

## HEALTH POLICY REPORT

## Health Care Reform and the Crisis of HIV and AIDS in South Africa

Solomon R. Benatar, M.B., Ch.B.

South Africa's transition to a democracy — characterized by a liberal constitution, a bill of rights, and attempts to pursue reconciliation rather than revenge — has been widely admired as a paradigm shift in human relationships from seemingly inevitable conflict to a negotiated peace. The challenge of narrowing racial disparities in health care is a formidable one for the new government.<sup>1,2</sup> The high rates of infection with the human immunodeficiency virus (HIV) and full-blown AIDS add another layer of complexity. In this review I evaluate health care reform and responses to the pandemic of HIV and AIDS during the first decade of the new democracy.

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### PROGRESS TOWARD IMPROVING HEALTH

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#### SOCIAL DETERMINANTS OF HEALTH

Human health, patterns of disease, and life expectancy are profoundly affected by complex interactions among economic, social, and political forces, behavioral patterns, medical care, and the application of technology.<sup>3,4</sup> Given the importance of the social determinants of health, the new government can be proud of its many achievements that have improved health among the nation's approximately 45 million people. These include stabilization of the economy, substantial economic growth, reversal of discriminatory legislation, and rationalization of the complex bureaucracy associated with the policies of apartheid. In addition, the government has provided access to clean water for 9 million people, built 1.5 million houses, and installed electricity and telephone connections to more than 1 million homes.<sup>2,5</sup> It has also constructed hundreds of new clinics that provide primary health care, desegregated medical services, made health services free to expectant mothers and children under five years of age, and developed new food programs that reach 5 million children.

These achievements have been marred by several shortcomings. Many new clinics and the district

health system are not yet adequately functional because of a lack of personnel and finances, poor administration, and expanding demands. Public tertiary health services have been severely eroded. Many new homes are of substandard quality, and 7.4 million more houses are needed. Electricity, water, and telephone services are often interrupted because of a lack of payment by residents. Unemployment rates are high (up to 40 percent) and rising. More than 600,000 jobs have been lost in the agricultural sector since 1994, and at least 500,000 other jobs have been lost since 1995. Although a strategic plan has been formulated for dealing with the pandemic of HIV and AIDS, it has had a low profile and has been overshadowed, until recently, by official denial of the causal relationship between HIV and AIDS.

#### HEALTH EXPENDITURE

The government's total planned expenditure of \$48 billion (in U.S. dollars, at an exchange rate of 7 rands to \$1) for fiscal year 2003–2004 represents 30.4 percent of South Africa's gross domestic product (GDP) and is \$4.8 billion in excess of expected revenue for the year.<sup>5</sup> The allocation of 11 percent of the government budget for health care — \$5.3 billion (far less than the \$27 billion research budget of the U.S. National Institutes of Health) — funds primary, secondary, and tertiary health care for the 36 million people (approximately 80 percent of the population) who do not have health insurance, as well as all health care training and education in the country.

Over the past 30 years, expenditures for health care in the private sector have grown to consume a much larger proportion of the total national expenditure on health. In the 1970s, 30 percent of all health care expenditures were concentrated in the 20 percent of the population that had private insurance. Today, approximately 9 percent of the nation's GDP is spent on health care, with 60 percent of these funds going to care for the 18 percent of citi-

zens who have private insurance. Similarly, the percentage of physicians who work in the private sector and care for patients with insurance has grown from 40 percent in the 1970s to 66 percent today.

#### HEALTH POLICY AND HEALTH CARE REFORM

In the apartheid era, intense criticism was focused on wide disparities in health and access to health care in South Africa.<sup>6,7</sup> Determination to develop a more equitable national health care system was central to the new government's ambitious health and welfare policies in the Reconstruction and Development Program.<sup>2</sup>

Extensive new legislation regarding national health has been enacted to meet these goals through expanded access to health care within a district-based system of primary health care, nationalization of health laboratory services, greater regulation of health care professionals, compensation for occupational injuries and diseases, and health promotion (Table 1). The rationale has been that in the face of limited public resources, a strong primary care system is more likely to effect equitable improvements in health than are hospital-based services.<sup>8-12</sup> Legislation is also aimed at reducing inequity within the private sector — for example, by preventing health insurance plans from excluding benefits for chronic diseases to patients who have preexisting common conditions such as hypertension, diabetes, and asthma; by controlling drug prices; and by improving the administration and management of private insurance schemes<sup>13</sup> (Table 1). The National Health Bill (which, if signed by the president, will become the National Health Act) consolidates such legislation.

However, movement toward some sort of national health service that resembles health care systems in many developed countries, with equitable access to well-balanced primary, secondary, and tertiary care facilities, has been slow. South Africans with health insurance retain access to much that modern medicine can offer, although premiums are escalating rapidly and benefits are increasingly restricted.<sup>13</sup> Those without health insurance are dependent on public health services. A two-tier health care system thus continues, with discrimination in access to care on economic grounds replacing the racial discrimination of the past.<sup>14-16</sup> These disparities are evident in annual per capita expenditures on health care of less than the equivalent of \$150 in the public sector and about \$850 in the private sector. In practical terms, the disparities are illustrated

by the fact that, nationally, there are 8.7 cardiac surgeons per 1 million population who perform 774 operations per 1 million people annually in the private sector; in the public sector, there are 0.6 cardiac surgeons per 1 million people who perform 69 operations per 1 million population.

There is thus ongoing tension in South Africa between promoting or allowing private medical care, on the one hand, and developing a more equitable system of public medical care, on the other. Within the public health sector there are additional tensions. At the same time that resources are being redistributed toward a system based on primary care that is within reach of all, and common ground is being sought between Western medicine and African traditional healing practices,<sup>17</sup> attempts are being made to form public-private partnerships.<sup>18</sup>

Allocation of resources in the public sector is focused on national redistribution — away from tertiary care and toward long-neglected primary and community-based care.<sup>19</sup> Resources are also being shifted away from the Western Cape and Gauteng provinces, which have two and three medical schools, respectively, that serve as regional tertiary care centers, and toward the previously disadvantaged Eastern Cape and KwaZulu-Natal provinces. The government is further redistributing finances on a per capita basis toward poorer regions. The overall result is that, although the proportions of the national population in the wealthier provinces of Gauteng and the Western Cape increased between 1994 and 2002, the percentage of the national health care budget allocated to each has been reduced since 1995 (Table 2 and Fig. 1).<sup>20</sup> The consequence is that some of the well-established and valued tertiary services for the poor and uninsured are being radically trimmed. New tertiary care hospitals are being built in the Eastern Cape and KwaZulu-Natal provinces, but a shortage of specialized personnel frustrates the delivery of services (Table 3).<sup>21</sup>

