

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

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Burden of Disease
Research Unit



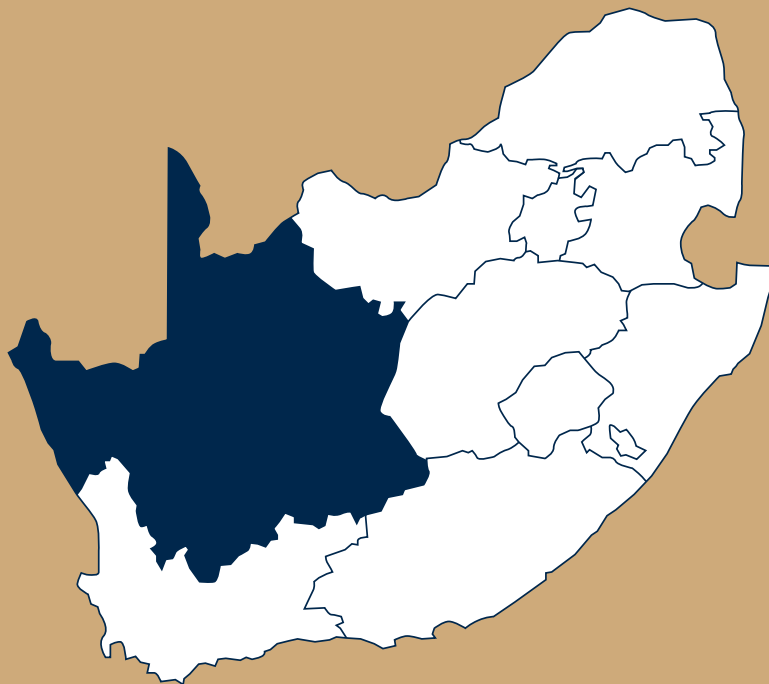
Mortality Estimates

for

NORTHERN CAPE 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).

Northern Cape provincial profile

Background

Northern Cape is in the north-west of South Africa, having international borders with Botswana and Namibia, and local borders with Western Cape and Eastern Cape in the south, and Free State and North West in the east. The province encloses 361 830 km², constituting 29.7% of the total land area of South Africa (SSA, 2003). In 2000 the average population density was estimated at 3 persons per square kilometre, by far the lowest density of all the provinces. During the 1996 Census 29.9% of the population lived in non-urban areas (SSA, 1998).

Northern Cape's major airports are at Kimberley, the capital, and Upington. The Northern Cape is serviced by an excellent road network, which makes it easily accessible from South Africa's major cities, harbours and airports. Upington is the centre of the karakul sheep and dried fruit industries, and the most northerly wine-making region in South Africa. Sutherland is the coldest town in the country, and sheep-farming towns are Carnarvon, Colesberg, Kenhardt and Prieska. The province has several national parks and conservation areas. The economy of the interior Karoo depends on sheep farming, while the karakul pelt industry is one of the most important in the Gordonia district of Upington. The province has fertile agricultural land; at Upington, Kakamas and Keimoes, grapes and fruit are intensively cultivated. Table grapes are mainly produced for export.

Northern Cape is rich in minerals. The country's chief diamond pipes are found in the Kimberley district. Between Alexander Bay and Port Nolloth, alluvial diamonds are extracted from the beaches and sea. The Sishen Mine near Kathu is the biggest source of iron ore in South Africa, and the copper mine at Okiep is one of the oldest in the country. Copper is also mined at Springbok and Aggenys. The province is also rich in asbestos, manganese, fluorspar, semi-precious stones and marbles. The province's Gross Geographic Product at 2001 prices was rated at R19 585 million, contributing 2% to the national Gross Domestic Product (GCIS, 2004).

Population structure

According to the 2000 ASSA estimates 955 010 people lived in Northern Cape, constituting 2.1% of South Africa's total population. The province accommodated slightly more women (50.7%) than men (49.3%). Just over 31% of the population were younger than 15, 64% were in their 'economically active' years (15-64), and 7.3% were aged 60 years or more. [Comparison with 2001 Census: total population 822 727 (ASSA had 132 283 more); 1.8% of South Africa's population; 51.2% female; 35.7% Black African, 51.6% Coloured, 0.3% Indian, 12.4% White.]

