

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

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Burden of Disease
Research Unit



Mortality Estimates

for

EASTERN CAPE 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 and health 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 routinely provide cause of death statistics that can be used by provinces. The Initial Burden of Disease Study applied the burden of disease approach developed by the WHO and using available information, and presented it in a format relevant for planning health and other services (Bradshaw et al., 2003).

The Initial Burden of Disease Study used the 1996 South African death data. This study makes use of more recent data, namely the 12% sample of deaths for 1997-2001. However, due to the 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 the mis-classification of the underlying causes of death, 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).

Eastern Cape provincial profile

Background

Eastern Cape is located in the south-east of South Africa, bordering Free State and Lesotho in the north, KwaZulu-Natal in the north-east, the Indian Ocean along its south and south-eastern borders, and Western and Northern Cape in the west. The province encloses 169 580 km², constituting 13.9% of the total land area of the country, making it in surface area the second largest province of the country (Statistics South Africa (SSA), 2003). The average population density during 2002 was 41 persons per square kilometre, and about 63% of the province's people lived in rural areas. Prior to 1994, the province was territorially divided into two areas that made up the 'national state' of Transkei, and another area that made up the 'national state' of Ciskei, while the rest of the province was under the provincial administration of the then Cape Province. These territorial divisions are no longer valid, but they are significant in terms of examining data distribution patterns (Tait, 1996).

The economies of East London, Port Elizabeth and Uitenhage are primarily based on manufacturing, the most important being motor vehicle manufacturing and related industries. The Eastern Cape's agricultural potential is evident in its fruit orchards in the fertile Langkloof Valley; sheep- and angora-farming in the Karoo interior; pineapple, chicory and dairy production in the Alexandria-Grahamstown area; and coffee and tea cultivation at Magwa. Ostrich exports earn the province about R90 million per year in foreign revenues, while the game industry is having unprecedented demand in the international market. Large numbers of the population are employed in the forestry plantations of Keiskammahoek. Inhabitants of the former Transkei are dependent on cattle, maize and sorghum farming.

The province has a coastline of about 800 km, housing two harbours. Squid forms the basis of the fishing industry, while offering access to line-catches of hake and recreational and commercial fishing for other line fish. The province's Gross Geographic Product at 2001 prices was rated at R81 027 million, and the province contributed 8.2% to the national Gross Domestic Product (GCIS, 2004). The Eastern Cape has the second highest poverty levels in South Africa (47% of households below the poverty line, which is based on imputed monthly expenditure of R800 or less) (SSA, 2000b), combined with the highest provincial unemployment rate (55%) in the country (SSA, 2003).

Population structure

According to the 2000 ASSA estimates, 6 897 865 people lived in the Eastern Cape, constituting 15.3% of South Africa's total population. The province accommodated more women (52.9%) than men (47.1%). The deficit of men is mainly among those in their 'economically active' years (15-64) (Figure EC1). Over one-third (37%) of the population were younger than 15 years, 58% were in their 'economically active' years, and 7% were aged 60 years or older. [Census 2001: total population 6 436 763 (461 102 less than ASSA); 14.4% of total population in South Africa; 53.8% female, 87.5% Black African, 7.4% Coloured, 0.3% Indian, 4.7% White.]