Attempts are being made to shift medical personnel toward areas of need, through several methods, some of them coercive. For example, the choices of junior doctors for their first year of residency and subsequent years of community service in rural areas are more restricted than in the past. In the public sector, medical jobs are being shifted to new tertiary care institutions in previously disadvantaged areas, but it is difficult to recruit staff to work in such regions. In the private sector, physicians will have to demonstrate the need to open or

**Table 1. Health Legislation in South Africa since 1994.**

| Legislation and Year  | Provisions   |
|---|--|
| Choice on Termination of Pregnancy Act, 1996  | Set national policy on a liberalized approach to abortion  |
| Nursing Amendment Act, 1997   | Created a single South African Nursing Council   |
| Genetically Modified Organisms Act, No. 15, 1997  | Defined control over the development, use, and application of genetically modified organisms   |
| Compensation for Occupational Injuries and Diseases Amendment Act, 1997                     | Defined functions of the director general and minister of health with regard to the allocation of compensation   |
| Dental Technicians Amendment Act, 1997  | Established regulations for the work of dental technicians and their relationship to dentists  |
| Medicines and Related Substances Control Amendment Act, 1997                                | Introduced various measures for reducing the cost of drugs, including parallel importation of generic and brand-name drugs, promotion of generic substitutes, regulation of the supply of medicines, and establishment of a pricing committee to introduce transparent pricing and various price controls  |
| Social Health Insurance Scheme, 1997  | Aimed to establish social health insurance as a component of a comprehensive social security system  |
| Medical, Dental, and Supplementary Health Service Professions Amendment Act, 1998           | Established a broadly representative Health Professions Council and conferred disciplinary powers on separate professional boards for the various health professions   |
| Sterilization Act, 1998   | Reaffirmed the right of adults to consent to sterilization and set out the circumstances for sterilization of persons who are unable to provide consent  |
| South African Medicines and Medical Devices Regulatory Authority Act, 1998                  | Provided for a new authority to monitor, evaluate, regulate, investigate, inspect, register, and control medicines, clinical trials, and medical devices; provided for the registering and regulation of complementary medicines and the regulation of veterinary medicines  |
| Medical Schemes Act 131, 1998   | Replaced the old act of 1965, which was designed to meet the needs of a for-profit health system that allowed arbitrary discrimination against groups of people; prescribed minimum-benefit conditions without copayment; prevented "cherry picking" of healthiest clients by the insurance industry; prohibited rating of risk and exclusion on grounds of age, sex, or state of health; required improved governance, financial administration, and accountability                   |
| Chiropractors, Homeopaths, and Allied Health Service Professions Second Amendment Act, 1998 | Established a new council and allowed for registration of a wide range of allied, complementary, and alternative health practitioners  |
| Tobacco Products Control Amendment Act, 1999  | Dealt with harmful effects of tobacco by prohibiting smoking in designated public places, advertisement, and promotion of tobacco products   |
| National Health Laboratory Services Act, 2000   | Restructured and reformed the pathology services in the public sector and made them part of a single National Health Laboratory Service  |
| Pharmacy Amendment Act, 2000  | Established provisions for licensing of pharmacies and education, training, and practice of pharmacists; removed the former restriction that only pharmacists could own pharmacies   |
| Medical Schemes Amendment Act 55, 2001  | Strengthened the policy goals of the 1998 act  |
| Financial Advisory and Intermediary Services Bill, 2001                                     | Regulated brokers of medical insurance schemes   |
| Mental Health Care Bill, 2001   | Sought to ensure availability of services for appropriate care, treatment, and rehabilitation, in line with a primary health care approach, for people with mental health problems and protected them from abuse   |
| National Health Laboratory Services Amendment Bill 56, 2001                                 | An amendment of the National Health Laboratory Services Act of 2000 that provided for amalgamation of 234 public-sector laboratories and various research facilities   |
| Occupational Diseases in Mines and Works Amendment Bill, 2002                               | Required owners of mines to compensate workers who contract diseases while in service  |
| Medicines and Related Substances Amendment Bill, 2002                                       | Further amendments to the 1997 amendment   |
| National Health Bill, 2003  | Established a broad framework for administration of the health care system, with delineation of distribution of powers and functions among national, provincial, and district health authorities; protected the rights of health-service users; addressed the establishment and operation of private and public health facilities; the regulation of public health programs and services; the use of human tissue; health laboratories; health surveillance; research; and information |

**Table 2. Population, Public Health Expenditure, and per Capita Disposable Income in South Africa, According to Province.\***

| Province      | No. of Medical Schools | Population (% of Total) |      | Public Health Budget (% of Total) |                             | Annual per Capita Disposable Income†<br>\$ U.S. |
|---------------|------------------------|-------------------------|------|-----------------------------------|-----------------------------|---|
|               |                        | 1994                    | 2002 | 1995–1996<br>(R14.3 billion)‡     | 2003–2004<br>(R37 billion)§ |   |
|               |                        | Eastern Cape            | 1    | 16.1                              | 16.0                        |   |
| Free State    | 1                      | 6.9                     | 6.4  | 7.4                               | 6.7                         | 1,816   |
| Gauteng       | 3                      | 17.0                    | 18.2 | 24.2                              | 22.0                        | 3,721   |
| KwaZulu-Natal | 1                      | 21.2                    | 20.6 | 19.6                              | 21.9                        | 1,584   |
| Limpopo       | 0                      | 12.4                    | 13.1 | 9.4                               | 9.4                         | 915   |
| Mpumalanga    | 0                      | 7.2                     | 7.1  | 4.0                               | 5.7                         | 1,395   |
| Northern Cape | 0                      | 1.9                     | 2.0  | 1.8                               | 2.0                         | 1,810   |
| North West    | 0                      | 8.3                     | 8.2  | 6.1                               | 6.4                         | 1,476   |
| Western Cape  | 2                      | 9.0                     | 9.5  | 14.3                              | 12.0                        | 3,282   |

\* Data are from South Africa at a Glance 2001–2002<sup>5</sup> and Intergovernmental Fiscal Review 2003.<sup>20</sup>

† Disposable income is an indication of wealth or poverty.

‡ The equivalent in U.S. dollars is \$3.24 billion at an exchange rate of 4.5 rands (R) to \$1.

§ The equivalent in U.S. dollars is \$5.36 billion at an exchange rate of R7 to \$1. (The fluctuating exchange rate between these periods — up to R13 to \$1 at one stage — has serious implications for the import of medical devices and supplies.)

maintain medical practices in areas that are deemed to have an excess of services.

