

SOUTH AFRICAN NATIONAL BURDEN OF DISEASE STUDY ESTIMATES OF PROVINCIAL MORTALITY 2000 GAUTENG PROVINCE

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Burden of Disease
Research Unit



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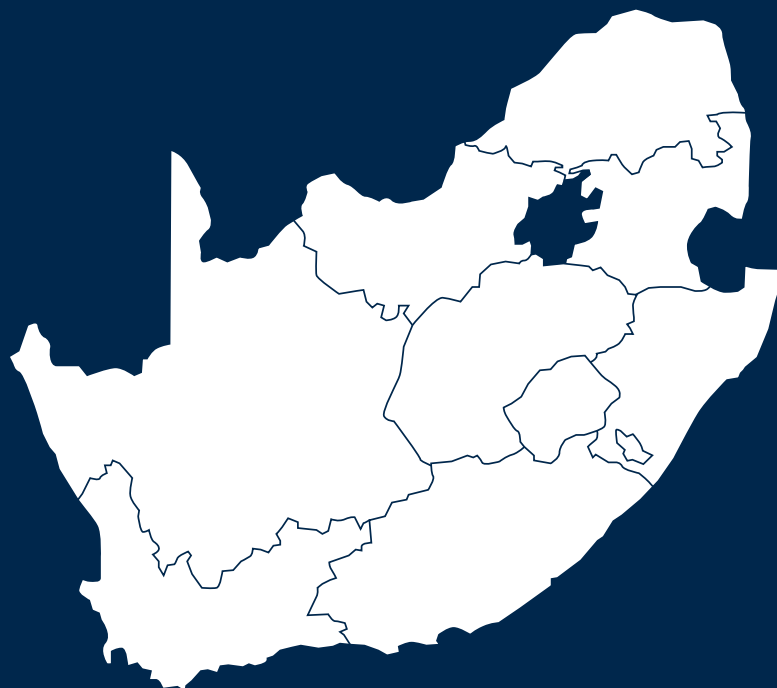
Mortality Estimates

for

GAUTENG PROVINCE, 2000

South African National Burden of Disease Study

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SOUTH AFRICAN NATIONAL BURDEN OF DISEASE STUDY 2000

Timeous and accurate cause of death statistics are an essential component of the information needed for planning and monitoring health services and responding to the health needs of the population. Such information is required for the process of prioritisation of not only health services, programmes and research, but also for guiding the priorities in other sectors. In particular, sub-population data are needed to identify and monitor inequalities in health status. While policy is directed from a national perspective, provincial and local government need to respond to the specific needs of their communities.

Efforts to improve cause of death statistics in South Africa have been under way since 1994, and have resulted in better coverage of death registration. However, the system does not yet routinely provide cause of death statistics that can be used by provinces. The Initial Burden of Disease Study that applied the burden of disease approach developed by the WHO and used available information and presenting it in a format that is relevant for planning health and other services (Bradshaw et al., 2003).

This study makes use of more recent data, namely the 12% sample of deaths for 1997-2001. However, due to under-registration of deaths, it was necessary to estimate the total number of deaths and number of AIDS deaths using a demographic and epidemiological model. It was also necessary to make adjustments for mis-classification of underlying causes due to inadequacies in the medical certification of the cause of death as a result of both poor certification by medical doctors and certification by traditional headmen in some rural areas. Full details of the methods used to estimate the number of deaths, the death rates and the years of life lost (YLLs) for each province according to the South African Burden of Disease list are given in the report Estimates of Provincial Mortality by Bradshaw et al. (2004).

Gauteng provincial profile

Background

Gauteng is situated in the north-eastern part of the country, and is landlocked, bordered by Limpopo in the north, Mpumalanga in the east, Free State in the south, and North West in the west. The province mainly comprises the three urban areas of Pretoria, Johannesburg/Soweto and the southern Vereeniging-Vanderbijlpark industrial complex. During the 1996 Census the vast majority of the population (97%) lived in urban areas (SSA, 1998). The province encloses 17 101 km², constituting 1.4% of the country's total land area (SSA, 2003). The average population density was estimated at 513 persons per square kilometre in 2000, making it the most densely populated province by far.

Although the smallest province in surface area, it is regarded as the country's economic heartland. The province's Gross Geographic Product at 2001 prices was rated at R333 171 million, contributing 34% to the national Gross Domestic Product (GCIS, 2004). The largest contributors to the province's Gross Geographic Product are manufacturing, finance and trade. The manufacturing sector has over 9300 firms, and employs over 600 000 people. Johannesburg houses the largest Stock Exchange in Africa, and Pretoria the Reserve Bank. These two metropolises also house important health, educational and science centres. Gauteng has a well-developed infrastructure, including a comprehensive road system, an international airport, telecommunications networks, and a sophisticated financial and business support infrastructure (GCIS, 2004; Kok, 1998; Gauteng Provincial Government, 2004).

Despite being mainly an urban province, Gauteng's agricultural sector is geared to providing the cities and towns with daily fresh produce, including vegetables, fruit, meat, eggs, dairy products and flowers. Other agricultural activities include the production of maize, ground nuts, sunflowers, cotton, and sorghum (GCIS, 2004).

