

# **Mortality Profile from Registered Deaths for Limpopo Province, South Africa 1997-2001**

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Public Health

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**Copies of the report can be downloaded from:** [www.mrc.ac.za/bod/bod.htm](http://www.mrc.ac.za/bod/bod.htm)

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## Acronyms and abbreviations

YLLs	Years of life lost due to premature mortality
Stats SA	Statistics South Africa
ICD-10	International Classification of Disease, Tenth Revision
NBD	National Burden of Disease
ID	Identification Documents
HIV	Human immuno-deficiency virus
TB	Tuberculosis
NIMSS	National Injury Surveillance System
ASSA2000	Actuarial Society of South Africa AIDS and demographic model
AIDS	Acquired Immune Deficiency Syndrome
Group I	Communicable diseases, maternal causes, perinatal conditions and nutritional deficiencies, including HIV/AIDS unless otherwise specified
Group II	Non-communicable diseases
Group III	Injuries

## **EXECUTIVE SUMMARY**

The cause of death profile is an important set of public health information and forms the cornerstone of the health information system worldwide. At provincial level it is needed for health planning and deciding on intervention strategies. Yet, there is a dearth of systematically collated mortality information for Limpopo Province or any other province in South Africa. The purpose of this study was to investigate the mortality profile of Limpopo Province for the period 1997-2001 using the sample of registered deaths obtained from Statistics South Africa based on a recent 12% national sample of deaths.

The cause-of-death on the death certificates was investigated according to age, sex and year. Years of Life Lost (YLLs) was determined to identify the leading causes of premature mortality for the period. A total of 22363 deaths were found of which 51.7% were male and 48.3% were female deaths. The number of deaths in the sample increased from 3494 in 1997 to 6153 in 2001 with dips in 1999 and 2000. The incremental trend in the number of deaths for both sexes may be the result of increasing mortality or an improvement in coverage of death registration. One in 6 deaths was of an ill-defined cause occurring more frequently than in the national sample. The age pattern of deaths over these years shows an increase in young adult deaths among both men and women. Non-communicable diseases contribute highest to the mortality burden (42% of deaths) of Limpopo Province whereas HIV/AIDS and related conditions are emerging leading causes of death in the province.

The quality of the information on death certificates needs to be improved if such data is to provide good quality planning information. Further investigation into the high proportion of ill-defined causes would be useful. In the meanwhile, it would be useful to estimate the actual cause of death profile using the approach of the national burden of disease study, making adjustments for the under-registration of deaths and the high proportions of ill-defined causes.

## INTRODUCTION

In November 2002, Statistics South Africa reported the causes of deaths for the five years period 1997-2001 as recorded on the death certificates (StatsSA, 2002a). Technical support on this study was provided by the task team constituted in 2000 with the mandate of investigating “the broad issues of mortality in South Africa” (StatsSA, 2002b). A 12% representative sample of registered deaths obtained from the Department of Home Affairs was analysed to unveil the leading causes of death recorded on the certificates. Differentials across population groups within the country were noted but no in-depth comparisons among provinces were performed.

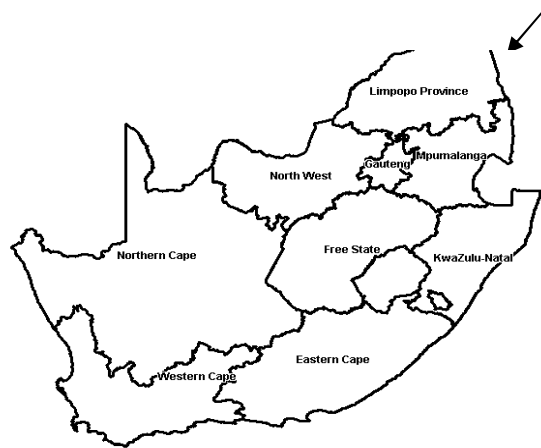
Information about causes of death at provincial level is needed for decision making and deciding on provincial intervention strategies. It is known that mortality data are incomplete and suffer from misclassification of causes (Bradshaw *et al*, 2003). However, there is evidence of improved coverage (Dorrington *et al*, 2001) and there is a need to analyse the data to assess its quality and interpret it, albeit cautiously. This report attempts to provide a cause of death profile for Limpopo Province for the period 1997-2001, based on the 12% sample, as a first step in exploring mortality information for Limpopo Province.

The purpose of this study is to investigate the mortality in Limpopo Province over the period 1997 to 2001. It further seeks to provide a template that could serve as a *pro forma* for future provincial analyses of the cause of death data.

South Africa’s National Burden of Diseases study (Bradshaw *et al*, 2003) has presented a classification of diseases and injuries appropriate to assess the burden of ill-health in the country. This classification is an adaptation of the Global Burden of Disease list that divides the causes of death into three broad groups: the pre-transitional causes, non-communicable diseases and injuries (Murray and Lopez, 1996). The groups are further divided into categories and then levels based on similarities in aetiology and/or the required intervention. This burden of disease list is orientated to public health and will be used in the current study in grouping the causes of death.

## LIMPOPO PROVINCE IN SOUTH AFRICA

Limpopo is one of nine provinces of South Africa located in the north eastern parts of the country (Figure 1). With an estimated population of 5.3 million, Limpopo Province represents almost 12% of South Africa's population. The province reflects the diversity of South Africa in that it consists of several ethnic groups distinguished by culture, language and race.



Source: MRC Web Mapping © 2002.

**Figure 1: Location of Limpopo Province**

The Northern Sotho (Sepedi) constitutes the largest number, being nearly 57% of the population of the province. The Tsonga (Shangaan) speakers comprise 23% while the Venda makes up 12%. Afrikaans speakers make up 2.6% while English-speaking whites are less than half a percent (Limpopo Provincial Government, 2002).

Limpopo is unique in that it shares international borders with three countries: Botswana to the west and north-west, Zimbabwe to the north, and Mozambique to the east. It also serves as the link between South Africa and countries further afield in sub-Saharan Africa. This endowment places the province not only in a position of relevance geographically and socio-economically; but indeed as a vital conduit for dynamic public health issues.

The recent 2001 census reports that 39.4% of the Limpopo population is under the age of 15 years (the highest proportion for any province in the country) while 7.7% of the population is aged over 60 years (StatsSA, 2003). Females represent 54.6% of the population and males account for 45.4%. The majority of households (70.7%) are formal type houses while 19.7% are traditional housing type. On average, each household has a size of 4.3, the highest of all



provinces in the country. The principal energy source is wood although 25% of the population uses electricity. Nearly a quarter of households (23.3%) have no toilet facility and 22% do not have access to piped water. Limpopo Province also records the second highest unemployment rate in the country. According to the census, 48.8% of persons aged 15-64 years are unemployed.

## **DATA SOURCE AND ANALYSIS**

Data analysed in this study were based on a 12% stratified random sample of death certificates (for the period 1997-2001) compiled by Statistics South Africa (StatsSA, 2002). This report is based on the death records for Limpopo Province.

A record is considered a “Limpopo statistic” if the *place of death* was a place within Limpopo Province. The underlying assumption here of studying the deaths that effectively occurred in Limpopo Province is that such an approach will help reveal associated health implications for the province. The implication of this approach is discussed in a later section of this report.

Identifying and coding of the underlying cause of mortality was done by StatsSA using the tenth revision of the International Classification of Diseases (ICD-10). For the current report it was determined that the South African National Burden of Disease (NBD) list be used to aggregate the codes because of its public health relevance in the South African context (see Appendix).

Based on the Global Burden of Disease classification, three broad groups are drawn. These are:

- (i) Group I causes which consists of communicable, maternal, perinatal and nutritional diseases. HIV/AIDS, as a communicable disease also falls under this group.
- (ii) Group II causes which comprise of all non-communicable diseases of the various organ-systems of the body.
- (iii) Group III causes which comprise both intentional and unintentional injuries.

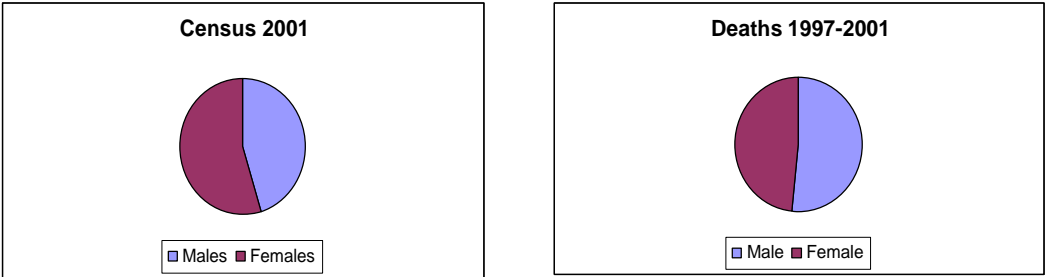
The remaining ill-defined causes form a group of their own. These are conditions where the exact cause of death is not clearly specified on the death certificate and therefore does not fit into any of the above three groups of causes. Bradshaw *et al* (2002) explain that ill-defined causes arise when the medical practitioner does not have access to the full medical record for certification; when the diagnostic tests have not been done prior to the death; when the autopsy

has not been done or when the death report form (B 11680) has been used and the death has been certified as natural by a traditional headman. Whatever the case, this group of causes of death poses limitations on our understanding of the health milieu and therefore potential for intervention.

The trends in numbers of deaths over the period are explored by broad group and the age and sex pattern is explored for the province. The changing profile in each age group is investigated and the top causes are identified.

**REGISTERED DEATHS**

For the five-year period 1997 to 2001, a total of 22363 deaths were recorded in the sample for Limpopo Province. There were 51.7% male deaths and 48.3% female, the opposite profile from the population which has 45.4% males and 54.6% females (Figure 2). The sample showed an increase in the number of deaths from 3494 in 1997 to 6153 in 2001 with dips in 1999 and 2000 (Figure 3). The national sample showed a similar increase over the period with an unexplained dip in the year 2000. This has been identified as a problem in the realisation of the sample and hence the StatsSA report has focused on presenting proportions rather than the actual numbers (StatsSA, 2002).



**Figure 2: The sex distribution of the population and deaths, Limpopo Province**

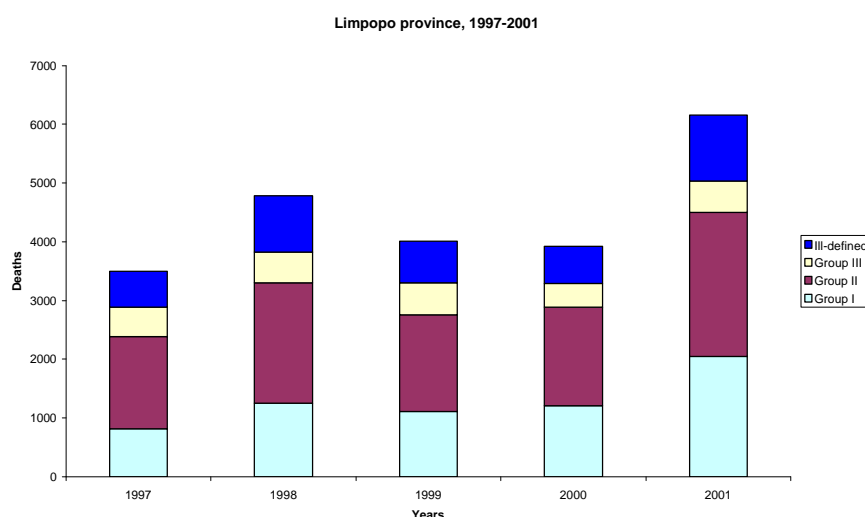
**DEATHS BY BROAD GROUP**

The highest number of deaths appeared in group II (non-communicable diseases), representing 42% of recorded deaths among males and females while group III (injuries) and ill-defined causes represented the smallest contributors to causes of death among females and males

respectively (see Table 1). This pattern is most pertinent when the overall period is considered but from Figure 4, it can be seen to be consistent over the years.

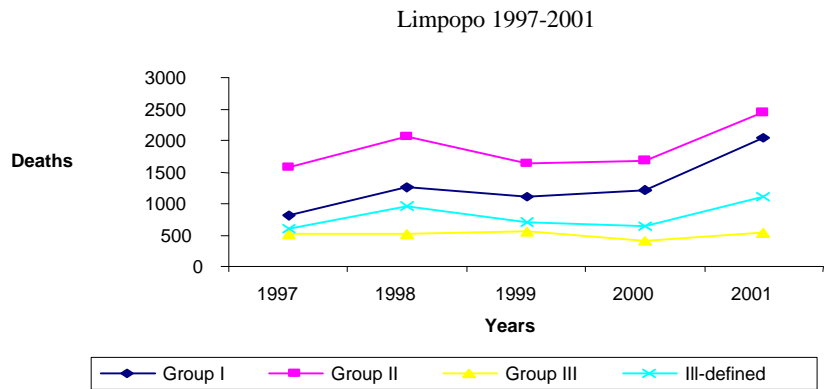
**Table1: Number of deaths by broad groups - Limpopo, 1997-2001**

Causes of death	1997		1998		1999		2000		2001		1997-2001		Total
	M	F	M	F	M	F	M	F	M	F	M	F	
Group I	459	359	668	579	576	536	630	576	1003	1046	3336	3096	6432
Group II	820	746	1022	1038	846	799	807	876	1192	1262	4687	4721	9408
Group III	356	151	367	150	375	175	287	111	405	130	1790	717	2507
Ill-defined	259	344	400	563	296	406	284	349	503	612	1742	2274	4016
<b>TOTAL</b>	<b>1894</b>	<b>1600</b>	<b>2457</b>	<b>2330</b>	<b>2093</b>	<b>1916</b>	<b>2008</b>	<b>1912</b>	<b>3103</b>	<b>3050</b>	<b>11555</b>	<b>10808</b>	<b>22363</b>

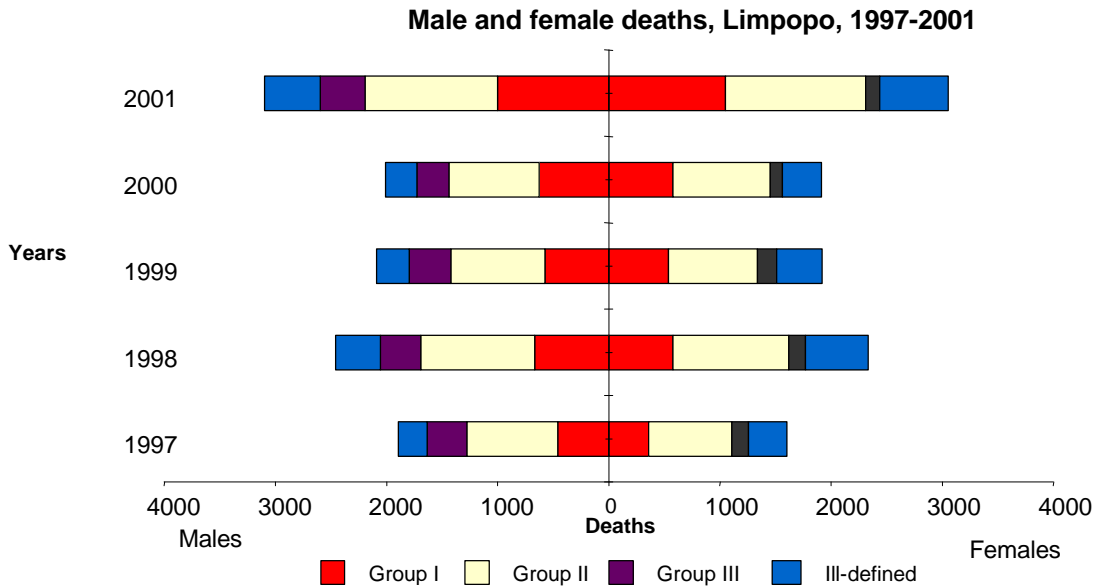


**Figure 3: Number of deaths by broad groups, Limpopo Province 1997-2001**

In terms of annual trends during the period, it was noted that the group II (non-communicable) causes, consistently ranked highest among both sexes and accounted for 42% of the recorded deaths. However, certain inconsistent trends on other groups are observed. For example, among males, it was observed that the injuries and ill-defined causes tended to generally alternate between third and fourth rankings during the period. This was however not the case with females where a uniform ranking of causes of death is observed. Figure 4 displays the number of deaths in each group for each of the years for males and females combined and Figure 5 shows the numbers for males and females separately.