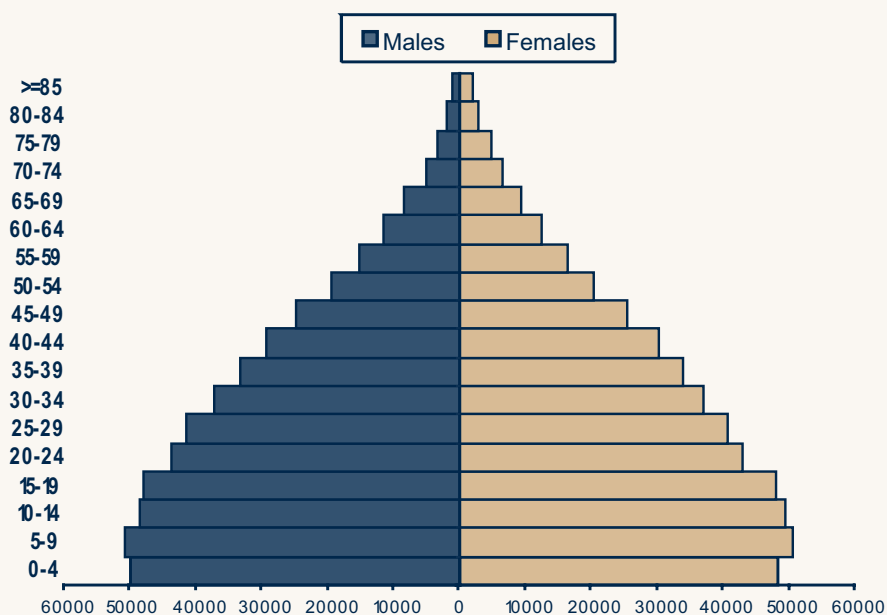


Figure NC1: Age structure of the Northern Cape population, 2000

Living conditions

According to the 2001 Census 18% of the population aged 20 years or older had no formal school education, and over 33% of those in the age group 15-64 years were unemployed (SSA, 2003). Over 54% of the province's population lived below the national poverty line in 2002 (UNDP, 2004). About 80% of all households lived in formal dwellings, and nearly 13% and 4% respectively in informal and traditional structures. On average, 3.8 persons shared a household. Piped water, either in the dwelling, on site, or from a communal tap was available in 97% of households. Over 11% of households did not have access to a toilet facility, and 69% had a refuse removal service once a week or more often. In 59% of households electricity was used as the main source of energy for cooking, wood in 15%, and paraffin in 18%. Of the households, 68% had a radio, 56% a television, 56% a refrigerator, 30% a telephone and 26% a cell phone (SSA, 2003).

Mortality profile

Northern Cape's mortality profile is based on 5495 (56%) male and 4314 (44%) female deaths estimated for the year 2000, a total of 9809 deaths. Figure NC2 shows causes of death for the broad Groups I, II, III and HIV/AIDS. Group I and II deaths were similar for men and women, while the proportions of deaths due to HIV/AIDS were 12% in males and 16% in females. There is double the number of deaths from injury in males than in females.

