

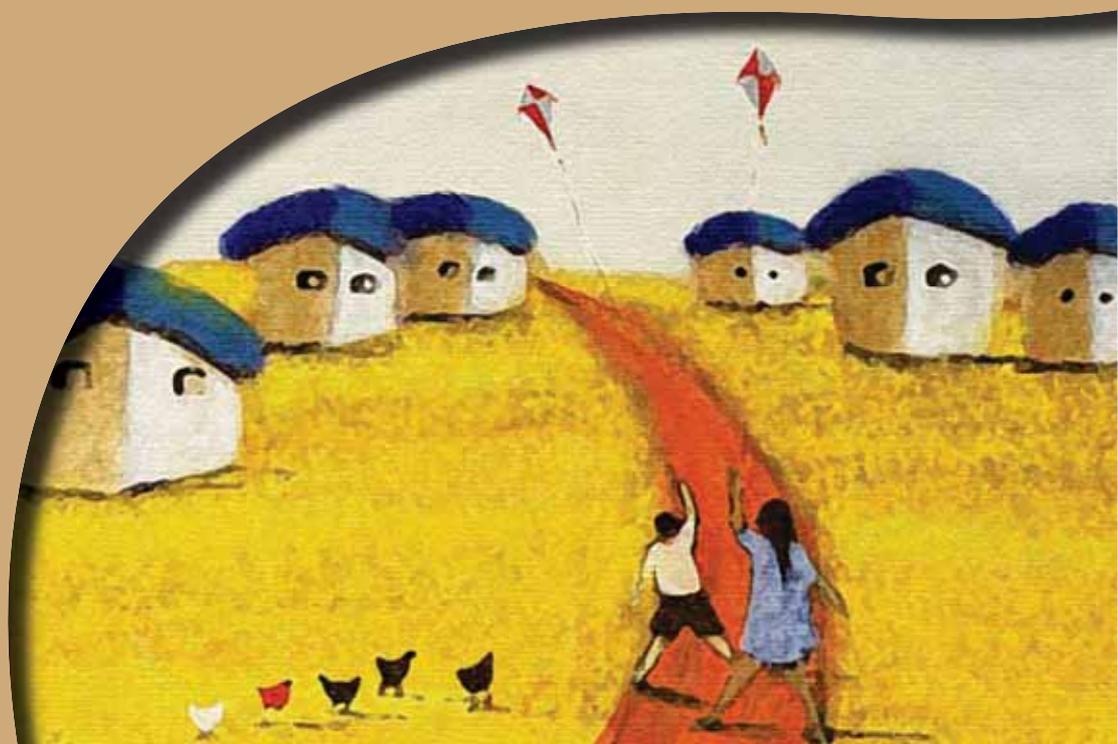
SOUTH AFRICAN NATIONAL BURDEN OF DISEASE STUDY
ESTIMATES OF PROVINCIAL MORTALITY **2000**

FREE STATE PROVINCE

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Burden of Disease
Research Unit



Mortality Estimates

for

FREE STATE PROVINCE, 2000

South African National Burden of Disease Study

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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).

Free State provincial profile

Background

The Free State is a central province of the country, having an international border with Lesotho, and local borders with all other provinces except Limpopo and the Western Cape. The province encloses 129 480 km², constituting 10.6% of the total land area of the country, making it in surface area the third largest province of the country (SSA, 2003). The average population density during 2000 was 22 persons per square kilometre, and about 31% of the population lived in non-urban areas (SSA, 1998). Prior to 1994 the province housed two small areas that made up part of the 'national state' of Bophuthatswana, and the self-governing territory of QwaQwa. The rest of the province was under the provincial administration of the then Orange Free State. These territorial divisions are no longer valid, but in terms of examining data distribution patterns, it is important to recognise their prior existence (Tait, 1996).

Mining is the largest economic sector in the Free State, and this industry is the biggest employer in the province. The Free State Goldfields form part of the 400 km+ gold reef that stretches across Gauteng and the Free State. About 82% of the province's mineral production value is derived from gold mining. Gold mines also supply silver, while the considerable concentrations of uranium occurring in the gold-bearing conglomerates are extracted as a by-product. Additionally, bituminous coal is mined and converted to petrochemicals, diamonds are extracted from kimberlite pipes and fissures, and the largest deposit of bentonite in the country is found in the province.

Manufacturing is the second-largest sector in the province's economy, including chemical products manufactured by Sasol, further beneficiation of agricultural products, and the production of basic chemicals from coal. Agriculture also plays an important role in the Free State economy, with vast areas of cultivated land, natural veld and grazing terrains. Field crops yield about two-thirds of the gross agricultural income of the province, animal products contribute an additional 30%, and the balance comes from horticulture. Potatoes, cherries, asparagus, soya, sorghum, sunflowers and wheat are cultivated. The province's Gross Geographic Product at 2001 prices was rated at R53 900 million, and the province contributed 5.5% to the national Gross Domestic Product (GCIS, 2004).

