



**DIRECTIONS IN DEVELOPMENT**  
**Human Development**

# Thirty Years of the HIV/AIDS Epidemic in Argentina

*An Assessment of the National  
Health Response*

Fernando Lavadenz, Carla Pantanali, and Eliana Zeballos



**WORLD BANK GROUP**

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## Foreword

Thirty years since its first reported HIV/AIDS case, Argentina has become the country with the second lowest HIV/AIDS morbidity and mortality in South America. Furthermore, the incidence of HIV in Argentina decreased by 25 percent from 2001 to 2011.

This book describes and examines what lies behind this success. The authors reveal that universal access to treatment with financial protection for the poorest, continuous advances in the legal framework to reduce stigma and improve human rights, and innovations in the quality and service delivery of the HIV/AIDS health care service line have all been key contributors in this regard.

Over the past 30 years, Argentina has tackled the HIV/AIDS epidemic from various angles. To influence the behaviors of the population, especially high-risk groups, the country developed a comprehensive prevention policy for HIV/AIDS, including sexual and reproductive health education in schools nationwide and massive media campaigns. And it fundamentally changed the health service model for HIV/AIDS patients through innovations in the logistics of supplies and medicines, widespread distribution of condoms, an online system of clinical patient follow-up, and use of results-based financing for preventive and diagnostic services. Surveys of health facilities have improved the health delivery model and identified bottlenecks in access and coverage.

During these years, the World Bank has supported the HIV/AIDS National Program and accompanied the government's efforts through financing and technical support. Based on this experience, the authors compile information about innovative and critical interventions in Argentina's HIV/AIDS response. Although contexts vary, ending the HIV/AIDS epidemic requires new approaches to learning and sharing good practices that can be replicated in other countries to strengthen national ownership, ensure accountability, and increase efficiency in the context of an impending resource gap.

This analytic work provides evidence and experience to develop more efficient, effective, integrated, and systematic HIV/AIDS programs that

could contribute to improved disease outcomes and reduce infections. Furthermore, using a cost-benefit analysis, the book details how key programmatic innovations in Argentina have resulted not only in more than US\$700 million in savings for the country between 2001 and 2010, but also, most important, prevented more than 230,000 disability-adjusted life years between 2001 and 2011.

Despite these successes, the fight against the HIV/AIDS epidemic in Argentina still poses key challenges, including inequalities in HIV/AIDS rates between provinces and the long-term financial sustainability of the program, considering the increasing number of patients in treatment and the high comparative cost of antiretroviral treatment.

*Thirty Years of the HIV/AIDS Epidemic in Argentina* provides a summary of the country's remarkable efforts to control the HIV/AIDS epidemic and is an analytical piece that could be used by Argentina and other countries to continue improving and innovating responses to HIV/AIDS. This study is a contribution to the long-standing partnership in public health between Argentina and the World Bank that seeks to improve the well-being of the Argentine population.

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## Executive Summary

### Introduction

Throughout the studies compiled in this report, we presented a comprehensive analysis of the HIV/AIDS response in Argentina over the past 30 years, including an analysis of the financial and programmatic policies of the past decade. We presented up-to-date information on the HIV/AIDS epidemiological situation, as well as a chronological account of key strategies, public policies, and laws implemented in response to the epidemic since mid-1980s. Moreover, we analyzed the HIV/AIDS burden of disease (BoD), the morbidity and mortality in Argentina, and compared it with other economies in the LAC region, and also provided a BoD analysis at the subnational level to show current provincial differences, inequalities, and trends.

We also presented both an analysis of the comparison between the supply of services surveys completed by the Argentine government in 2007 and 2011, and an analysis of the demand-side factors of HIV/AIDS, which identified Argentina's priority HIV high-risk group, leading demand-side risk factors, and demand-side challenges.

At the financial level, we conducted an economic and financial analysis of the National HIV/AIDS Program, and cross-country comparisons of HIV spending performances that explore the viability and sustainability of the National HIV/AIDS Program over time. Finally, we presented a cost-benefit analysis (CBA) to assess whether the benefits derived from the reduction in the HIV/AIDS burden from 2001 to 2010 outweighed the total costs of Argentina's National HIV/AIDS Program.

Our main conclusion is that over the past 30 years, and particularly in the past ten years, Argentina has proven to have capacities for being a world leader in the fight against HIV/AIDS. As such, it has outperformed several other economies with similar HIV/AIDS burden in and outside Latin America and the Caribbean (LAC) region. In the following paragraphs, we highlight the key innovations and strengths of the Argentinean National HIV/AIDS Program, as well as key challenges that are yet to be tackled.