All of these changes are designed to improve equity in access to health care. However, the short-term costs of transformation include inadequate facilities and shortages of personnel and basic med-

icines at new primary care centers, reduced availability of tertiary care for the poor, and inefficient and ineffective interactions among hierarchical levels of public health services. Cost effectiveness is impaired by reduced economies of scale when caseloads are decreased. For example, when cardiac surgical operations are reduced by 60 percent, the savings achieved amount to about 40 percent because expenses do not fall in direct proportion to the reduction in the number of operative procedures. The many changes in health care have resulted in widespread dissatisfaction and feelings of alienation on the part of physicians throughout the nation, and they led to an unprecedented protest march on Parliament by the medical profession last February 6.<sup>22</sup>

**IMPACT ON TERTIARY SERVICES IN THE PUBLIC SECTOR**

Selected statistics from the Western Cape and from Groote Schuur Hospital, the University of Cape Town’s main teaching hospital, illustrate adverse trends in tertiary care. Adequate nationwide data are not available, but discussions with my colleagues at the University of Witwatersrand and elsewhere indicate broadly similar trends in other regions.

Between 1995 and 2000, the public health sector in the Western Cape was downsized by 3601 hospital beds (24.4 percent) and by 9282 health and support personnel (27.9 percent), while the lo-



**Figure 1. The Provinces of South Africa.**

**Table 3. Number of People Served by Health Care Workers in the Public Sector in South Africa as of February 2003.\***

| Province                                    | Primary Care Physicians | Specialist Physicians | Nurses | Dentists | Pharmacists | Physical Therapists | Occupational Therapists | Speech Therapists | Dietitians | Radiographers |
|---|-------------------------|-----------------------|--------|----------|-------------|---------------------|-------------------------|-------------------|------------|---------------|
| <i>number served per health care worker</i> |                         |                       |        |          |             |                     |                         |                   |            |               |
| Eastern Cape                                | 8825                    | 47,529                | 1278   | 190,117  | 53,662      | 237,646             | 554,507                 | 950,583           | 475,292    | 26,616        |
| Free State                                  | 422                     | 11,342                | 786    | 71,491   | 31,881      | 45,369              | 3,932                   | 157,279           | 65,533     | 14,212        |
| Gauteng                                     | 273                     | 3,398                 | 606    | 25,458   | 18,994      | 29,117              | 31,575                  | 79,714            | 54,635     | 8,104         |
| KwaZulu-Natal                               | 4362                    | 15,641                | 901    | 145,607  | 27,239      | 43,289              | 79,291                  | 170,391           | 148,304    | 21,528        |
| Limpopo                                     | 8544                    | 92,129                | 1001   | 141,736  | 48,067      | 106,302             | 76,774                  | 197,418           | 110,554    | 60,084        |
| Mpumalanga                                  | 5772                    | 143,698               | 1124   | 54,605   | 34,003      | 75,841              | 65,006                  | 151,681           | 60,672     | 5,056         |
| Northern Cape                               | 823                     | 6,635                 | 1079   | 74,066   | 47,535      | 86,076              | 99,526                  | 244,986           | 109,821    | 49,763        |
| North West                                  | 3352                    | 39,296                | 776    | 64,303   | 32,151      | 5,441               | 101,047                 | 235,777           | 70,733     | 24,391        |
| Western Cape                                | 2979                    | 2,746                 | 796    | 28,074   | 13,789      | 32,126              | 33,152                  | 35,489            | 61,103     | 691           |
| National average                            | 4829                    | 10,403                | 910    | 65,406   | 29,578      | 55,698              | 64,722                  | 172,793           | 98,282     | 17,878        |
| Ratio of highest to lowest                  | 3:2                     | 52:3                  | 2:1    | 7:5      | 3:9         | 8:2                 | 16:7                    | 7:0               | 8:7        | 8:7           |

\* Data are from Intergovernmental Fiscal Review 2003.<sup>21</sup>

cal population increased by 8 percent.<sup>23</sup> At Groote Schuur Hospital, cardiac surgical operations in adults have been reduced from 700 per year to fewer than 250 per year. In the orthopedics department, budgetary reductions have resulted in the limitation of joint replacements to 60 procedures per year in 2003, as compared with 350 in 1993. In the ophthalmology department, there has been a 60 percent reduction in faculty and a 50 percent reduction in beds over the past decade. In the general surgery department, the waiting time for surgery for breast cancer is now 8 weeks (as compared with a wait of 2 weeks 10 years ago). A reduction in neurosurgical facilities has required the withdrawal of intensive treatment from those patients who have been given the worst prognoses.<sup>24</sup>

The numbers of patients who are being treated for chronic renal failure have also been reduced. In the mid-1990s, 156 patients were undergoing long-term dialysis and 100 patients received renal transplants annually at Groote Schuur Hospital; by 2002, only 100 patients were undergoing dialysis and about 75 patients received transplants. Dialysis is largely restricted to potential candidates for transplantation in order to maintain a steady stream of patients through the dialysis service into the transplantation program. In South Africa, 15 new patients per 1 million population enter programs for the treatment of chronic renal failure each year, for a total of about 99 patients per 1 million popula-

tion. By contrast, the number of new patients and the total number of patients per 1 million population in similar programs in Europe are 100 and 900, respectively; in the United States, they are 140 and 1800.

The number of beds in the internal medicine department at Groote Schuur Hospital was reduced from 216 in 1990 to 60 in 2003, with the remainder having been shifted to secondary community hospitals where care of patients is cheaper but where referral for tertiary care is restricted. The number of full-time faculty members in the department of medicine was reduced from 43 in 1990 to 27 in 2003, resulting in fewer general physicians and a loss of both critical mass and experience in several subspecialties, as had been anticipated.<sup>25</sup> In other parts of the country, the situation may be worse. For example, in November 2003, elective surgery was put on hold for six months at the University of Witwatersrand's major academic hospitals in Gauteng.<sup>26</sup>

Some are optimistic that the tensions resulting from the redistribution of resources for primary, secondary, and tertiary care are temporary, and they argue that perhaps this is the price to be paid to secure a more balanced and equitable system of public health care in the future.<sup>27</sup> However, it is a matter of great concern that current trends are threatening postgraduate training, the maintenance of surgical skills, and research in what have been some of the

best-established and fully functional medical schools, which should continue to serve many regions in the country. Such attrition in tertiary services has long-term implications for the survival of the academic institutions necessary for educating new generations of health care professionals, and for reestablishing high-quality tertiary services on an adequate scale in the foreseeable future.

