

Part II. Health and economic context

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This overview of South Africa's demographic profile, economic development and health system provides the context in which to view the situation of antibiotic access and resistance. It presents information on national health policy and governance, infrastructure and human resources. The presence and utilisation of these features within the health system are discussed in relation to access to essential medicines, with a particular focus on antibiotics.

Demographics and economy

Demographic and social context

With an estimated population of 49.9 million, South Africa is a nation of diverse cultures, languages and religious beliefs.¹ Approximately 61% of the population live in urban areas (2008) compared with the regional urbanisation levels of 37%. The median age is a relatively young 24 years (2008), similar to that of other middle-income countries such as Mexico (26) and Brazil (29). Population growth has declined, dropping from 2.4% in 1994 to 1.06% in 2009. This reflects the decreasing total fertility rate in the country, which went from 6.7 births per woman in the late 1960s to about 2.4 in 2010, and was among the lowest total fertility rates reported for the whole of sub-Saharan Africa.

Decreasing fertility levels are also mirrored in the age profile of the population. Unlike most countries in the region, South Africa faces a high ageing index, defined as the number of people aged 65 and over per 100 youths under the age of 15. The index varies considerably, however, when disaggregated by population group: it is highest among whites, moderate among Indians and lowest among the black population.

South Africa instituted a 'no-fee' school system in the last decade. As a result, the percentage of adults without any schooling has dramatically fallen from 18% in 2001 to 7% in 2010. There remains, however, a high degree of inequality in access to education by region and racial group. Housing conditions vary as well. Although 83% of households are connected to electricity nationally, households relying on wood or paraffin remain high in Limpopo (54%) and the Eastern Cape (41%). Most households have access to piped water, with the national average at 89% in 2009. The Eastern Cape, however, lags with only 75% access.

Economic context

South Africa has achieved a high level of economic stability since the transition to a constitutional democracy in 1994. It has the largest economy in Africa, contributing 40% of the continent's gross domestic product (GDP) and exerting significant influence on trade and investment on the continent.² Per capita gross national income is relatively high at US\$5 786 (2009) and the annual growth rate in GDP stood at 3% at the close of 2010.³

As in other African countries, however, poverty remains a major challenge. Income is very skewed, and nearly half the population lives in developing-country conditions, despite average GDP placing South Africa among the middle-income countries.² At 25%, unemployment is high, and the poor have limited access to economic opportunities.⁴ Addressing poverty has been a priority of the government since the end of apartheid, and commitment to achieving the Millennium

Development Goals (MDGs) and the country's own articulated goals is strong, although progress has been mixed.⁵

With the launch of the Accelerated and Shared Growth Initiative for South Africa (ASGISA) in 2006, the government adopted a comprehensive approach to meet economic challenges through a number of programmes that emphasise employment, land reform and agriculture revival.⁶ Further, the government combines cash transfers with social wage packages that include clinic-based free primary health care for all; compulsory education for children aged 7 - 13 years; provision of subsidised housing, electricity, water, sanitation, trash removal and transportation; and transfer of township housing stock to those who have been resident in these properties for a set minimum period of time.⁷

Of these approaches, social grants have had the most impact on both health outcomes and poverty indicators. Old-age pensions (the older persons' grant) were shown to dramatically improve household food security, and child support grants resulted in better nutritional status of children than those in households not receiving the grants. Conversely, the grant system has also led to negative unintended consequences. Reports of patients with tuberculosis (TB) opting to remain infectious and sell their sputum to TB-negative individuals seeking disability grants are common. As a result, not only is the system abused, but sick people also go untreated and can spread the disease to others. Finally, given the ability of illness to absorb the value of social grants, other strategies to complement this approach have been proposed.

Absolute poverty

Economic growth in the post-apartheid period and investments in human development have enabled a measurable decline in income poverty.⁴ The population living on less than US\$1 per day was more than halved between 2000 and 2006, from 11% to 5%.⁷ The first MDG of halving poverty was achieved. However, when the highest poverty line set by the MDGs is used, i.e. US\$2.50 a day, the proportion of South Africans below the threshold is considerable, at 35% (2006).

Uncertainty about the progress on poverty reduction goals exists when the definition of poverty is expanded beyond income, as found in the 2009 United Nations 'Rethinking Poverty' report.¹ Using data from the World Bank, this report found that 21% of the population was living on less than US\$1.25 per day, compared with 10% found in the 2010 South Africa MDG report. Additionally, there are substantial differences in national and official estimates of the baseline and progress towards poverty reduction targets, affecting interpretations of whether or not targets are likely to be achieved.