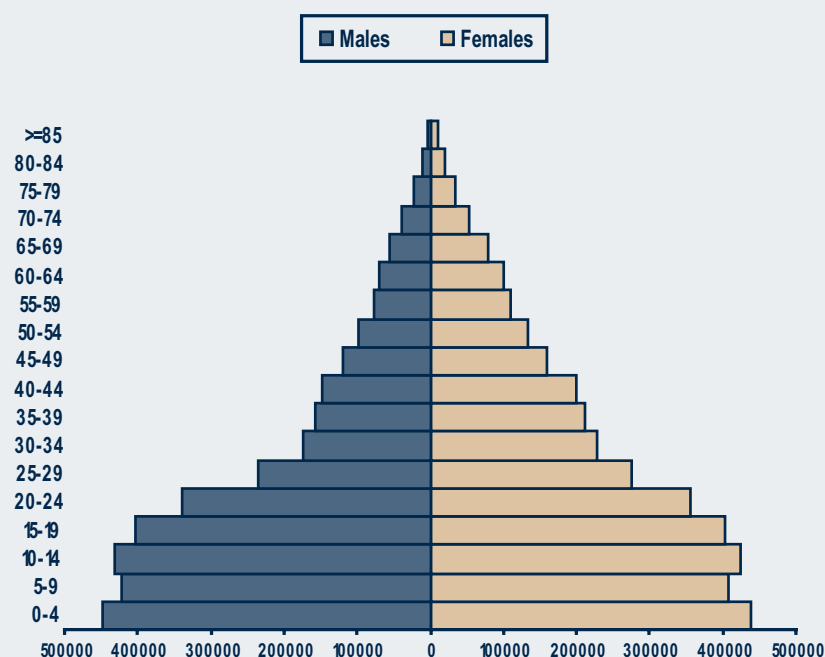


Figure EC1: Age structure of the Eastern Cape population, 2000

Living conditions

According to the 2001 Census, 23% of the population aged 20 years or older had no formal school education, and 55% of those in the age group 15-64 years were unemployed (SSA, 2003). A large proportion of the population (68%) lived below the national poverty line in 2002 (UNDP, 2004). Less than half of the households (47%) lived in formal housing, and 11% and 38% respectively in informal and traditional structures. On average 4.1 persons shared a household. Piped water was available in 62% of households, either in the home, on site, or at a communal tap. In 31% of the households there was no toilet facility. In 36% of the households refuse was removed at least once a week. Of the households, 28% had access to electricity for cooking purposes, 36% used wood and 29% paraffin. About 64% of the households had a radio, 39% a television, 32% a refrigerator, 15% a telephone, and 21% a cell phone (SSA, 2003).

Eastern Cape mortality profile

The mortality profiles are based on deaths in 41 289 (51.4%) males and 39 074 (48.6%) females, estimated for the year 2000, a total of 80 362 deaths. Group I causes including HIV/AIDS accounted for 47% of all the deaths, while Group II causes accounted for 43% (Figure EC2). The proportions of deaths due to other communicable, maternal, perinatal and nutritional deficiencies and non-communicable diseases were very similar for men and women, while HIV/AIDS accounted for 17% of male deaths and 23% of female deaths. About twice as many men as women died as a result of injury.

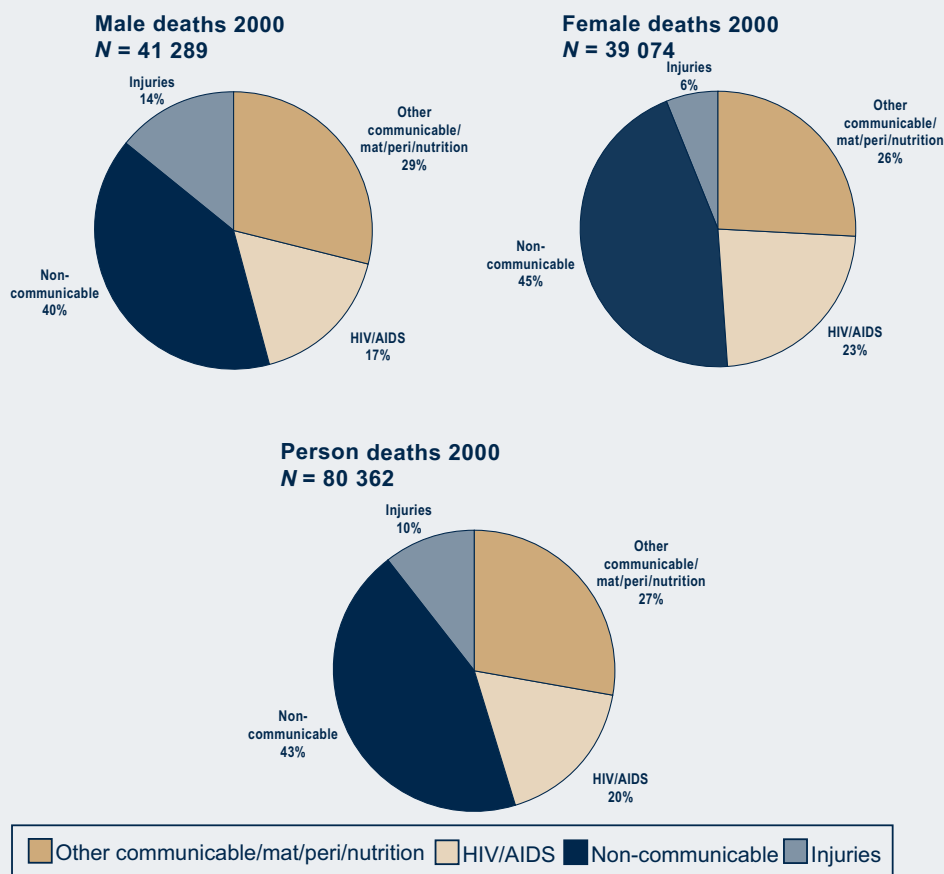


Figure EC2: Estimated deaths by Groups, Eastern Cape 2000

The age-specific cause of death profiles are presented in Figure EC3. The numbers of deaths are presented by five-year age 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. It is important to highlight the high infant mortality in this province. About 90% of infant deaths were due to Group I diseases including HIV/AIDS. About 28% of deaths in children under 5 years of age were due to HIV/AIDS, and HIV/AIDS deaths were also high in young adult men and women. Injury-related deaths were very high in male adolescents and young adult men. In older persons most of the burden was due to non-communicable diseases.

