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Preface

This statistical release presents data on mortality and causes of death based on all death notification forms received from the Department of Home Affairs for deaths that occurred in 2008, including data on district municipalities. Statistics for deaths in previous years (1997–2007) are included to show recent trends in mortality.



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1. Introduction

1.1 Background

Statistics South Africa (Stats SA), in close collaboration with the Department of Home Affairs (DHA) and the Department of Health (DOH), annually produces statistical releases and data sets on mortality and causes of death based on information from the civil registration system in South Africa. The information is available from 1997 and is updated annually. The statistics produced are an important source of demographic, geographic, and cause-of-death information. These statistics provide a valuable measure for assessing the health status of a population and in formulating health plans and policies to prevent or reduce premature mortality and improve quality of life. The level of mortality is one of the indicators of the well-being and health status of a population, hence its inclusion, among others, in the construction of human development indices, the Millennium Development Goals (MDGs), and in the multi-dimensional approach to the measurement of poverty.

In order to have well-functioning health systems, countries need to know how many people are born and die each year and the main causes of their deaths (World Health Organization, 2007). The organization specified that the only way to count everyone and to track all births and deaths is through civil registration. The civil registration system in South Africa is maintained by the DHA, guided by several legislative frameworks. The objective of the system is to register births, deaths, stillbirths, marriages, adoptions, legitimizations and recognitions. The department also maintains a national population register from the civil registration system, covering South African citizens and permanent residents.

The registration of deaths in South Africa is governed by the Births and Deaths Registration Act, 1992 (Act No. 51 of 1992). Death registration takes place at the DHA, with a requirement that medical practitioners must certify the occurrence of death and specify the causes of death. The Births and Deaths Registration Act states that "in the case of a death due to natural causes, any person who was present at the time of death, or who became aware thereof, or who has charge of the burial concerned, shall give, as soon as practicable, notice of death" (Republic of South Africa, 1992). If there is any doubt whether the death was due to natural causes, such a death must be reported to a police officer. After an investigation as to the circumstances of a death due to other than natural causes, the medical practitioner concerned shall, as soon as he is satisfied that the corpse concerned is no longer required for the purposes of an examination, issue a prescribed certificate to that effect (Section 3 of the Inquests Act, 1959 (Act No. 58 of 1959).

After death registration is completed, all death notification forms are collected by Stats SA for data processing and publication of statistical releases and data sets on mortality and causes of death.

1.2 Objectives of this statistical release

This release is part of a regular series by Stats SA on mortality and causes of death in South Africa, based on data collected through the civil registration system. It has three main aims:

- To provide contextual information on the data and methods used in order to support further specialist analysis of the data available from death notification forms. Data quality issues are also highlighted.
- To outline trends in mortality from 1997 to 2008 and differentials of mortality by selected demographic and geographic characteristics in 2008.
- To present statistics on the causes of death in 2008 focusing on the underlying causes of death.

1.3 Scope of this statistical release

This release is based on information on mortality and causes of death from the civil registration system. It covers all death notification forms that had reached Stats SA during the 2009/10 processing phase, including mainly deaths that occurred in 2008. Statistics for deaths occurring between 1997 and 2007 are also provided (including late registrations processed in 2009/10) to show recent trends in mortality.

The number of deaths discussed in this release excludes stillbirths, which are also collected through the civil registration system using the same death notification form. The definitions of technical terms used are provided in Appendix A.

1.4 Organisation and presentation of this statistical release

The remainder of this release is organised as follows:

Section 2 describes the data and methods used to provide the results in this release. Issues related to data quality, including completeness of the processed information, late registrations and other aspects are discussed.

Section 3 reports on the overall levels, patterns, and trends of mortality. Specific emphasis is placed on age and sex. The distributions of deaths by population group, marital status, place of death and province of death are also provided in this section.

Section 4 provides information on the underlying causes of death. The analysis distinguishes between natural and non-natural causes of death and then focuses on the leading underlying causes of death in each category. Information on multiple causes of death is also included.

Summary and concluding remarks are presented in Section 5.

2. Data and methods

2.1 Data source

This release is based on information recorded on death notification forms received from the Department of Home Affairs (DHA) for deaths that occurred in 2008 and were registered at DHA, including late registrations for the period 1997–2007. The death notification form that is currently being used (Form BI-1663) was introduced in 1998, replacing the BI-7 and BI-12 forms that were previously used. A copy of Form BI-1663 is shown in Appendix B.

Death registration takes place at the DHA. After a death is registered, the DHA issues a death certificate and where applicable, updates the national population register (NPR). Updates to reflect changes in survival status on the NPR are made for South Africans and permanent residents whose births were already registered on the NPR at the time of death. The details of the deceased who were non-South Africa citizens who sojourned temporarily in the country and all South African citizens and permanent residents who died before notice of their birth had been given are not captured in the NPR.

All death notification forms are then collected by Stats SA for data processing. The forms collected and subsequently processed include forms for deaths captured on the NPR as well as those not eligible for inclusion in the NPR. Consequently, the number of deaths processed by Stats SA will always be higher than the number of deaths recorded on the NPR for the same period since the NPR includes only South African citizens and permanent residents whose births were registered while Stats SA processes all death notification forms regardless of civil status.

During the 2009/10 processing phase, Stats SA processed a total of 592 073 deaths that occurred in 2008, excluding late registrations for the previous years. This figure is 8,5% higher than the number of 2008 deaths recorded on the NPR (545 713). The number of deaths processed by Stats SA and those from the NPR show a similar trend (see Table 3.1), with Stats SA figures always higher than the NPR figures. Both sources showed a decrease in the number of deaths from 2007.

2.2 Data quality

Quality of death registration data is still a challenge in a large part of the world. About 61% of the 192 countries that report such statistics to the World Health Organization provide useable data. Although mortality statistics suffer from incomplete registration, missing data and a substantial number of deaths attributed to ill-defined causes, South Africa is still among the countries that provide useable data (WHO, 2003).

2.2.1 Assessment framework for death registration data

Several frameworks for assessment of death registration data have been proposed by different researchers. For the purpose of this report, the framework proposed by Mahapatra et al. (2007) is used to assess quality of the 2008 death statistics from civil registration system. Mahapatra et al. (2007) proposed two categories, namely, general vital statistics and cause-of-death statistics. Criteria under these categories include accuracy, relevance, comparability, timeliness and accessibility. Table 2.1 shows the results of the assessment framework for the 2008 mortality and causes of death data from the South African civil registration system, modified due to availability of information required.

Just over 80% of deaths for 2008 were covered by the civil registration system. The information on province of birth and population group was not well reported. About half of the deaths occurred within a health care facility and 13,6% of deaths were assigned ill-defined causes. The information on mortality is highly relevant and comparable over time. However, due to changes in coding causes of death for infants introduced in 2006 (Stats SA, 2007) and changes in coding non-natural causes introduced in 2007 (Stats SA, 2008) and again in 2008, the information on causes of death is not 100% comparable over time. There is wide accessibility to the statistical releases and data sets. These are published annually, although it takes about two years for the information of a specific year to be published.

The details on completeness of death registration and completeness of information for selected variables, as well as information on late registration are provided in the next three sub-sections.

Table 2.1: Assessment of the 2008 South African death statistics from civil registration system using the framework proposed by Mahapatra et al. (2007)

General vital statistics		Cause-of-death statistics	
Criteria and indicators	Measure	Criteria and indicators	Measure
Accuracy (%) Completeness of death registration	81%	Accuracy Proportion of deaths that occurred in health care facilities	48,4%
Missing data Population group Province of birth Province of residence Age Sex	26,3% 23,6% 9,9% 0,2% 0,1%	Proportion of deaths assigned to symptoms and signs of disease not elsewhere classified	13,6%
Relevance Routine tabulations by sex and 5-year age groups Deaths in children under five years tabulated by 0 and 1-4 year age group	100% 100%	Relevance Routine tabulation by sex and 5-year age groups Number of cause-of-death tabulation areas	100% 9 Provinces and 52 district municipalities
Comparability Stability of key definitions over time Uniformity of definitions across areas	100% 100%	Comparability Consistency of cause specific mortality proportions over consecutive years ICD coding for certification and coding of causes of deaths, revision used and code level to which tabulations are published	85% No coding for certification; coding causes of death using the tenth revision at 3-digit level
Timeliness Processing time Mean time from end of reference period to publication	18 months Two years		
Accessibility Media – number of formats in which data are released Metadata Availability of user service	Two: website and compact discs Published with compact disc and available on request Email: info@statssa.gov.za / Tel: 012 310 8600 / Fax (012) 310 8500 / 8495		

2.2.2 Completeness of death registration

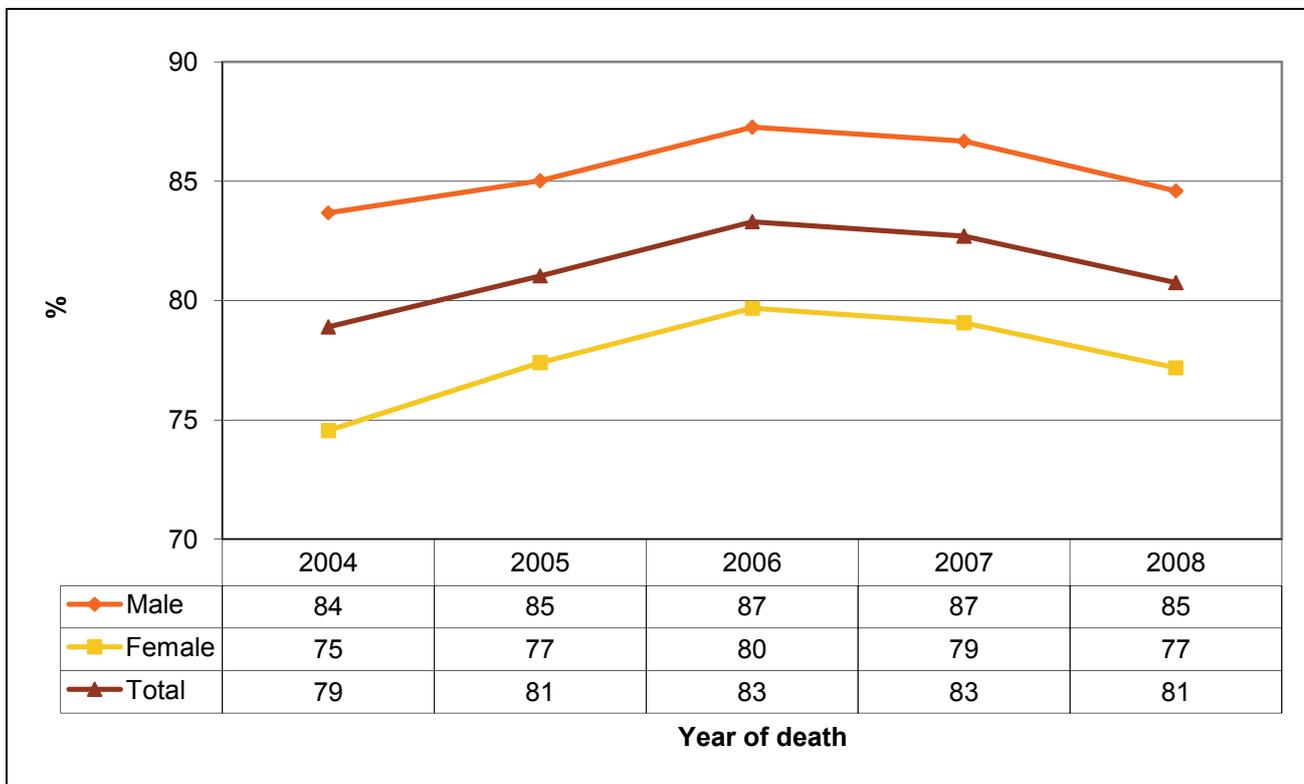
The level of completeness of the deaths reported in this statistical release was estimated by using the Preston and Hill (1980) method. Further details on the choice of this method can be found in the report on *Mortality and causes of death in South Africa, 2003 and 2004: Findings from death notification, Statistical release P0309.3* (Stats SA, 2006). This method was chosen mainly because it is able to provide annual completeness estimates and has minimal input requirements compared to other methods that were considered. Other methods [e.g., Bennett and Horiuchi (1981; 1984) and Hill (1987)], which provide one estimate of completeness of death registration over an intercensal period, will be considered after the population census scheduled to be carried out in 2011 has been conducted.

Readers are, however, cautioned against the interpretation of the completeness estimate derived from the Preston and Hill (1980) method. The method assumes a stable and closed population, which is not the case in South Africa. In addition, it assumes that the recording of deaths does not vary with age, which may not necessarily be true. Furthermore, the method provides estimates of completeness of published information for deaths from age five. Nonetheless, the Preston and Hill (1980) method provides consistent trends on completeness over time as an illustration of year-to-year changes in death registration.

Figure 2.1 shows the estimates of death registration completeness from 2004 to 2008. The estimates were based on registered deaths that occurred between 2004 and 2008 (including late registrations) and mid-year population estimates (medium variant) derived by Statistics South Africa (2010a). The figure shows that the completeness of death registration improved moderately between 2004 and 2006, after which it decreased slightly in 2007 and further in 2008. In 2004, 79% of all deaths (84% of male deaths and 75% of female deaths) were registered. By 2008, the completeness of death registration was 81% for all deaths, 85% for males and 77% for females. It is further observed that registration for male deaths was more complete than for female deaths throughout the years and that the gap in completeness of death registration between males and females remained more or less the same.

It is important to note that these estimates of completeness of the published mortality and causes of death information provide an indication of deaths that might never be registered, possible late death registrations, and those that had been registered at the DHA but had not reached Stats SA during the current processing phase.

Figure 2.1: Completeness of death registration by sex and year of death, 2004–2008*



*Data on deaths for 2004–2007 have been updated to include late registrations processed in 2009/10.

2.2.3 Completeness of information for selected variables

Other indicators of completeness of information published in this release are based on the percentage of cases where information was unknown or unspecified for specific variables, taking into consideration the applicable subset of the population. Table 2.2 shows that less than 1% of deaths had unknown or unspecified information on sex (0,1%) and for age (0,2%). About 10% or more of the deaths had unknown or unspecified information on province of residence (9,9%), place of death (14,7%) and marital status (17,5%). For a relatively large percentage of deaths, the method used to ascertain cause of death was unspecified (20,6%), province of birth was unknown or unspecified (23,6%), and population group was not recorded (26,3%). More than half of all deaths had unknown or unspecified level of education, smoking status, pregnancy status and occupation. The type of industry the deceased worked in for most of their working life was not indicated in about a third (34,3%) of those aged 15 and older who were economically active.

In this release, no analyses were undertaken for all variables where more than half of the deaths had unknown or unspecified information. However, unit records of data that include these variables are provided for further analysis. A dataset containing unit records of data on recorded deaths for 2008 is available on a compact disc (*Mortality and causes of death from death notification, South Africa: 2008*) on request from Stats SA (Stats SA, 2010b).

Table 2.2: Percentage of deaths classified as unknown/unspecified for selected variables, 2008

Variables	Applicable group	% unknown or unspecified
Sex	All	0,1
Age	All	0,2
Province of residence	All	9,9
Place of death	All	14,7
Marital status	All	17,5
Method used to ascertain cause of death	All	20,6
Province of birth	All	23,6
Population group	All	26,3
Education	Aged 6 and older	54,4
Smoking status	Aged 16 and older	55,4
Pregnancy status	Females aged 10–55	74,6
Occupation	Aged 15 and older	80,6
Industry	Aged 15 and older (economically active)	34,3

2.2.4 Late registrations

The current processing phase (2009/10) included death notification forms for deaths that occurred in 2008 as well as additional death notification forms for the years 1997–2007 that had not been received by Stats SA in the previous processing phases. Table 2.3 provides information on the number of deaths published in November 2009 for the years 1997–2007; additional forms received during the current processing phase for these years; and the overall number of deaths for each year as of September 2010.

In total, 2 601 additional death notification forms for 1997–2007 were processed during 2009/10 (excluding duplicates). This is a substantial decrease from a total of 23 245 late registrations processed in the last processing phase, when a joint operation between Stats SA and DHA was undertaken to collect all forms that had reached the national DHA office. The majority of the late registrations processed in 2009/10 (75,4%) were late registrations for deaths that occurred in 2007.

Table 2.3: Number of deaths published in November 2009 and late registrations processed in the 2009/10 processing phase by year of death, 1997–2007

Year of death	Number of deaths published in November 2009	Additional forms received in the 2009/10 processing phase	Total number of deaths (by September 2010)
1997	317 131	1	317 132
1998	365 852	1	365 853
1999	381 820	0	381 820
2000	415 983	172	416 155
2001	454 847	35	454 882
2002	502 031	19	502 050
2003	556 769	10	556 779
2004	576 700	9	576 709
2005	598 054	77	598 131
2006	612 462	316	612 778
2007	601 133	1 961	603 094
Total	5 382 782	2 601	5 385 383

This release will use the updated information for all comparative analyses undertaken between 2008 data and data from previous years. The distribution of these updated deaths (deaths published in November 2009 and additional deaths received during the 2009/10 processing phase) from 1997–2008 by age and sex is provided in Appendices C (1997–1999), C.1 (2000–2002), C.2 (2003–2005) and C.3 (2006–2008).

2.3 Methods

The registration of death takes place at the Department of Home Affairs. Medical practitioners have to certify the occurrence of death and provide information on the causes of death. This information is required by DHA to register a death. Where the occurrence of death could not be certified by a medical practitioner, Form BI-1680 is completed by a chief/headman/induna to certify the death and to provide a description of circumstances that led to and caused the death.

Processing of the forms takes place at Statistics South Africa. The processes include sorting forms by date of death and surname of the deceased, pasting labels of unique identifiers on each form, coding socio-demographic variables and causes of death, data capturing and analysis of data.

Data in this release are presented in tables and graphs, which show frequencies, percentage distributions, median ages, sex ratios, crude and age specific death rates. Median ages at death are used to measure the tempo of mortality, which indicates how rapidly or slowly, or how early or late mortality occurs in the population. Although both medians and means may be influenced by the quality of age reporting, medians are preferred over means since the distribution of mortality in age-time or duration-time is likely to be skewed.

Crude death rates (CDR) by sex were computed for the years 2001 to 2008. They were calculated by dividing the number of deaths occurring in each year for each sex by the total population for each sex for that specific year, multiplied by 1 000. The mid-year population estimated by sex were used for the calculations (Stats SA, 2010a). The crude death rates were also calculated for all deaths.

This release also presents tables on mortality and causes of death for district municipalities in the country, shown in the appendices. Information on local municipalities is also available, but is provided on request from Statistics South Africa. The boundaries for local municipalities and district municipalities are in line with the 2005 demarcations.

2.4 ICD-10 coding

Classification of the causes of death

Mortality statistics released in this document are compiled in accordance with WHO regulations that require that member nations classify and code causes of death in accordance with the current revision of the ICD-10 (WHO, 1992). The approach followed in this release is therefore consistent with international best practice. The causes of death data presented were coded by procedures described in the Stats SA manual *Guidelines for coders using ICD-10*¹ (Stats SA, 2002). The ICD-10 coding provides the basic guidance used in virtually all countries to code and classify causes of death data. It provides information on coding in terms of disease, injury and poisoning categories. It also provides the rules for selecting the underlying cause of death from the several diagnoses that may be reported on the death notification form, as well as definitions, tabulation lists, guidelines for the death notification form, and regulations on the use of the classification. The ICD-10 contains approximately 8 000 categories of causes of death. The classification has been constructed for convenience and its usage is not mandatory. The ICD-10 has been adopted by member states, and in South Africa, the National Health Information System of South Africa has also adopted it as its standard.

In November 2003, Stats SA, the South African Medical Association, the Cancer Association of South Africa, the Medical Research Council, and the National Department of Health held a workshop where certain decisions were taken regarding coding problems, including the coding of immunosuppression as immunodeficiency. In terms of the Stats SA coding procedures and guidelines, immunosuppression was not coded as HIV, but as immunodeficiency, which has a separate ICD-10 code. There is no code for immunosuppression in the ICD-10 manuals. Certifying officials sometimes reported the underlying cause of death as ‘acquired immune suppression’. There is no code in the ICD-10 for ‘acquired immune suppression’. In terms of the Stats SA coding procedures, this term was interpreted as HIV disease and given an HIV code (group B20–B24). If HIV was written on the form, this was also coded in the HIV group, as required by the ICD-10. This approach followed the principle of ‘what you see is what you code’.

Changes in coding methodology of non-natural causes of death

Stats SA continually strives to improve the quality and content of information produced. During the current processing phase, there were some changes made on coding non-natural causes, specifically pertaining to unique codes (Y67, Y68, Y37, Y38 and Y39) introduced for South Africa in 1998. These unique codes are not part of the ICD-10 codes, although the ICD-10 methodology allows for the extension of classifications and codes to reflect specific public health concerns. In consultation with stakeholders, it was decided that these codes will be changed to reflect their correct ICD-10 codes. The codes used for *multidrug-resistant tuberculosis* (U51) and *extensively drug-resistant tuberculosis* (U52) remain unchanged. The effected changes for unique South Africa codes are presented in Table 2.4

Table 2.4: Changes in coding unique South African codes

Cause of death	Old code	New code
Herbal poisoning	Y67	X49 <i>(Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances)</i>
Enemas by traditional doctors	Y68	Y53 <i>(Agents primarily affecting the gastrointestinal system)</i>
Mine accidents	Y37	W77 <i>(Threat to breathing due to cave-in, falling earth and other substances)</i>
Accidents in sports	Y38	X58 <i>(Exposure to other specified factors)</i>
Circumcision	Y39	Y65 <i>(Other misadventures during surgical and medical care)</i>

¹ ICD-10 is the tenth revision of the International Classification of Diseases developed by the World Health Organisation (WHO), which is followed worldwide in order to have a uniform way of classifying morbidity as well as causes of death.

Automated generation of the underlying causes of death

Once the causes of death given on the death notification forms were coded, the underlying causes of death were derived automatically, using a software program called Automated Classification of Medical Entities (ACME 2000.05) developed by the United States National Center for Health Statistics (NCHS). The ACME program applies World Health Organization rules on the selection of underlying causes of death. The ACME program is used as the international standard in the automated coding of causes of death.

The ACME program automatically derived the underlying cause of death for 99,3% of all records processed in 2009/10. The ACME system provides an editing user interface for cases to be resolved manually. This was required for some of the causes of death that are considered by the system as rare causes, such as cholera or causes such as *multidrug-resistant tuberculosis* and *extensively drug-resistant tuberculosis* that did not exist when the program was developed.

Ranking the underlying causes of death

Ranking the underlying causes of death is useful for illustrating the relative burden of cause-specific mortality. The ranking simply denotes the frequency of causes of death among those causes eligible to be ranked, and does not reflect the causes of death in terms of their importance from a public health point of view. Due to concerns about violence and deaths due to accidents in South Africa, natural and non-natural causes have been ranked separately. The top-ranking causes determine the leading causes of death. Causes that had the same number of deaths received the same rank and a rank was skipped for the next cause. For example, if two causes of death had the same frequency and were the top-ranking causes, they both received rank one, and the next cause received rank three.

In ranking natural underlying causes of death, *symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified* (R00–R99), were excluded as the information cannot be used effectively for public health policy and planning purposes. This group includes all ill-defined conditions, for which no diagnosis classifiable elsewhere is recorded. For practical purposes, these categories could be designated as not otherwise specified, unknown aetiology or transient.

A total of 80 515 deaths (13,6% of all deaths) were classified under *symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified*. Over 90% (94,4%) of these were *ill-defined and unknown causes of mortality*, a group which includes *sudden infant death syndrome, other sudden death with causes unknown, unattended death*, and *any other ill-defined and unspecified causes of mortality*. Although in some cases these causes would have been among the ten leading underlying causes, they are excluded from the ranking.