#### THE CHANGING PROFILE OF THE MEDICAL STUDENT

Equity policies are changing the profile of South Africa's medical students. For example, at the University of Pretoria, the proportions of black and female students increased from 11 percent and 63 percent, respectively, in 1994 to 37 percent and 75 percent in 2003. In 2003 at the University of Cape Town, 67 percent of undergraduate medical students were black, and 65 percent were women. Nationally, enrollment of black first-year students increased from 28.9 percent of the total in 1994 to 60.3 percent in 2001,<sup>28</sup> and in 2003, 64 percent of new entrants to medical schools were women. The medical curriculum is being revised so that students receive five years of case-based learning directly after high school, followed by a year of general residency and two years of compulsory community service — regrettably, often with inadequate supervision by more experienced staff members.

Although such changes may produce more primary care physicians, restricting their career options could lead these physicians to emigrate to countries with better opportunities. Unless the erosion of tertiary public institutions is reversed, eventually there may be an almost exclusive focus on primary and community-hospital-based care in the public sector, with nurses, paramedical staff, community-based health workers, and traditional healers playing dominant roles.<sup>17</sup>

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#### CHALLENGES POSED BY HIV AND AIDS

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##### DEMOGRAPHIC FEATURES

Of the more than 40 million people infected with HIV in the world, 5 million are in South Africa (about 10 percent of the country's population). In 2000, HIV and AIDS accounted for 38 percent of total years of life lost from premature death — 47 percent for females and 33 percent for males (Fig. 2). Communicable diseases other than HIV and AIDS, maternal and perinatal conditions, and nutritional deficiencies associated with poverty and

underdevelopment accounted for 25 percent of life-years lost, noncommunicable diseases for 21 percent, and injuries for 16 percent (Fig. 3).<sup>29</sup>

Increasing workloads for health care workers are illustrated by data from Hlabisa, a rural district of 222,000 people where the prevalence of HIV infection increased from 4 percent in 1992 to 35 percent in 2002. Clinic visits increased by 88 percent between 1991 and 2001,<sup>30</sup> and hospital admissions increased by 81 percent between 1991 and 1998.<sup>31</sup> The result has been stress and exhaustion among health care workers, up to 16 percent of whom are positive for HIV themselves.<sup>32</sup> A national study of 222 health care facilities that are representative of the public and private sectors confirms these observations.<sup>33</sup>

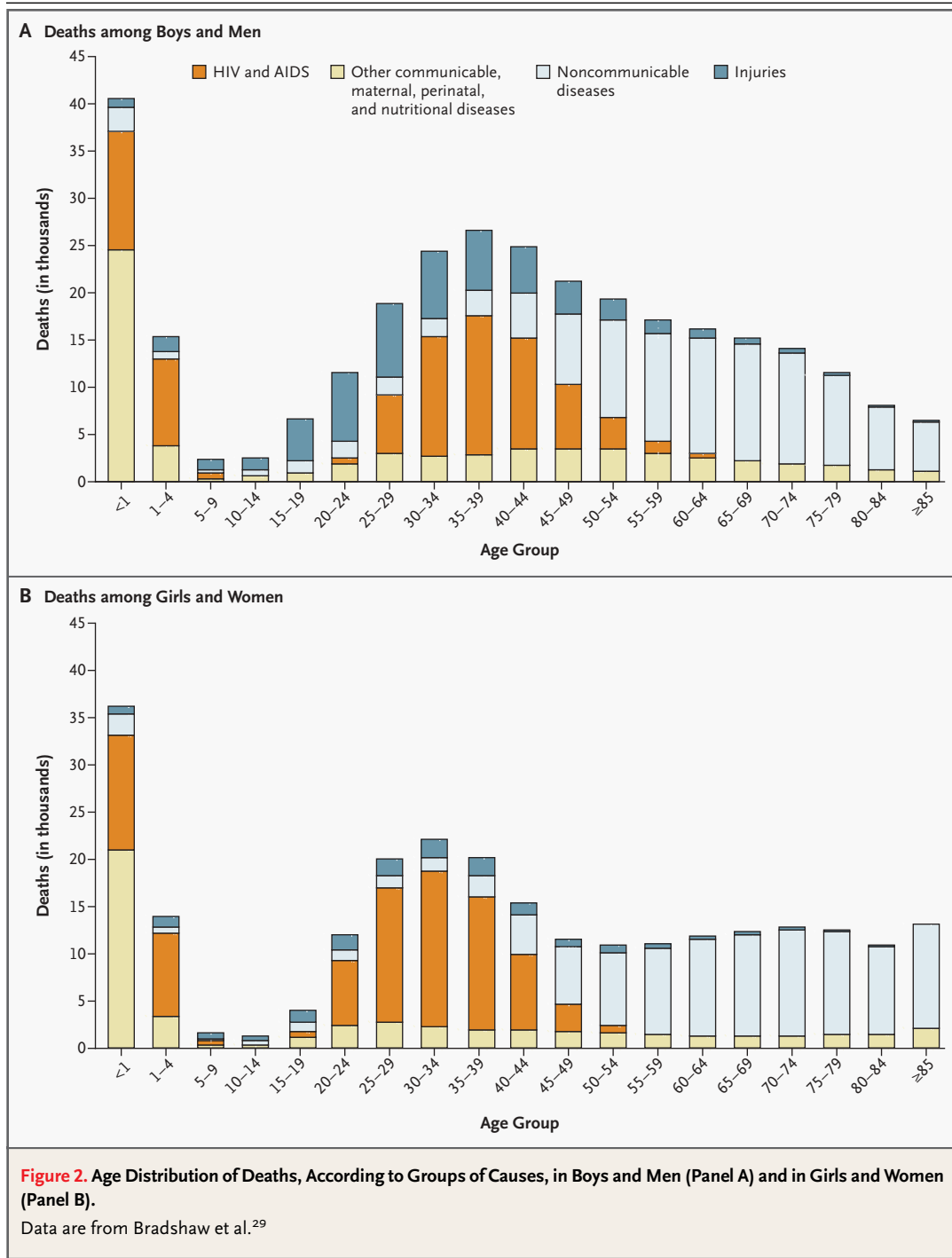
It is estimated that 40 to 50 percent of South Africa's workforce could die from AIDS over the next 10 years and that by 2005 there will be about 800,000 orphans under the age of 15 years.<sup>34</sup> The reduction in the workforce, the increased human and financial resources required to provide care for people living with AIDS, and the needs of orphans will profoundly affect all aspects of social and economic development and the lives and well-being of all.