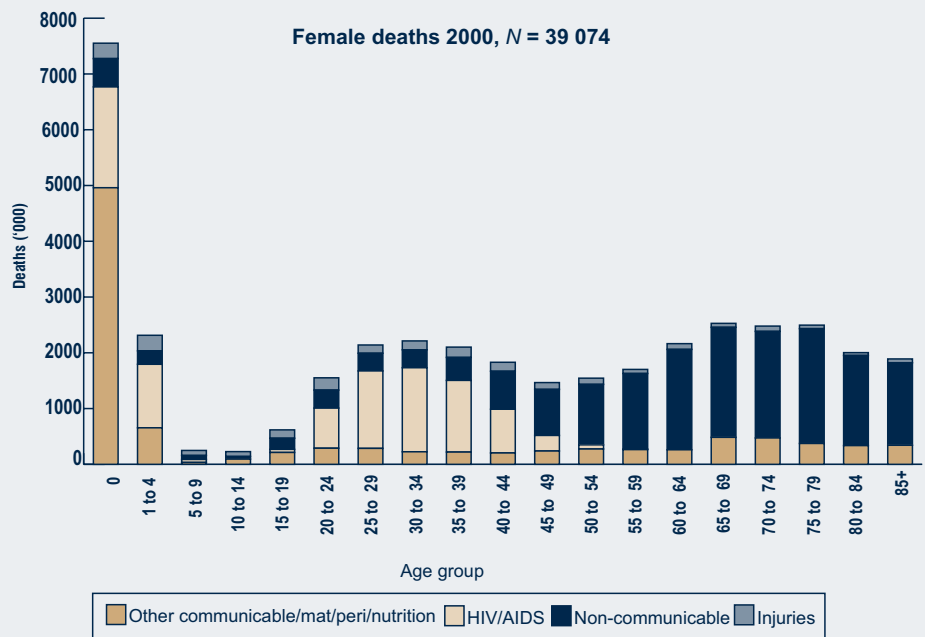
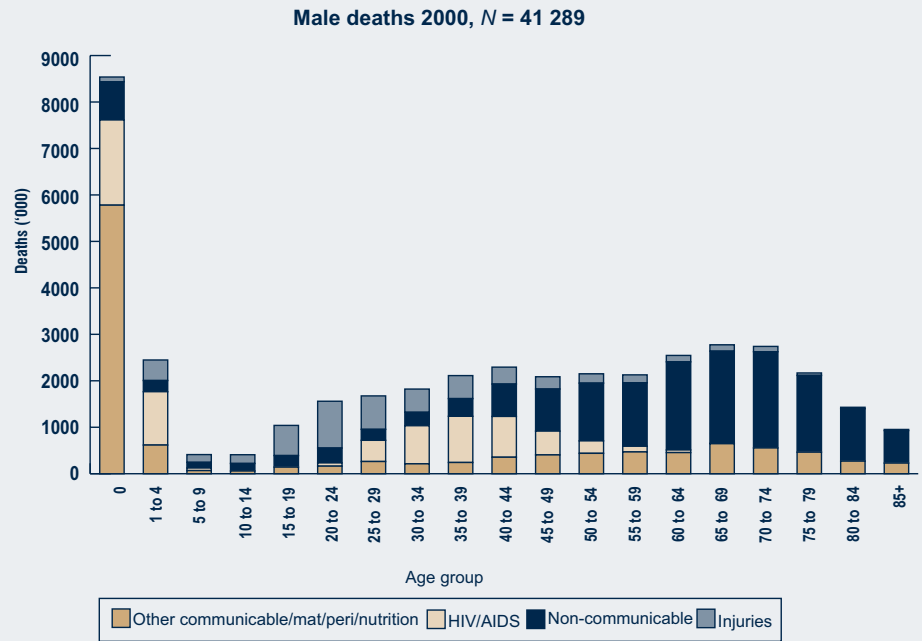
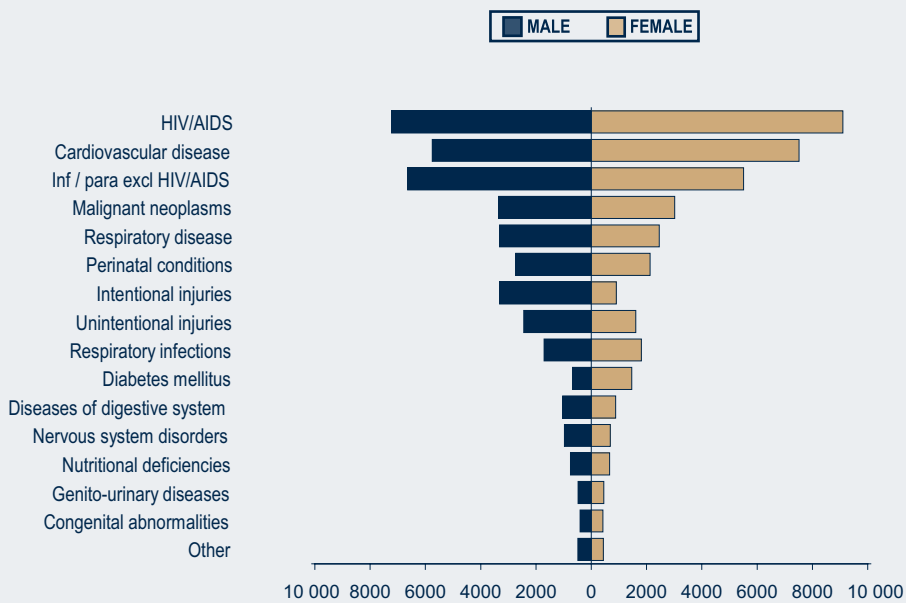