3. Overall levels, patterns and differentials of mortality

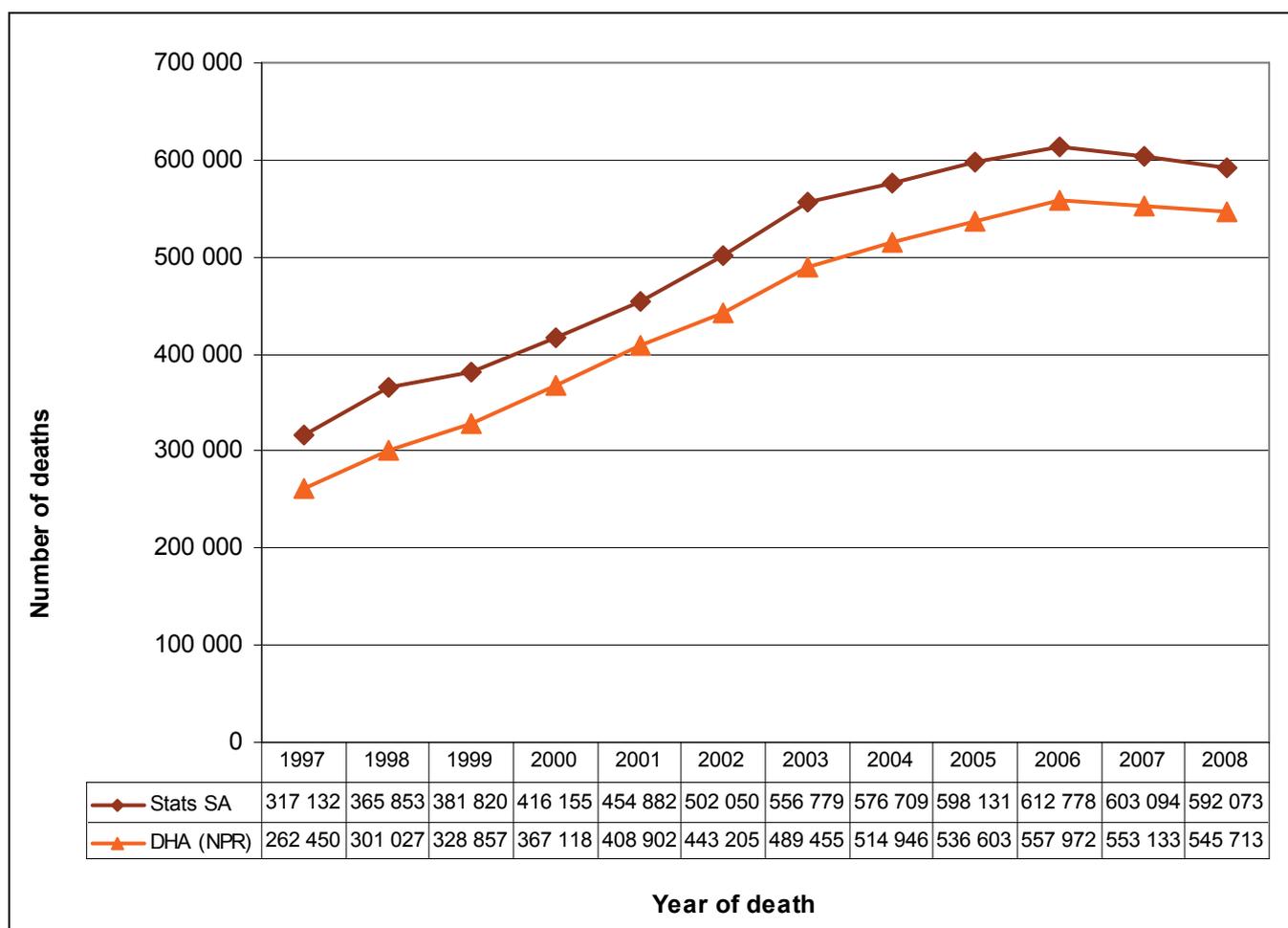
This section provides the distribution of deaths that occurred in 2008 by age, sex, population group, marital status, place of death, and province of death. The overall number of deaths is also provided by year of death for the period 1997–2008 to show recent trends in mortality using updated data that include late registrations processed in 2009/10.

3.1 Levels and trends of registered deaths

Figure 3.1 shows the number of registered deaths processed by Stats SA and those recorded on the National Population Register (NPR) maintained by the Department of Home Affairs (DHA) for the period 1997–2008. Overall, the number of deaths processed by Stats SA for all years was higher than that recorded on the NPR. It is also observed that the number of registered deaths for both sources increased consistently for each year from 1997 to 2006, after which they decreased.

The number of deaths processed by Stats SA in 2008 was 592 073, indicating a decrease of 1,8% from a total of 603 094 deaths that occurred in 2007. The number of deaths on the NPR declined by 1,3% during the same period. Between 2006 and 2007, the number of deaths decreased by 1,6% and 0,9% for deaths processed by Stats SA and those on the NPR, respectively. In addition, the crude death rates for observed and adjusted deaths for 2001 to 2008 also show a decrease in recent years (see Appendices D). These results indicate that the level of mortality has started to decline in the country. However, a similar pattern needs to be observed for several years before a firm conclusion on mortality decline can be made.

Figure 3.1: Number of registered deaths by source of data and year of death, 1997–2008*



Data for 1997–2007 have been updated to include late registrations processed in 2009/10.

3.2 Age differentials

Table 3.1 shows that the highest number of deaths that occurred in 2008 was among those aged 30–34 years, comprising 9,1% of all deaths. This age group was followed by those aged 35–39 (9,0%) and then those aged 40–44 (7,8%). About 7,7% of all deaths occurred among infants (aged 0). The lowest percentage of deaths was among those aged 10–14 years (0,7%) and those aged 5–9 (0,8%).

Table 3.1: Number and percentage distribution of deaths by age, 2008

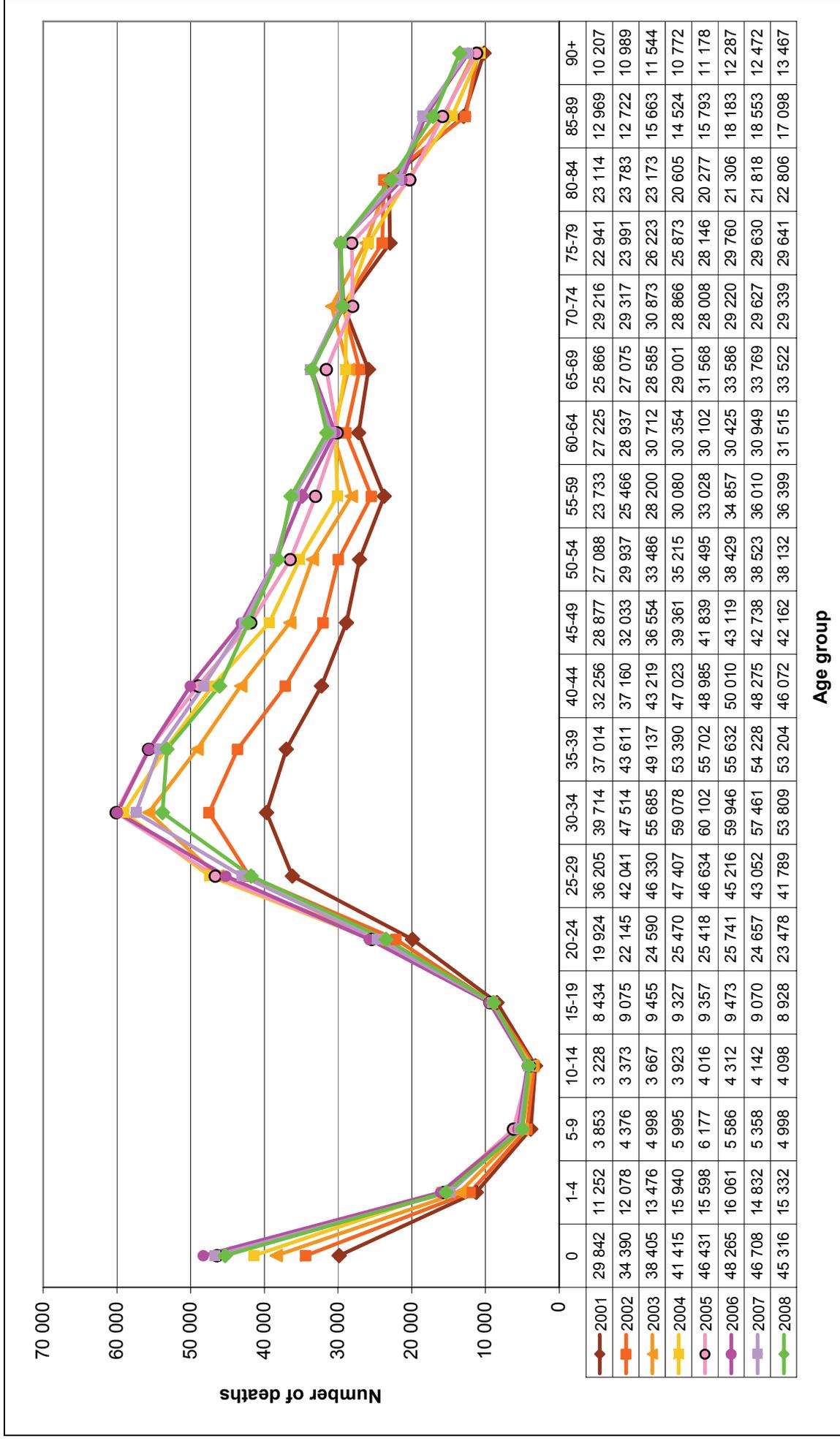
Age group	Number	Percentage
0	45 316	7,7
1-4	15 332	2,6
5-9	4 998	0,8
10-14	4 098	0,7
15-19	8 928	1,5
20-24	23 478	4,0
25-29	41 789	7,1
30-34	53 809	9,1
35-39	53 204	9,0
40-44	46 072	7,8
45-49	42 162	7,1
50-54	38 132	6,4
55-59	36 399	6,1
60-64	31 515	5,3
65-69	33 522	5,7
70-74	29 339	5,0
75-79	29 641	5,0
80-84	22 806	3,9
85-89	17 098	2,9
90+	13 467	2,3
Unspecified	968	0,2
Total	592 073	100,0

The distributions of deaths by age and year of death for the period 2001 to 2008 are shown in Figure 3.2 (numbers) and Figure 3.3 (percentages) to provide an indication of the age pattern of mortality over time. It is observed that the age pattern of mortality was generally the same over the eight-year period.

For all the years, the lowest number of deaths occurred in age groups 5–9 and 10–14 and the highest number occurred in age group 30–34. However, the difference in the number of deaths between age groups 30–34 and 35–39 was minimal in 2008. The number of deaths for each age group increased from 2001 to 2006, after which there was a decline in the majority of age groups. Inconsistencies in this regard were observed for age groups 1–4 and from age group 55–59 up to age group 90 and older.

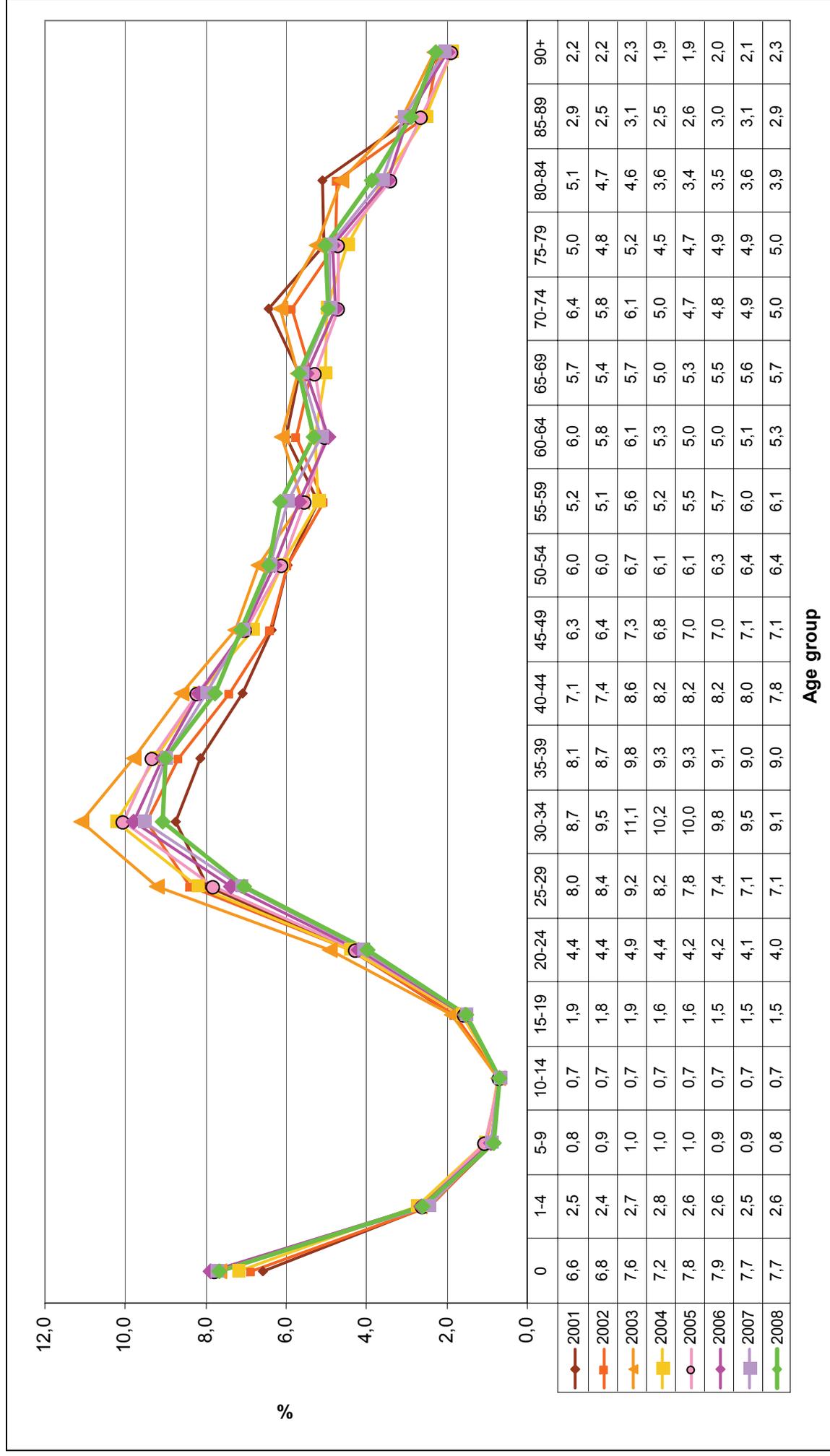
For all years, the highest proportion of deaths was observed in age group 30–34 and the lowest in age group 10–14 (see Figure 3.3). The proportions of deaths were largely similar for each age group between 2007 and 2008, with the exception of age group 30–34 which decreased slightly from 9,5% in 2007 to 9,1% in 2008.

Figure 3.2: Number of deaths by age and year of death, 2001–2008*



* (1) Excluding deaths with unspecified age (1 924 deaths in 2001; 2 037 deaths in 2002; 2 804 deaths in 2003; 3 090 deaths in 2004; 3 277 deaths in 2005; 1 364 deaths in 2006; 1 222 deaths in 2007 and 968 deaths in 2008).
 (2) Data for 2001–2007 have been updated to include late registrations processed in 2009/10.

Figure 3.3: Percentage distribution of deaths by age and year of death, 2001–2008*

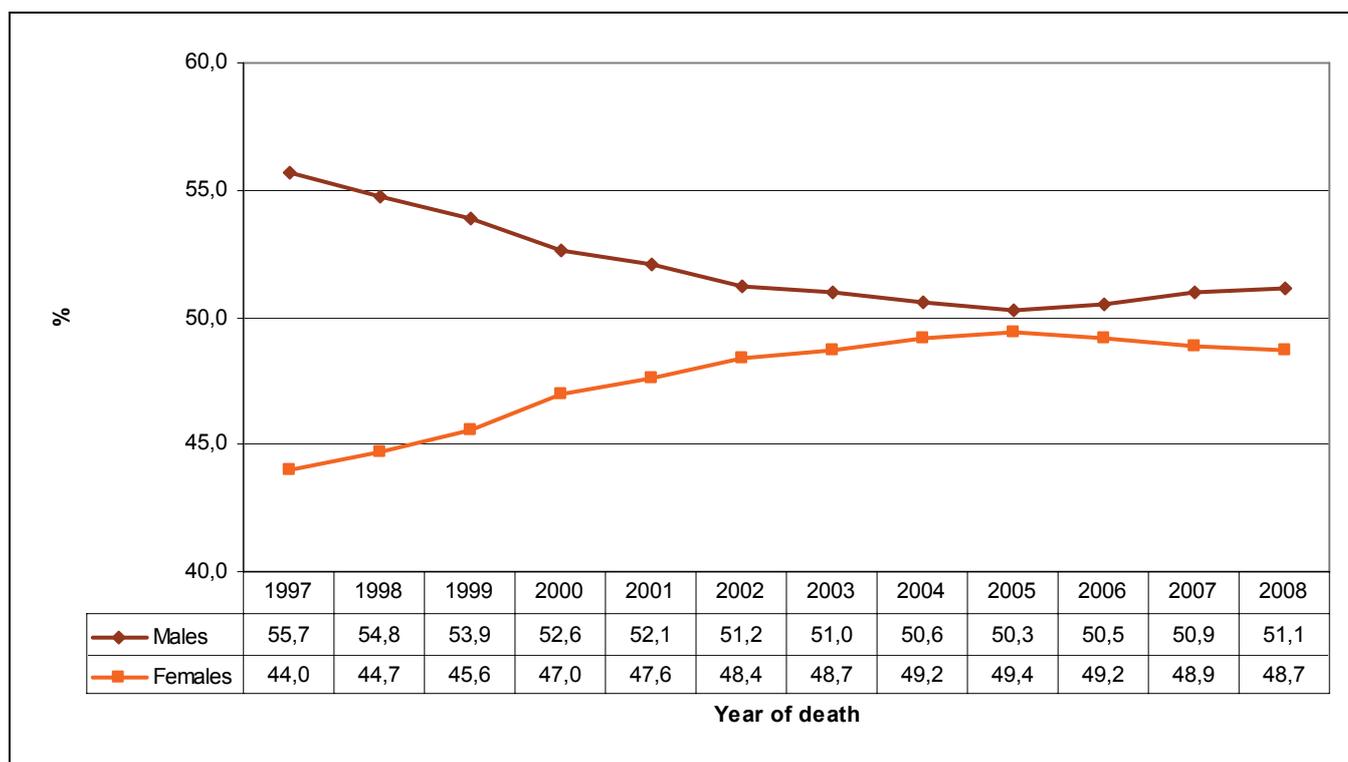


* (1) Excluding deaths with unspecified age (1 924 deaths in 2001; 2 037 deaths in 2002; 2 804 deaths in 2003; 3 090 deaths in 2004; 3 277 deaths in 2005; 1 364 deaths in 2006; 1 222 deaths in 2007 and 968 deaths in 2008).
 (2) Data for 2001–2007 have been updated to include late registrations processed in 2009/10.

3.3 Sex differentials

The distribution of the number of deaths by sex shows that there were slightly more male (51,1%) than female deaths (48,7%) in 2008. About 0,1% of the deaths had unspecified information on the sex of the deceased. Since 1997, over half of all deaths were males (See Figure 3.4). The contribution of male deaths to the total number of deaths decreased over time, reaching its lowest point in 2005, after which it gradually increased. The opposite was true for female deaths where their contribution to the total number of deaths increased from 1997, reaching a peak in 2005 after which it slowly decreased. The percentage distribution of deaths by sex from 1997–2008 indicates that the gap between male and female deaths generally narrowed down over time up to 2005, after which it started to widen gradually.

Figure 3.4: Percentage distribution of deaths by sex and year of death, 1997–2008*

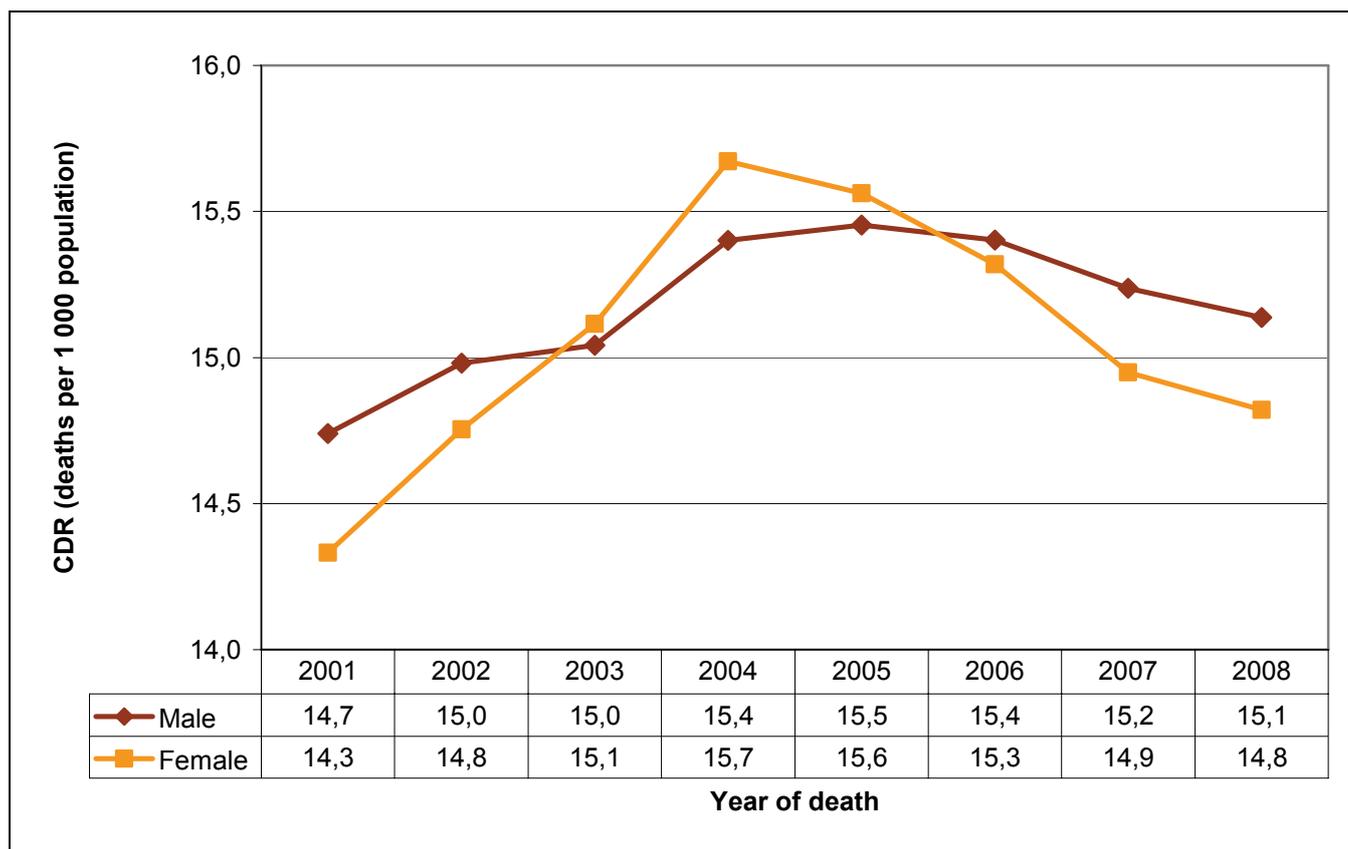


* (1) Excluding deaths with unspecified sex: (1 028 deaths in 1997; 1 928 deaths in 1998; 2 077 deaths in 1999; 1 720 deaths in 2000; 1 645 deaths in 2001, 1 943 deaths in 2002; 1 971 deaths in 2003; 1 615 deaths in 2004; 1 718 deaths in 2005; 1 740 deaths in 2006, 981 deaths in 2007 and 788 in 2008).
 (2) Data for 1997–2007 updated to include late registrations processed in 2009/10.

Over the years, female deaths increased a higher rate than male deaths (see Appendix E). This trend changed between 2005 and 2006 when the increase was lower for females. Between 2007 and 2008, the number of deaths for both males and females decreased, with a slightly higher decrease observed for females (2,2%) as compared to males (1,5%). The same pattern of decrease was observed between 2006 and 2007 where female deaths decreased by 2,2% and male deaths by 0,8%.

Crude death rates by sex were calculated for the period 2001–2008 using deaths adjusted for incompleteness to show sex differences in mortality taking into account the population size for each sex. Figure 3.5 shows that crude death rates increased from 2001 to 2004 for males and from 2001 to 2005 for females, after which the rates decreased for both sexes. The crude death rates were higher for males as compared to females during 2001–2002, after which the female rates surpassed those for males. The pattern was reversed in 2006 when male death rates exceeded female death rates again. This is an indication that in the most recent years, female mortality is decreasing at a higher rate than male deaths. By 2008, the crude death rate was 15,1 deaths per 1 000 population for males and 14,8 per 1 000 for females.

Figure 3.5: Crude Death Rates (CDR) by year of death and sex (adjusted number of deaths), 2001–2008*



Data for 1997–2007 have been updated to include late registrations processed in 2009/10.

Age specific death rates for the total population for the period 2004–2008 (deaths unadjusted for incompleteness) are shown in Appendix F to provide an indication of the age pattern of mortality over the five-year period, taking into consideration population size at each age. The age pattern of death was the same for the five-year period, with rates higher at age 0 and from age 60 up to age 80 and older. Death rates for all years increased consistently from age group 50–54, reaching their highest levels at ages 80 and older. The rates were much lower between age groups 5–9 and 15–19.