##### HIV PREVENTION AND TREATMENT PROGRAMS

The approach of the South African government to HIV and AIDS has been resoundingly criticized within the country and internationally. It has been a great disappointment that a new, enlightened democratic government could so arrogantly deny the link between HIV infection and AIDS in the face of overwhelming evidence provided by the global scientific community.<sup>35</sup> The failure of the government to promote a prevention campaign over the past decade and an initial focus on ineffective treatments have contributed to sustained and pervasive denial of the existence of the HIV pandemic as well as perpetuation of the stigma associated with HIV and AIDS.<sup>36</sup>

Prevention of the transmission of HIV from mothers to children has been badly handled. The ability to reduce vertical transmission of HIV infection is one of the most important advances in the medical management of HIV infection. The poor prognosis for infants infected during delivery or infancy (among whom mortality is 91 percent by the age of eight years) provides a good reason to promote the widespread use of effective preventive measures.<sup>37,38</sup>

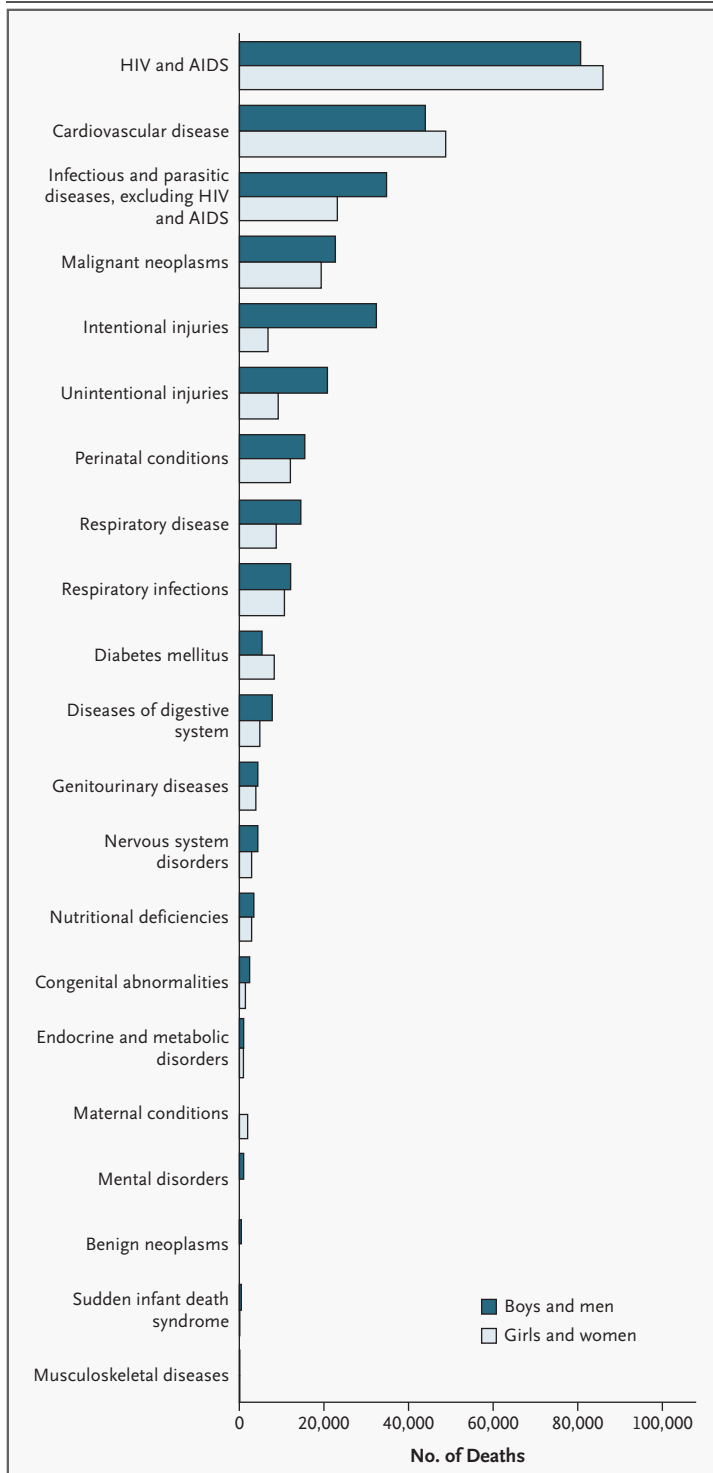
It is paradoxical that although the president, the



minister of health, and others in the government have long publicly denied the link between HIV and AIDS and failed to provide high-profile leadership on this issue,<sup>39</sup> the Ministry of Health has quietly formulated a comprehensive national strategic plan for HIV and AIDS that includes such vital compo-

nents as education, programs for the modification of sexual behavior, and treatment of opportunistic infections.<sup>40,41</sup>

Many obstacles frustrate the introduction and maintenance of comprehensive and effective programs for preventing the transmission of HIV and



**Figure 3. Deaths at All Ages, According to the Cause-of-Death Category, 2000.**  
Adapted from Bradshaw et al.<sup>29</sup>

for treating infected patients with antiretroviral drugs. Such obstacles include a high prevalence of high-risk sexual behavior, extensive sexual violence against children and unempowered women, constraints on financial and human resources, an inadequate health care infrastructure, resistance to adopting bottle feeding rather than breast-feeding, concern about the potential adverse effects of antiretroviral-drug therapy in poor and nutritionally vulnerable populations, concern about promoting drug resistance, and fear of not meeting constitutional requirements for equity.

Resistance to introducing antiretroviral treatment was understandable in the era of high-cost antiretroviral drugs and suspicion about the motives of the drug industry. In addition, powerful nations and multinational drug companies resisted efforts to import affordable generic drugs.<sup>42</sup> Welcome changes in the attitudes of all who hold a stake in this situation are rectifying it, thereby making possible the local production of generic drugs and further substantial reductions in prices.

There also may have been concern that a purely biomedical approach to addressing HIV and AIDS would deflect attention from such other important social issues as extreme poverty, poor sanitation and nutrition, dysfunctional families, a lack of recreational facilities, sexual promiscuity, and high crime rates. All of these problems are endemic in Africa, which has suffered greatly from global economic forces that have perpetuated and aggravated disparities in wealth and health,<sup>43-49</sup> and are relevant to the control of infectious diseases — as illustrated by the history of tuberculosis.<sup>50</sup> Finally, there is legitimate concern about the theft from public health systems of drugs used to treat HIV, the growth of crime syndicates,<sup>51</sup> and the large numbers of illegal immigrants in search of treatment, with potential deleterious effects on an antiretroviral-treatment program that is inadequately monitored.