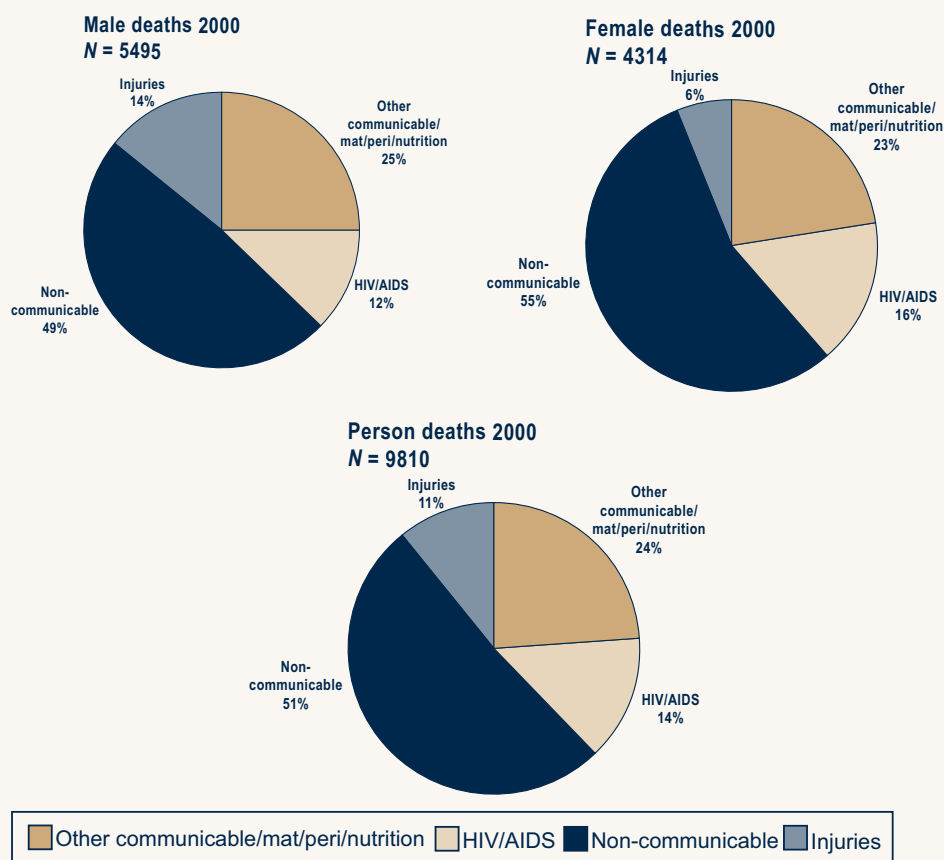


Figure NC2: Estimated deaths by Groups, Northern Cape 2000

The age-specific cause of death profiles are presented in Figure NC3. The number of deaths is presented by 5-year intervals for the three broad Groups and HIV/AIDS. Due to particular disease and mortality profiles in children during the first year of life, the under 5 year age group was divided into infants less than 1 year old and children aged 1-4 years. More than two-thirds of deaths in infants were due to Group I diseases and another quarter to HIV/AIDS. Half of the deaths in those under 5 were due to HIV/AIDS. HIV/AIDS was also the leading cause of death in young women. Injuries were the leading cause in young men, and non-communicable diseases in adults over 60 years of age.

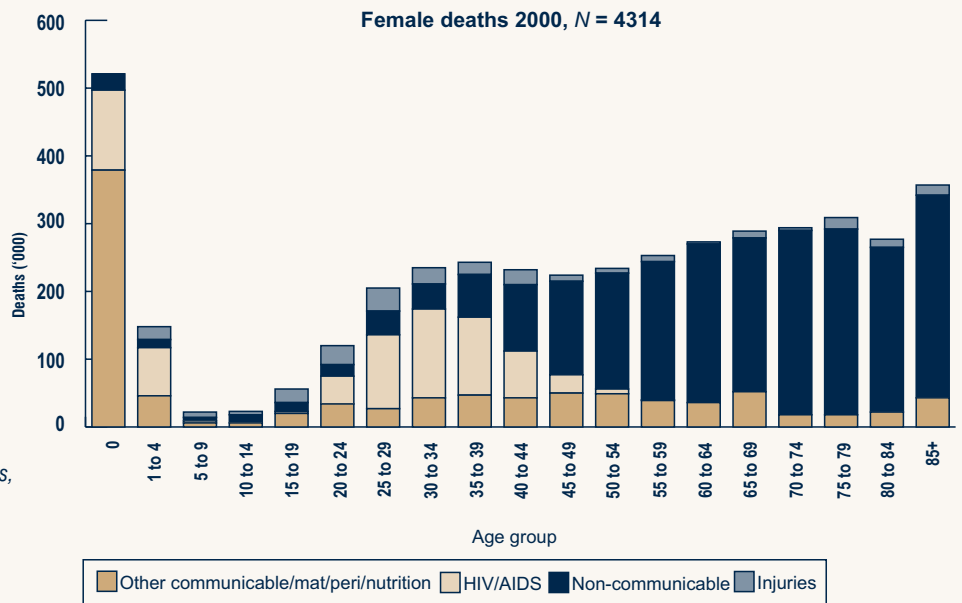
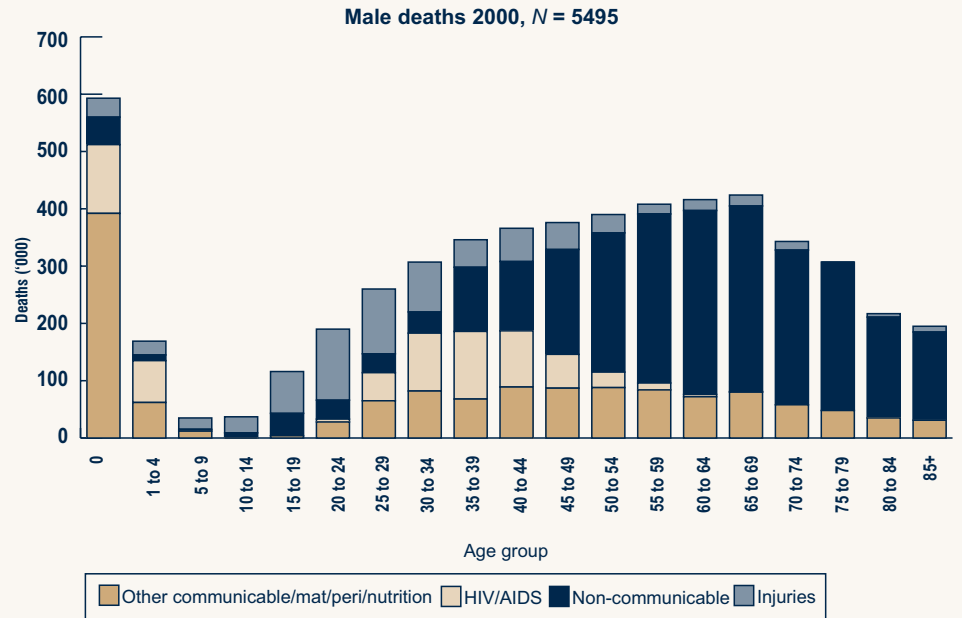