Figure EC3: Age distribution of deaths by broad Groups, Eastern Cape 2000

The Eastern Cape cause of death profile for the major disease categories is shown in Figure EC4. Causes of death are ranked in descending order by the total numbers of deaths. HIV/AIDS was the leading cause of death in both men and women (20%), followed by cardiovascular disease (17%), infectious and parasitic diseases excluding HIV/AIDS (15%), malignant neoplasms (8%), respiratory disease (7%) and perinatal conditions (6%). Differences were observed between men and women, with HIV/AIDS, cardiovascular disease, respiratory infections and diabetes accounting for more deaths in females than in males. In contrast, among the leading ten categories, other infectious and parasitic diseases, intentional and unintentional injuries, malignant neoplasms, respiratory disease, perinatal conditions and diseases of the digestive system predominated in males.



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

Figure EC4: Causes of death according to categories for males and females, Eastern Cape 2000

The twenty leading single causes of death in the total Eastern Cape population are shown in Figure EC5(a) below, illustrating that HIV/AIDS was the greatest single cause of death, accounting for 20% of all deaths during 2000. Tuberculosis was the second leading cause of death, accounting for 7% of all deaths. This was followed by stroke, diarrhoeal diseases and homicide (Figure EC5(a)). Women had higher proportions of deaths due to HIV/AIDS, stroke, hypertensive heart disease, diarrhoeal disease and diabetes mellitus, while men had higher proportions of deaths due to homicide, tuberculosis, trachea/bronchi/lung cancer and road traffic accidents (Figure EC5(b)).

