

Cambridge University Press  
978-0-521-14793-4 - HIV/AIDS in South Africa, Second Edition  
Edited by S. S. Abdoool Karim and Q. Abdoool Karim  
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SECTION 1

**Birth of a rapidly growing epidemic**

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SECTION 2

**The virus, the human host and  
their interactions**

# CHAPTER 1

## Introduction

Salim S Abdool Karim and Cheryl Baxter

THE NUMBER OF PEOPLE infected with HIV worldwide has increased exponentially from just a handful of cases in the early 1980s to about 33 million by the end of 2007 and more than 20 million people have already died of AIDS. Catastrophically, the extent of its impact turned out to be far worse than ever predicted.

In South Africa, the early phase of the epidemic was restricted to just a few hundred cases among men who have sex with men and persons receiving unsafe blood transfusions. However, by the early 1990s, heterosexual transmission came to dominate as the mode of spread of HIV infection, and with it, the concomitant HIV epidemic in newborns and young children through perinatal transmission. South Africa now is the country estimated to have the largest number of people (5.3 million HIV positive people as at December 2007) living with HIV/AIDS. Despite this, the South African response to the HIV epidemic over the past decade has been characterised by a unique form of denialism in the highest echelons of political power. However, with the change in government following the 2009 elections, together with heartening progress on the South African government’s national antiretroviral rollout programme, there is renewed optimism that South Africa can turn the tide of the epidemic.

### AIDS epidemic first identified in USA

The report published by the Atlanta-based Centers for Disease Control and Prevention (CDC) in June of 1981 was the first to take note of the disease and marked the beginning of awareness of the epidemic potential of AIDS in the USA. This report described the occurrence, without identifiable cause, of *Pneumocystis carinii* pneumonia (PCP) in

five gay men in Los Angeles. (Note: The specific name of *Pneumocystis carinii* is now referred to as *Pneumocystis jirovecii*.)

Very little was known about the epidemiology and transmission of what seemed to be a new disease, and initially it was thought that only homosexuals were affected. However, it soon became evident that the disease affected other groups when the first cases of PCP were reported in injecting drug users in December 1981. At this time, reports emerged that the disease was also occurring in haemophiliacs and Haitian immigrants in the USA.

In 1982 the disease was named Acquired ImmunoDeficiency Syndrome (AIDS). The mode of transmission of AIDS became clearer after a 20-month-old child who had received multiple blood transfusions died from infections related to AIDS. This caused worldwide concerns about the safety of the donated blood supply. At about this time, the first cases of possible mother-to-child transmission of AIDS were reported by the CDC.

The realisation then became all too inescapable that the number of people who could become infected might continue to grow when it was then reported that the disease could be transmitted heterosexually as well.

## Discovery of HIV

The discovery of HIV was not a simple or direct path and required a substantial collaboration between different groups of scientists and clinicians. The scientific community did not believe that retroviruses infected humans until the early 1980s when Dr Robert Gallo and colleagues discovered the Human T leukaemia virus types 1 and 2 (HTLV-1 and HTLV-2) which caused an unusual T-cell leukaemia. The discovery of Interleukin-2 (IL-2) by the same research group, which allowed scientists to grow human T-cells in the laboratory, was an important technological advance in the mid 1970s that enabled scientists to isolate the retrovirus that caused AIDS. The various manifestations of AIDS, including the marked decline in CD4+ cells and possible mode of transmission, led scientists to believe that AIDS was possibly caused by a retrovirus. In 1983, Dr Luc Montagnier, Dr Francois Barre-Sinoussi and colleagues from the Pasteur Institute isolated a virus from a patient with lymphadenopathy. This virus was later named lymphadenopathy-associated virus (LAV).

In the same year two distinct viruses were isolated from an AIDS patient in Haiti, one of which cross-reacted with antibodies to HTLV, while the other killed target T-cells. Making the link between the virus that caused AIDS was challenging because the clinical signs of disease develop several years after the infection. This linkage became clearer when HIV was repeatedly isolated from patients with

AIDS. The series of papers describing isolates of the new retrovirus, methods for its continuous production, and analyses of its proteins, which were published in *Science* and *The Lancet* in 1984, provided the scientific evidence that HIV was the cause of AIDS. In 2008, Drs Barre-Sinoussi and Montagnier received the Nobel Prize in Medicine for their discovery of the ‘human immunodeficiency virus’.