## Argentina

Argentina is a country of 41.45 million people (six percent of the population of LAC), with a gross domestic product (GDP) of US\$14,760 per capita, surpassing the 2013 LAC regional average GDP of US\$10,512. Argentina also fares above regional averages in indicators such as mean years of schooling (9.7 years, compared with the 7.9 LAC average) and life expectancy (76 years, compared with 74.6; United Nations Development Programme 2014; World Bank 2014). In the 1990s, Argentina was greatly impacted by the HIV/AIDS epidemic. This report details the past 30 years of the country's efforts to combat the epidemic.

### HIV/AIDS Epidemic and Burden of Disease

Over the past 30 years, HIV/AIDS has joined the selected group of the world's health threats that challenge and will continue to challenge humanity. Almost three decades after the first case of HIV/AIDS, the disease continues to be the fifth leading cause of global disability-adjusted life years (DALYs). However, the past decade has seen significant efforts to reduce the HIV/AIDS burden in many countries in LAC, resulting in the highest regional reduction of HIV/AIDS in the world. Although rates are decreasing in LAC, Sub-Saharan Africa, the European Union, and European Free Trade Association countries, the incidence of HIV/AIDS is increasing in the rest of the world. Despite the improvement the LAC region has made, from being the region with the second highest HIV/AIDS burden in the world in 2000 to being the region with the fourth highest HIV/AIDS burden in 2010, the epidemic remains heterogeneous within LAC.

Argentina has felt the impact of the HIV/AIDS epidemic. HIV cases increased from 1,000 in 1990 to 4,223 in 1997, and peaked at more than 6,700 new infections per year in 2004 (National Ministry of Health [MSN] 2013). This amounts to 18.5 persons becoming infected per day in 2004. In 2013, there were around 110,000 people living with HIV/AIDS in the country, that is, one in every 365 people, and there were around 5,500 new HIV cases every year, or 15 new infections per day. Comparing 2004 with 2013, there was a reduction of 3.5 persons becoming infected daily. In 2011, the HIV incidence rate was 12 per

100,000 people and the incidence rate of AIDS cases was 3.6 per 100,000 people (4,915 new HIV infections and 1,454 cases of AIDS).

Between 2000 and 2010, the HIV incidence rate decreased in Argentina by 25 percent (cases identified). There was a decline in the number of new infections among most age and sex groups in the population, with the most visible decline among adults ages 25–34. Despite the decline in the number of new infections, this age group is still responsible for the largest number of new HIV cases. During 2000–10, there was an increase in the number of new cases in men ages 15–24. This increase in new cases in young males may be responsible for the further “masculinization” of the epidemic in Argentina, with the male-to-female ratio increasing from 1.8 in 2001 to 2.0 in 2011. In the City of Buenos Aires, incidence rates decreased from 40.6 per 100,000 inhabitants in 2001 to 23.9 per 100,000 in 2011; in the province of Buenos Aires, incidence rates decreased from 21 to 9.9 per 100,000 in the same time frame. Although the trend of decline is positive, the incidence rate in the City of Buenos Aires is double that in all other regions.

Although there are still 100 mother-to-child transmitted infections each year, Argentina has reduced the vertical transmission rate from 13.7 per 100,000 live births in 2000 to 5.2 in 2011, a reduction of almost 62 percent in ten years. Between, 2009 and 2010, 47 percent of newly diagnosed HIV/AIDS-positive women were diagnosed in the context of pregnancy, of which seven percent had a late diagnosis during labor or immediately after labor. These diagnoses show the need for improvement in early testing of pregnant women to detect HIV cases, and health provision for pregnant women as a means to stop vertical transmission of HIV.

Between 2000 and 2010, the burden of HIV/AIDS decreased by 21.2 percent in Argentina, which was the second largest percentage decrease in South America during that timeframe. This reduction shows that it is possible to further reduce the HIV/AIDS burden even when a country has already achieved a relatively low burden of HIV, as was the case in Argentina. The country had only 2.9 percent of the total regional HIV/AIDS disability-adjusted life years (DALYs) or burden of disease in 2010. By contrast, Colombia, a country with a similar GDP and population size, has 15.7 percent of the region’s total HIV/AIDS DALYs (MSN 2013). Furthermore, Argentina has the second lowest HIV/AIDS burden in South America, after Chile (MSN 2013). However, while Chile showed

a 28 percent increase in the HIV/AIDS burden from 2000 to 2010, Argentina further reduced its already low burden by 21.2 percent—the seventh largest reduction in LAC during the same period of time (Institute for Health Metrics and Evaluation [IHME] 2013; MSN 2013). In 2010, the HIV/AIDS burden in Argentina was 223 DALYs per 100,000, less than half the regional average of 519 HIV/AIDS DALYs per 100,000 (IHME 2013).