None of these impediments should continue to delay progress. New information is generating deeper insights into factors that influence sexual activity in the young.<sup>52</sup> The government's inability to provide a comprehensive program should not prevent the implementation of such a program where an infrastructure exists. The example of the Western Cape, where almost 100 percent of eligible patients now have access to drugs that prevent

the transmission of HIV from mother to child, illustrates what can be achieved. High rates of compliance with formula feeding<sup>53</sup> and antiretroviral therapy<sup>54</sup> are also feasible. The efforts of the Treatment Action Campaign,<sup>55</sup> an activist nongovernmental organization, and the judgment of the Constitutional Court requiring the government to implement programs to prevent mother-to-child transmission<sup>56</sup> demonstrate the powerful role of civil society and the ways in which government can be held accountable. The work of former president Nelson Mandela in recent years, his foundation's support of research on HIV, and the work of satirist Pieter Dirk Uys, Archbishop Desmond Tutu, and many others on the issues surrounding HIV have been exemplary. Before the World Health Organization's "3 by 5 Program" to provide antiretroviral treatment to 3 million people by 2005 and President George W. Bush's announcement of an emergency fund for AIDS relief, international debate was polarized on the question of whether to give priority to treatment with antiretroviral drugs or to provide more cost-effective preventive medicine.<sup>57</sup> It is now clear that treatment and prevention programs bolster one another.<sup>58-60</sup> Experience at the Médecins sans Frontières clinic in Khayelitsha shows that the availability of treatment can transform denial and stigma to openness and responsibility and can facilitate effective public health measures.<sup>54</sup>

The government's commitment to providing treatment<sup>61</sup> and its recent decision to introduce antiretroviral-treatment programs<sup>62</sup> are a welcome relief from its long-standing vacillation and vindicate the efforts of activists and nongovernmental organizations. Successful implementation will be costly and socially complex. A total of \$1.7 billion has been budgeted for antiretroviral therapy over the next five years, and it is estimated that \$2.4 billion to \$3 billion will be required annually by 2010. Providing antiretroviral treatment to hundreds of thousands of people for many years, in addition to offering adequate integrated care for tuberculosis, malnutrition, and other associated diseases of poverty, presents major challenges in terms of cost, health care delivery, and other factors.<sup>63</sup> With testing for HIV currently available in only 56 percent of health care facilities and condoms available in only 87 percent of facilities,<sup>64</sup> recent proposals for strengthening the existing health care system and

ensuring equity in the implementation of antiretroviral treatment are salutary.<sup>65</sup>

#### **EXPANDING THE HEALTH CARE BUDGET IN THE FACE OF A NATIONAL HEALTH EMERGENCY**

Given the current expenditures on health in the public sector and the overwhelming problems that the government faces, sustained treatment of HIV infection for hundreds of thousands of people is a formidable challenge. Brazil's example demonstrates the potential to make treatment progressively available in middle-income countries.<sup>66</sup> However, Brazil's annual per capita GDP (\$4,400) is greater than South Africa's (\$3,200), and only 0.7 percent of Brazil's adult population is positive for HIV, as compared with more than 20 percent of South Africa's population.

Several options are available for increasing the budget for the prevention and treatment of HIV and AIDS, with differing social and ethical implications and justifications. Priorities could be changed and resources shifted within the existing public health budget, or resources could be shifted within the overall budget — for instance, from the military budget to the health care budget. The allocation of \$5.73 billion for military equipment has come under severe criticism. This is the best potential local source of additional funding and has the lowest opportunity costs. Borrowing money from the International Monetary Fund or the World Bank would prevent immediate opportunity costs but incur a growing debt burden, with major adverse social effects. Reduction of the annual burden of paying \$7 billion in interest on debt could release considerable resources for expenditures on health and social services, but this scenario is unlikely. Raising personal income tax by 5 percent would generate only about \$0.67 billion annually, and a 5 percent increase in corporate taxes would raise another \$0.5 billion annually.

Much hope also rests on the acquisition of external resources from the U.S. Emergency Plan for AIDS Relief, the World Bank Multisector HIV/AIDS Project, the Global Fund to Fight AIDS, Tuberculosis, and Malaria, the Clinton Presidential Foundation, and other sources. Developing partnerships with and maximizing the benefit from these sources represent a major challenge. However, recruiting and training many more health care workers, improving the health care infrastructure, and sus-

taining the required financial resources over the longer term are likely to be even more difficult.

#### MAKING SUSTAINABLE PROGRESS IN HEALTH

The formidable scientific complexity inherent in understanding the pathobiology of HIV and AIDS and in designing vaccines, microbicides, and effective treatments is well recognized by the scientific community.<sup>67</sup> Local scientific work toward production of a vaccine has strong national and international support.<sup>68</sup> Many ethical challenges to clinical research are increasingly being acknowledged.<sup>69-71</sup> Two local institutions have received generous grants from the National Institutes of Health's John E. Fogarty International Center for educational programs to improve the capacity of ethics review in developing countries.<sup>72,73</sup>

It is less well recognized and acknowledged that complex global economic forces that perpetuate poverty have magnified the burden and impact of HIV and AIDS in poor countries and pose the largest threat to ambitious plans for prevention and treatment. Medical advances and a biomedical approach to health will make necessary contributions to the improvement of health both in South Africa and internationally. However, these contributions will not be sufficient. The emergence and spread of new and recrudescing multidrug-resistant infectious diseases is arguably the single greatest worldwide threat of the 21st century.<sup>74,75</sup> The impact of global economic and social forces on health and the need to address them are acknowledged in recent reports from the U.S. Council on Foreign Relations<sup>75,76</sup> and in a forthcoming report from the Institute of Medicine on the challenges of providing antiretroviral treatment in settings where resources are constrained. Since philanthropy cannot continue indefinitely, it will be vital to address the problems of debt that can never be repaid, trade in weapons, unfair global trading rules, and other upstream determinants of health. This will help us to cope with HIV and AIDS in the long term, ameliorate poverty, and reduce the threat of more devastating future plagues.<sup>75,77-79</sup>

#### THE FUTURE

The evolution of improved health care is both a crucially important aspect of South Africa's development and an indicator of whether the country's political transition can be followed by a successful social transition. In its justified early focus on equi-

table access to primary care and on social determinants of health, the new government has made two major errors that will have adverse long-term consequences: denying the link between HIV and AIDS and allowing the severe erosion of tertiary care in the public sector. It is possible that these errors are linked by an ambivalence toward science and the role of modern health care in the face of poverty. The example of leadership on HIV and AIDS in such countries as Brazil, Uganda, and Botswana has long been evident and could have been emulated. As previously suggested, differentiation in the training and research functions of medical schools, with the preservation of some efficient tertiary institutions, could have served South Africa's interests more effectively than the attempt to have all medical schools emulate the same model.<sup>25</sup>

In reflecting on the first decade of South Africa's transition to democracy, it is necessary to strike a fair balance between justified criticism and deserved praise for a government faced with the overwhelming burden of a major political transformation and the simultaneous challenges posed by a devastating disease.<sup>80</sup> It is also fair to conclude that the improvement of health in South Africa will depend both on enlightened, vigorous reconsideration of many local policies and practices and on a reshaping of the global forces that affect the health of whole populations.