**Figure 4: Trend in number of deaths by broad groups, Limpopo Province 1997-2001.**



**Figure 5: Number of deaths by broad group for males and females, Limpopo Province 1997-2001**

It is difficult to interpret the trend in the numbers. When relative proportions are considered, it is observed that the proportion of injuries in males, although higher than females, shows a downward trend from a record of 18.8% of deaths in 1997 to 13.0% by 2001 (Table 2). The table also shows that females consistently had a higher percentage of ill-defined causes of death than their male counterparts.

**Table 2: Proportion of deaths by broad group, Limpopo Province, 1997-2001**

Cause of death	1997		1998		1999		2000		2001		1997-2001		Total
	M	F	M	F	M	F	M	F	M	F	M	F	
Group I	24.2%	22.4%	27.2%	24.8%	27.5%	30.0%	31.4%	30.1%	32.3%	34.3%	28.9%	28.6%	28.8%
Group II	43.2%	46.6%	41.6%	44.5%	40.4%	41.7%	40.2%	45.8%	38.4%	41.3%	40.6%	43.7%	42.1%
Group III	18.8%	9.4%	14.9%	6.4%	17.9%	9.1%	14.3%	5.8%	13.1%	4.3%	15.4%	6.6%	11.2%
Ill-defined	13.8%	21.6%	16.3%	24.3%	14.2%	21.2%	14.1%	18.3%	16.2%	20.1%	15.1%	21.1%	17.9%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

From Table 3, it can be seen that in 1997 there were more male deaths than female deaths and that the ratio approaches equal numbers over the years. A marked downward trend is observed for Group I causes of death with the reverse trend in Group III causes where an increase is noted. There is more fluctuation in the male to female ratio of the non-communicable diseases and a slight increase in the ill-defined conditions which are predominantly female.

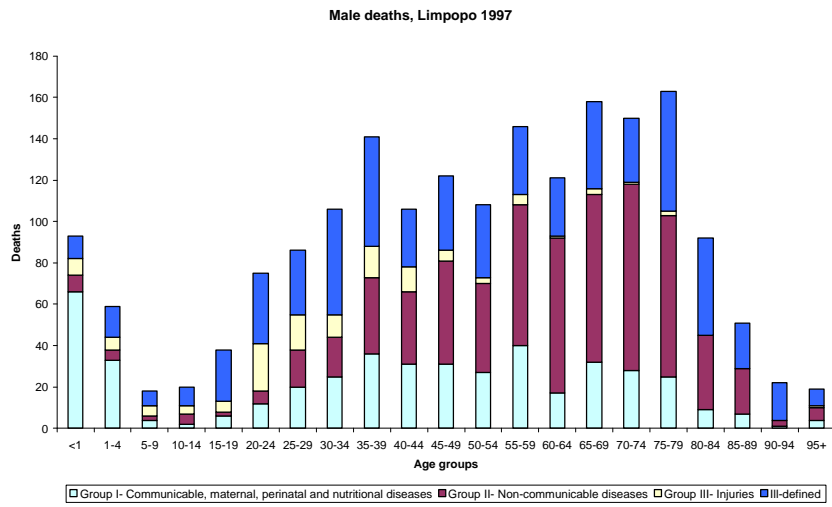
**Table 3: Male to Female ratio of deaths by broad groups, Limpopo Province 1997-2001**

Cause of death	Years				
	1997	1998	1999	2000	2001
Group I	1.28	1.15	1.07	1.09	0.96
Group II	1.10	0.98	1.06	0.92	0.94
Group III	2.36	2.45	2.14	2.59	3.12
Ill-defined	0.76	0.71	0.73	0.81	0.82
All causes	1.18	1.05	1.09	1.05	1.02

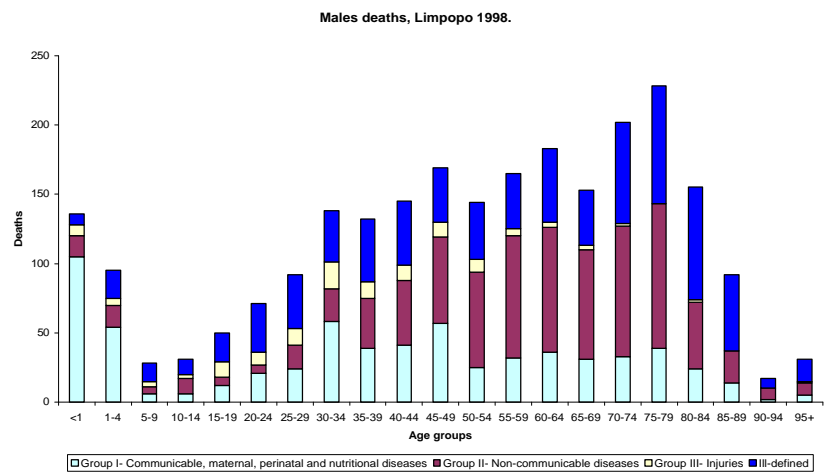
The age distribution of causes of death are presented in five-year age intervals for the three broad groups and ill-defined causes of deaths in Figures 5 and 6. Infants (under 1 year) are considered separately from the 1-4 years age group while the 90 years and above are grouped together in a single age group because of age-specific patterns of mortality. Comparing the age pattern from year to year, it can be seen that particularly from 1999 onwards, there are increasing numbers of young adult deaths. These are largely due to an increase in the group I deaths. The peak for men occurs in the 35-39 year age group while the peak for females occurs in the 25- 34 year age group. The non-communicable diseases affect the older ages and the proportion of ill-defined causes are particularly high in the older ages.

**Figure 6: Age distribution of male deaths by broad group, Limpopo Province 1997-2001**

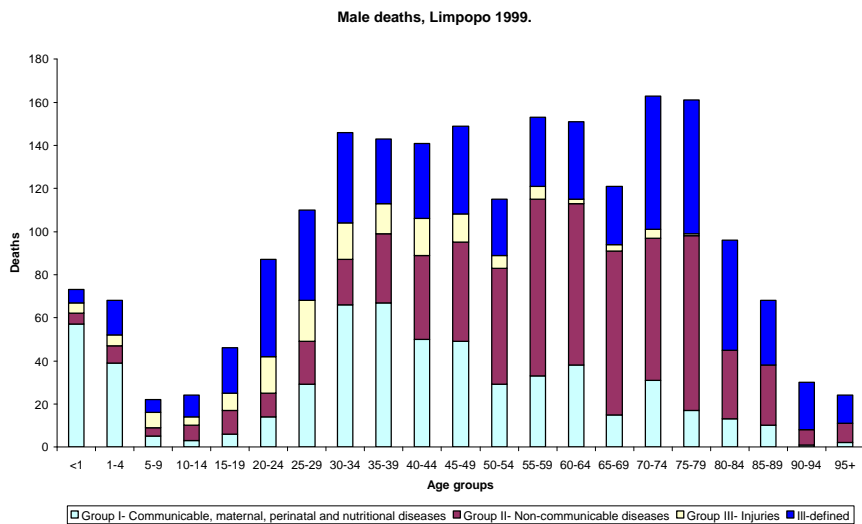
(a)



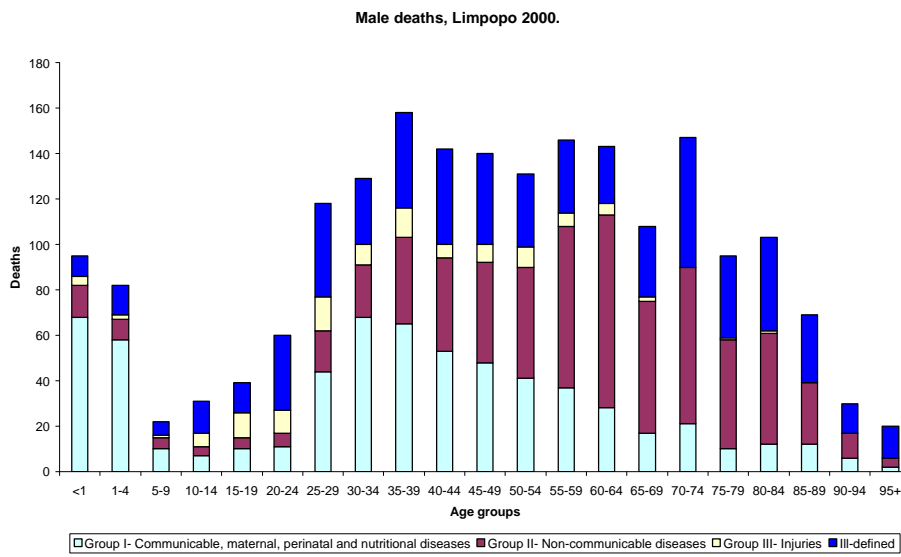
(b)



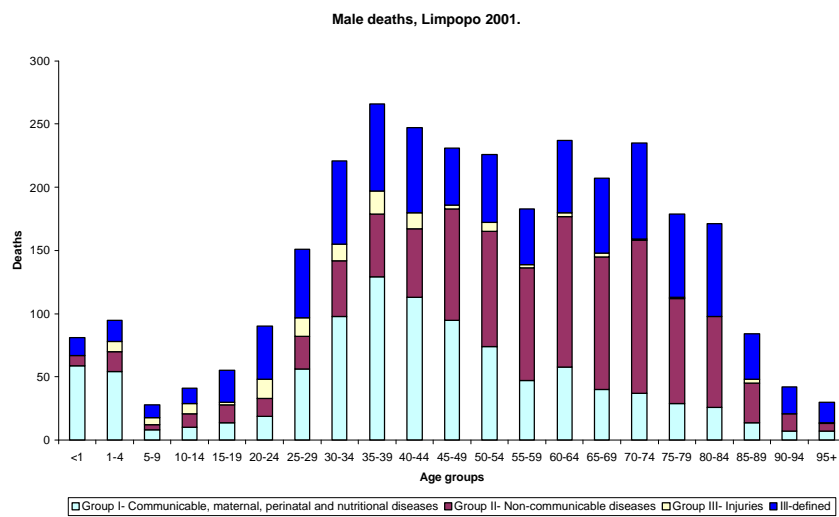
(c)



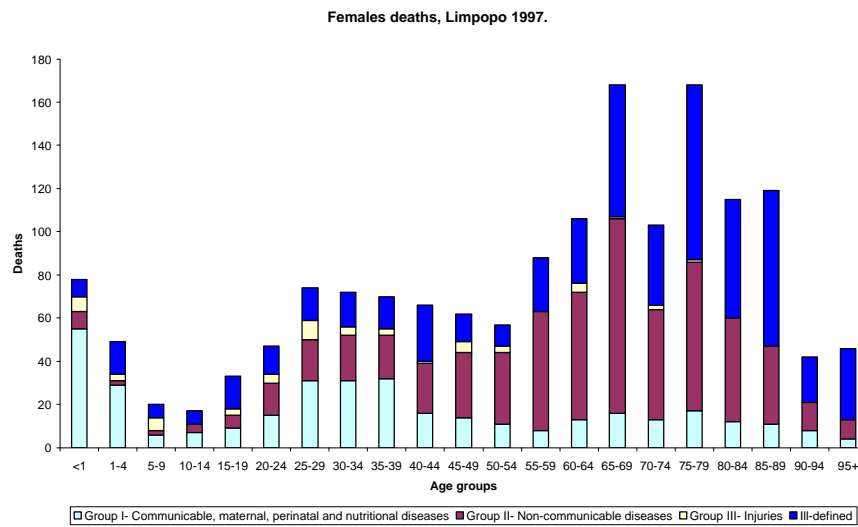
(d)



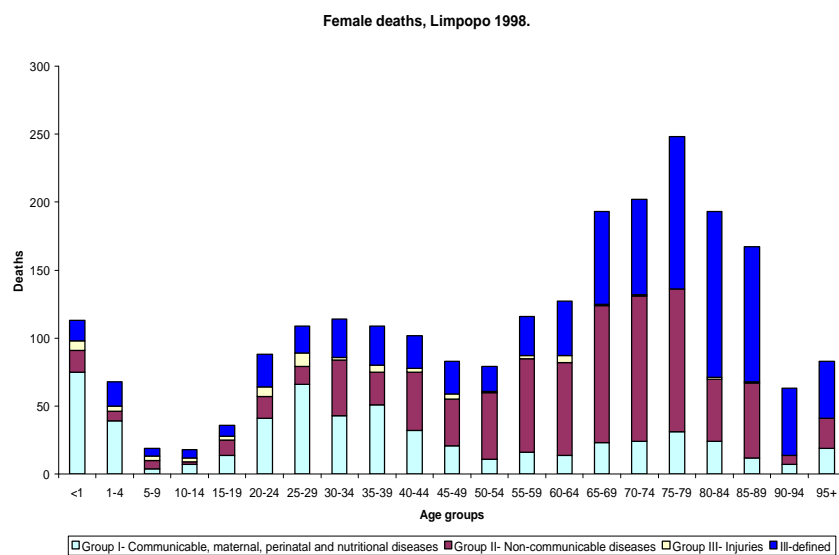
(e)