Population structure

According to the 2000 ASSA estimates, 8 765 262 people lived in Gauteng, constituting 19.4% of South Africa's total population. Gauteng had the lowest female proportion of the population of all the provinces, at 49.2%. Just over 26% of the population were younger than 15 years, 70% were in their 'economically active' years (15-64), and 6% were aged 60 years or older (Figure GT1).

The province has a noticeable excess of adult men in the economically active age group. [Census 2001: total population 8 837 178, 71 916 more than ASSA); 19.7% of total population in South Africa; 49.7% female; 73.8% Black African, 3.8% Coloured, 2.5% Indian, 19.9% White.]

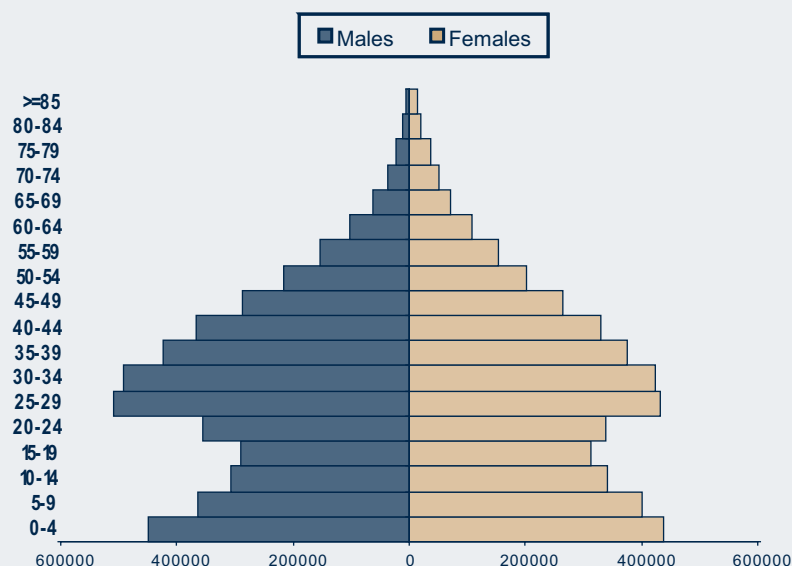


Figure GT1: Age structure of the Gauteng population, 2000

Living conditions

According to the 2001 Census, 8% of the population aged 20 years or older had no formal school education, and 36% of those in the age group 15-64 years were unemployed (SSA, 2003). One-fifth of the province's population lived below the national poverty line in 2002 (UNDP, 2004). Almost two-thirds of all households lived in formal dwellings, and 24% and 1% respectively in informal and traditional structures. On average, 3.2 persons shared a household. Piped water, either in the dwelling, on site, or from a communal tap, was available in 98% of households. About 4% of households did not have access to a toilet facility, and 84% had a refuse removal service once a week or more often. Electricity was used as the main source of energy for cooking in 73% of households, wood in 1%, and paraffin in 21%. Over 77% of the households had a radio, 66% a television, 62% a refrigerator, 32% a telephone and 45% a cell phone (SSA, 2003).