Population structure

According to the 2000 ASSA estimates, 2 862 088 people lived in the Free State, constituting 6.3% of South Africa's total population. The province accommodated almost equal numbers of men (49.96%) and women (50.04%). Just under 30% of the population were younger than 15 years, 66% were in their 'economically active' years (15-64), and 6% were aged 60 years or older. [Census 2001: total population 2 706 775 (155 313 less than ASSA); 6.3% of total population of South Africa; 52.1% female; 88.0% Black African, 3.1% Coloured, 0.1% Indian, 8.8% White.]

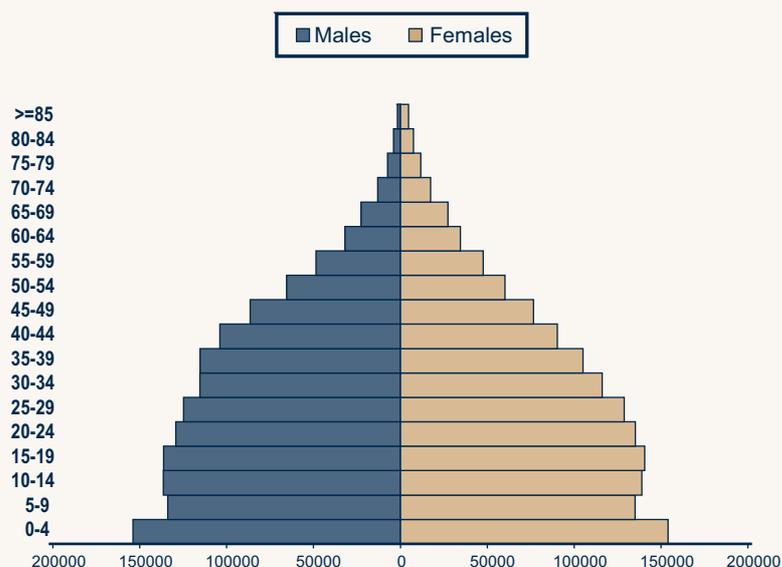


Figure FS1: Age structure of the Free State population, 2000

Living conditions

According to the 2001 Census 16% of the population aged 20 years or older had no formal school education, and 43% of those in the age group 15-64 years were unemployed (SSA, 2003). A large proportion of the population (60%) lived below the national poverty line in 2002 (UNDP, 2004). Almost 63% of households were accommodated in formal housing, and 26% and 7% respectively in informal and traditional structures. On average 3.6 persons shared a household. Piped water, whether in the home, on site or at a communal tap, was available in 96% of households. In 10% of households people had no access to a toilet facility. Almost six in ten households (59%) had a refuse removal service once a week or more. For cooking purposes, 47% of the households used electricity as the main source of energy, 8% used wood, and 34% paraffin. Almost 76% of the households had a radio, 54% a television, 49% a refrigerator, 20% a telephone and 25% a cell phone (SSA, 2003).

Free State mortality profile

In 2000 there were 36 860 deaths estimated in Free State, of which 20 613 (56%) were in males and 16 240 (44%) in females. Figure FS2 shows the causes of deaths for the broad Groups I, II, III and HIV/AIDS. More than half the deaths (55%) were due to Group I causes including HIV/AIDS, while 31% were due to Group II and 8% due to injuries. There were similar proportions of deaths from Group I and Group II causes for males and females, yet the proportion of HIV/AIDS deaths was higher in females (36%) than in males (30%). Deaths due to injuries were about three times higher in males than in females, accounting for 11% of male deaths.