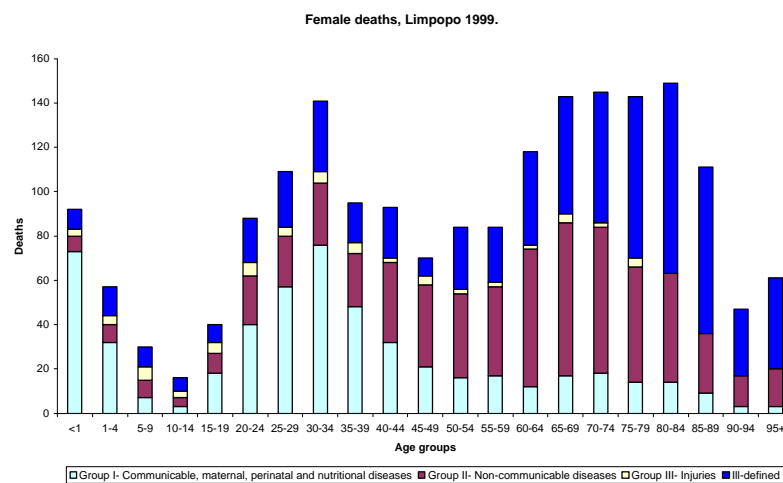
**Figure 7: Age distribution of female deaths by broad groups, Limpopo Province 1997-2001**  
(a)



(b)

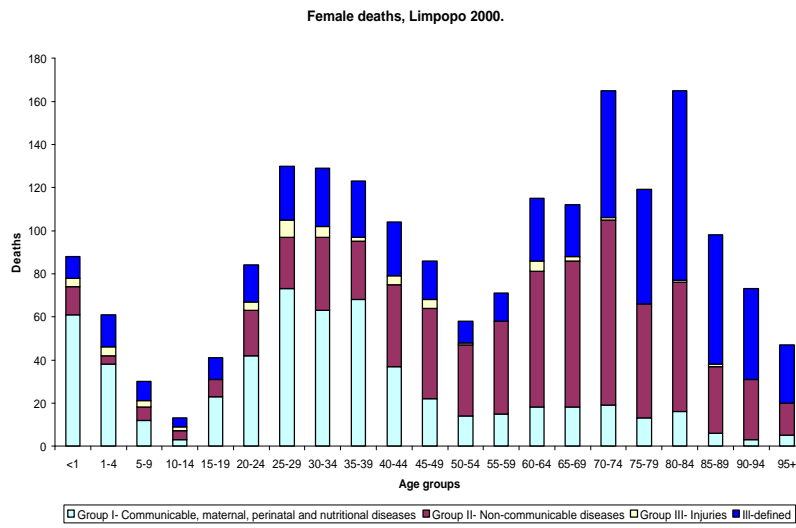


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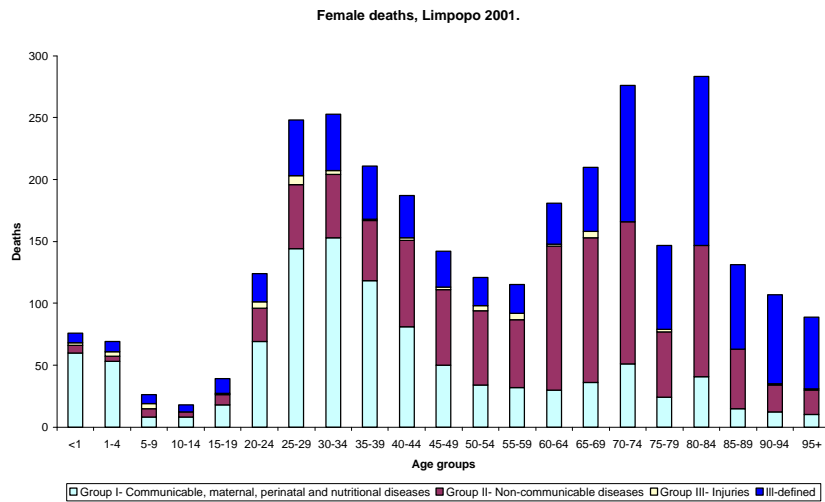




(d)



(e)

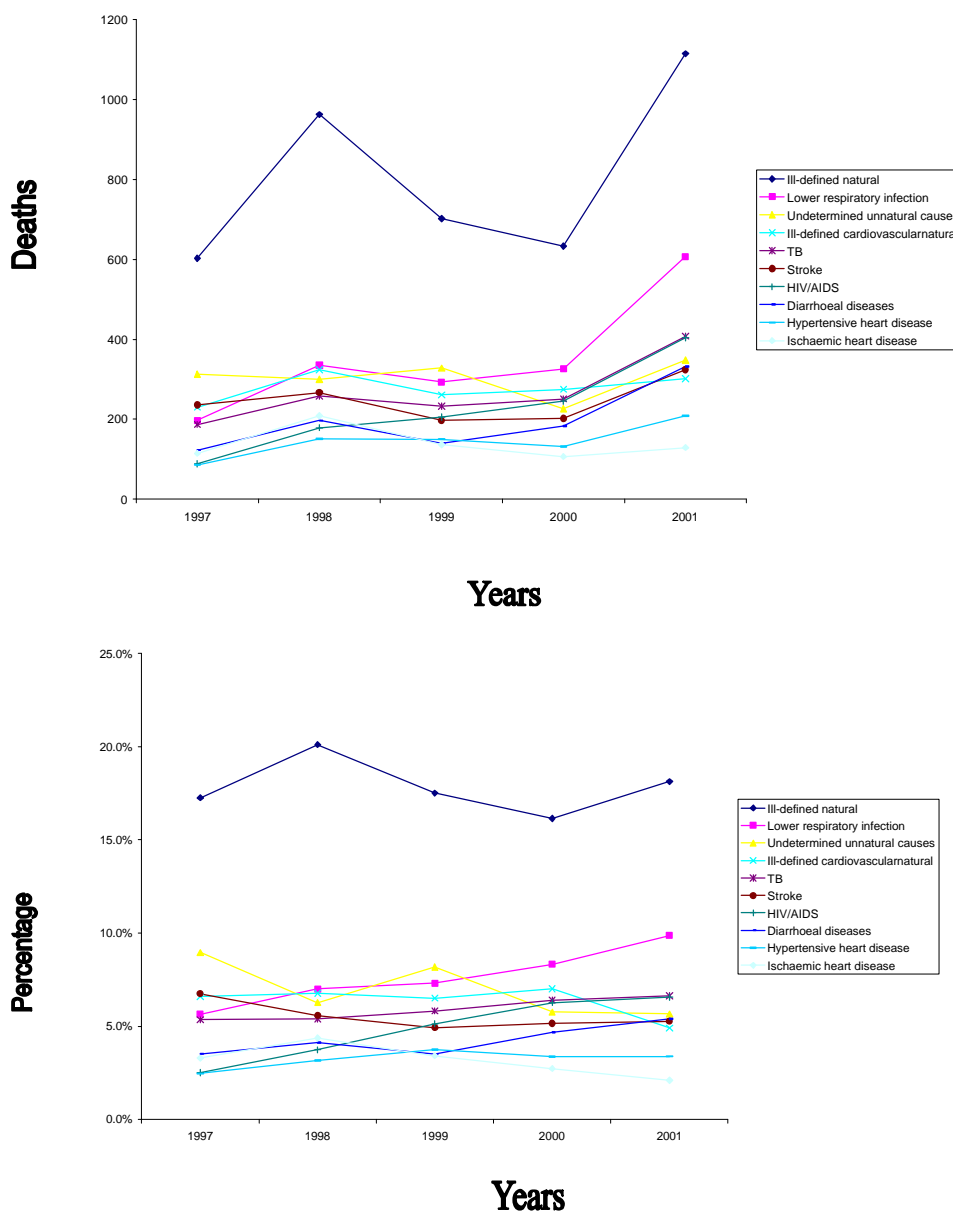


From Figures 5 and 6 a peculiar trend of differing relative numbers of deaths in the under-1s and the 1-4 year age groups can be seen. In 1997 and 1998, more deaths are observed in the under-1 year age group compared to the 1-4 year age group but by 2001 more deaths are reported in the later age group. Another peculiar trend is the spikes in older age groups. This may reflect a change in mortality patterns but may also reflect a change in legislation of deaths and should be investigated further. These correspond with ages based on selected years of birth, with a zero end-digit preference such as 1920, 1930. In other words, in the older population, there is evidence of a tendency of rounding the year of birth to multiples of tens. This is likely to have occurred with the issuing of ID documents and not necessarily with death registration.

## LEADING CAUSES OF DEATH

The trend in the top causes of death are shown for the province as numbers and as percentages in Figure 8. The percentages are important as it is difficult to interpret the changes in numbers as these are affected by the sample realisation. Figure 8 shows that the ill-defined causes are by far the most common over the whole period. It also shows that the proportion due to undetermined unnatural deaths, stroke and ischaemic heart disease decline while the proportions of lower respiratory infections, diarrhoeal diseases and HIV/AIDS all increase over this period.

**Figure 8: Trend in number of deaths for top 10 causes, Limpopo 1997-2001**



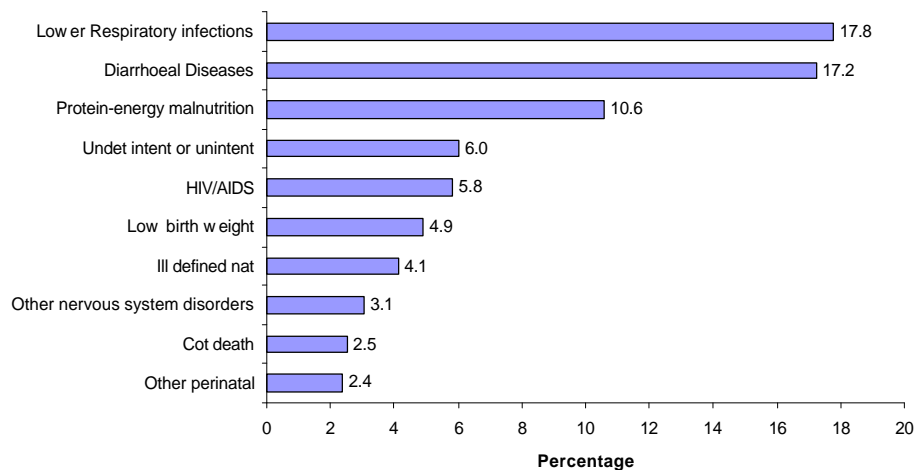
The top causes of death are shown by age group for males in Figure 9 and females in Figure 10 for the period 1997-2001, and are summarised in Table 4. Appendix II gives the total number of deaths in each age and sex group. In both boys and girls under-5, lower respiratory infections is ranked the highest followed by diarrhoeal disease. Undetermined intentional or unintentional conditions are the most common cause of death for boys and girls aged 5-14 years. The ill-defined natural, non road traffic accidents, lower respiratory infections, diarrhoea, septicaemia, malaria and HIV are amongst the top causes as well as epilepsy and other nervous system conditions.

Among the 15-44 year age group, HIV/AIDS and related conditions of tuberculosis and lower respiratory tract infections feature as leading cause of death in both males and females. It can be noticed that undetermined intentional or unintentional causes of death is among the top causes of death in males within this age group and not females.

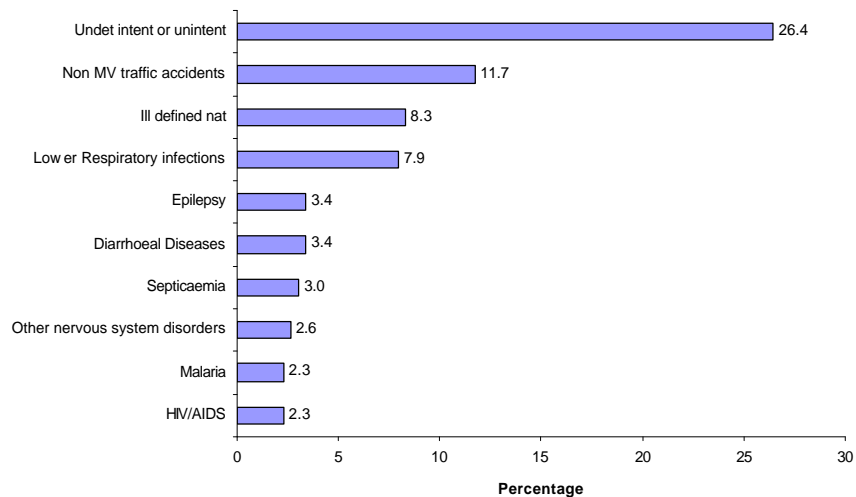
As would be expected, non-communicable diseases are the leading cause of deaths in older ages. Among the 45-59 year age groups and the 60 plus, it is seen that diabetes, stroke, hypertensive heart diseases, ischaemic heart disease and ill-defined cardiovascular diseases begin to feature more prominently in both males and females. It is also interesting to note that among males within this age range, tuberculosis ranks very highly. In fact, for males 45-59 years of age, tuberculosis figures as the second highest cause of death for the period 1997-2001. In the 60 plus age group, lower respiratory infections overtake tuberculosis as a leading cause of death in both sex groups.