Figure NC3: Age distribution of deaths by broad groups, Northern Cape 2000

Figure NC4 shows Northern Cape's cause of death profile, with categories ranked in descending order according to total deaths. In both men and women cardiovascular disease (24%) was the leading cause of death, followed by HIV/AIDS (14%), infectious and parasitic diseases excluding HIV/AIDS (13%), malignant neoplasms (10%), and respiratory disease (7%). Considerable gender differences are observed with females experiencing 8% and 4% more cardiovascular diseases respectively than males. Males suffer 4% more death from infections and parasitic diseases excluding HIV/AIDS and 6% more intentional injuries than females.

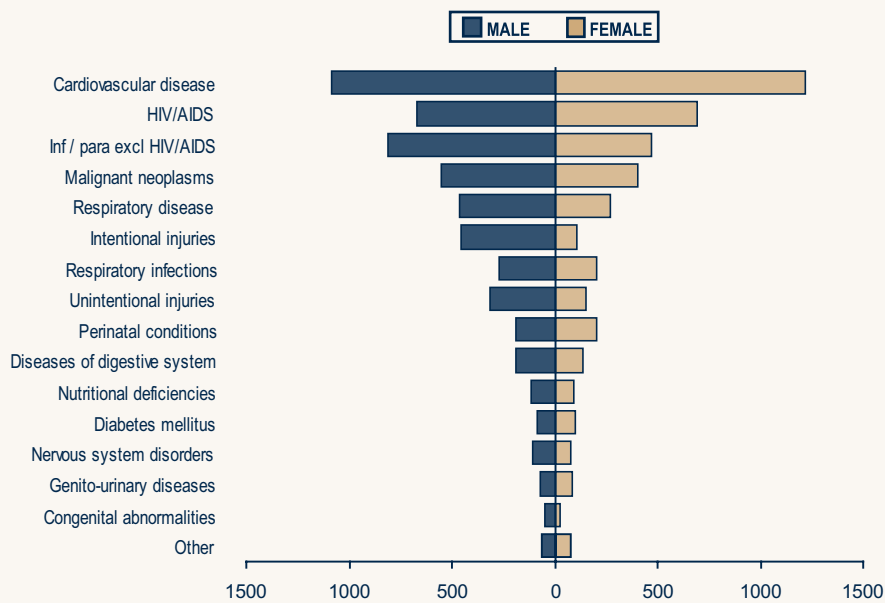


Figure NC4: Causes of death according to categories for males and females, Northern Cape 2000

"Other" causes include congenital abnormalities, benign neoplasms, maternal conditions, musculoskeletal diseases, mental disorders, skin diseases, oral and sense organ conditions.

The twenty leading single causes of death in the total Northern Cape population are shown in Figure NC5(a) below, illustrating that HIV/AIDS was the largest single cause of death, accounting for nearly 14% of all deaths during 2000. Almost twice as many deaths were caused by HIV/AIDS than stroke or ischaemic heart disease, the next largest single causes. Tuberculosis, lower respiratory infections, homicide/violence and chronic obstructive pulmonary disease were next in the ranking. From Figure NC5(b) it is clear that women had higher numbers of deaths due to HIV/AIDS, stroke and hypertensive heart disease than men.

