving no one behind”—a key principle of Botswana’s National Development Plan 2017–2023 (NDP 11)—this policy shift seeks to optimize investments in the national AIDS response and accelerate progress towards epidemic control, with a view to end AIDS as a public health threat by 2030.

To date, the implementation of the “Treat All” policy has focused on providing this free, publicly financed antiretroviral therapy (ART) only to citizens, leaving noncitizens behind. Botswana’s 170,000 noncitizens in residence constitute 7 percent of the country’s total population; of these, an estimated 30,000 are living with HIV. Most noncitizens originate from India, South Africa, Zambia, Zimbabwe, and the United Kingdom, and 80 percent of them are between the ages of 15 and 49: the age group that is most sexually active and economically productive. Only 29 percent of all noncitizens living with HIV are accessing HIV treatment.

Recognizing that multiple concurrent partnerships increase the spread of HIV through sexual networks, the government acknowledges that without fully implementing the Treat All strategy, by covering treatment both of citizens and noncitizens, there will be no epidemic control. Rather, the government would face more new HIV infections and a growing HIV expenditure.

To address the HIV treatment of noncitizens in Botswana, the government would need an additional total investment of US\$18 million for the period 2018 through 2030—an average of US\$1.4 million per year. This translates into an additional 1.2 percent of spending on the current ART program (estimated at US\$103 million per year) and would help achieve 90-90-90 and 95-95-95 treatment targets by 2020 and 2030, respectively, among the noncitizen population.

Treating noncitizens is another way of protecting the citizen population. By treating noncitizens, Botswana can save 22,745 citizens from HIV infection and 1,373 citizens from tuberculosis (TB) infection. The country would also avert 6,741 deaths from AIDS. Compared with treating citizens only, this strategic investment yields 64 percent more new HIV infections averted, at a cost of only 1.2 percent more. Other benefits of enacting a policy change to provide access to HIV treatment for noncitizens are US\$112 million in savings on HIV treatment (which the government would incur to treat citizens if infections are not averted) and US\$4 million in savings on TB treatment (which would occur among noncitizens living with HIV who are not on treatment). Additionally, US\$30 million in productivity gains would accrue to the economy owing to increased productivity yielded by treatment and avoided infections among previously untreated noncitizens living with HIV.

Overall, for every U.S. dollar invested in treating noncitizens, the country gets US\$8 in return.

By not acting now, the government increases the risk of not meeting the Treat All goals for epidemic control. Moreover, the government will incur an additional US\$116 million expenditure to treat HIV and TB infections. The country will be exposed to an additional 23,000 new HIV infections among citizens, as well as an economic loss of US\$30 million in worker productivity owing to untreated HIV.

As a way forward, we recommend investment in treating both citizens and noncitizens through the Treat All program. This will accelerate epidemic control, improve financial sustainability of the Treat All program, and produce long-term healthcare savings. To implement this policy recommendation

sustainably, potential pathways are to work with development partners to fund the initial phase of the program, followed by transition to full financing by the Government of Botswana as cost savings are realized.

BACKGROUND

Towards an AIDS-Free Future

Botswana has been and remains a global trailblazer in the AIDS response. The adoption of the “Treat All” Strategy for HIV, in June 2016, was a landmark policy decision. It set the country on the path to reach and surpass the UNAIDS 90-90-90 goals¹ by 2020 and effectively bring the HIV epidemic in Botswana under control by 2030.

The 2016 Botswana HIV Investment Case (Ministry of Health and Welfare [MOHW], 2016)—the rigorous and extensive programmatic and financial analysis that formed the foundation of the Treat All strategy—was informed by, among other sources, the 2011 Botswana Population and Housing Census. That census was comprehensive and covered the entire population of Botswana, including non-Botswana citizens.

However, contrary to recommendations in that investment case, the implementation of the Treat All Strategy for the past two years has focused on Botswana citizens only. Since June 2016, the Treat All program has provided free antiretroviral therapy (ART) to any citizen who tests positive for HIV. Non-Botswana citizens are excluded from Treat All by a presidential directive issued in 2004.² Consequently, approximately 7 percent of the population in the country is being left behind. This decision has significant epidemiological and financial implications for the objectives of the Treat All Strategy and Botswana’s commitment to “ending the AIDS epidemic as a public health threat” by 2030.

Without addressing the ART needs of foreign nationals living with HIV who cannot afford treatment on their own in Botswana, the Government of Botswana risks incurring an estimated 23,000 new HIV infections among citizens by 2030, along with 6,200 HIV/AIDS-related deaths of Botswana citizens.

To sustain and improve the effectiveness of the HIV response, the Government of Botswana needs to continuously monitor trends and identify and address programmatic gaps in the response, including the real risk of sexual transmission of HIV across segments of the population, regardless of citizenship status. This analysis shows that by acting on its commitment

to treat all residents living with HIV in Botswana who cannot afford treatment on their own, the

...[W]ithout adequately addressing the ART [antiretroviral therapy] needs of foreign nationals, the National HIV Response will not ultimately be successful.

—Botswana Investment Case
2016, p. 44

It is now clear that broadly re-invigorating the National HIV Response by providing universal access to ART treatment is the most important step that can be taken to safeguard Botswana’s future against the devastation of HIV, strengthen the healthcare system and advance the Nation’s development goals.

—Shenaaz El-Halabi, Former Permanent
Secretary, Botswana MOHW

¹ These goals are, by 2020, that 90 percent of those who are HIV-positive will have been diagnosed, 90 percent of those diagnosed will be on sustained antiretroviral therapy (ART), and 90 percent of those on ART will be virally suppressed (UNAIDS, 2014).

² This Government of Botswana directive refers to a Savingram dated March 26, 2004 (Ref: CMED 21/14 1[19]).

government can accelerate progress towards epidemic control and improve the financial sustainability of the national AIDS response.

Specifically, Botswana can save \$98 million United States dollars (US\$) from 2018 through 2030 by averting new HIV and tuberculosis (TB) infections and their associated treatment costs. The economy will gain an additional US\$30 million, as healthier citizens and noncitizens alike receive the treatment they need to return to work. The investment to realize these benefits amounts to less than 2 percent of the projected expenditures on ART by 2030.

To inform policy, the government requested a core group, comprising MOHW, the National AIDS Coordinating Agency (NACA), UNAIDS, the United States President's Emergency Plan for AIDS Relief (PEPFAR), and MEASURE Evaluation (funded by the United States Agency for International Development [USAID] and PEPFAR) to conduct a desk review and synthesis of Botswana's demography and HIV status as the foundation of an economic analysis of the country's investments in ART services. Detailed analytical approach and data used are laid out in the appendix. This policy brief makes the case for providing antiretroviral (ARV) treatment to noncitizens who cannot afford it. It provides a profile of the noncitizen population to clarify who is not receiving treatment. It also describes the current policy environment in Botswana and in neighboring countries, to contextualize the need to provide ART to noncitizens. The main sections of the brief focus on demonstrating the costs and benefits of extending ART to noncitizens and showing that Botswana's paths to HIV epidemic control and financially sustaining its national HIV response are linked. The brief concludes with a roadmap for sustainably **investing in treating noncitizens** through the Treat All program.