**Figure 9: The top causes of death for males in different age groups, Limpopo, 1997-2001**

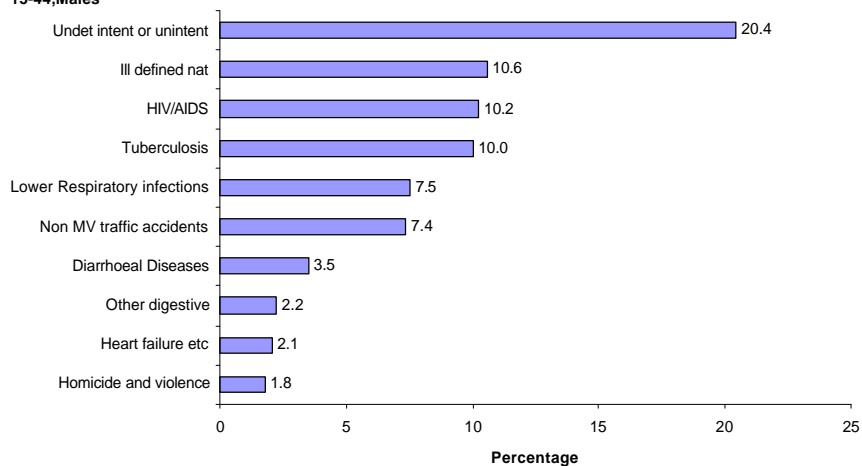
**0-4,Males**



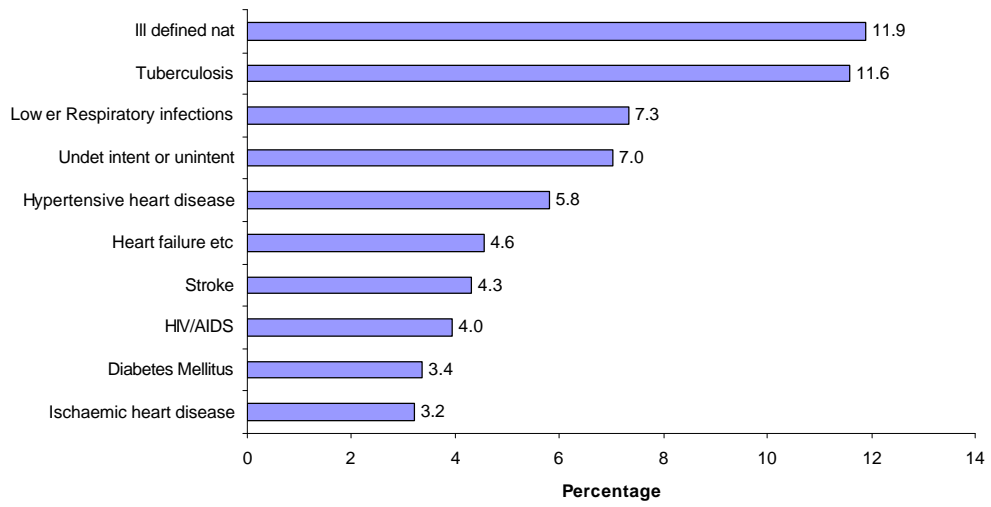
**5-14,Males**



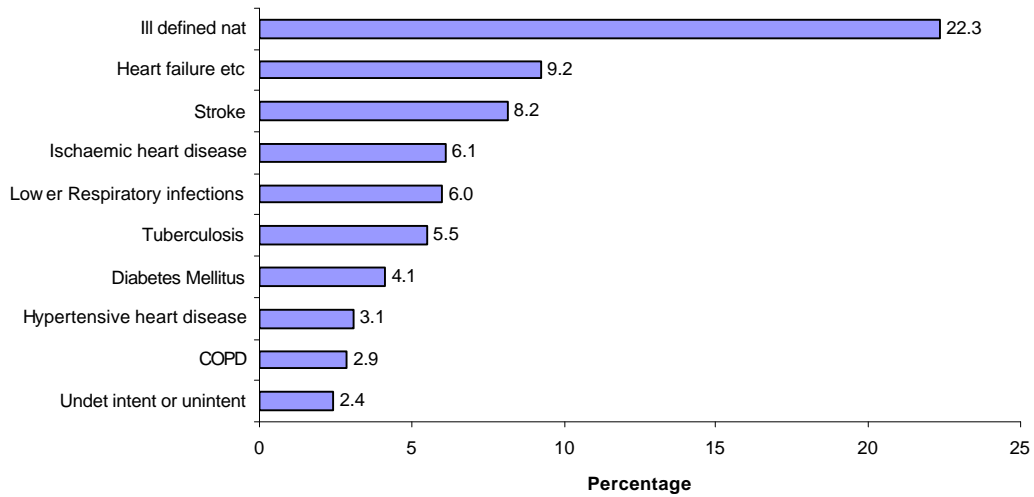
**15-44,Males**



**45-59, Males**

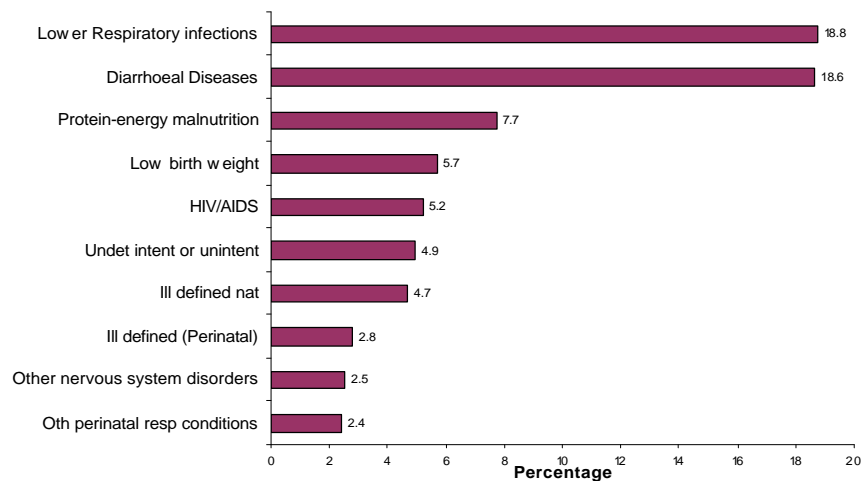


**60+, Males**

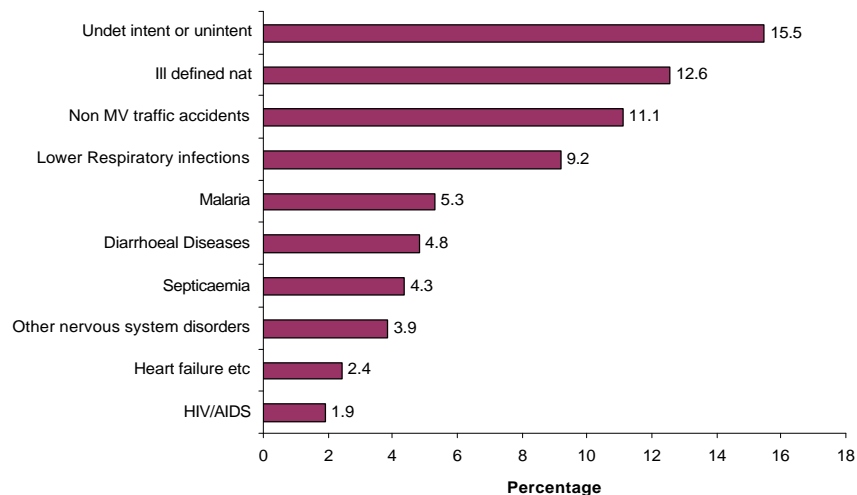


**Figure 10: The top causes of death for females in different age groups, Limpopo, 1997-2001**

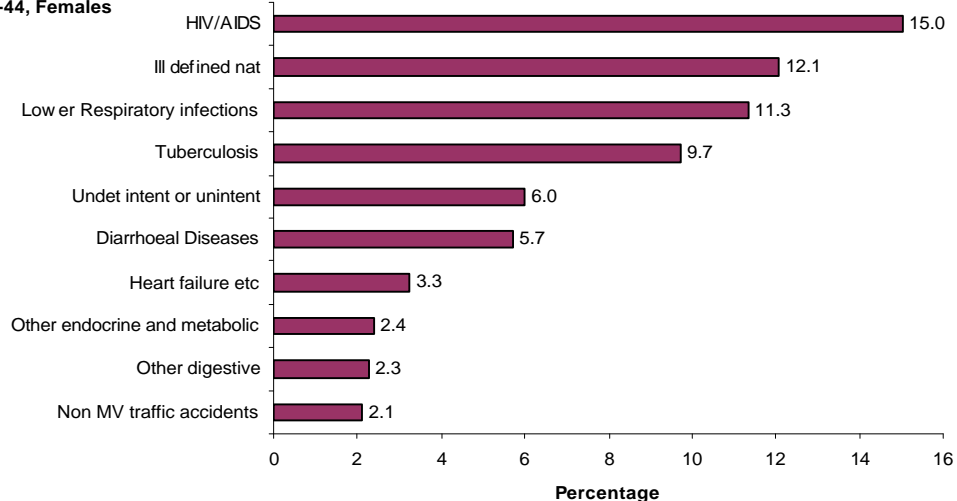
**0-4, Females**



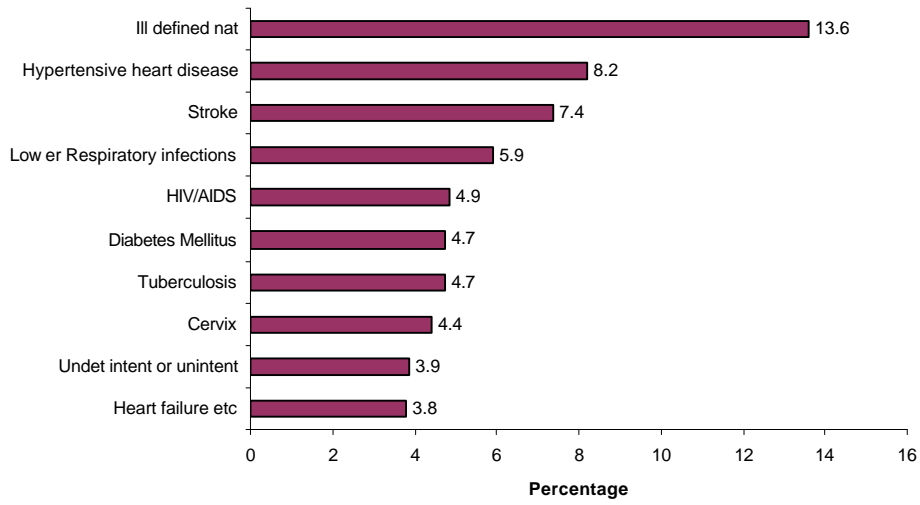
**5-14, Females**



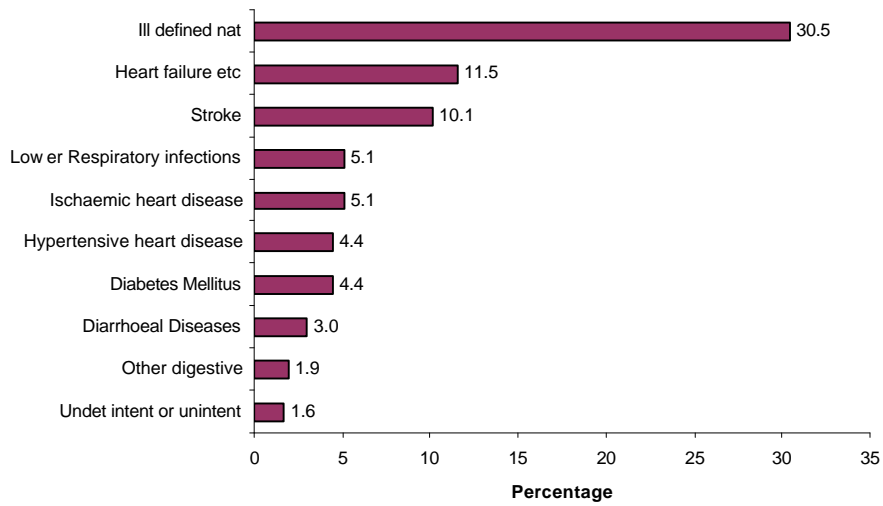
**15-44, Females**



**45-59,Females**



**60+,Females**



**Table 4: The 10 leading causes of death for all races and both sexes, by age group, Limpopo Province 1997-2001**

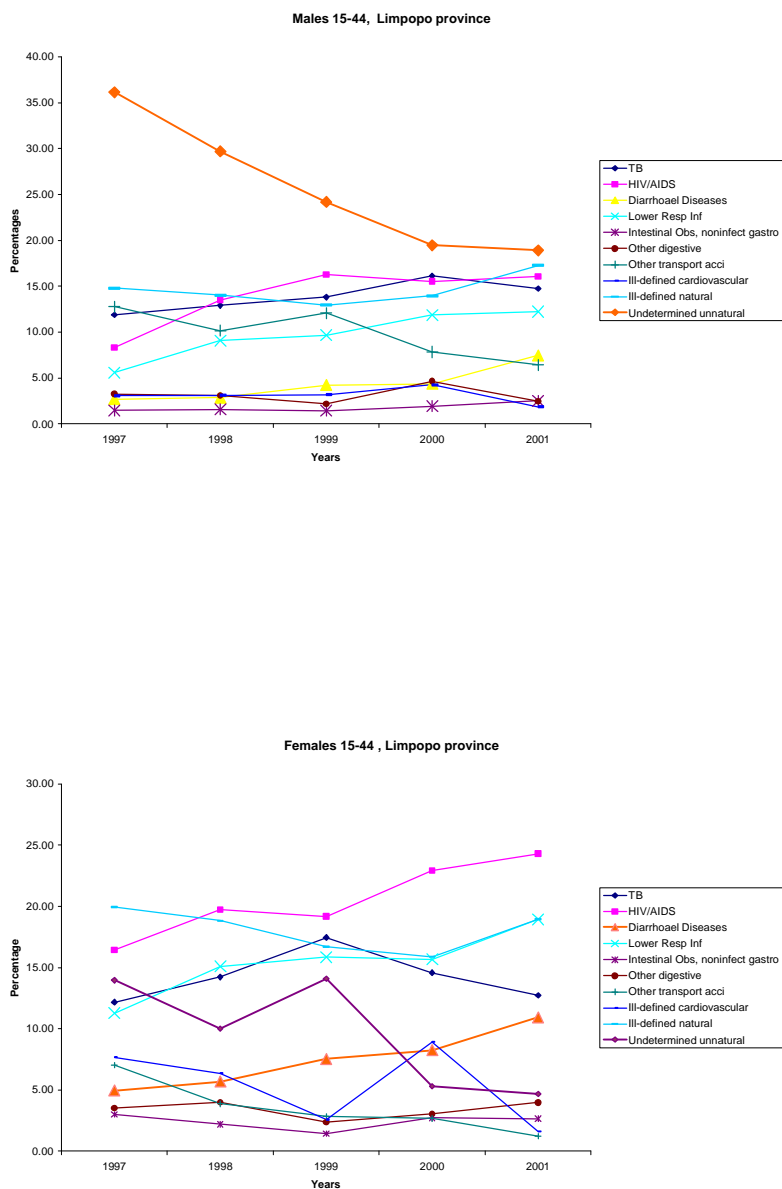
	<b>&lt;1 year</b>	<b>1-4 years</b>	<b>5-14 years</b>	<b>15-44 years</b>	<b>45-59 years</b>	<b>60+ years</b>	<b>All ages</b>
1	Diarrhoeal diseases	Lower resp infections	Undetermined unnatural	Undetermined unnatural	Ill-defined natural	Ill-defined natural	Ill-defined natural
2	Lower resp infections	Diarrhoeal diseases	Other transport accidents	HIV/AIDS	Tuberculosis	Heart failure	Lower resp infections
3	Low birth weight	Protein-energy malnutrition	Ill-defined natural	Ill-defined natural	Lower resp infections	Stroke	Undetermined unnatural
4	HIV/AIDS	Ill-defined natural	Lower resp infections	Tuberculosis	Hypertensive heart disease	Ischaemic heart disease	Heart failure
5	Protein-energy malnutrition	Undetermined unnatural	Diarrhoeal diseases	Lower resp infections	Undetermined unnatural	Lower resp infections	Tuberculosis
6	Cot death	HIV/AIDS	Septicaemia	Other transport accidents	Stroke	Diabetes Mellitus	Stroke
7	Ill defined (Perinatal)	Other transport accidents	Malaria	Diarrhoeal diseases	HIV/AIDS	Hypertensive heart disease	HIV/AIDS
8	Other perinatal	Other nervous sys diseases	Other nervous sys diseases	Heart failure	Heart failure	Tuberculosis	Diarrhoeal diseases
9	Oth perinatal resp conditions	Surgical/medical misadv	Epilepsy	Other digestive	Diabetes Mellitus	Diarrhoeal diseases	Hypertensive heart disease
10	Other nervous sys diseases	Tuberculosis	HIV/AIDS	Malaria	Other digestive	Other digestive	Ischaemic heart disease