3.4 Age and sex differentials

Percentage distribution

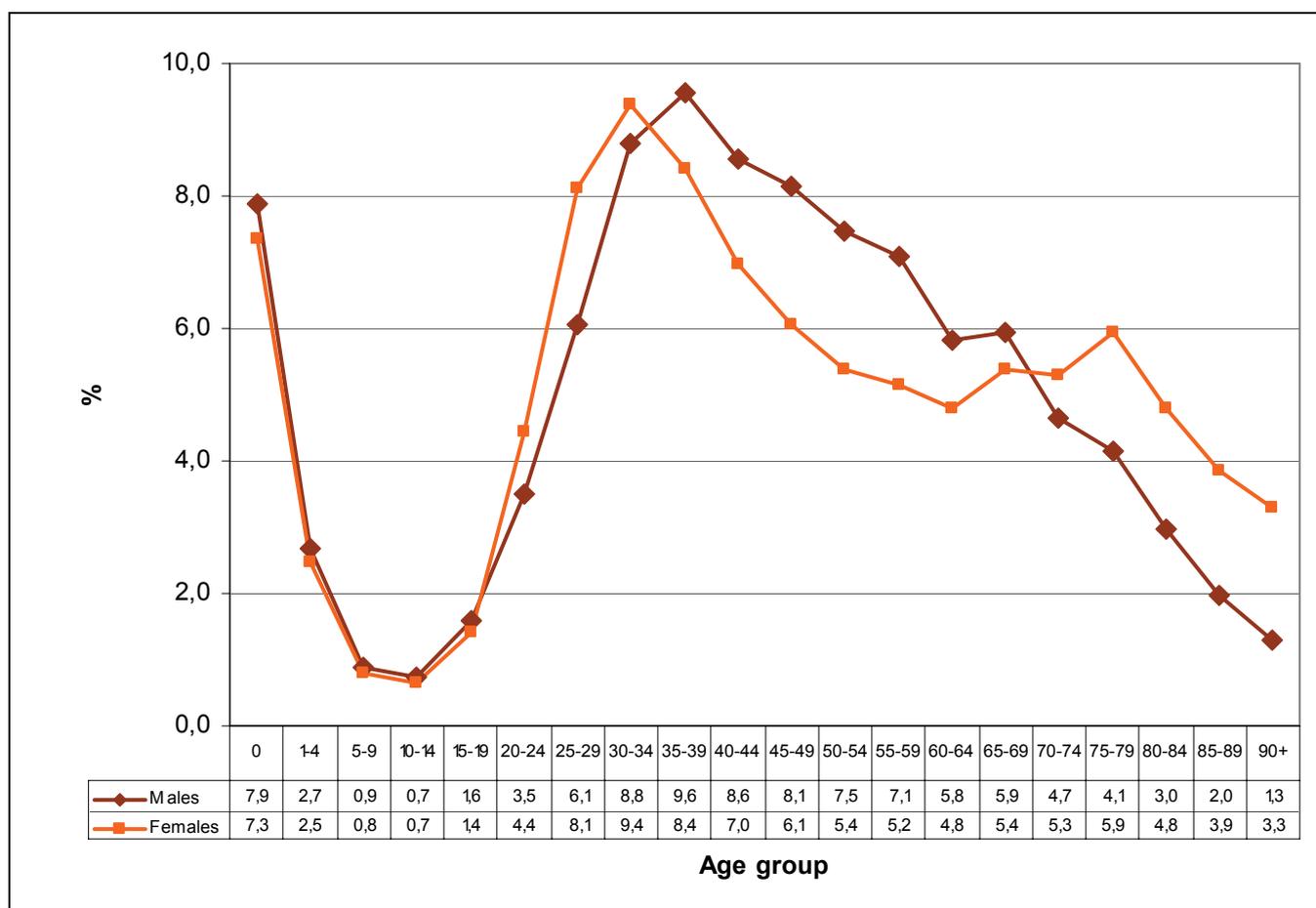
The age and sex distribution of deaths that occurred in 2008 is shown in Table 3.2 (numbers) and Figure 3.6 (percentages). The absolute number of deaths shows that female deaths exceeded male deaths at ages 20–34 and from age group 70–75 up to age 90 and older. The highest percentage of male deaths occurred among those aged 35–39 (9,6%), followed by age group 30–34 (8,8%) and age group 40–44 (8,6%). For female deaths, the highest percentage of deaths was among those aged 30–34 (9,4%), followed by those aged 35–39 (8,4%) and those aged 40–44 (7,0%). About 7,9% and 7,3% of male and female deaths, respectively, occurred at age 0. For both males and females, the lowest percentage of deaths occurred among those aged 10–14.

Table 3.2: Number of deaths by age and sex, 2008*

Age group	Males	Females
0	23 838	21 203
1-4	8 147	7 156
5-9	2 709	2 283
10-14	2 216	1 881
15-19	4 817	4 085
20-24	10 624	12 815
25-29	18 349	23 401
30-34	26 647	27 111
35-39	28 927	24 233
40-44	25 939	20 109
45-49	24 671	17 462
50-54	22 609	15 502
55-59	21 500	14 881
60-64	17 664	13 835
65-69	17 979	15 533
70-74	14 095	15 242
75-79	12 513	17 125
80-84	8 985	13 820
85-89	5 955	11 142
90+	3 947	9 493
Unspecified	613	229
Total	302 744	288 541

*Excluding 788 deaths with unspecified sex.

Figure 3.6: Percentage distribution of deaths by age and sex, 2008*



*Excluding 1 630 deaths with unspecified age and unspecified sex.

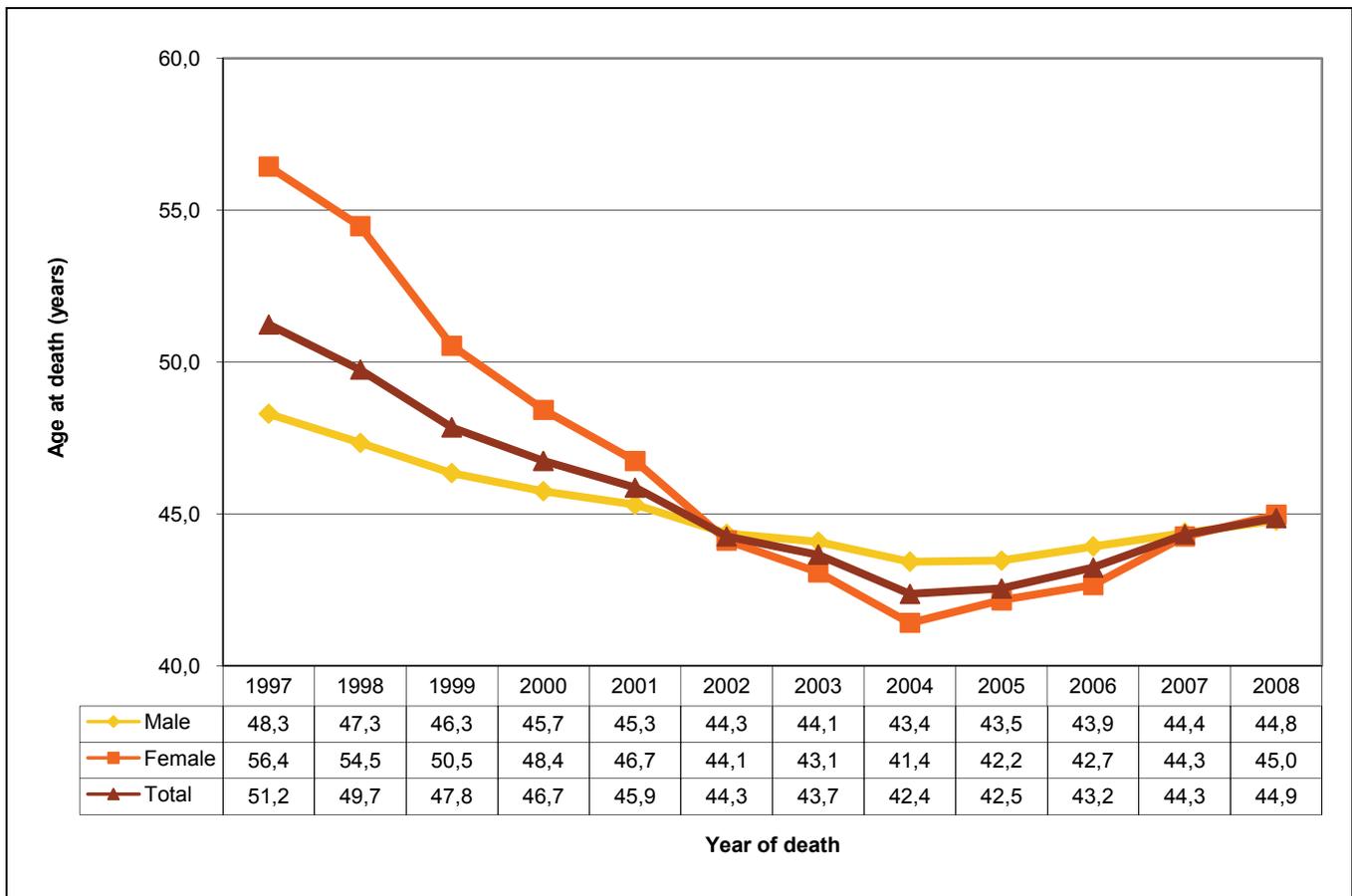
Median ages at death by sex

The median ages at death by sex are presented in Figure 3.7. Median ages show how early or late mortality occurs in the population and specifies the age at which half of the reported deaths occur. Lower median ages at death indicate that mortality is occurring earlier while higher median ages indicate that mortality is occurring later.

Generally, the median ages at death for both males and females decreased from 1997 and reached their lowest levels in 2004. That is, in 2004, mortality was occurring at earlier ages than it was in 2003 and in the previous years. The decrease was more pronounced for females. From 2005, the median ages increased again gradually, indicating decreasing mortality.

The median ages at death for females was higher than that of males from 1997 to 2001, showing that mortality was occurring earlier for males and later for females. The median ages then converged in 2002, after which they deviated again up to 2006, with median ages higher for males than for females. That is, during 2003 to 2006, mortality was occurring earlier for females and later for males. By 2007, the median age at death for both males and females was around 44 years, increasing to about 45 years in 2008.

Figure 3.7: Median ages at death by sex and year of death, 1997–2008*



Data for 1997–2007 have been updated to include late registrations processed in 2009/10.

Sex ratios by age

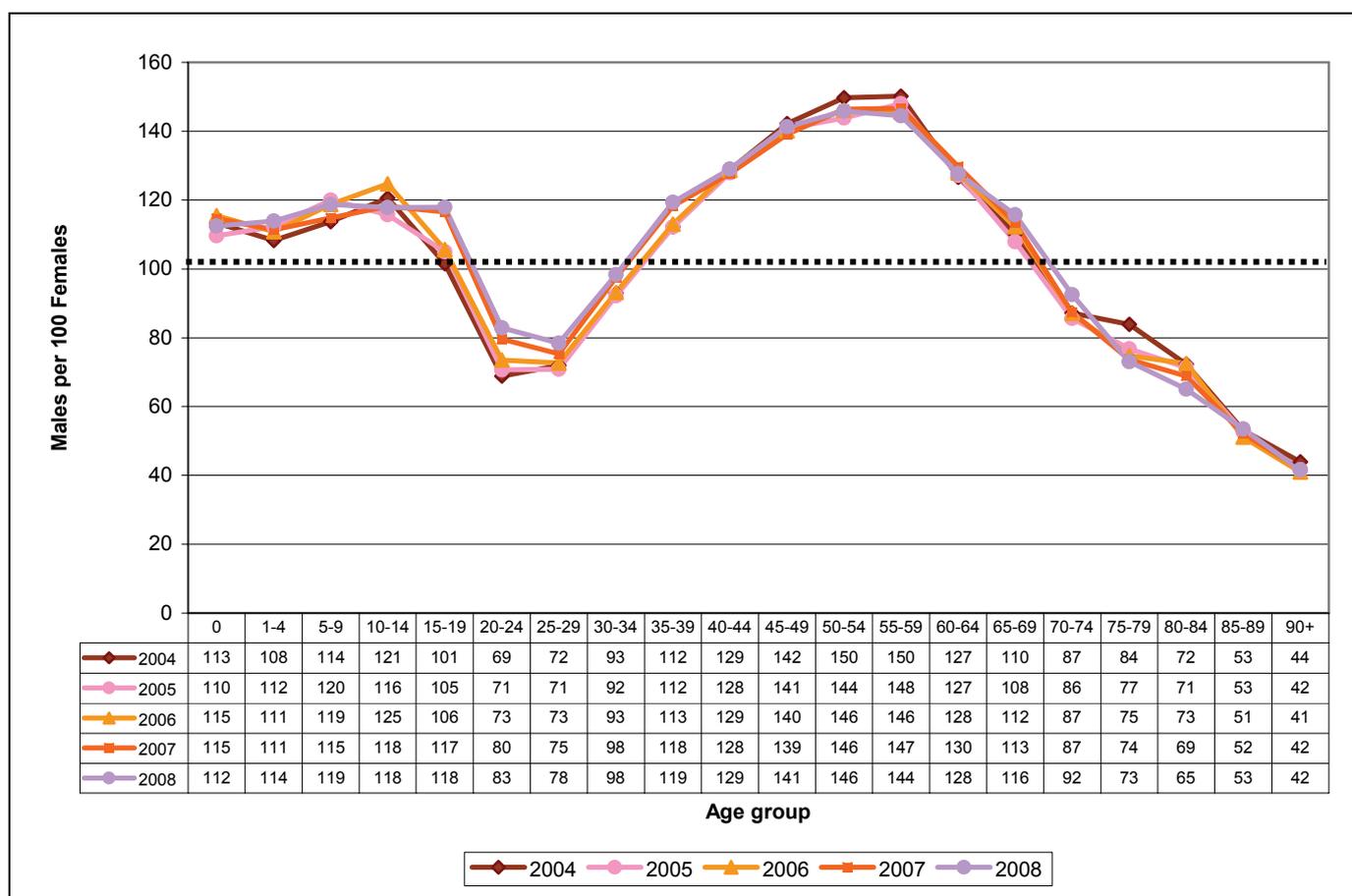
The sex ratio of deaths (the number of male deaths per 100 female deaths) is another measure that shows the relative number of male to female deaths. A ratio of 100 indicates that there is an equal number of male and female deaths, a number less than 100 indicates more female death occurrences; and a number more than 100 indicates more male death occurrences.

The overall sex ratio for 2008 deaths was 105 male deaths per 100 female deaths, indicating slightly more male than female deaths. Sex ratios decreased from 127 male deaths per 100 female deaths in 1997 to 102 male deaths per 100 female deaths in 2005 (see Appendix G). Sex ratios then increased by one male death per 100 female deaths every year from 2005 to 2008.

Figure 3.8 shows the sex ratios for the years 2004–2008 by age. It is observed that the age pattern of sex ratios was similar during the years 2004–2008. Generally, there were more male than female deaths from age 0 up to age group 15–19, after which there were more female than male deaths from age group 20–24 up to age group 30–34. Male deaths exceeded female deaths again from age group 35–39 up to age group 65–69, after which there were more female than male deaths. Sex ratios consistently declined with age from age group 55–59.

The sex ratios by year of death for age groups 20–24, 25–29 and 30–34 (the young ages where sex ratios are below 100) show a consistent increase since 2005. This indicates that female deaths were decreasing much more than male deaths in these ages. For example, between 2007 and 2008, female deaths in age group 20–24, decreased by 6,5% while male deaths in the same age group decreased by 2,6%. In age group 25–29, female and male deaths decreased by 4,6% and 0,6%, respectively.

Figure 3.8: Sex ratios by age and year of death, 2004–2008*



* (1) Excluding deaths with unspecified sex (1 615 deaths in 2004; 1 718 deaths in 2005; 1 740 deaths in 2006, 981 deaths in 2007 and 788 deaths in 2008).
 (2) Data for 2004–2007 have been updated to include late registrations processed in 2009/10.

Age and sex differential by geographic level

The distributions of deaths at provincial and district municipality levels by age and sex are provided in Appendix H and Appendix I, respectively. The distribution by deaths by age showed wide disparities by province and municipality. For example, 5,3% of deaths in Western Cape occurred among infants (aged 0), it was 10,9% in North West and 9,6% in Free State. Differences by district municipalities showed that as much as 12,8% of deaths occurred among infants in Kgalagadi (Northern Cape); 11,7% among infants in Dr Ruth Segomotsi Mompati (North West); 11,0% in Ekurhuleni (Gauteng); and 10,7% in Thabo Mofutsanyane (Free State).

With the exception of Eastern Cape and Limpopo, there were more male than female deaths in all provinces. All district municipalities in Western Cape, Northern Cape, North West, Gauteng and Mpumalanga had more male than female deaths. Some district municipalities in other provinces had more female than male deaths. For example, for 100 female deaths, there were 88 male deaths in Ukhahlamba (Eastern Cape); 93 male deaths in Greater Sekhukhune (Limpopo); 94 male deaths in Sisonke (KwaZulu-Natal); and 97 male deaths in Thabo Mofutsanyane (Free State).

3.5 Population group differences in mortality

The distribution of deaths by population group is shown in Table 3.3. It is observed that black Africans contributed the highest percentage of registered deaths (62,2%) while Indian or Asians had the lowest percentage (1,3%). About 6,1% of the deaths occurred to the white population group and 4,3% to the coloured population group. This distribution is largely similar to that observed for 2007 deaths.

Over a quarter (26,3%) of registered deaths in 2008 had population group classified as 'other', unspecified or unknown. Therefore, the results on population groups have to be treated with caution due to this high percentage of unknown, unspecified, or 'other' population groups. This problem has persisted since 1997.

Table 3.3: Number and percentage distribution of deaths by population group, 2008

Population group	Number	Percentage
Black African	368 083	62,2
Coloured	25 261	4,3
Indian or Asian	7 427	1,3
White	35 860	6,1
Other, unknown or unspecified	155 442	26,3
Total	592 073	100,0

3.6 Marital status differences in mortality

Table 3.4 shows that nearly half (48,8%) of the deceased were reported as never married at the time of death. About a quarter (24,2%) of the deceased were married or living as married at the time of death while 8,0% were widowed and 1,5%, were divorced. The marital status of the deceased at the time of death was unknown or unspecified in 17,5% of the deaths.

Table 3.4: Number and percentage distribution of deaths by marital status, 2008

Marital status	Number	Percentage
Never married	289 171	48,8
Married or living as married	143 104	24,2
Widowed	47 554	8,0
Divorced	8 850	1,5
Unknown or unspecified	103 394	17,5
Total	592 073	100,0

3.7 Differences in mortality by place of death occurrence

The number of deaths by place of death occurrence shows that about 44,7% of the deaths took place in hospitals, 1,6% in emergency rooms or as outpatients and 2,1% died in a nursing home (see Table 3.5). Nearly a third (30,5%) of the deaths occurred at home while 2,3% were dead on arrival at a healthcare facility. This distribution is similar to that observed in 2007.

Table 3.5: Number and percentage distribution of deaths by place of death, 2008

Place of death	Number	Percentage
Hospital	264 609	44,7
ER or Outpatient	9 298	1,6
Dead on arrival	13 661	2,3
Nursing home	12 657	2,1
Home	180 816	30,5
Other	23 707	4,0
Unknown or unspecified	87 325	14,7
Total	592 073	100,0

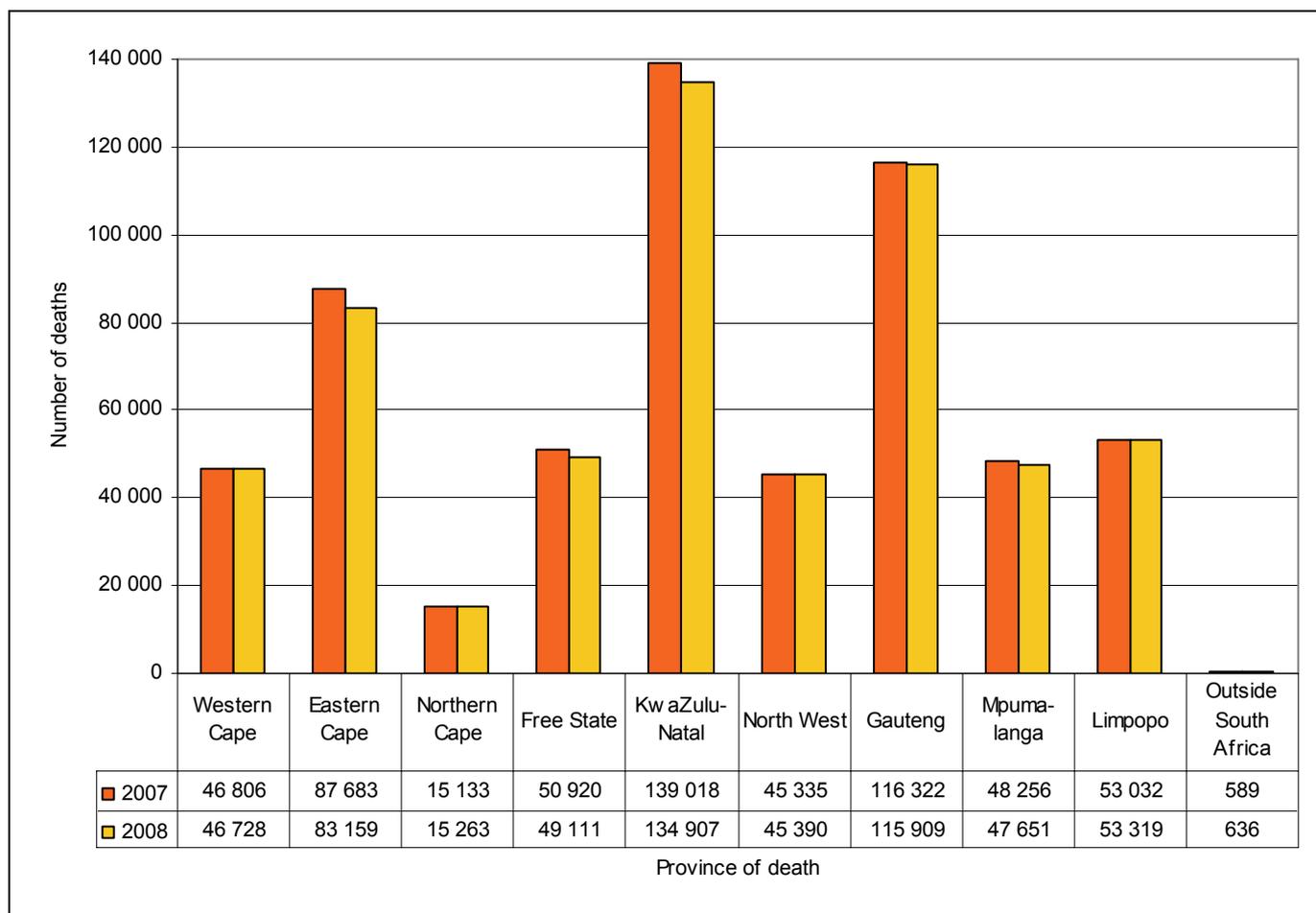
3.8 Provincial differences in mortality

This subsection provides information on the distribution of deaths by province for deaths that occurred in 2007 and 2008. The province of death occurrence was derived from place names, based on the 2005 municipal boundaries for both years. It is important to note that the distribution of deaths by province of occurrence is largely similar to the distribution of the South African population by province.

Figure 3.9 shows that the highest number of deaths for both years occurred in KwaZulu-Natal, followed by Gauteng and Eastern Cape. In 2008, 22,8% of deaths occurred in KwaZulu-Natal, 19,6% in Gauteng and 14,0% in Eastern Cape. The lowest percentage of deaths occurred in Northern Cape (2,6%) and less than 1% of deaths occurred outside South Africa. The percentage distribution of deaths in 2008 was largely similar to that observed in 2007.

The figure further shows that the number of deaths by province in 2007 and 2008 has remained more or less the same for Western Cape, Northern Cape, North West, Gauteng and Limpopo. However, the number of deaths decreased slightly for Eastern Cape (5,2%), Free State (3,6%), KwaZulu-Natal (3,0%) and Mpumalanga (1,3%).

Figure 3.9: Number of deaths by year and province of death occurrence, 2007* and 2008



*Data for 2007 have been updated to include late registrations processed in 2009/10.

4. Causes of death in South Africa

4.1 Introduction

This section presents information on causes of death for all registered deaths that occurred in 2008, as well as some comparisons with data for the previous years. Information on causes of death is provided according to the 19 main groups (chapters) of the classification of death and an age breakdown of the proportion of deaths due to natural and non-natural causes. This is followed by an analysis of deaths due to natural deaths that considers the leading underlying causes for broad groups of the classification of death, ranked as described in Section 2 of this release.

In view of the concern in South Africa about levels of violence and deaths due to accidents, non-natural underlying causes of death are treated as a separate group. Non-natural causes of death comprise all deaths that were not attributable, or may not have been attributable to natural causes. In terms of the Inquests Act (Act No. 58 of 1959), these deaths are subject to medico-legal investigation. An autopsy must be performed to establish the cause of death, and an inquest is compulsory. The results of the inquest are then sent to the Department of Home Affairs, which issues the final death certificate.