Despite the exponential growth of new HIV cases from 1990 to 1997, early financial coverage of antiretroviral treatment (ART) beginning in 1997 has been essential in keeping the number of AIDS cases under control. To achieve such important results, Argentina built a robust National HIV/AIDS Program. Since the creation of the program in 1995, key innovations have contributed to the reduction of the HIV/AIDS burden.

## Argentina's HIV/AIDS Innovations

Throughout this book, we highlight eight key HIV/AIDS programmatic innovations in Argentina: (a) the introduction of free ART since 1997; (b) a comprehensive legal framework for sexual and reproductive rights; (c) a new sex education program in schools; (d) strategic alliances between key health programs for reducing mother-to-child transmission; (e) the introduction of incentives and results-based financing (RBF) in the HIV/AIDS program; (f) strategic planning that uses the findings from national supply-side surveys in public health facilities; (g) electronic monitoring of supplies and medicines for increased accountability; and (h) the implementation of an electronic clinical governance system for improving the quality of care and patient follow-up. These eight lessons from Argentina's HIV/AIDS programmatic innovations are described below.

### **1. Universal access to HIV/AIDS treatment is a key prevention intervention.**

Argentina and Brazil have provided evidence that universal access to treatment with financial protection for the poorest is a key intervention for prevention. Despite the exponential growth of new HIV cases in Argentina, early financial coverage of antiretroviral treatment (ART), beginning in 1997, has been essential in keeping the number of AIDS cases under control. Argentina, has shown that free provision of HIV treatment can help reduce the number of new

infections, and Brazil and Argentina have shown that universal access to HIV/AIDS treatment with financial protection from the state to those affected and in need is a key to reducing the HIV/AIDS burden. Argentina nearly achieved universal coverage of ART in 2012, with 79 percent coverage (universal coverage on HIV/AIDS was defined by the World Health Organization [WHO] as over 80 percent ART coverage). Pan American Health Organization [PAHO] 2013). Both countries made an early decision to convert HIV/AIDS access to treatment into a public good, creating evidence of success.

## **2. A comprehensive legal framework for sexual and reproductive rights reduces stigma and discrimination.**

Argentina has shown that a comprehensive legal framework for sexual and reproductive rights matters for reducing stigma and discrimination. Although Argentina did not have a sexual and reproductive family health program until 2002, the country has gone from being one of the most backward countries in LAC regarding sexual and reproductive rights to becoming a leader in the field in the past decade. In 1995, Argentina's Law 24455 guaranteed universal access to HIV/AIDS care and treatment. In 1997, the country introduced the free provision of ART, regardless of income or health insurance status, guaranteeing the financial protection of HIV/AIDS treatment for all. This legal framework became vital for reducing new HIV infections and AIDS deaths. In 2002, Law 25543 mandated that all health providers and facilities offer HIV testing to pregnant women. The law also mandated financial coverage of testing, becoming a key for the prevention of vertical transmission.

In 2002, the law on Sexual Health and Responsible Parenthood (Law 25673) mandated the provision of contraceptive methods and free family planning counseling in primary health care centers and public hospitals. In 2010, the Marriage Equality Law (26618) recognized unions between persons of the same sex. And most recently, in 2012, the Gender Identity Law (26743) allowed transgender and transsexual persons, who carry a disproportionate burden of HIV/AIDS in the country (34 percent HIV prevalence among transgender people in Argentina) to change their gender.

This new legal framework has created a positive environment for human and sexual rights, and built acceptability and a mandate in society to reduce stigma and discrimination that prevents diverse populations from accessing health services.

### **3. Sex education in schools improves prevention knowledge among youth.**

Understanding HIV/AIDS as a multi-sectoral challenge, Argentina has developed an effective and comprehensive sexual education program in schools to improve prevention knowledge among the youth. In 2006, another law (26150) established the creation of the National Comprehensive Sexual Education Program, which is part of the federal and state school curricula across the country and seeks to expand knowledge on safe sexual practices. Since the passage of this law, Argentina implemented a renovated sexual health education program in public schools. Recently, a Pan American Health Organization (PAHO)/WHO evaluation showed that Argentinian youths have the highest knowledge about HIV transmission and prevention in the region, with 84 percent of young men and 89 percent of young women (ages 15–24) accurately identifying prevention methods and major misconceptions about HIV transmission, followed by Chile with 78 and 85 percent of young men and women, respectively (PAHO 2010).