Persons 2000, N = 80 362

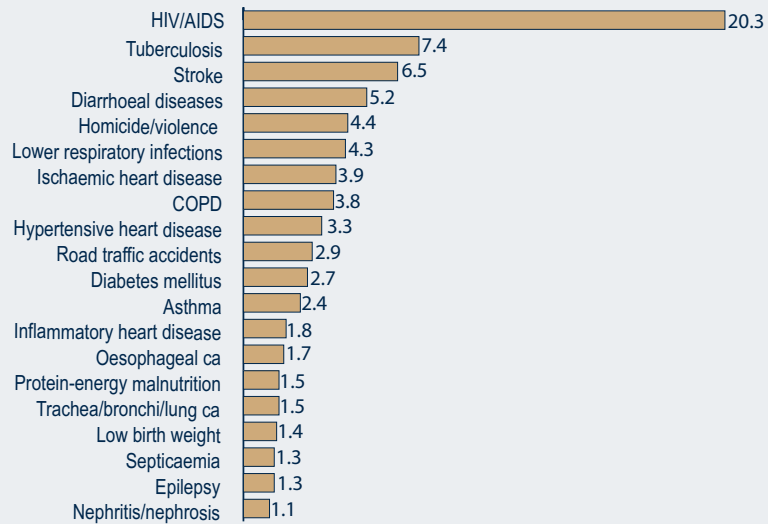


Figure EC5(a): Twenty leading single causes of death (%), Eastern Cape 2000

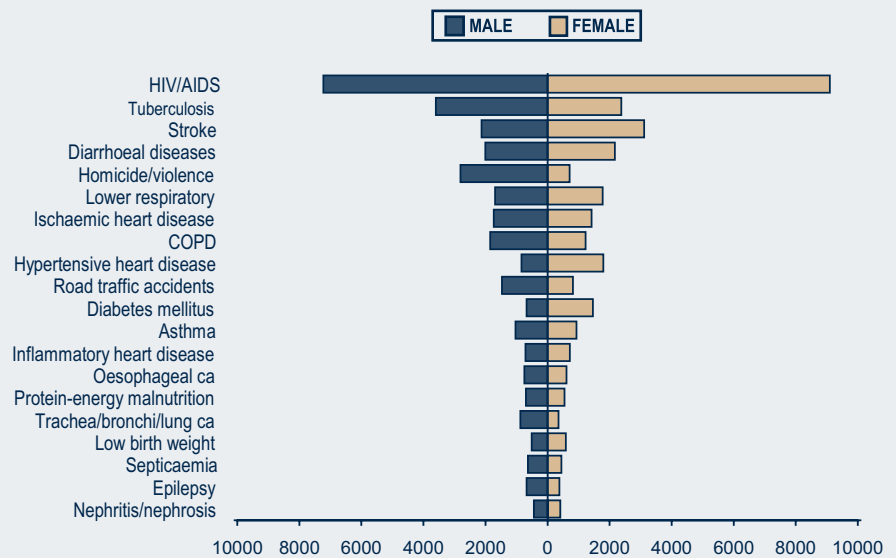


Figure EC5(b): Twenty leading single causes of death by sex, Eastern Cape 2000

Eastern Cape premature mortality

HIV/AIDS accounted for the largest proportion of female (34%) and male (23%) years of life lost (YLLs) (Table EC1). Diarrhoeal diseases were the second leading cause of premature mortality, with more YLLs in females (8%) than males (7%). Homicide/violence and road traffic accidents ranked second and fifth in men, while these causes ranked lower in women. Injuries accounted for 8% and 18% of all YLLs in females and males, respectively.

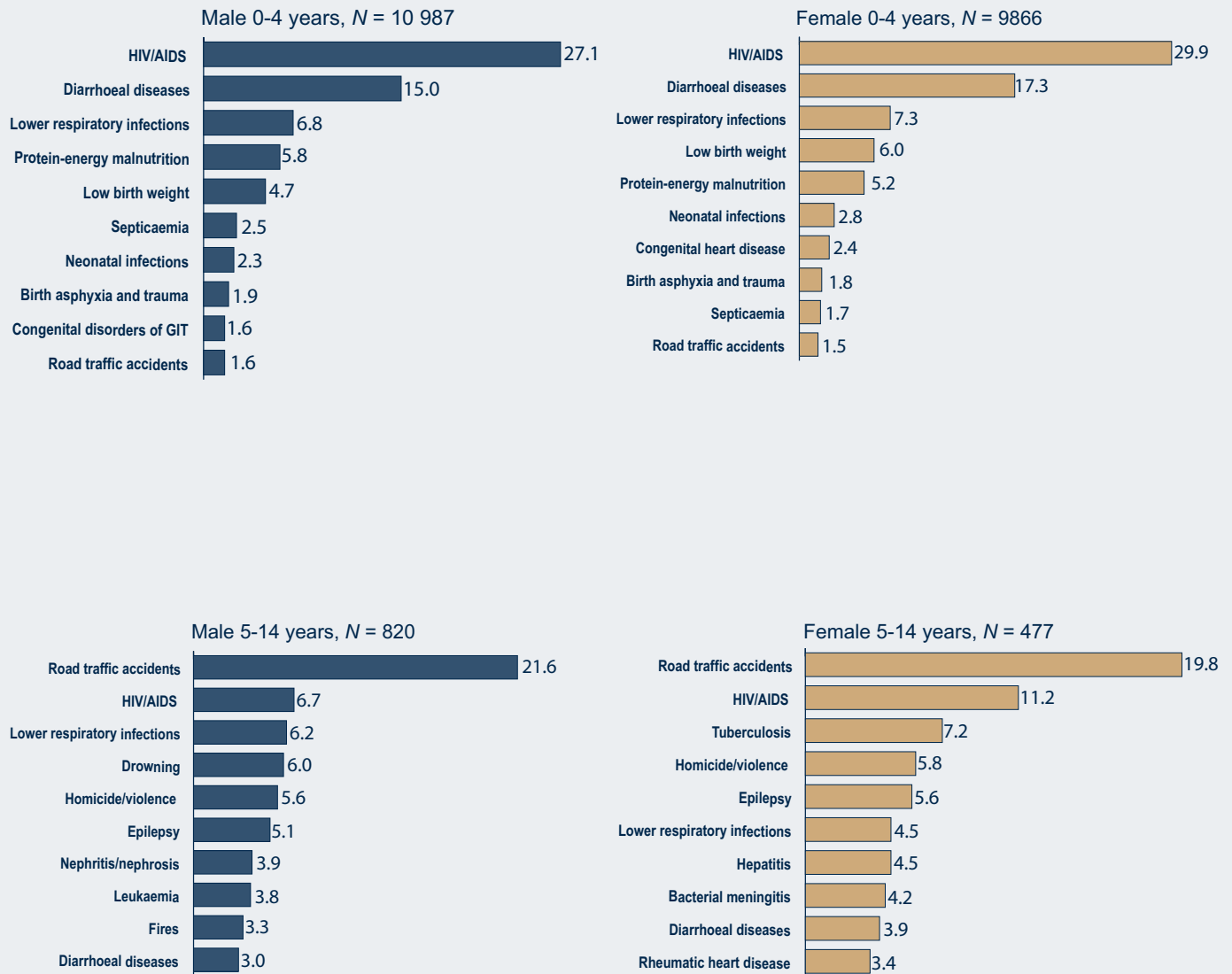
Table EC1: Leading 20 single causes of the premature mortality burden (YLLs) by sex, Eastern Cape 2000