The change in profile for the age group 15-44 years is shown in Figure 11. The pattern for the younger age groups was extremely erratic due to small numbers and the pattern for the older age groups showed little variation and are therefore not included.

The 15-44 year age group displays a marked change. In the case of males, the undetermined unnatural dropped substantially while HIV, tuberculosis, lower respiratory infections and diarrhoea increased. A similar trend can be observed in the females except the undetermined unnatural was not as high at the beginning of the period.

**Figure 11: Top causes of death among adult (15-44 years) males and females, 1997-2001**



## YEARS OF LIFE LOST (YLLs)

The years of life lost were calculated using the same assumptions as the South African National Burden of Disease study. The top causes of years of life lost are shown in table 5. The ill-defined natural and the undetermined unnatural are the leading two causes. These are followed by lower respiratory tract infections, HIV/AIDS, TB and diarrhoea. Other transport accidents rank 7 followed by Heart failure, stroke and hypertensive heart disease. The chronic disease rank lower when considering years of life lost because they occur at older ages.

**Table 5: Top causes of premature mortality (YLLs,) Limpopo Province 1997-2001**

Rank	MALES		FEMALES		PERSONS	
	N= 198753	%	N = 173505	%	N = 372258	%
1	Undetermined unnatural	14.7	Ill-defined natural	13.5	Ill-defined natural	12.1
2	Ill-defined natural	10.8	Lower resp infections	10.7	Undetermined unnatural	10.4
3	Lower resp infections	8.8	HIV/AIDS	9.5	Lower resp infections	9.7
4	Tuberculosis	7.9	Diarrhoeal Disease	6.7	HIV/AIDS	7.8
5	HIV/AIDS	6.7	Tuberculosis	6.2	Tuberculosis	7.1
6	Diarrhoeal diseases	5.2	Undetermined unnatural	5.4	Diarrhoeal disease	6.0
7	Heart failure	2.9	Heart failure	4.0	Other transport accidents	3.8
8	Stroke	2.5	Stroke	3.6	Heart failure	3.4
9	Hypertensive heart disease	2.0	Hypertensive heart disease	2.7	Stroke	3.0
10	Ischaemic heart disease	1.9	Diabetes	2.1	Hypertensive heart disease	2.4

## **DISCUSSION**

This study focuses on analysing mortality statistics at provincial level. Ideally, provincial statistics should be collated and analysed routinely. However this has not been the case in South Africa. The intention of the current work is to explore the possibility of using routinely collected national statistics to deduce provincial trends.

Statistics South Africa determined that a 12% random sample for the country will be representative enough and produce interpretable results on the causes of death reported on death certificates. Of these, approximately 8% were deaths in the Limpopo Province. This is lower than the population representation of Limpopo Province in the total South African population and may reflect a lower mortality rate or higher under-registration than the national average. Due to the small numbers, it was not possible to explore the trends within age groups with the exception of broad age ranges such as the 15-44 year olds.

An incremental trend in the number of deaths is easily observed from the statistics analysed. For the 5 years period, a 76% increase in overall mortality is noted. This is high relative to the population growth of 8.1% for the same time period. This is likely to be a consequence of improved coverage of death registration rather than increasing mortality in the province. It is difficult to interpret the lower numbers in sample for 1999 and 2000 which are contrary to the steady increase in the number of deaths registered on the population register by the Department of Home Affairs. Further investigation is needed to investigate the relative contribution of these factors and the interpretation of this data will be limited to proportions and not the actual numbers.

Just under 18% of deaths in the province between 1997 and 2001 are due to ill-defined causes. This is disturbing as proportions of this scope impact significantly on the relative magnitudes of the specified causes. Ill-defined causes arise when the medical practitioner does not have access to the full medical record for certification; when the diagnostic tests have not been done prior to the death; when an autopsy has not been done or when the death report form (B 11680) has been used by a traditional headman. Bah (2003) has highlighted the problem of the ill-defined causes but it is not clear why the proportion is so high in Limpopo Province. Whatever the reason, this group of cause of death poses limitations to our understanding of the health milieu and therefore potential for intervention.

It is important that the quality and completeness of death records be given some attention to allow better epidemiological analysis. A methodological issue in the current report is the criteria used for selection of death statistics for the province. We determined that the *place of death* will be the criterion for inclusion. This was considered relevant in ensuring that the data being studied will reflect what occurred in Limpopo Province. Such an approach, rather than the use of *place of residence* or *place of birth*, was considered more appropriate in revealing associated health implications for the province. This approach may admittedly present a number of drawbacks. Firstly, referred chronic patients and secondly in “auxiliary” cases such as road traffic accidents. In the former, patients with chronic diseases who had resided mostly in Limpopo all their lives but were referred for specialist care in Gauteng province (a common occurrence) or other provinces, would have been lost if they eventually died in the province they were referred to. Similarly, cases of road traffic accidents in which the victims are in transit and die while in Limpopo Province will add to the mortality of the province. It may be argued however that such road traffic accidents should rightly be part of the mortality profile of the province as it depicts the health hazards pertinent to the province. Whether either of these issues significantly affect our estimates cannot be determined in the current report and may need further investigation.

In terms of sex distributions, a number of similarities are noted. The non-communicable diseases ranked highest in contributing to mortality over the period for both males and females. This is different from the National Burden of Disease study which estimated higher proportions of communicable and other Group I conditions. However, there is some consistency with estimates of the Global Burden of Diseases study which showed that adults under the age of 70 in sub-Saharan Africa face a higher probability of death from non-communicable disease than adults of the same age in the Established Market Economies (Murray & Lopez, 1996) in an apparent “epidemiological transition”. Given the high proportion of ill-defined causes in Limpopo Province, it is difficult to interpret this finding.

Injuries contributed the least in both groups although a significantly higher ratio of males died from injuries compared to females. On average, a male to female ratio of 2.5:1 for injury is noted and a high of 3:1 is recorded in 2001. Bradshaw *et al* (2003) have shown that intentional injuries (and not accidents) is the bigger contributor to injuries among males nationally. This finding may be explained by the socio-cultural roles of males and their lifestyle. Interpersonal

violence coupled with increased alcohol intake may predispose males to increased risk of physical trauma and injury. Road traffic accidents are also likely to play a role. Measures to reduce crime and violence and road accidents need to be instituted and statistics monitored. This is of vital emphasis as it will appear that the male population of the province is being continually depleted.

Yet another pertinent revelation of this study is the downward trend in the male to female ratios of Group I causes of deaths during this period. The results show that this group of causes has steadily decreased among males relative to females in 1997 so that by 2001 more females died from Group I causes than males. This is likely due to the higher prevalence of HIV among in females as HIV/AIDS and many indicator conditions are included in this group of causes.

The age distribution of causes of death is fairly consistent with those of the national study (Stats SA, 2002) and the recent burden of disease study (Bradshaw *et al*, 2003). A pattern of high record of Group I deaths is noticed at under-1 year which declines by 5 years of age, rises from 15 years through the early teenage years to peak in the 35-39 year age group for males and 25-34 year age group for females and then troughs thereafter almost in a sinusoidal fashion. An almost paradoxical pattern is seen for Groups II causes which actually peak at later stages of life. It will appear from this observation that age is a strong determinant of cause of mortality and interventions should be channelled to appropriate age groups.

The changing age pattern of the deaths in Limpopo Province, with a rapid increase in the number of young adult deaths suggests that despite the limitations of these data, HIV/AIDS is clearly having an impact on the cause of death profile in Limpopo Province.

## **CONCLUSION AND RECOMMENDATIONS**

This report documents the profile of causes of mortality for Limpopo Province as retrieved from the national sample of registered deaths. The success of providing this analysis demonstrates that provincial statistics could be compiled from routinely collected national records. However it highlights many inadequacies in the data suggesting that it is impossible to interpret them on face value.

The proportion of ill-defined conditions is very high in Limpopo Province and limits the use of such reports. It is disturbing to note that for every five deaths documented, one will be of an ill-

defined cause. Strategies should be put in place to reduce the percentage of ill-defined conditions to less than 5% of the total deaths. Further investigation of this data might reveal the source of the ill-defined causes. In the meanwhile, efforts to improve medical certification on death notification should include training targeted at both medical students as well as continuing professional development targeted at medical practitioners who have already qualified.

The results reveal a major problem with the collection of manner of death in the case of injuries. Most of the external deaths are classified as “undetermined unnatural” as the manner of death is not specified on the death notification due to ambiguities in the legislation. Some pathologists interpret the Inquest Act as requiring that they may not provide details on the manner of death until the inquest has been completed. Hence they do not specify these details. Other pathologists consider that there is a public health obligation to provide such details. One way to resolve this dilemma would be to link the National Injury Surveillance System (NIMSS), a mortuary based surveillance system, with the vital statistic system to ensure full and detailed coverage of injury deaths. NIMSS would need to be extended to all mortuaries in the province.

It is likely that HIV/AIDS is under-reported as a cause of death. Whether tuberculosis, neurological or other respiratory conditions are AIDS-related is often not stated in death certificates. This presents difficulties in arriving at accurate estimates for HIV/AIDS. The rapidly changing age pattern and sex ratio suggest that HIV/AIDS is having an impact in this province. The ASSA model (ASSA, 2001) projects HIV/AIDS as contributing between 16%-25% to mortality for the period. This is of grave concern as the human and socio-economic impact of such statistic is enormous. Measures to reduce the spread of the epidemic must be a priority.

The greatest revelation of the mortality profile of Limpopo Province is the high contribution of non-communicable diseases to the mortality burden of the province. Four out of every 10 deaths is from a non-communicable disease. These are due to stroke, hypertensive heart disease, ischaemic heart disease and other cardiovascular conditions which affect older persons. Diabetes also features as a cause of death for older people. Public health interventions for the province should take cognisance of this in their design and implementation.

This initial analysis of the provincial data has revealed problems with the quality of cause of death data that need to be addressed if such data are to become useful. It is recommended that

while efforts to improve the cause of death statistics continue, other sources of demographic and epidemiological data be reviewed so that best estimates of the actual burden of disease profile can be obtained for the province. The data from the Agincourt and Dikgale demographic surveillance sites will be important. Attempts should also be made to estimate the contribution of morbidity and disability to the burden of disease in the province.

In conclusion, the provincial mortality profile for Limpopo shows some similarities with the national profile and suggests that provincial programs could easily draw strength from the National health priorities in meeting the health needs of the province. The specific peculiarities of the provincial data should also be considered to emphasize the actual health needs of the province.

