

# Results

## Life expectancy and mortality levels

Mortality levels differed among the provinces. This was reflected by a variation in life expectancy from 63 years experienced in the Western Cape to 52 years in KwaZulu-Natal. The estimates for each province are shown in Table A1 in Appendix A and are displayed in Figure 1. Life expectancy is consistently higher for females than males, the difference being about 5 to 6 years.

Child mortality rates are influential on the overall life expectancy estimates, and displayed marked variations between the provinces (Figure 2), with the Western Cape having the lowest under-5 child mortality rate of 46 per 1000 live births compared with the highest in KwaZulu-Natal (116 per 1000 births) and Eastern Cape (105 per 1000 live births). Free State and Mpumalanga had rates of about 100 per 1000 births while North West and Limpopo's were 89 and 81 per 1000 births respectively. Gauteng and Northern Cape had among the lowest rates at 75 and 68 per 1000 births respectively. Western Cape, Gauteng and Northern Cape are the only provinces that in the year 2000 met the 'Health for All' target of 80 per 1000 births for under-5 child mortality. From Table A1 it can be seen that the infant mortality rate was the highest in the Eastern Cape province.

Mortality of young boys was consistently slightly higher than that for young girls; nationally the under-5 mortality for boys was 1.08 times that of girls. The difference is largely biological, with boys being more vulnerable to infection in the early years of life (Bogue, 1969). However, as children grow older social factors play a role and boys appear to be more vulnerable to unintentional injuries. The difference was more marked in the Western Cape and the Northern Cape, where the ratio reached 1.12 and 1.11 respectively.

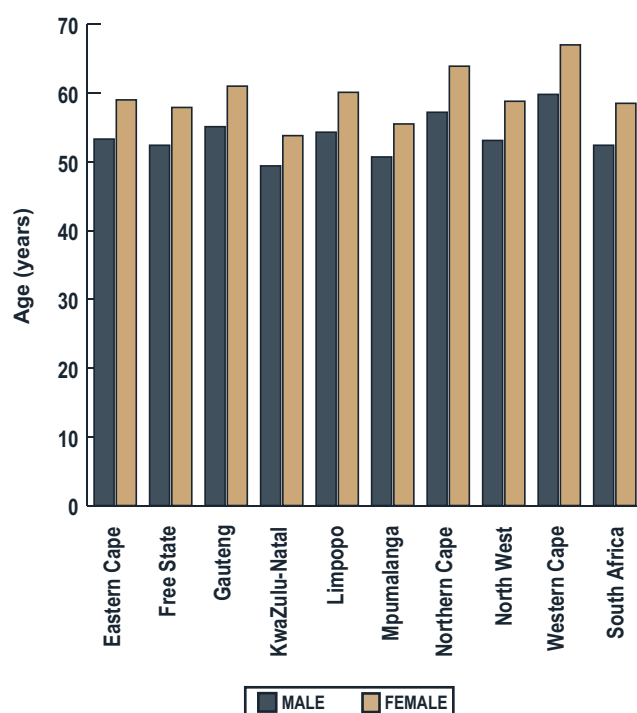
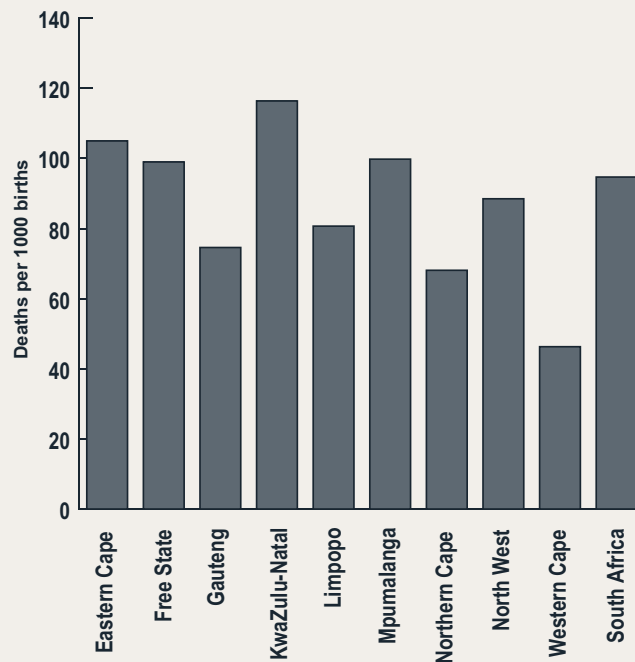


Figure 1: Estimates of life expectancy by province and sex, 2000

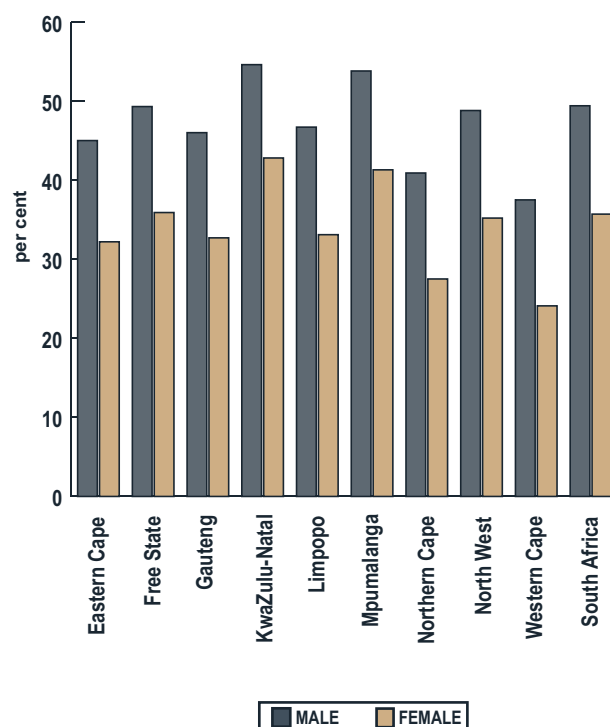
Figure 2: Estimates of under-5 mortality ( ${}_5q_0$ ) by province, 2000



Adult mortality is measured by  ${}_{45}q_{15}$ , the probability of a 15-year-old dying before reaching the age of 60. The estimates showed a marked difference in adult mortality (Figure 3). The national adult mortality rate was 49% for men and 35% for women, giving a ratio of male mortality to female mortality of 1.38. Provincial variations in the overall level of adult mortality were not as marked as the variations in child mortality rates, and showed that the Western Cape and the Northern Cape had the lowest rates (31% and 34% respectively), while KwaZulu-Natal and Mpumalanga had the highest rates (49% and 48% respectively). Free State and North West had rates of just over 42%, and Limpopo, Gauteng and Eastern Cape rates of just under 40%.

While there are no global targets for adult mortality rates, when compared to global estimates the rates for South Africa are lower than the rates for other Southern and East African countries and comparable to West African countries. The African countries are all higher than countries like Japan (9.8% for males and 4.4% for women), the United Kingdom (10.9% for men and 6.7% for women) and the United States (14.7% for men and 8.4% for women) (Lopez *et al.*, 2002).

Figure 3: Estimates of adult mortality ( ${}_{45}q_{15}$ ) by province, 2000



## Provincial comparison of cause-specific death rates

The age-standardised mortality rates by broad cause group are shown for each province in Figure 4, based on estimates reported in Appendices B-D. The age-standardised death rates (per 1000 population) ranged from 11.7 and 13.1 in the Western Cape and the Northern Cape respectively to levels of 17.6 in KwaZulu-Natal, 17.2 in Mpumalanga and 15.8 in the Free State; the highest rate was 1.5 times higher than the lowest. The rates in North West (15.6), Eastern Cape (14.9), Limpopo (14.8) and Gauteng (14.3) were mid-range when compared with the other provinces. It can also be seen from Figure 4 that the cause of death profile by broad group differed between the provinces.

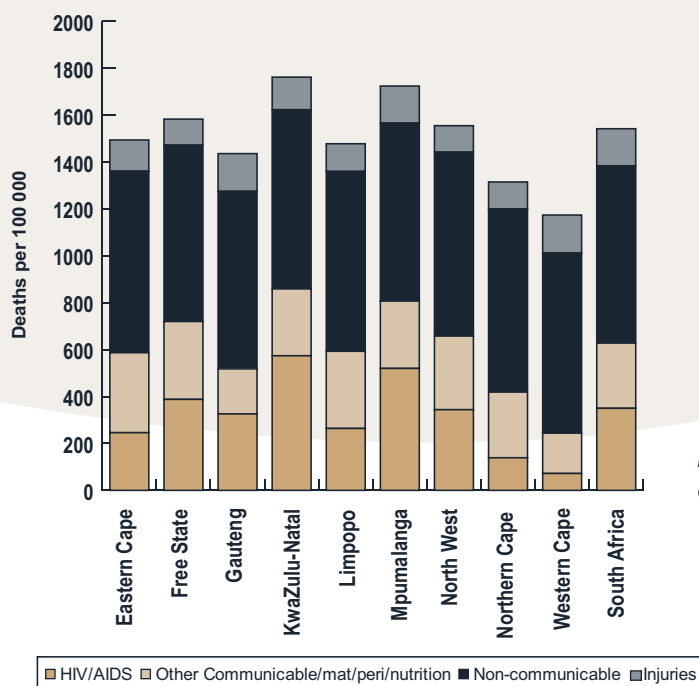


Figure 4: Provincial estimates of age-standardised death rates by broad cause group, 2000

## Infectious diseases, perinatal, maternal and nutrition-related conditions

Figure 5 shows the age-standardised death rates for males and females due to HIV/AIDS. It can be seen that the age-standardised death rates for males and females were fairly similar, but the rates followed the provincial variations of the epidemic. The death rates due to HIV/AIDS showed a very large difference, with the rate per 100 000 population in KwaZulu-Natal at 574 and in Mpumalanga at 520 being about 8 times higher than the rate in the Western Cape of 72. Gauteng (326), North West (344) and Free State (388) followed the highest ranked provinces, then Limpopo (264) and Eastern Cape (246). The Northern Cape, with a rate of 139 per 100 000 population, was the second lowest rate. These estimates are for the year 2000, and it is likely that the rates in all provinces have increased over the last few years. However, the roll-out of the Prevention of Mother to Child Transmission and the comprehensive treatment programme for AIDS should slow down the increase in the mortality rates.