Profile of Noncitizens in Botswana

The top five countries of origin of noncitizens in Botswana are South Africa, Zimbabwe, Zambia, India, and the United Kingdom. Over 80 percent of noncitizens are between 15 and 49 years old. This segment of the population is economically productive, and the cohort corresponds to the sexually active age group that is at higher risk of acquiring HIV and infecting others.

Within the noncitizen population, the following subgroups have access to ART:

- Wealthier people, such as those in professional jobs, who pay out-of-pocket for their own treatment
- Prisoners; however, they are ineligible for treatment after their release
- Refugees housed in camps; however, they are ineligible for treatment upon leaving a camp and settling in the country until they become citizens

The subgroups of the noncitizen population who cannot afford ART treatment on their own are the following:

- Low-wage workers, such as maids, cleaners, and hair braiders, and other day laborers
- Unmarried partners of citizens, including the unmarried mothers of children fathered by citizens (Because these women are ineligible for treatment to prevent mother-to-child transmission of HIV, additional citizen children are being born needing treatment for HIV.)

TREAT ALL: RISK FACTORS OF NOT TREATING NONCITIZENS

Fewer Noncitizens Know Their HIV Status

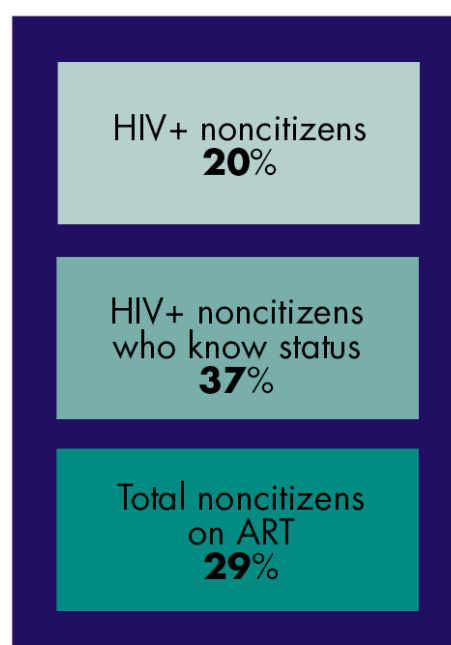
From 2013 to 2016, the Botswana Combination Prevention Project (BCPP) collected data on the HIV and ART status of people in 15 rural and peri-urban communities (Marukutira, et al., 2017). The study found that citizens and noncitizens had similar prevalence rates—20 percent for citizens, 22 percent for noncitizens—with women experiencing higher prevalence in both populations by a similar margin.

The study found that noncitizens were much more likely to be unaware of their HIV status: 63 percent of those who were found to be living with HIV were not aware of their status. Only 29 percent of the HIV-positive noncitizens were on ART. This evidence suggests that noncitizens have the same rates of infection as citizens, but are less likely to be aware of their HIV status and to access treatment. Figure 1 summarizes ART coverage for noncitizens in the BCPP study.

Generally, policies and practices that restrict access to essential healthcare services for migrants—especially undocumented and low-wage migrants—can reduce their access to information on sexual and reproductive health, particularly on HIV prevention. Noncitizens may avoid seeking out testing services and treatment for HIV for fear of arrest and deportation. Noncitizens also have less incentive to get tested for HIV, because they may not have access to treatment if diagnosed.

New HIV infections in Botswana are on the rise, hindering the country’s efforts towards epidemic control. As ART treatment reduces the chance of transmission of HIV to others, extending ART treatment to noncitizens would strengthen HIV prevention efforts.

Figure 1. BCPP rural and periurban noncitizen characteristics, 2013–2016



The Practice of Multiple Concurrent Partnerships

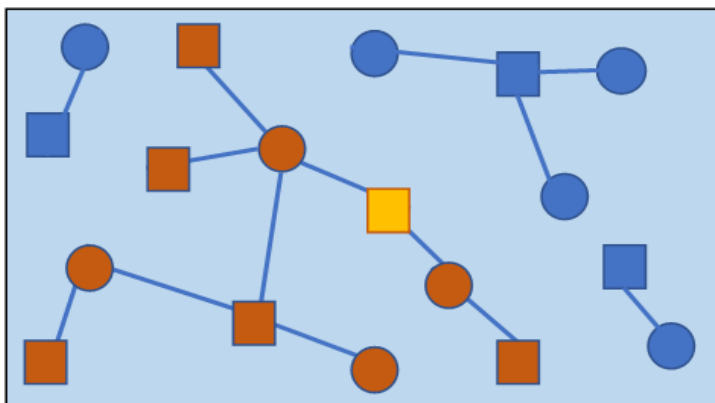
Up to one-third of people in Botswana ages 15–34 engage in multiple concurrent partnerships (MCP): that is, they have sexual relationships with more than one person over the same period (Gourvenec, Taruberakera, Mochaka, & Kasper, 2007). Within the population, MCP leads to a faster and broader spread of HIV infection. With high HIV prevalence and high rates of undiagnosed infection in the general population, *assortative* and *nonassortative* sexual mixing³ will likely increase the probability of HIV exposure for everyone in the country, regardless of citizenship status. For example, introducing untreated noncitizens into the sexual networks created by MCP increases the spread of HIV to citizens and noncitizens alike.

Figure 2 represents a sexual network in which one-third of the individuals (represented by dots and squares) have MCP. The individual represented by the yellow square, who has untreated HIV, is linked through the sexual network to half of the people in the diagram. Half of these linked individuals have only one partner themselves but are at risk, because their partner practices MCP. Noncitizens are part of society within Botswana, and most are within the age range that is most sexually active. If they are not treated for HIV and enabled to become virally suppressed, they may put many others at risk of exposure.

Foreigners, noncitizens are sleeping with our daughters, our children. We have daughters with foreigner boyfriends. As such we must treat foreigners for HIV, otherwise we will move around in circles.

—Manyana village chief Kgosi Kebinatshwene Mosielele,
August 23, 2018 at the 7th Botswana International HIV Conference Gaborone

Figure 2. Sample MCP network



³ Assortative sexual mixing refers to sexual relations among citizens only. Nonassortative sexual mixing refers to sexual relations between citizens and noncitizens.