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## APPENDIX I: South Africa Burden of Disease List

SA NBD code	Title of SA NBD cause	ICD-10 Code
<b>I</b>	<b>Communicable, maternal, perinatal and nutritional Diseases</b>	<b>A00-A99, B00-B99, D50-D53, E00-E02, E40-E46, E50-E64, J00-J22, O00-O99, P00-P99, G00, N70 - N73, H66, J90</b>
<b>I A</b>	<b>Infectious and parasitic</b>	<b>A00-A99, B00-B99, G00, N70-N73</b>
<b>I A ZA1</b>	Tuberculosis	A15-A19, B90, J90
<b>I A ZA2</b>	STDs excluding HIV	A50-A64, N70-N73
<b>I A ZA2a</b>	Syphilis	A50-A53
<b>I A ZA2b</b>	Other STDs	A54-A64, N70-N73
<b>I A ZA3</b>	HIV/AIDS	B20-B24
<b>I A ZA4</b>	Diarrhoeal diseases	A00-A04, A06-A09
<b>I A ZA5</b>	Childhood (Vaccine preventable) cluster	A33-A37, A80, B03, B05-B06, B91
<b>I A ZA5a</b>	Pertussis	A37
<b>I A ZA5b</b>	Polio	A80; B91
<b>I A ZA5c</b>	Diphtheria	A36
<b>I A ZA5d</b>	Measles	B05
<b>I A ZA5e</b>	Tetanus	A33-A35
<b>I A ZA5f</b>	Rubella	B06
<b>I A ZA6</b>	Bacterial meningitis	A39, G00
<b>I A ZA7</b>	Hepatitis	B15-B19
<b>I A ZA8</b>	Malaria	B50-B54
<b>I A ZA9</b>	Schistosomiasis and other tropical diseases	B55-B56, B65, B74
<b>I A ZA10</b>	Leprosy	A30, B92
<b>I A ZA11</b>	Intestinal parasites	B66-B 73; B75 -B83
<b>I A ZA12</b>	Septicaemia	A40-A41
<b>I A ZA13</b>	Other infectious and parasitic	A05, A20-A28, A31, A32, A38, A42-A49, A65-A69, A70-A74, A75-A79, A81- A89, A90-A99, B00-B02, B04,, B07-B09, B25-B34, B35-B49, B57-B64, B85-B89, B94-B99
<b>I B</b>	<b>Respiratory infections</b>	<b>J00-J06, J10-22, H66</b>
<b>I B ZA14</b>	Lower respiratory infections	J10-J18, J20-J22
<b>I B ZA15</b>	Upper respiratory infections	J00-J06
<b>I B ZA16</b>	Otitis media	H66
<b>I C</b>	<b>Maternal conditions</b>	<b>O00-O99</b>
<b>I C ZA17</b>	Maternal haemorrhage	O20, O44-O46, O67, O72
<b>I C ZA18</b>	Maternal sepsis	O85-086
<b>I C ZA19</b>	Hypertension in pregnancy	O10-O16
<b>I C ZA20</b>	Obstructed labour	O64-O66
<b>I C ZA21</b>	Abortion	O00-O08
<b>I C ZA22</b>	Other maternal	O21-O29, O30-O43, O47-O48, O60-O63, O68-O71, O73-O75, O80-O84, O87-O92, O95-O99
<b>I D</b>	<b>Perinatal conditions</b>	<b>P00-P96</b>
<b>I D ZA23</b>	Low birth weight	P05-P07, P22
<b>I D ZA24</b>	Birth asphyxia and trauma	P03, P10-P15, P20-P21
<b>I D ZA25</b>	Other respiratory conditions	P23-P28
<b>I D ZA26</b>	Neonatal infections	P35-P39
<b>I D ZA27</b>	Foetal alcohol syndrome	P00
<b>I D ZA28</b>	Other perinatal	P01-P02, P04, P08, P29, P50-P61, P70-P74, P76-P94
	Ill-defined	P95-96
<b>I E</b>	<b>Nutritional deficiencies</b>	<b>D50-D53, E00-E02, E40-E46, E50-E64</b>
<b>I E ZA29</b>	Protein-energy malnutrition	E40-E46
<b>I E ZA30</b>	Deficiency anaemias	D50-D53
<b>I E ZA31</b>	Other nutritional deficiencies including pellagra and vitamin A deficiency	E00 - E02, E50-E64

<b>II</b>		<b>Non-communicable diseases</b>	<b>C00-C97, D00-D48, D55-D76, D80-D89, E03-E07, E10-E14, E15-E34, E65-E90, F00-F99, G03-G99, H00-H61, H68-H95, I00-I99, J30--J89, J92-98, K00-K93, L00-L98, M00-M99, N00-N64, N75-N99, Q00-Q99, R95, R96-R98&lt;12mths</b>
<b>II</b>	<b>F</b>	<b>Malignant neoplasms</b>	<b>C00-C97;D00-D09</b>
<b>II</b>	<b>F</b>	<b>ZA32</b> Mouth and oropharynx	C00-C14
<b>II</b>	<b>F</b>	<b>ZA33</b> Oesophagus	C15
<b>II</b>	<b>F</b>	<b>ZA34</b> Stomach	C16
<b>II</b>	<b>F</b>	<b>ZA35</b> Colo-rectal	C18-C21
<b>II</b>	<b>F</b>	<b>ZA36</b> Liver	C22
<b>II</b>	<b>F</b>	<b>ZA37</b> Pancreas	C25
<b>II</b>	<b>F</b>	<b>ZA38</b> Larynx	C32
<b>II</b>	<b>F</b>	<b>ZA39</b> Trachea/bronchi/lung	C33-C34
<b>II</b>	<b>F</b>	<b>ZA40</b> Bone and connective tissue	C40-C41
<b>II</b>	<b>F</b>	<b>ZA41</b> Melanoma	C43
<b>II</b>	<b>F</b>	<b>ZA42</b> Other skin cancer	C44
<b>II</b>	<b>F</b>	<b>ZA43</b> Breast	C50
<b>II</b>	<b>F</b>	<b>ZA44</b> Cervix	C53
<b>II</b>	<b>F</b>	<b>ZA45</b> Corpus uteri	C54, C55
<b>II</b>	<b>F</b>	<b>ZA46</b> Ovary	C56
<b>II</b>	<b>F</b>	<b>ZA47</b> Prostate	C61
<b>II</b>	<b>F</b>	<b>ZA48</b> Bladder	C67
<b>II</b>	<b>F</b>	<b>ZA49</b> Kidney	C64-C65
<b>II</b>	<b>F</b>	<b>ZA50</b> Brain	C71
<b>II</b>	<b>F</b>	<b>ZA51</b> Lymphoma	C81-C85
<b>II</b>	<b>F</b>	<b>ZA52</b> Leukaemia	C91-C95
<b>II</b>	<b>F</b>	<b>ZA53</b> Other malignant neoplasms	C17, C23-C24, C26, C30-C31, C37-C39, C45- C49, C51-C52, C57-C58, C60, C62-C63, C66, C68,C69-C70, C72-C75, C88, C90, C96, D00-D09
		Ill-defined	C76-C80, C97
<b>II</b>	<b>G</b>	<b>ZA54</b> <b>Benign neoplasms</b>	<b>D10-D36, D37-D48</b>
<b>II</b>	<b>H</b>	<b>ZA55</b> <b>Diabetes mellitus</b>	<b>E10-E14</b>
<b>II</b>	<b>I</b>	<b>Endocrine and metabolic disorders</b>	<b>D55-D76, E03-E07, E15-E34, E65-89</b>
<b>II</b>	<b>I</b>	<b>ZA56</b> Albinism	E70-E72
<b>II</b>	<b>I</b>	<b>ZA57</b> Other endocrine and metabolic	E03-E07, E15-E16, E20-E34, E65-E68, E73-E89
<b>II</b>	<b>J</b>	<b>Mental disorders</b>	<b>F04-F99</b>
<b>II</b>	<b>J</b>	<b>ZA58</b> Alcohol dependence	F10
<b>II</b>	<b>J</b>	<b>ZA59</b> Drug use	F11-F16, F18 -F19
<b>II</b>	<b>J</b>	<b>ZA60</b> Schizophrenia	F20-F29
<b>II</b>	<b>J</b>	<b>ZA61</b> Affective disorders (depression, bipolar)	F30-F39
<b>II</b>	<b>J</b>	<b>ZA62</b> Anorexia nervosa	F50
<b>II</b>	<b>J</b>	<b>ZA63</b> Anxiety disorders (Obsessive compulsive/ panic disorders)	F40-F42
<b>II</b>	<b>J</b>	<b>ZA64</b> Hyperkinetic Syndrome of childhood	F90
<b>II</b>	<b>J</b>	<b>ZA65</b> Adjustment reaction (PTSS)	F43
<b>II</b>	<b>J</b>	<b>ZA66</b> Mental disability	F70-F79
<b>II</b>	<b>J</b>	<b>ZA67</b> Other mental disorders	F04-F09, F17, F44-F48, F51-F59, F60-F69, F80-F89, F91-F98, F99
		<b>Nervous system disorders</b>	<b>F01-F03, G03-G99</b>
<b>II</b>	<b>K</b>	<b>ZA68</b> Alzheimer and other dementias	G30-G31,F01, F03
<b>II</b>	<b>K</b>	<b>ZA69</b> Parkinsons disease	G20-G21
<b>II</b>	<b>K</b>	<b>ZA70</b> Multiple sclerosis	G35
<b>II</b>	<b>K</b>	<b>ZA71</b> Epilepsy	G40-G47
<b>II</b>	<b>K</b>	<b>ZA72</b> Encephalitis and brain abscess	G04, G06, G09
<b>II</b>	<b>K</b>	<b>ZA73</b> Other nervous system disorders	G03,G08, G10-G12, G23-25, G36-37,G50-G58,G60-G64,G70-G72, G80-G83,G90-G98
<b>II</b>	<b>L</b>	<b>Sense organs</b>	<b>H00-H13, H15-H59, H60-H61, H68-H95</b>
<b>II</b>	<b>L</b>	<b>ZA74</b> Glaucoma	H40
<b>II</b>	<b>L</b>	<b>ZA75</b> Cataracts	H25-H26
<b>II</b>	<b>L</b>	<b>ZA76</b> Other visual disorders	H00-H21, H27-H35, H43-H59
<b>II</b>	<b>L</b>	<b>ZA77</b> Hearing loss and other ear disorders	H60-H61, H68-H95
<b>II</b>	<b>M</b>	<b>Cardiovascular</b>	<b>I00-I11; I13-I99, J81</b>
<b>II</b>	<b>M</b>	<b>ZA78</b> Rheumatic heart disease	I01-I09
<b>II</b>	<b>M</b>	<b>ZA79</b> Ischaemic heart disease	I20-I25

II	M	<b>ZA80</b>	Stroke	I60-I69
II	M	<b>ZA81</b>	Inflammatory heart disease	I30-I33, I38, I40, I42
II	M	<b>ZA81a</b>	Peri-, endo, myocarditis	I30-I33, I38, I40
II	M	<b>ZA81b</b>	Cardiomyopathy	I42
II	M	<b>ZA82</b>	Hypertensive heart disease	I10-I11; I13-I15
II	M	<b>ZA83</b>	Non-rheumatic valvular disease	I34-I37
II	M	<b>ZA84</b>	Pulmonary embolism	I26
II	M	<b>ZA85</b>	Aortic aneurism	I71
II	M	<b>ZA86</b>	Peripheral vascular disorders	I72- I78, I80-I89
II	M	<b>ZA87</b>	Other cardiovascular	I00, I27-I28, I44-I45
			Ill-defined cardiovascular	I46-I49, I50-I51, I70, J81
			Heart failure etc	I46-149, 150-151, J81
			Atherosclerosis	I70
II	N		<b>Respiratory</b>	<b>J30-J80; J82-J86, J92- J99</b>
II	N	<b>ZA88</b>	COPD	J40-J44
II	N	<b>ZA89</b>	Asthma	J45-46
II	N	<b>ZA90</b>	Aspiration pneumonia/ lung abscess	J69, J85-J86
II	N	<b>ZA91</b>	Other respiratory	J30-J39, J47, J60-J68, J70, J80, J82-J84, J92-J98
II	O		<b>Digestive</b>	<b>K20-K38, K40-K63, K65-K93</b>
II	O	<b>ZA92</b>	Peptic ulcer	K25-K28
II	O	<b>ZA93</b>	Cirrhosis of liver	K70, K74
II	O	<b>ZA94</b>	Appendicitis	K35-K37
II	O	<b>ZA95</b>	Intestinal obstruction, non-infective gastroenteritis and colitis, peritonitis	K50-K52, K55-63, K65-K67
II	O	<b>ZA96</b>	Gall bladder disease	K80-K83
II	O	<b>ZA97</b>	Pancreatitis	K85
II	O	<b>ZA98</b>	Other digestive	K20-K22, K29-K31, K 38, K40-K46, K71-73, K75-K76, K86, K90-K92
II	P		<b>Genito-urinary</b>	<b>I12, N00-N50, N60-N64, N75-N99</b>
II	P	<b>ZA99</b>	Nephritis/nephrosis	I12, N00-N19
II	P	<b>ZA100</b>	Benign prostatic hypertrophy	N40
II	P	<b>ZA101</b>	Stress incontinence	
II	P	<b>ZA102</b>	Other genito-urinary	N20-N23, N25-N39, N41-N50, N60-N64, N75-N99
II	Q	<b>ZA103</b>	<b>Skin disease</b>	<b>L00-L99</b>
II	R		<b>Musculo-skeletal</b>	<b>M00-M99</b>
II	R	<b>ZA104</b>	Rheumatoid arthritis	M05-M06
II	R	<b>ZA105</b>	Osteoarthritis	M15-M19
II	R	<b>ZA106</b>	Other musculo-skeletal	M00-M02, M08-M13, M20-M99
II	S		<b>Congenital abnormalities</b>	<b>Q00-Q99</b>
II	S	<b>ZA107</b>	Neural tube defects	Q00-Q07
II	S	<b>ZA108</b>	Cleft lip/palate	Q35-Q37
II	S	<b>ZA109</b>	Congenital heart disease	Q20-Q28
II	S	<b>ZA110</b>	Congenital disorders of GIT	Q38-Q45
II	S	<b>ZA111</b>	Down's syndrome and other chromosomal anomalies	Q90-Q99
II	S	<b>ZA112</b>	Other congenital abnormalities	Q10-Q18, Q30-Q34, Q50-Q56, Q60-Q64, Q65-Q79, Q80-Q84
			Ill-defined	Q85-Q89
II	T		<b>Oral conditions</b>	<b>K00-K14</b>
II	T	<b>ZA113</b>	Dental caries	K02
II	T	<b>ZA114</b>	Periodontal disease	K05
II	T	<b>ZA115</b>	Other oral health	K00-K01, K03-K04, K06-K14
II	U		<b>Cot death</b>	<b>R95, R96-R98 &lt; 12 MTHS</b>
II	U	<b>ZA116</b>	Cot death	R95, R96-R98 < 12 MTHS

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Ill-defined

R00-R09, R10-R19, R20-R23, R25-R29, R30-R39, R40-R46, R47-R49, R50-R69, R70-R79, R80-R82, R83-R94, R96, R98, R99

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<b>III</b>	<b>Injuries</b>		<b>V01-V99, W00-W99, X00-X99, Y00-Y98</b>
<b>III</b>	<b>V</b>	<b>Unintentional</b>	<b>V00-V99, W00-W99, X00-X59, Y40-Y86, Y88</b>
<b>III</b>	<b>V</b>	<b>ZA117</b> Road traffic accidents	V01-V04, V09, V10-V14, V19, V20-V24, V29, V30-V39, V40-V49, V50-V59, V60-V69, V70-V79, V98, V99, Y85
<b>III</b>	<b>V</b>	<b>ZA118</b> Other transport accidents	V05, V06, V15-V18, V25-V28, V80-V89, V90-V94, V95-V97
<b>III</b>	<b>V</b>	<b>ZA119</b> Mining accidents	
<b>III</b>	<b>V</b>	<b>ZA120</b> Poisoning	X40-X49
<b>III</b>	<b>V</b>	<b>ZA121</b> Surgical / medical misadventure	Y40-Y59, Y60-Y69, Y70-Y82, Y83-Y84, Y88
<b>III</b>	<b>V</b>	<b>ZA122</b> Falls	W00-W19
<b>III</b>	<b>V</b>	<b>ZA123</b> Fires	X00-X09
<b>III</b>	<b>V</b>	<b>ZA124</b> Natural and environmental factors	W53-W64, X20-X29, X30-X39, X50-X57, Y95-Y97
<b>III</b>	<b>V</b>	<b>ZA125</b> Drowning	W65-W74
<b>III</b>	<b>V</b>	<b>ZA126</b> Suffocation and foreign bodies	W75-W84
<b>III</b>	<b>V</b>	<b>ZA127</b> Other unintentional injuries specified Ill-defined	W20-W49, W50-W52, X10-X19, X58 X59, Y86, Y98
		Undetermined whether intentional or unintentional	Y10-Y34, Y87, Y89
<b>III</b>	<b>W</b>	<b>Intentional injuries</b>	<b>X60-X99, Y00-Y09, Y35-Y36</b>
<b>III</b>	<b>W</b>	<b>ZA128</b> Suicide and self-inflicted	X60-X84
<b>III</b>	<b>W</b>	<b>ZA129</b> Homicide and violence	X85-Y09
<b>III</b>	<b>W</b>	<b>ZA129a</b> with firearm	X93-X95
<b>III</b>	<b>W</b>	<b>ZA129b</b> without firearm ill-defined	X85-X92, X96-X99, Y01-Y08 Y09
<b>III</b>	<b>W</b>	<b>ZA130</b> Legal intervention and war	Y35-Y36