Males				Females				Persons			
Rank	Cause of death	YLLs	%	Rank	Cause of death	YLL	%	Rank	Cause of death	YLL	%
1	HIV/AIDS	202512	23.2	1	HIV/AIDS	271739	33.6	1	HIV/AIDS	474250	28.2
2	Homicide/violence	80005	9.2	2	Diarrhoeal diseases	62633	7.8	2	Diarrhoeal diseases	122753	7.3
3	Diarrhoeal diseases	60120	6.9	3	Tuberculosis	43179	5.3	3	Tuberculosis	99665	5.9
4	Tuberculosis	56485	6.5	4	Lower respiratory infections	36348	4.5	4	Homicide/violence	98226	5.8
5	Road traffic accidents	39938	4.6	5	Stroke	28421	3.5	5	Lower respiratory infections	72792	4.3
6	Lower respiratory infections	36444	4.2	6	Road traffic accidents	20999	2.6	6	Road traffic accidents	60937	3.6
7	Protein-energy malnutrition	22175	2.5	7	Low birth weight	19542	2.4	7	Stroke	48630	2.9
8	Stroke	20209	2.3	8	Homicide/violence	18221	2.3	8	Protein-energy malnutrition	39749	2.4
9	COPD	18187	2.1	9	Protein-energy malnutrition	17575	2.2	9	Low birth weight	36532	2.2
10	Ischaemic heart disease	17151	2.0	10	Hypertensive heart disease	17148	2.1	10	COPD	29534	1.8
11	Low birth weight	16991	1.9	11	Diabetes mellitus	15387	1.9	11	Ischaemic heart disease	28492	1.7
12	Septicaemia	14877	1.7	12	Asthma	11836	1.5	12	Asthma	26061	1.6
13	Epilepsy	14368	1.6	13	COPD	11347	1.4	13	Hypertensive heart disease	25453	1.5
14	Asthma	14225	1.6	14	Ischaemic heart disease	11341	1.4	14	Septicaemia	24829	1.5
15	Suicide	12901	1.5	15	Septicaemia	9952	1.2	15	Epilepsy	23134	1.4
16	Fires	9545	1.1	16	Inflammatory heart disease	9439	1.2	16	Diabetes mellitus	22560	1.3
17	Trachea/bronchi/lung ca	9368	1.1	17	Neonatal infections	9019	1.1	17	Inflammatory heart disease	18705	1.1
18	Inflammatory heart disease	9266	1.1	18	Fires	8860	1.1	18	Fires	18405	1.1
19	Neonatal infections	8495	1.0	19	Epilepsy	8767	1.1	19	Suicide	17572	1.0
20	Hypertensive heart disease	8305	1.0	20	Cervix ca	8367	1.0	20	Neonatal infections	17515	1.0
	All causes	872 158			All causes	807 641			All causes	1 679 800	