No Access to Prevention of Mother-to-Child Transmission (PMTCT)

Along with the 90-90-90 goals for epidemic control, Botswana also has the goal of reducing the mother-to-child HIV transmission rate to under 1 percent by 2023. The current policy excludes noncitizen mothers from receiving treatment for PMTCT, even in cases where their partner is a citizen and the child will be a citizen at birth.

Case Study: PMTCT

In Tutume, a Zimbabwean woman lives with a Botswana man. Both are HIV-positive. He is on ART and she is not. They have had three children together—all HIV-positive at birth. The three children are all citizens, and all are on ART.

The mother is seeing that her partner and children remain healthy while she is getting sicker and sicker. She is pregnant with her fourth child. She wants this baby to be born HIV-negative, but she cannot get free ARVs, because she is not a citizen—even though her unborn child will be a citizen.

She talked the physicians at the local clinic into giving her a prescription for ARVs. Now she has to find the money to travel an hour-and-a-half, one way, to Francistown, the nearest place to fill the prescription, as well as money to cover the cost of the prescription. A month's supply of ARVs usually costs about 300 Pula (10 Pula a day)—a large sum for her and her partner.

DOMESTIC AND REGIONAL POLICIES AND PRACTICE

Botswana: A Contradictory Policy Landscape

The current Treat All policy in Botswana was launched after the MOHW's 2016 investment case demonstrated the cost savings and health benefits of treating all people living with HIV in Botswana. This investment case was based on the 2011 Population and Housing Census data that includes all residents of Botswana, not just citizens. It is thus unclear if the 2004 government directive to treat only citizens, based on the use of national identity cards, called Omang, remains valid to date or has been overridden by recent directives, such as the Treat All program, launched in June 2016.

Meanwhile, the government's National HIV and AIDS Strategic Framework 2018–2023 (NSF III) recognizes noncitizens as a priority population requiring programmatic attention as one of the key strategic shifts to achieve the ambitious but achievable goal of ending AIDS as a public health threat by 2030. NSF III calls for increased capacity for treating all key and priority populations and providing them with services that are “free of stigma and discrimination.”

These inconsistent policies are serious challenges to the country's goal of HIV epidemic control by 2030 and require immediate attention from all stakeholders involved in the national HIV/AIDS response.

Regional Policy Landscape

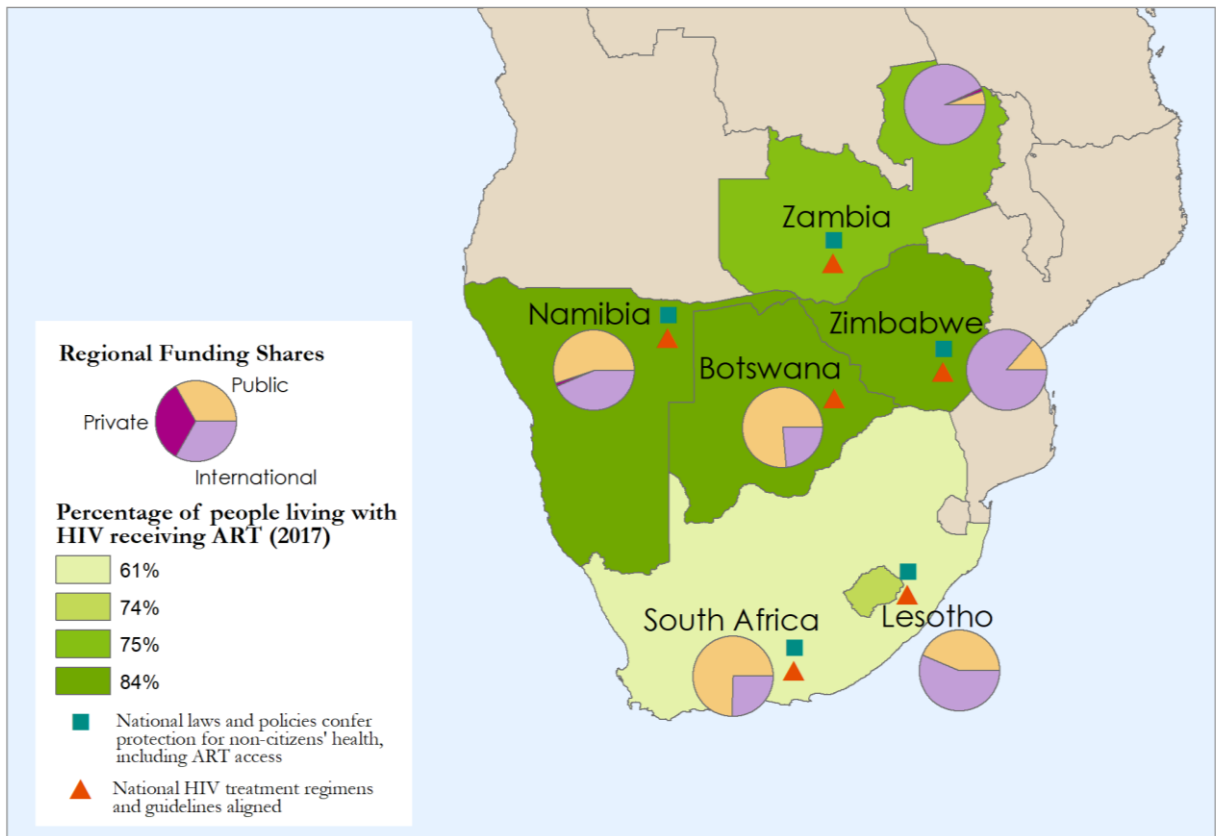
Treatment regimens across the Southern African Development Community (SADC) region have been harmonized. Treatment guidelines in all of the SADC member states are aligned to the World Health Organization (WHO) guidance and call for use of the antiretroviral drugs dolutegravir (DTG) or Atripla. Because of this regional harmonization of treatment regimens, there is minimal risk of drug resistance and side effects owing to switching regimens when a noncitizen on HIV treatment in Botswana returns home and continues treatment in his or her country of origin.

Laws and policies in the SADC region provide protection for noncitizens' health, as enshrined in the SADC Health Protocol (SADC, 1999). Specifically, South Africa changed its policy to allow ART access to noncitizens, and the constitutions of Namibia, South Africa,

The South Africa Department of Health issued a directive in 2007 reversing its initial position that ART treatment was contingent on having a South African identity document.

Zambia, and Zimbabwe all provide some level of protection for noncitizens' health, as enjoined by the SADC Health Protocol. With regard to HIV prevention, treatment and care services, and commodities, SADC countries offer the same standards of protection to migrants, visitors, and residents who are not citizens as they do to citizens. To this end, overall progress toward achieving the UNAIDS 90-90-90 targets has been commendable. Depending on each SADC country's respective economic capacity and HIV disease burden, HIV treatment for noncitizens has been financed through the principles of shared responsibility and global solidarity. Figure 3 illustrates the current status of laws, policies, and practices with regard to noncitizens' access to HIV treatment, including 90-90-90 cascades and respective domestic and international investments in HIV treatment.