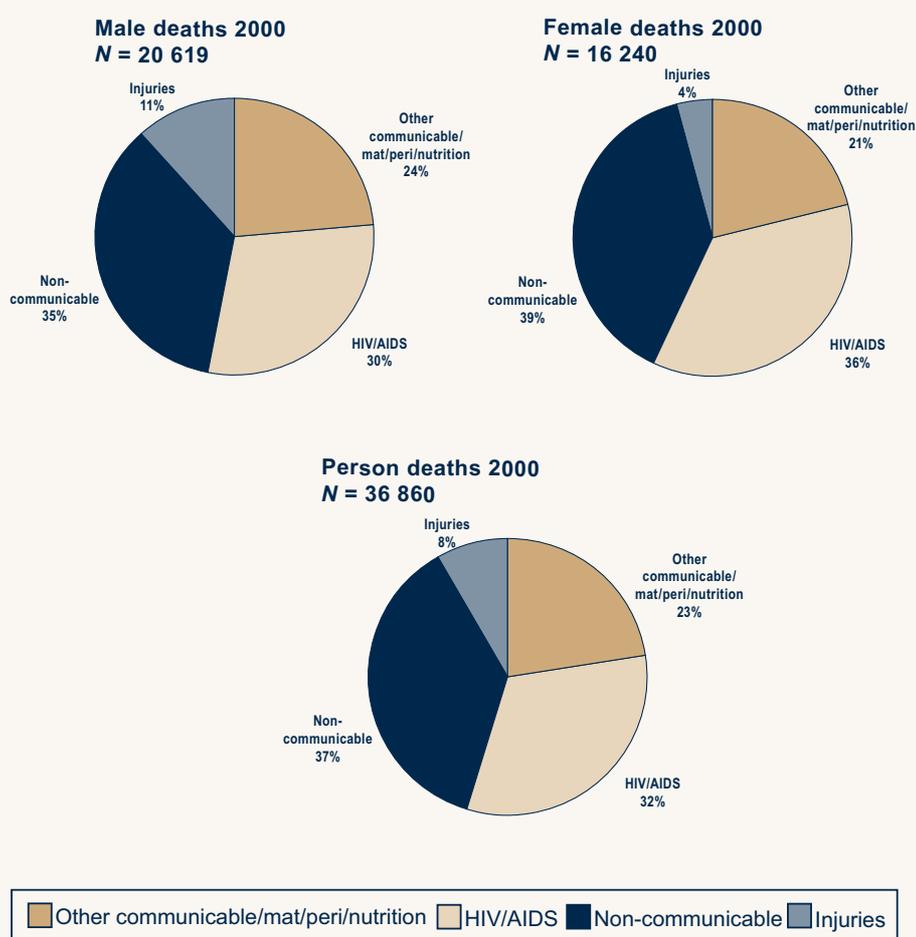


Figure FS2: Estimated deaths by Groups, Free State 2000

The age-specific mortality profiles are shown in Figure FS3. The pattern displayed here shows higher numbers of deaths in children and young and older adults. Deaths in males were higher than those in females. The patterns for infants, girls and boys were very similar, although other infectious diseases, maternal and perinatal diseases and nutritional deficiencies (Group I) accounted for more than half of the boys' deaths, followed by HIV/AIDS. In general, the main causes of death in infants were Group I and HIV/AIDS. HIV/AIDS started to show up early in females - in the age group 15-19 years - while only starting to show in the 20-24-year age group in males. Non-communicable diseases were higher in people aged 50 years and older.

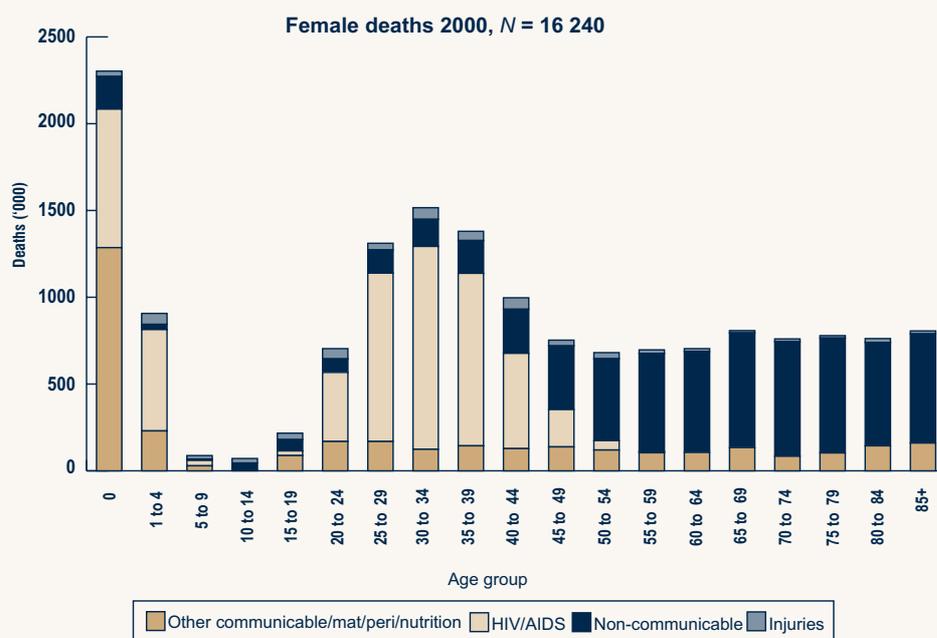
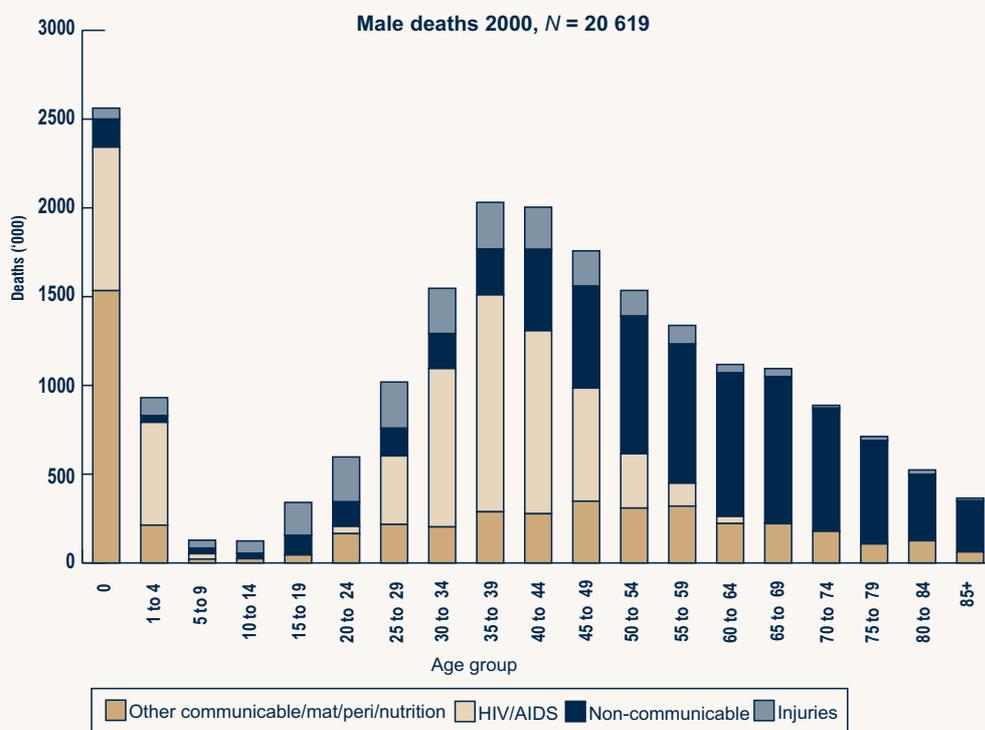