## AIDS in South Africa

AIDS was first reported in South Africa in 1983. A report in the *South African Medical Journal* described two cases of AIDS in male homosexuals. In the early part of the epidemic in South Africa (1982–1987), AIDS was associated mainly with homosexuals, blood transfusion recipients and haemophiliacs. The first peak in the AIDS epidemic in the mid-1980s occurred in male homosexuals, who were being diagnosed with AIDS-related opportunistic diseases.

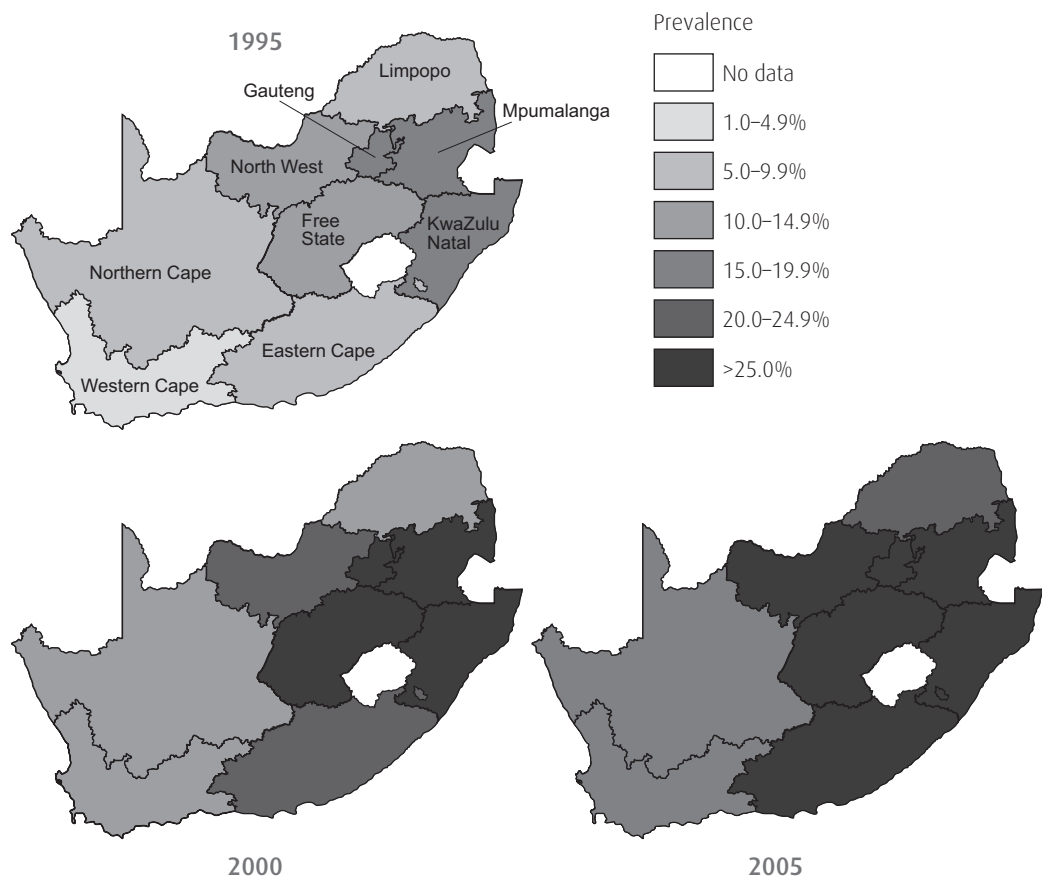
Prior to this in the early 1980s, before the cause of AIDS was recognised and blood donations routinely screened for the presence of HIV antibodies, several haemophiliacs acquired HIV through transfusions of factor VIII, a component of blood. Each transfusion of factor VIII was derived from hundreds of blood donations, thereby increasing the risk of HIV transmission. By 1985, a safe blood supply was secured throughout South Africa when all blood transfusion services introduced self-exclusion questionnaires for their donors and, more importantly, routine HIV screening of all donated blood.