Figure 3. Regional policy landscape

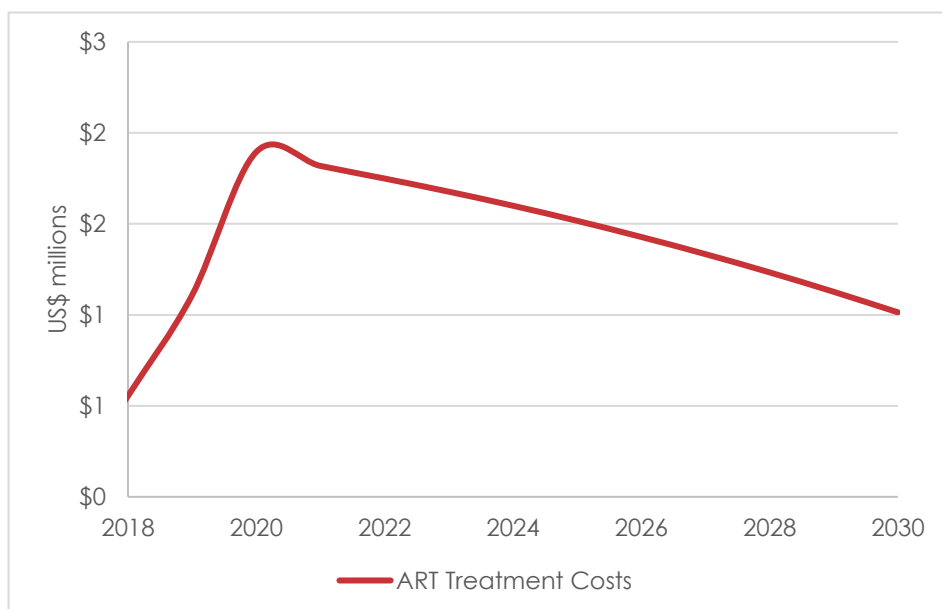


COSTS AND BENEFITS OF TREATING NONCITIZENS

Program Costs

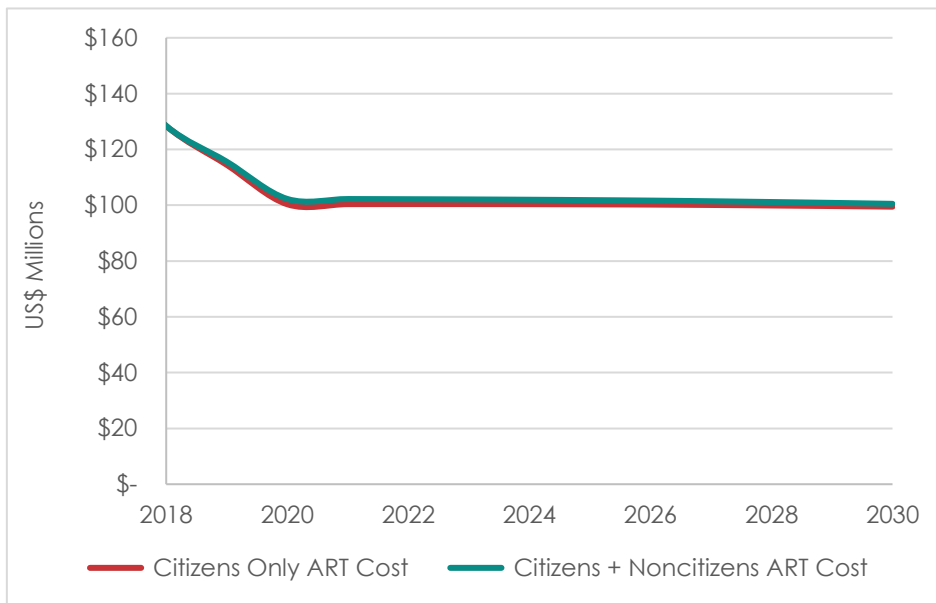
Treating noncitizens living with HIV requires expenditures on ARV drugs for these individuals. Figure 4 displays the yearly costs of adding approximately 10,000 noncitizens to treatment. These additional costs are estimated at an average of US\$1.4 million per year, with a peak at approximately US\$2 million in 2020 and then declining to around US\$1 million per year in 2030. The primary reason for treating noncitizens is to help reduce new infections in the entire population, which includes both citizens and noncitizens. This is less a philanthropic investment than an imperative public health investment intended to avert new infections mostly among Botswana citizens (93% of the population) and to reduce the government's risk of higher health expenditures in the future. As additional new infections are averted, the government will save money on ART over the lifetime of the individuals who avoid infection. The government also saves money on TB treatment, which it covers both for citizens and noncitizens. These savings exceed the costs of treating noncitizens and improve the long-term sustainability of the treatment program. By 2030, the savings from treating noncitizens will exceed the costs by US\$9 million annually.

Figure 4. Healthcare costs and savings attributed to treatment of noncitizens



In comparison with the cost of the current program that treats only citizens, the cost of adding treatment for noncitizens is relatively small, representing an additional 1.2 percent of projected expenditures, which would be amortized through the healthcare savings and economic benefits generated in the national health system. Figure 5 shows the cost of ART over time compared to the current projected costs of treating only citizens.

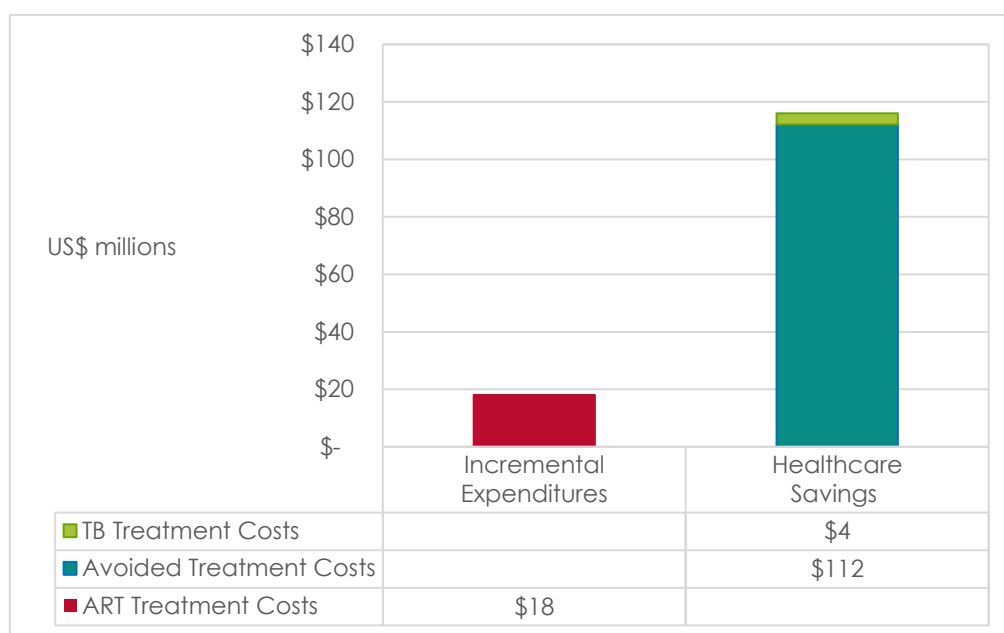
Figure 5. ART costs to cover citizens compared to costs to cover both citizens and noncitizens