Figure FS3: Age distribution of deaths by broad Groups, Free State 2000

The causes of death for categories are shown in Figure FS4. These are ranked in descending order by the total number of deaths. The pattern shows high numbers of deaths due to HIV/AIDS (32%), followed by cardiovascular diseases (18%), infectious and parasitic diseases excluding HIV (11%), respiratory infections (6%), malignant neoplasms (6%), respiratory disease (4%), intentional injuries (4%) and unintentional injuries (4%). There were marked differences between males and females, with HIV/AIDS and cardiovascular disease accounting for a higher proportion of deaths in females than in males. Among the leading ten categories, other infectious and parasitic diseases, respiratory infections, malignant neoplasms and intentional injuries were higher in males.

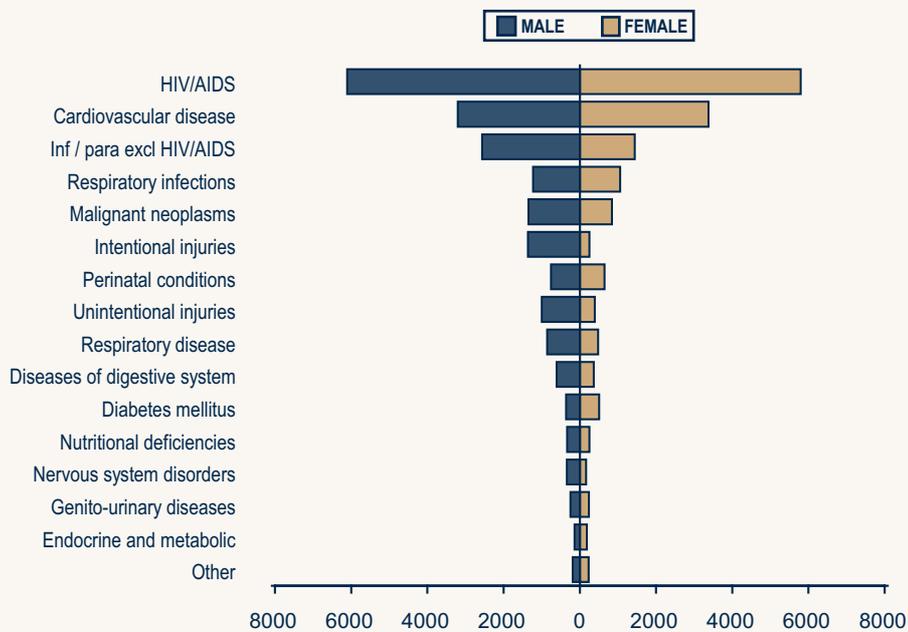


Figure FS4: Causes of death according to categories for males and females, Free State 2000

"Other" causes include congenital abnormalities, benign neoplasms, maternal conditions, mental disorders, skin diseases, musculo-skeletal diseases, oral conditions and conditions of the sense organs.