### **4. Strategic alliances of the HIV/AIDS Program with service delivery and Public Health Programs can help reduce mother-to-child transmission.**

The LAC region has greatly progressed in the provision of antiretroviral drugs (ARV) to pregnant women. ARV coverage among HIV-positive pregnant women increased from approximately 50 percent in 2005 to 61 percent in 2010 (PAHO 2010). However, in 2010, only four low and middle-income countries in the region achieved universal access for ARV provision to HIV-positive pregnant women: Argentina, Brazil, Ecuador, and Honduras (PAHO 2010). In Argentina, it is estimated that more than 95 percent of pregnant women living with HIV receive ART for PMTCT (PAHO 2010). On the other hand, in LAC, an estimated 15–30 percent of children become HIV-infected during pregnancy or birth to HIV-infected women who do not undergo ART; an additional 5–20 percent becomes infected through breast milk. Knowing that the use of ART medication significantly reduces mother-to-child transmission (PAHO 2010), in 2012, coverage of intra-partum prophylaxis in Argentina was 87.9 percent and the percentage of children who received neonatal exposure prophylaxis was 98.6 percent (MSN 2013). As a result of multipronged efforts of the MSN, involving high financial investment, improvement in prenatal care and delivery for seropositive women, emphasis on HIV testing of pregnant women, higher coverage of prophylactic treatment, and the creation of a surveillance system to track seropositive pregnant, progress against HIV/AIDS substantially improved vertical transmission control. As mentioned previously, Argentina

reduced its mother-to-child transmission rate by 62 percent, from 13.7 per 100,000 live births in 2000 to 5.2 in 2011.

A lesson to learn from Argentina is that this success was particularly possible thanks to the following two key measures: (a) a strategic alliance in primary health care with the safe blood program, creating a comprehensive system for integrated prenatal testing of HIV/AIDS, sexually transmitted diseases, and other diseases, and (b) a strategic alliance with the public health surveillance system for the creation of epidemiological monitoring of health events of seropositive pregnant women and to analyze related data.

### **5. Incentives and results-based financing (RBF) can boost the effectiveness of HIV/AIDS programs.**

Argentina has proved that incentives and results-based financing (RBF) can boost the effectiveness of HIV/AIDS programs. The use of RBF by the National HIV/AIDS Program has increased overall systemic accountability and improved program performance. Under the Essential Public Health Functions Projects (EPHFP) I and II, financed by the World Bank, a package of guaranteed public health services (outputs) was created to apply RBF in six public health programs: vaccine preventable diseases, vector-borne diseases, tuberculosis (TB), non-communicable diseases, blood services, and HIV/ AIDS. In each one of those programs, intermediate results were identified as outputs. Outputs could be structural such as the installment of a HIV/AIDS testing center, or process-outputs, such as the certification of a well-functioning testing center, or finally, intermediate results-outputs such as the increased number of HIV tests performed by testing centers. After receiving Bank's proceeds based on performance, the MSN financed a package of outputs to Provinces for improving HIV/AIDS national and provincial goals in prevention, surveillance and control, as previously agreed after the signing of an annual performance agreement. In the specific case of the National HIV/AIDS Program, a third-party external auditor verifies the completion of six outputs prior to authorizing payments to provinces. The use of RBF has since been expanded, and the use of outputs has been consolidated throughout the country in all public health programs.

### **6. National supply-side surveys improve strategic planning.**

On the supply side, Argentina has used surveys for strategic planning and performance evaluation of the health delivery model with the financing of the

EPHFP I and II. Argentina conducted two national supply surveys in 2007 and 2011 in health facilities of a different level of complexity. The use of surveys for evaluating current status and informing strategic planning has proven to be a good practice and a key lesson to LAC. The comparison study of the results from both services surveys shows that 90 percent of all Provincial National HIV/AIDS Program managers reported an improvement in the supply of and access to preventive, diagnostic, and health care services for PLWHA between 2007 and 2011. In addition, jurisdictions and providers demonstrated a greater commitment to the creation of dedicated budgets for purchasing preventive and diagnostic supplies. Furthermore, the study observed some positive signs of improvement in the care of PLWHA (such as greater availability of testing for monitoring disease progression, ART medications, infant formula, lactation inhibitors, and pill and syrup form zidovudine [AZT]). In addition, assessments of areas evaluated as negative, were used for improving National and Provincial strategic planning.