Mortality profile

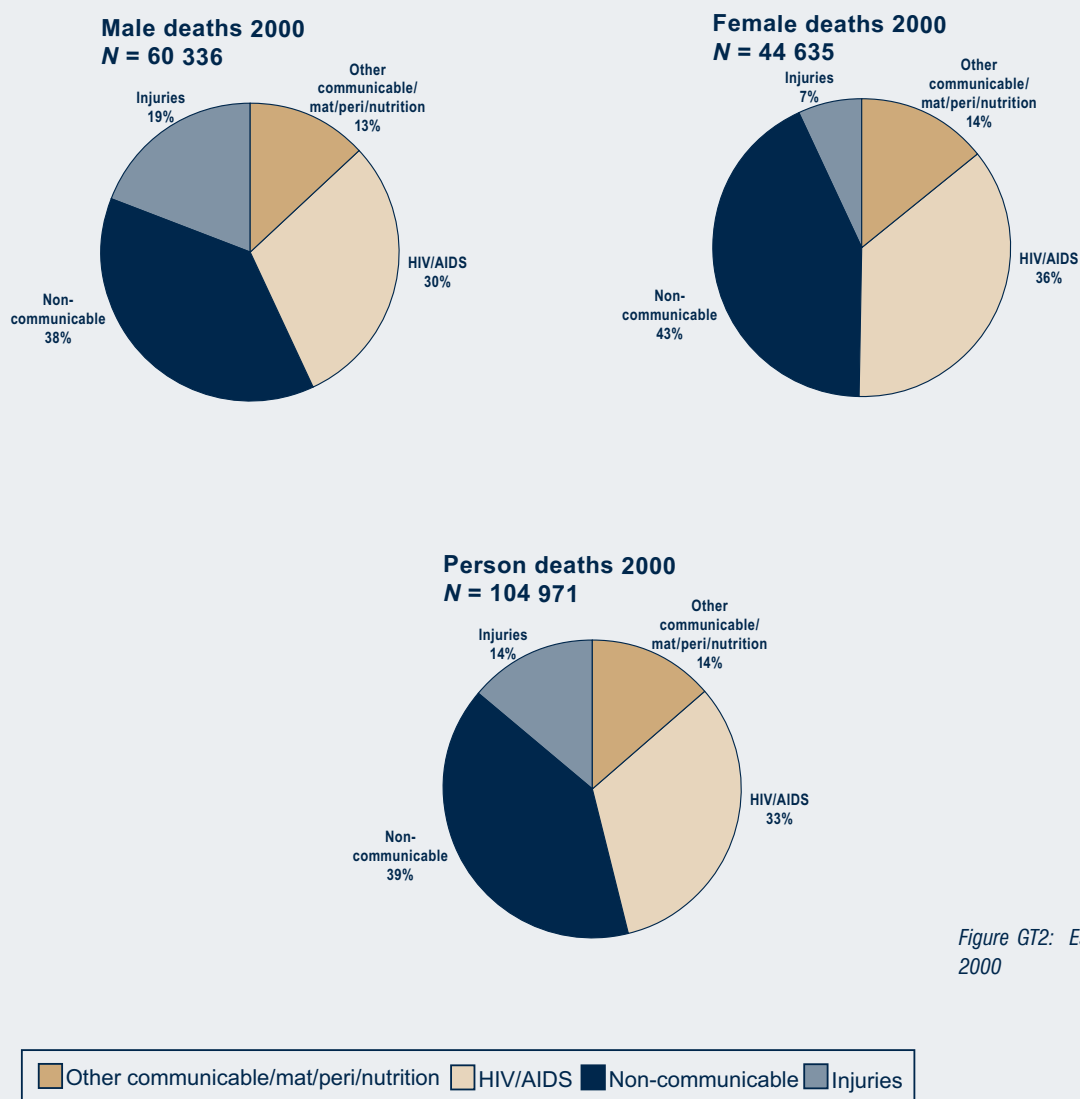


Figure GT2: Estimated deaths by Groups, Gauteng 2000

Of the total 104 971 deaths in Gauteng, 60 336 (57%) were in males and 44 635 (43%) in females. Figure GT2 shows the causes of death for broad Groups I, II, III and AIDS. The proportions due to other communicable diseases, maternal and perinatal causes and nutritional deficiencies were very similar for males and females. While females had a higher burden due to non-communicable diseases and HIV/AIDS, males had a considerably higher proportion of deaths due to injuries.

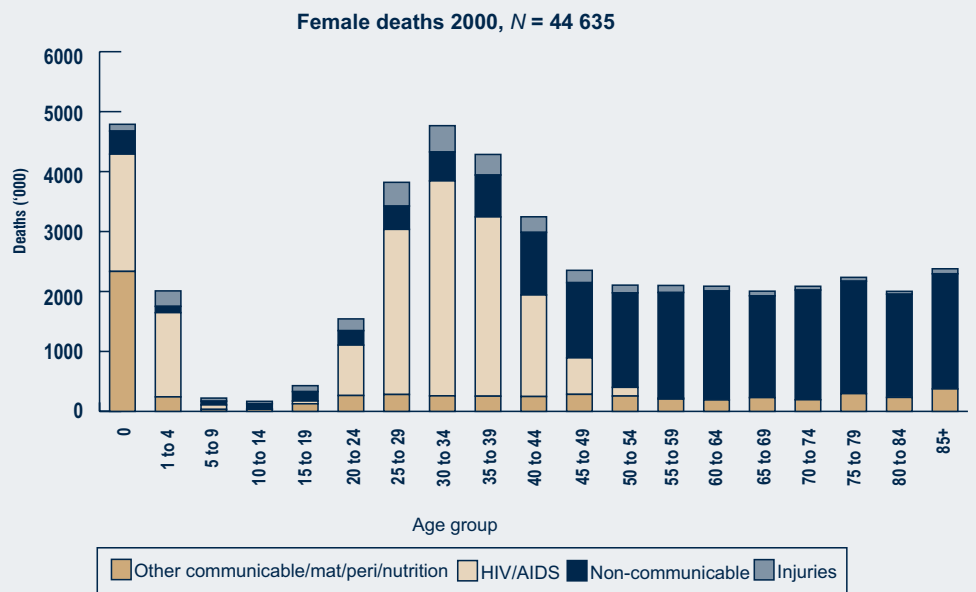
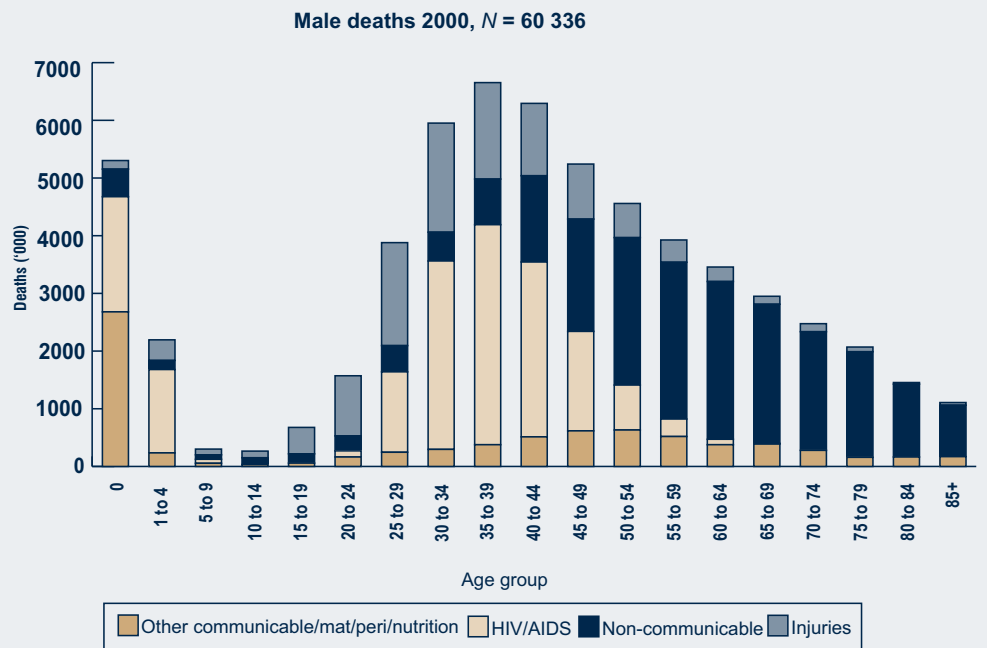