The last subsection provides a comparison between underlying, immediate and contributing causes of death. This analysis gives an overview of the recorded instances of multiple causes of death.

4.2 Reported causes of death

Information on diseases, injuries or complications that caused death is provided on the death notification form when a death is registered at the Department of Home Affairs (DHA). Provision is made for one or more causes to be recorded on the form (see copy of Form BI-1663 in Appendix B). Table 4.1 shows information on the number of causes of death reported on death notification forms for deaths that occurred in 2008. Less than 1% of the forms had no cause of death recorded. These mainly include cases in which only the first page of the death notification form was received by Stats SA. The majority of death notification forms (59,6%) had only one cause recorded, just over a quarter (26,8%) had two causes recorded, 10,0% had three causes recorded and 3,5% had four to five causes recorded. The pattern of recording causes on the death notification forms for 2008 is similar to that observed for 2007 deaths.

Table 4.1: Distribution of death notification forms by the number of causes entered on the form, 2008

Number of reported causes of death	Number of death notification forms	Percentage
No cause given	434	0,1
One cause	352 835	59,6
Two causes	158 831	26,8
Three causes	59 275	10,0
Four causes	16 529	2,8
Five causes	4 169	0,7
Total	592 073	100,0

4.3 Method of ascertaining the cause of death

The death notification form makes provision for a certifying official to indicate the method that was used to ascertain the cause of death. Table 4.2 shows that in about half of the deaths the causes of death were ascertained by opinions of medical personnel (33,7% opinion of the attending medical practitioner, 17,2% opinion of attending medical practitioner on duty and 2,0% opinion of registered professional nurse). An interview with family members was used to certify the cause of death for 15,5% of the deaths while an autopsy was used in less than 10% (8,6%) of the deaths. It was unknown or not indicated in about one in five deaths (20,7%) what method was used to ascertain the cause of death.

Table 4.2: Number and percentage distribution of deaths by method used to ascertain the cause of death, 2008

Method of ascertaining cause of death	Number	Percentage
Autopsy	50 808	8,6
Opinion of attending MP	199 720	33,7
Opinion of attending MP on duty	101 645	17,2
Opinion of registered professional nurse	12 037	2,0
Interview of family member	91 655	15,5
Other	13 743	2,3
Unspecified	122 465	20,7
Total	592 073	100,0

4.4 Main groups of the underlying causes of death

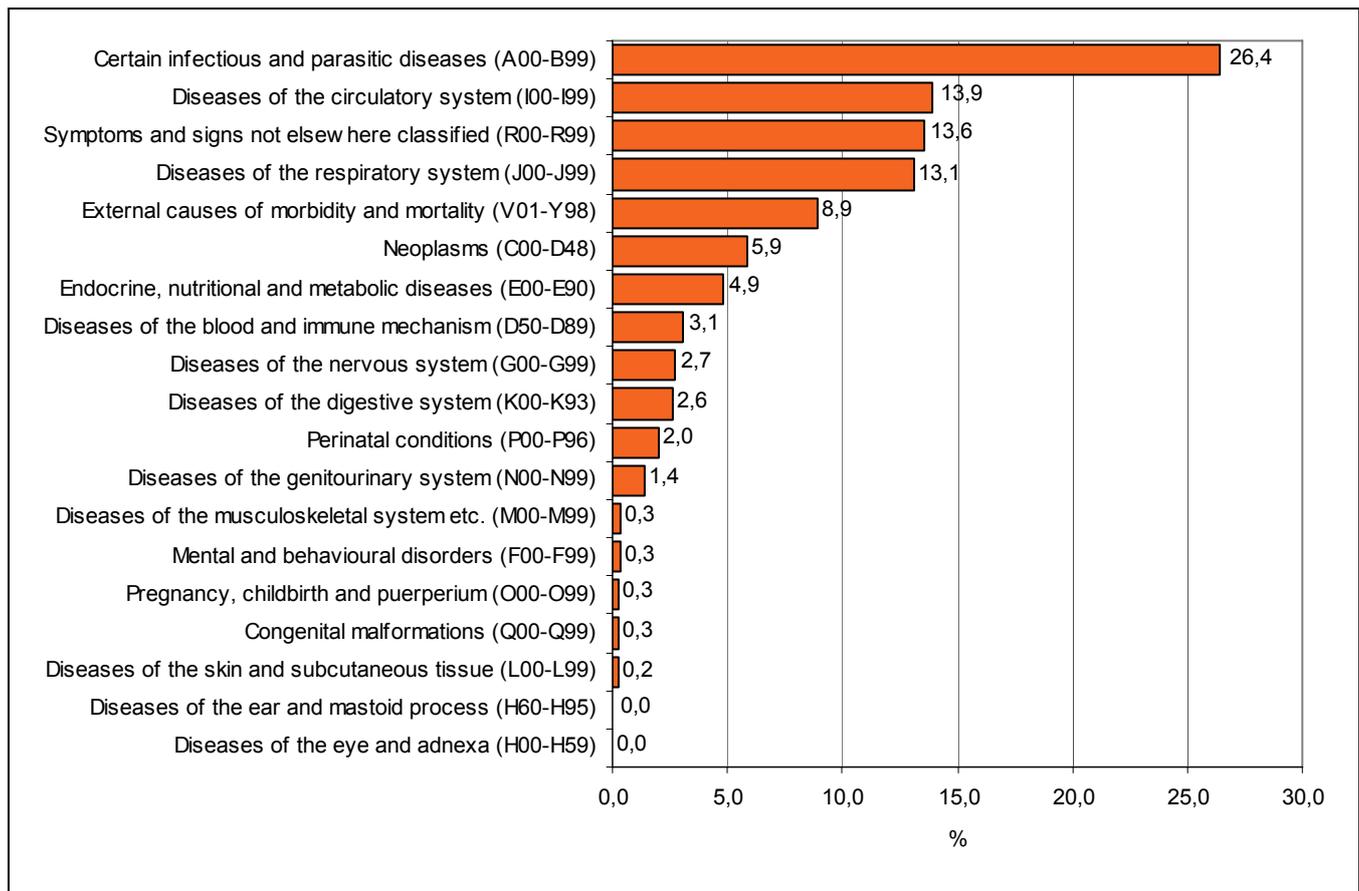
Figure 4.1 shows the percentage distribution of deaths by the 19 main groups (chapters) of the classification of causes of death. The top ranking main group of causes of death in 2008 (as has been the case in the previous years) was *certain infections and parasitic diseases*, comprising over a quarter (26,4%) of all deaths. This group also includes 712 deaths due to *multidrug-resistant tuberculosis* (MDR-TB) and 135 deaths due to *extensively drug-resistant tuberculosis* (XDR-TB). The reported number of deaths due to MDR-TB and XDR-TB increased by 19,3% and 60,7%, respectively, between 2007 and 2008.

The second most common main group of causes of death was *diseases of the circulatory system* (13,9%) followed by *symptoms and signs not elsewhere classified* (13,6%), and *diseases of the respiratory system* (13,1%). Less than 10% of the deaths were due to *external causes of morbidity and mortality* (8,9%). *Neoplasms* comprised 5,9% of all deaths, *perinatal conditions* contributed 2,0% of all deaths, while *pregnancy, childbirth and puerperium* contributed 0,3% of all deaths.

The number of deaths by main groups of causes of death for 2006–2008 is shown in Table 4.3. Over the three-year period, consistent decreases in the number of deaths were observed for *diseases of the circulatory system*, *diseases of the respiratory system*, *diseases of the blood and immune mechanism*, *diseases of the nervous system*, *diseases of the digestive system* and *perinatal conditions*. Consistent increases were observed for *mental and behavioural disorders* and *pregnancy, childbirth and puerperium*. The rest of the causes decreased between 2006 and 2007 and then increased between 2007 and 2008.

The table further shows that the ranking of the main groups of causes of death changed slightly between 2006 and 2008. For the three years, *certain infectious and parasitic diseases* were the most common main group of cause of death. There were a few changes in the ranking of *symptoms and signs not elsewhere classified*, *diseases of the respiratory system* and *diseases of the circulatory system*. For example *diseases of the circulatory system* ranked third in 2006, fourth in 2007 and second in 2008 while *diseases of the respiratory system* ranked second in 2006, third in 2007 and fourth in 2008. However, the ranking of the remaining main groups of causes of death was largely similar for the two years.

Figure 4.1: Percentage distribution of deaths by main groups of causes of death, 2008



*Including deaths due to MDR-TB and XDR-TB.

Table 4.3: Number of deaths by main groups of causes of death and year of death, 2006–2008*

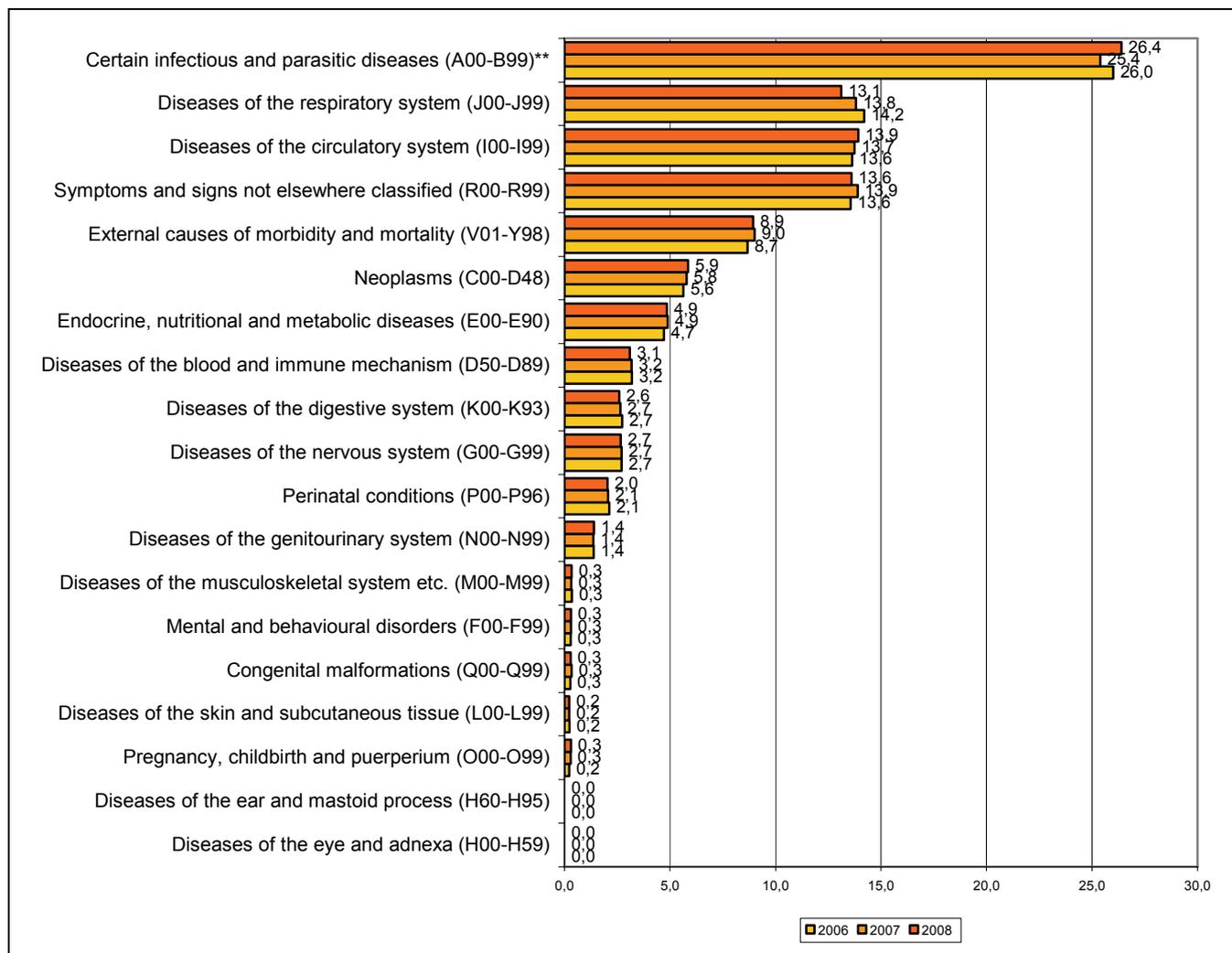
Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Rank	2006	Rank	2007	Rank	2008
Certain infectious and parasitic diseases (A00-B99)**	1	159 418	1	153 199	1	156 297
Diseases of the respiratory system (J00-J99)	2	87 048	3	83 345	4	77 695
Diseases of the circulatory system (I00-I99)	3	83 566	4	82 859	2	82 451
Symptoms and signs not elsewhere classified (R00-R99)	4	83 084	2	83 791	3	80 515
External causes of morbidity and mortality (V01-Y98)	5	53 209	5	54 373	5	52 950
Neoplasms (C00-D48)	6	34 531	6	34 899	6	34 697
Endocrine, nutritional and metabolic diseases (E00-E90)	7	28 871	7	29 501	7	28 728
Diseases of the blood and immune mechanism (D50-D89)	8	19 609	8	19 152	8	18 352
Diseases of the digestive system (K00-K93)	9	16 766	10	15 982	10	15 362
Diseases of the nervous system (G00-G99)	10	16 581	9	16 292	9	15 797
Perinatal conditions (P00-P96)	11	12 965	11	12 471	11	12 098
Diseases of the genitourinary system (N00-N99)	12	8 503	12	8 263	12	8 300
Diseases of the musculoskeletal system etc. (M00-M99)	13	2 113	14	1 962	13	2 005
Mental and behavioural disorders (F00-F99)	14	1 812	15	1 824	14	1 830
Congenital malformations (Q00-Q99)	15	1 722	13	1 991	16	1 707
Diseases of the skin and subcutaneous tissue (L00-L99)	16	1 422	17	1 309	17	1 352
Pregnancy, childbirth and puerperium (O00-O99)	17	1 410	16	1 770	15	1 810
Diseases of the ear and mastoid process (H60-H95)	18	104	18	84	18	94
Diseases of the eye and adnexa (H00-H59)	19	44	19	27	19	33
All causes		612 778		603 094		592 073

*Data for 2006 and 2007 have been updated to include late registrations processed in 2009/10.

**Including deaths due to MDR-TB and XDR-TB.

Figure 4.2 shows that the proportion of deaths by main groups of causes of death has remained more or less the same between 2006 and 2008. *Certain infectious and parasitic diseases* were the most common causes of death and accounted for about a quarter of deaths for each year. It is observed that there was a slight decrease in the proportion of deaths due to *diseases of the respiratory systems* from 2006 to 2008 and a slight increase for *diseases of the circulatory system*.

Figure 4.2: Percentage distribution of deaths by main groups of causes of death and year of death, 2006–2008*



*Data for 2006 and 2007 have been updated to include late registrations processed in 2009/10.

**Including deaths due to MDR-TB and XDR-TB.

4.5 Natural and non-natural causes of death

Table 4.4 and Figure 4.3 show the number and percentage of deaths due to natural and non-natural causes, respectively, from 1997 to 2008. Over the 12-year period, the number of deaths due to natural causes increased consistently between 1997 and 2006, after which it decreased. There was an inconsistent pattern for non-natural causes over time. Between 2006 and 2007, natural deaths decreased by 1,9% while non-natural deaths increased by 2,2%. However, both natural and non-natural deaths decreased between 2007 and 2008 (1,7% for natural causes and 2,6% for non-natural causes).

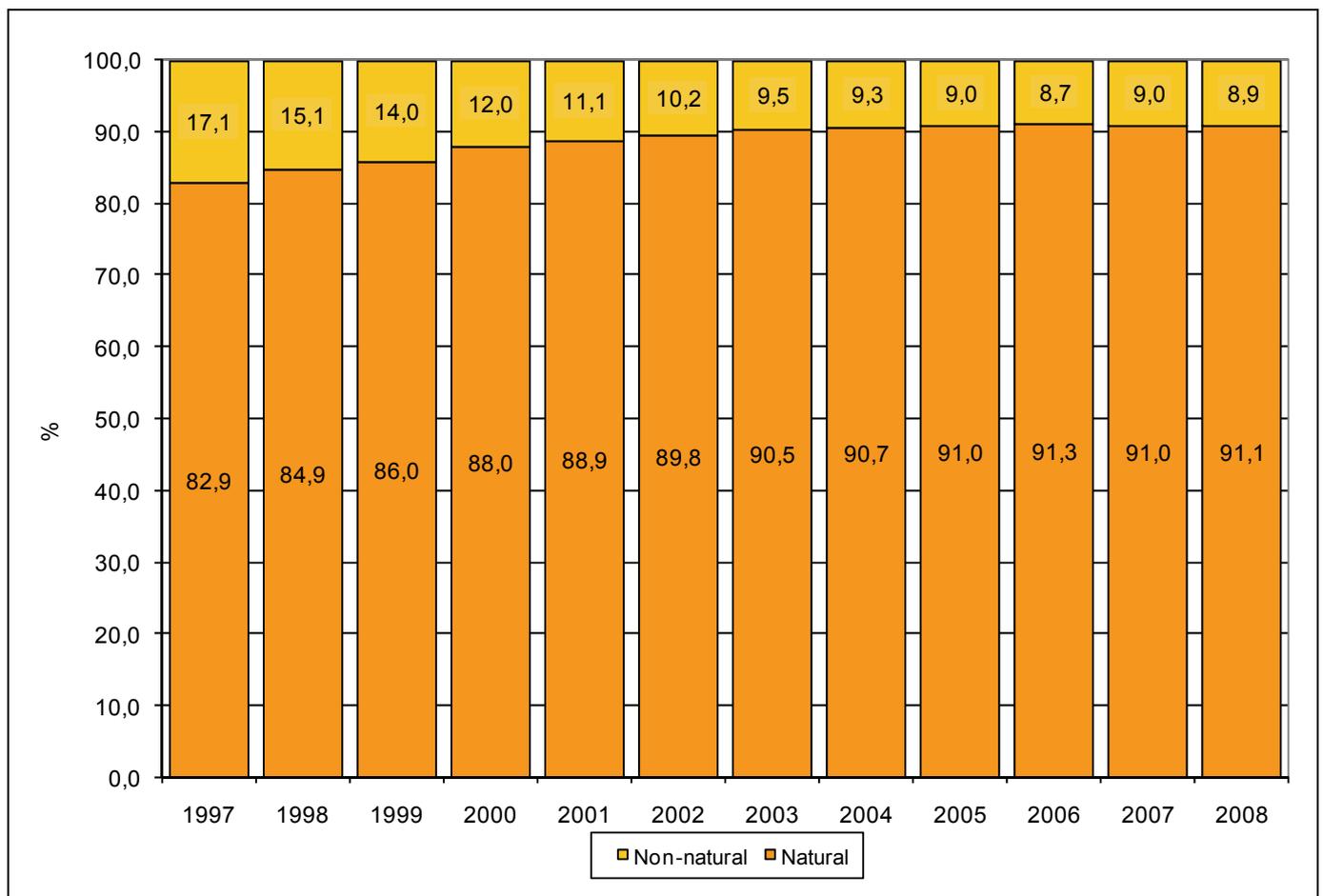
It is observed that throughout the years, the majority of deaths (over 80% for all years) were due to natural causes. The percentage of deaths due to natural causes increased gradually from 1997 to 2006, after which it remained more or less constant at around 91%. In 2008, 91,1% of deaths were due to natural causes and 8,9% due to non-natural causes.

Table 4.4: Number of natural and non-natural deaths by year of death, 1997–2008*

Year of death	Number of natural deaths	Number of non-natural deaths	Total
1997	263 040	54 092	317 132
1998	310 746	55 107	365 853
1999	328 487	53 333	381 820
2000	366 391	49 764	416 155
2001	404 549	50 333	454 882
2002	450 592	51 458	502 050
2003	503 949	52 830	556 779
2004	523 363	53 346	576 709
2005	544 177	53 954	598 131
2006	559 569	53 209	612 778
2007	548 721	54 373	603 094
2008	539 123	52 950	592 073

*Data for 1997–2007 have been updated to include late registrations processed in 2009/10.

Figure 4.3: Percentage distribution of natural and non-natural causes of death by year of death, 1997–2008*

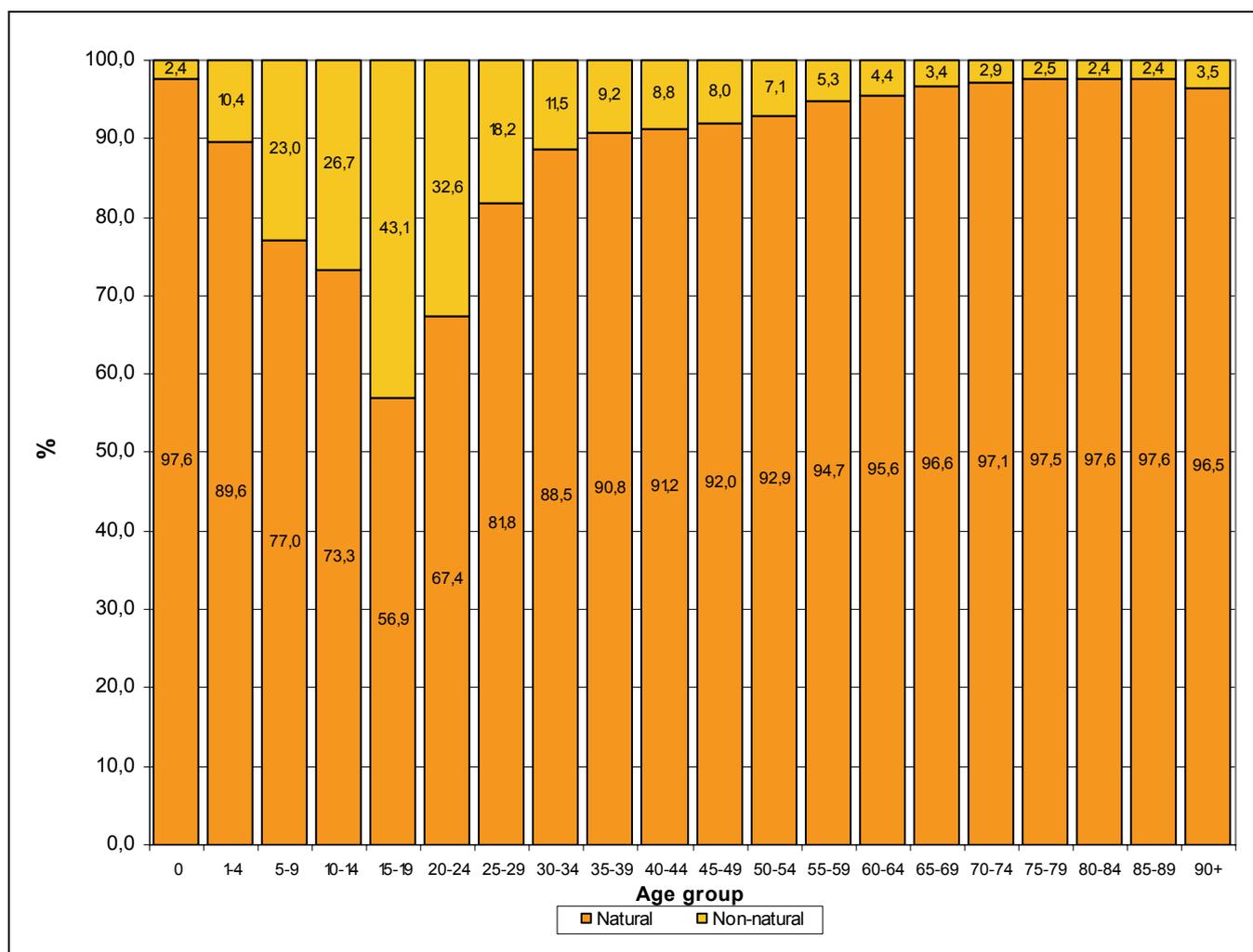


*Data for 1997–2007 have been updated to include late registrations processed in 2009/10.

Natural and non-natural causes of death by age

Figure 4.4 shows the percentage distribution of deaths due to natural and non-natural causes classified by age group for deaths that occurred in 2008. The general pattern observed is that the proportion of deaths due to non-natural causes increased consistently from age 0 to age group 15–19 and decreased thereafter. The age group that was mostly affected by non-natural causes was 15–19, whereby 43,1% of the deaths were due to non-natural causes. Other ages with higher proportions of deaths due to non-natural causes were age groups 20–24 (32,6%), 10–14 (26,7%) and 5–9 (23,0%). Ages least affected by non-natural deaths were infancy (less than 0) and older ages (60 years and older) where less than 5% of the deaths in each age group were due to non-natural causes of death.

Figure 4.4: Percentage distribution of natural and non-natural causes of death by age, 2008*



*Excluding 968 deaths with unspecified age.

4.6 Underlying natural causes of death

This subsection presents information on the leading underlying natural causes of death. The ten leading causes are identified by ranking the causes by frequency among those eligible for ranking as described in Section 2. The top-ranking causes determine the leading natural underlying causes of death.