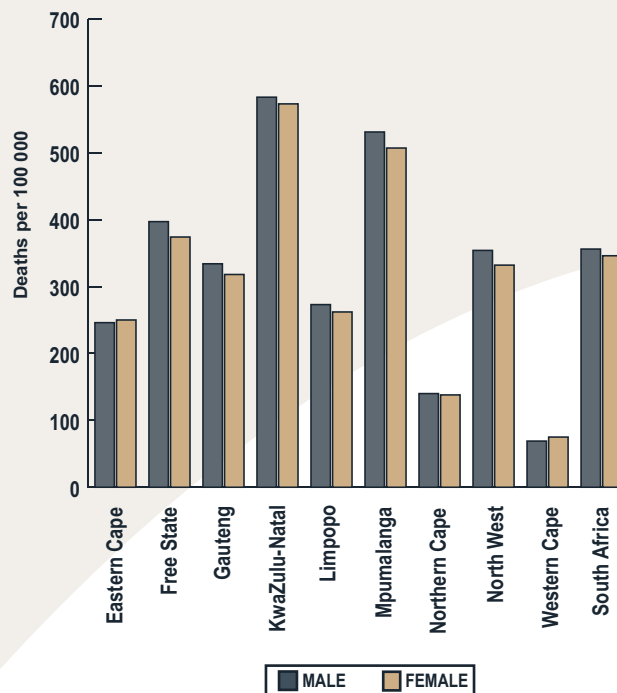


Figure 5: Provincial estimates of age-standardised death rates due to HIV/AIDS, 2000

Figure 6 shows variations between the provinces in the mortality rates due to other pre-transitional causes of death (other Group 1) including infectious and parasitic diseases, perinatal conditions and malnutrition. (The maternal death rates were too low to show on this graph but are shown in detail in Figure 8.) It can be seen that Western Cape and Gauteng had markedly lower mortality rates due to the other Group 1 causes, while the poorer provinces, Eastern Cape, Free State, Limpopo and North West, had the highest rates. However, Figure 7 shows that specific diseases followed varying provincial patterns. Tuberculosis mortality, not related to HIV, was consistently higher among males than females, and was lowest in the provinces of Gauteng, Mpumalanga, Limpopo and KwaZulu-Natal. Lower respiratory infections were highest in the provinces of North West and Free State. Diarrhoeal disease was highest in Eastern Cape, KwaZulu-Natal and Limpopo, and lowest in Gauteng and Western Cape. The ranking of provinces by diarrhoea death rates is identical to the ranking of provinces by household income as shown in Figure A1 (SSA, 2000b). The provinces with the lowest proportions of households receiving a monthly income below R800 have the lowest levels of diarrhoea mortality. Septicaemia rates ranged from 16 to 25 per 100 000. Interestingly, the septicaemia death rate for males in Eastern Cape was much higher than that for females, with a difference more pronounced than in other provinces.

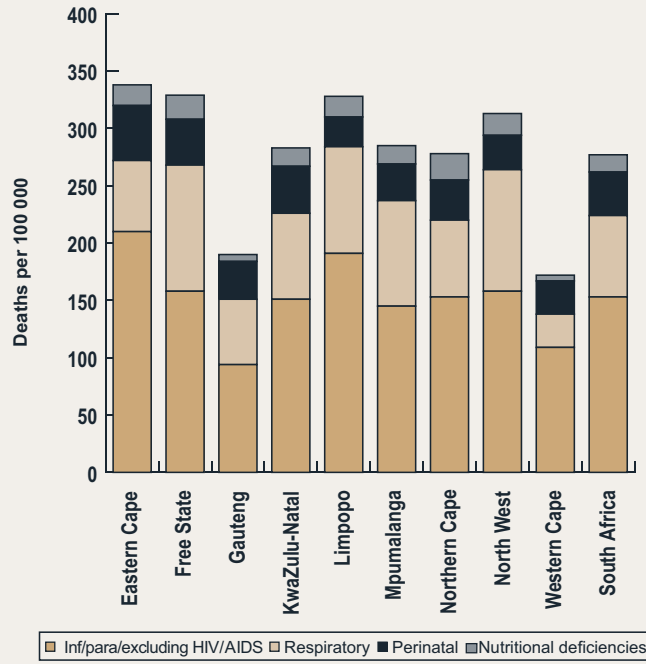


Figure 6: Provincial estimates of age-standardised death rates due to Group I causes excluding HIV/AIDS, 2000

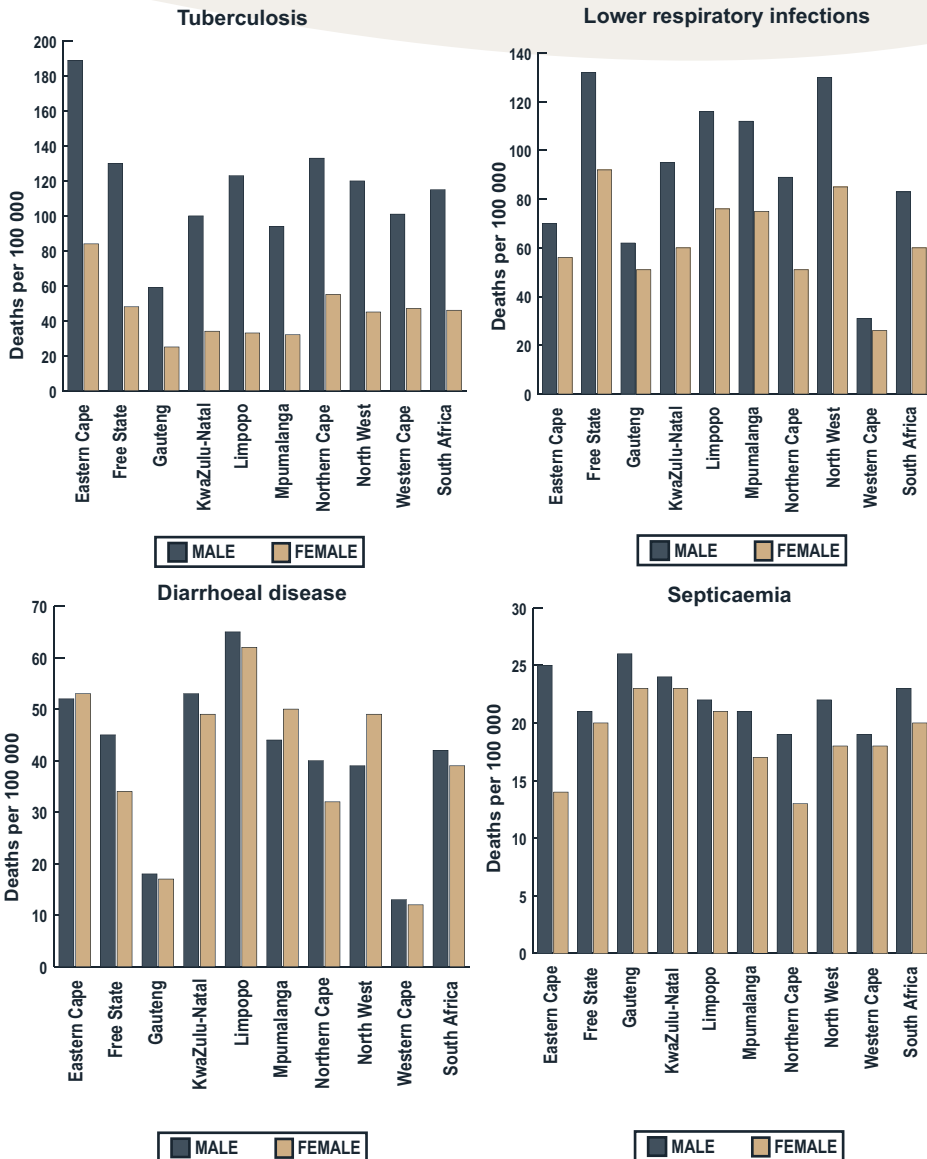


Figure 7: Provincial estimates of age-standardised death rates due to selected infectious diseases, 2000

Figure 8 shows differences between the provinces in the perinatal conditions (under 1 year), maternal conditions (for women aged 15-49 years) and protein-energy malnutrition death rates (under 5 years). Mortality from perinatal conditions was highest in Eastern Cape, Free State and KwaZulu-Natal. Malnutrition rates showed marked variations between the provinces. Eastern Cape, Free State, Northern Cape and North West showed the highest rates. Malnutrition mortality rates were higher among boys than girls, this difference being pronounced in the Northern Cape and to some extent the Eastern Cape.

The maternal conditions were compared with the NBD estimate for South Africa (Figure 8), which had been adjusted to match the national level of maternal mortality found in the SADHS 1998. Unfortunately, it has not been possible to adjust the estimates for the provinces as there are no provincial estimates of the maternal mortality ratio. The contrast of these estimates with the NBD estimate suggests that maternal deaths are consistently under-reported through death certification. In addition, it is not clear how the provincial variations between the provinces can be interpreted. If the under-reporting were consistent over all provinces, then the ranking of the provinces would indicate real differences between the provinces. However, it is likely that the provinces with better health facilities would have less under-reporting. With such high levels of under-reporting it is difficult to discern the real differences between provinces.