Savings and Other Economic Benefits

Figure 6 shows the total expenditures and savings attributable to treating noncitizens from 2018 to 2030. It is estimated that the government will spend a cumulative amount of US\$18 million on ART for noncitizens. However, the government is also expected to save US\$4 million on TB treatment and \$112 million on ART for the new HIV and TB infections averted by this critical public health investment. The net savings are estimated at US\$98 million, averaging nearly US\$8 million per year over the 13-year period.

Figure 6. Cumulative healthcare costs and savings

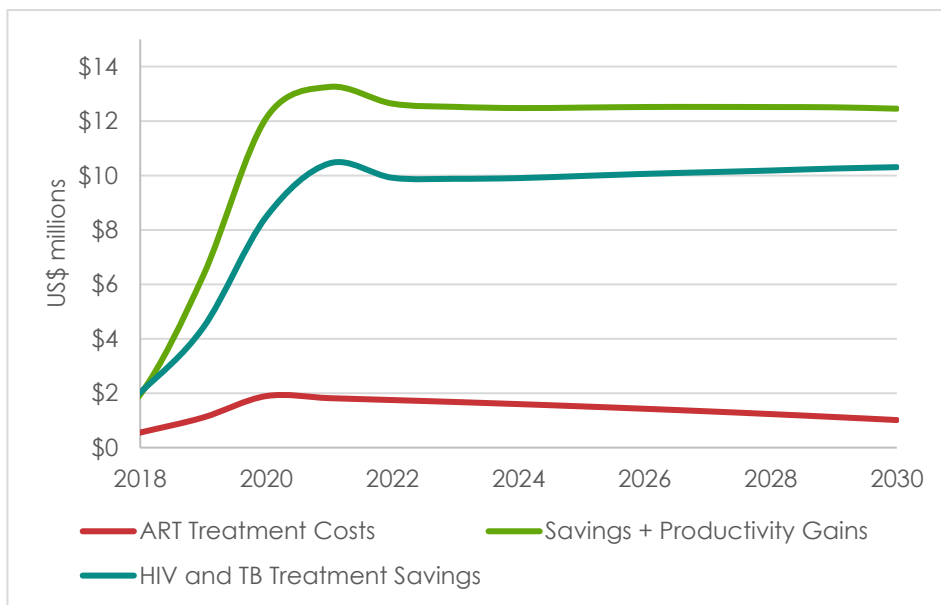


The estimated savings above include the benefits of avoiding TB treatment but not the costs of other diseases associated with HIV/AIDS, such as cancer, kidney disease, or liver disease. Additional healthcare savings may accrue, because of reduced incidence of these and other conditions, especially in the case of undocumented migrants who mainly seek healthcare only when severely ill. The real or perceived fear of being detected as an illegal migrant on many occasions prevents or delays migrants from accessing the care they need in a timely manner, which may place an unnecessary burden on the national health system.

Furthermore, the estimates of treatment costs for noncitizens are based on current treatment costs and do not take into account the (observed and expected) declining trends of ART costs over time. Historical trends in public health, especially in HIV/AIDS treatment, suggest that additional medical advances over the next 13 years will certainly reduce the cost of treatment or make treatment more effective. In addition to reducing costs, these advances could further improve the health benefits of investing in treatment of noncitizens now.

The economy as a whole will also benefit from treating noncitizens. As they access the treatment they need to stay healthy and productive, they can remain in the labor force. Over 80 percent of noncitizens who reside in Botswana are of working age, and those who receive ART can usually return to work within six months. In addition, both citizens and noncitizens who avoid becoming infected with HIV will continue to contribute more to the economy. The economic benefit of increased productivity is estimated to be US\$30 million from 2018 to 2030. Including program cost savings and economic benefits, the total net benefit of treating noncitizens will be over US\$146 million by 2030 (Figure 7).

Figure 7. Total economic benefits and costs



The economic benefits of treating noncitizens are based on the productivity of working-age people. But productivity benefits also consist of the intrinsic value of improved quality of life and improvements in the lives of those outside of the working population, such as children, the elderly, and the disabled.

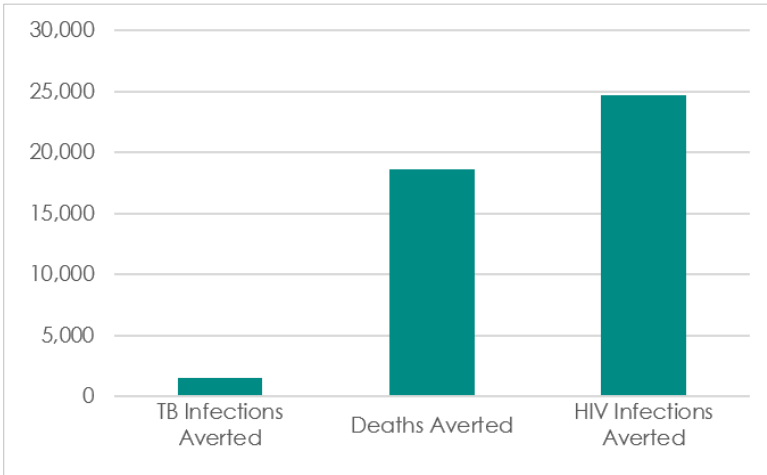
Health Benefits to the Entire Population

Investing in treatment for HIV-positive noncitizens is also the path to HIV epidemic control in Botswana. ART reduces viral load and therefore the likelihood that a person will pass on HIV infection to others. This public health investment serves to protect the entire population of Botswana—noncitizens and citizens alike—by helping to prevent additional infections and AIDS-related deaths.

Figure 8 shows deaths and HIV and TB infections that could be averted from 2018 to 2030. As shown, by treating 10,000 noncitizens, Botswana could avoid nearly 1,500 TB infections, more than 6,700 HIV-related deaths, and more than 24,000 HIV infections. Most of these deaths and new infections avoided would be among citizens.

