

A comparison of the HIV epidemics in South Africa and Brazil

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Abstract

South Africa cannot fight the war against HIV and AIDS in isolation and alone. A country at the forefront of the war against HIV is Brazil, from whom valuable lessons can be learnt, despite the dangers of comparing HIV infections in different countries. This article explores similarities and differences between the nature of HIV and national responses to the epidemic in both South Africa and Brazil, providing a platform for evaluating the South African AIDS experience in an international context.

Introduction

The speed of transmission, severity of HIV, and reactive treatment and intervention programmes differ from country to country and region to region. Sub-Saharan Africa is currently the epicentre of HIV/AIDS in the world. In South Africa, the highest rates of infection are amongst people between 20 and 44 years old. Because about half of the country's population is aged between these years (UNAIDS, 2002), AIDS has the potential to have a devastating effect on social, economic and human development. The demographic impact is already being seen. As a result of the growth in HIV prevalence, and the failure to control the spread of HIV, South Africa faces a major AIDS epidemic. Instead of being able to focus purely, or even largely, on prevention activities, the country is about to have to deal with the consequences of large-scale conversion from HIV to AIDS. These will be far reaching and present a major challenge for the country.

South Africa cannot fight the war against HIV and AIDS in isolation and alone. A country at the forefront of the war against HIV is Brazil, from whom valuable lessons can be learnt, despite the dangers of comparing HIV infections in different countries. This article explores similarities and differences between the nature of HIV and national responses to the epidemic in both South Africa and Brazil, providing a platform for evaluating the South African AIDS experience in an international context.

A snapshot of HIV/AIDS in South Africa and Brazil

'Africa has perhaps the world's highest income inequality' (World Bank, 2000). On conventional measures, Africa is second to Latin America when consumption rather than income are used to measure inequality. Both countries have high levels of population mobility, high income inequality and low levels of social cohesion¹ that forms the basis for comparison of HIV. The relative levels of social cohesion and wealth distribution can be considered as proxy determinants of the trajectory of the epidemic.

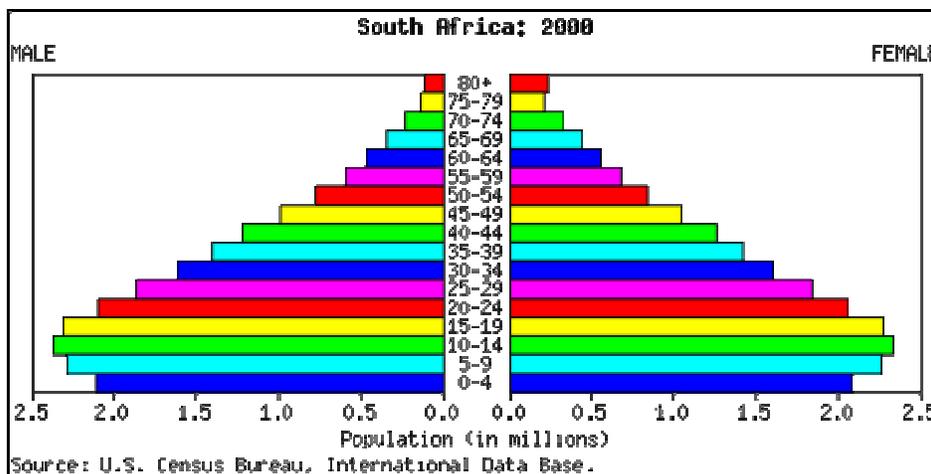
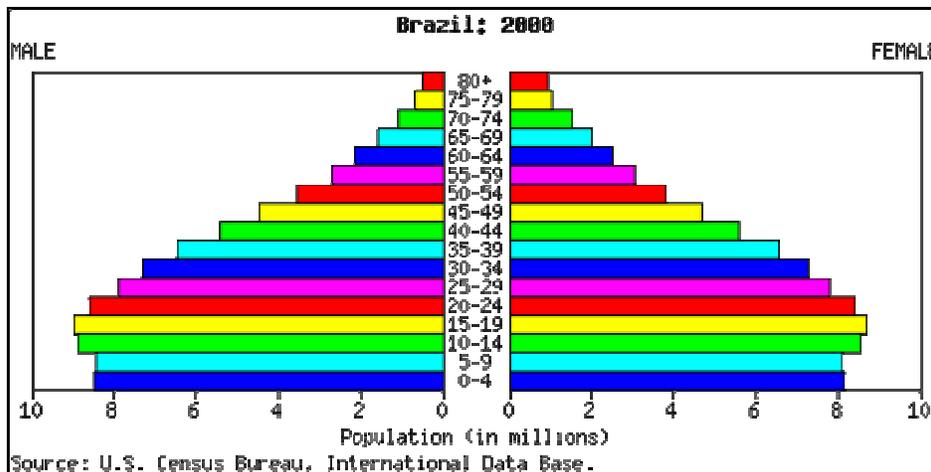
(2001 figures)	South Africa	Brazil
Population size	43,792,000	172,559,000
% of Adults (ages 15-49)	54%	56%