Figure GT3: Age distribution of deaths by broad Groups, Gauteng 2000

The age-specific causes of death for males and females are presented in Figure GT3. Infants and children under 5 suffered high numbers of deaths due to the unfinished agenda of infectious diseases related to underdevelopment, and a high HIV/AIDS burden. HIV/AIDS deaths were also very high in young adult men and women, although the age pattern shows a 5 year later onset in men. Deaths due to injuries were exceptionally high in adolescent and young adult men, and non-communicable causes of death were dominant in adults of 60 years and older.

The cause of death profile for Gauteng according to major disease categories is shown in Figure GT4. Causes are ranked in descending order according to total deaths. HIV/AIDS was the leading cause of death in both men and women (33%), followed by cardiovascular disease (18%), malignant neoplasms (9%), intentional injuries (8%), infectious and parasitic diseases excluding HIV/AIDS (7%), unintentional injuries (6%), and respiratory disease (4%). Differences were observed between men and women, with women displaying higher proportions of deaths from HIV/AIDS and cardiovascular disease, and men displaying considerably higher proportions of deaths from intentional and unintentional injuries.

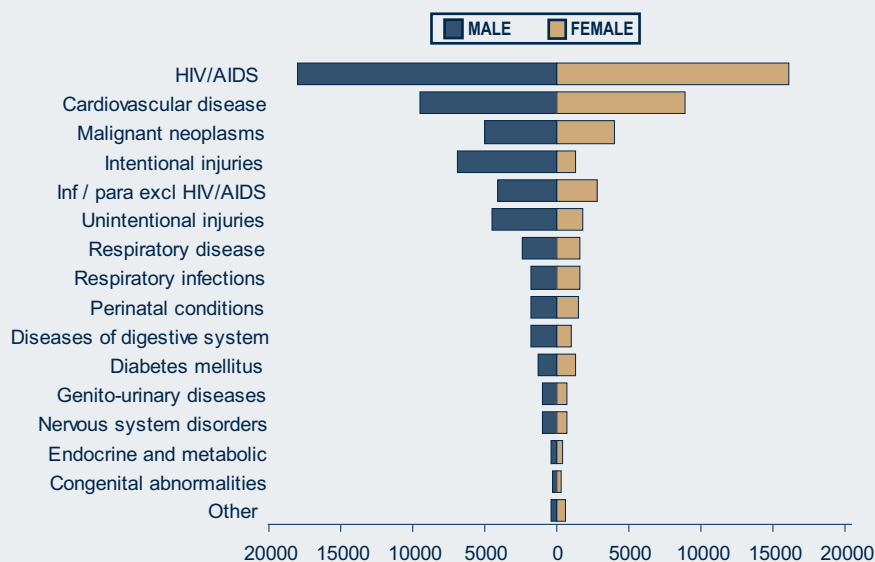


Figure GT4: Causes of death according to categories for males and females, Gauteng 2000

"Other" causes include nutritional deficiencies, benign neoplasms, maternal conditions, mental disorders, musculo-skeletal diseases, skin diseases, oral and sense organ conditions.

The twenty leading single causes of death in the total Gauteng population are shown in Figure GT5(a). HIV/AIDS was the largest single cause of death, accounting for 33% of all deaths during 2000. Ischaemic heart disease (7.0%) was followed by homicide/violence (6.5%). Stroke was ranked fourth, with road traffic accidents, lower respiratory infection and tuberculosis being among the top ten causes of death. Pronounced gender patterns are shown in Figure GT5(b). Hypertensive heart disease and stroke were more prominent among the women, while homicide/violence and road traffic accident deaths were more pronounced among the men.