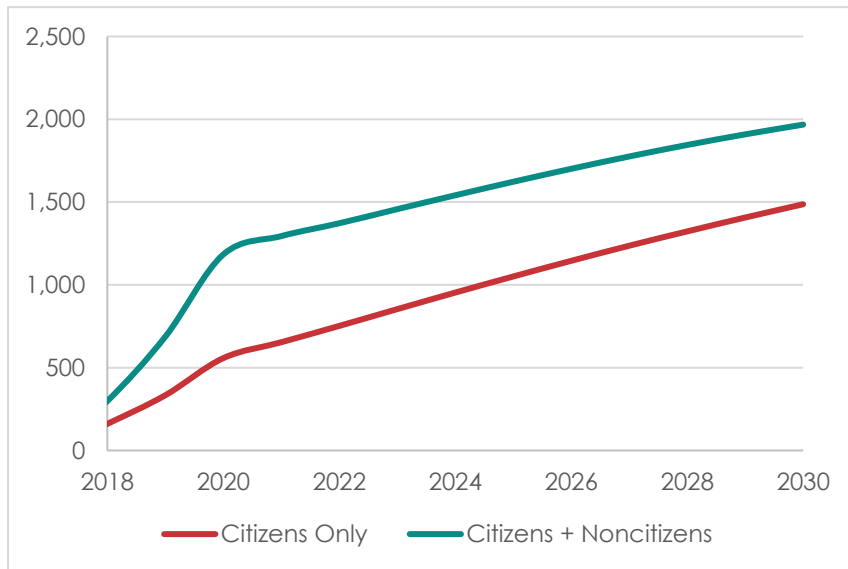
Preventing new HIV infections is the main benefit of opening the Treat All program to noncitizens. In the UNAIDS 2018 Global Aids Update, Botswana was reported to have an increasing number of new HIV infections (UNAIDS, 2018). New infections rose by more than 5 percent from 2010–2017, with 13,000 new infections occurring in 2017.

Figure 8. Cumulative health benefits (2018–2030)



Looking closer into AIDS-related deaths, the Treat All program for citizens is expected to help prevent nearly 1,500 deaths a year by 2030. Figure 9 shows that by extending HIV treatment to noncitizens, AIDS-related deaths would be further reduced by an additional 500 per year, for a total of nearly 2,000 deaths prevented annually by 2030. From 2018 to 2030, the additional lives saved by treating noncitizens represent a 57 percent increase in comparison with treating only citizens. In addition, 64 percent more HIV and TB infections can be averted compared to the Fast-Track initiative for citizens only.

Figure 9. AIDS deaths averted by adding noncitizens

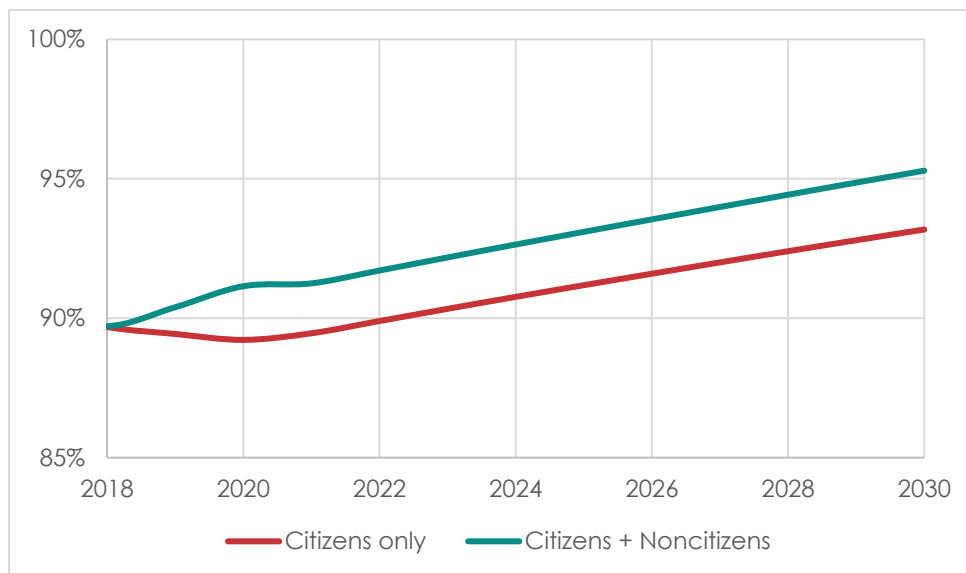


ACHIEVING EPIDEMIC CONTROL

Botswana is on the verge of achieving the 90-90-90 goals. According to UNAIDS, Botswana has nearly achieved the first 90 goal and has achieved the second and third 90 targets (UNAIDS, 2018). However, the increasing number of new HIV infections—in part attributable to the lack of universal treatment coverage—is undermining this landmark achievement in the national HIV and AIDS response.

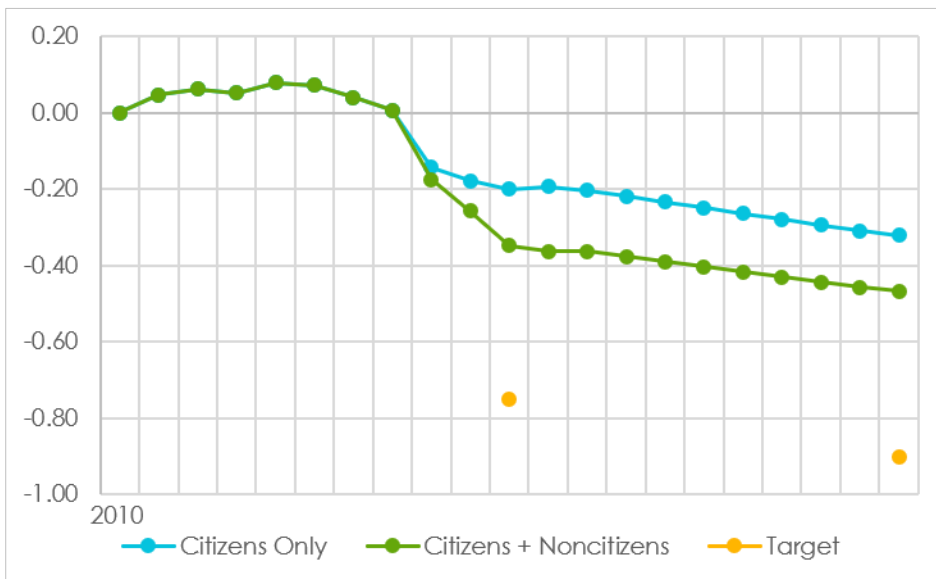
Figure 10 presents Botswana’s progress toward the Fast-Track goals of 90-90-90 by 2020 and 95-95-95 by 2030. It shows that by treating only citizens, Botswana will fall short of the goal of treating 95 percent of the population diagnosed with HIV by 2030. However, by extending the Treat All program to noncitizens, Botswana will accelerate progress towards the 90 percent goal and exceed the 95 percent goal by 2030. Noncitizens are of critical importance to the country’s strategy to meet the 95 percent goal. By treating noncitizens, Botswana could avert close to 24,000 infections, which will significantly reduce the number of people who need treatment through 2030. Extending ART treatment to the noncitizen population that is HIV- positive but cannot afford treatment on their own would be imperative to meet Botswana’s goals of epidemic control by 2030.