The twenty leading single causes of death in the Free State are shown in Figure FS5(a). HIV/AIDS was the largest single cause of death, accounting for 32% of all deaths. Stroke accounted for 6.4%, followed by lower respiratory infections (6.1%), ischaemic heart disease (5%) and hypertensive heart disease (3.8%), while homicide and violence accounted for 3.6%. Gender patterns are shown in Figure FS5(b). HIV/AIDS, stroke and hypertensive heart disease were more prominent among women, while deaths from ischaemic heart disease, lower respiratory infections and homicide were higher in men.

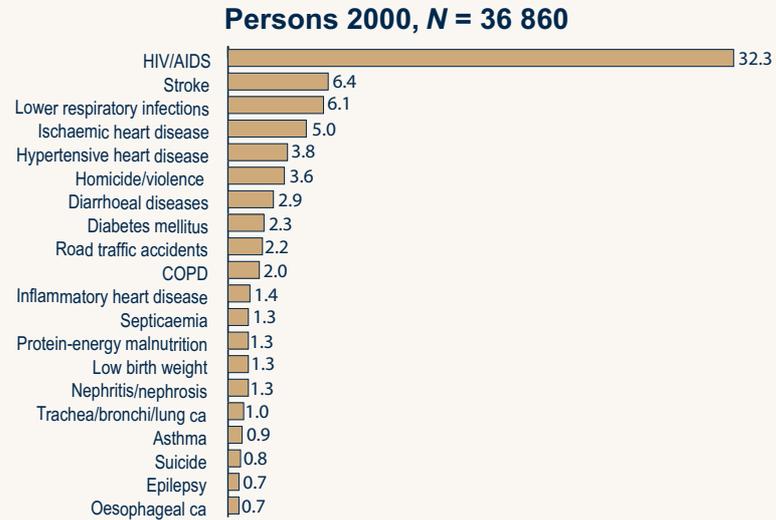


Figure FS5(a): Twenty leading single causes of death (%), Free State

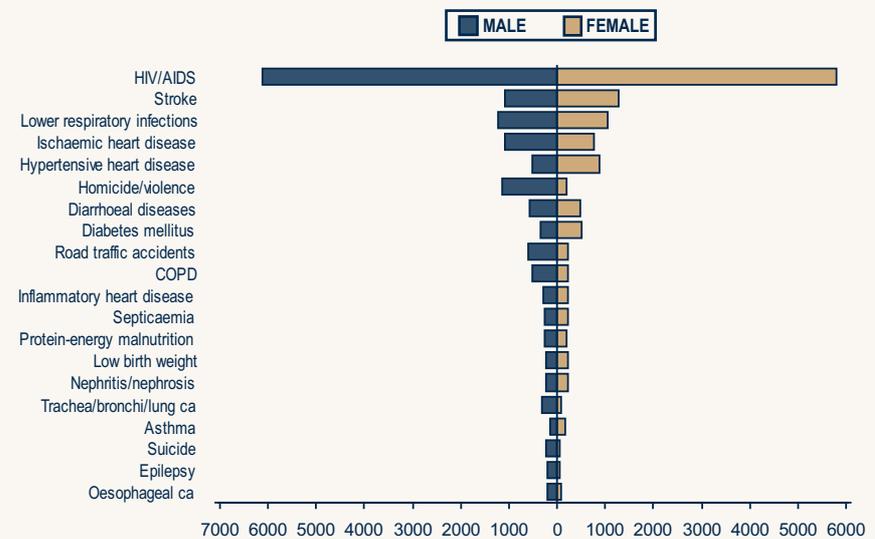


Figure FS5(b): Twenty leading single causes of death by sex, Free State 2000

Premature mortality

HIV/AIDS accounted for the largest proportion of female (48%) and male (37%) years of life lost (YLLs) (Table FS1). Tuberculosis was the second leading cause of premature mortality among persons, with more YLLs in males (7%) than females (4%). Lower respiratory infections ranked third and homicide/violence ranked fourth in all persons. Injuries accounted for 11% and 3% of all YLLs in males and females respectively.