Persons 2000, N = 9810

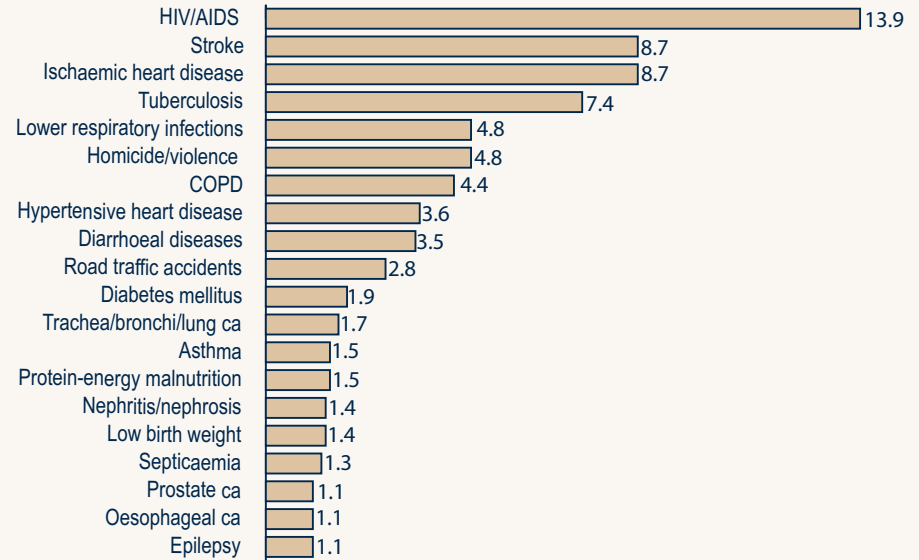


Figure NC5(a): Twenty leading single causes of death (%), Northern Cape 2000

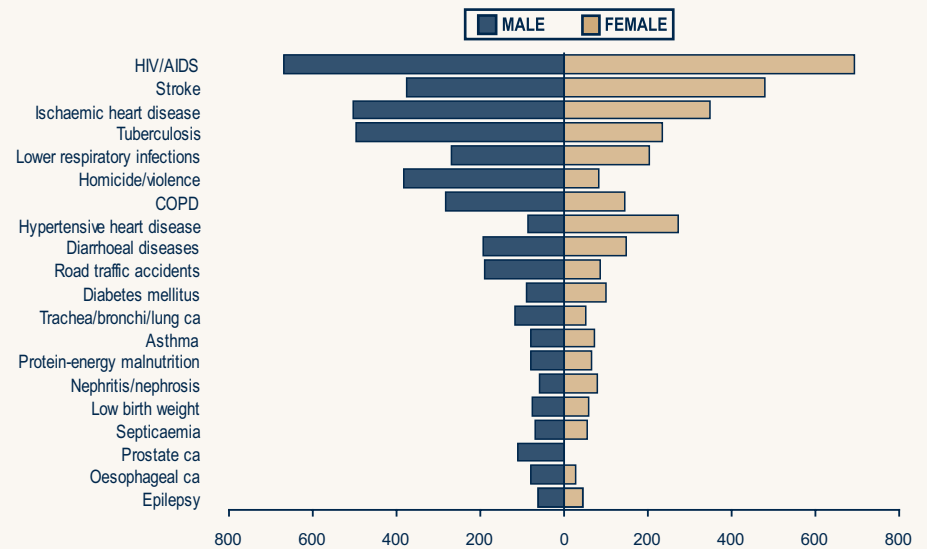


Figure NC5(b): Twenty leading single causes of death by sex, Northern Cape 2000

Premature mortality

The years of life lost (YLLs) measure does not merely consider the number of deaths, but also takes into account the ages at which the deaths occur. YLLs were calculated using the age weighting parameter, discounting and the standard life expectancy that were used in the Global Burden of Disease Study. Table NC1 shows that HIV/AIDS played a major role in premature mortality, which can partly be explained by the large numbers of deaths due to AIDS, and partly by the large proportions of AIDS deaths that occurred in young adults and children under the age of 5 years. The proportions attributable to other causes were much smaller: tuberculosis, homicide/violence and diarrhoeal diseases each being responsible for 5-8% of premature loss of life. Premature mortality manifested differently in men and women, with differences in the numbers and proportions of YLLs per cause of death. HIV/AIDS accounted for 26% of YLLs for women and 18% of YLLs for men. Homicide/violence was ranked second in men but eighth in women

Table NC1: Leading 20 single causes of the premature mortality burden (YLLs) by sex, Northern Cape 2000