¹ The hypothesis is that the shape of the epidemic curve, how many people are infected and how rapidly the infection spreads, will be determined by 2 key variables: the degree of social cohesion in a society, and the overall level of wealth. Social cohesion can be associated with the degree of order and certainty in society, that influences people's livelihood strategies. (Barnett and Whiteside, 2003)

Adult prevalence rate (ages 15-49)	20.1%	0.65%
Estimated number of people living with HIV/AIDS, end 2001 (adults and children)	5,000,000	610,000
Deaths in 2001 (adults & children)	360,000	8,400
Deaths in children (0 – 14)	Min: 26,000 Max: 48,000	Min: 330 Max: 1500
Prevalence rate (%) among women in antenatal care (ANC) clinics (urban)	24.3 Min: 8.7 Max: 36.2	1.6 Min: 0.1 Max: 4.0

Figure 1: Country-specific HIV/AIDS estimates and data
Source: UNAIDS Report on the global HIV/AIDS epidemic 2002

Figure 1 summarises key HIV/AIDS statistics in South Africa and Brazil. Adults between 15 and 49 comprise the majority of both populations, the age group worst affected by HIV and AIDS. In South Africa the estimated number of people living with HIV/AIDS is about 8 times larger than in Brazil, and has an adult prevalence rate of about 30 times that of Brazils (2001 estimates).



Figures 2: Estimated population pyramids for Brazil and South Africa, 2000.

Despite Brazil's population being almost four times larger in size than South Africa's, the above population pyramids indicate that Brazil has a higher dependency ratio (the number of people that each economically active person supports) than South Africa. Infant and child mortality from AIDS is significantly higher in South Africa, both absolutely and relative to the respective populations (see figure 1 for confirmation).

Economic indicators

It is unclear whether it is possible to gain insight into relationships between human development, economic indicators and HIV/AIDS, thus attempting to explain the interplay of such factors and forecast the potential impact of HIV/AIDS. The Human Development Index (HDI)², introduced in 1990 by the UN Development Programme (UNDP), is designed to capture as many aspects of human development as possible in one simple composite index, producing a rank of human development achievements. But how is this index affected by the AIDS epidemic? One of the most measurable impacts of AIDS is on mortality rates. This impact is measured in the HDI through the life expectancy component. South Africa consistently falls behind Brazil in the HDI rank, and life expectancy in South Africa is declining. The Gini index measures the extent to which the distribution of income (or consumption) among individuals or households within a country deviates from a perfectly equal distribution. A value of 0 represents perfect equality, a value of 100 perfect inequality. According to the UNDP (2003), the distribution of income in Brazil is more unequal than in South Africa.

	South Africa	Brazil
Gini index	59.3 (rank 111) (UNDP)	60.7 (rank 65) (UNDP)
Per capita income (2002)	US\$2600 (rank 94) (World Bank)	US\$2850 (rank 91) (World Bank)
Urbanisation	50% (B&W)	163% (UNPOP)
Life expectancy at birth (2001)	50.9 (rank 111) (UNDP)	67.8 (rank 65) (UNDP)
HDI rank (2002)	107 (medium human development) (UNDP)	73 (medium human development) (UNDP)
% of government budget spent on healthcare	3.2%	2.8%

Figure 3: Key socio-economic indicators and indices for South Africa and Brazil
Sources: Barnett and Whiteside (2003), World Bank (2003), UNPOP (1995-2000), WHO (1998), UNDP (2001,2).

What differentiates the nature of HIV/AIDS in Brazil and South Africa?

HIV/AIDS epidemics are related to income inequality and absence of social cohesion, according to Barnett and Whiteside (2003). Brazil and South Africa exhibit high levels of both income inequality and a lack of social cohesion, thus facilitating the spread of HIV through its populations.