Persons 2000, N = 104 971

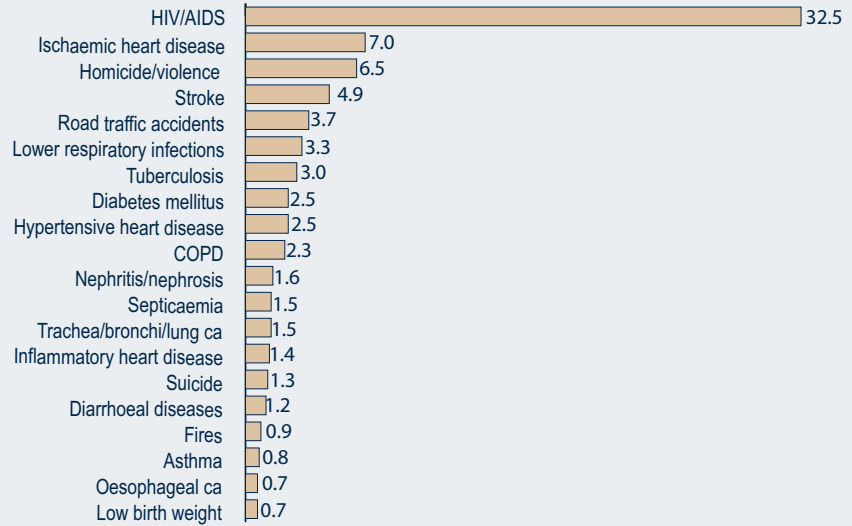


Figure GT5(a): Twenty leading single causes of death (%), Gauteng 2000

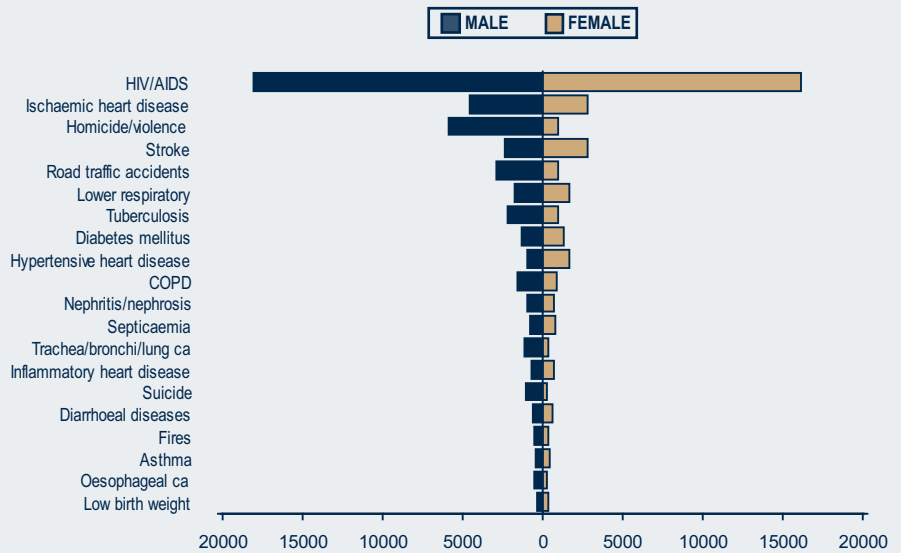


Figure GT5(b): Twenty leading single causes of death by sex, Gauteng 2000

Gauteng premature mortality

HIV/AIDS accounted for the largest proportion of female (50%) and male (38%) years of life lost (YLLs) (Table GT 1). Homicide and road traffic accidents were respectively the second (12%) and third (6%) leading causes of premature mortality among men. Stroke and lower respiratory infections were the second and third leading causes of premature mortality in women, each contributing 3%. Ischaemic heart disease accounted for 4% and 3% of YLLs in males and females respectively.

Table GT1: Leading 20 single causes of the premature mortality burden (YLLs) by sex, Gauteng 2000

Table GT1: Leading 20 single causes of the premature mortality burden (YLLs) by sex, Gauteng 2000											
Males				Females				Persons			
Rank	Cause of death	YLLs	%	Rank	Cause of death	YLLs	%	Rank	Cause of death	YLLs	%
1	HIV/AIDS	468319	37.6	1	HIV/AIDS	463505	49.9	1	HIV/AIDS	931824	42.8
2	Homicide/violence	154551	12.4	2	Stroke	29162	3.1	2	Homicide/violence	180114	8.3
3	Road traffic accidents	70709	5.7	3	Lower respiratory infections	27521	3.0	3	Road traffic accidents	95150	4.4
4	Ischaemic heart disease	50913	4.1	4	Homicide/violence	25563	2.7	4	Ischaemic heart disease	75482	3.5
5	Tuberculosis	40032	3.2	5	Ischaemic heart disease	24569	2.6	5	Tuberculosis	62553	2.9
6	Lower respiratory infections	31770	2.5	6	Road traffic accidents	24441	2.6	6	Lower respiratory infections	59291	2.7
7	Stroke	28864	2.3	7	Tuberculosis	22521	2.4	7	Stroke	58025	2.7
8	Suicide	25979	2.1	8	Hypertensive heart disease	17463	1.9	8	Diarrhoeal diseases	33122	1.5
9	Diarrhoeal diseases	16862	1.4	9	Diarrhoeal diseases	16260	1.7	9	Suicide	32615	1.5
10	Diabetes mellitus	16360	1.3	10	Septicaemia	14258	1.5	10	Diabetes mellitus	30565	1.4
11	COPD	15703	1.3	11	Diabetes mellitus	14205	1.5	11	Hypertensive heart disease	29162	1.3
12	Nephritis/nephrosis	15275	1.2	12	Low birth weight	11909	1.3	12	Septicaemia	29159	1.3
13	Septicaemia	14901	1.2	13	Inflammatory heart disease	11680	1.3	13	Low birth weight	24631	1.1
14	Fires	14488	1.2	14	Breast ca	9677	1.0	14	COPD	24600	1.1
15	Low birth weight	12723	1.0	15	Fires	9497	1.0	15	Nephritis/nephrosis	24381	1.1
16	Trachea/bronchi/lung ca	12563	1.0	16	Cervix ca	9150	1.0	16	Fires	23985	1.1
17	Hypertensive heart disease	11699	0.9	17	Nephritis/nephrosis	9106	1.0	17	Inflammatory heart disease	22849	1.0
18	Inflammatory heart disease	11169	0.9	18	COPD	8897	1.0	18	Trachea/bronchi/lung ca	17096	0.8
19	Epilepsy	8144	0.7	19	Suicide	6637	0.7	19	Bacterial meningitis	13650	0.6
20	Cirrhosis of liver	7675	0.6	20	Asthma	6262	0.7	20	Epilepsy	12970	0.6
	All causes	1 247 186			All causes	929 781			All causes	2 176 967	