Figure 10. Progress toward 95 percent treatment coverage goal



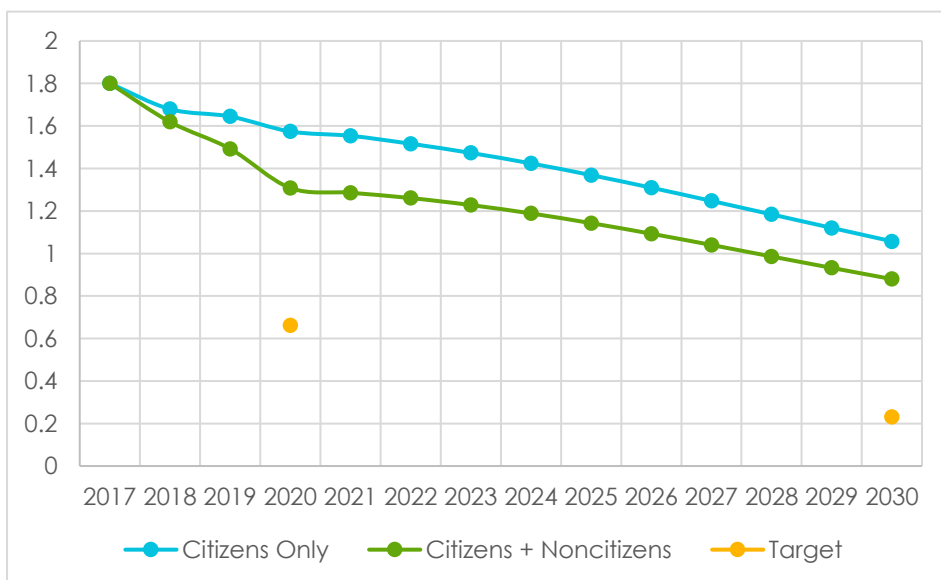
The ultimate goal of HIV treatment and prevention is epidemic control. One way to measure progress on epidemic control is to compare the number of infections to a 2010 baseline (UNAIDS, 2017). Reducing the numbers of HIV infections and AIDS-related deaths by 90 percent from 2010 levels is a goal that informed the Fast-Track targets. By treating noncitizens, Botswana can reduce new infections by 39 percent of the 2010 level, compared to 22 percent by treating only citizens (see Figure 11). This is closer to the target of reducing new infections by 75 percent from 2010 to 2020 and by 90 percent from 2010 to 2030.

Figure 11. Reduction in new infections from 2010 baseline



Another metric of epidemic control is the deaths or infections per 1,000 or 10,000 adults per year. Botswana is close to achieving less than one AIDS-related death per thousand individuals on its way to less than one per 10,000 adults.. Figure 12 shows the projected deaths, compared to Botswana’s goals of reducing deaths to 25% of 2010 deaths by 2020 and to 10% of 2010 deaths by 2030. By covering noncitizens and avoiding infections and AIDS-related deaths, Botswana can reach this goal faster.

Figure 12. AIDS-related deaths per 1,000 population



POLICY RECOMMENDATIONS

This analysis of the impact of investing in providing free ART to noncitizens who cannot afford it on their own is based on the 2016 Botswana HIV Investment Case goals. It assumes that Botswana meets its obligations for the citizen population. The full benefits of treating noncitizens will be realized only if the Fast-Track policies continue to be implemented in the future.

Recommendations

1. Government of Botswana should continue to ensure the necessary funding and commitment to provide HIV treatment to those citizens in need
2. Government of Botswana should **invest in treating noncitizens** through the Treat All program

Roadmap to Sustainable Implementation

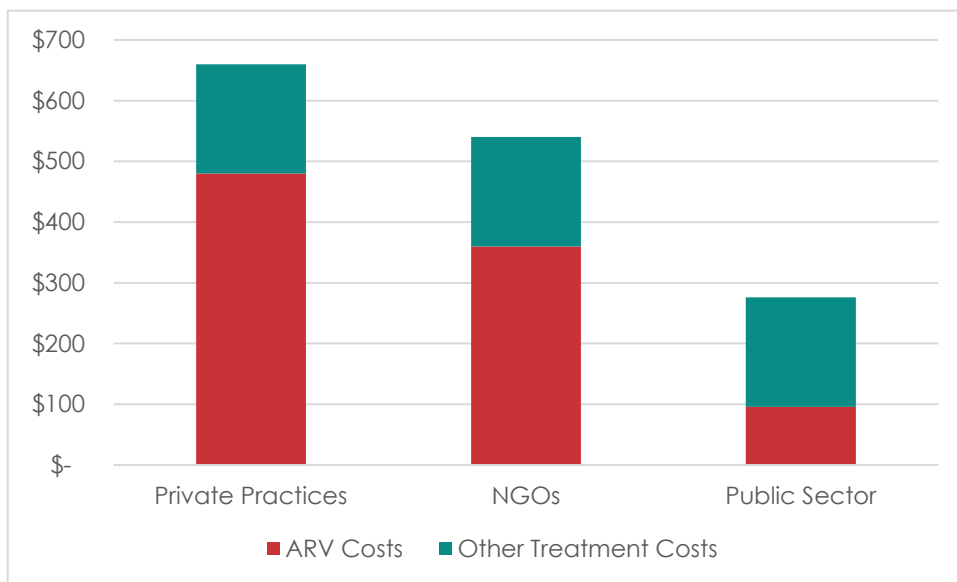
The policy choice to treat noncitizens represents a move toward a financially and epidemiologically more sustainable HIV response. Frontloading these investments to achieve a transition in the HIV epidemic will require additional funding for drugs and service delivery. The government could consider several financing options either individually or in combination, including but not limited to joint financing with bilateral and multilateral donors, cost-sharing with patients through copay schemes, and public-private partnerships.

Although external financing is projected to decline over the next six years, external funds may be available in the short term to support Botswana during the first few crucial years of a noncitizens program. Botswana should explore the partnerships available to help fund this transition and capitalize on the potential for greater long-term sustainability. This joint financing mechanism has been the primary funding option explored in the most countries in the SADC region—especially the ones with higher HIV/AIDS burden. This is an interim measure. Such a partnership could save lives in the short term (i.e., 2018–2023) and transition over time from a fairly substantial level of donor financing to a primary share of financial responsibility for the government. This transition could be planned for 2024 as the additional costs of providing ART to noncitizens are predicted to begin declining and ensuing savings will be realized. As a way of sustaining the Treat All strategy, the government should explore other revenue raising options including public-private-partnerships and cost-sharing schemes.