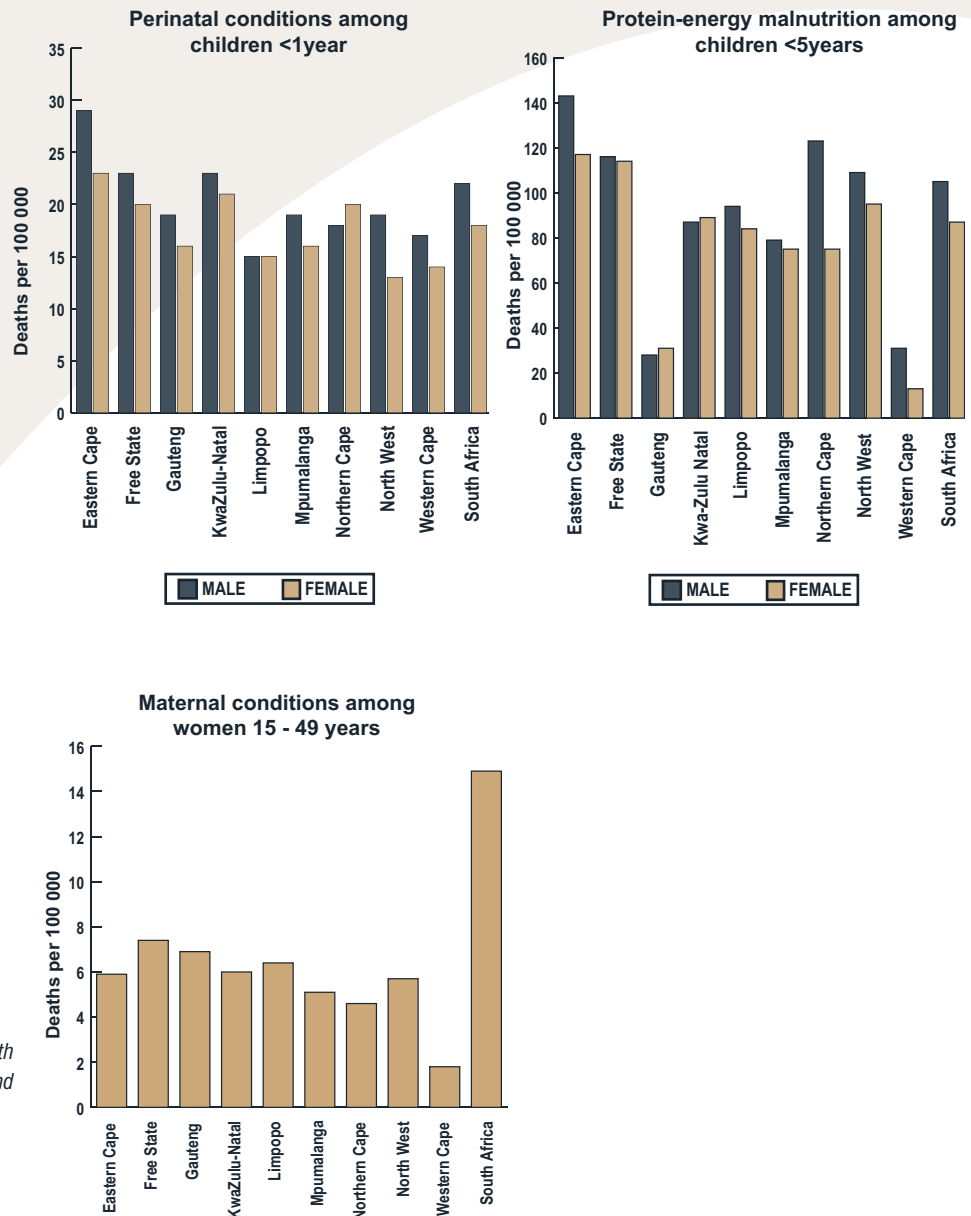


Figure 8: Provincial estimates of age-specific death rates due to perinatal or maternal conditions and protein-energy malnutrition, 2000

## Non-communicable diseases

There was surprisingly little variation between the provinces in the overall age-standardised death rate due to non-communicable diseases. The poorer provinces had similar levels to those of the more developed provinces – all at about 750 per 100 000 population. However, it can be seen from Figure 9 that there were variations in the profile of non-communicable diseases between the provinces. Furthermore, there were variations in the death rates for specific conditions.

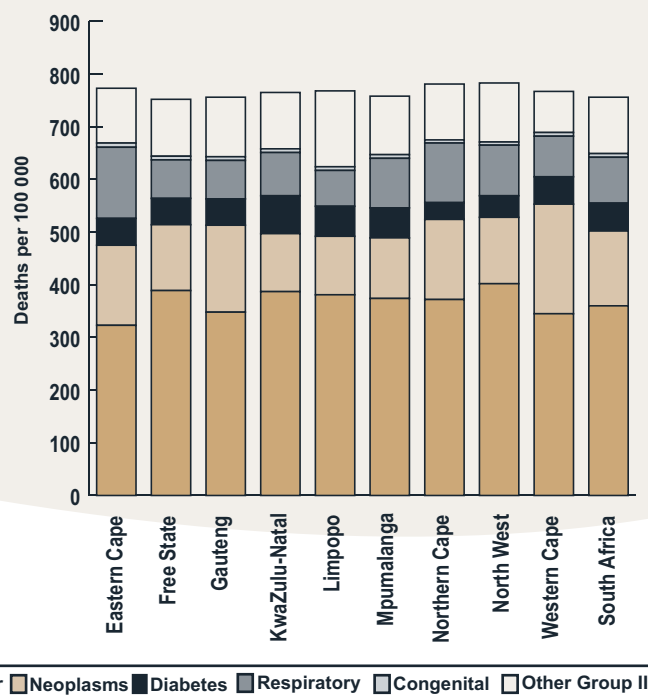


Figure 9. Provincial estimates of age-standardised death rates due to non-communicable diseases, 2000

Death rates due to cardiovascular diseases were lowest in Eastern Cape, Gauteng and Western Cape, and highest in Free State, KwaZulu-Natal and North West (Figure 10). Western Cape and Northern Cape had a pattern of high ischaemic heart disease and stroke, but low hypertensive heart disease and inflammatory heart disease. Limpopo and Mpumalanga had patterns of low ischaemic heart disease and stroke, but high rates of hypertensive heart disease and inflammatory heart disease.

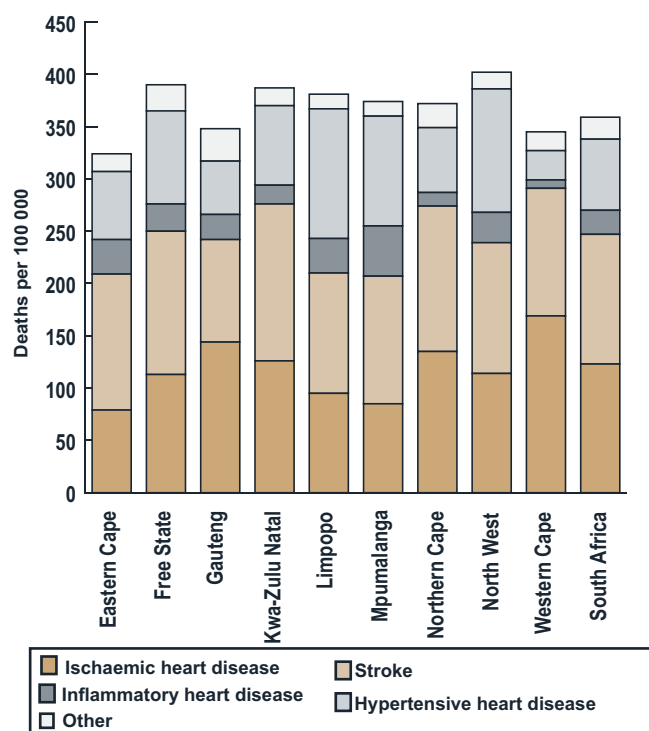


Figure 10: Provincial estimates of age-standardised mortality rates due to cardiovascular diseases, 2000

Ischaemic heart disease death rates were highest in Western Cape, Gauteng and Northern Cape, and lowest in Mpumalanga, Limpopo and Eastern Cape (Figure 11). The ischaemic heart disease rate was consistently higher for males than females. In contrast, stroke death rates for males were similar to the rates for females. The stroke death rates were particularly high in KwaZulu-Natal, and low in Gauteng. Provincial death rates due to hypertensive heart disease showed marked variations between the provinces, and higher rates for females than for males in all provinces except Mpumalanga. North West, Limpopo and Mpumalanga had the highest rates of hypertensive heart disease, while Western Cape and Gauteng had the lowest rates.

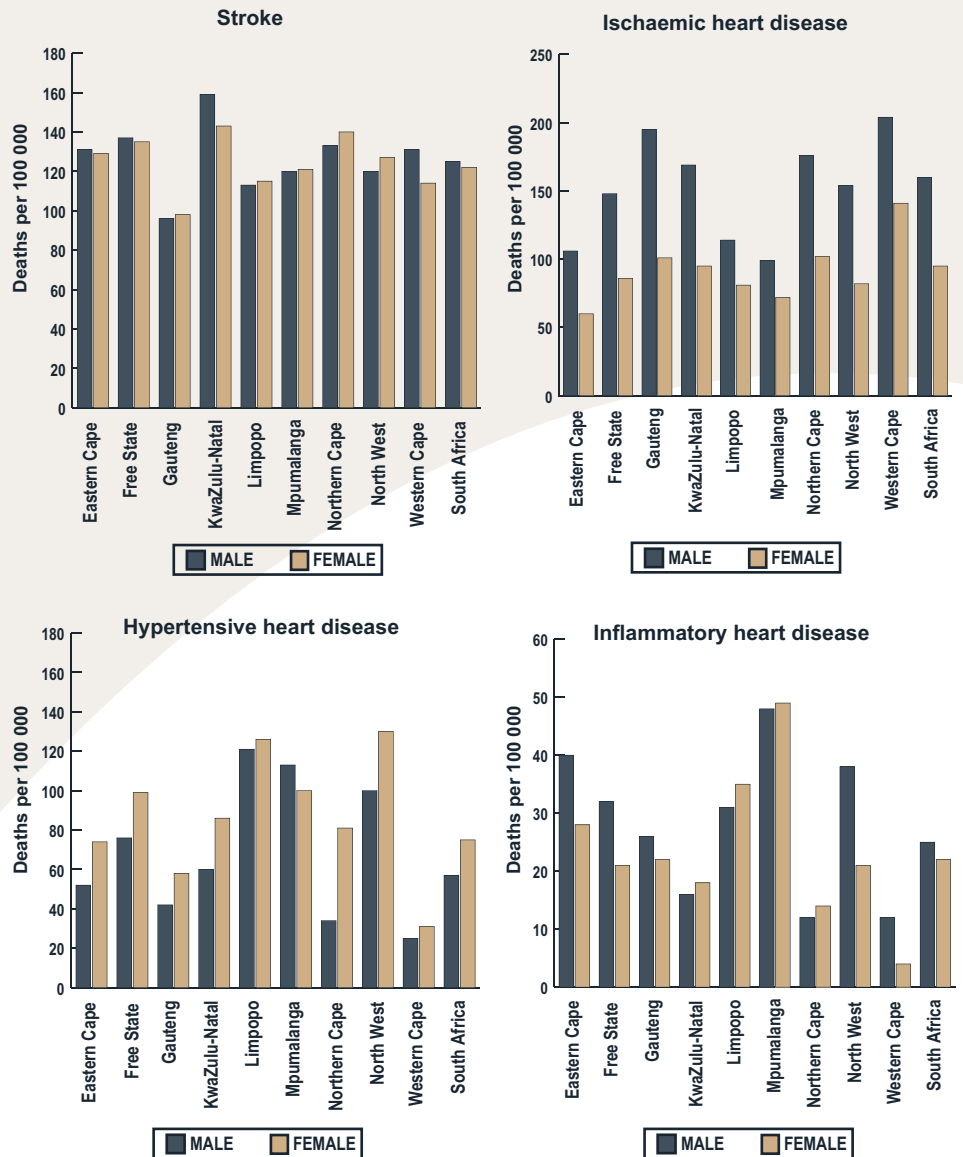


Figure 11: Provincial estimates of age-standardised death rates due to selected cardiovascular causes by sex, 2000