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From the Department of Medicine, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa. Address reprint requests to Dr. Benatar at the University of Cape Town, Observatory, Cape Town 7925, South Africa, or at sbenatar@uctgsh1.uct.ac.za.

1. Van Rensburg HCJ, Benatar SR. The legacy of apartheid in health and health care. *S Afr J Sociol* 1993;24:99-111.
2. Terreblanche SJ. A history of inequality in South Africa, 1652-2002. Pietermaritzburg, South Africa: University of Natal Press, 2002.
3. Wilkinson RG. Unhealthy societies: the afflictions of inequality. London: Routledge, 1996.
4. Kawachi I, Kennedy BP. The health of nations: why inequality is harmful to your health. New York: New Press, 2002.
5. South Africa at a glance. Craighall, South Africa: Editors, 2001-2002.
6. Naylor CD. Privatisation of South African health services — are the underlying assumptions correct? *S Afr Med J* 1987;72:673-8.
7. Benatar SR. A unitary health service for South Africa. *S Afr Med J* 1990;77:441-7.
8. Sait L. Health legislation. In: South African health review 2001. Durban, South Africa: Health Systems Trust, 2001:1-16. (Also available at <http://www.hst.org.za/sahr>.)

9. Barron P, Asia B. The district health system. In: South African health review 2001. Durban, South Africa: Health Systems Trust, 2001:17-48. (Also available at <http://www.hst.org.za/sahr>.)
10. Van Rensburg HCJ, Pelser AJ. Transformation of the South African health care system. In: Van Rensburg HCJ, ed. Health and health care in South Africa. Pretoria, South Africa: Van Schaik (in press).
11. Pillay Y, Marawa N, Proudlock P. Health legislation. In: South African health review 2002. Durban, South Africa: Health Systems Trust, 2002:3-12. (Also available at <http://www.hst.org.za/sahr>.)
12. National Health Bill draft. (Accessed June 11, 2004, at <http://www.doh.gov.za/docs/bills/nhb.htm>.)
13. Goudge J, Cornell J, McIntyre D, Mbatsha S. Private sector financing. In: South African health review 2001. Durban, South Africa: Health Systems Trust, 2001:69-82. (Also available at <http://www.hst.org.za/sahr>.)
14. Van Rensburg HCJ. Health and health care in South Africa in transition: a macro perspective. *Acta Acad* 1999;31:1-26.
15. Doherty J, Thomas S, Muirhead D, McIntyre D. Health care financing and expenditure. In: South African health review 2002. Durban, South Africa: Health Systems Trust, 2002:13-39. (Also available at <http://www.hst.org.za/sahr>.)
16. Doherty J, McLeod H. Medical schemes. In: South African health review 2002. Durban, South Africa: Health Systems Trust, 2002:41-66. (Also available at <http://www.hst.org.za/sahr>.)
17. Pretorius E. Complementary/alternative and traditional health care in South Africa. In: Van Rensburg HCJ, ed. Health and health care in South Africa. Pretoria, South Africa: Van Schaik (in press).
18. Moorman J. Public-private partnerships. In: South African health review 2001. Durban, South Africa: Health Systems Trust, 2001:83-100. (Also available at <http://www.hst.org.za/sahr>.)
19. Mbatsha S, McIntyre D. Financing local government health services. In: South African health review 2001. Durban, South Africa: Health Systems Trust, 2001:49-68. (Also available at <http://www.hst.org.za/sahr>.)
20. Intergovernmental fiscal review 2003. Pretoria, South Africa: National Treasury Republic of South Africa, 2003:75-7. (Also available at <http://www.treasury.gov.za>.)
21. Intergovernmental fiscal review 2003. Pretoria, South Africa: National Treasury Republic of South Africa, 2003:79. (Also available at <http://www.treasury.gov.za>.)
22. Bateman C. SA's doctors take to the streets. *S Afr Med J* 2004;94:144-6.
23. Blecher M. Downsizing of a provincial department of health — causes and implications for fiscal policy. *S Afr Med J* 2002;92:449-55.
24. Benatar SR, Fleischer TE, Peter JC, Pope A, Taylor A. Treatment of head injuries in the public sector in South Africa. *S Afr Med J* 2000;90:790-3.
25. Benatar SR. Health care reform in the new South Africa. *N Engl J Med* 1997;336:891-5.
26. Green J, Ancer J. Crisis hits Jo'burg hospitals. *Star*. November 3, 2003:1.
27. McIntyre D, Muirhead D, Gilson L, et al. Geographic patterns of deprivation and health in South Africa: informing public resource allocation strategies. (Accessed June 11, 2004, at <http://www.eldis.org/static/DOC12226.htm>.)
28. Abdool Karim SS. Medical education after the first decade of democracy in South Africa. *Lancet* 2004;363:1395.
29. Bradshaw D, Groenewald P, Laubscher R, et al. Initial burden of diseases estimates for South Africa, 2000. *S Afr Med J* 2003;93:682-8.
30. Dedicato M, Grimwade K, Newton R, Gilks C. Changes in the patient population attending a primary health care clinic in rural South Africa between 1991 and 2001. *S Afr Med J* 2003;93:777-8.
31. Floyd R, Reid RA, Wilkinson D, Gilks CF. Admission trends in a rural South African hospital during the early years of the HIV pandemic. *JAMA* 1999;282:1087-91.
32. Bateman C. Health care workers cracking under HIV/AIDS workload. *S Afr Med J* 2003;93:734-6.
33. Shisana O, Hall E, Maluleke KR, et al. The impact of HIV/AIDS on the health sector. Pretoria, South Africa: South African Department of Health, 2003.
34. LoveLife 2000. The impending catastrophe: a resource book on the merging HIV/AIDS epidemic in South Africa. (Accessed June 11, 2004, at <http://www.lovelife.org.za>.)
35. Makgoba MW. Politics, the media and science in HIV/AIDS: the perils of pseudoscience. *Vaccine* 2002;20:1899-904.
36. Brown L, Macintyre K, Trujillo L. Interventions to reduce HIV/AIDS stigma: what have we learned? *AIDS Educ Prev* 2003;15:49-69.
37. Söderlund N, Zwi K, Kinghorn A, Gray G. Prevention of vertical transmission of HIV: analysis of cost effectiveness of options available in South Africa. *BMJ* 1999;318:1650-6.
38. Abdool Karim S, Abdool Karim Q, Adhikari M, et al. Vertical HIV transmission in South Africa: translating research into policy and practice. *Lancet* 2002;359:992-3.
39. Benatar SR, Van Niekerk A, Landman W, Fleischer T. Laying down AIDS gauntlet: there are some things that must be accepted so that HIV/AIDS can be defeated. *Sunday Independent*. April 7, 2002:7.
40. Department of Health. HIV/AIDS and STD strategic plan for South Africa: 2000-2005. (Accessed June 11, 2004, at <http://www.gov.za/documents/2000/aidsplan2000.pdf>.)
41. Kenyon C, Heywood M, Conway S. Mainstreaming HIV/AIDS: progress and challenges in South Africa's HIV/AIDS campaign. In: South African health review 2001. Durban, South Africa: Health Systems Trust, 2001:161-83. (Also available at <http://www.hst.org.za/sahr>.)
42. Bond P. Globalization, pharmaceutical pricing, and South African health policy: managing confrontation with U.S. firms and politicians. *Int J Health Serv* 1999;24:765-92.
43. United Nations Development Program. Human development report 2002: deepening democracy in a fragmenting world. New York: Oxford University Press, 2002.
44. Benatar SR. South Africa's transition in a globalising world: HIV/AIDS as a window and a mirror. *Int Aff* 2001;77:347-75.
45. Benatar SR. The HIV/AIDS pandemic: a sign of instability in a complex global system. *J Med Philos* 2002;27:163-77.
46. The history of democratic capitalism. In: Terreblanche SJ. A history of inequality in South Africa 1652-2002. Pietermaritzburg, South Africa: University of Natal Press, 2002:477-94.
47. Katz A. AIDS, individual behaviour and the unexplained remaining variation. *Afr J AIDS Res* 2002;1:125-42.
48. Benatar SR. Ethics and tropical diseases: some global considerations. In: Cook GC, Zumla AI, eds. *Manson's tropical diseases*. 21st ed. Edinburgh: Elsevier Science, 2003:85-93.
49. Schwab P. Africa: a continent self-destructs. New York: Palgrave, 2001.
50. Gandy M, Zumla A, eds. The return of the white plague: global poverty and the new tuberculosis. London: Verso Press, 2003.
51. Shaw M. West African criminal networks in south and southern Africa. *Afr Aff (Lond)* 2002;101:291-316.
52. Eaton L, Flisher AJ, Aaro LE. Unsafe sexual behaviour in South African youth. *Soc Sci Med* 2003;56:149-65.
53. Hildebrand K, Goemaere E, Coetzee D. The prevention of mother-to-child HIV transmission programme and infant feeding practices. *S Afr Med J* 2003;93:779-81.
54. Antiretroviral therapy in primary health care: experience of the Khayelitsha programme in South Africa: case study. Geneva: World Health Organization, 2003.
55. Power S. The AIDS rebel. *The New Yorker*. May 14, 2003:54-67.
56. The full judgement in the high court of South Africa (Transvaal provincial division). (Accessed June 11, 2004, at <http://www.tac.org.za/Documents/MTCTCourtCase/mctctjudgement.doc>.)
57. Marseille E, Hofmann PB, Kahn JG. HIV prevention before HAART in sub-Saharan Africa. *Lancet* 2002;359:1851-6.
58. Consensus statement on antiretroviral treatment for AIDS in poor countries, by individual members of the faculty of Harvard