Botswana could also explore forms of public-private partnerships that could help reduce the financial burden of extending the Treat All program to noncitizens. One example of such partnerships is collaboration with private foundations for access to additional financial resources and/or necessary medical supplies. Another is joint operations with nongovernmental organizations (NGOs) to reach the least accessible segments of the population—that is, key populations (female sex workers, men who have sex with men, injecting drug users) and migrant workers. In this form of social contracting, the government could contribute ARV costs while the partner NGOs deliver, monitor, and report on the service delivery. Such a partnership could also be extended to private medical clinics, for service delivery to a given number of low-income residents (citizens or not) in exchange for a partial tax write-off and/or other attractive government-to-business services.

Finally, building on the current copayment system,⁴ Botswana should also investigate a cost-sharing model for treating noncitizens as a means to recover some of the costs associated with this expansion of the Treat All program. For example, a cost-sharing scheme could require HIV-positive noncitizens to contribute a percentage of the annual per-patient cost of ART. Figure 13 shows the cost of ART from different providers. Many noncitizens who cannot afford the higher cost of treatment from private providers may be able to pay a fee to offset a small portion of the public cost.

Figure 3. Minimum annual HIV treatment cost per patient, by type of provider



For example, during the first year of opening the Treat All program to noncitizens, the government could develop and test a cost-sharing scheme, with the goal of full implementation in subsequent years if the pilot proves successful. The additional financial resources mobilized could be a relief as the Government of Botswana transitions away from external funding to a mostly self-financed and self-managed program covering ART for both citizens and noncitizens. As cost savings are realized in future years, the government could reap the benefits of investing in treating noncitizens. Moreover, the lessons learned from setting up a cost-sharing scheme for this particular disease burden could also be extended, where relevant, to other public health priorities in the country.

⁴ Among others, general consultation for locals is 5 Pula (US\$0.50). Children under five years of age and adults over 65 years do not pay consultation fees (see <https://www.moh.gov.bw/hospitals1.html>).

CONCLUSION

By choosing not to cover noncitizens, Botswana will face higher HIV and TB expenditures in the long term to treat citizens with HIV and both citizens and noncitizens with TB. Botswana has committed to UNAIDS treatment goals of 95-95-95 by 2030 and reducing mother-to-child transmission to help achieve epidemic control. By not including the noncitizen population, the achievement of these goals may be delayed or simply never achieved. Providing ART to noncitizens will help to save the lives of 6,200 Botswana and prevent 22,700 citizens from acquiring HIV over the next 13 years.

Additionally, the country will miss out on potential savings exceeding US\$6 million per year by 2030. The economy would lose US\$30 million between 2018 and 2030, because of reduced productivity in the working-age population. Choosing not to treat noncitizens may avoid expenditures in the short term but will have long-term impacts on healthcare spending in Botswana. In sum, by acting to treat noncitizens, the government of Botswana can accomplish the following:

- Protect the health of Botswana
- Act on its commitment to Treat All
- Enhance Botswana's reputation as a regional leader in addressing the HIV epidemic
- Improve the sustainability of the HIV treatment program while accelerating progress toward epidemic control

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APPENDIX. MODELING TREATMENT FOR NONCITIZENS

This appendix provides an overview of the methods and data used in this analysis. The cost and impact of fast-tracking ART access by citizens and noncitizens were based on the 2016 Investment Case and modeled in the Goals and TB Impact Model and Estimates (TIME) modules, in Spectrum.⁵ We then used outputs of the Spectrum analysis in economic modeling of productivity gains.

For this analysis, we created and projected three analytic scenarios:

- a. Base: No change either in citizen or noncitizen ART coverage from current levels
- b. Fast-Track for citizens only: Scale-up the citizen ART coverage to Fast-Track targets (90-90-90 by 2020 and 95-95-95 by 2030) but keep the noncitizen ART coverage constant
- c. Fast-Track for all: The national ART coverage equals the Fast-Track target

We used the Goals module of the Spectrum modeling system, which has been validated by the HIV Modelling Consortium as most suitable for this type of analysis. The epidemiological data come from the 2018 government-approved national HIV estimates for Botswana prepared using Spectrum. This Aids Impact Model (AIM) file includes surveillance and survey data on HIV prevalence as well as program data on coverage of ART programs. The Goals outputs were adjusted to match those of AIM, using an iterative process to allow for consistency in the outputs.

The 2018 national Botswana AIM model was calibrated to the 2016 Goals model (used for the Investment Case analysis). Given the estimate of the noncitizen percentage of the population, NC%, and the ART coverage among noncitizens, NC_ART%, we calculated the ART coverage among citizens, C_ART% as:

$$\text{National_ART\%} = \text{NC\%} \times \text{NC_ART\%} + (1 - \text{NC\%}) \times \text{C_ART\%}$$

The noncitizen population estimates from the DemProj module are based on the United Nations World Population Prospects (WPP) 2017 release (United Nations, 2017). These estimates are based on Botswana census data on international migration and patterns of migration by age obtained from Botswana population and housing censuses, as well as the Department of Immigration and Citizenship. We assume that entering and exiting migrants have the same HIV prevalence as the resident population.

To estimate the impact on TB of universal HIV treatment access by noncitizens, we used the TIME model in Spectrum, which links to AIM for HIV information. This gave us the number of TB cases averted by scaling up ART. To get to costs, we used the estimated budget and number of cases from the World Health Organization TB country profile for Botswana, resulting in a cost of about US\$2,600 per TB case. This figure accounts for all costs, including testing, treatment, and service delivery. We applied this cost to the number of cases averted in each scenario.

Because the population profile of noncitizens is similar to that of citizens, the relative productivity of noncitizens was also assumed to be similar to that of citizens. We measured productivity by gross national income (GNI) per working-age population and assumed that a person living with HIV with a CD4 count of less than 200 cell/ μl has a disability of 80 percent compared to a person on ART (Resch, et al., 2011).

⁵ See <https://www.avenirhealth.org/software-spectrum.php> to download the models or documentation.

GNI per working-age population equals approximately \$25,400. We used a discounted rate of 3 percent (MOHW, 2016).

Investments in extending HIV treatment result in financial savings through averted treatment costs, which we calculated from the infections averted. Note that unit prices of ARVs continue to decline, and thus the estimated financing needs will continue to decline in the future. The infections and deaths averted that accrue to citizens and noncitizens are appropriately apportioned using the percentage shares within the total population.

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