Currently, in South Africa all blood donations are routinely screened for the presence of HIV-antibody and a marker of early HIV infection known as the p24 antigen by sensitive and specific third-generation Enzyme ImmunoAssay (EIA) test systems. Since the introduction of the Blood Safety Policy in South Africa in 1999, which actively selects low-risk donors, the HIV prevalence rate in blood collections has decreased significantly and in 2002 was at the same level as 1991 (0.06%). The 1999 Blood Safety Policy included racial profiling and was revised in 2004 to remove race as a criterion for excluding donations.

The number of male homosexuals admitted to HIV clinics had reached a plateau in 1989 while the visits from the general population started to rise. By the end of 1989, a number of surveillance studies confirmed the entry of HIV into the heterosexual population in South Africa. Between 1990 and 1994 it became increasingly apparent that the heterosexual epidemic was rapidly exceeding the homosexual epidemic.

As in most of Africa, AIDS first became apparent as an urban phenomenon in South Africa but it spread rapidly into rural areas. An important feature of the HIV epidemic in the heterosexual

population was the age difference of those infected with HIV; predominantly these are young women and older men, and overall a disproportionate number of people between the ages of 15 and 40. Since the mid-1990s the AIDS epidemic has risen steadily (FIGURE 1.1) in South Africa and by the end of 2007 an estimated 5.3 million South Africans were HIV positive. Approximately 2.8 million women and 2.3 million men between the ages of 15 to 49 years were infected with HIV in 2007.



**FIGURE 1.1** Rapidly growing HIV epidemic in South Africa  
*Source: Department of Health antenatal HIV surveys*

### South Africa’s response to the AIDS epidemic

The response to the AIDS epidemic in South Africa developed slowly at first. From 1982, when the first case of AIDS was described in South Africa to 1994, little was done by the apartheid government to contain the HIV epidemic.

In the mid-1980s, HIV/AIDS was seen in South Africa as a gay epidemic confined to select high-risk sub-groups within the larger

urban centres of the country. As a result it evoked minimal response from the apartheid government, whose public media campaigns against AIDS ignored the epidemic among men who have sex with men (MSM) and promoted racial stereotypes, fear and stigma. In contrast, various non-governmental initiatives responded by initiating localised preventive care and support programmes for those infected and affected.

During this period in the mid-1980s, the state Department of National Health and Population Development focused on the need for information dissemination, counselling and HIV testing by establishing a number of AIDS Training and Information Centres (ATICS). Subsequently, the recognition of the need for a more specific response from central government led to the establishment of a dedicated AIDS Unit within the National Health Department. Among other responsibilities, this unit was given the task of drawing up a national AIDS strategy, as well as coordinating all AIDS-related activities in the country. The apartheid government's response was, however, seen as tainted and its judgemental approach (by attacking African culture) undermined its credibility. At about this time, an independent body, the AIDS Programme of the National Progressive Primary Health Care Network (NPPHCN) was established to offer an unprejudiced alternative to AIDS prevention, more in tune with community needs.

The need to prioritise HIV prevention in South Africa was first publicly acknowledged in 1990 by the 'Maputo Statement on HIV and AIDS in Southern Africa', issued jointly by the banned and exiled African National Congress (ANC) with a range of in-country anti-apartheid organisations, including the National Medical and Dental Association (NAMDA), South African Health Workers Congress (SAHWCO), and the AIDS consortium. A major step forward was the creation, in 1993, of the National AIDS Convention of South Africa (NACOSA), a coordinating body involving representatives of the apartheid government and representatives of anti-apartheid AIDS activists.

Following the first democratic election in 1994, the NACOSA Strategic Plan, which provided the first credible response to the HIV epidemic, was adopted by the Mandela government and prioritised as one of the ANC's Reconstruction and Development Programme Lead Projects. However, AIDS and TB were not accorded high profile political support during this period, as the country grappled with the enormous challenge of establishing a new politically stable non-racial society. The Mandela government's response to AIDS was subsequently undermined by the 1996 controversy surrounding Sarafina II, an anti-AIDS play, Cabinet support for the toxic industrial solvent Virodene as a cure for AIDS in 1997 and the government's

refusal in 1998 to fund the provision of antiretroviral zidovudine for pregnant women to prevent mother-to-child transmission of HIV. Spurred by the need for community action for AIDS treatment, The Treatment Action Campaign (TAC), led by Zackie Achmat, was formed in 1998.