Leading causes of death among children (<15 years)

The leading ten causes of death among children under 5 and children 5-14 years are shown in Figure GT6. The high child mortality in Gauteng is a result of the combination of HIV/AIDS and other communicable diseases as well as perinatal conditions. It is important to bear in mind, however, that the ill-defined perinatal conditions jointly accounted for 15% of infant deaths, but are excluded from these graphs. Congenital heart disease, road traffic accidents and fires were also among the leading causes of death. Infant deaths dominated those in children under 5 years of age, and the leading five causes in infants and children under 5 followed the same pattern. The cause of death profiles for boys and girls were similar, and the top five causes, HIV/AIDS, diarrhoea, low birth weight, lower respiratory infections and birth asphyxia and trauma, accounted for just over 70% of the child deaths.

The cause of death profile for boys and girls aged 5-14 years differed. Road traffic accidents were the leading cause of death among boys in this age group, while HIV/AIDS was the leading cause for girls. Injuries and other infectious diseases were among the leading causes in this age group. Inflammatory heart disease also features in this age group.

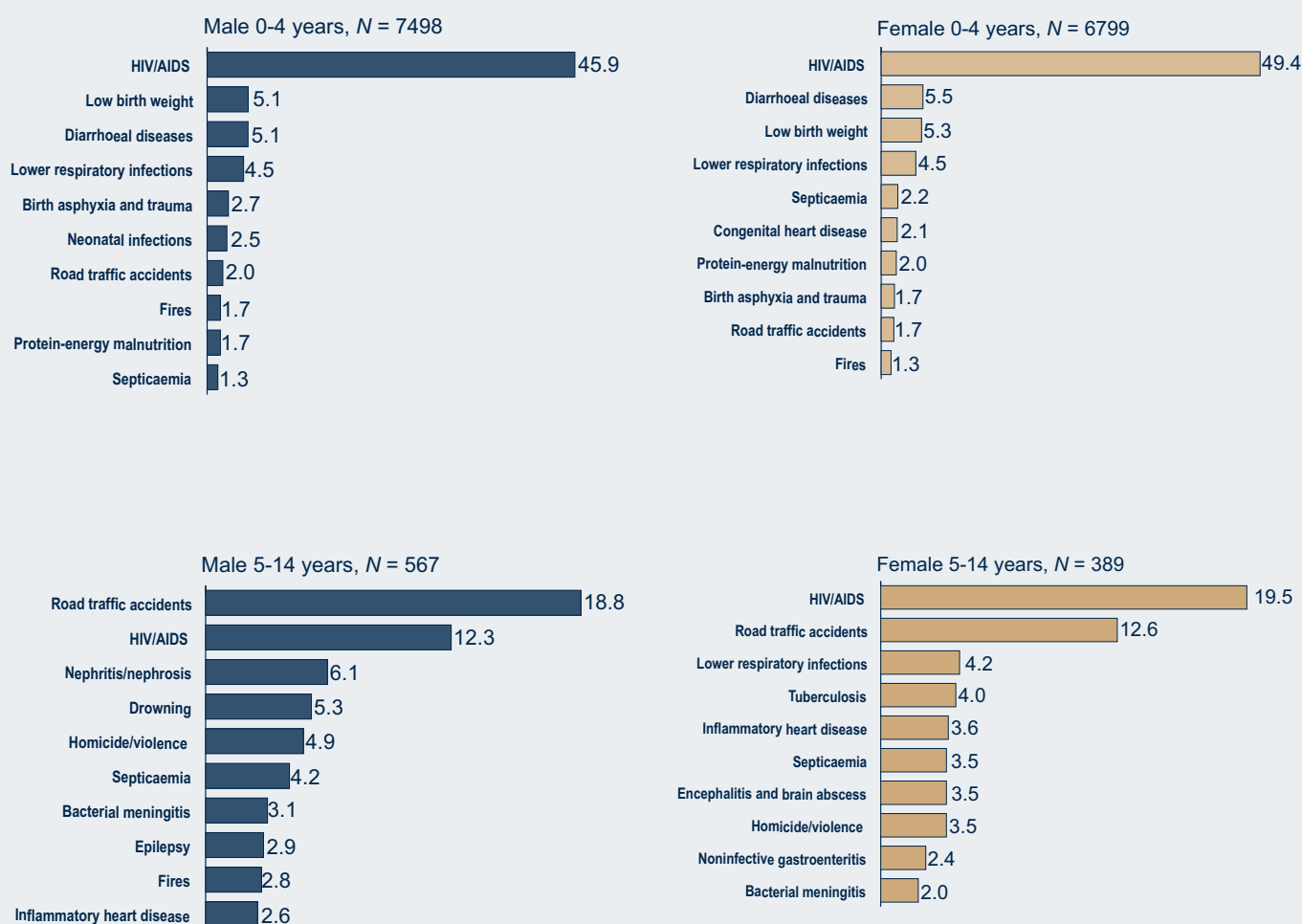


Figure GT6: Ten leading single causes of death (%) among children (<15 years) by sex, Gauteng 2000