Table FS1: Leading 20 single causes of the premature mortality burden (YLLs) by sex, Free State 2000

Males				Females				Persons			
Rank	Cause of death	YLLs	%	Rank	Cause of death	YLLs	%	Rank	Cause of death	YLLs	%
1	HIV/AIDS	158274	36.6	1	HIV/AIDS	168899	48.4	1	HIV/AIDS	327173	41.9
2	Tuberculosis	31739	7.3	2	Lower respiratory infections	19880	5.7	2	Tuberculosis	45889	5.9
3	Homicide/violence	30157	7.0	3	Tuberculosis	14150	4.0	3	Lower respiratory infections	42949	5.5
4	Lower respiratory infections	23069	5.3	4	Diarrhoeal diseases	13466	3.9	4	Homicide/violence	35143	4.5
5	Diarrhoeal diseases	15831	3.7	5	Stroke	13229	3.8	5	Diarrhoeal diseases	29296	3.8
6	Road traffic accidents	15233	3.5	6	Low birth weight	7450	2.1	6	Stroke	26120	3.3
7	Stroke	12891	3.0	7	Hypertensive heart disease	7277	2.1	7	Road traffic accidents	20743	2.7
8	Ischaemic heart disease	10993	2.5	8	Ischaemic heart disease	6647	1.9	8	Ischaemic heart disease	17639	2.3
9	Low birth weight	7941	1.8	9	Protein-energy malnutrition	6405	1.8	9	Low birth weight	15390	2.0
10	Protein-energy malnutrition	7459	1.7	10	Road traffic accidents	5510	1.6	10	Protein-energy malnutrition	13864	1.8
11	Septicaemia	5890	1.4	11	Diabetes mellitus	5070	1.5	11	Hypertensive heart disease	11747	1.5
12	COPD	5521	1.3	12	Homicide/violence	4985	1.4	12	Septicaemia	10269	1.3
13	Suicide	5181	1.2	13	Septicaemia	4380	1.3	13	Diabetes mellitus	9729	1.2
14	Inflammatory heart disease	5124	1.2	14	Inflammatory heart disease	3491	1.0	14	Inflammatory heart disease	8616	1.1
15	Epilepsy	4765	1.1	15	Nephritis/nephrosis	3116	0.9	15	COPD	7575	1.0
16	Diabetes mellitus	4660	1.1	16	Asthma	2582	0.7	16	Suicide	6548	0.8
17	Hypertensive heart disease	4470	1.0	17	Birth asphyxia and trauma	2403	0.7	17	Epilepsy	6533	0.8
18	Trachea/bronchi/lung ca	3533	0.8	18	Cervix ca	2396	0.7	18	Nephritis/nephrosis	6321	0.8
19	Fires	3509	0.8	19	COPD	2054	0.6	19	Fires	5560	0.7
20	Nephritis/nephrosis	3205	0.7	20	Fires	2051	0.6	20	Bacterial meningitis	4693	0.6
	All causes	432 439			All causes	349 169			All causes	781 607	

Leading causes of death among children (<15 years)

The leading ten causes of death in children under 5 years of age and children 5-14 years are shown in Figure FS6. The high child mortality in this province was mainly due to a combination of HIV/AIDS and other communicable diseases, perinatal conditions and nutritional deficiencies. It is important to highlight that neural tube defects featured among the leading causes of death in both infants and children under 5 years of age in the Free State. The leading five causes of death in infants and children under 5 years of age follow a similar pattern for boys and girls. HIV/AIDS accounted for 41% of deaths in children under 5. Diarrhoeal diseases also accounted for high proportions of child deaths. Cause of death profiles for boys and girls aged 5-14 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. Deaths from other injuries such as drowning, homicide, fires and suicide were also among the leading causes of deaths in this age group, accounting mainly for boys' deaths. Epilepsy also featured in the top 5; it accounted for 5% of boys' and 8% of girls' deaths in this age group. It is important to highlight that non-rheumatic valvular disease featured in the ten leading causes of death among girls, accounting for 4%.