² The goal of development is that people should be enabled to live long, informed and comfortable lives. The HDI determines how nations and regions of nations compare with each other and over time. It is constructed from three indices:

- Life expectancy which is a proxy indicator for longevity
- Educational attainment which is measured by literacy and enrolment rates
- Standard of living which is measured by real GDP per capita

In South Africa, immediate determinants of the epidemic include behavioural factors and biological factors, although it can be argued that the riskiness of the behaviour is a characteristic of the environment rather than of the individuals or the particular practices. The underlying causes include socio-economic factors such as poverty, migrant labour, commercial sex workers, illiteracy, the lack of formal education, stigma and discrimination. According to Bradshaw et al (2000), AIDS is now the leading cause of adult deaths in South Africa, with a striking years of loss of life³ from HIV/AIDS at 38%.

Brazil is a country of "continental" dimensions, with great regional diversity and socio-cultural inequalities, presenting a complex epidemic that affects different sectors of society in different ways. The epidemic is affecting poorer, younger and increasingly affecting female individuals, and is increasingly moving inland. Population mobility (due to high unemployment and poverty) is emerging as a significant factor in the epidemic's spread. UNAIDS and World Health Organisation (2002) note that the epidemic in Brazil is showing signs of stabilisation. The incidence and prevalence of HIV has remained stable over the last four years. The spread of HIV through the sharing of intravenous drug equipment is of growing concern in Brazil. (UNAIDS, 2002)

Another way of viewing the epidemics around the world has been put forward by the World Bank (Whiteside and Sunter, 2000):

Generalised: HIV has spread far beyond the original sub-populations with high-risk behaviour, which are now heavily infected. Prevalence among women attending urban antenatal clinics is 5% or more. All of South Africa is experiencing a generalised epidemic. The epidemic is not, however, uniformly spread across the country.

Concentrated: HIV prevalence is above 5% in *one or more* sub-populations presumed to practice high-risk behaviour; but among women attending urban antenatal clinics it is still below 5%. Brazil is an example.

The South African response to HIV/AIDS

In South Africa, the national HIV survey of women attending ANC clinics of the public health services has been conducted annually and is the best indicator of population prevalence (da Silva, 2002). The first ANC survey in 1990 found that 0.8% of women attending state clinics were HIV positive. The survey covers sexually active women who are attending state clinics and thus when estimating a population prevalence, the negative impact of HIV on fertility and the higher susceptibility of women to HIV must be accounted for. Results reveal that the ANC prevalence had risen dramatically to 24.8% in 2001 (Department of Health, 2000) and results for 2002 reveal a prevalence rate of 26.5%. Although this estimate is higher than the 24.8% prevalence (lower confidence interval limit 23.6% and upper confidence interval limit of 26.1%) recorded in 2001, the increase is not statistically significant. The findings of the 2002 survey indicate that an estimated 5.3 million people are infected with HIV in South Africa (Department of Health, 2002). The annual surveys also indicate that young women aged 20-30 have the highest prevalence rates, and young women under age 20 had the highest percentage increase compared to other age groups in 1998 compared to 1997. These and other data indicate that the HIV epidemic is severely affecting the young, black and economically poor populations of South Africa.

A summary of the key responses to the HIV/AIDS epidemic, extracted from the HIV/AIDS/STD Strategic Plan for South Africa, 2000-2005 (February 2000), is:

³ Years of life lost (YLL) is a measure of premature mortality. YLLs are calculated using an age weighting, discounting and standard life expectancy. The measure does not merely consider the number of deaths, but takes into account the age at which deaths occurred.

- In 1992 the National AIDS Co-ordinating Committee of South Africa (NACOSA) was launched to develop a national strategy on HIV/AIDS. Cabinet endorsed this strategy in 1994. The goals of this plan were to (a) prevent HIV transmission; (b) reduce the personal and social impact of HIV infection, and (c) mobilise and unify, provincial, international and local resources.
- The South African National STD/HIV/AIDS Review was conducted in 1997 in respect of the goals outlined in the NACOSA plan. The review indicated the following strengths in South Africa's response to the epidemic:
 - High level of commitment from the Minister of Health;
 - Collaboration initiated by the Department of Health at various levels to ensure interdepartmental and inter-sectoral response;
 - Highly motivated and active NGO's and CBO's, albeit operating with limited resources;
 - Adequate drug supply and accessibility for STD management in clinics;
 - Improvements in tuberculosis services

Subsequent to the 1997 review, the South African government has taken several actions. These include:

- Establishing an inter-ministerial committee on HIV/AIDS;
- Launching the partnership against HIV/AIDS by the President in 1998
- Establishing the South African AIDS Vaccine Initiative in 1998
- Establishing the National AIDS Council
- Developing a strategic framework for a South African AIDS Youth Programme

The primary goals of the HIV/AIDS and STD Strategic Plan for South Africa for 2000-2005 are to reduce the HIV incidence rate (especially among the youth); and reduce the impact of HIV/AIDS on individuals, families and communities. The strategic plan is structured according to prevention; treatment, care and support; human and legal rights; and monitoring, research and surveillance.