Death rates due to diabetes mellitus showed interesting regional variations, with the rates in KwaZulu-Natal, Limpopo, Free State and Mpumalanga being the highest and the rate in the Northern Cape being the lowest (Figure 12). Since diabetes is associated with an urban lifestyle, the more rural provinces might be expected to have lower rates. However, genetic factors play a role in the development of the disease, and the death rates are ameliorated by access to good-quality health services. It can be seen from Figure 12 that the rates for females were higher than those for males, but in Gauteng, Northern Cape and Limpopo the rates for males were higher.



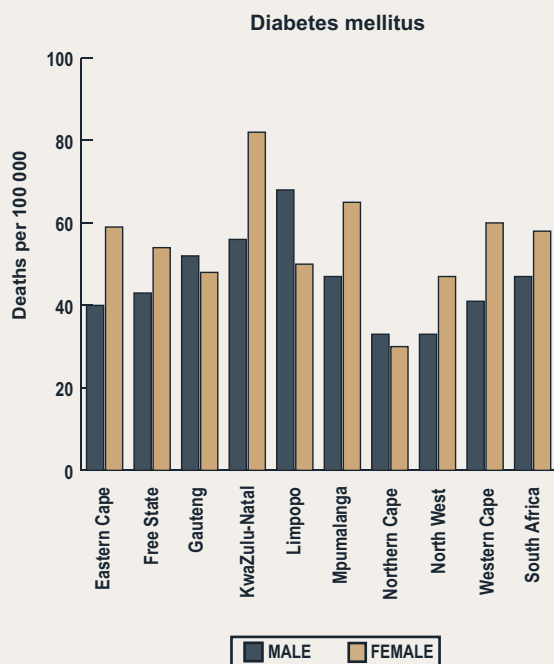


Figure 12: Provincial estimates of age-standardised death rates due to diabetes by sex, 2000

Cancer death rates varied across the provinces. From Figure 13 it can be seen that Western Cape had the highest cancer death rates followed by Gauteng, Northern Cape and Eastern Cape. The lowest rates were found in KwaZulu-Natal, Limpopo and Mpumalanga. However, the profile of the type of cancer differed enormously across the provinces.

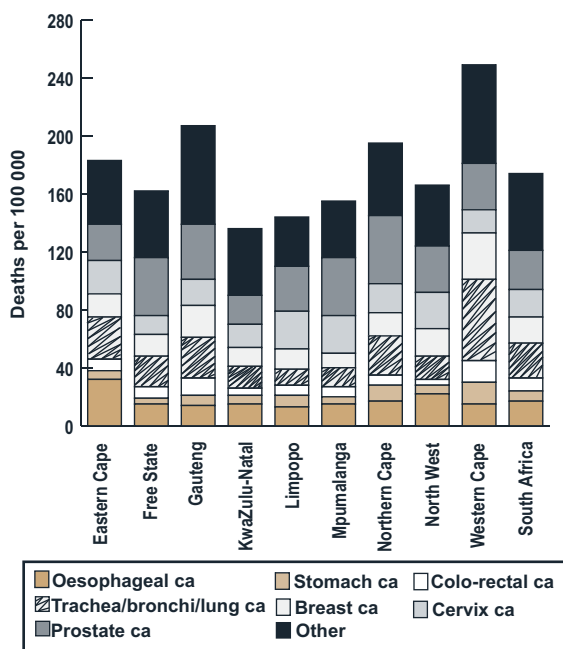


Figure 13: Provincial estimates of age-standardised death rates due to cancers, 2000

Lung cancer is the leading cancer in South Africa, with much higher rates among men than women. From Figure 14 it can be seen that the lung cancer rate among men in the Western Cape was extremely high. Prostate cancer was highest in Northern Cape, followed by Free State, Gauteng and Mpumalanga. Oesophageal cancer death rates were also higher among men than women. Eastern Cape had particularly high rates of oesophageal cancer, as did men in North West province. Nationally, cervical cancer and breast cancer death rates were at similar levels. However, there were provincial variations in the pattern. Western Cape had much higher breast cancer rates, while Mpumalanga, Limpopo and Eastern Cape had much higher cervical cancer rates.

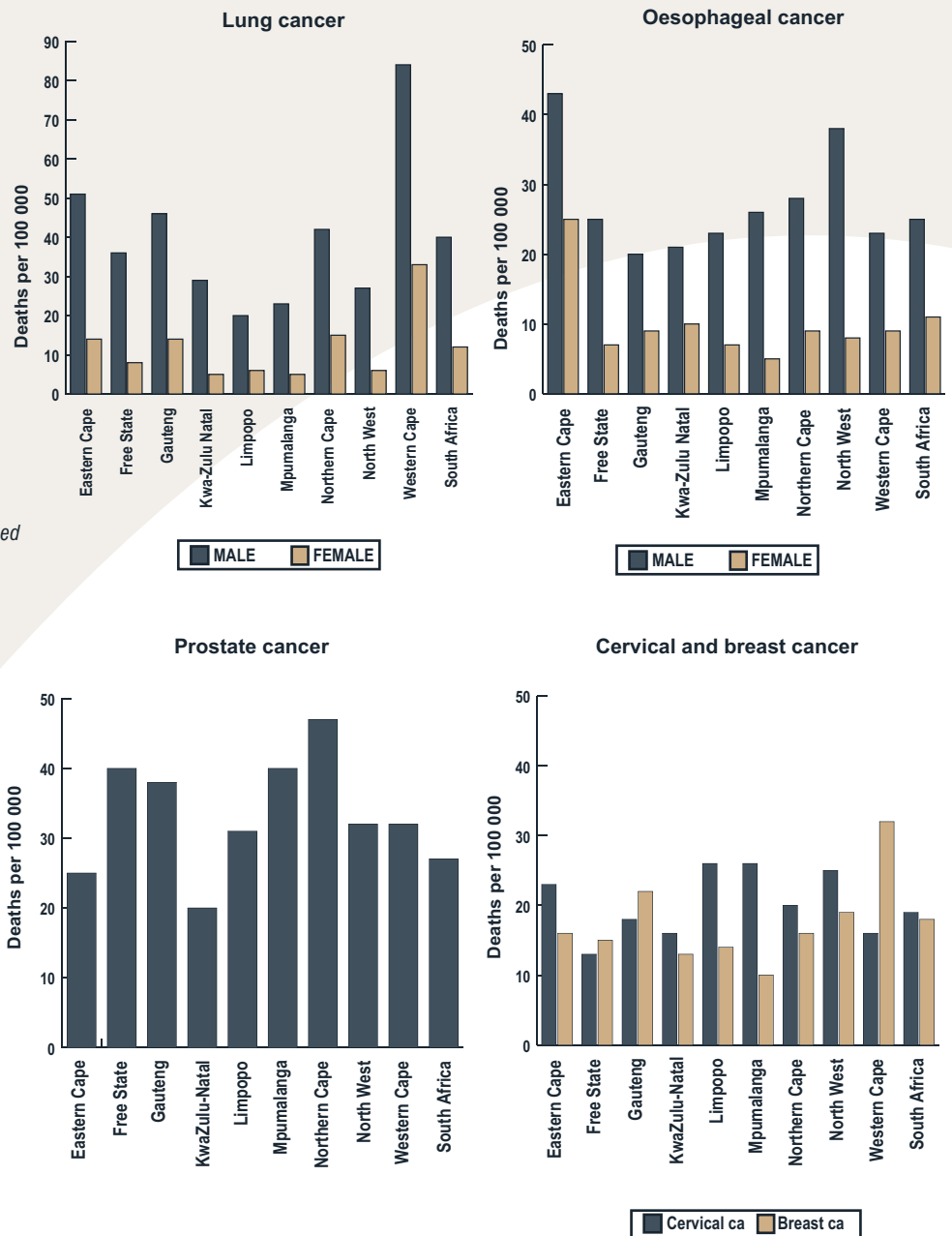


Figure 14: Provincial estimates of age-standardised death rates due to selected cancers by sex, 2000

The age-standardised death rates due to respiratory diseases, excluding acute infections such as tuberculosis and pneumonia, are shown in Figure 15. The rates in Eastern Cape and Northern Cape were particularly high, followed by North West and Mpumalanga. From Figure 16 it can be seen that the chronic obstructive disease death rates were very high in Eastern and Northern Cape, and that asthma was high in Eastern and Northern Cape, and that asthma was high in Eastern Cape, KwaZulu-Natal and Mpumalanga. Death rates for males were consistently higher than for females.