Overall pattern of the leading underlying natural causes of death

The ten leading underlying causes of death in South Africa in 2007 and 2008 are shown in Table 4.5. The distribution of deaths by all broad groups of causes of death ranked by frequency (including non-natural causes) for 2008 is shown in Appendix J while the breakdown of individual causes for the broad groups that were among the ten leading causes in 2008 is provided in Appendix K.

Table 4.5 shows that eight of the ten leading causes of death in 2007 and 2008 were the same, had the same rank and had a more or less similar percentage distribution. The exceptions were *chronic lower respiratory diseases* and *HIV disease* which exchanged positions between 2007 and 2008 (*chronic lower respiratory diseases* from seventh in 2007 to ninth in 2008 and *HIV disease* from ninth in 2007 to seventh in 2008).

Tuberculosis was the leading cause of death, accounting for around 13% of all deaths in both years (12,8% in 2007 and 12,6% in 2008). *Influenza and pneumonia* was the second leading underlying cause of death, followed by *intestinal infectious diseases*, *other forms of heart disease*, *cerebrovascular diseases* and *diabetes mellitus*. *Human immunodeficiency virus (HIV) disease* was the seventh leading cause of death in 2008, accounting for 2,5% of all deaths. *Certain disorders involving the immune mechanism* (99,4% classified to *other immunodeficiencies*) were the eighth leading cause of death in 2007 and 2008, accounting for 2,5% of deaths in each year.

Comparison of the number of deaths (absolute numbers) between 2007 (results not shown) and 2008 shows that there was a decrease in the number of deaths in six of the ten leading causes and an increase in four of the ten leading causes. Decreases in the number of deaths were observed for deaths due to *influenza and pneumonia* (8,7%), *chronic lower respiratory diseases* (7,4%), *certain disorders involving the immune mechanism* (4,3%), *cerebrovascular diseases* (4,1%), *diabetes mellitus* (3,2%) and *tuberculosis* (2,7%). The number of deaths increased for *HIV disease* (11,3%), *hypertensive diseases* (5,7%), *intestinal infectious diseases* (5,0%), and *other forms of heart disease* (0,3%).

The changes in the number of deaths between 2006 and 2007 and between 2007 and 2008 were not always consistent. For example, *HIV disease* decreased by 9,2% between 2006 and 2007 but increased by 11,3% between 2007 and 2008. The same was observed for *intestinal infectious diseases* whereby the number of deaths decreased between 2006 and 2007 but increased between 2007 and 2008. For other causes such as *tuberculosis*, there was a consistent decrease in the number of deaths between the two periods.

Table 4.5: The ten leading underlying natural causes of death, 2007* and 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	2007			2008		
	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)**	1	76 968	12,8	1	74 863	12,6
Influenza and pneumonia (J10-J18)	2	49 941	8,3	2	45 602	7,7
Intestinal infectious diseases (A00-A09)	3	37 491	6,2	3	39 351	6,6
Other forms of heart disease (I30-I52)	4	26 114	4,3	4	26 190	4,4
Cerebrovascular diseases (I60-I69)	5	25 406	4,2	5	24 363	4,1
Diabetes mellitus (E10-E14)	6	20 198	3,3	6	19 558	3,3
Chronic lower respiratory diseases (J40-J47)	7	15 364	2,5	9	14 226	2,4
Certain disorders involving the immune mechanism (D80-D89)	8	15 292	2,5	8	14 639	2,5
Human immunodeficiency virus [HIV] disease (B20-B24)	9	13 561	2,2	7	15 097	2,5
Hypertensive diseases (I10-I15)	10	13 415	2,2	10	14 177	2,4
Other natural causes		254 971	42,3		251 057	42,4
Non-natural cause		54 373	9,0		52 950	8,9
All causes		603 094	100,0		592 073	100,0

*Data for 2007 have been updated to include late registrations processed in 2009/10.

** Including deaths due to *MDR-TB* and *XDR-TB*.

Leading underlying natural causes of death by sex

The distribution of the ten leading underlying natural causes of death in 2008 by sex is shown in Table 4.6. Overall, eight of the ten leading causes were the same for both sexes, although with different ranks. On one hand, *chronic lower respiratory diseases* and *ischaemic heart diseases* were among the ten leading cause of death for males, but not for females. On the other hand, *hypertensive diseases* and *other viral diseases* (mainly *other viral diseases, not elsewhere classified*, including *retrovirus infections, not elsewhere classified*) were among the top ten underlying causes of death for females but not for males. *Other viral diseases* were coming up among the ten leading underlying causes of death for females for the first time since 1997, increasing by 19,5% between 2007 and 2008.

The five leading causes of death (*tuberculosis, influenza and pneumonia, intestinal infectious diseases, other forms of heart disease* and *cerebrovascular diseases*) were similar in rank for both sexes, representing over a third of all deaths for each sex. While the ranks may be the same, the contribution of each cause differs for each sex. For example, although *tuberculosis* was the leading underlying cause of death for males and for females, it accounted for 13,6% of male deaths and 11,7% of female deaths.

Human immunodeficiency virus (HIV) disease was the eighth leading cause of death for males (accounting for 2,4% of male deaths), but was the ninth leading cause of death among females (accounting for 2,7% of female deaths). *Certain disorders involving the immune mechanism* was the tenth and eighth leading cause of death for males (2,2%) and females (2,8%), respectively. *Other viral diseases* accounted for 2,2% of female deaths.

Differences in the number of deaths by sex between 2007 and 2008 indicate that there was an increase in the number of deaths due to *intestinal infectious diseases* (5,8% for males and 4,4% for females), *other forms of heart disease* (2,1% for males), *HIV disease* (19,6% for males and 4,8% for females) and *hypertensive diseases* (4,7% for females). The number of deaths decreased for the remaining ten leading underlying causes of death for males and females over the two years. Deaths due to *tuberculosis* decreased by 2,0% for males and by 3,5% for females and those due to *influenza and pneumonia* decreased by 8,0% and 9,3% for males and females, respectively.

Table 4.6: The ten leading underlying natural causes of death for males and females, 2008*

Causes of death (Based on the Tenth Revision, International Classification of Disease, 1992)	Males			Females		
	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)**	1	41 034	13,6	1	33 746	11,7
Influenza and pneumonia (J10-J18)	2	22 243	7,3	2	23 290	8,1
Intestinal infectious diseases (A00-A09)	3	18 187	6,0	3	21 095	7,3
Other forms of heart disease (I30-I52)	4	11 862	3,9	4	14 311	5,0
Cerebrovascular diseases (I60-I69)	5	10 170	3,4	5	14 187	4,9
Chronic lower respiratory diseases (J40-J47)	6	8 392	2,8	...	...	...
Diabetes mellitus (E10-E14)	7	7 738	2,6	6	11 814	4,1
Human immunodeficiency virus [HIV] disease (B20-B24)	8	7 210	2,4	9	7 873	2,7
Ischaemic heart diseases (I20-I25)	9	7 026	2,3	...	...	...
Certain disorders involving the immune mechanism (D80-D89)	10	6 599	2,2	8	8 029	2,8
Hypertensive diseases (I10-I15)	...	...	...	7	8 741	3,0
Other viral diseases (B25-B34)	...	...	...	10	6 475	2,2
Other natural causes		121 788	40,2		126 644	43,9
Non-natural		40 495	13,4		12 336	4,3
All causes		302 744	100,0		288 541	100,0

*Excluding 978 cases with unspecified sex

**Including deaths due to *MDR-TB* and *XDR-TB*

... Category not in top ten

Leading underlying natural causes of death by age

The ten leading causes of death classified by broad age groups 0–14, 15–49, 50–64 and 65 years and older for 2008 are given in Table 4.7. Three underlying natural causes of death (*intestinal infectious diseases, influenza and pneumonia* and *tuberculosis*) were common for all these age groups. However, the ranks of these causes and their individual contribution to the total number of deaths differed widely by age. For example, *intestinal infectious diseases* were the leading underlying natural causes of death for those aged 0–14 (contributing 21,8% of all deaths in this age group) but was the third leading cause of death for those aged 15–49 (contributing 6,1%), seventh for those aged 50–64 (contributing 3,8%) and tenth for those aged 65 years and older (contributing 2,5%).

The second leading underlying cause of death for those aged 0–14 years was *influenza and pneumonia*. Together, *intestinal infectious diseases* and *influenza and pneumonia* contributed over a third (34,2%) of all causes in this age group. *Respiratory and cardiovascular disorders specific to the perinatal period* was the third leading cause of death, contributing 8,7%. Amongst those aged 15–49 *tuberculosis* was the leading cause of death, contributing 20,3% of deaths. The second leading cause of death in this age group was *influenza and pneumonia* (8,6%), followed by *intestinal infectious diseases* (6,1%) and *HIV disease* (4,5%). *HIV disease* appeared among the ten leading causes of death in this age group only.

The ten leading causes of death for those aged 50–64 and 65 years were the same, with differences in rank and the contribution of each cause to the overall number of deaths in each age group. While *tuberculosis* was the leading cause of death among those aged 50–64, it was the eighth leading cause of death among those age 65 years and older. Four *diseases of the circulatory system (other forms of heart disease, cerebrovascular diseases, ischaemic heart diseases and hypertensive diseases)* were among the ten leading causes of death for those aged 50–64 and 65 years and older, contributing a total of 17,9% and 29,9% of deaths in each age group, respectively.

Leading underlying natural causes of death for infants and children

Table 4.8 shows the differences in the ten leading causes of death for neonatal deaths (less than 29 days), post-neonatal deaths (29 days to 11 months), all infant deaths (aged less than one year), and deaths among those aged 1–4 years. Infant deaths are composed of both neonatal and post-neonatal deaths.

The leading cause of death for neonatal deaths in 2008 was *respiratory and cardiovascular disorders specific to the perinatal period*, accounting for 45,3% of all neonatal deaths. This was followed by *disorders related to length of gestation and foetal growth* (11,9%), *other disorders originating in the perinatal period* (10,5%) and *infections specific to the perinatal period* (10,2%). All these causes contributed nearly 80% (77,9%) of deaths in this period. For the post-neonatal period, the first two leading causes of death accounted for half of all causes (*intestinal infectious diseases* contributed 30,6% and *influenza and pneumonia* contributed 19,4%). *Certain disorders involving the immune mechanism* ranked sixth, *tuberculosis* seventh and *HIV disease* ninth.

For overall infant deaths, the leading cause of death was *intestinal infectious diseases* (22,4%), followed by *influenza and pneumonia* (13,7%) and then *respiratory and cardiovascular disorders specific to the perinatal period* (13,3%). These three causes accounted for close to half (49,5%) of all infant deaths. The three leading causes of death for those aged 1–4 years were *intestinal infectious diseases* (27,3%), *influenza and pneumonia* (11,5%) and *malnutrition* (7,6%). *Certain disorders involving the immune mechanism* were the fifth leading cause of death while *HIV disease* was the sixth.

Five underlying natural causes of death that were common for infants and children were: *intestinal infectious diseases, influenza and pneumonia, malnutrition, other acute lower respiratory infections* and *certain disorders involving the immune mechanism*. Over 20% of deaths occurring to infants (22,4%) and children aged 1–4 years (27,3%) were due to *intestinal infectious diseases*, the leading cause of death for these two age groups. *Malnutrition* was the third leading cause of death for those aged 1–4 years and the seventh leading cause for those aged less than one year.

Table 4.7: The ten leading underlying natural causes of death for broad age groups, 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	0-14		15-49		50-64		65+			
	Rank	Number	%	Rank	Number	%	Rank	Number	%	
Intestinal infectious diseases (A00-A09)	1	15 187	21,8	3	16 432	6,1	7	4 039	3,8	
Influenza and pneumonia (J10-J18)	2	8 647	12,4	2	23 183	8,6	3	6 405	6,0	
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	3	6 070	8,7	...	...	...	...	...	...
Tuberculosis (A15-A19)	4	2 375	3,4	1	54 759	20,3	1	12 617	11,9	
Malnutrition (E40-E46)	5	2 279	3,3	...	...	...	...	...	...
Disorders related to length of gestation and fetal growth (P05-P08)	6	1 707	2,4	...	...	...	...	...	...
Other disorders originating in the perinatal period (P90-P96)	7	1 390	2,0	...	...	...	...	...	...
Infections specific to the perinatal period (P35-P39)	8	1 364	2,0	...	...	...	...	...	...
Certain disorders involving the immune mechanism (D80-D89)	9	1 310	1,9	5	11 229	4,2	...	...	...
Other acute lower respiratory infections (J20-J22)	10	1 223	1,8	9	4 004	1,5	...	...	...
Human immunodeficiency virus [HIV] disease (B20-B24)	...	...	...	4	12 127	4,5	...	...	...
Other viral diseases (B25-B34)	...	...	...	6	9 091	3,4	...	...	...
Inflammatory diseases of the central nervous system (G00-G09)	...	...	...	7	6 265	2,3	...	...	...
Other forms of heart disease (I30-I52)	...	...	...	8	6 135	2,3	5	5 747	5,4
Cerebrovascular diseases (I60-I69)	...	...	...	10	3 703	1,4	4	5 963	5,6
Diabetes mellitus (E10-E14)	...	...	...	...	...	...	2	6 413	6,0
Chronic lower respiratory diseases (J40-J47)	...	...	...	...	...	...	6	4 277	4,0
Ischaemic heart diseases (I20-I25)	...	...	...	...	...	...	9	3 444	3,2
Hypertensive diseases (I10-I15)	...	...	...	...	...	...	8	3 804	3,6
Malignant neoplasm of digestive organs (C15-C26)	...	...	...	...	...	...	10	3 174	3,0
Other natural causes	...	23 257	33,3	...	84 949	31,5	...	44 154	41,6	
Non-natural	...	4 935	7,1	...	37 565	13,9	...	6 009	5,7	
All causes	...	69 744	100,0	...	269 442	100,0	...	106 046	100,0	145 873

*Including deaths due to MDR-TB and XDR-TB

... Category not in top ten

Table 4.8: The ten leading underlying natural causes of death for infants and children, 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Neonatal		Post-neonatal		Less than 1 year		1-4 years		
	Rank	Number	%	Rank	Number	%	Rank	Number	%
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1	5 979	45,3	...	...	13,3	...	...	...
Disorders related to length of gestation and fetal growth (P05-P08)	2	1 572	11,9	...	...	3,7	...	...	...
Other disorders originating in the perinatal period (P90-P96)	3	1 380	10,5	...	...	3,0	...	...	...
Infections specific to the perinatal period (P35-P39)	4	1 350	10,2	...	...	3,0	...	...	...
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	5	548	4,2	...	...	...	...	...	...
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	6	368	2,8	...	...	...	...	...	...
Intestinal infectious diseases (A00-A09)	7	317	2,4	1	9 834	30,6	1	10 151	22,4
Digestive system disorders of fetus and newborn (P75-P78)	8	266	2,0	...	...	...	...	...	...
Other congenital malformations (Q80-Q89)	9	208	1,6	...	...	...	...	...	...
Transitory endocrine and metabolic disorders specific to fetus and newborn (P70-P74)	10	176	1,3	...	...	...	...	...	...
Influenza and pneumonia (J10-J18)	...	...	...	2	6 221	19,4	2	6 222	13,7
Malnutrition (E40-E46)	...	...	...	3	1 051	3,3	7	1 056	2,3
Other acute lower respiratory infections (J20-J22)	...	...	...	4	867	2,7	8	892	2,0
Protozoal diseases (B50-B64)	...	...	...	5	783	2,4	9	790	1,7
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	6	702	2,2	10	725	1,6
Tuberculosis (A15-A19)	...	...	...	7	697	2,2	...	...	...
Other bacterial diseases (A30-A49)	...	...	...	8	641	2,0	...	...	...
Human immunodeficiency virus [HIV] disease (B20-B24)	...	...	...	9	500	1,6	...	...	...
Other viral diseases (B25-B34)	...	...	...	10	470	1,5	...	...	...
Inflammatory diseases of the central nervous system (G00-G09)	...	...	...	...	...	...	...	...	...
Other natural causes		912	6,9		9 376	29,2		13 909	30,7
Non-natural		117	0,9		981	3,1		1 098	2,4
All causes		13 193	100,0		32 123	100,0		45 316	100,0
								15 332	100,0

*Including deaths due to MDR-TB and XDR-TB

... Category not in top ten

Leading underlying natural causes of death for the population aged 15–24

The World Health Organization suggested in the ICD-10 recommendations that the 15–24 age group must also be included in the analysis for international comparison (WHO, 1992). This analysis is provided in Table 4.9. *Tuberculosis* was the leading cause of death for those aged 15–24, accounting for 14,4% of deaths in this age group, followed by *influenza and pneumonia* (5,8%) and *intestinal infectious diseases* (4,4%). *HIV disease, certain disorders involving the immune mechanism* and *other viral diseases* were the fourth, fifth and sixth leading causes of death, respectively, each accounting for almost 3% of deaths in this age group.

Table 4.9: The ten leading underlying natural causes of death for population aged 15–24 years, 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	15-24 years		
	Rank	Number	%
Tuberculosis (A15-A19)*	1	4 677	14,4
Influenza and pneumonia (J10-J18)	2	1 888	5,8
Intestinal infectious diseases (A00-A09)	3	1 411	4,4
Human immunodeficiency virus [HIV] disease (B20-B24)	4	979	3,0
Certain disorders involving the immune mechanism (D80-D89)	5	911	2,8
Other viral diseases (B25-B34)	6	800	2,5
Inflammatory diseases of the central nervous system (G00-G09)	7	758	2,3
Other forms of heart disease (I30-I52)	8	567	1,7
Other acute lower respiratory infections (J20-J22)	9	369	1,1
Episodic and paroxysmal disorders (G40-G47)	10	349	1,1
Other natural causes		8 197	25,3
Non-natural		11 500	35,5
All causes		32 406	100,0

*Including deaths due to *MDR-TB* and *XDR-TB*

Leading underlying natural causes of death by province

Table 4.10 shows the provincial differences in the ranking of the ten leading underlying causes of death for 2008. Detailed information on the distribution of the ten leading underlying causes by province, age and sex is provided in Appendices L to L.9.

Tuberculosis was the leading cause of death in all provinces except Free State and Limpopo where it ranked second and third, respectively. In these two provinces, *influenza and pneumonia* was the leading cause of death. Although *tuberculosis* ranked first in seven provinces, its contribution differed by province. The highest proportion of deaths due to *tuberculosis* was observed in KwaZulu-Natal (16,9%) followed by Eastern Cape (14,4%) and Mpumalanga (13,9%). The lowest proportion of deaths due to *tuberculosis* was observed in Limpopo (9,1%).

The causes of death that were common for all the nine provinces were *tuberculosis, diabetes mellitus, cerebrovascular diseases, other forms of heart disease* and *hypertensive diseases*. However, the ranks of these causes differed between provinces. For example, while *diabetes mellitus* was the third leading cause of death in Western Cape, it was the ninth leading cause in Northern Cape.

HIV disease was among the ten leading causes of death in all provinces except Eastern Cape and Limpopo. It was the fifth leading cause of death in Western Cape, accounting for 4,3% of all deaths in this province and sixth in KwaZulu-Natal, accounting for 3,6% of all deaths in the province. *Certain disorders involving the immune mechanism* were among the ten leading causes in all provinces except Western Cape and KwaZulu-Natal while *other viral diseases* were among the ten leading causes only in Eastern Cape and KwaZulu-Natal.

Malignant neoplasms of digestive organs and *malignant neoplasms of respiratory and intrathoracic organs* were among the ten leading causes of death only in Western Cape while *inflammatory diseases of the central nervous system* were among the ten leading causes only in Limpopo.

Table 4.10: The ten leading underlying natural causes of death in each province, 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Western Cape			Eastern Cape			Northern Cape			Free State			KwaZulu-Natal			North West			Gauteng			Mpumalanga			Limpopo			
	**	No.	%	**	No.	%	**	No.	%	**	No.	%	**	No.	%	**	No.	%	**	No.	%	**	No.	%	**	No.	%	
Tuberculosis (A15-A19)	1	4 516	9,7	1	11 501	13,8	1	1 768	11,6	2	5 772	11,8	1	22 779	16,9	1	5 615	12,4	1	11 367	9,8	1	6 626	13,9	3	4 854	9,1	
Ischaemic heart diseases (I20-I25)	2	2 770	5,9	...	...	...	...	...	...	...	...	...	10	2 542	1,9	...	...	...	7	2 804	2,4	...	...	...	...	...	...
Diabetes mellitus (E10-E14)	3	2 711	5,8	7	2 616	3,1	9	405	2,7	7	1 313	2,7	7	4 843	3,6	8	1 101	2,4	6	3 595	3,1	7	1 339	2,8	6	1 619	3,0	
Cerebrovascular diseases (I60-I69)	4	2 383	5,1	6	3 167	3,8	5	628	4,1	6	1 763	3,6	4	6 237	4,6	5	1 729	3,8	5	4 057	3,5	4	2 180	4,6	5	2 193	4,1	
Human immunodeficiency virus [HIV] disease (B20-B24)	5	2 013	4,3	...	...	...	7	431	2,8	10	917	1,9	6	4 857	3,6	10	922	2,0	8	2 752	2,4	9	1 010	2,1	...	...	...
Chronic lower respiratory diseases (J40-J47)	6	1 958	4,2	4	3 437	4,1	6	527	3,5	9	932	1,9	...	...	...	9	935	2,1	...	...	...	10	987	2,1	9	983	1,8
Malignant neoplasm of digestive organs (C15-C26)	7	1 776	3,8
Other forms of heart disease (I30-I52)	8	1 708	3,7	5	3 319	4,0	4	657	4,3	4	2 305	4,7	5	5 216	3,9	4	2 434	5,4	4	5 875	5,1	5	2 072	4,3	4	2 574	4,8	
Malignant neoplasm of respiratory and intrathoracic organs (C30-C39)	9	1 538	3,3
Hypertensive diseases (I10-I15)	10	1 371	2,9	9	1 995	2,4	8	409	2,7	8	1 283	2,6	9	2 569	1,9	6	1 395	3,1	9	2 646	2,3	8	1 325	2,8	8	1 196	2,2	
Influenza and pneumonia (J10-J18)	...	...	...	2	3 977	4,8	2	993	6,5	1	6 379	13,0	3	7 665	5,7	2	4 302	9,5	2	10 137	8,7	2	4 934	10,4	1	5 989	11,2
Intestinal infectious diseases (A00-A09)	...	...	...	3	3 831	4,6	3	747	4,9	3	4 622	9,4	2	9 812	7,3	3	3 426	7,5	3	6 222	5,4	3	4 616	9,7	2	5 274	9,9
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	8	2 283	2,7	10	402	2,6	5	2 049	4,2	...	...	...	7	1 377	3,0	10	2 616	2,3	6	1 761	3,7	7	1 399	2,6
Other viral diseases (B25-B34)	10	1 825	2,2	8	3 944	2,9
Inflammatory diseases of the central nervous system (G00-G09)
Other natural causes		17 901	38,3		37 623	45,2		7 011	45,9		18 552	37,8		52 790	39,1		18 538	40,8		52 196	45,0		16 920	35,5		22 665	42,5	
Non-natural causes		6 073	13,0		7 565	9,1		1 265	8,4		3 244	6,6		11 653	8,6		3 616	8,0		11 642	10,0		3 881	8,1		3 894	7,3	
All causes		46 728	100,0		83 159	100,0		15 263	100,0		49 111	100,0		134 907	100,0		46 390	100,0		115 909	100,0		47 651	100,0		53 319	100,0	

*Including deaths due to MDR-TB and XDR-TB

... Category not in top ten

Due to a large proportion of unknown or unspecified cases, the ten leading underlying natural causes of death by population group are not discussed in this section. The discussion and distribution of underlying causes of death by population group are provided in Appendix M and M.1, respectively.

Underlying causes of death by district municipalities

The underlying causes of death by district municipalities are provided in Appendix N to N.2 and Appendices O to O.8. Appendices N to N.2 provide the number of deaths by main groups of death for each district municipality while Appendix O to O.8 shows the ten leading underlying natural causes of death by district municipality. Information by local municipality is available on request from Stats SA.

Appendices N to N.2 show that with the exception of Western Cape, *certain infectious and parasitic diseases* were the most common main group of causes of death in all provinces. This main group was also the most common cause of death for most district municipalities. The most common main group of cause of death in Alfred Nzo (Eastern Cape) and Kgalagadi (Northern Cape) were *diseases of the respiratory system*, while *diseases of the circulatory system* were the most common main group of causes of death in Namakwa (Northern Cape).

In Western Cape, the most common main group of cause of death were *diseases of the circulatory system*, which were also more common for most district municipalities in the province. Exceptions in this regard were Cape Winelands and City of Cape Town, where the most common main group of cause of death were *certain infectious and parasitic diseases*.