Following the second democratic elections in 1999, the personal support of President Mbeki and his Minister of Health, Manto Tshabalala-Msimang for unorthodox AIDS denialist theories placed the government at odds with the general public, including doctors and AIDS activists. There were public contestations of the aetiology of AIDS, the reliability of HIV testing, the safety and efficacy of antiretrovirals and the statistics on morbidity and mortality due to HIV. On 26 March 2000, President Mbeki convened an International AIDS advisory panel, comprising 16 AIDS dissidents (who believe that HIV does not cause AIDS) and 16 AIDS scientists, with the mandate of informing him and the government on the most appropriate response to HIV. This marked the lowest point in the government's response to the HIV epidemic and served to rally world opinion through the Durban Declaration and the XIIIth International AIDS Conference, held in 2000 in South Africa. This brought together community organisations, trade unions, activist groups like the TAC, scientists and health care workers as a social movement with a clarion call to put an end to the injustice of global inequity in access to AIDS treatment.

Using the momentum of the 2000 AIDS Conference, AIDS activists repeatedly challenged health service providers, government and pharmaceutical companies to do more to bring AIDS treatment to poor people through petitions, marches, community mobilisation, and by pointing to the success of the pilot *Médecins Sans Frontières* treatment clinic in Khayelitsha, Cape Town. Importantly, the AIDS lobby groups extended their 'taking to the streets' approach to legally challenging the government for failing to uphold the health rights enshrined in the South African constitution. In 2001, the Constitutional Court ruled against the government instructing it to provide nevirapine to all HIV positive pregnant women in South Africa in a landmark judgment that placed the onus on government for the 'progressive realisation' of the right to health care. Community mobilisation combined with legal challenges were repeatedly used to coax Tshabalala-Msimang's Ministry of Health to make better progress on the provision of nevirapine and further to provide AIDS treatment.

In a surprising turnaround, the Mbeki government decided in 2003 to provide antiretroviral therapy for free in public health services. Although this decision should have been made three years earlier, which could have saved an estimated 330 000 lives, this



policy shift was widely applauded. For most of Mbeki’s second term, he avoided the topic of AIDS but his Minister of Health Tshabala-Msimang lurched from one controversy to another in her attempts to undermine the AIDS treatment rollout and promote untested and unlicensed traditional remedies and vitamin supplements as alternatives to ‘Western’ treatment of AIDS. Her insensitivity was manifest at the International AIDS Conference in Toronto, Canada where the South African government’s stand at the conference exhibition hall displayed, at her insistence, food such as garlic, beetroot and lemons for AIDS treatment instead of antiretroviral therapy. Following the Toronto incident, the government delegated overall responsibility for the AIDS response to the Deputy President, Mlambo-Ngcuka. The Deputy President working closely with Deputy Minister of Health, Madlala-Routledge, proceeded immediately to re-build bridges with civil society, reviving the previously moribund South African National AIDS Council (SANAC) in 2006.

The emergence of an almost uniformly fatal epidemic of XDR-TB in 2006 in HIV infected patients in a small rural village in Tugela Ferry, KwaZulu-Natal sounded a wake-up call for an even more concerted effort for TB control and, importantly, to improve TB-HIV linkages and implement measures in AIDS clinics and hospital wards to reduce the nosocomial spread of TB.

In 2007, Madlala-Routledge’s outspokenness eventually led to her dismissal by Mbeki. By then, however, a new five-year AIDS National Strategic Plan had been developed and adopted by SANAC through an inclusive process involving scientists and activists known to be critics of Mbeki.

A few months later, in 2008, Mbeki was forced to resign from the presidency and the new Minister of Health Barbara Hogan in the Motlanthe government set about charting a new course for the country’s response to AIDS. The newly elected government, under President Jacob Zuma, has appointed Dr Aaron Motsoaledi as the Minister of Health, who has set about the task of charting a new course for the country’s response to AIDS with vigour and enthusiasm. This government, ushered in by the 2009 elections, has demonstrated a serious commitment to implementing the widely supported five year National Strategic Plans for both AIDS and TB. The spirit of hope this has engendered has been an incentive for this book in its aim of providing a comprehensive picture of AIDS as it besets one of the world’s youngest but most vibrant democracies: a country emerging from the oppression of apartheid only to encounter the devastation of AIDS just when it expected to be enjoying the hard-earned fruits of freedom.

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