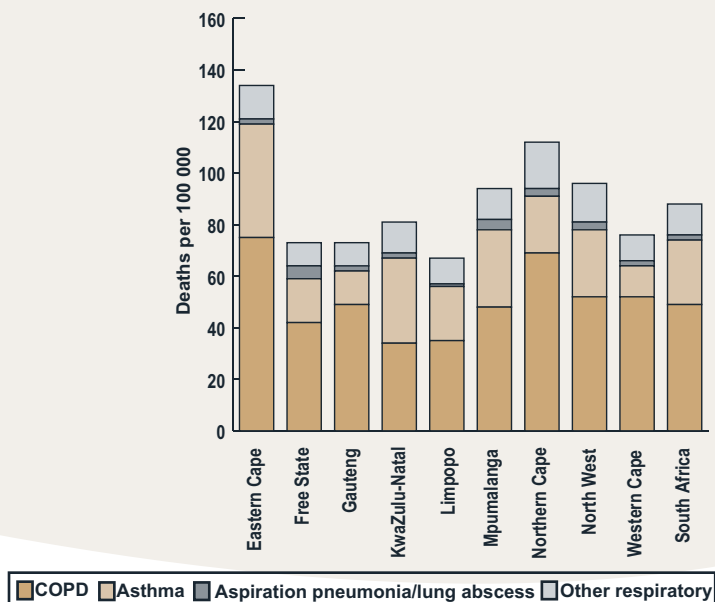


Figure 15: Provincial estimates of age-standardised mortality rates due to respiratory diseases, 2000

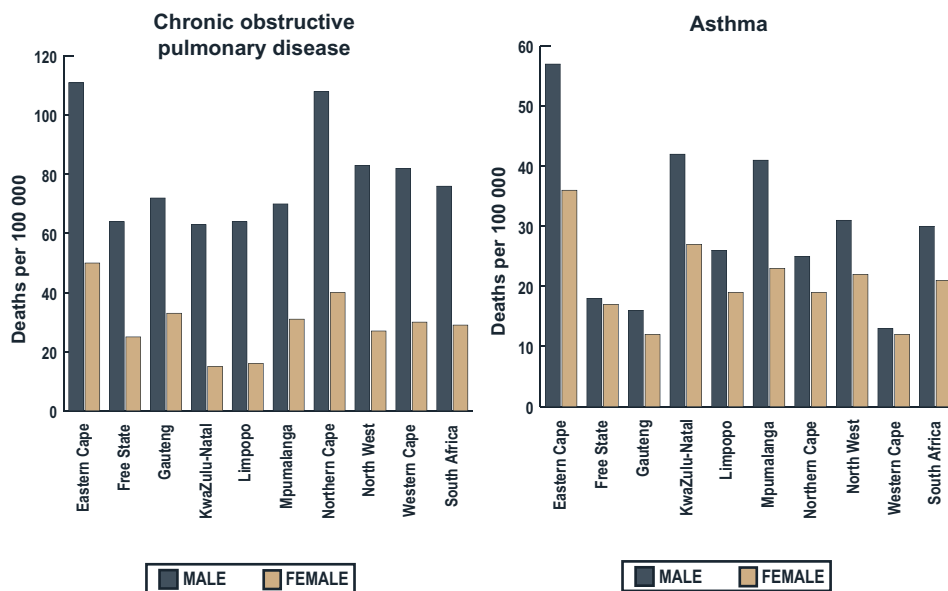


Figure 16: Provincial estimates of age-standardised death rates due to chronic obstructive pulmonary disease and asthma by sex, 2000

Figure 17 shows the provincial rates for three other non-communicable diseases that have mortality rates that are not insignificant – nephritis and nephrosis, epilepsy and cirrhosis of the liver. Mortality due to nephritis or nephrosis is often caused by hypertension or diabetes mellitus. The relatively high levels suggest that insufficient details have been provided on the medical certification of the cause of death. Death rates due to these conditions might be influenced by access to health services in terms of being diagnosed in the first place and being treated, making it difficult to assess the provincial variations. The rate was higher for males than for females in all provinces except Northern Cape. The highest rates were experienced by males in Limpopo, KwaZulu-Natal and Gauteng. The lowest rates were in females in Mpumalanga and North West. Epilepsy death rates varied enormously across the provinces. The rates were consistently higher among males than females. The rates were particularly high in Eastern Cape, and may reflect poor access to health services. Rates in North West province were also higher than the national average. Rates in Western Cape were the lowest. Death rates due to cirrhosis of the liver were higher among males than females across all provinces, with rates in Limpopo, North West, Northern Cape and KwaZulu-Natal the highest. Mpumalanga had the smallest difference between rates in males and in females.

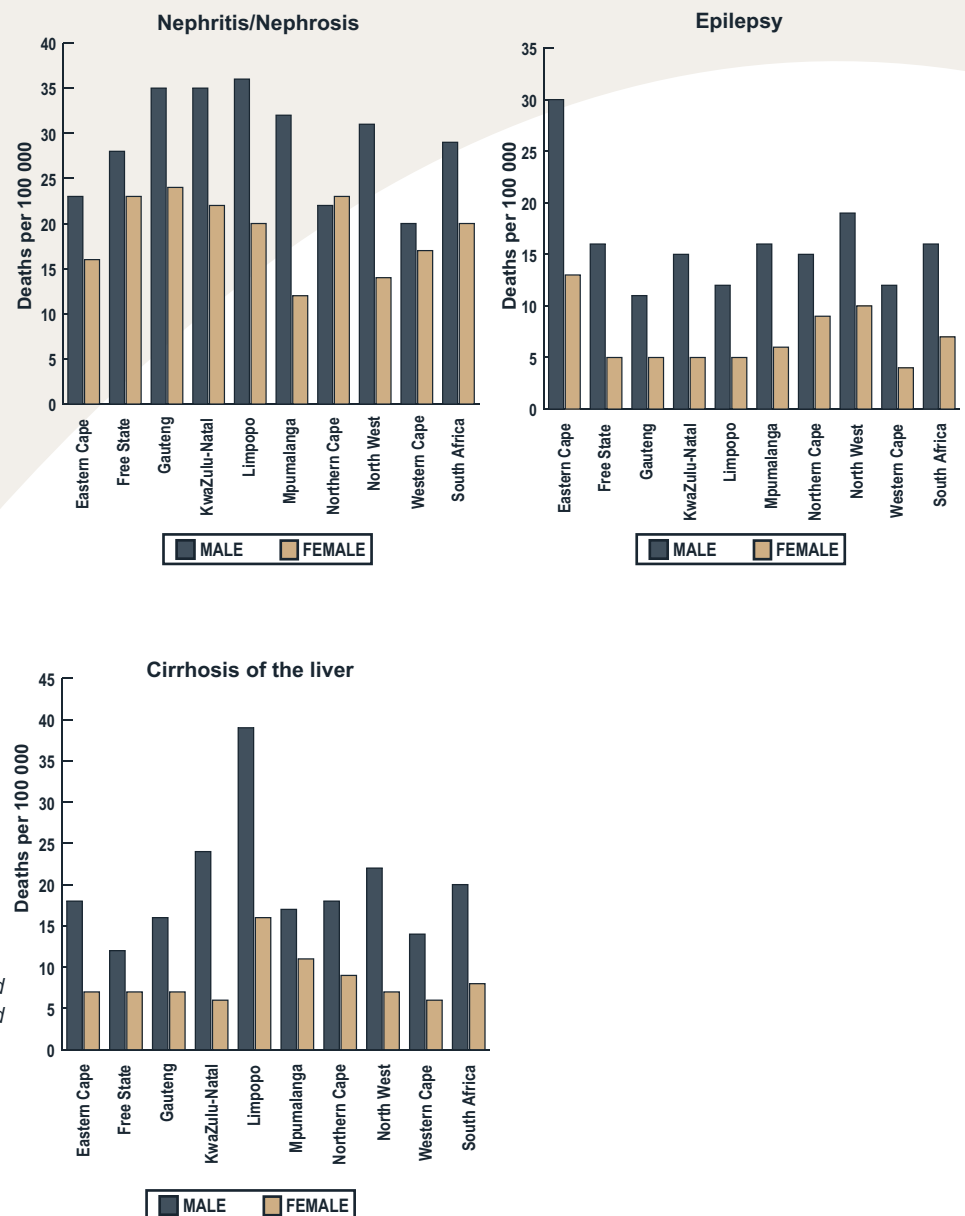


Figure 17: Provincial estimates of age-standardised death rates due to epilepsy, nephritis/nephrosis and cirrhosis of the liver by sex, 2000

## Injuries

From Figure 18 it can be seen that there were large variations between males and females in the overall death rates from injuries. The rates for males were about three times higher than the rates for females across all the provinces. Western Cape and Gauteng, the most developed provinces, had the highest rates. However, Mpumalanga, KwaZulu-Natal and Eastern Cape also had high rates. Free State, Limpopo, Northern Cape and North West had the lowest rates. In the case of males, the ranking of the manner and cause of injury was first homicides followed by road traffic accidents, suicides and fires. The ranking was different for females, where the leading cause was road traffic accidents followed by homicides, fires and suicides. The national injury cause of death profile was applied to each province by age and sex but is not shown in Figure 18 due to the lack of certainty of the provincial level estimates.