South Africa's response to HIV/AIDS entered a critical phase, according to UNAIDS (2003), when the South African Government decided to provide antiretroviral treatment on a national scale to people living with HIV in the country, as part of the enhanced programme on HIV/AIDS for all its citizens. The new South African national initiative will make the country's fight against AIDS truly comprehensive, with treatment complementing prevention efforts.

Antiretroviral therapy (ART) coverage for adults in Sub-Saharan Africa is only a mere 1% (UNAIDS, 2003), thus highlighting the immediate need for access to antiretroviral therapy. By the end of 2002, a total of 30,000 people were estimated to be on antiretroviral treatment, delivered mostly through private medical aid schemes (which cover about 17% of the population) or workplace programmes run by some of the larger companies.

Medecins Sans Frontieres (MSF) has been working in Khayelitsha in the Western Cape since 1999 and in May 2003 celebrated the first two years of its ART programme. Generic medication is used – mostly from Brazil and although they have been tested in clinical trials they have not been registered for general use in South Africa. In 2003, this medication cost about \$1 per day per patient. By using generic drugs and reducing the price of laboratory tests, MSF has cut the cost of highly active ART from \$1366 to \$536 per patient per year between January 2002 and April 2003. (Medical Research Council, 2003)

The South African government, through the Medical Schemes Act of 1998 has legislated that all medical schemes, be they open or restricted are under a legal and constitutional obligation to provide cover for hospital and outpatient services on a non-discriminatory basis known as

the Prescribed Minimum Benefits (PMB). One of the strategic objectives of the PMBs is to attract paying patients to public sector hospitals, thereby encouraging improved efficiency in the allocation of public and private resources. This objective is consistent with a broader strategy of improving resource mobilisation and the management of resources without disregarding the attainment of equity in resource allotment.

From 2000, the PMBs have been for HIV and AIDS related hospitalisation and now cover a broader spectrum of treatment options such as mother-to-child transmission prevention treatment, voluntary counselling and testing, and treatment for common opportunistic infections. Access to highly active ART has not yet been included as part of the PMBs, but medical schemes will have to offer more benefits to HIV positive members from 2003, in terms of new regulation promulgated under the Medical Schemes Act in 2002. (AIDS Management Report, 2003).

The private healthcare sector in South Africa has also taken voluntary measures to fight HIV/AIDS. Disease management programmes (DMP) were introduced in order to provide a comprehensive management approach for beneficiaries of contracted medical schemes and potentially improve cost effectiveness.

In corporate South Africa, HIV/AIDS has been seen as a critical part of their management agenda. Leading companies in a spread of industries including healthcare, manufacturing, mining, and insurance have been pioneering in their approach to the management of HIV/AIDS, each with their own management solution. The guidelines and principles contained in the King Report 2002 on corporate governance include recommendations on HIV/AIDS in terms of transparency and understanding the economic impact of HIV on business activities.

Despite efforts by the government and the private sector in response to HIV/AIDS, it can be argued that reducing the cost and increasing the supply of medicines is not enough to successfully combat the epidemic in Africa. This approach is speculated to provide short term relief.

Brazil's Response to HIV/AIDS

In contrast to South Africa, Brazil is responding effectively to AIDS by virtue of its strong governmental commitment to tackling the epidemic. This distinguishes the Brazilian approach of managing the epidemic as among the most innovative in the world.

The Government of Brazil has a policy of universal access to antiretroviral drugs, which benefits nearly all AIDS patients in the country. In 1996, in response to intense pressure from civil society, the Brazilian government began providing free access to HAART to people with HIV/AIDS. This policy has allowed more than 100,000 people to receive antiretroviral therapy and reduced AIDS-related mortality by more than 50%. From 1996 to 1999, thanks to ART, the number of AIDS deaths was nearly halved in Brazil and the incidence of opportunistic infections was cut by 60% - 80%. During this period, condom sales also doubled. (World Health Organisation, 2002)

	Proprietary company	Proprietary company's price per day (US\$)	FarManguinhos (generic producer) price per day (US\$)	Percentage saving
AZT and 3TC	GlaxoSmithKline	\$2	\$0.96	52%
Nevirapine	Boehringer Ingelheim	\$1.19	\$0.59	50%

AZT	GlaxoSmithKline	\$1.6	\$0.09	94%
3TC	GlaxoSmithKline	\$0.64	\$0.41	36%

Figure 4: Antiretroviral drug prices, the difference between proprietary company offers and generic producer prices