#### **7. Online monitoring systems for HIV/AIDS medications and supplies can eliminate duplication and boost efficiency.**

In 2009, the MSN introduced an online monitoring system that tracks the use and distribution of HIV/AIDS supplies and medicines. The system was designed with support from EPHFP II to avoid loss and duplication of HIV/ AIDS medications and supplies, improving the efficiency in the logistics, shipment and distribution. Accountability increased and losses reduced in line with sustainability exercises for the Program. Currently, implementation of the online monitoring system has been extended to half the country's provinces.

#### **8. Clinical governance systems increase the quality of health service provision.**

EPHFP II also supported the National HIV/AIDS Program in the development and implementation of a patient case-management system. The system allows for online registration of patients, requests for authorizations, monitoring of patients' viral load and other tests, and monitoring of drug regimen and treatment protocols. The software, introduced in 2011, allows for assessment of treatment quality and adherence and resistance to treatment. All provinces are linked into the system, which, by the end of 2012, included more than 30,000 patients enrolled (MSN 2010). The HIV monitoring system for patients has increased the efficiency of prescription and delivery of ART, as well as patient follow-up for improving quality of health care.

**9. A comprehensive prevention policy increases the reach of preventive services.**

The rate of new infections went from 18.5 new HIV infections per day in 2004 to 15 in 2013, showing changes in the demand side of the epidemics equation. Argentina developed a comprehensive prevention policy for HIV/AIDS with four key measures: (a) inclusion of sexual and reproductive health education in schools nationwide, explained previously, (b) media campaigns with national and external financing, (c) use of a 0–800 confidential helpline phone, and (d) widespread distribution of condoms.

The data gathered in a survey study showed a substantial increase in the procurement and distribution of condoms throughout the country, as well as the installation of fixed delivery points that ensured systematic distribution and improved accessibility. The distribution of condoms increased 250 percent over four years, jumping from 8,550,780 units distributed in 2007 to 29,841,880 in 2011. By 2011, 100 percent of jurisdictions received condoms financed by the National HIV/AIDS and STDs Office (Dirección de SIDA y ETS [DSyETS]), and 41.2 percent also received condoms from the National Program for Sexual and Reproductive Health. Currently, 81 percent of males and females ages 15–65 report having used a condom during their last inter-course with a casual partner. There has also been an increase in communication materials, including print as well as audiovisual and other promotional materials supported with national and international sources. The 34 national jurisdictions and 18 municipal programs reported having used the 0–800 HIV/AIDS helpline, and a large majority of them had consulted the DS y ETS website regularly.

**10. The reduction of external funding contributes to long-term sustainability.**

From 2006 to 2009, external HIV funding decreased by 89.63 percent, reaching 0.25 percent of total HIV spending in Argentina by 2009. In 2012, external funding was zero, showing important political commitment to achieving medium- and long-term program sustainability.

## **Economic analysis and the cost of the HIV/AIDS Program in Argentina.**

HIV/AIDS expenditures per DALY in Argentina were the third highest in the region after Cuba and Chile in 2009–11. While the average HIV/AIDS expenditure per DALY in LAC between 2009 and 2011 was US\$1,052, in Argentina it was three times higher, at US\$3,178. Argentina's total domestic HIV spending was US\$285.95 million in 2012 and US\$287.1 million in 2009. The country also has the second highest spending per person living with HIV/AIDS in the region, after Barbados. Argentina currently spends US\$3,178 per DALY of HIV/AIDS, almost three times the regional average of US\$1,052 (UNAIDS 2012). However, the results are not as clear when looking at countries in the world with a similar HIV/AIDS burden: some countries spend more than Argentina and have more DALYs per 100,000; others spend less and have fewer DALYs per 100,000. Thus, although Argentina's spending is comparatively high among countries with comparable HIV/AIDS spending, Argentina has had a significant reduction in HIV/AIDS burden from 2000 to 2010, while having a relatively low HIV/AIDS burden in 2010.