Leading causes of death among children (<15 years)

The ten leading causes of death among children under 5 years of age and children 5-14 years are shown in Figure EC6. The high child mortality in this province was mainly the result of HIV/AIDS and other communicable diseases, perinatal conditions and nutritional deficiencies. The leading five causes in infants and children under 5 years of age followed a similar pattern. It is important to note that neural tube defects featured among the leading causes of death in infants under 1 year of age in this province. HIV/AIDS was the leading cause of death in children under 5 while road traffic accidents was the leading cause of death in children 5-14 years of age. Deaths from other injuries such as homicide, drowning and fires were also among the leading causes of death in this age group, accounting mainly for male deaths. Epilepsy accounted for 5% of male and almost 6% of female deaths in this age group.

Figure EC6: Leading 10 causes of death (%) in children (<15 years) by sex, Eastern Cape 2000



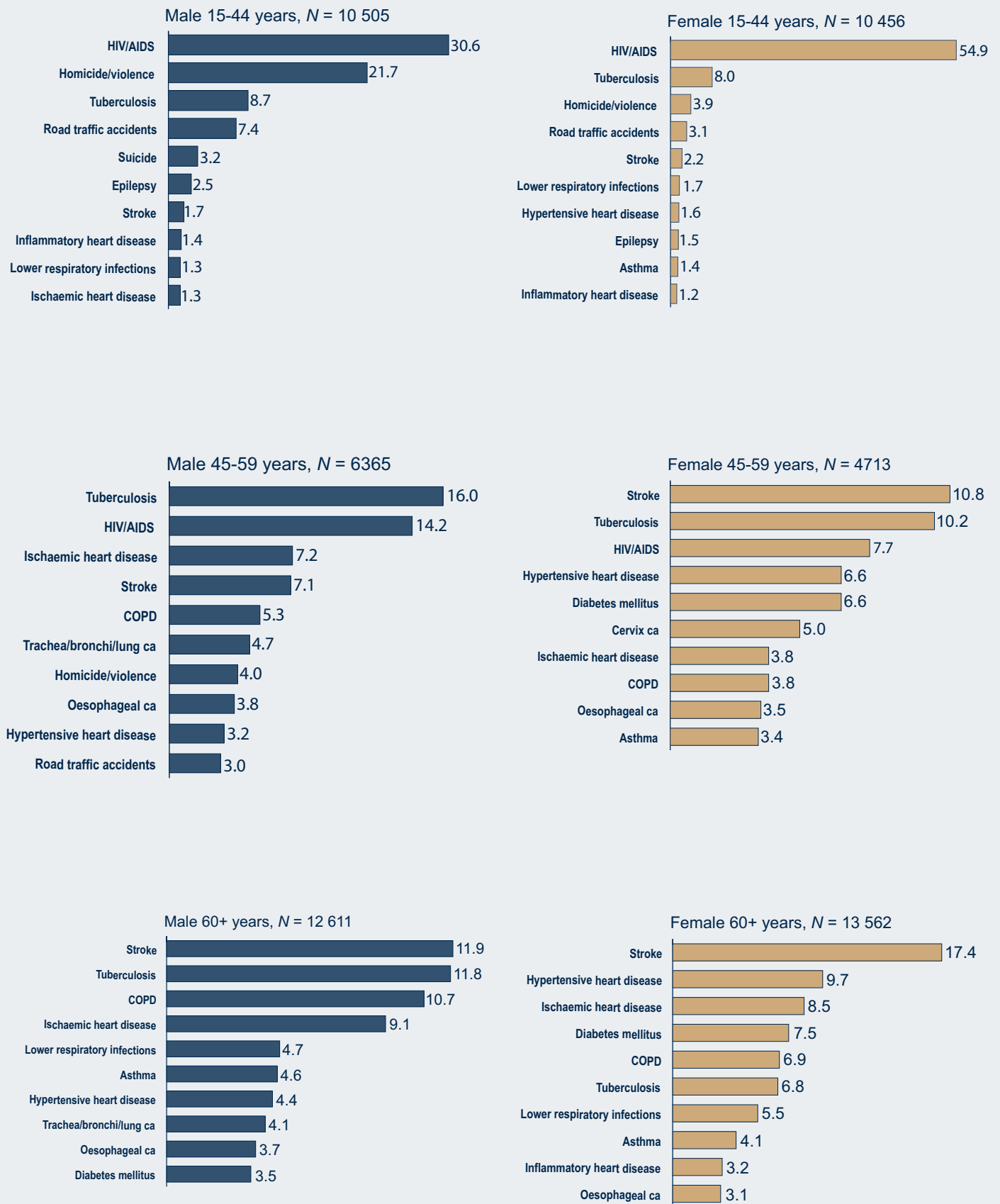
Leading causes of death among adults

The leading causes of death for adults are shown in Figure EC7. HIV/AIDS was the leading cause of death for both men and women aged 15-44 years. Tuberculosis was the second leading cause of death among women and the third leading cause of death among men aged 15-44 years. Injuries including homicide, suicide and road traffic accidents were also among the leading causes of death. Epilepsy accounted for 3% of male and 2% of female deaths in this age group. Cardiovascular diseases including hypertensive heart, ischaemic heart and inflammatory heart disease as well as stroke also featured among the leading causes in young adults.

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 or injuries, although tuberculosis is still an important cause of death in this age group. Stroke was the leading cause of death among women. Other important leading causes of death among women aged 45-59 included diabetes mellitus, asthma, hypertensive heart disease, cervical and oesophageal cancer. Injuries such as homicide and violence and road traffic injuries still featured among the leading causes of death for men in the 45-59 year age group. Trachea/bronchi/lung cancer, oesophageal cancer, chronic obstructive pulmonary disease and cardiovascular diseases were also important causes of death among men in this age group (Figure EC7).

In this province there were more deaths among female (13 562) than male (12 611) older persons. Stroke was the leading cause of death among persons aged 60 years and older (Figure EC7), accounting for 19% of female and 11.9% of male deaths in this age group. Tuberculosis ranked a close second among males, accounting for 11.8% of deaths (Figure EC7). Hypertensive heart disease and diabetes were responsible for larger numbers of deaths in older women than in older men, while chronic obstructive pulmonary disease caused more deaths in older men compared with older women. Oesophageal cancer was among the 10 leading causes of death in this age group, affecting similar proportions of men and women. Trachea/bronchi/lung cancer accounted for 4% of male and 2% of female deaths in those over the age of 60 years.