Males				Females				Persons			
Rank	Cause of death	YLLs	%	Rank	Cause of death	YLLs	%	Rank	Cause of death	YLLs	%
1	HIV/AIDS	17936	17.6	1	HIV/AIDS	20224	26.4	1	HIV/AIDS	38160	21.4
2	Homicide/violence	10742	10.5	2	Tuberculosis	5173	6.8	2	Tuberculosis	14293	8.0
3	Tuberculosis	9120	8.9	3	Diarrhoeal diseases	3891	5.1	3	Homicide/violence	12843	7.2
4	Diarrhoeal diseases	5820	5.7	4	Stroke	3887	5.1	4	Diarrhoeal diseases	9711	5.4
5	Ischaemic heart disease	5760	5.6	5	Lower respiratory infections	3705	4.8	5	Ischaemic heart disease	8768	4.9
6	Road traffic accidents	5060	5.0	6	Ischaemic heart disease	3008	3.9	6	Stroke	7864	4.4
7	Stroke	3977	3.9	7	Road traffic accidents	2116	2.8	7	Lower respiratory infections	7559	4.2
8	Lower respiratory infections	3854	3.8	8	Homicide/violence	2101	2.7	8	Road traffic accidents	7176	4.0
9	Low birth weight	2518	2.5	9	Low birth weight	1958	2.6	9	Low birth weight	4476	2.5
10	Protein-energy malnutrition	2401	2.4	10	Protein-energy malnutrition	1764	2.3	10	Protein-energy malnutrition	4165	2.3
11	COPD	2355	2.3	11	COPD	1710	2.2	11	COPD	4065	2.3
12	Suicide	1764	1.7	12	Hypertensive heart disease	1689	2.2	12	Epilepsy	2651	1.5
13	Epilepsy	1429	1.4	13	Epilepsy	1222	1.6	13	Hypertensive heart disease	2444	1.4
14	Cirrhosis of liver	1310	1.3	14	Cervix ca	1179	1.5	14	Septicaemia	2383	1.3
15	Septicaemia	1291	1.3	15	Septicaemia	1092	1.4	15	Suicide	2354	1.3
16	Fires	1215	1.2	16	Asthma	1042	1.4	16	Asthma	2067	1.2
17	Trachea/bronchi/lung ca	1100	1.1	17	Breast ca	843	1.1	17	Fires	1928	1.1
18	Asthma	1024	1.0	18	Fires	713	0.9	18	Cirrhosis of liver	1817	1.0
19	Diabetes mellitus	836	0.8	19	Birth asphyxia and trauma	712	0.9	19	Trachea/bronchi/lung ca	1663	0.9
20	Oesophageal ca	769	0.8	20	Nephritis/nephrosis	679	0.9	20	Diabetes mellitus	1492	0.8
	All causes	80 281			All causes	58 709			All causes	137 879	

Leading causes of death among children (<15 years)

The leading ten causes of death in children under 15 years of age are shown in Figure NC6 for boys and girls separately. The pattern for boys and girls was similar. HIV/AIDS deaths were high in those under 5 years old, followed by one more infectious disease, two perinatal conditions and a nutritional deficiency. Among children aged 5 to 14 years, the number of deaths among boys was nearly twice as high and the profile of causes differed. Injuries, including road traffic accidents, drowning, homicide and fires were among the leading causes for boys in this age group, while epilepsy, septicaemia, HIV/AIDS and bacterial meningitis were among the leading causes for girls.