In terms of allocation of funds across programs, Argentina has a similar allocation compared with the LAC average for treatment and prevention, where treatment and care represented 80 percent of total HIV spending in 2012 (75 percent in LAC). The difference is partially explained by the higher cost of ART in Argentina, which means that Argentina could allocate less to prevention (Argentina allocates 1.2 percent of HIV/AIDS spending to prevention activities, compared with 15 percent in LAC) (Arán-Matero et al. 2011). Despite the high cost of ART, this study shows that the Argentine National HIV/AIDS Program is cost beneficial, with an estimated 1.03 benefit-to-cost ratio (chapter 7).

## Lives Saved and Universal Access to Treatment

The cost-benefit analysis performed in this study assesses whether the benefits derived from the reduction of Argentina's HIV/AIDS burden outweigh the total costs of the HIV/AIDS program. Since the present value shows a net benefit when using GDP per capita as the value of a DALY under the three counterfactuals considered (i.e. high rate of attack, low rate of attack, and complete saturation of the epidemic), the study concludes that the HIV/AIDS interventions have been worthwhile. With basis in our calculations we can conclude that the government of Argentina saved over US\$748 million from 2001 to 2010 in addition to potentially preventing 236,044 DALYs over the 10 years analyzed under the conservative scenario, which represents 4,379 lives saved under the most likely epidemiological scenario (approximately 440 lives per year). This is a direct consequence of all measures implemented as part of the National Program for combating the HIV/AIDS epidemic.

In addition, the cases of Argentina, Brazil, and Mexico show that universal access to HIV/AIDS treatment and high coverage of ART are key measures for reducing the HIV/AIDS burden. Argentina had 79 percent ART coverage in 2012. In the three mentioned countries, national HIV/AIDS programs made ART a public good, providing free and universal access to all without distinction. Currently, the challenge for all countries, and specifically for Argentina, is to reach a new standard in treatment, under the new goals defined by WHO and PAHO to have 90 percent ART coverage (PAHO 2014).

## Challenges

Despite the positive strides Argentina has made, there are still areas that need improvement and upcoming challenges that must be addressed to sustain the decline in the HIV/AIDS burden and achieve the new goals for universal health coverage defined by the region: 90/90/90 (90 percent of people with HIV diagnosed, 90 percent of those treated, and 90 percent of patients treated being virally suppressed). In the following, we describe the key challenges.

*Argentina needs to reduce subnational inequalities.* From 2001 to 2012, the provinces with the most HIV cases were Buenos Aires, with 42.8 percent of the cases, followed by the Autonomous City of Buenos Aires, with 16.7 percent; Córdoba, with 7.9 percent; and Santa Fe, with 5.5 percent. At the provincial level, the burden of HIV/AIDS varies from 12 DALYs per 100,000 inhabitants in Catamarca to 433 and 444 per 100,000 in Salta (Northwest region [NOA]) and Tierra del Fuego (Patagonia Region), respectively, with a national average of 194 per 100,000 in 2010. Using current information, there is a need to revisit the focus of reduction in the most affected provinces with a greater burden of DALYs per 100,000, and reinforce focused prevention and treatment efforts across all provinces.

*Knowledge about the use of condoms is not sufficient as prevention.* There is a need to consider other key factors for improving behavioral change. Although young people in Argentina report some of the highest knowledge on HIV prevention in LAC, this knowledge does not seem to be translated into a practice of prevention among young males, given that 41.1 percent of new HIV infections among males between 2010 and 2012 occurred through same-sex intercourse and 47.9 percent through sex with women. Therefore, there is a need for renewed and better targeted HIV prevention efforts. For instance, we found that younger and more educated Argentines are most likely to use condoms when engaging in sexual intercourse. Although binge drinking is positively correlated with condom use for men and women, we found that habitual alcohol consumption negatively relates to condom use among men (but not among women). Although individual behavior change is central to improving sexual health, there is a need to address broader social determinants and risk factors of safe sexual behavior, including but not limited to the use of condoms. In this area, further research is needed.

*In particular, behavioral interventions should be linked to specific social determinants.* Our results reaffirm the need for behavioral interventions tailored to the social, economic, and behavioral characteristics of the groups at highest risk of HIV infection. Behavioral interventions have shown there is no approach to sexual and reproductive health education that will perfectly meet the needs of each high-risk population and country. Therefore, when implementing individual-level programs to promote safe sex, interventions should be comprehensive and consider the social context. This will ultimately help to modify social norms to support behavior change and tackle structural factors that contribute to risky sexual behavior. Although education plays an important role in behavioral change, it is important to consider the content of HIV/AIDS prevention education, in addition to the number of years of schooling. In Argentina, education programs must be adapted toward the more educated groups who are at higher risk of HIV infection.