Income inequality

Despite the impressive economic performance, inequality has increased as measured by the 'Gini coefficient' (a value of 0 expressing total equality and a value of 1 maximal inequality).⁴ From 1995 to 2008 inequality rose from 0.64 to 0.67. The Southern Africa Labour and Development Research Unit observed that the gap between the rich and poor within each racial group is widening in the country, and the Gini coefficient has risen in all groups.⁵

Of the black population, 93%, and only 3% of the white population, earned income in the lowest decile. In the top income decile, 73% of income goes to the white population and 17% to blacks.

Health system

Health indicators

South Africa is a paradox of high health expenditure and supportive policies coupled with persistently poor health outcomes. The country has four concurrent epidemics, a health profile found only in the Southern African Development Community region.⁸ These include HIV/AIDS, violence and injuries, especially violence against women, poverty-related illnesses, and a growing burden of non-communicable diseases. Although the country is classified as 'middle-income' in terms of the economy, its health outcomes are often worse than those of some low-income states. Life expectancy is low at 53/55 (male/female) (2010) and the child mortality rate is 104 deaths per 1 000 live births (2007).¹ With a maternal mortality rate of 625 deaths per 100 000 live births (2007), South Africa was identified by the 'Countdown to 2015 Initiative' as one of the 10 countries with least progress towards achieving related MDGs.^{1,9} By most estimates, South Africa's per capita health burden is the highest of any middle-income country in the world, the brunt of which is carried by the poorest families.^{1,8}

Malnutrition, another important health indicator, has increased since 1994. According to the 2010 South African MDG report, 10% of children under the age of 5 years were underweight in 2005, compared with 9% in 1994.¹ Stunting (an indication of chronic malnutrition) afflicts 27% of young children. According to the Global Hunger Index, South Africa's nutritional situation was the same in 2010 as in 1990 and, compared with other countries in sub-Saharan Africa, is worse than expected for the country's income level.

The political and social history of South Africa has profoundly affected the country's health outcomes and current health policies.⁸ In particular, the situation stems from a history of racial and gender discrimination, the migrant labour system, and vast income inequalities. In the late 20th century, low wages, overcrowding, inadequate sanitation, malnutrition and stress caused the health of the black population to deteriorate. These factors continue to be linked with the high burden of poverty-related diseases. Income inequalities have also influenced problems of crime and violence. Table I summarises the country indicators.

Table I. Economic development and health indicators

Population (2010)	49 991 470
Population growth rate (2009)	1.06%
Life expectancy (2009)	53 years (male), 55 years (female)
Gross national income per capita (2009)	US\$5.79
Child (under 5 years) mortality rate (2007)	104/1 000
Maternal (15 - 49 years) mortality rate (2007)	625/100 000
Population living in poverty (<US\$1 per day) (2006)	5%
Population with access to clean water (2009)	89%
Adult (15+) literacy rate (2007/8)	82.5%

Source: World Bank, Country Brief, South Africa, September 2010⁴

Current health policies

According to the *South African Health Review*, the current health leadership in the country is committed to a substantial overhaul of the public health sector to address the complex burden of disease, improve health outcomes and increase access to services.¹⁰ As

evidence of this commitment, Parliament tabled the National Health Act and the National Health Amendment and Medical Schemes Amendment Bill in 2008. However, both eventually lapsed when Parliament closed before a decision on the changes was made. Further, despite the enabling legal and fiscal environment that exists to facilitate government health goals, there is fragmentation and lack of co-ordination in the various policy initiatives, which have been poorly managed and lack transparency and public participation.

Several initiatives exist with potential to improve antibiotic management, from prescribing and access to surveillance for bacterial disease and resistance. These include the Health Sector Road-map, integrated support teams, and the establishment of a ministerial task team on national health insurance.

Health sector road-map

In 2008, the Health and Education Committee of the National Executive Council of the African National Congress (ANC) commissioned a 'Health Road-map'. This was in response to national concerns that South Africa, unlike most emerging economies, had witnessed profound health deterioration since the late 1990s. Several meetings of working groups were convened between August and September 2008, with teams producing background documents on the health status of the population and a final report with a '10-point plan'. The road-map was intended to guide government health policy and identify opportunities to improve access to quality health care.

A review of government strategic plans for 2009 - 2013 suggests that a number of the Road-map's recommendations have been adopted. It is unclear, however, what remains to be addressed or how these recommendations have improved access to medicines and services in practice.

Integrated support teams

The Ministry of Health established integrated support teams (ISTs) in 2009. They were intended to quantify the waste and overspending in provincial health departments that had allegedly contributed to a halt in antiretroviral treatment in the Free State. The ISTs made a number of recommendations on finance, service delivery, human resources, information management, medical supplies and technology, which were given to the Minister of Health and the National Health Council.