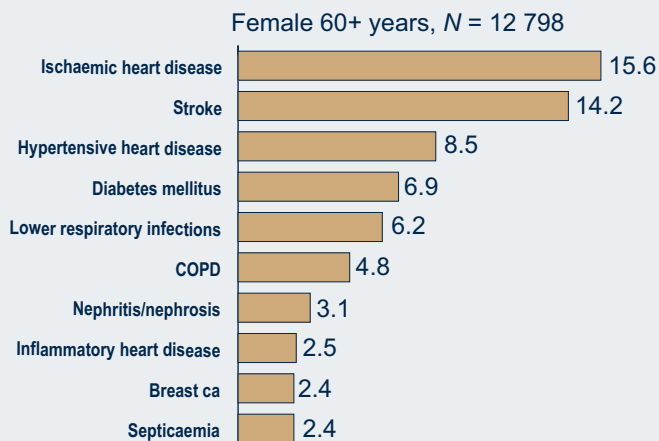
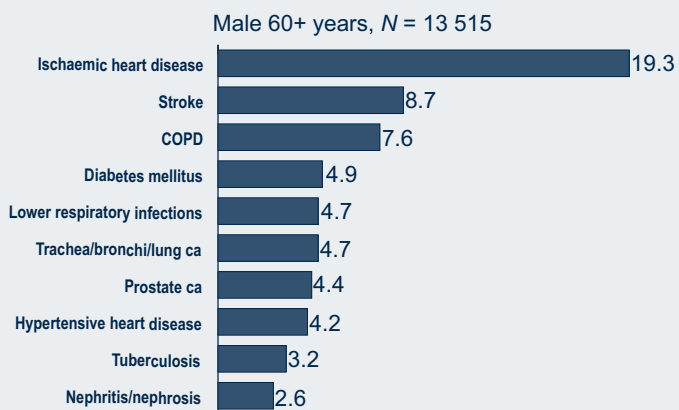
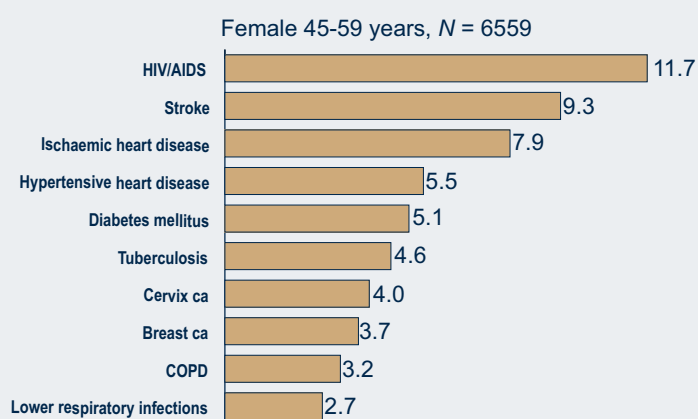
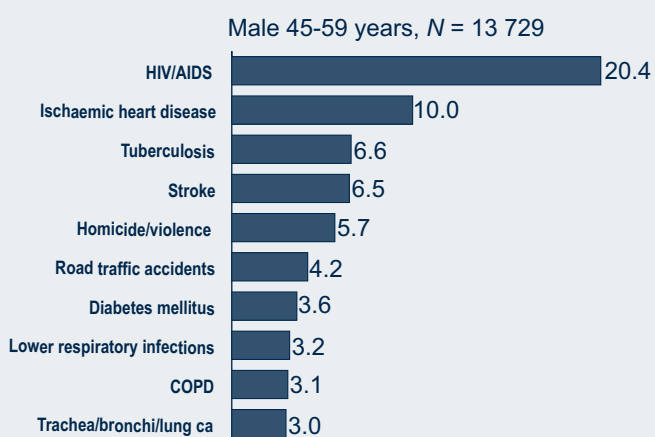
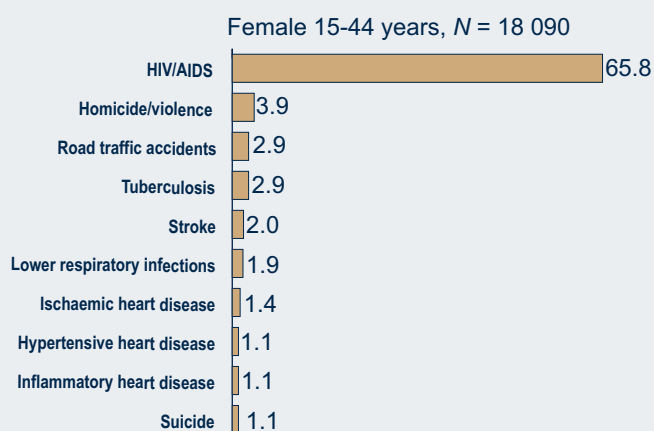
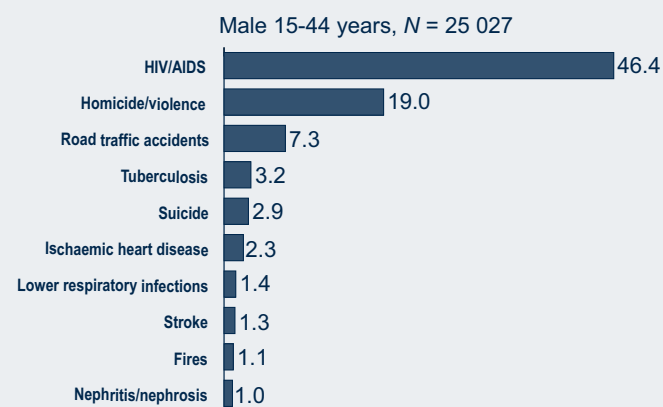
Leading causes of death among adults