*Although Argentina has developed a comprehensive legal framework for reducing stigma and discrimination, there is a need to continue measuring, evaluating, and monitoring stigma against the lesbian, gay, bisexual, transvestite, and transsexual population in health facilities.* The 2011 survey showed that discriminatory attitudes toward HIV/AIDS patients persist throughout the health personnel of some hospitals and provinces. Ensuring that there is zero discrimination in health facilities is the first step to combat inequitable access to health services for the priority populations. More research, monitoring, and education of selected health personnel is needed in the health facilities and provinces.

*Argentina needs to re-strategize prevention to address the masculinization of the epidemic.* The male-to-female ratio of new HIV infections increased from 1.8 in 2001 to 2.0 in 2011. While in many countries this ratio has been declining over recent years, in Argentina the ratio had a slight increase. This means that HIV has become even more concentrated in the male population. In Argentina, men who have sex with men (MSM) should be considered as the priority HIV high-risk group for prevention, and it is vital to consider the epidemiological characteristics of the country's priority HIV high-risk group when designing policies. The priority high-risk group is males who are 25–34 years of age, are sexually active, have sex with men, have a high school diploma, and are from the central provinces of the country. Moreover, when analyzing the demand-side factors of HIV/AIDS, we found that education is

positively correlated with HIV incidence at the provincial level. Similarly, our findings showed that higher income correlates to higher HIV incidence at the provincial level. Nonetheless, we found no significant correlation between violence and HIV incidence at the provincial level. Specific studies about knowledge, attitudes, and practices in the priority high-risk group (young MSM) are needed for better understanding the mechanisms and strategies needed for improving prevention.

*Argentina needs additional budgetary efforts on prevention.* Prevention should be treated as a key pillar of the National HIV/AIDS Program in Argentina, at least from a budgetary perspective, since HIV spending on prevention currently represents only 1.2 percent of total HIV spending, after a 30 percent reduction from 2009 to 2012. Prevention should be focused on the priority high-risk group.

*Argentina needs to improve the treatment of patients in the health delivery chain.* Despite the fact that all general hospitals are expected to care for PLWHA, 17 percent of PLWHA are still transferred to other health facilities to receive care, making it difficult to track these patients through the health system or health networks. Other institutional barriers remain, such as delays in shifts and delivery of test results.

*The government needs to improve the diagnosis and treatment of co-infections in TB and HIV/AIDS patients.* Although the number of new and relapse cases of TB in Argentina has remained stable since 2006, the high risk of death from TB among PLWHA makes it necessary to strengthen HIV/AIDS testing on people receiving TB treatment and vice versa. Currently, only a small proportion of people with TB are screened for HIV (11 percent in 2012). Of these, 53 percent tested positive, resulting in 559 TB-HIV co-infected patients.<sup>1</sup> As such, there is a need to increase coverage of HIV testing among TB patients, which could lead to an increase in the number of cases of HIV among TB patients.

*In addition, the country requires a substantial expansion of HIV/AIDS testing among the general population, but in particular for pregnant women.* Although the number of people diagnosed with HIV has increased, there is still a need to improve diagnosis in light of the recent regional 90/90/90 goals. In addition, there is evidence that shows that from 2009 to 2010, 47 percent of all newly diagnosed HIV/AIDS-positive women were diagnosed in the context of pregnancy, underlining the need for early HIV testing among women of all ages.

*Argentina should revisit the procurement of HIV/AIDS medicines.* A wide variation in treatment cost in LAC is associated with the unit price of tenofovir/emtricitabine, and Argentina has one of the highest costs of the fixed-dose combination and the two-tablet form. This may partially explain why Argentina's HIV expenditure on HIV/AIDS per DALY is three times higher than the LAC average. Since a high portion of HIV spending is allocated to treatment, and given the wide variation in antiretroviral drug (ARV) prices among LAC countries, there are opportunities for reducing the cost per patient while increasing ARV coverage. As such, the Argentine government should revise its procurement of medicines. Regional organizations may have a role to play in achieving more competitive prices for ARV treatment at the regional level.

*Management systems to track supplies and medicines may need to be expanded.* It is also important to maintain and expand the strict monitoring of medicines and supplies and the clinical management of patients, through the implementation of rigorous management systems to track supplies and medicines. Recently implemented software can be used for managing patients and clinical governance for improvements in the quality of care, and cost containment, all while improving efficiency and effectiveness.