Progress on the recommendations is slow. While some reports indicate that a number of provinces have incorporated the recommendations into their annual performance plans, others express concerns that, without improving management systems, initiatives will not lead to expected results.

Advisory Committee on National Health Insurance (NHI)

In 2007, the ANC resolved to 'reaffirm the implementation of national health insurance'. By 2009, a broad outline of the NHI was available for debate and discussion, and an Advisory Committee on NHI was established to support the Minister in developing policy and legislation for the implementation of NHI.

Unfortunately, there has been little transparency in the functioning or outputs of the advisory team. Currently, South Africa is still without a detailed plan for NHI.

Organisation and distribution of services

At the end of the apartheid era, South Africa was not structured to serve the health needs of the entire population adequately. The health system inherited by the newly elected government was well resourced compared with other middle-income countries, with total health care expenditure at 8.5% of GDP.⁸ However, half the financial and human

resources were allocated to the private sector. The vast majority of the public – blacks – could not access health services and the centralised nature of the health system resulted in a total absence of medical facilities and providers in the more rural regions. In addition to the geographical inequalities in the distribution of infrastructure, there were large inefficiencies in the distribution of resources, of which the majority went to hospitals. Academic and tertiary level hospitals alone accounted for 44% of total public sector health care spending. Only 11% of spending was devoted to non-hospital primary care services.

Structure of the South African health sector

1. The National Department of Health is responsible for national health policy.
2. Nine provincial departments of health are responsible for developing provincial policy within the framework of national policy and public health service delivery.
3. Three tiers of hospital: tertiary, regional, and district.
4. The primary health care system – a mainly nurse-driven service in clinics – includes district hospital and community health centres.
5. Local government is responsible for preventive and promotive services.
6. The private health system consists of general practitioners and private hospitals, with care in private hospitals mostly funded through medical insurance schemes. In 2008, 70% of private hospitals lay in 3 of the country's 9 provinces, with 38% located in Gauteng (Johannesburg and Pretoria) alone.

Source: Coovadia *et al.*⁸

Today, the health care system still comprises both public and private sectors, with a shift in emphasis to primary health care. Public sector health services are organised according to a hierarchy of clinics and hospitals with care provided through a referral system.¹¹ Primary health care clinics are the first point of contact and are usually staffed by nurses and community health workers. Basic primary services are freely available for maternal and child health needs. If medical needs exceed the capacity of a clinic, nurses refer patients to district hospitals, staffed by local medical doctors and nurses. Regional hospitals (the next level of the referral chain) employ specialists, and tertiary hospitals are tasked with more advanced surgical services. At the apex, national central hospitals provide highly specialised referral units. With primary health care concentrated in urban areas, however, substantial parts of the rural population lack access to clinics, and are therefore left without access to the hospital referral system. Many of South Africa's poor continue to rely on the country's approximately 300 000 traditional healers and traditional medicines.

Higher earners and foreigners working in the country access health services through the private sector, funded largely through medical insurance. The number of private hospitals has grown in the past years, topping 200 in 2005. For medical conditions not requiring hospitalisation, patients can visit the practices of family physicians (general practitioners).

Financing

In the past two decades, the government transformed a disparate homeland system into an integrated, comprehensive national system, driven by the need to redress inequities and provide critical services to disadvantaged areas.⁸ Despite these improvements, however, the

public sector remains under-resourced and inequities persist in health expenditure; 55 - 60% of total health spending occurs in the private sector by less than 15% of the country's population, mirroring apartheid-era patterns.¹² Government expenditure on health care for the uninsured has been stagnant for the past 6 years, despite the additional burden on public services from the HIV epidemic. Of the government's total budget, health care in the public sector consumes 11%, which is allocated and spent by the 9 provinces. How resources are then used and the standard of care delivered, varies by province. Inefficiencies in the distribution of state resources have resulted in notably higher quality care in the wealthier provinces of Western Cape and Gauteng, and have left many patients without necessary services.¹¹ Health spending as a percentage of the GDP stands at 8.6% – less than what is required to meet the Abuja Declaration target of 15%.¹²

The market for private health insurance (also referred to as medical schemes) has slowly grown and covers the majority of spending in the private sector.¹¹ Out-of-pocket spending, however, has increased in the form of co-payments and higher deductibles for consultations and medicine. Schemes often require up-front payments to providers, which are then claimed back by the patients through the insurance company. This short-term financial burden is frequently more than patients can afford. At present, there is no public sector national health insurance system, although plans are in place to introduce a payroll tax to bring more salaried workers into low-cost private schemes. Discussions about a universal health insurance are ongoing, though progress is unclear.