- University (signatories at end). March 2001. (Accessed June 11, 2004, at [http://www.hsph.harvard.edu/bioethics/pdf/consensus\\_aids\\_therapy.pdf](http://www.hsph.harvard.edu/bioethics/pdf/consensus_aids_therapy.pdf).)
59. Clinton WJ. Turning the tide on the AIDS pandemic. *N Engl J Med* 2003;348:1800-2.
60. Goemaere E, Ford N, Benatar SR. HIV/AIDS prevention and treatment. *Lancet* 2002;360:86-7.
61. Martinson N, Radebe B, Mntambo M, Violari A. Antiretrovirals. In: *South African health review 2002*. Durban, South Africa: Health Systems Trust, 2002:235-55. (Also available at <http://www.hst.org.za/sahr>.)
62. Operational plan for comprehensive HIV and AIDS care, management and treatment for South Africa, 19 November 2003. (Accessed May 26, 2004, at <http://www.gov.za/reports/2003/aidsplan/report.pdf>.)
63. Barron P. Roll-out no walkover. *Mail & Guardian*. August 19, 2003:19.
64. Day C, Gray A. Health and related indicators. In: *South African health review 2001*. Durban, South Africa: Health Systems Trust, 2001:283-340. (Also available at <http://www.hst.org.za/sahr>.)
65. Schneider H, Coetzee D. Strengthening the health care system and ensuring equity in the widescale implementation of an antiretroviral therapy programme in South Africa. *S Afr Med J* 2003;93:772-3.
66. Galvao J. Access to antiretroviral drugs in Brazil. *Lancet* 2002;360:1862-5.
67. Fauci AS. The AIDS epidemic: considerations for the 21st century. *N Engl J Med* 1999;341:1046-50.
68. South African AIDS Vaccine Initiative home page. (Accessed June 11, 2004, at <http://www.saavi.org.za/>.)
69. Benatar SR. Reflections and recommendations on research ethics in developing countries. *Soc Sci Med* 2002;54:1131-41.
70. Berkley S. Thorny issues in the ethics of AIDS vaccine trials. *Lancet* 2003;362:992.
71. Guidelines on ethics for medical research. Book 5. Guidelines on ethics for HIV preventive vaccine research. Cape Town: South African Medical Research Council (in press).
72. IRENSA (International Research Ethics Network for Southern Africa) home page. (Accessed June 11, 2004, at <http://www.irensa.org>.)
73. SARETI (Southern Africa Research Ethics Training Initiative) home page, 2003. (Accessed June 11, 2004, at <http://www.up.ac.za/academic/medicine/shsph/sareti.htm>.)
74. Benatar SR. The coming catastrophe in international health: an analogy with lung cancer. *Int J* 2001;56:611-31.
75. Kassalow JS. Why health is important to US foreign policy. New York: Council on Foreign Relations, Milbank Memorial Fund, 2001.
76. Addressing the HIV/AIDS pandemic: a U.S. global AIDS strategy for the long term. New York: Council on Foreign Relations, Milbank Memorial Fund, 2004.
77. Building a global community: globalization and the common good. Copenhagen: Royal Danish Ministry for Foreign Affairs, 2000.
78. Benatar SR. Global disparities in health and human rights: a critical commentary. *Am J Public Health* 1998;88:295-300.
79. Benatar SR, Daar AS, Singer PA. Global health ethics: a rationale for mutual caring. *Int Aff* 2003;79:107-38.
80. Sparks A. Beyond the miracle: inside the new South Africa. Johannesburg: Jonathan Ball, 2003.

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