*In search of sustainability, it is time to be more efficient.* Argentina no longer seeks external resources to finance its National HIV/AIDS Program, since the program has been almost completely funded by national resources since 2011. In our opinion, even when the costs of Argentina's National HIV/AIDS Program are higher than the average for LAC, the program is cost-beneficial and the savings are remarkable. A cross-country comparison of HIV spending showed that Argentina's spending is comparatively high, but it is the only country among countries with comparable HIV/AIDS spending that had a significant reduction in HIV/AIDS burden from 2000 to 2010, while having a relatively low HIV/AIDS burden.

However, Argentina still needs to improve its allocative efficiency to the National HIV/AIDS Program. Argentina's total domestic HIV spending in 2012 was US\$285.95 million, an increase of 65.5 percent since 2006, constituting the third largest HIV spending in LAC in absolute terms, after Mexico and Brazil. In this study, we estimated that the government expenditure costs of HIV/AIDS treatment for the next six years (until 2020) will increase 83.3 percent, considering trends similar to those of the past five years in incidence and prevalence.

Growth of 83.3 percent in treatment costs will challenge the government to analyze whether it will still be able to cover these expenses, or whether it will be possible to reduce expenditures on medicines through more strategic procurement, or to use savings made on costs of medicines, for example, to reduce incidence.

*Should Argentina focus on cost recovery or reducing subsidies?* This seems to be a contradiction with its original public policy; however, there is a need to analyze potential mechanisms to reduce cross subsidies to high-income beneficiaries, which could allow the government to reduce unit costs per patient on ARV costs, or potentially through cost recovery schemes to patients who have the means to pay, under public subsidies. A cost-effectiveness analysis (CEA) is needed. The analysis should use a dynamic, compartmental, mathematical model of HIV transmission and disease progression to assess HIV epidemic trends, resource needs, cost effectiveness of past programs, potential impact of possible future programs, and optimal allocation of resources.

*The prevalence and incidence of HIV/AIDS could be reduced through incentives at the subnational level.* A continued reduction in the HIV/AIDS burden at the subnational level may require actions such as a framework of clear incentives to homogenize policies in the country, correcting current trends of an increase in HIV/AIDS in some provinces.

*The country will face additional costs to increase diagnosis.* An estimated 30 percent of people with HIV/AIDS are unaware of their status in Argentina, which implies the need to expand diagnosis and early detection, as well as ART, to the population that has been recently identified. In addition, Argentina could still make improvements that are cost effective and continue implementing “clinical governance” and coverage in the country’s interior.

*Finally, there are challenges in epidemiology and confidentiality.* Argentina’s law of confidentiality of HIV/AIDS testing, diagnosis, treatment, and results makes it difficult to obtain individual-level data to conduct studies on existing relations between demand-side risk factors and the HIV/AIDS burden. The government should consider the possibility of implementing secure data collection schemes that do not infringe on an individual’s right to privately seek diagnosis, testing, and care for HIV/AIDS, but that simultaneously provide valuable information for surveillance and control of HIV/AIDS and other sexually transmitted infections.

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*Thirty Years of the HIV/AIDS Epidemic in Argentina: An Assessment of the National Health Response* delves into the combination of factors that make Argentina a success story in combating HIV/AIDS. It analyzes the national and inter-provincial burden of disease, the demographics of new HIV cases, the demand and supply sides of service delivery, and conducts a cost-benefit analysis of the Argentine National HIV/AIDS Program from 2000 to 2010.

This book will be of interest to those who wish to examine key programmatic innovations that have been essential to Argentina's success in the fight against HIV/AIDS, such as the introduction of universal free antiretroviral treatment, a comprehensive legal framework for sexual and reproductive rights, the introduction of incentives and results-based financing in the HIV/AIDS program, electronic monitoring of supplies and medicines, and implementation of an electronic clinical governance system for improving the quality of care and patient follow-up.

The 1992 creation of the National HIV/AIDS Program was a fundamental step for Argentina to reach the second lowest burden of HIV/AIDS in South America in 2010. Despite these successes, the fight against the HIV/AIDS epidemic in Argentina still poses continuous challenges, including a high number of new infections among young men who have sex with men, inequalities in HIV/AIDS rates between provinces, insufficient coverage of HIV diagnostic testing, relatively low expenditure on HIV prevention, and poses the question regarding the long-term financial sustainability of the program, considering the increasing number of patients in treatment and the high comparative cost of antiretroviral treatment.