Human resource challenges

Insufficient human resources are the major challenge facing the South African health system. A 2008 report by the South African Department of Labour concluded that 'it is clear that there is a shortage of doctors in South Africa in both absolute and relative terms', and recommended 'urgent measures to recruit doctors and other health professionals back to South Africa'.¹³ The private sector, which pays higher salaries and provides more competitive benefits, employs 79% of the country's doctors and 66% of the nurses.⁸ Talented medical personnel are often lured overseas, where pay and working conditions are superior.¹¹ A 2006 study by the Center for Global Development found that 21% of doctors trained in South Africa were working abroad. The falling nurse-to-population ratio, from 149 public sector registered nurses per 100 000 population in 1998 to 110 per 100 000 population in 2007, is the result of the closure of nursing colleges in the late 1990s, migration from public to private sector and to jobs abroad, and HIV/AIDS, which affects 16% of the nursing profession. The staffing crisis is especially critical at the district level and persists despite 60% of the health budget being spent on human resources.⁸

Regarding antibiotic management, the human resource situation is dire. In 2007, there were insufficient personnel to render adequate pharmaceutical services in South Africa, with 25.5 pharmacists per 100 000 inhabitants. This equates to about 10 000 pharmacists in the entire country, with only 11% employed by the public sector nationwide and 40% of all pharmacists concentrated in Gauteng's private sector. Although registered pharmacists had increased to 12 813 in 2010, this was barely enough to maintain the same pharmacist/population ratio as in 2007, when accounting for population growth. The shortage of qualified pharmaceutical personnel is worsened by a yearly loss of 30% of pharmacy graduates to other countries, undermining the delivery of pharmaceutical care and the monitoring of rational drug use.¹⁴

Access to essential medicines and health care services

Coverage of health services in South Africa could be described as relatively good, as the majority of health care funding occurs through prepayment mechanisms.¹⁵ Out-of-pocket payments only account for 14% of total health care funding, of which over 60% is made by medical insurance members in the form of co-payments, deductibles, or the cost of a service not covered by the insurance provider. About 80% of the population has access to the essential package of interventions within an hour's travel distance of a health facility based on any mode of transport available.

Despite these figures, there is room for improvement. While there is an extensive breadth of coverage 'on paper', many South Africans in reality cannot access health services when needed. While primary health care services are free of charge at point of service, distances to facilities and inability to cover transport costs to reach facilities that are not within a reasonable walking distance are particular problems. Other access constraints include limited facility working hours, insufficient staff, lost income as a result of taking time off work to wait for long periods at clinics, lack of availability of medicines, and poor service quality.

Overall, most children in all provinces are dependent on the public sector, where 7 - 8% live more than 30 minutes' travel distance from a primary health care clinic.¹⁶ In the public sector, there is 1 paediatrician for every 40 180 children, though this ratio ranges from 1:9 856 in Western Cape to 1:1.1 million in Mpumalanga.

Although most children visit their local primary health care clinic at least 3 times a year, this is below the target number of 5 well-child visits per annum during the first 5 years of life. The health promotion value of these visits is also questionable, as immunisation coverage hovers around 80% (except in Western Cape) and the measles drop-out rate is close to 20%.

For women, the coverage gap in maternal health services is low by developing-country standards, with only 8% of women not attending antenatal care and 9% not delivering with a skilled birth attendant.¹⁷ However, detailed local studies found much higher rates of home births, of 21 - 64%, depending on location. Prevention of mother-to-child transmission (PMTCT) is available at 90% of facilities, with 66% uptake in 2007.

There is a significant quality gap in the provision of critical services. To address the issue of sub-standard care, the Department of Health developed a quality of care policy.¹⁸ The statement emphasised that scarcity of resources in the public sector and overuse of resources in the private sector could undermine quality care. In 2005, the revised Health Charter for the Republic of South Africa conceded that for a number of years there had been concerns about the attitudes of health personnel towards patients and that the health

care system must become more patient-centred.¹⁹ Furthermore, it was noted that, although most health care personnel were trying to deliver the best possible services under suboptimal circumstances, it was just this lack of respect for human dignity and of patient needs by a minority that remained an obstacle to achieving quality health services. The Minister of Health, in the release of the charter, stressed that the statutory health councils should play a meaningful role in instilling a sense of discipline and pride in the professions for which they are responsible, so maintaining a set of standards.

Demand side-issues are another component of evaluating access to health care. Currently, there is limited information on community-level dynamics influencing utilisation of health care services.^{15,17} In the report of the National Committee on Confidential Enquiries into Maternal Deaths, patient-related demand was identified in 46% of maternal deaths reported in 2005 - 2007. A separate study assessing utilisation of maternal health services in Western Cape, Eastern Cape and KwaZulu-Natal found that distances to facilities and lack of transport were the biggest problems, but lack of quality care and poor provider communication with patients were also factors of low utilisation.

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