Information on the ten leading natural causes of death by district municipality (Appendix O to O.8) shows that *tuberculosis* was the leading cause of death in the majority of district municipalities in seven provinces: all in Western Cape, North West and Mpumalanga; all in Eastern Cape except Alfred Nzo; all in Northern Cape except Kgalagadi; all in KwaZulu-Natal except Umkhanyakude; and all in Gauteng except Sedibeng. The exceptions were the district municipalities in Free State and Limpopo, where most people died due to *influenza and pneumonia*. This cause was leading in all district municipalities in Free State except Motheo and all district municipalities in Limpopo except Vhembe. In these districts, the leading cause of death was *tuberculosis*.

Other than *tuberculosis* and *influenza and pneumonia*, other diseases that appeared as leading underlying causes in other district municipalities were: *other diseases of the respiratory system* (Alfred Nzo in Eastern Cape); *human immunodeficiency virus (HIV) disease* (Umkhanyakude in KwaZulu-Natal) and *intestinal infectious diseases* (Mopani in Limpopo).

HIV disease was among the ten leading underlying causes of death in at least one district municipality in all provinces except Limpopo. It was among the ten leading causes of death in five out of six district municipalities in Western Cape and in three out of four district municipalities in North West. The highest contribution of deaths due to *HIV disease* (over 5%) was observed in Umkhanyakude in KwaZulu-Natal (17,4%), Uthungulu in KwaZulu-Natal (6,0%), Cacadu in Eastern Cape (5,5%) and City of Cape Town in Western Cape (5,1%).

4.7 Non-natural causes of death

This subsection discusses non-natural causes of death. When completing death notification forms, medical practitioners are expected to specify whether the deceased died from natural or non-natural causes. In addition, information on specific causes of death provided on the form, and the resulting ICD-10 code, can be used to determine whether the death was due to natural or non-natural causes. This release uses the specified cause of death and the corresponding ICD-10 code to classify a death as natural or non-natural. All external causes of morbidity and mortality (codes V01 up to Y98) are treated as non-natural causes of death.

All broad groups of non-natural causes are reported in this sub-section, not just the ten leading underlying causes of death as provided for natural causes. In addition, the percentages calculated for each cause are based on all non-natural causes of death, not all causes (natural and non-natural) as was the case in the analysis of natural causes of death. Readers are reminded that coding methodology of non-natural causes changed during the current processing phase (see section 2 of this release). Unique South African codes as used in the previous releases have been incorporated into the standard ICD-10 codes. Furthermore, there were also some changes in the previous processing phase which mainly affected *event of undetermined intent* and *other external causes of accidental injury* (Statistics South Africa, 2009). More improvements on the part of ICD-10 coders at Stats SA was observed in the current processing phase, further decreasing deaths due to *event of undetermined intent* and increasing deaths due to *other external causes of accidental injury*.

Table 4.11 shows the broad groups of non-natural causes and the associated number of deaths. It is observed that the majority of non-natural causes of death resulted from *other external causes of accidental injury* (64,2% of non-natural causes and 5,7% of all causes). *Event of undetermined intent*, the second most common non-natural cause of death, accounted for 12,2% of non-natural causes. The third most common cause of non-natural deaths was *transport accidents* (10,9%), followed by *assault* (10,3%) and *complications of medical and surgical care* (1,4%). Less than 1% of non-natural deaths were due to *intentional self-harm* (0,8%) and *sequelae of external causes of morbidity and mortality* (0,1%).

Table 4.11: Distribution of non-natural causes of death by broad groups, 2008

Causes of death (Based on the Tenth Revision, International Classification of Disease, 1992)	Number	% of non-natural causes	% of all causes (N=592 073)
Other external causes of accidental injury (W00-X59)	33 983	64,2	5,7
Event of undetermined intent (Y10-Y34)	6 479	12,2	1,1
Transport accidents (V01-V99)	5 785	10,9	1,0
Assault (X85-Y09)	5 467	10,3	0,9
Complications of medical and surgical care (Y40-Y84)	734	1,4	0,1
Intentional self-harm (X60-X84)	442	0,8	0,1
Sequelae of external causes of morbidity and mortality (Y85-Y89)	60	0,1	0,0
Total	52 950	100,0	8,9

Table 4.12 provides a further breakdown of deaths due to *other external causes of accidental injury* for a better understanding of deaths due to this cause, which comprised nearly two-thirds of all non-natural deaths. Over half of these deaths were due to *accidental exposure to other and unspecified factors*, mainly *exposure to unspecified factor* (including accident not elsewhere classified and exposure not elsewhere classified). The next common cause was *exposure to inanimate mechanical forces* (98,1% of these due to *discharge from other and unspecified firearms*), followed by *other accidental threats to breathing* (78,0% of these due to *other accidental hanging and strangulation*) and *exposure to smoke, fire and flames*.

Table 4.12: Distribution of deaths due to other external causes of accidental injury, 2008

Causes of death (Based on the Tenth Revision, International Classification of Disease, 1992)	Number	%
Accidental exposure to other and unspecified factors (X58-X59)	18 429	54,2
Exposure to inanimate mechanical forces (W20-W49)	5 647	16,6
Other accidental threats to breathing (W75-W84)	4 446	13,1
Exposure to smoke, fire and flames (X00-X09)	2 362	7,0
Accidental drowning and submersion (W65-W74)	1 479	4,4
Accidental poisoning by and exposure to noxious substances (X40-X49)	814	2,4
Exposure to forces of nature (X30-X39)	358	1,1
Exposure to electric current, radiation and extreme ambient air temperature and pressure (W85-W99)	191	0,6
Falls (W00-W19)	150	0,4
Contact with venomous animals and plants (X20-X29)	44	0,1
Exposure to animate mechanical forces (W50-W64)	32	0,1
Overexertion, travel and privation (X50-X57)	18	0,1
Contact with heat and hot substances (X10-X19)	13	0,0
Total	33 983	100,0

Non-natural causes of death by age and sex

This subsection focuses on the distribution of non-natural causes of death by sex and broad age groups (0–14, 15–49, 50–64 and 65 and older) for deaths that occurred in 2008 (see Table 4.13). The percentages for both sexes may not be similar to the ones presented in Table 4.11 as the deaths that did not have information on age are excluded.

The age group mostly affected by non-natural causes of death was age group 15–49 where 13,9% of all deaths were due to non-natural causes. The age group least affected by non-natural causes was 65 years and older where less than 3% of deaths in this age group were due to non-natural causes. Excluding deaths due to *other external causes of accidental injury and event of undetermined intent*, it is observed that with the exception of those aged 15–49 years, *transport accidents* were the most common causes of death in all age groups. *Assault* was more common among those aged 15–49. The same observation was made for males. In the case of females, *transport accidents* were more common for all age groups.

Males had a higher proportion of deaths due to non-natural causes (13,3%) as compared to females (4,3%). The group with the highest percentage of deaths due to non-natural causes was males aged 15–49 where 22,0% of deaths in this group were due to non-natural causes. Conversely, the group with the lowest percentage was females aged 65 years and older where 2,3% of deaths in this group were due to non-natural causes. At each age group, males had a higher proportion of deaths due to non-natural causes. In terms of absolute numbers, the number of male deaths was more than three times the number of female deaths (40 278 versus 12 288). The differences were particularly wide in age group 15–49 where male deaths exceeded female deaths 4,5 times.

For specific causes, the main difference between males and females was the percentage of deaths due to *assault* and *complications of medical and surgical care*. On one hand, as much as 11,8% of male non-natural deaths were due to *assault*, while 5,6% of female deaths were due to the same cause. On the other hand, 3,1% of female non-natural deaths were due to *complications of medical and surgical care* while 0,9% of male deaths were due to the same cause. For each of the sexes, *intentional self-harm* and *sequelae of external causes of morbidity and mortality* were uncommon, each comprising less than 1% of deaths for each sex.

Table 4.13: Underlying non-natural causes of death by age group and sex, 2008

Causes of death (based on the Tenth Revision, International Classification of Disease, 1992)	Number					Percentage				Total
	0-14	15-49	50-64	65+	Total	0-14	15-49	50-64	65+	
Both sexes*										
Other external causes of accidental injury (W00-X59)	3 742	23 095	3 925	3 007	33 769	75,8	61,5	65,3	72,8	64,2
Event of undetermined intent (Y10-Y34)	420	4 922	730	368	6 440	8,5	13,1	12,1	8,9	12,2
Transport accidents (V01-V99)	625	4 052	742	327	5 746	12,7	10,8	12,3	7,9	10,9
Assault (X85-Y09)	81	4 849	379	140	5 449	1,6	12,9	6,3	3,4	10,4
Complications of medical and surgical care (Y40-Y84)	59	268	158	248	733	1,2	0,7	2,6	6,0	1,4
Intentional self-harm (X60-X84)	7	354	58	22	441	0,1	0,9	1,0	0,5	0,8
Sequelae of external causes of morbidity and mortality (Y85-Y89)	1	25	17	17	60	0,0	0,1	0,3	0,4	0,1
Subtotal	4 935	37 565	6 009	4 129	52 638	100,0	100,0	100,0	100,0	100,0
Non-natural causes	4 935	37 565	6 009	4 129	52 638	7,1	13,9	5,7	2,8	8,9
Natural causes	64 809	231 877	100 037	141 744	538 467	92,9	86,1	94,3	97,2	91,1
All causes	69 744	269 442	106 046	145 873	591 105	100,0	100,0	100,0	100,0	100,0
Males**										
Other external causes of accidental injury (W00-X59)	2 170	18 850	2 950	1 578	25 548	76,1	61,3	65,5	72,1	63,4
Event of undetermined intent (Y10-Y34)	234	3 999	554	216	5 003	8,2	13,0	12,3	9,9	12,4
Transport accidents (V01-V99)	360	3 144	546	188	4 238	12,6	10,2	12,1	8,6	10,5
Assault (X85-Y09)	48	4 319	307	69	4 743	1,7	14,1	6,8	3,2	11,8
Complications of medical and surgical care (Y40-Y84)	36	115	91	114	356	1,3	0,4	2,0	5,2	0,9
Intentional self-harm (X60-X84)	3	281	47	15	346	0,1	0,9	1,0	0,7	0,9
Sequelae of external causes of morbidity and mortality (Y85-Y89)	1	21	12	10	44	0,0	0,1	0,3	0,5	0,1
Subtotal	2 852	30 729	4 507	2 190	40 278	100,0	100,0	100,0	100,0	100,0
Non-natural causes	2 852	30 729	4 507	2 190	40 278	7,7	22,0	7,3	3,5	13,3
Natural causes	34 058	109 245	57 266	61 284	261 853	92,3	78,0	92,7	96,5	86,7
All causes	36 910	139 974	61 773	63 474	302 131	100,0	100,0	100,0	100,0	100,0
Females***										
Other external causes of accidental injury (W00-X59)	1 563	4 223	971	1 424	8 181	75,5	62,2	64,9	73,8	66,6
Event of undetermined intent (Y10-Y34)	186	912	176	151	1 425	9,0	13,4	11,8	7,8	11,6
Transport accidents (V01-V99)	263	906	196	137	1 502	12,7	13,3	13,1	7,1	12,2
Assault (X85-Y09)	33	519	71	70	693	1,6	7,6	4,7	3,6	5,6
Complications of medical and surgical care (Y40-Y84)	22	153	67	134	376	1,1	2,3	4,5	6,9	3,1
Intentional self-harm (X60-X84)	4	73	11	7	95	0,2	1,1	0,7	0,4	0,8
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	4	5	7	16	0,0	0,1	0,3	0,4	0,1
Subtotal	2 071	6 790	1 497	1 930	12 288	100,0	100,0	100,0	100,0	100,0
Non-natural causes	2 071	6 790	1 497	1 930	12 288	6,4	5,3	3,4	2,3	4,3
Natural causes	30 452	122 426	42 721	80 425	276 024	93,6	94,7	96,6	97,7	95,7
All causes	32 523	129 216	44 218	82 355	288 312	100,0	100,0	100,0	100,0	100,0

* Excluding 968 cases with unspecified age, ** Excluding 613 cases with unspecified age; *** Excluding 229 cases with unspecified age.

Non-natural causes of death by province

The distribution of the underlying non-natural causes of death by province for 2008 is shown in Table 4.14. It is observed that Western Cape had the highest proportion of deaths due to non-natural causes (13,0%), followed by Gauteng (10,0%); Eastern Cape (9,1%), KwaZulu-Natal (8,6%) and Northern Cape (8,4%). The lowest percentages of deaths due to non-natural causes were observed in Free State (6,6%) and Limpopo (7,3%).

The most common causes of non-natural deaths in all provinces were *other external causes of accidental injury*. The second leading cause was *assault* in Western Cape and Eastern Cape where over 15% of deaths in these provinces were due to this cause. *Event of undetermined intent* was the second leading cause of death in KwaZulu-Natal, North West and Gauteng while *transport accidents* were the second leading cause of death in Mpumalanga, Limpopo, Northern Cape and Free State. *Complications of medical and surgical care*, *intentional self-harm* and *sequelae of external causes of morbidity and mortality* were least common, each affecting about 3% or less of non-natural deaths in each province except for Northern Cape where 3,2% of non-natural deaths were due to *intentional self-harm*.

The highest proportion of deaths due to *transport accidents* was observed in Limpopo where about a third (32,1% of non-natural cases were due to this cause. Northern Cape had the second highest proportion (20,0%) followed by Free State (15,2%) and Mpumalanga (13,4%). Gauteng and Western Cape had the lowest percentages of deaths due to transport accidents (5,2% and 7,8%, respectively). The proportion of deaths due to *assault* were highest in Northern Cape (17,7%), followed by Eastern Cape (16,6%) and Western Cape (16,0%).

Table 4.14: Underlying non-natural causes of death by province, 2008

Causes of death (based on the Tenth Revision, International Classification of Disease, 1992)	Western Cape		Eastern Cape		Northern Cape		Free State		KwaZulu-Natal		North West		Gauteng		Mpumalanga		Limpopo	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Other external causes of accidental injury (W00-X59)	3 951	65,1	4 232	55,8	682	53,1	1 955	60,3	7 776	66,7	1 991	55,1	8 493	73,0	2 922	75,3	1 936	49,7
Event of undetermined intent (Y10-Y34)	497	8,2	1 092	14,4	60	4,7	210	6,5	1 652	14,2	771	21,3	1 625	14,0	123	3,2	444	11,4
Transport accidents (V01-V99)	472	7,8	850	11,2	257	20,0	494	15,2	936	8,0	382	10,6	606	5,2	521	13,4	1 249	32,1
Assault (X85-Y09)	974	16,0	1 258	16,6	228	17,7	483	14,9	1 002	8,6	418	11,6	713	6,1	198	5,1	190	4,9
Complications of medical and surgical care (Y40-Y84)	104	1,7	91	1,2	16	1,2	77	2,4	153	1,3	43	1,2	172	1,5	47	1,2	27	0,7
Intentional self-harm (X60-X84)	63	1,0	50	0,7	41	3,2	24	0,7	126	1,1	7	0,2	18	0,2	65	1,7	46	1,2
Sequelae of external causes of morbidity and mortality (Y85-Y89)	12	0,2	12	0,2	1	0,1	1	0,0	8	0,1	4	0,1	15	0,1	5	0,1	2	0,1
Subtotal	6 073	100,0	7 585	100,0	1 285	100,0	3 244	100,0	11 653	100,0	3 616	100,0	11 642	100,0	3 881	100,0	3 894	100,0
Non-natural causes	6 073	13,0	7 585	9,1	1 285	8,4	3 244	6,6	11 653	8,6	3 616	8,0	11 642	10,0	3 881	8,1	3 894	7,3
Natural causes	40 655	87,0	75 574	90,9	13 978	91,6	45 867	93,4	123 254	91,4	41 774	92,0	104 267	90,0	43 770	91,9	49 425	92,7
All causes	46 728	100,0	83 159	100,0	15 263	100,0	49 111	100,0	134 907	100,0	45 390	100,0	115 909	100,0	47 651	100,0	53 319	100,0

4.8 Comparison between immediate, contributing and underlying causes of death

This section provides information on the total number of causes of death reported on each form. As noted in Table 4.1, the death notification form makes provision for several causes to be reported on the form. However, the majority of forms for 2008 deaths (59,6%) had just one cause of death indicated. A considerable number recorded at least two causes of death (40,3%). A cause recorded on the form can be indicated as immediate, contributing or underlying.

Table 4.15 shows the total number of times specific causes of death were recorded on the 2008 death notification forms as either underlying, immediate or contributing causes for the 25 most commonly reported causes of death. The list includes natural and non-natural causes, as well as deaths due to *symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified*.

Tuberculosis was the most frequently recorded cause of death in 2008, mentioned in a total of 87 923 death notification forms. That is, 14,9% of all death notification forms had *tuberculosis* recorded as either immediate, contributing or underlying cause of death. The second and third most commonly mentioned causes, each representing about 13% of deaths were *ill-defined and unknown causes of mortality* and *influenza and pneumonia*. Other external causes of *accidental injury* were the sixth most commonly mentioned causes (6,0%) and the only non-natural cause appearing among the 25 most commonly mentioned causes of death. *Certain disorders involving the immune mechanism* was the ninth most commonly mentioned cause of death, *other viral diseases* 11th and *HIV disease* 19th.

Table 4.15: Distribution of most commonly reported causes of death, 2008

Rank	Cause of Death	Number of deaths in which the cause was reported	% of all deaths
1	Tuberculosis (A15-A19)*	87 923	14,9
2	Ill-defined and unknown causes of mortality (R95-R99)	77 464	13,1
3	Influenza and pneumonia (J10-J18)	75 224	12,7
4	Other forms of heart diseases (I30-I52)	54 911	9,3
5	Intestinal infectious diseases (A00-A09)	44 343	7,5
6	Other external causes of accidental injury (W00-X59)	35 490	6,0
7	Cerebrovascular diseases (I60-I69)	34 612	5,8
8	Hypertensive diseases (I10-I15)	34 209	5,8
9	Certain disorders involving the immune mechanism (D80-D89)	28 888	4,9
10	Metabolic disorders (E70-E88)	24 279	4,1
11	Other viral diseases (B25-B34)	23 226	3,9
12	Diabetes mellitus (E10-E14)	21 724	3,7
13	Other bacterial diseases (A30-49)	20 951	3,5
14	Other diseases of the respiratory system (J95-J99)	20 047	3,4
15	Chronic lower respiratory diseases (J40-J47)	19 761	3,3
16	Renal failure (N17-N19)	18 837	3,2
17	Ischaemic heart diseases (I20-I25)	17 870	3,0
18	General symptoms and signs (R50-R69)	17 214	2,9
19	Human immunodeficiency virus [HIV] diseases (B20-B24)	15 296	2,6
20	Other acute lower respiratory infections (J20-J22)	14 438	2,4
21	Inflammatory diseases of the central nervous system (G00-G09)	14 176	2,4
22	Diseases of liver (K70-K77)	10 323	1,7
23	Malignant neoplasms of ill-defined, secondary and unspecified sites (C76-C80)	9 961	1,7
24	Aplastic and other anaemias (D60-D64)	9 915	1,7
25	Malignant neoplasms of digestive organs (C15-C26)	9 693	1,6

*Including deaths due to *MDR-TB* and *XDR-TB*.

All the natural underlying causes of death that appeared among the ten leading causes of death also appeared among the twenty-five most commonly mentioned causes. The ten leading underlying natural causes of death shown in Table 4.5 are presented in Table 4.16 to show the breakdown of the number of deaths by whether the death was selected as the underlying cause or whether it was reported as the immediate or contributing cause.

Within each category, the counts of underlying causes and immediate or contributing causes are not duplicated, so that they can be summed up to equal the total number of times a specific cause of death was recorded on a death notification form. For example, 74 863 deaths had *tuberculosis* as the underlying cause and another 13 160 deaths had it as an immediate or contributing cause. This gives a total of 87 923 death notification forms that had *tuberculosis* mentioned on them.

The table shows that in over 80% of deaths where *HIV disease* (93,0%), *diabetes mellitus* (90,0%), *intestinal infectious diseases* (88,7%) and *tuberculosis* (85,1%) were mentioned, they were selected as underlying causes. In less than half of the cases where *other forms of heart disease* and *hypertensive diseases* were mentioned, they were selected as the underlying causes (47,7% and 41,4%, respectively).

Table 4.16: Number and percentage of deaths selected as underlying or reported as immediate or contributing causes of death: 2008

Causes of death (based on the Tenth Revision, International Classification of Disease, 1992)	Underlying rank	Number of deaths			Percentage of any mention		
		Underlying	Immediate or contributing	Total recorded	Underlying	Immediate or contributing	Total recorded
Tuberculosis (A15-A19)*	1	74 863	13 060	87 923	85,1	14,9	100,0
Influenza and pneumonia (J10-J18)	2	45 602	29 622	75 224	60,6	39,4	100,0
Intestinal infectious diseases (A00-A09)	3	39 351	4 992	44 343	88,7	11,3	100,0
Other forms of heart disease (I30-I52)	4	26 190	28 721	54 911	47,7	52,3	100,0
Cerebrovascular diseases (I60-I69)	5	24 363	10 249	34 612	70,4	29,6	100,0
Diabetes mellitus (E10-E14)	6	19 558	2 166	21 724	90,0	10,0	100,0
Chronic lower respiratory diseases (J40-J47)	7	15 097	4 664	19 761	76,4	23,6	100,0
Certain disorders involving the immune mechanism (D80-D89)	8	14 639	14 249	28 888	50,7	49,3	100,0
Human immunodeficiency virus [HIV] disease (B20-B24)	9	14 226	1 070	15 296	93,0	7,0	100,0
Hypertensive diseases (I10-I15)	10	14 177	20 032	34 209	41,4	58,6	100,0

*Including deaths due to *MDR-TB* and *XDR-TB*.

5. Summary and concluding remarks

This statistical release has provided information on mortality and causes of death for deaths that occurred in 2008 as well as information on death occurrences from 1997 to 2007 to provide recent trends in mortality. The release was based on data on deaths collected through the civil registration system in South Africa, maintained by the Department of Home Affairs (DHA). The information on mortality and causes of death can be used to assess the well-being and health status of a population with the aim of preventing or reducing premature mortality and improving the quality of life.

A total of 592 073 deaths that occurred in 2008 were registered at DHA. The results show that mortality continues to decrease in the country as observed from 2007 in the data processed by Statistics South Africa (Stats SA) and in the number of deaths recorded in the national population register. The total number of deaths processed by Stats SA decreased by 1,6% between 2006 and 2007 and by 1,8% between 2007 and 2008.

The decrease was also observed for male and female deaths, with female deaths declining slightly more than male deaths. Crude death rates derived from adjusted numbers of death also show a modest decline over time for both males and females. Again, the median ages show an increasing trend for both males and females since 2005. Further, sex ratios of deaths at younger adult ages indicate that although female mortality increased in the early 2000s, it somewhat stabilised around 2005 and then commenced a modest decline.

The majority of deaths occurred among the black African population group and most deaths occurred in health facilities even though about 30% still occurred at home. The highest number of deaths was observed in KwaZulu-Natal followed by Gauteng and Eastern Cape, the provinces which also have the largest population sizes in the country.

Information on causes of death showed that the majority of deaths were due to natural causes, mainly from the main group of *certain infectious and parasitic diseases*, responsible for about a quarter (26,4%) of all deaths. The number of both natural and non-natural causes decreased between 2007 and 2008, with non-natural deaths decreasing at a higher rate than natural causes (2,6% for non-natural causes and 1,7% for natural causes).

Tuberculosis continued to be the leading cause of death in South Africa, accounting for over 10% of deaths in the country. This cause has been the leading cause of death in the country since 1997. *Influenza and pneumonia* was the second leading cause, followed by *intestinal infectious diseases*, *other forms of heart disease* and *cerebrovascular diseases*. *HIV disease* and *certain disorders involving the immune mechanism* were the seventh and eighth leading causes of death, respectively. While the number of deaths due to *certain disorders involving the immune mechanism* decreased between 2007 and 2008, the number of deaths due to *HIV disease* increased.

The analysis of causes of death, according to sex, shows that eight of the ten leading causes were similar for males and females. The difference between the leading causes of death for males and females was that *hypertensive diseases* and *other viral diseases* were among the ten leading causes of death for females only while *chronic lower respiratory diseases* and *ischaemic heart diseases* were among the ten leading causes only for the males. *HIV disease* was the eighth and the ninth leading cause of death for males and females, respectively. What is notable for females in 2008 was the appearance of *other viral diseases* as one of the ten leading causes of death.

Differences by provinces show that *tuberculosis* was the leading cause of death in all provinces, with the exception of Free State and Limpopo where *influenza and pneumonia* was the leading cause of death. *Tuberculosis* was also the leading cause of death in the majority of district municipalities. Other causes that appeared as leading in other district municipalities were *influenza and pneumonia*; *intestinal infectious diseases*; *other diseases of the respiratory system*; and *HIV disease*.

Respiratory and cardiovascular disorders specific to the perinatal period was the leading cause of death for infants in the neonatal period while *intestinal infectious diseases* were the leading causes of death for all infants (aged 0), among those aged 1–4 years and for the population aged 0–14. *Tuberculosis* was the leading cause of death in age groups 15–24, 15–49 and 50–64 and *cerebrovascular diseases* the leading cause in the 65 and older age group.