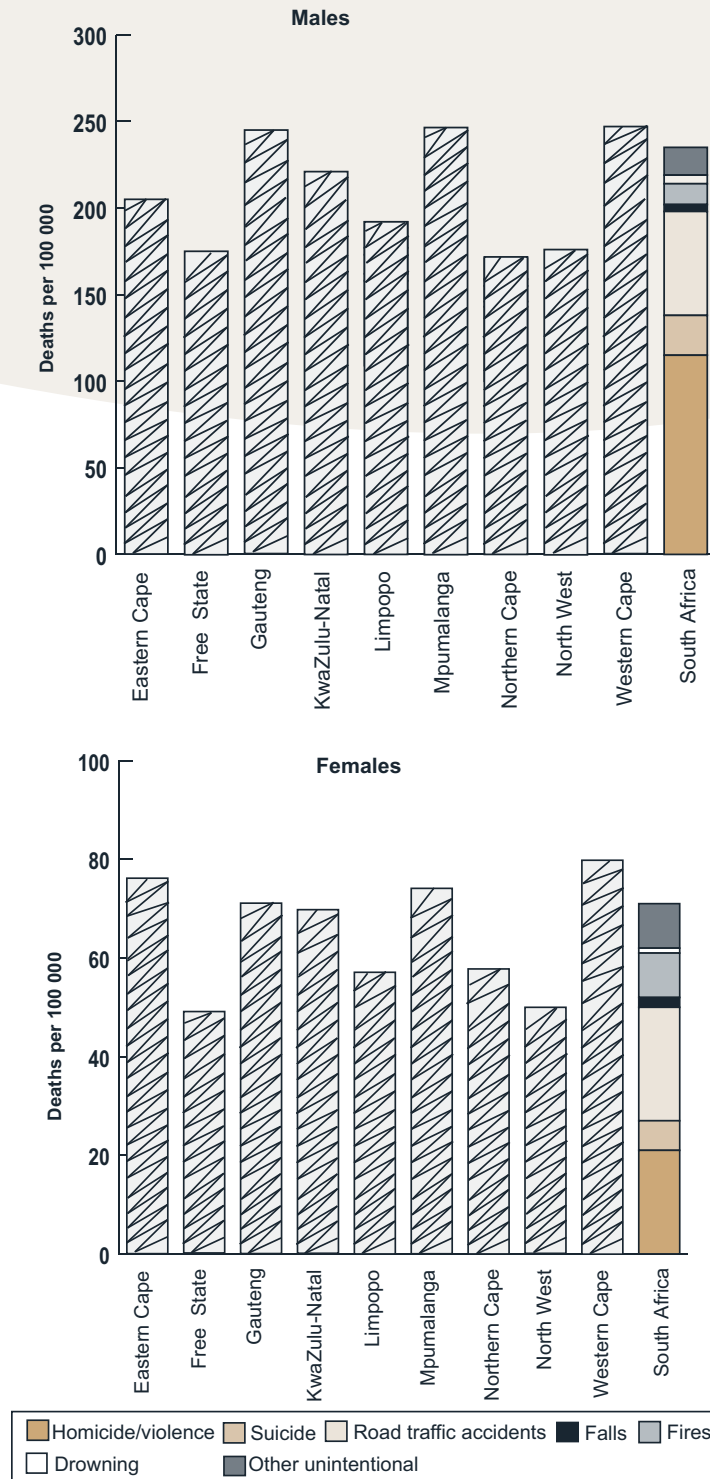


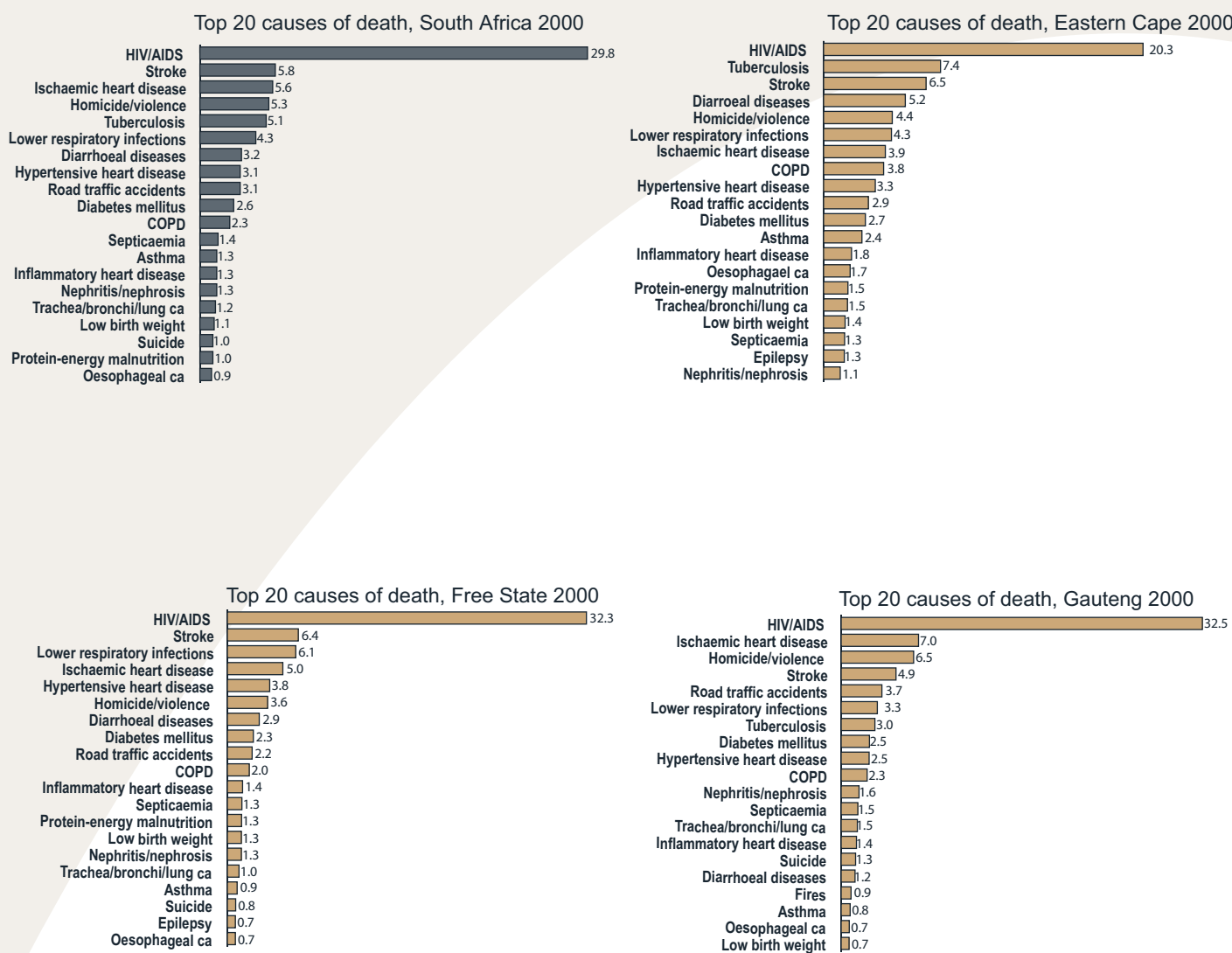
Figure 18: Provincial estimates of age-standardised death rates due to injuries for males and females, 2000

## Provincial comparison of leading causes of death

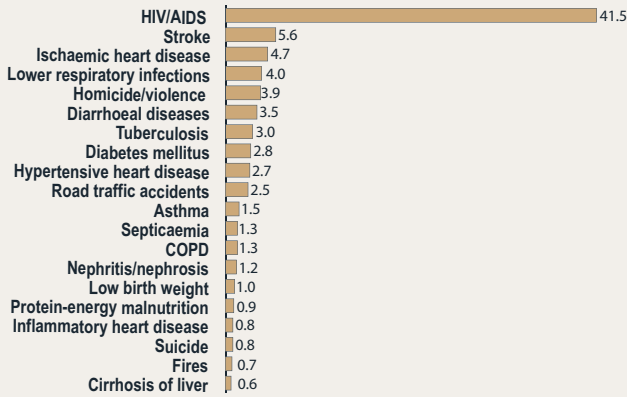
### Top causes of death

The top twenty causes of death ranked according to the South African BOD list are shown for each province and nationally in Figure 19, and the top ten causes are shown in a league table (Table 2). It can be seen that HIV/AIDS was the leading cause of death in all provinces except the Western Cape, but that there are substantive differences in the ranking of the other causes. It must be noted that the level of aggregation used for the ranking of causes does influence the resulting order. Full details of the cause of death profiles are given in the next section of the report.

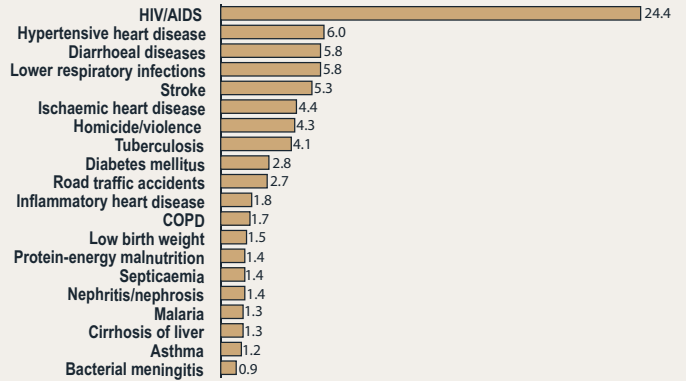
Figure 19: Top twenty causes of death (%) by province, 2000



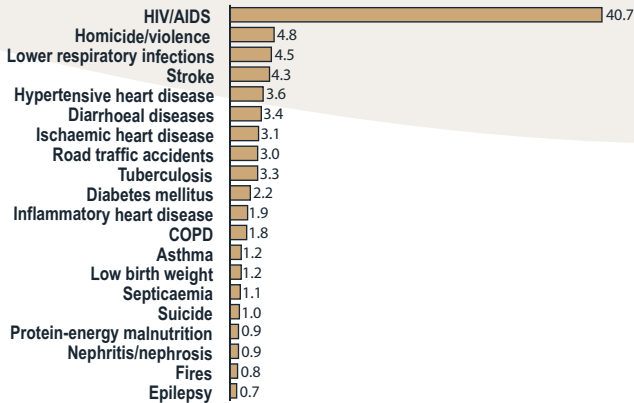
Top 20 causes of death, KwaZulu-Natal 2000