**APPENDIX II: Total deaths by year, sex and age; Limpopo Province 1997-2001**

Age	1997			1998			1999			2000			2001			1997-2001
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Total
<1	93	78	171	136	113	249	73	92	165	95	88	183	81	76	157	<b>925</b>
1-4	59	49	108	95	68	163	68	57	125	82	61	143	95	69	164	<b>703</b>
5-9	18	20	38	28	19	47	22	30	52	22	30	52	28	26	54	<b>243</b>
10-14	20	17	37	31	18	49	24	16	40	31	13	44	41	18	59	<b>229</b>
15-19	38	33	71	50	36	86	46	40	86	39	41	80	55	39	94	<b>417</b>
20-24	75	47	122	71	88	159	87	88	175	60	84	144	90	124	214	<b>814</b>
25-29	86	74	160	92	109	201	110	109	119	118	130	248	151	248	399	<b>1227</b>
30-34	106	72	178	138	114	252	146	141	187	129	129	258	221	253	474	<b>1449</b>
35-39	141	70	211	132	109	241	143	95	238	158	123	281	266	211	477	<b>1448</b>
40-44	106	66	172	145	102	247	141	93	234	142	104	246	247	187	434	<b>1333</b>
45-49	122	62	184	169	83	252	149	70	219	140	86	226	231	142	373	<b>1254</b>
50-54	108	57	165	144	79	223	115	84	199	131	58	189	226	121	347	<b>1123</b>
55-59	146	88	234	165	116	281	153	84	237	146	71	217	183	115	298	<b>1267</b>
60-64	121	106	227	183	127	310	151	118	269	143	115	258	237	181	418	<b>1482</b>
65-69	158	168	326	153	193	346	121	143	264	108	112	220	207	210	417	<b>1573</b>
70-74	150	103	253	202	202	404	163	145	308	147	165	312	235	276	511	<b>1788</b>
75-79	163	168	331	228	248	476	162	143	305	95	119	214	179	147	326	<b>1652</b>
80-84	92	115	207	155	193	348	97	149	246	103	165	268	171	283	454	<b>1523</b>
85+	92	207	299	140	313	453	122	219	341	119	218	337	156	327	483	<b>1913</b>
Total	1894	1600	3494	2457	2330	4787	2093	1916	4009	2008	1912	3920	3100	3053	6153	<b>22363</b>

### APPENDIX III: Deaths by broad cause group by age and sex, Limpopo Province 1997-2001

#### Deaths by cause, Limpopo Province 1997

Age groups	Males					Females				
	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total
<1	66	8	8	11	93	55	8	7	8	78
1-4	33	5	6	15	59	29	2	3	15	49
5-9	4	2	5	7	18	6	2	6	6	20
10-14	2	5	4	9	20	7	4		6	17
15-19	6	2	5	25	38	9	6	3	15	33
20-24	12	6	23	34	75	15	15	4	13	47
25-29	20	18	17	31	86	31	19	9	15	74
30-34	25	19	11	51	106	31	21	4	16	72
35-39	36	37	15	53	141	32	20	3	15	70
40-44	31	35	12	28	106	16	23	1	26	66
45-49	31	50	5	36	122	14	30	5	13	62
50-54	27	43	3	35	108	11	33	3	10	57
55-59	40	68	5	33	146	8	55		25	88
60-64	17	75	1	28	121	13	59	4	30	106
65-69	32	81	3	42	158	16	90	1	61	168
70-74	28	90	1	31	150	13	51	2	37	103
75-79	25	78	2	58	163	17	69	1	81	168
80-84	9	36		47	92	12	48		55	115
85+	12	31	1	48	92	23	58		126	207
Total	456	689	127	622	1894	358	613	56	573	1600

Deaths by cause, Limpopo Province 1998

Age group	Males					Females				
	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total
<1	105	15	8	8	136	75	16	7	15	113
1-4	54	16	5	20	95	39	7	4	18	68
5-9	6	5	4	13	28	4	6	3	6	19
10-14	6	11	3	11	31	7	2	3	6	18
15-19	12	6	11	21	50	14	11	3	8	36
20-24	21	6	9	35	71	41	16	7	24	88
25-29	24	17	12	39	92	66	13	10	20	109
30-34	58	24	19	37	138	43	41	2	28	114
35-39	39	36	12	45	132	51	24	5	29	109
40-44	41	47	11	46	145	32	43	3	24	102
45-49	57	62	11	39	169	21	34	4	24	83
50-54	25	69	9	41	144	11	49	1	18	79
55-59	32	88	5	40	165	16	69	2	29	116
60-64	36	90	4	53	183	14	68	5	40	127
65-69	31	79	3	40	153	23	101	1	68	193
70-74	33	94	2	73	202	24	107	1	70	202
75-79	39	104		85	228	31	105		112	248
80-84	24	48	2	81	155	24	46	1	122	193
85+	21	40	1	78	140	38	84	1	190	313
Total	664	857	131	805	2457	574	842	63	851	2330

Deaths by Cause, Limpopo Province 1999

Age group	Males					Females				
	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total
<1	57	5	5	6	73	73	7	3	9	92
1-4	39	8	5	16	68	32	8	4	13	57
5-9	5	4	7	6	22	7	8	6	9	30
10-14	3	7	4	10	24	3	4	3	6	16
15-19	6	11	8	21	46	18	9	5	8	40
20-24	14	11	17	45	87	40	22	6	20	88
25-29	29	20	19	42	110	57	23	4	25	109
30-34	66	21	17	42	146	76	28	5	32	141
35-39	67	32	14	30	143	48	24	5	18	95
40-44	50	39	17	35	141	32	36	2	23	93
45-49	49	46	13	41	149	21	37	4	8	70
50-54	29	54	6	26	115	16	38	2	28	84
55-59	33	82	6	32	153	17	40	2	25	84
60-64	38	75	2	36	151	12	62	2	42	118
65-69	15	76	3	27	121	17	69	4	53	143
70-74	31	66	4	62	163	18	66	2	59	145
75-79	17	82	1	62	162	14	52	4	73	143
80-84	13	33		51	97	14	49		86	149
85+	13	44		65	122	15	58		146	219
Total	574	716	148	655	2093	530	640	63	683	1916



Deaths by cause, Limpopo Province 2000

Age group	Males					Females				
	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total
<1	68	14	4	9	95	61	13	4	10	88
1-4	58	9	2	13	82	38	4	4	15	61
5-9	10	5	1	6	22	12	6	3	9	30
10-14	7	4	6	14	31	3	4	2	4	13
15-19	10	5	11	13	39	23	8		10	41
20-24	11	6	10	33	60	42	21	4	17	84
25-29	44	18	15	41	118	73	24	8	25	130
30-34	68	23	9	29	129	63	34	5	27	129
35-39	65	38	13	42	158	68	27	2	26	123
40-44	53	41	6	42	142	37	38	4	25	104
45-49	48	44	8	40	140	22	42	4	18	86
50-54	41	49	9	32	131	14	33	1	10	58
55-59	37	71	6	32	146	15	43		13	71
60-64	28	85	5	25	143	18	63	5	29	115
65-69	17	58	2	31	108	18	68	2	24	112
70-74	21	69		57	147	19	86	1	59	165
75-79	10	48	1	36	95	13	53		53	119
80-84	12	49	1	41	103	16	60	1	88	165
85+	20	42		57	119	14	74	1	129	218
Total	628	678	109	593	2008	569	701	51	591	1912

Deaths by cause, Limpopo Province 2001

Age group	Males					Females				
	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total	Communicable diseases	Non-communicable diseases	Injuries	Ill-defined	Total
<1	59	8		14	81	60	6	2	8	76
1-4	54	16	8	17	95	53	4	4	8	69
5-9	8	4	6	10	28	8	7	4	7	26
10-14	10	11	8	12	41	8	4		6	18
15-19	14	14	2	25	55	18	8	1	12	39
20-24	19	14	15	42	90	69	27	5	23	124
25-29	56	26	15	54	151	144	52	7	45	248
30-34	98	44	13	66	221	153	51	3	46	253
35-39	129	50	18	69	266	118	49	1	43	211
40-44	113	54	13	67	247	81	70	2	34	187
45-49	95	88	3	45	231	50	61	2	29	142
50-54	74	91	7	54	226	34	60	4	23	121
55-59	47	89	3	44	183	32	55	5	23	115
60-64	58	119	3	57	237	30	116	2	33	181
65-69	40	105	3	59	207	36	117	5	52	210
70-74	37	121	1	76	235	51	115		110	276
75-79	29	83	1	66	179	24	53	2	68	147
80-84	26	72		73	171	41	106		136	283
85+	28	51	4	73	156	37	90	2	198	327
Total	994	1060	123	923	3100	1047	1051	51	904	3053

## APPENDIX IV: Deaths by age and sex by cause, Limpopo Province 1997-2001

Disease	Male						Female						Male	Female	Person
	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	Total	Total	Total
Tuberculosis	3	3	6	353	270	250	2	6	3	307	62	72	885	452	1337
STD excl HIV	1	1	0	4	0	0	0	0	0	7	2	5	6	14	20
HIV/AIDS	29	22	6	361	92	22	18	21	4	475	64	9	532	591	1123
Diarrhoeal diseases	86	65	9	124	50	108	84	56	10	181	42	160	442	533	975
Childhood immunisable diseases	1	0	0	1	1	0	1	0	1	1	1	3	3	7	10
Bacterial meningitis	2	1	2	7	2	0	4	1	1	3	1	0	14	10	24
Hepatitis	0	0	0	3	3	2	0	1	1	7	1	2	8	12	20
Malaria	0	1	6	59	32	33	0	5	11	59	18	44	131	137	268
Schistosomiasis and other tropical diseases	0	0	1	0	0	0	0	0	0	2	1	0	1	3	4
Leprosy	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
Intestinal parasites	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Septicaemia	10	7	8	33	30	51	10	2	9	52	18	58	139	149	288
Other infectious and parasitic	2	0	0	11	3	2	2	2	2	18	3	3	18	30	48
Lower respiratory infections	82	74	21	265	171	273	88	53	19	358	78	276	886	872	1758
Upper respiratory infections	1	1	2	4	1	2	1	1	0	5	1	2	9	10	19
Otitis media	0	0	0	1	0	1	0	0	1	0	0	0	2	1	3
Maternal haemorrhage	0	0	0	0	0	0	0	0	0	9	0	0	0	9	9
Maternal sepsis	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
Hypertension in pregnancy	0	0	0	0	0	0	0	0	0	10	1	0	0	11	11
Obstructed labour	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
Abortion	0	0	0	0	0	0	0	0	0	13	0	0	0	13	13
Other maternal	0	0	0	0	0	0	0	0	0	14	1	0	0	15	15
Low birth weight	43	0	0	0	0	0	43	0	0	0	0	0	43	43	86
Birth asphyxia and trauma	14	0	0	0	0	0	9	0	0	0	0	0	14	9	23
Other perinatal respiratory conditions	16	0	0	0	0	0	18	0	0	0	0	0	16	18	34
Neonatal infections	14	0	0	0	0	0	12	0	0	0	0	0	14	12	26
Fetal alcohol syndrome	0	0	0	0	0	1	2	0	0	0	0	0	1	2	3
Other perinatal	21	0	0	0	0	0	14	1	0	0	0	0	21	15	36
Protein-energy malnutrition	30	63	2	9	9	11	16	42	3	13	5	18	124	97	221
Deficiency anaemias	0	0	0	0	0	1	0	0	0	1	3	2	1	6	7