The majority of non-natural causes of death were due to *other external causes of accidental injury*, accounting for nearly two-thirds of all non-natural deaths. The highest percentage of deaths due to non-natural causes was observed among those aged 15–19; among males; as well as those who died in Western Cape. *Transport accidents* and *assault* each contributed to about 10% of non-natural deaths. Deaths due to *transport accidents* were particularly high in Limpopo, accounting for 32,1% of non-natural deaths while those due to *assault* were high in Northern Cape, affecting 17,7% of non-natural deaths.

In conclusion, there was a change in the trends in mortality and causes of death in the last two years. However, this short-term trend is not consistent across all variables and for different causes of death. There is a need to continue assessing trends in mortality and causes of death information, taking into consideration late registrations as well as differing patterns in the registration of deaths. In addition, there is a need for further research on the tempo of mortality in this country.

The production of mortality and causes of death information from civil registration depends on the quality of input data. It also emphasises the need for enhanced efforts to register deaths and attribute causes. As such, the areas of improvement in the information on mortality and causes of death include completeness of death registration; accurate and fully completed information on the death notification forms; and correct and detailed certification of causes of death. Some improvements have been observed over time. However, further concerted efforts between the public, the Department of Home Affairs, the Department of Health and Stats SA are needed for timely, accurate and relevant information on mortality and causes of death in the country.

To facilitate further analysis of data on mortality and causes of death, Stats SA provides a dataset on a compact disc and on the Stats SA website. The dataset includes variables presented in this statistical release, as well as several others that are not part of the release, with the expectation that further expert analyses of the data will assist to improve the quality of the data.

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Appendices

Appendix A: Definitions

Causes of death are all those diseases, morbid conditions, or injuries that either resulted in or contributed to death, and the circumstances of the accident or violence which produced any such injuries.

Contributing causes of death are morbid conditions, if any, giving rise to the immediate cause of death.

Death is a permanent disappearance of all evidence of life at any time after a *live birth* has taken place.

Human immunodeficiency virus (HIV) is the pathogenic organism responsible for the acquired immunodeficiency syndrome (AIDS), formally or also known as the lymphadenopathy virus (LAV).

Immediate cause of death is the disease or condition directly leading to death.

Leading underlying causes of death are the most frequent underlying causes of death in any given population. In this release, the underlying causes of death are ranked according to frequency.

Live birth is the complete expulsion or extraction from its mother's womb of a product of conception, irrespective of the duration of the pregnancy, which after such separation, breathes or shows any other evidence of life.

Multiple causes of death are all morbid conditions, diseases and injuries entered on the death certificate. These include those involved in the morbid train of events leading to the death which were classified as either the underlying cause, the intermediate cause, or any intervening cause and those conditions which contributed to death but were not related to the disease or condition causing death.

Neonatal death is the death of a live-born child during the first 28 completed days of life.

Post-neonatal death is a live-born infant dying after 28 completed days of birth but before the first year of life is completed.

Population group: According to the Population Registration Act Repeal Act (No. 114 of 1991), the South African Population Register no longer stores information regarding the population group of individuals whose details are on the register. This Repeal Act is still in place; therefore, the population group used in this report refers to the population group as identified by the certifying physician/professional nurse on the death notification form and is only used for statistical purposes.

Stillbirth is the intra-uterine death of a foetus of at least 26 weeks of gestation that showed no sign of life after complete birth.

Underlying cause of death (previously known as primary cause) is the disease or injury that initiated the sequence of events leading directly to death; or the circumstances of the accident or violence which produced the fatal injury.

Appendix B: Death notification form (BI-1663)



**REPUBLIC OF SOUTH AFRICA
DEPARTMENT OF HOME AFFAIRS
NOTIFICATION / REGISTER OF DEATH / STILL BIRTH**

BI - 1663

in terms of the Births and Deaths Registration Act, 1992 (Act No. 51 of 1992)

Space for Bar Code

* Must be completed in black ink (please tick where applicable)

SERIAL No:

A 0 1857265

* Please refer to instructions

FILE No:

DATE:

A PARTICULARS OF DECEASED INDIVIDUAL <input type="checkbox"/> / STILLBORN CHILD <input type="checkbox"/>		Date of birth Y Y Y Y M M D D Age at last birthday _____ years Sex _____ If death occurred within 24 hours after birth No. of hours alive _____
Identity number of deceased _____ Surname _____ Maiden Name (If female) _____ Forenames _____ Date of death Y Y Y Y M M D D _____		Left thumb print of deceased _____ _____
MARITAL STATUS OF DECEASED Single <input type="checkbox"/> Civil Marriage <input type="checkbox"/> Living as married <input type="checkbox"/> Widowed <input type="checkbox"/> Religious Law Marriage <input type="checkbox"/> Divorced <input type="checkbox"/> Customary Marriage <input type="checkbox"/> PLACE OF BIRTH (municipal district or country if abroad) _____ PLACE OF DEATH (City / Town / Village) _____ PLACE OF REGISTRATION OF DEATH _____ CITIZENSHIP OF DECEASED _____		
B PARTICULARS OF INFORMANT Identity number _____ Initials and Surname _____ Relationship to deceased Parent <input type="checkbox"/> Spouse <input type="checkbox"/> Child <input type="checkbox"/> Other (specify) _____ Postal address _____ Postal Code _____ Dialling Code _____ Was the next of kin of the deceased a smoker* during the past five years? Yes <input type="checkbox"/> No <input type="checkbox"/> Refuse to answer <input type="checkbox"/> Telephone No. _____ Date _____ Signature _____		Left thumb print of informant _____ _____
C PARTICULARS OF FUNERAL UNDERTAKER Initials and Surname _____ Designation No. _____ Place of burial / cremation _____ Date _____ Signature _____		
D CERTIFICATE BY ATTENDING MEDICAL PRACTITIONER / PROFESSIONAL NURSE I, the undersigned, hereby certify that the deceased named in Section A, to the best of my knowledge and belief, died solely and exclusively due to NATURAL CAUSES specified in Section G <input type="checkbox"/> I, the undersigned, am not in the position to certify that the deceased died exclusively due to natural causes <input type="checkbox"/> INITIALS AND SURNAME _____ SIGNATURE _____ CERTIFICATE BY DISTRICT SURGEON / FORENSIC PATHOLOGIST I, the undersigned, hereby certify that a medicolegal post-mortem examination has been conducted on the body of the person whose particulars are given in Section A and that the body is no longer required for the purpose of the Inquest Act, 1959 (Act No. 58 of 1959) and that the cause of death is: Unnatural <input type="checkbox"/> Under investigation <input type="checkbox"/> Natural (Cause of Death as indicated in Section G) <input type="checkbox"/> Initials and Surname _____ Place of post-mortem _____ Date Y Y Y Y M M D D _____ Signature _____ Date signed Y Y Y Y M M D D _____		Postal Address _____ Postal Code _____ SAMDC / SANC Reg. No. _____ Date signed Y Y Y Y M M D D _____ Postal Address _____ Postal Code _____ Mortuary Reference _____ SAMDC Reg. No. _____
E FOR OFFICIAL USE ONLY Registration of death approved and burial order issued _____ Address _____ Date _____ Signature _____		Initials and Surname of Registrar _____ Force No. / Designation No. _____ Peisal No. _____ Office Stamp

* Someone who smokes tobacco on most days

Appendix C: Number of deaths by age, sex and year of death, 1997–1999*

Age group	1997			1998			1999					
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	12 986	11 546	202	24 734	14 925	13 254	314	28 493	14 731	13 455	438	28 624
1-4	4 049	3 650	52	7 751	4 859	4 485	96	9 440	5 068	4 636	98	9 802
5-9	1 705	1 252	17	2 974	1 779	1 435	36	3 250	1 894	1 505	34	3 433
10-14	1 546	1 189	19	2 754	1 693	1 288	23	3 004	1 649	1 305	23	2 977
15-19	3 776	2 475	23	6 274	4 105	2 902	62	7 069	4 352	3 323	88	7 763
20-24	8 175	5 446	49	13 670	8 790	6 901	109	15 800	8 637	8 284	105	17 026
25-29	10 921	7 424	43	18 388	13 075	9 850	110	23 035	13 884	12 601	141	26 626
30-34	11 830	7 184	49	19 063	14 363	9 700	126	24 189	16 287	12 254	119	28 660
35-39	11 965	6 853	51	18 869	14 601	8 915	97	23 613	16 444	10 801	111	27 356
40-44	11 778	6 397	36	18 211	13 921	7 920	94	21 935	15 201	8 906	90	24 197
45-49	12 217	6 361	50	18 628	14 182	7 670	87	21 939	14 968	8 510	98	23 576
50-54	11 288	6 236	29	17 553	12 995	7 203	79	20 277	13 859	7 750	79	21 688
55-59	12 641	7 922	45	20 608	13 920	8 873	107	22 900	14 055	8 672	84	22 811
60-64	11 182	9 287	50	20 519	12 415	9 993	59	22 467	12 677	10 035	82	22 794
65-69	12 459	11 037	45	23 541	13 236	12 453	83	25 772	12 820	12 311	91	25 222
70-74	11 285	10 057	48	21 390	12 732	11 790	53	24 575	12 852	12 246	70	25 168
75-79	11 183	12 332	44	23 559	11 412	12 479	87	23 978	10 692	11 583	63	22 338
80-84	6 599	8 776	32	15 407	7 875	11 042	48	18 965	7 600	11 316	73	18 989
85-89	3 950	6 916	25	10 891	4 256	7 804	34	12 094	4 449	7 942	51	12 442
90+	2 028	4 730	13	6 771	2 362	5 560	29	7 951	2 210	5 380	30	7 620
Unspecified	3 109	2 362	106	5 577	2 821	2 091	195	5 107	1 491	1 108	109	2 708
Total	176 672	139 432	1 028	317 132	200 317	163 608	1 928	365 853	205 820	173 923	2 077	381 820

*Data have been updated to include late registrations processed in 2009/10.

Appendix C.1: Number of deaths by age, sex and year of death, 2000–2002*

Age group	2000				2001				2002			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	14 998	13 523	351	28 872	15 465	14 070	307	29 842	17 866	16 186	338	34 390
1-4	5 379	4 917	86	10 382	5 875	5 299	78	11 252	6 316	5 675	87	12 078
5-9	1 997	1 593	29	3 619	2 119	1 706	28	3 853	2 398	1 961	17	4 376
10-14	1 716	1 336	36	3 088	1 745	1 461	22	3 228	1 866	1 483	24	3 373
15-19	4 317	3 476	72	7 865	4 470	3 902	62	8 434	4 734	4 283	58	9 075
20-24	8 869	9 856	83	18 808	8 932	10 909	83	19 924	9 568	12 468	109	22 145
25-29	15 058	15 699	105	30 862	16 836	19 261	108	36 205	18 624	23 285	132	42 041
30-34	18 473	15 791	108	34 372	20 894	18 711	109	39 714	23 866	23 503	145	47 514
35-39	18 536	13 583	94	32 213	21 070	15 844	100	37 014	24 063	19 424	124	43 611
40-44	17 110	11 001	77	28 188	19 323	12 839	94	32 256	21 568	15 479	113	37 160
45-49	16 107	9 554	78	25 739	17 881	10 934	62	28 877	19 280	12 643	110	32 033
50-54	15 276	9 092	64	24 432	16 884	10 132	72	27 088	18 594	11 241	102	29 937
55-59	13 920	8 869	72	22 861	14 545	9 123	65	23 733	15 394	10 001	71	25 466
60-64	14 228	11 251	66	25 545	15 099	12 060	66	27 225	16 159	12 699	79	28 937
65-69	12 582	12 060	52	24 694	13 012	12 790	64	25 866	13 737	13 275	63	27 075
70-74	13 113	14 133	67	27 313	14 036	15 120	60	29 216	13 786	15 469	62	29 317
75-79	10 348	11 528	48	21 924	10 846	12 034	61	22 941	11 090	12 831	70	23 991
80-84	8 481	12 634	31	21 146	9 161	13 906	47	23 114	9 535	14 188	60	23 783
85-89	4 680	8 223	27	12 930	4 580	8 358	31	12 969	4 373	8 315	34	12 722
90+	2 530	6 524	31	9 085	3 023	7 156	28	10 207	3 294	7 662	33	10 989
Unspecified	1 185	889	143	2 217	1 044	782	98	1 924	1 137	788	112	2 037
Total	218 903	195 532	1 720	416 155	236 840	216 397	1 645	454 882	257 248	242 859	1 943	502 050

*Data have been updated to include late registrations processed in 2009/10.

Appendix C.2: Number of deaths by age, sex and year of death, 2003–2005*

Age group	2003			2004			2005		
	Male	Female	Unsp.	Male	Female	Unsp.	Male	Female	Unsp.
0	19 945	18 026	434	21 723	19 162	530	24 035	21 922	474
1-4	7 125	6 273	78	8 250	7 619	71	8 208	7 310	80
5-9	2 774	2 196	28	3 183	2 799	13	3 357	2 799	21
10-14	2 001	1 641	25	2 138	1 773	12	2 145	1 854	17
15-19	4 836	4 549	70	4 678	4 609	40	4 766	4 539	52
20-24	10 327	14 159	104	10 359	15 035	76	10 486	14 843	89
25-29	20 003	26 182	145	19 790	27 507	110	19 303	27 226	105
30-34	27 458	28 088	139	28 409	30 590	79	28 779	31 218	105
35-39	26 409	22 616	112	28 191	25 113	86	29 391	26 212	99
40-44	24 706	18 398	115	26 435	20 521	67	27 440	21 462	83
45-49	22 013	14 456	85	23 070	16 227	64	24 412	17 352	75
50-54	20 556	12 863	67	21 088	14 081	46	21 495	14 943	57
55-59	17 179	10 972	49	18 039	12 009	32	19 681	13 300	47
60-64	17 369	13 287	56	16 946	13 380	28	16 830	13 238	34
65-69	14 650	13 882	53	15 189	13 787	25	16 362	15 170	36
70-74	14 458	16 360	55	13 427	15 414	25	12 903	15 072	33
75-79	12 060	14 107	56	11 793	14 065	15	12 207	15 904	35
80-84	9 441	13 693	39	8 639	11 945	21	8 429	11 827	21
85-89	5 435	10 192	36	5 034	9 471	19	5 444	10 332	17
90+	3 380	8 146	18	3 285	7 473	14	3 285	7 878	15
Unspecified	1 657	940	207	1 920	928	242	1 975	1 079	223
Total	283 782	271 026	1 971	291 586	283 508	1 615	300 933	295 480	1 718
							576 709		
								598 131	

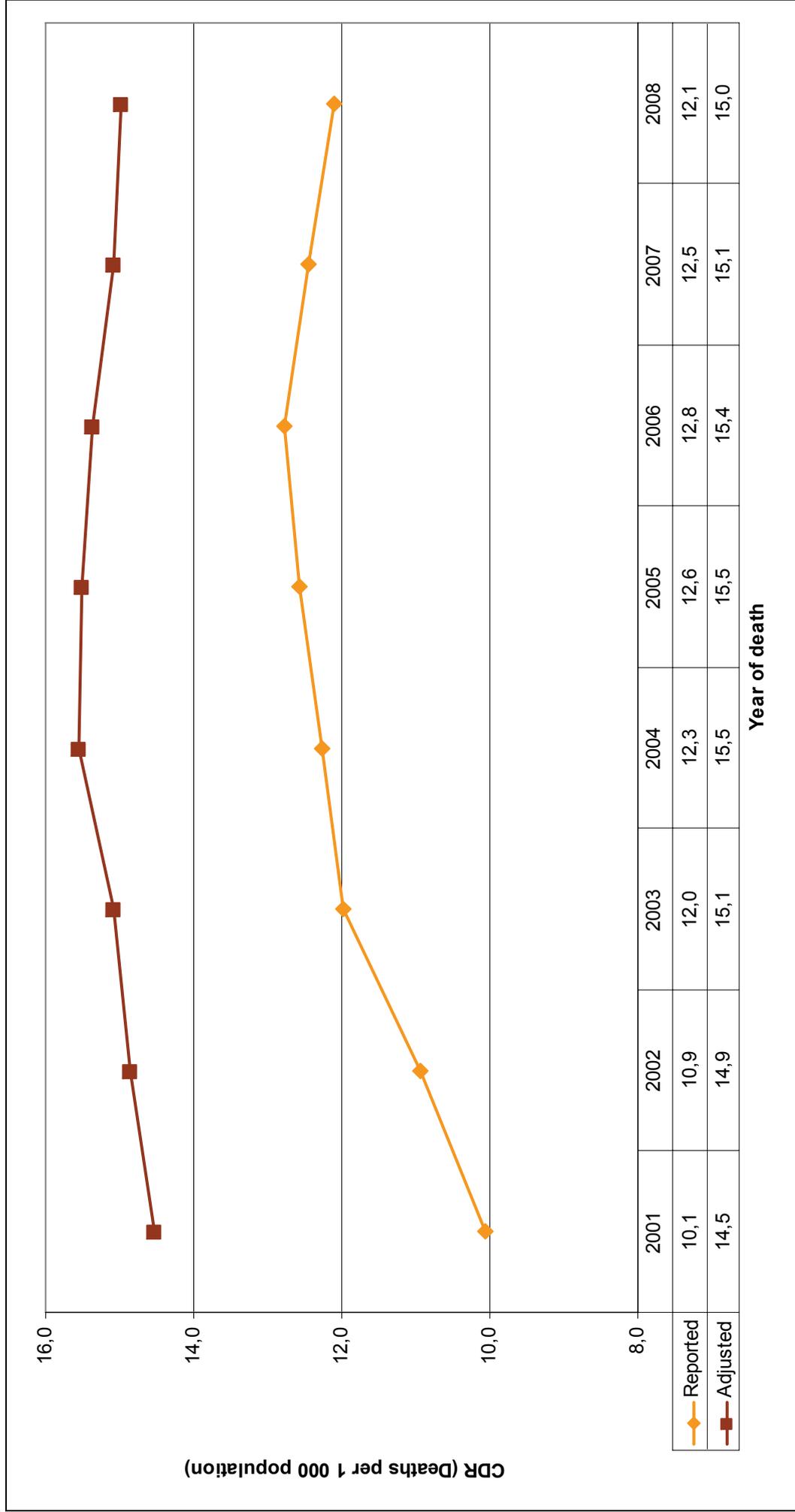
*Data have been updated to include late registrations processed in 2009/10.

Appendix C.3: Number of deaths by age, sex and year of death, 2006–2008*

Age group	2006				2007				2008			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	25 472	22 068	725	48 265	24 729	21 569	410	46 708	23 838	21 203	275	45 316
1-4	8 381	7 563	117	16 061	7 788	6 997	47	14 832	8 147	7 156	29	15 332
5-9	3 023	2 546	17	5 586	2 861	2 493	4	5 358	2 709	2 283	6	4 998
10-14	2 385	1 913	14	4 312	2 242	1 898	2	4 142	2 216	1 881	1	4 098
15-19	4 846	4 589	38	9 473	4 873	4 182	15	9 070	4 817	4 085	26	8 928
20-24	10 860	14 785	96	25 741	10 906	13 702	49	24 657	10 624	12 815	39	23 478
25-29	19 000	26 134	82	45 216	18 461	24 525	66	43 052	18 349	23 401	39	41 789
30-34	28 866	30 987	93	59 946	28 339	29 059	63	57 461	26 647	27 111	51	53 809
35-39	29 471	26 084	77	55 632	29 353	24 828	47	54 228	28 927	24 233	44	53 204
40-44	28 094	21 843	73	50 010	27 054	21 177	44	48 275	25 939	20 109	24	46 072
45-49	25 131	17 943	45	43 119	24 838	17 857	43	42 738	24 671	17 462	29	42 162
50-54	22 788	15 601	40	38 429	22 878	15 628	17	38 523	22 609	15 502	21	38 132
55-59	20 637	14 180	40	34 857	21 394	14 593	23	36 010	21 500	14 881	18	36 399
60-64	17 061	13 339	25	30 425	17 471	13 468	10	30 949	17 664	13 835	16	31 515
65-69	17 749	15 813	24	33 586	17 938	15 822	9	33 769	17 979	15 533	10	33 522
70-74	13 589	15 605	26	29 220	13 811	15 808	8	29 627	14 095	15 242	2	29 339
75-79	12 719	17 017	24	29 760	12 572	17 054	4	29 630	12 513	17 125	3	29 641
80-84	8 947	12 339	20	21 306	8 899	12 917	2	21 818	8 985	13 820	1	22 806
85-89	6 145	12 027	11	18 183	6 355	12 196	2	18 553	5 955	11 142	1	17 098
90+	3 564	8 714	9	12 287	3 680	8 780	12	12 472	3 947	9 493	27	13 467
Unspecified	864	356	144	1 364	789	329	104	1 222	613	229	126	968
Total	309 592	301 446	1 740	612 778	307 231	294 882	981	603 094	302 744	288 541	788	592 073

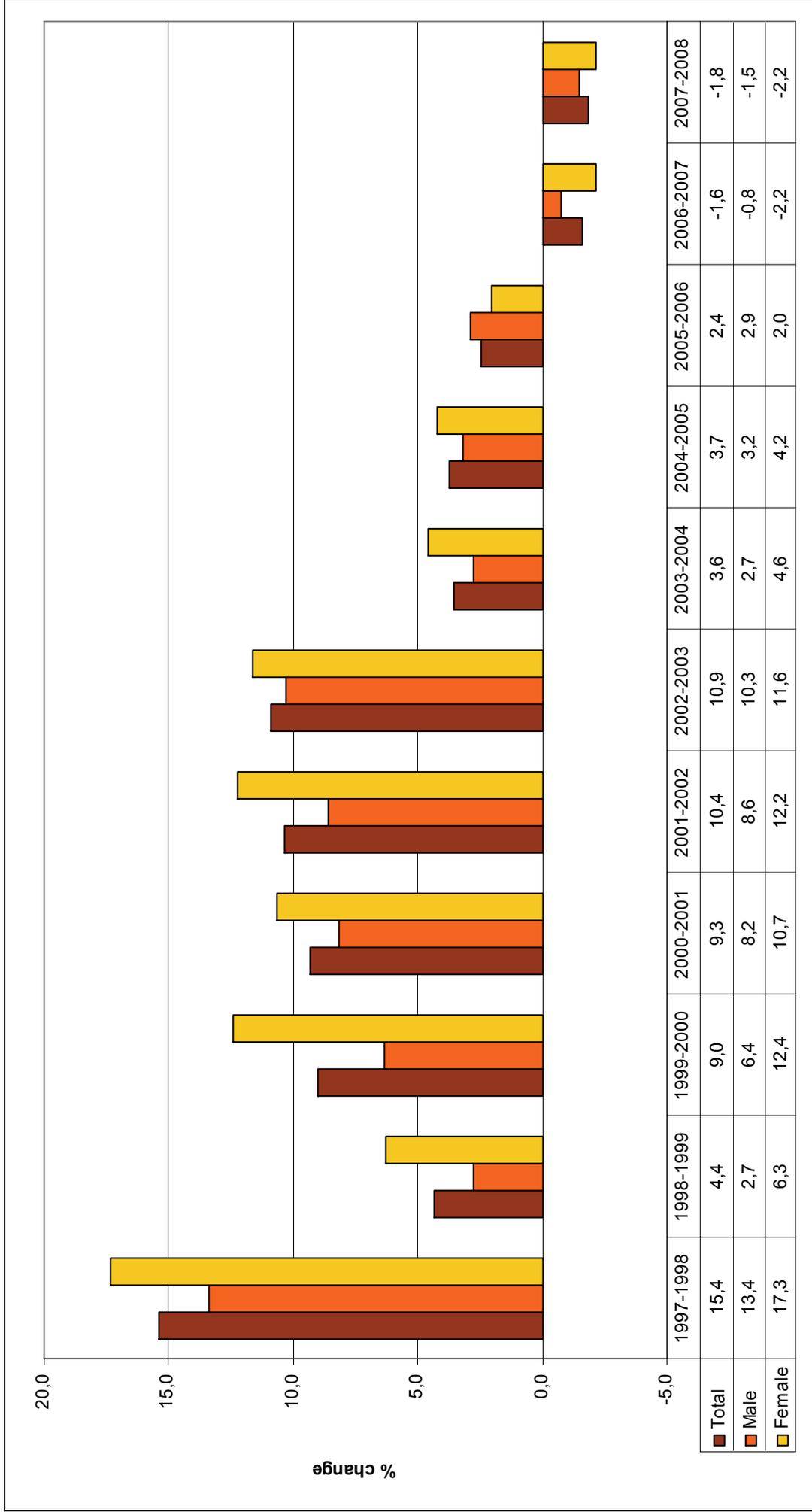
*Data for 2006 and 2007 have been updated to include late registrations processed in 2009/10.