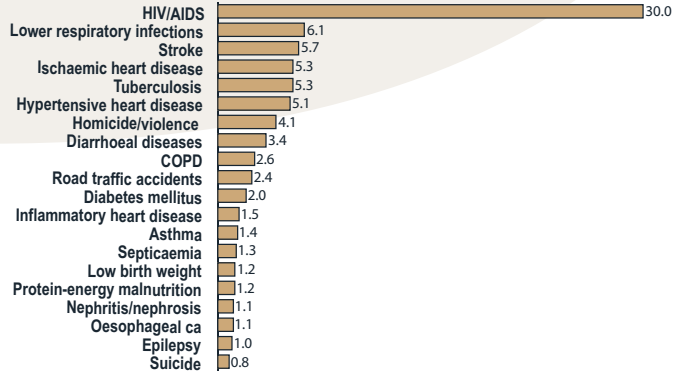
Top 20 causes of death, Limpopo 2000



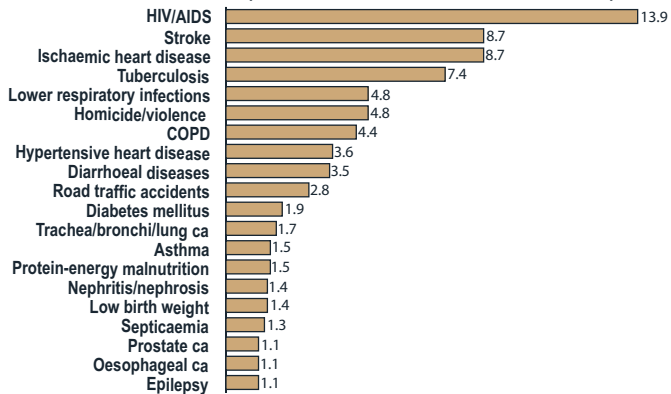
Top 20 causes of death, Mpumalanga 2000



Top 20 causes of death, North West 2000



Top 20 causes of death, Northern Cape 2000



Top 20 causes of death, Western Cape 2000

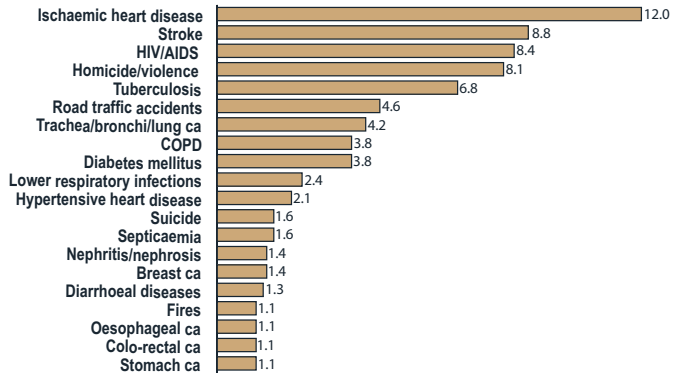


Table 2. Top ten causes of death by province, 2000

Rank	Eastern Cape	Free State	Gauteng	KwaZulu - Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	South Africa
1	HIV/AIDS (20.3 %)	HIV/AIDS (32.3 %)	HIV/AIDS (32.5 %)	HIV/AIDS (41.5 %)	HIV/AIDS (24.4 %)	HIV/AIDS (40.7 %)	HIV/AIDS (27.8 %)	HIV/AIDS (30.0 %)	Ischaemic heart disease (12.0 %)	HIV/AIDS (29.8 %)
2	Tuberculosis (7.4 %)	Stroke (6.4 %)	Ischaemic heart disease (7.0 %)	Stroke (5.6 %)	Hypertensive heart disease (6.0 %)	Homicide & violence (4.8 %)	Stroke (8.7 %)	Lower Respiratory infections (6.1 %)	Stroke (8.8 %)	Stroke (5.8 %)
3	Stroke (6.5 %)	Lower respiratory infection (6.2 %)	Homicide & violence (6.5 %)	Ischaemic heart disease (4.7 %)	Diarrhoeal diseases (5.8 %)	Lower respiratory infections (4.5 %)	Ischaemic heart disease (8.7 %)	Stroke (5.7 %)	HIV/AIDS (8.4 %)	Ischaemic heart disease (5.6 %)
4	Diarrhoeal diseases (5.2 %)	Ischaemic heart disease (5.0 %)	Stroke (4.9 %)	Lower respiratory infections (4.0 %)	Lower Respiratory infections (4.5 %)	Stroke (4.3 %)	Tuberculosis (5.3 %)	Tuberculosis (5.3 %)	Homicide & violence (8.1 %)	Homicide & violence (5.3 %)
5	Homicide & violence (4.4 %)	Hypertensive heart disease (3.8 %)	Road traffic (3.7 %)	Homicide & Violence (3.9 %)	Ischaemic heart disease (5.8 %)	Hypertensive heart disease (3.6 %)	Lower respiratory infection (4.8 %)	Ischaemic heart disease (5.3 %)	Tuberculosis (6.8 %)	Tuberculosis (5.1 %)
6	Lower respiratory infections (4.3 %)	Homicide and violence (3.6 %)	Lower respiratory infection (3.3 %)	Diarrhoeal diseases (3.5 %)	Stroke (5.3 %)	Diarrhoeal diseases (3.4 %)	Homicide & violence (4.8 %)	Hypertensive heart disease (5.1 %)	Road traffic (4.6 %)	Lower respiratory infections (4.3 %)
7	Ischaemic heart disease (3.9 %)	Diarrhoeal disease (2.9 %)	Tuberculosis (3.0 %)	Tuberculosis (3.0 %)	Homicide & violence (4.3 %)	Ischaemic heart disease (3.1 %)	COPD (4.4 %)	Homicide & violence (4.1 %)	Trachea/ bronchi/lung ca (4.2 %)	Diarrhoeal diseases (3.2 %)
8	COPD (3.8 %)	Diabetes mellitus (2.3 %)	Diabetes mellitus (2.5 %)	Diabetes mellitus (2.8 %)	Tuberculosis (4.0 %)	Road traffic (3.0 %)	Hypertensive heart disease (3.7 %)	Diarrhoeal diseases (3.4 %)	COPD (3.8)	Hypertensive heart disease (3.1 %)
9	Hypertensive heart disease (3.2 %)	Road traffic (2.2 %)	Hypertensive heart disease (2.5 %)	Hypertensive heart disease (2.7 %)	Diabetes mellitus (2.8 %)	Tuberculosis (3.0 %)	Diarrhoeal diseases (3.5 %)	COPD (2.6 %)	Diabetes mellitus (3.8 %)	Road traffic (3.1 %)
10	Road traffic (2.9 %)	COPD (2.2 %)	COPD (2.3 %)	Road traffic (2.5 %)	Road traffic (2.7 %)	Diabetes mellitus (2.2 %)	Road traffic (2.8 %)	Road traffic (2.4 %)	Lower respiratory infections (2.4 %)	Diabetes mellitus (2.6 %)

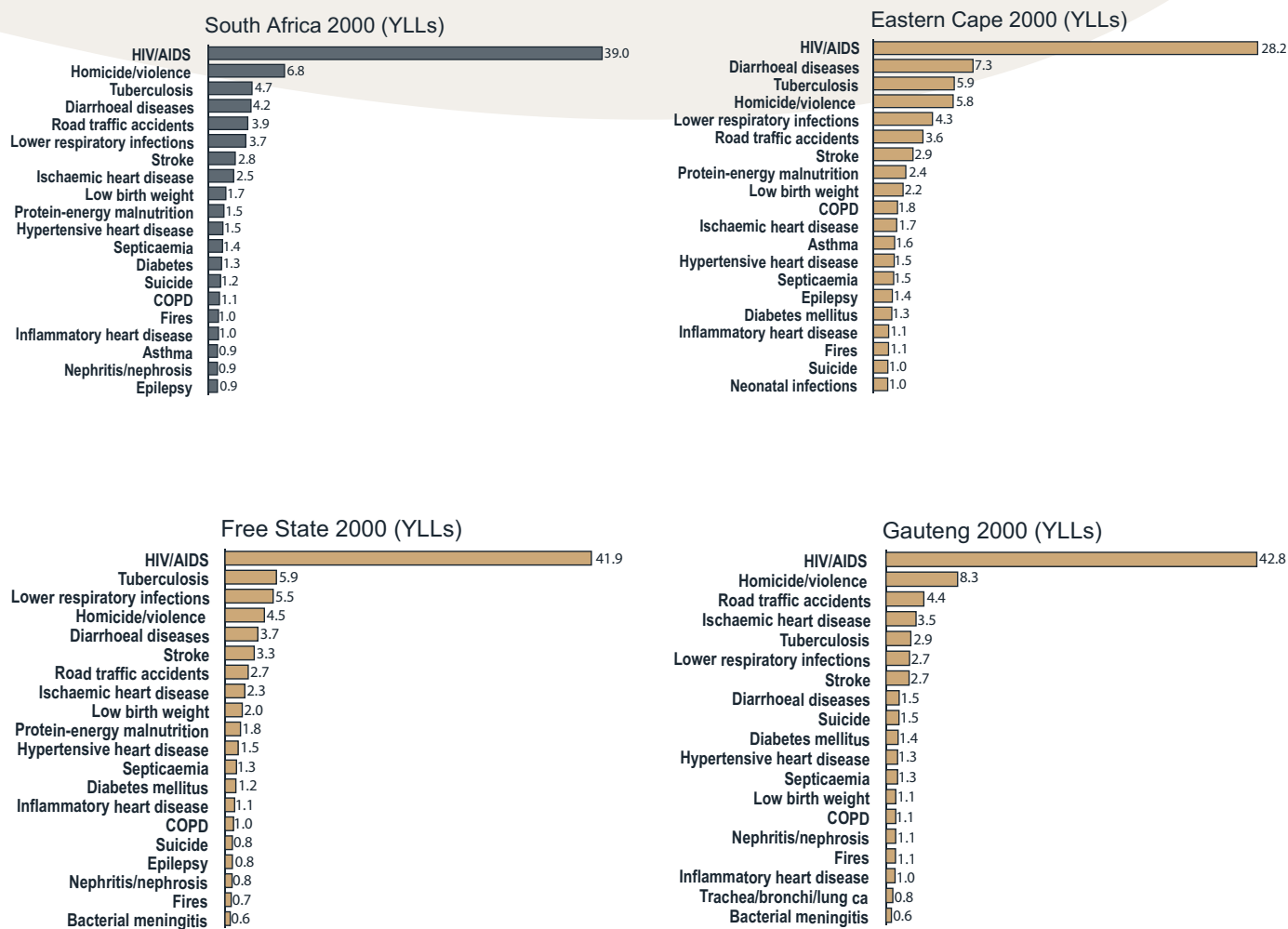


## Top causes of premature mortality

The years of life lost (YLLs) are an important measure of premature mortality for public health planning. Figure 20 shows the top twenty causes of YLLs for each province and nationally, and Table 3 lists the top ten causes of YLLs by province. These highlight the need to focus on HIV/AIDS, homicide, tuberculosis, diarrhoea, road traffic accidents and lower respiratory infections in order to reduce premature mortality. These consistently featured among the top causes in all provinces.