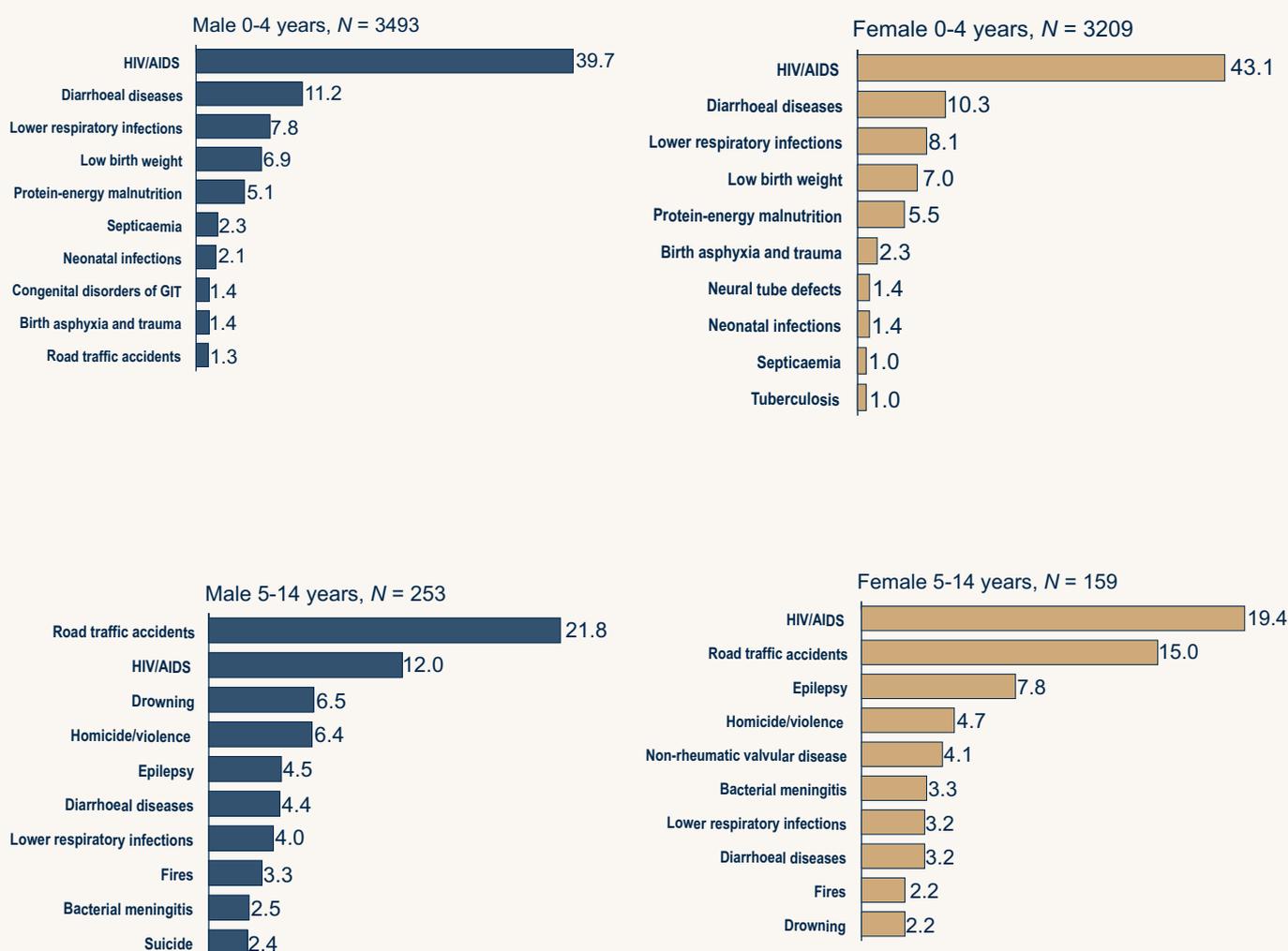


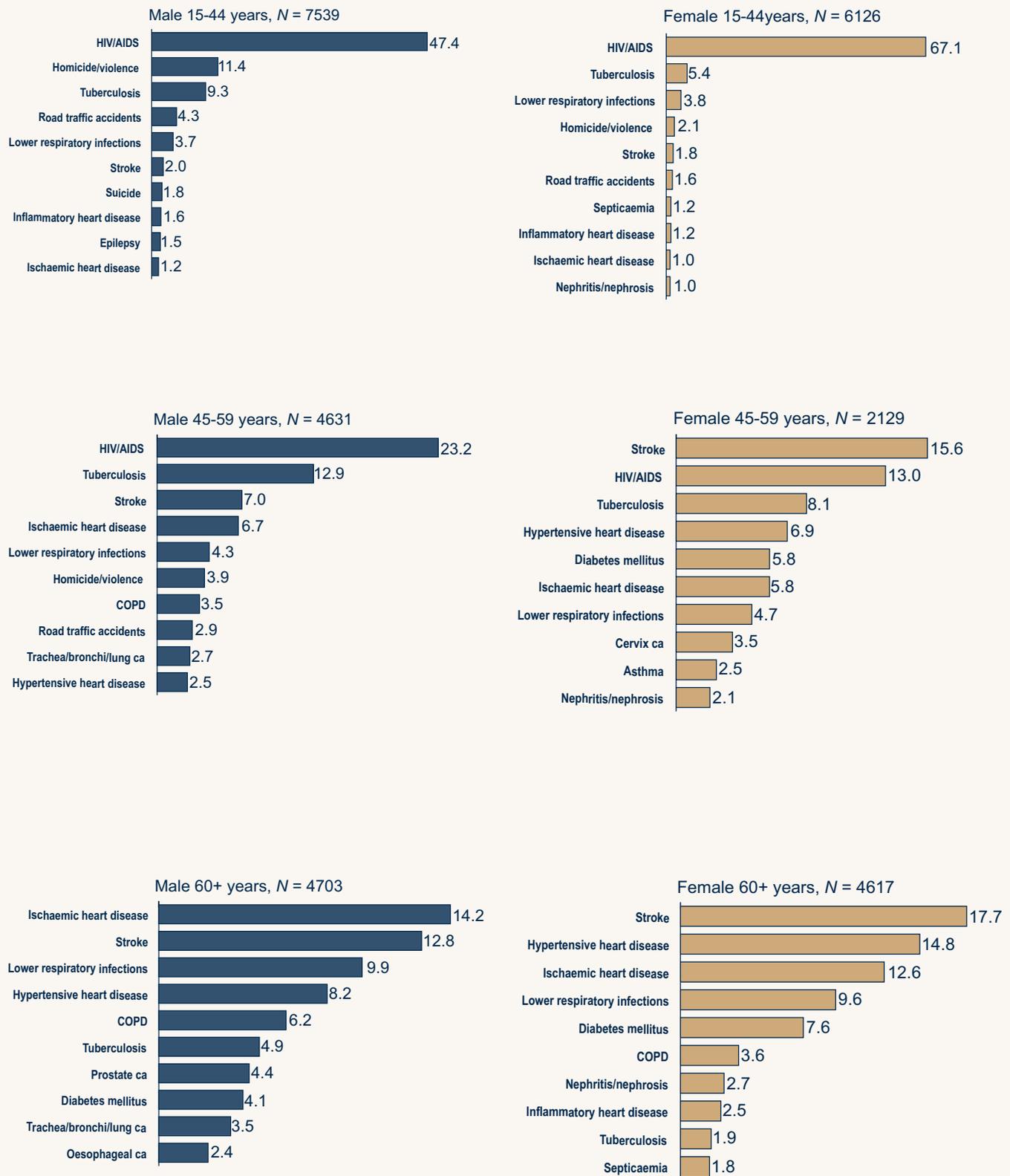
Figure FS6a): Leading single causes of death (%) among children (<15 years), Free State 2000