Disease	Male						Female						Male	Female	Person	
	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	Total	Total	Total	
Other nutritional deficiencies incl pellagra and Vit A	0	0	0	1	0	3	0	0	0	0	0	0	1	4	1	5
Mouth and oropharynx ca	0	0	0	7	11	9	0	0	0	0	2	6	27	8	35	
Oesophageal ca	0	0	0	9	38	71	0	0	0	4	15	23	118	42	160	
Stomach ca	0	0	0	10	12	22	0	0	0	9	3	24	44	36	80	
Colo-rectal ca	0	0	0	5	12	25	0	0	0	3	10	18	42	31	73	
Liver ca	0	0	0	12	22	56	0	0	1	6	9	23	90	23	113	
Pancreas ca	0	0	0	4	2	7	0	0	0	2	7	9	13	18	31	
Larynx ca	0	0	0	1	8	8	0	0	0	0	0	2	17	2	19	
Trachea/bronchi/lung ca	0	0	0	6	41	49	0	0	0	1	11	15	96	27	123	
Bone and connective tissue ca	0	0	1	3	2	1	0	0	0	2	0	2	7	4	11	
Melanoma	0	0	0	0	1	2	0	0	0	2	1	2	3	5	8	
Other skin cancer	0	0	0	0	1	0	0	0	0	2	3	2	1	7	8	
Breast ca	0	0	0	0	1	1	0	0	0	22	27	35	2	84	86	
Cervix ca	0	0	0	0	0	0	0	0	0	31	58	63	0	152	152	
Corpus uteri ca	0	0	0	0	0	0	0	0	0	4	8	18	0	30	30	
Ovary ca	0	0	0	0	0	0	0	0	0	3	4	7	0	14	14	
Prostate ca	0	0	0	1	10	82	0	0	0	0	0	0	93	0	93	
Bladder ca	0	0	0	2	2	8	0	0	0	3	1	6	12	10	22	
Kidney ca	1	0	0	0	1	2	0	1	1	2	1	1	3	6	9	
Brain ca	0	0	0	1	3	2	0	0	0	0	1	2	6	3	9	
Lymphoma	0	2	0	3	3	3	0	0	0	1	2	4	11	7	18	
Leukaemia	1	0	1	4	0	8	0	0	0	4	1	7	14	12	26	
Other malignant neoplasms	0	1	0	7	9	14	0	0	1	7	8	16	31	32	63	
Benign neoplasms	0	0	0	8	0	2	1	0	1	3	2	7	10	14	24	
Diabetes mellitus	0	0	1	30	78	187	0	0	2	39	62	238	296	341	637	
Albinism	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other endocrine and metabolic	2	5	3	31	14	37	4	1	1	75	20	66	92	167	259	
Alcohol dependence	0	0	0	5	8	14	0	0	0	2	2	4	27	8	35	
Drug use	0	0	0	1	0	0	0	0	0	0	0	1	1	1	2	
Schizophrenia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Affective disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Anorexia nervosa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Disease	Male						Female						Male	Female	Person	
	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	Total	Total	Total	
Anxiety disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hyperkinetic syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjustment reaction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mental disability	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other mental disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alzheimers and other dementias	0	0	0	1	0	2	0	0	0	0	0	3	3	3	3	6
Parkinsons disease	0	0	0	0	0	6	0	0	0	0	1	6	6	6	7	13
Multiple sclerosis	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
Epilepsy	0	3	9	46	16	12	0	2	2	31	7	10	86	52	138	138
Encephalitis and brain abscess	1	2	2	5	1	2	2	2	1	9	0	0	13	14	27	27
Other nervous system disorders	12	15	7	42	21	26	15	4	8	50	8	22	123	107	230	230
Glaucoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cataracts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other visual	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hearing loss and other ear disorders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rheumatic heart disease	0	0	4	7	1	5	0	0	2	9	2	4	17	17	34	34
Ischaemic heart disease	0	0	0	35	75	278	0	0	0	11	24	274	388	309	697	697
Stroke	0	0	2	48	100	372	0	1	2	60	97	544	522	704	1226	1226
Inflammatory heart disease	0	1	4	24	16	27	0	0	2	28	8	53	72	91	144	144
Hypertensive heart disease	0	0	1	44	135	141	0	0	1	58	108	239	321	406	645	645
Non-rheumatic valvular disease	0	2	1	2	0	1	0	0	0	5	0	3	6	8	14	14
Pulmonary embolism	0	0	1	4	10	9	0	0	0	11	4	11	24	26	50	50
Aortic aneurism	0	0	0	1	1	6	0	0	0	1	2	2	8	5	13	13
Peripheral vascular disorders	0	0	0	2	4	10	0	0	0	4	1	8	16	13	29	29
Other cardiovascular	0	1	1	6	8	17	0	0	0	7	2	14	33	23	56	56
COPD	0	3	2	22	55	131	0	1	0	22	15	55	213	93	306	306
Asthma	0	2	3	23	45	65	1	1	3	42	29	60	138	136	274	274
Aspiration pneumonia/ lung abscess	1	0	0	7	6	4	1	1	0	2	1	0	18	5	23	23
Other respiratory	4	6	0	30	17	54	5	1	4	13	7	30	111	60	171	171
Peptic ulcer	0	0	0	18	17	12	0	0	0	26	9	27	47	62	109	109
Cirrhosis of liver	0	0	1	21	38	67	0	0	0	8	9	42	127	59	186	186
Appendicitis	0	0	0	2	1	3	0	0	0	2	0	0	6	2	8	8

Disease	Male						Female						Male	Female	Person
	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	Total	Total	Total
Intestinal obstruction,noninfective gastroenteritis,colitis and peritonitis	1	6	1	49	27	41	1	3	3	53	18	37	125	115	240
Gall bladder disease	0	0	0	2	0	1	0	0	0	0	3	5	3	8	11
Pancreatitis	0	0	0	4	4	2	0	0	0	1	0	0	10	1	11
Other digestive	0	0	5	78	62	103	0	0	4	72	42	103	248	221	690
Nephritis/nephrosis	4	1	3	33	44	93	0	1	3	41	20	74	178	139	317
Benign prostatic hypertrophy	0	0	0	1	1	5	0	0	0	0	0	0	7	0	7
Stress incontinence	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other genito-urinary	0	0	0	0	4	6	0	0	0	0	1	4	10	5	15
Skin disease	0	0	0	1	1	2	0	0	0	0	0	0	4	0	4
Rheumatoid arthritis	0	0	0	2	3	7	0	0	0	3	1	4	12	8	20
Osteoarthritis	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Other musculo-skeletal	0	0	0	4	0	3	0	0	0	3	0	3	7	6	13
Neural tube defects	3	3	3	0	0	0	6	3	2	0	0	0	9	11	20
Cleft lip/palate	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
Congenital heart disease	7	0	2	4	0	0	4	2	2	1	1	1	13	11	23
Congenital disorders of GIT	5	1	0	0	0	0	3	1	1	0	0	1	6	6	12
Down syndrome and other chromosomal anomalies	1	0	0	0	0	0	3	0	0	0	0	0	1	3	4
Other congenital abnormalities	1	0	0	0	1	0	0	0	0	2	1	0	2	3	5
Dental caries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Periodontal Disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other oral health	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cot death	6	0	0	0	1	2	3	0	0	1	0	2	9	6	15
Road traffic accidents	0	0	4	4	1	1	0	0	0	3	1	1	10	5	15
Other transport accidents	3	15	31	260	65	20	2	7	23	66	18	20	394	136	530
Mining accidents	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poisoning	0	0	0	1	0	0	1	1	0	0	1	0	1	3	4
Surgical / medical misadventure	15	4	3	22	8	20	12	6	1	17	10	14	72	60	132
Falls	0	1	1	3	0	1	0	1	0	0	0	0	6	1	7
Fires	0	0	0	1	0	0	0	0	0	1	0	0	1	1	2
Natural and environmental factors	1	1	4	6	3	1	0	1	3	3	5	4	16	16	32
Drowning	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1

Disease	Male						Female						Male	Female	Person
	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	<1	1 to 4	5 to 14	15 to 44	45 to 59	60+	Total	Total	Total
Suffocation and foreign bodies	4	4	0	5	3	1	7	2	2	2	0	2	17	15	32
Other unintentional injuries specified	0	0	2	6	4	0	1	1	1	5	0	0	12	8	20
Homicide/violence	0	1	2	63	11	6	0	0	0	22	4	8	83	34	117
Suicide	0	0	0	16	3	1	0	0	0	4	0	1	20	5	25
Legal intervention and war	1	0	1	2	1	0	0	0	0	0	0	0	5	0	5
Ill-defined perinatal	17	0	0	0	0	0	21	0	0	0	0	0	17	21	38
Ill-defined cancers	0	0	1	7	19	38	0	0	1	17	15	34	65	67	132
Heart failure	0	4	4	73	106	420	1	2	2	103	50	621	607	785	1392
Atherosclerosis	0	0	0	0	1	8	0	0	0	0	1	14	9	15	24
Ill-defined congenital	2	1	1	2	0	0	5	1	0	1	0	0	6	7	13
Ill-defined natural	16	36	22	374	277	1017	15	34	26	381	179	1639	1742	2274	4016
Ill-defined unnatural	0	0	0	6	3	25	0	0	1	1	0	34	34	36	70
Undetermined unnatural	13	40	70	721	164	110	8	29	32	189	51	88	1118	397	1515
<b>Total</b>	<b>478</b>	<b>399</b>	<b>265</b>	<b>3529</b>	<b>2328</b>	<b>4553</b>	<b>447</b>	<b>304</b>	<b>207</b>	<b>3159</b>	<b>1316</b>	<b>5378</b>	<b>11552</b>	<b>10811</b>	<b>22363</b>

**APPENDIX V: Years of Life Lost by cause of death by sex, Limpopo Province  
1997-2001**

Code	Cause	Male	Female	Persons
1	Tuberculosis	15747	10704	26451
2	STD excl HIV	177	261	438
3	HIV/AIDS	13230	16450	29680
4	Diarrhoeal diseases	10294	11904	22199
5	Childhood immunisable diseases	88	133	221
6	Bacterial meningitis	398	319	718
7	Hepatitis	133	278	411
8	Malaria	2599	2845	5444
9	Schistosomiasis and other tropical diseases	37	79	116
10	Leprosy	19	0	19
11	Intestinal parasites	31	0	31
12	Septicaemia	2513	2889	5402
13	Other infectious and parasitic	448	787	1235
14	Lower respiratory infections	17537	18541	36078
15	Upper respiratory infections	215	238	453
16	Otitis media	32	37	69
17	Maternal haemorrhage	0	259	259
18	Maternal sepsis	0	127	127
19	Hypertension in pregnancy	0	326	326
20	Obstructed labour	0	62	62
21	Abortion	0	410	410
22	Other maternal	0	402	402
23	Low birth weight	1424	1428	2852
24	Birth asphyxia and trauma	463	299	762
25	Other perinatal respiratory conditions	530	598	1128
26	Neonatal infections	463	399	862
27	Fetal alcohol syndrome	1	66	68
28	Other perinatal	695	500	1196
29	Protein-energy malnutrition	3719	2686	6406
30	Deficiency anaemias	6	95	101
31	Other nutritional deficiencies incl pellagra and Vit A	33	11	44
32	Mouth and oropharynx ca	433	80	513
33	Oesophageal ca	1236	500	1735
34	Stomach ca	574	424	998
35	Colo-rectal ca	463	352	816
36	Liver ca	1012	463	1476
37	Pancreas ca	167	216	383
38	Larynx ca	216	13	230
39	Trachea/bronchi/lung ca	1071	346	1417
40	Bone and connective tissue ca	158	77	235
41	Melanoma	22	75	97
42	Other skin cancer	19	109	128



Code	Cause	Male	Female	Persons
43	Breast ca	35	1238	1273
44	Cervix ca	0	2165	2165
45	Corpus uteri ca	0	383	383
46	Ovary ca	0	189	189
47	Prostate ca	575	0	575
48	Bladder ca	125	144	269
49	Kidney ca	62	156	217
50	Brain ca	96	27	123
51	Lymphoma	230	72	302
52	Leukaemia	232	166	398
53	Other malignant neoplasms	432	443	874
54	Benign neoplasms	229	234	462
55	Diabetes mellitus	3155	3649	6804
56	Albinism	0	0	0
57	Other endocrine and metabolic	1566	3091	4657
58	Alcohol dependence	352	119	471
59	Drug use	22	6	28
60	Schizophrenia	0	0	0
61	Affective disorders	0	0	0
62	Anorexia nervosa	0	0	0
63	Anxiety disorders	0	0	0
64	Hyperkinetic syndrome	0	0	0
65	Adjustment reaction	0	0	0
66	Mental disability	0	0	0
67	Other mental disorders	0	0	0
68	Alzheimers and other dementias	32	16	47
69	Parkinsons disease	39	50	89
70	Multiple sclerosis	22	0	22
71	Epilepsy	2063	1207	3270
72	Encephalitis and brain abscess	373	445	818
73	Other nervous system disorders	2855	2680	5535
74	Glaucoma	0	0	0
75	Cataracts	0	0	0
76	Other visual	0	0	0
77	Hearing loss and other ear disorders	0	0	0
78	Rheumatic heart disease	395	432	828
79	Ischaemic heart disease	3793	2399	6191
80	Stroke	4930	6200	11130
81	Inflammatory heart disease	1265	1340	2606
82	Hypertensive heart disease	4042	4754	8796
83	Non-rheumatic valvular disease	169	177	347
84	Pulmonary embolism	347	432	779
85	Aortic aneurism	63	79	142
86	Peripheral vascular disorders	177	178	355
87	Other cardiovascular	441	304	745

Code	Cause	Male	Female	Persons
88	COPD	2371	1141	3512
89	Asthma	1880	2174	4054
90	Aspiration pneumonia/ lung abscess	358	142	499
91	Other respiratory	1721	1013	2734
92	Peptic ulcer	845	1070	1915
93	Cirrhosis of liver	1600	670	2270
94	Appendicitis	78	60	138
95	Intestinal obstruction,noninfective gastroenteritis,colitis and peritonitis	2283	2321	4604
96	Gall bladder disease	51	70	121
97	Pancreatitis	178	31	209
98	Other digestive	3844	3501	7345
99	Nephritis/nephrosis	2297	2075	4372
100	Benign prostatic hypertrophy	63	0	63
101	Stress incontinence	0	0	0
102	Other genito-urinary	90	38	128
103	Skin disease	51	0	51
104	Rheumatoid arthritis	143	112	254
105	Osteoarthritis	0	6	6
106	Other musculo-skeletal	126	105	231
107	Neural tube defects	316	380	696
108	Cleft lip/palate	0	33	33
109	Congenital heart disease	440	337	778
110	Congenital disorders of GIT	201	181	382
111	Down syndrome and other chromosomal anomalies	33	100	133
112	Other congenital abnormalities	52	78	130
113	Dental caries	0	0	0
114	Periodontal Disease	0	0	0
115	Other oral health	0	0	0
116	Cot death	226	128	354
117	Road traffic accidents	279	130	409
118	Other transport accidents	10442	3603	14044
119	Mining accidents	0	0	0
120	Poisoning	22	88	109
121	Surgical / medical misadventure	1645	1463	3108
122	Falls	172	35	208
123	Fires	31	28	60
124	Natural and environmental factors	449	347	796
125	Drowning	33	0	33
126	Suffocation and foreign bodies	452	456	908
127	Other unintentional injuries specified	315	259	574
128	Homicide/violence	560	138	698
129	Suicide	2199	790	2989
130	Legal intervention and war	150	0	150
288	Ill-defined perinatal	563	698	1260
533	Ill-defined cancers	780	901	1680

Code	Cause	Male	Female	Persons
877	Heart failure	5798	6917	12714
878	Atherosclerosis	62	82	144
1122	Ill-defined congenital	209	238	446
1166	Ill-defined natural	21492	23387	44878
1277	Ill-defined unnatural	334	219	552
12777	Undetermined unnatural	29204	9395	38599
	TOTAL	198753	173505	372258