HIV/AIDS was the leading cause of premature mortality in 2000 in all provinces, accounting for 14% in the lowest ranked province, Western Cape, and 51% in the highest ranked province, KwaZulu-Natal. Stroke featured in the top causes of YLLs for all provinces. It appeared in combination with ischaemic heart disease in all provinces except the most rural provinces of Eastern Cape and Limpopo. Hypertensive heart disease featured in Limpopo, Mpumalanga and North West province. Diabetes featured in the top causes for Gauteng and KwaZulu-Natal. Low birth weight featured in all provinces except the most developed - Gauteng and Western Cape. Protein-energy malnutrition featured in the top ten causes for Eastern Cape, Free State, Limpopo and Northern Cape.

Figure 20: Top twenty causes of years of life lost (%) by province, 2000



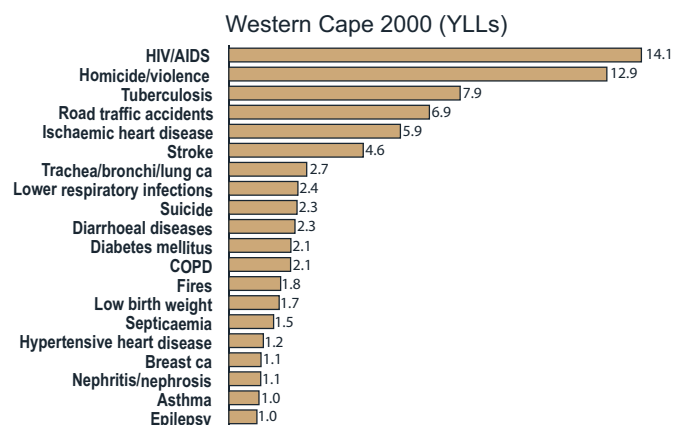
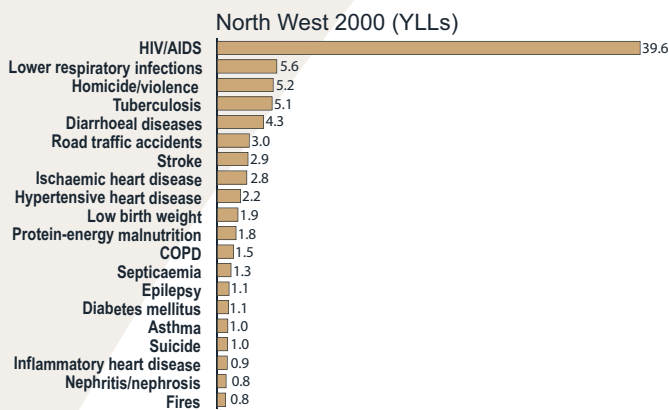
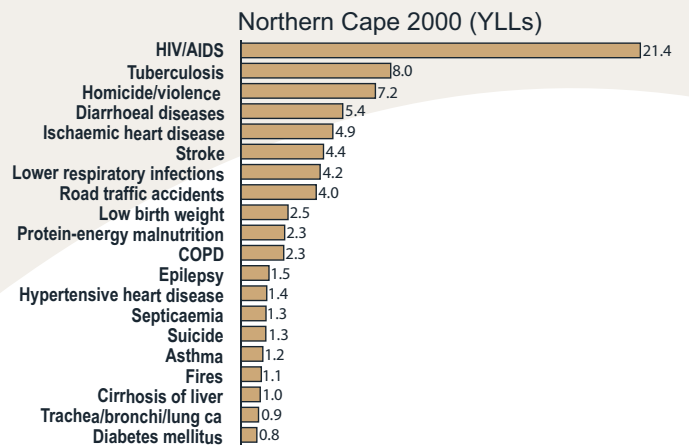
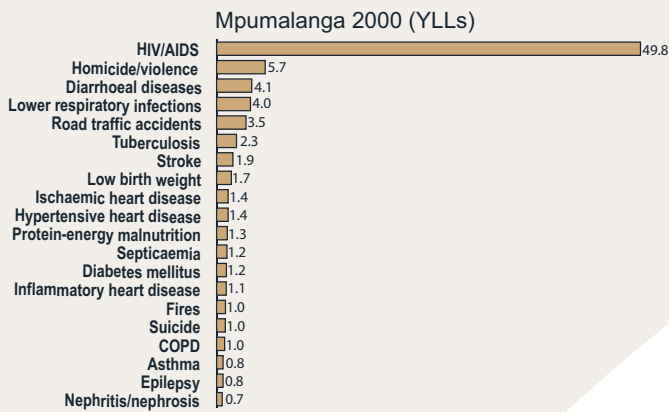
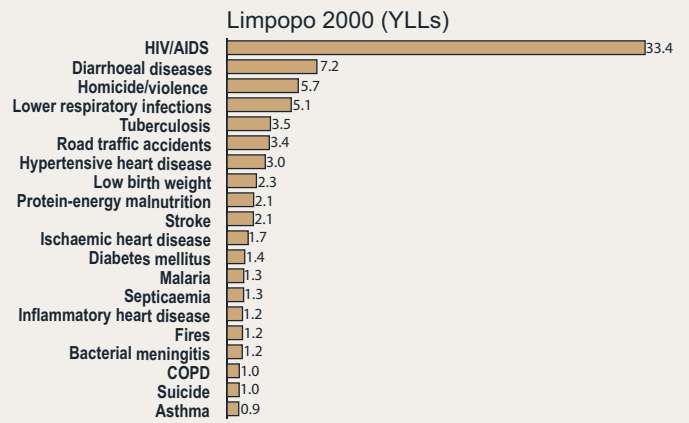
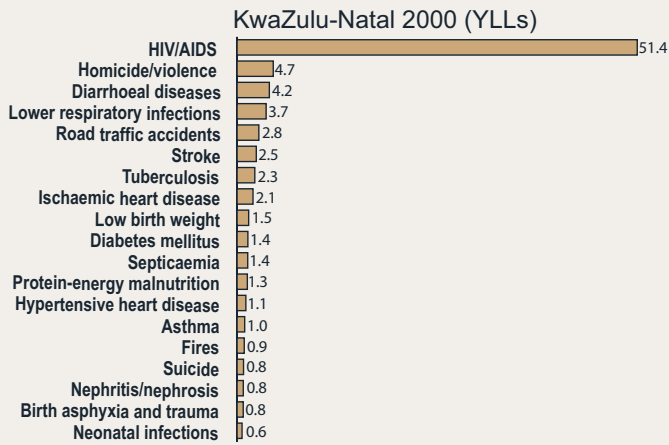


Table 3. Top ten causes of years of life lost by province, 2000

Rank	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	South Africa
1	HIV/AIDS (28.3%)	HIV/AIDS (42.9%)	HIV/AIDS (42.8%)	HIV/AIDS (51.4%)	HIV/AIDS (33.4%)	HIV/AIDS (49.8%)	HIV/AIDS (21.4%)	HIV/AIDS (39.6%)	HIV/AIDS (14.1%)	HIV/AIDS (39.0%)
2	Diarrhoeal diseases (7.3%)	Tuberculosis (5.9%)	Homicide & violence (8.3%)	Homicide & violence (4.7%)	Diarrhoeal diseases (7.2%)	Homicide & violence (5.7%)	Tuberculosis (8.0%)	Lower respiratory infection (5.6%)	Homicide & violence (12.9%)	Homicide & violence (6.8%)
3	Tuberculosis (5.9%)	Lower respiratory infection (5.5%)	Road traffic (4.4%)	Diarrhoeal diseases (4.2%)	Homicide & violence (5.7%)	Diarrhoeal diseases (4.1%)	Homicide & violence (7.2%)	Homicide & violence (5.2%)	Tuberculosis (7.9%)	Tuberculosis (4.7%)
4	Homicide & violence (5.8%)	Homicide & violence (4.5%)	Ischaemic heart disease (3.5%)	Lower respiratory infection (3.7%)	Lower respiratory infection (5.1%)	Lower respiratory infection (4.0%)	Diarrhoeal diseases (5.4%)	Tuberculosis (5.1%)	Road traffic (6.9%)	Diarrhoeal diseases (4.2%)
5	Lower respiratory infection (4.3%)	Diarrhoeal diseases (3.7%)	Tuberculosis (2.9%)	Road traffic (2.8%)	Tuberculosis (3.5%)	Road traffic (3.5%)	Ischaemic heart disease (4.9%)	Diarrhoeal diseases (4.3%)	Ischaemic heart disease (5.9%)	Lower respiratory infection (3.9%)
6	Road traffic (3.6%)	Stroke (3.3%)	Lower respiratory infection (2.7%)	Stroke (2.5%)	Road traffic (3.4%)	Tuberculosis (2.3%)	Stroke (4.4%)	Road traffic (3.0%)	Stroke (4.6%)	Road traffic (3.7%)
7	Stroke (2.9%)	Road traffic (2.7%)	Stroke (2.7%)	Tuberculosis (2.3%)	Hypertension heart disease (3.0%)	Stroke (1.9%)	Lower respiratory infection (4.2%)	Stroke (2.9%)	Trachea/bronchi /lung (2.7%)	Stroke (2.8%)
8	Protein-energy malnutrition (2.4%)	Ischaemic heart disease (2.3%)	Diarrhoeal diseases (1.5%)	Ischaemic heart disease (2.1%)	Low birth weight (2.3%)	Low birth weight (1.7%)	Road traffic (4.0%)	Ischaemic heart disease (2.8%)	Lower respiratory infection (2.4%)	Ischaemic heart disease (2.5%)
9	Low birth weight (2.2%)	Low birth weight (2.0%)	Suicide (1.5%)	Low birth weight (1.5%)	Protein-energy malnutrition (2.1%)	Ischaemic heart disease (1.4%)	Low birth weight (2.5%)	Hypertensive heart disease (2.2%)	Suicide (2.3%)	Low birth weight (1.7%)
10	COPD (1.8%)	Protein-energy malnutrition (1.8%)	Diabetes mellitus (1.4%)	Diabetes mellitus (1.4%)	Stroke (2.1%)	Hypertensive heart disease (1.4%)	Protein-energy malnutrition (2.3%)	Low birth weight (1.9%)	Diarrhoeal diseases (2.3%)	Protein-energy malnutrition (1.5%)