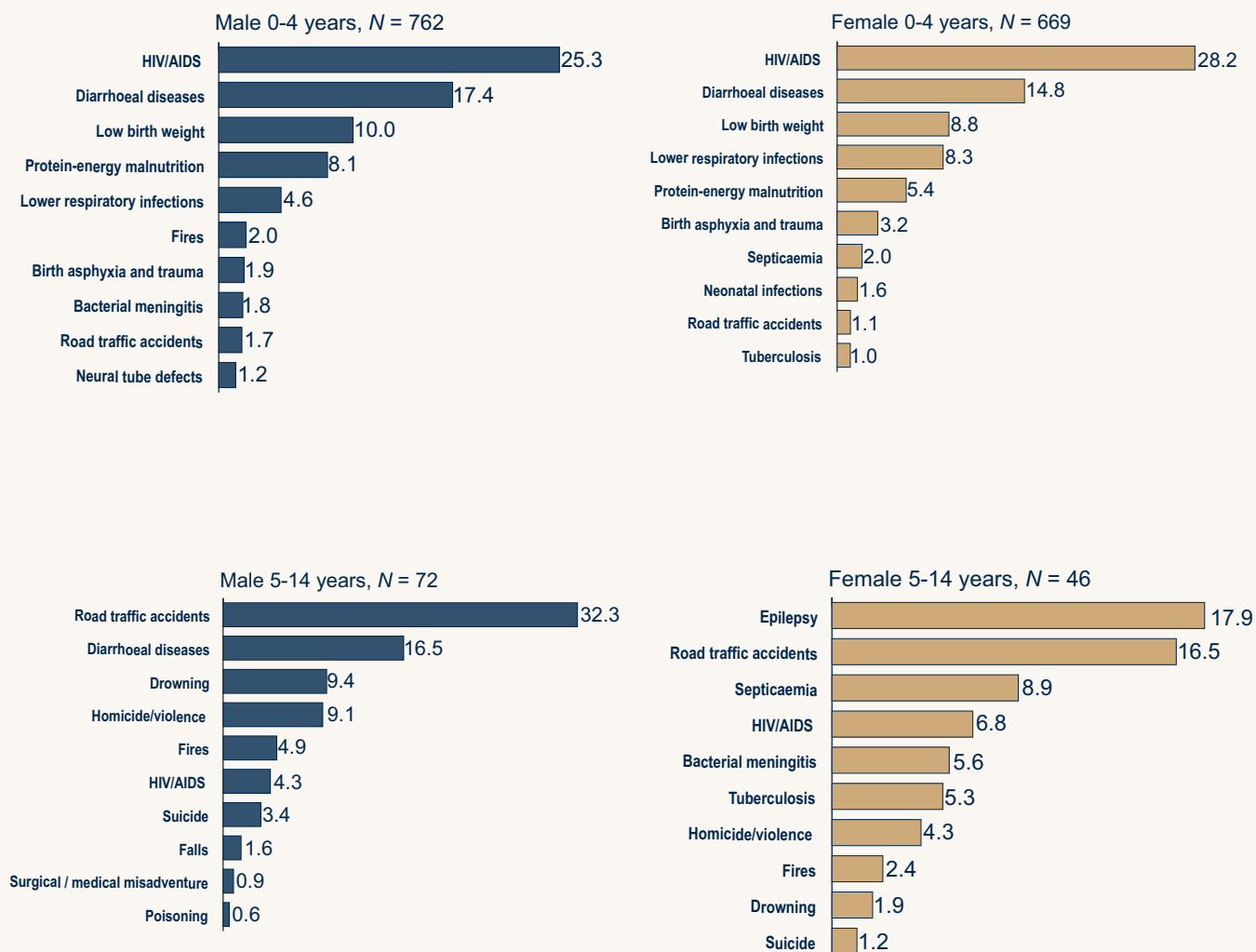


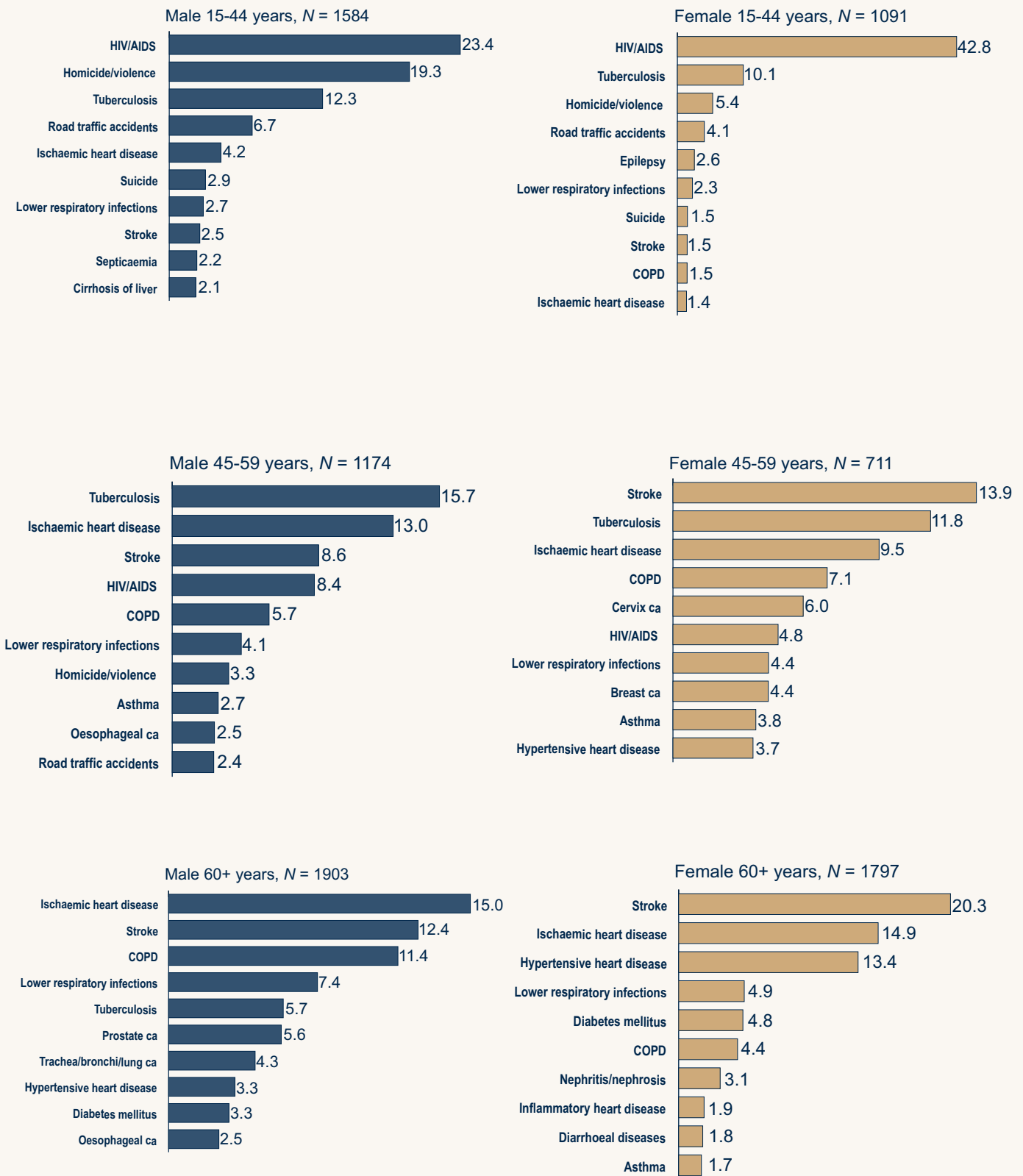
Figure NC6: Ten leading single causes of death (%) among children (<15 years) by sex, Northern Cape 2000