Source: Medecins Sans Frontieres (2002)

Without significant decreases in the cost of antiretrovirals, however, Brazil's universal access programme would not have been possible. The Government achieved these price reductions through the local manufacture of drugs that were not patent-protected, combined with bulk purchases of imported antiretrovirals and price negotiations with pharmaceutical companies that are exclusive producers. The most dramatic reduction in prices relates to medicines currently being manufactured within Brazil, both by private companies and by national laboratories. Prices of drugs produced within Brazil, fell on average by 72.5% between 1996 and 2000. The prices of imported drugs went down on average 9.6% during the same period. Brazil allocates US\$ 450 million each year to providing free antiretroviral treatment (Brazilian Government Statistics, 1999). This amount can be compared to the \$290 million savings from averted AIDS-related hospitalisations, between 1997 and 1999 (WHO, 2002). Examples of the difference between company prices and generic producer prices in Brazil are presented in figure 4. The Brazilian national pharmaceutical manufacturer, FarManguinhos, produces generic antiretroviral therapy. These prices can be compared to those in figure 5 (based on a suitable exchange rate assumption).

Trade name	Monthly cost price for Aid for AIDS (June 2003)	Monthly cost price for Discovery Health Medical Scheme*	Monthly cost price for Med-scheme**	Monthly corporate price for unfunded employees (June 2003)
Combination 1				
ZERIT	R46.22	R52.48	R96.22	R46.22
3TC	R729.60	R766.08	R779.60	R95.76
VIRAMUNE	R410.40	R402.25	R460.40	R369.36
Total	R1186.22	R1220.81	R1336.22	R511.34
Combination 2				
RETROVIR	R553.01	R580.66	R603.02	R253.08
VIDEX	R261.90	R297.41	R311.90	R261.90
KALETRA	R447.40	-	R527.40	R477.40
Total	R1292.31		R1442.32	R992.38

Figure 5: Differential ART pricing for members of South African medical schemes and unfunded corporate employees (prices include VAT)

Sources: AIDS Management Report (Volume 1 Issue 3, 2003), Discovery Health Medical Scheme, and Medscheme

* Price per drug per month at 30% discount, as at April 2003.

** Price per drug per month as at August 2003.

In addition to political will, several other factors are key to Brazil's success, including willingness to allocate increased resources to health care, create a nationally coordinated AIDS prevention and treatment programme, and use whatever means are necessary to bring down drug prices to affordable levels. Working closely with organized civil societies in Brazil was another crucial aspect for the success of the AIDS Program, the respect of the human rights being one of the axes of the Program (communication with Leda Jamal, 2004).

The Brazilian AIDS Programme has been in a process of constant transformation. Being among the other challenges that Brazil will face in the future is what is called the "synergism of plagues", the interaction of HIV/AIDS with other endemic diseases. It will be important to develop strategies linking AIDS to other health campaigns. (Ministry of Health, Brazil, 2000).

Brazil's HIV/AIDS strategy not only results in a reduction in economic losses as a result of fewer AIDS-related deaths in the country but also helps to cut the costs of the public health system by avoiding hospitalisation of people with HIV/AIDS. This has to be tempered with the costs of the HIV/AIDS programme implemented.

The Treatment Action Campaign, an organised civil group, believes that South Africa could launch a similar programme to Brazil's national AIDS programme. To do so, the government needs to have access to the lowest cost medicines, whether they come from multinational pharmaceutical companies or from generic producers. This means both taking advantage of offers from multinational companies and being willing to seek licenses. These licenses can be used to produce these drugs locally or import them and are an important way to stimulate competition, which is a powerful tool to reduce prices.

Brazil is a prime example of where antiretrovirals have revolutionised the treatment of HIV and AIDS by converting a uniformly fatal infection to a treatable chronic disease.

Conclusion

The policy of universal access to combined ART in Brazil has been shown to be cost-effective. It has also led to reduced mortality rates, improvements in the quality of life for HIV positive individuals and savings in medical costs, while economic and social related costs have fallen. The financial resources devoted to this initiative represent an economically viable investment. A well-designed and supported international effort to reduce drug prices and improve health infrastructure could overcome many obstacles even in poor resource countries.

In essence, South Africa ought to take note of Brazil's successful tactics against HIV/AIDS. While the two countries are experiencing similar but not identical epidemics, the Brazilian experience can be extended as a model of how South Africa can tackle HIV and AIDS.

Acknowledgements

The authors would like to thank Leda Jamal and Dr Marco Vitoria of the World Health Organisation for their comments and suggestions.

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