Figure EC7: Leading single causes of death (%) among adults by sex, Eastern Cape 2000



Contrast with the 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 in the country. As countries become more developed, the disease profile changes. They shift from a profile 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 infectious and chronic diseases. 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 severe impact of HIV and AIDS has created a quadruple burden of disease in South Africa. The provincial study shows that all provinces are experiencing this quadruple burden of disease to varying degrees. The study signifies an important milestone in generating burden of disease information at provincial level by providing mortality estimates for each province.

The HIV/AIDS epidemic in the Eastern Cape is not as far advanced as it is nationally, accounting for 20% of deaths compared with 30% of deaths nationally. However, the results still clearly indicated a quadruple burden in this province, with HIV/AIDS coming in and adding to a triple burden of poverty-related conditions, chronic diseases and injuries. The high burden from tuberculosis, diarrhoeal diseases, perinatal conditions and other conditions related to underdevelopment accounted for 27% of deaths in this province compared with 20% nationally. Injuries (10%) constituted a smaller proportion in Eastern Cape than nationally (12%), while non-communicable diseases constituted a larger proportion in the Eastern Cape (43%) than nationally (38%).

Oesophageal cancer age-standardized death rates were highest in the Eastern Cape (32 per 100 000) compared with 17 per 100 000 nationally. Epilepsy featured among the 20 leading causes of death in the Eastern Cape population. It is interesting to note that breast cancer did not feature among the leading causes of death among older persons in this province.

The provincial estimates are extrapolations from a variety of data sources, all with limitations. There is an urgent need to further improve the cause of death 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 finding of this study to modify the emphasis of national policies to meet the health needs of their communities. The extensive burden of disease requires a broad range of interventions to address the many determinants of health. Such interventions include improved access to health care, promotion of a healthy lifestyle over the entire life-course, a reduction of risk factors associated with major contributors to disease burden, and ensuring that basic needs, such as those related to water and sanitation, are met. Moreover, social cohesion needs to be fostered to ensure safe and caring communities. It should be noted the spread of the HIV epidemic during the 1990s was very rapid and that the mortality profile is changing accordingly. This should be taken into account when making use of these estimates for planning, and highlights the urgency of implementing the AIDS treatment programme approved by Cabinet in September 2003 as quickly as possible as well as strengthening efforts to reduce the spread of HIV.

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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