The leading causes of death for adults are shown in Figure GT7. HIV/AIDS was the leading cause of death for both men and women aged 15-44 years. Homicide and road traffic accidents feature highly for men and women. Several infectious diseases such as tuberculosis and lower respiratory infections but also ischaemic heart disease in men and women, stroke in men and hypertensive heart and inflammatory heart disease featured among the leading causes in young adult women.

The profile for the older adults aged 45-59 years differed from the young age group with an increasing number of deaths due to non-communicable diseases and fewer deaths due to infectious diseases. In men, however, road traffic accidents and homicide were responsible for almost 10% of deaths. Diabetes mellitus, stroke, ischaemic heart disease and lower respiratory infections were among the leading causes of death for adults in this age group. Cervical and breast cancer also featured among the top ten for women while lung cancer showed up for men.

Most of the burden in older persons is due to non-communicable diseases, although other infectious diseases still play a role. In this province there were more female (13 515) than male (12 798) deaths among older persons. Ischaemic heart disease was the leading cause of death among persons aged 60 years and older (Figure GT7), accounting for 19% of male and 16% of female deaths. Stroke ranked second, accounting for 9% of male and 14% of female deaths. Hypertensive heart disease and diabetes were responsible for more deaths in older women than older men, while chronic obstructive pulmonary disease caused more deaths in older men. Trachea/bronchi/lung cancer was the most important cancer among men, while breast cancer was the most important cancer among women.

Figure GT7: Ten leading single causes of death (%) among adults by sex, Gauteng 2000



Contrast with national profile

The Initial National Burden of Disease Study highlighted the substantial impact of HIV/AIDS as a cause of death in South Africa by the year 2000, and the major health transition that is under way. As countries become more developed the disease profile changes, from one of infectious diseases, high child mortality and malnutrition, to a predominance of degenerative, chronic diseases. However, developing countries often experience a double burden, resulting from the simultaneous occurrence of these disease spectrums. During the early 1990s the health transition in South Africa was characterised by a very high injury burden on top of the double burden, resulting in a 'triple burden' (Bradshaw et al., 2002). In more recent years the impact of HIV/AIDS has created a quadruple burden of disease in South Africa. This study shows that all provinces are experiencing this quadruple burden of disease to varying degrees and signifies an important milestone in generating burden of disease information at provincial level by providing mortality estimates for the provinces. This requires a broad range of interventions, including improved access to health care, promotion of a healthy lifestyle and ensuring that basic needs such as water and sanitation are met. Social cohesion needs to be fostered to ensure safe and caring communities

The progression of the HIV/AIDS epidemic in this province is very similar to the national pattern however, accounting for 33% of deaths in this province compared with 30% of deaths nationally.

The cause of death profile in Gauteng showed the quadruple burden of disease, with communicable diseases, non-communicable diseases, injuries and HIV all having a significant impact. Gauteng had very similar proportions of deaths due to HIV/AIDS, non-communicable diseases and injury as nationally, but much fewer deaths from other infectious and parasitic diseases (14% vs 20%). This is the result of lower mortality rates due to tuberculosis, lower respiratory infections, diarrhoea and protein-energy malnutrition. Mortality due to cardiovascular conditions was slightly lower than the national average due to lower rates of death from stroke and hypertensive heart disease. However, the death rates due to ischaemic heart disease were higher than the national average. Cancer mortality was also higher, as well as mortality due to nephritis or nephrosis. The injury mortality rates were high for this province.

Almost without exception, the ten leading single causes of death appear in Gauteng as well as in the national profile, with slight variations in the ranking. Gauteng had more homicide (6.5% vs 5.8% nationally), slightly more ischaemic heart disease (7.0% vs 5.6%), less stroke (4.9% vs 5.7%), and much less tuberculosis, lower respiratory infection and diarrhoeal disease.

The infant mortality pattern in this province was quite different from the national profile. Gauteng had a much greater HIV/AIDS burden (39% vs 23.3%) and low birth weight (7.4% vs 5.9%). It had substantially fewer infant deaths from diarrhoeal diseases (6.2% vs 9.7%) and protein-energy malnutrition (1.6% vs 3.0%). There were twice as many deaths from congenital heart disease in Gauteng as in the total population.

These estimates are extrapolations from a variety of data sources, all with limitations. There is an urgent need to further improve the cause of death data system to provide timely and reliable statistics. While the data systems are being improved, provincial and local level planners are urged to make use of the findings of this study to modify the emphasis of national policies to meet the health needs of their communities. It should be noted that the spread of the HIV epidemic during the 1990s was very rapid and that the mortality profile is changing rapidly. This should be taken into account when making use of these estimates for planning, and highlights the urgency of implementing the treatment programme approved by Cabinet in September 2003 as quickly as possible as well as strengthening efforts to reduce the spread of HIV/AIDS.

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