Leading causes of death among adults

Figure FS7 shows the leading ten causes of death in 15-44 age group. HIV/AIDS in women aged 15-44 is extraordinarily high and accounted for 67% of deaths in this age group. In contrast, HIV/AIDS accounted for 47% in men in this age group, while homicide/violence accounted for 11% of causes of death. Tuberculosis and lower respiratory infections ranked high for both men and women and road traffic accidents, cardiovascular disease, suicide and epilepsy also featured in this age group.

The profile for the older adults aged 45-59 years shows a different pattern to that of the young adult age group. In addition to the infectious diseases such as HIV/AIDS, and tuberculosis, deaths among the adults aged 45-59 years included cardiovascular disease such as stroke, ischaemic heart disease and hypertensive heart disease. In this province there were more male (4631) than female (2129) deaths in this age group. HIV/AIDS is a leading cause of death for men aged 45-59, accounting for 23% of deaths, followed by tuberculosis (12%), stroke (7%) and ischaemic heart disease (7%). In women stroke was the leading cause and accounted for 16% followed by HIV/AIDS (13%), tuberculosis (8%), hypertensive heart disease (7%), diabetes mellitus and ischaemic heart disease (each accounting for 6%). It is important to notice that cervix cancer and nephritis/nephrosis featured in the top ten of women in this age group. Stroke is the primary cause of death followed by hypertensive heart disease, ischaemic heart disease, lower respiratory infections and diabetes altogether accounting for 66% of deaths in adults 60+. Tuberculosis ranked sixth, accounting for 4.9% in males. Stroke, hypertensive heart disease and diabetes were responsible for larger numbers of deaths in older women compared to older men. Lower respiratory infections were common, affecting similar proportions of men and women. Prostate cancer, lung cancer and oesophageal cancer contributed a significant number of deaths in men in this age group.

Figure FS7: Ten leading single causes of death among adults by sex, Free State 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

Comparing the Free State population's age structure and cause of death profile with the national profile, it is clear that the Free State profile was similar to the national one. The Free State had high mortality rates. HIV/AIDS is as advanced here as it is nationally; HIV/AIDS accounted for 32% of deaths in Free State compared with 30% nationally. Overall the mortality profile in the Free State was very similar to the national one, with slightly lower injury deaths (8%) compared with nationally (12%).

This province had high tuberculosis mortality among males and high rates of death from lower respiratory infections, protein-energy malnutrition, perinatal and maternal conditions. The province also had high cardiovascular mortality, arising from the full spectrum of diseases. Diabetes mortality was high among men, as was prostate cancer. Injury mortality rates were not as high as the national average.

In children the leading causes of death in the Free State and nationally were similar, except that congenital disorders of the gastro-intestinal tract and neural tube defects were present in the top ten causes in the Free State, but not nationally.

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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