Leading causes of death among adults

The leading ten causes of death among adults are shown in Figure NC7 by selected age groups and sex. Among young adults aged 15-44 years, HIV/AIDS was the leading cause for both men and women, followed by tuberculosis, homicide and road traffic accidents. These 4 conditions accounted for more than 60% of the deaths in this age group. Among the next age group, 45-59 years, the pattern for men and women differed slightly. However, tuberculosis, ischaemic heart disease and stroke were the leading causes for both men and women. Chronic obstructive pulmonary disease and HIV/AIDS were the next leading causes and in the case of women, cervical cancer also featured.

In older persons (60 years and older) most of the leading causes of death were non-communicable diseases and cardiovascular disease was clearly the primary cause of death. Stroke and ischaemic heart disease were the leading single causes of death for both men and women. For men, respiratory conditions were the next largest causes of death followed by prostate and lung cancer. For women, hypertensive heart disease and diabetes mellitus featured as well as lower respiratory infections and chronic obstructive pulmonary disease. Figure NC7 shows that hypertensive heart disease and stroke were responsible for larger numbers of deaths in older women than older men, while ischaemic heart disease and chronic obstructive pulmonary disease caused more deaths in older men than older women. Malignant neoplasms were responsible for more deaths among older men than older women.

Figure NC7: Ten leading single causes of death (%) among adults by sex, Northern Cape 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 Northern Cape had comparatively low mortality levels when compared to other. In the broad Groups, Northern Cape had a similar profile to that of the country with regard to injuries and other communicable/mat/peri/nutrition diseases, but lower HIV/AIDS mortality.

Mortality due to tuberculosis was very high in this province, as well as from diarrhoea and protein-energy malnutrition. Cardiovascular death rates were high as a result of stroke and ischaemic heart disease as well as hypertensive heart disease among women. Cancer mortality rates were relatively high, including higher than average rates for oesophageal, prostate and cervical cancer. Death rates due to respiratory disease were high in the Northern Cape, particularly for chronic obstructive disease among men.

In the leading single causes of death the top ten causes were the same as nationally, but ranked differently. Homicide was second nationally but sixth for the province. Road traffic accidents ranked seventh nationally but tenth for the province. Stroke ranked third nationally but second for the province.

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.

References

Bradshaw D, Groenewald P, Laubscher R, Nannan N, Nojilana B, Norman R, Pieterse D, Schneider M, Bourne D, Timæus IM, Dorrington RE, Johnson L. 2003. Initial burden of disease estimates for South Africa, 2000. *S Afr Med J* 93(9): 682-688.

Bradshaw D, Schneider M, Dorrington R, Bourne D, Laubscher R. 2002. South African cause of death profile in transition – 1996 and future trends. *S Afr Med J* 92: 618-623.

Bradshaw D, Nannan N, Laubscher R, Groenewald P, Joubert J, Nojilana B, Norman R, Pieterse D, Schneider M. South African National Burden of Disease Study, 2000, Estimates of Provincial Mortality. 2004. ISBN: 1-920015-14-0.

Government Communication and Information System (GCIS). 2004. South Africa Yearbook 2003/04. Pretoria: GCIS and STE Publishers. ISBN 1-919855-18-1. Available: <http://www.gcis.gov.za/docs/publications/yearbook.htm> [2004, 10 September]

Statistics South Africa. 1998. The people of South Africa, Population Census, 1996: Census in Brief. Report No. 1: 03-01-11 (1996). Pretoria: Statistics South Africa.

Statistics South Africa. 2003. Census 2001: Census in Brief. Report No. 03-02-03 (2001). Pretoria: Statistics South Africa.

Tait N. 1996. Background information. In: Tait N, Whiteford A, Joubert J, Van Zyl J, Krige D & Pillay B. A socio-economic atlas of South Africa. A demographic, socio-economic and cultural profile of South Africa. Pretoria: HSRC.

United Nations Development Programme. 2004. South Africa Human Development Report 2003. Cape Town: Oxford University Press Southern Africa.



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