Appendix D: Crude Death Rates (CDR) by year of death (reported and adjusted), 2001–2008*



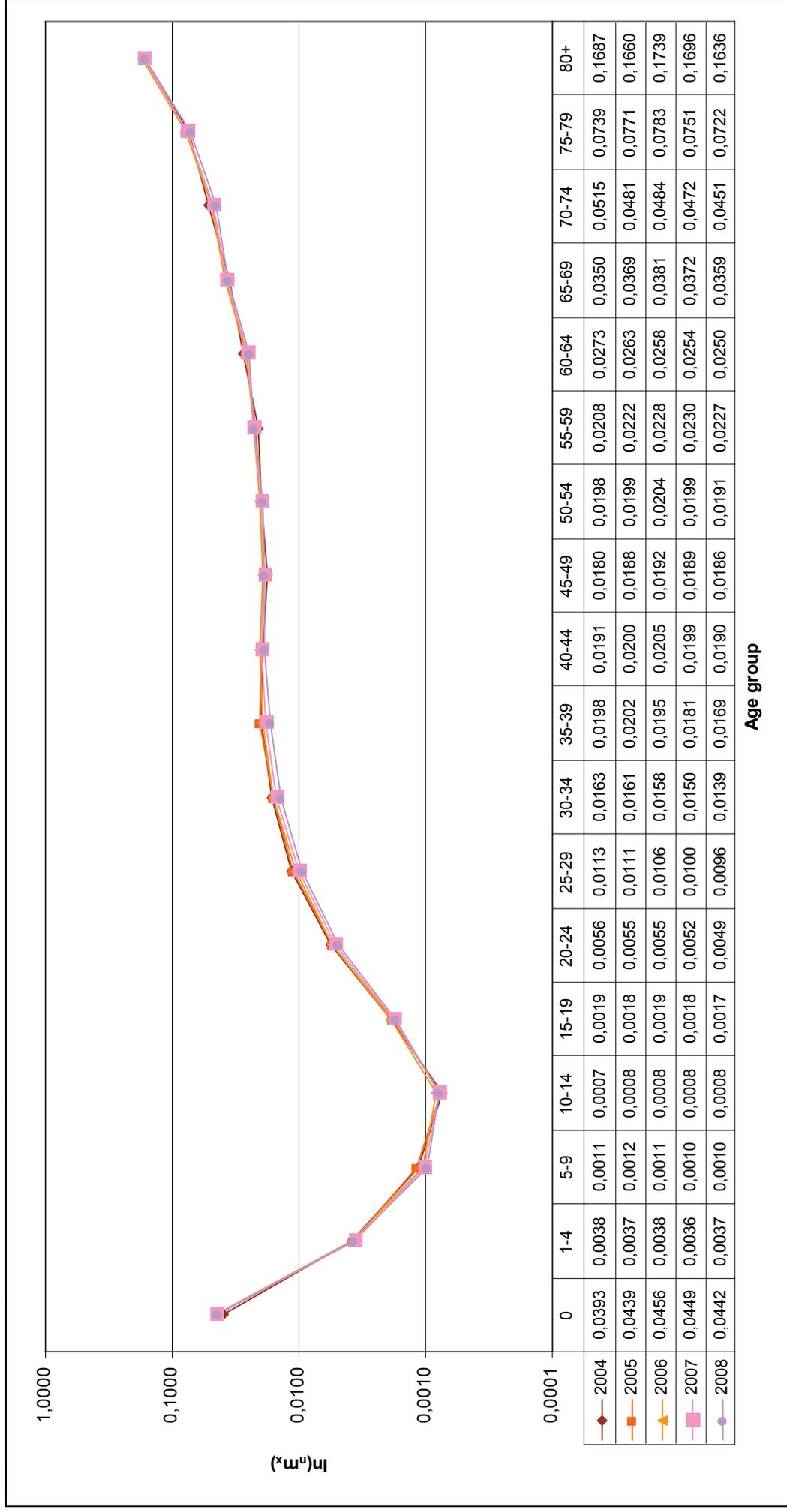
* Data for 2001-2007 have been updated to include late registrations processed in 2009/10.

Appendix E: Annual percentage changes in number of deaths by sex and year of death, 1997–2008*



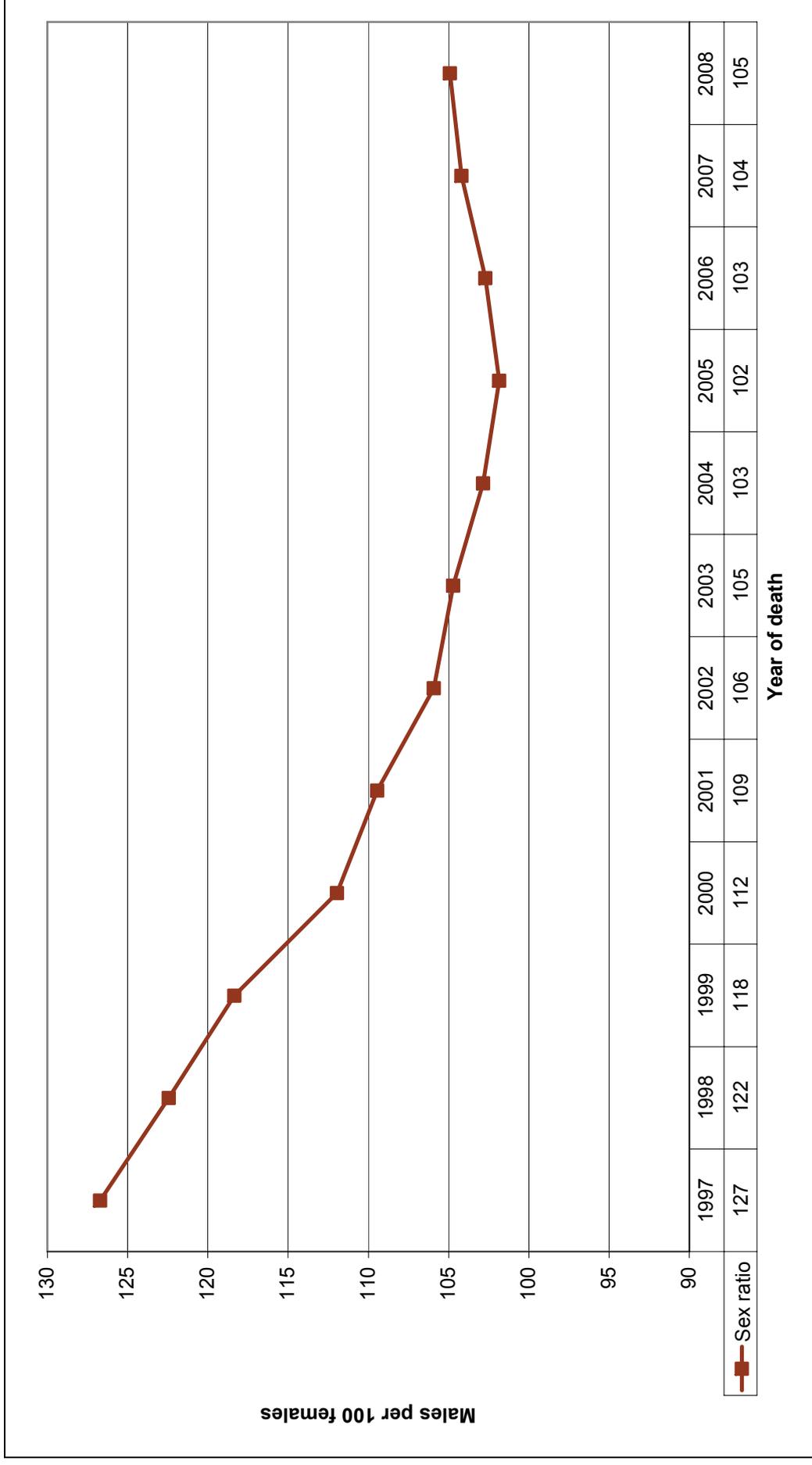
*Data for 1997-2007 have been updated to include late registrations processed in 2009/10.

Appendix F: Age specific death rates (ASDR) by year of death, 2004–2008* (log scale)



*Data for 2004-2007 have been updated to include late registrations processed in 2009/10.

Appendix G: Sex ratios at death by year of death, 1997–2008*



*Data for 1997-2007 have been updated to include late registrations processed in 2009/10.

Appendix H: Number of deaths by age, province and district municipality, 2008

Province of death	District municipality of death	Age							Unsp.	Total
		0	1-4	5-14	15-49	50-64	65+			
Western Cape	Cape Winelands	308	99	54	2 219	1 550	2 258	7	6 495	
	Central Karoo	55	18	9	256	166	260	1	765	
	City of Cape Town	1 617	373	259	10 536	6 126	10 345	63	29 319	
	Eden	245	62	54	1 812	1 263	1 971	5	5 412	
	Overberg	83	21	26	509	362	745	2	1 748	
	West Coast	173	34	25	1 007	694	1 052	4	2 989	
	Total	2 481	607	427	16 339	10 161	16 631	82	46 728	
Eastern Cape	Alfred Nzo	188	109	81	2 087	737	1 200	2	4 404	
	Amatole	1 195	507	413	11 467	4 950	8 822	10	27 364	
	Cacadu	339	107	47	1 764	926	1 393	0	4 576	
	Chris Hani	458	189	140	3 947	1 696	3 063	7	9 500	
	Nelson Mandela Bay Metro	899	269	133	6 275	3 316	4 082	5	14 979	
	O.R.Tambo	578	458	378	8 416	2 755	4 486	10	17 081	
	Ukhahlamba	305	136	63	2 306	985	1 457	3	5 255	
	Total	3 962	1 775	1 255	36 262	15 365	24 503	37	83 159	
Northern Cape	Frances Baard	411	140	62	2 559	1 274	1 462	8	5 916	
	Kgalagadi	365	144	26	1 202	514	610	1	2 862	
	Namakwa	52	5	8	328	238	439	0	1 070	
	Pixley ka Seme	201	67	27	1 013	557	675	1	2 541	
	Siyanda	211	78	36	1 258	582	708	1	2 874	
	Total	1 240	434	159	6 360	3 165	3 894	11	15 263	
Free State	Fezile Dabi	728	197	76	3 347	1 515	1 758	1	7 622	
	Lejweleputswa	1 200	372	151	5 972	2 149	1 951	9	11 804	
	Motheo	1 243	417	193	7 063	2 829	3 214	0	14 959	
	Thabo Mofutsanyane	1 403	422	217	6 224	2 300	2 542	13	13 121	
	Xhariep	143	48	16	732	306	359	1	1 605	
	Total	4 717	1 456	653	23 338	9 099	9 824	24	49 111	
KwaZulu-Natal	Amajuba	588	138	123	3 757	1 201	1 304	18	7 129	
	eThekweni	2 493	822	785	20 646	7 223	9 024	93	41 086	
	iLembe	441	159	164	3 563	1 148	1 425	8	6 908	
	Sisonke	397	160	104	2 947	941	1 289	7	5 845	
	Ugu	753	275	259	6 199	1 845	2 781	12	12 124	
	UMgungundlovu	612	251	247	7 683	2 558	3 445	8	14 804	
	Umkhanyakude	499	181	178	3 233	930	1 494	32	6 547	
	Umzinyathi	734	198	144	3 866	1 249	1 664	22	7 877	
	Uthukela	901	283	190	4 703	1 535	1 833	8	9 453	
	Uthungulu	950	294	274	6 669	1 938	2 464	56	12 645	
	Zululand	956	328	238	5 459	1 560	1 923	25	10 489	
	Total	9 324	3 089	2 706	68 725	22 128	28 646	289	134 907	
North West	Bojanala	1 559	520	201	6 459	2 614	3 410	61	14 824	
	Central	1 254	407	156	4 720	1 749	2 708	11	11 005	
	Dr Kenneth Kaunda	1 351	390	183	5 942	2 311	2 562	59	12 798	
	Dr Ruth Segomotsi Mompati	793	304	88	2 905	1 126	1 547	0	6 763	
	Total	4 957	1 621	628	20 026	7 800	10 227	131	45 390	

Appendix H: Number of deaths by age, province and district municipality, 2008 (concluded)

Province of death	District municipality of death	Age							Unsp.	Total
		0	1-4	5-14	15-49	50-64	65+			
Gauteng	City of Johannesburg	3 063	743	402	17 055	6 970	9 567	83	37 883	
	City of Tshwane	1 996	714	353	10 667	4 999	7 491	14	26 234	
	Ekurhuleni	3 557	802	393	15 677	5 674	6 236	42	32 381	
	Metsweding	82	47	20	427	168	214	0	958	
	Sedibeng	1 027	265	125	4 773	2 158	2 525	21	10 894	
	West Rand	793	188	78	3 442	1 458	1 530	70	7 559	
	Total	10 518	2 759	1 371	52 041	21 427	27 563	230	115 909	
Mpumalanga	Ehlanzeni	1 280	664	477	10 239	3 270	3 911	66	19 907	
	Gert Sibande	1 510	411	248	7 708	2 530	2 502	19	14 928	
	Nkangala	1 026	407	196	5 952	2 342	2 854	39	12 816	
	Total	3 816	1 482	921	23 899	8 142	9 267	124	47 651	
Limpopo	Capricorn	1 251	559	232	6 227	2 470	4 196	2	14 937	
	Greater Sekhukhune	793	460	241	4 875	1 802	3 142	5	11 318	
	Mopani	819	465	202	4 849	1 850	2 912	12	11 109	
	Vhembe	856	327	189	3 719	1 540	3 335	17	9 983	
	Waterberg	577	292	106	2 443	971	1 579	4	5 972	
	Total	4 296	2 103	970	22 113	8 633	15 164	40	53 319	

Appendix I: Number of deaths by sex, province and district municipality, 2008

Province of death	District municipality of death	Sex				Sex ratio ²
		Male	Female	Unspecified	Total	
Western Cape	Cape Winelands	3 657	2 831	7	6 495	129
	Central Karoo	416	348	1	765	120
	City of Cape Town	15 967	13 287	65	29 319	120
	Eden	2 973	2 431	8	5 412	122
	Overberg	1 016	732	0	1 748	139
	West Coast	1 699	1 287	3	2 989	132
	Total	25 728	20 916	84	46 728	123
Eastern Cape	Alfred Nzo	2 078	2 321	5	4 404	90
	Amatole	13 432	13 898	34	27 364	97
	Cacadu	2 354	2 215	7	4 576	106
	Chris Hani	4 659	4 833	8	9 500	96
	Nelson Mandela Bay Metro	7 699	7 275	5	14 979	106
	O.R.Tambo	8 129	8 916	36	17 081	91
	Ukhahlamba	2 451	2 791	13	5 255	88
	Total	40 802	42 249	108	83 159	97
Northern Cape	Frances Baard	3 079	2 831	6	5 916	109
	Kgalagadi	1 501	1 360	1	2 862	110
	Namakwa	577	492	1	1 070	117
	Pixley ka Seme	1 312	1 227	2	2 541	107
	Siyanda	1 544	1 327	3	2 874	116
	Total	8 013	7 237	13	15 263	111
Free State	Fezile Dabi	3 848	3 771	3	7 622	102
	Lejweleputswa	6 116	5 683	5	11 804	108
	Motheo	7 696	7 253	10	14 959	106
	Thabo Mofutsanyane	6 451	6 667	3	13 121	97
	Xhariep	812	789	4	1 605	103
	Total	24 923	24 163	25	49 111	103
KwaZulu-Natal	Amajuba	3 478	3 644	7	7 129	95
	eThekweni	21 005	20 033	48	41 086	105
	iLembe	3 449	3 454	5	6 908	100
	Sisonke	2 819	3 014	12	5 845	94
	Ugu	6 005	6 107	12	12 124	98
	UMgungundlovu	7 381	7 410	13	14 804	100
	Umkhanyakude	3 240	3 301	6	6 547	98
	Umzinyathi	3 865	3 995	17	7 877	97
	Uthukela	4 738	4 708	7	9 453	101
	Uthungulu	6 311	6 315	19	12 645	100
	Zululand	5 131	5 339	19	10 489	96
	Total	67 422	67 320	165	134 907	100
North West	Bojanala	7 903	6 891	30	14 824	115
	Central	5 597	5 391	17	11 005	104
	Dr Kenneth Kaunda	6 967	5 813	18	12 798	120
	Dr Ruth Segomotsi Mompati	3 468	3 284	11	6 763	106
	Total	23 935	21 379	76	45 390	112

² Male deaths per 100 female deaths

Appendix I: Number of deaths by sex, province and district municipality, 2008 (concluded)

Province of death	District municipality of death	Sex				Sex ratio ³
		Male	Female	Unspecified	Total	
Gauteng	City of Johannesburg	19 926	17 864	93	37 883	112
	City of Tshwane	13 998	12 213	23	26 234	115
	Ekurhuleni	16 998	15 334	49	32 381	111
	Metsweding	526	430	2	958	122
	Sedibeng	5 648	5 234	12	10 894	108
	West Rand	4 182	3 357	20	7 559	125
	Total		61 278	54 432	199	115 909	113
Mpumalanga	Ehlanzeni	10 000	9 851	56	19 907	102
	Gert Sibande	7 524	7 394	10	14 928	102
	Nkangala	6 605	6 190	21	12 816	107
	Total	24 129	23 435	87	47 651	103
Limpopo	Capricorn	7 316	7 615	6	14 937	96
	Greater Sekhukhune	5 462	5 849	7	11 318	93
	Mopani	5 414	5 687	8	11 109	95
	Vhembe	4 894	5 084	5	9 983	96
	Waterberg	3 012	2 955	5	5 972	102
	Total	26 098	27 190	31	53 319	96

³ Male deaths per 100 female deaths

Appendix J: All underlying causes of death, 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Number	Percent
All causes	592 073	100,0
Ill-defined and unknown causes of mortality (R95-R99)	75 979	12,8
Tuberculosis (A15-A19)	74 863	12,6
Influenza and pneumonia (J10-J18)	45 602	7,7
Intestinal infectious diseases (A00-A09)	39 351	6,6
Other external causes of accidental injury (W00-X59)	33 983	5,7
Other forms of heart disease (I30-I52)	26 190	4,4
Cerebrovascular diseases (I60-I69)	24 363	4,1
Diabetes mellitus (E10-E14)	19 558	3,3
Human immunodeficiency virus [HIV] disease (B20-B24)	15 097	2,5
Certain disorders involving the immune mechanism (D80-D89)	14 639	2,5
Chronic lower respiratory diseases (J40-J47)	14 226	2,4
Hypertensive diseases (I10-I15)	14 177	2,4
Ischaemic heart diseases (I20-I25)	12 102	2,0
Other viral diseases (B25-B34)	11 496	1,9
Malignant neoplasm of digestive organs (C15-C26)	9 144	1,5
Inflammatory diseases of the central nervous system (G00-G09)	8 459	1,4
Other acute lower respiratory infections (J20-J22)	7 548	1,3
Renal failure (N17-N19)	6 677	1,1
Event of undetermined intent (Y10-Y34)	6 479	1,1
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	6 083	1,0
Transport accidents (V01-V99)	5 785	1,0
Other bacterial diseases (A30-A49)	5 749	1,0
Diseases of liver (K70-K77)	5 539	0,9
Assault (X85-Y09)	5 467	0,9
Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	5 038	0,9
Other diseases of the respiratory system (J95-J99)	4 978	0,8
Protozoal diseases (B50-B64)	4 463	0,8
Metabolic disorders (E70-E90)	4 146	0,7
Malignant neoplasm of female genital organs (C51-C58)	3 837	0,6
Episodic and paroxysmal disorders (G40-G47)	3 695	0,6
General symptoms and signs (R50-R69)	3 299	0,6
Mycoses (B35-B49)	3 256	0,5
Noninfective enteritis and colitis (K50-K52)	3 119	0,5
Aplastic and other anaemias (D60-D64)	3 115	0,5
Malignant neoplasms of ill-defined, secondary & unspecified sites (C76-C80)	2 898	0,5
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	2 795	0,5
Malignant neoplasm of breast (C50)	2 706	0,5
Malnutrition (E40-E46)	2 627	0,4
Other respiratory diseases principally affecting the interstitium (J80-J84)	2 621	0,4
Malignant neoplasms stated or presumed primary of lymphoid, haematopoietic & related tissue (C81-C96)	2 512	0,4
Diseases of oesophagus, stomach and duodenum (K20-K31)	2 415	0,4
Malignant neoplasm of male genital organs (C60-C63)	2 404	0,4
Other disorders of glucose regulation and pancreatic internal secretion (E15-E16)	1 848	0,3
Disorders related to length of gestation and fetal growth (P05-P08)	1 714	0,3
Diseases of arteries, arterioles and capillaries (I70-I79)	1 568	0,3
Other diseases of intestines (K55-K63)	1 550	0,3
Other disorders originating in the perinatal period (P90-P96)	1 391	0,2
Infections specific to the perinatal period (P35-P39)	1 367	0,2
Malignant neoplasm of mesothelial and soft tissue (C45-C49)	1 336	0,2
Lung diseases due to external agents (J60-J70)	1 260	0,2
Other disorders of the nervous system (G90-G99)	1 157	0,2
Organic, including symptomatic, mental disorders (F00-F09)	1 142	0,2
Other diseases of the digestive system (K90-K93)	1 068	0,2
Neoplasms of uncertain or unknown behaviour (D37-D48)	1 025	0,2

Appendix J: All underlying causes of death, 2008 (continued)

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Number	Percent
All causes	592 073	100,0
Malignant neoplasm of lip, oral cavity and pharynx (C00-C14)	1 000	0,2
Disorders of gallbladder, biliary tract and pancreas (K80-K87)	990	0,2
Other obstetric conditions, not elsewhere classified (O95-O99)	898	0,2
Other degenerative diseases of the nervous system (G30-G32)	787	0,1
Cerebral palsy and other paralytic syndromes (G80-G83)	786	0,1
Malignant neoplasm of urinary tract (C64-C68)	783	0,1
Arthropathies (M00-M25)	747	0,1
Symptoms and signs involving the circulatory and respiratory systems (R00-R09)	744	0,1
Complications of medical and surgical care (Y40-Y84)	734	0,1
Other diseases of pleura (J90-J94)	693	0,1
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	681	0,1
Other disorders of the skin and subcutaneous tissue (L80-L99)	673	0,1
Soft tissue disorders (M60-M79)	604	0,1
Sequelae of infectious and parasitic diseases (B90-B94)	603	0,1
Congenital malformations of the circulatory system (Q20-Q28)	577	0,1
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	555	0,1
Malignant neoplasm of skin (C43-C44)	540	0,1
Malignant neoplasms of independent multiple sites (C97)	479	0,1
Infections of the skin and subcutaneous tissue (L00-L08)	474	0,1
Viral infections characterized by skin and mucous membrane lesions (B00-B09)	463	0,1
Malignant neoplasm of eye, brain and other parts of central nervous system (C69-C72)	461	0,1
Intentional self-harm (X60-X84)	442	0,1
Coagulation defects, purpura and other haemorrhagic conditions (D65-D69)	436	0,1
Suppurative and necrotic conditions of lower respiratory tract (J85-J86)	419	0,1
Chronic rheumatic heart diseases (I05-I09)	408	0,1
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	384	0,1
Symptoms and signs involving the digestive system and abdomen (R10-R19)	382	0,1
Extrapyramidal and movement disorders (G20-G26)	356	0,1
Systemic connective tissue disorders (M30-M36)	343	0,1
Renal tubulo-interstitial diseases (N10-N16)	333	0,1
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	318	0,1
Other congenital malformations (Q80-Q89)	317	0,1
Viral hepatitis (B15-B19)	306	0,1
Diseases of peritoneum (K65-K67)	302	0,1
Oedema, proteinuria and hypertensive disorders in pregnancy, childbirth and the puerperium (O10-O16)	288	0,0
Digestive system disorders of fetus and newborn (P75-P78)	285	0,0
Viral infections of the central nervous system (A80-A89)	276	0,0
Diseases of male genital organs (N40-N51)	262	0,0
Schizophrenia, schizotypal and delusional disorders (F20-F29)	260	0,0
Other diseases of urinary system (N30-N39)	260	0,0
Acute upper respiratory infections (J00-J06)	245	0,0
Congenital malformations of the nervous system (Q00-Q07)	240	0,0
Complications predominantly related to the puerperium (O85-O92)	227	0,0
Glomerular diseases (N00-N08)	225	0,0
Obesity and other hyperalimentation (E65-E68)	222	0,0
Other disorders of kidney and ureter (N25-N29)	221	0,0
Disorders of thyroid gland (E00-E07)	210	0,0
Benign neoplasms (D10-D36)	208	0,0
Chromosomal abnormalities, not elsewhere classified (Q90-Q99)	208	0,0
Polyneuropathies and other disorders of the peripheral nervous system (G60-G64)	207	0,0
Hernia (K40-K46)	192	0,0

Appendix J: All underlying causes of death, 2008 (continued)

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Number	Percent
All causes	592 073	100,0
Transitory endocrine and metabolic disorders specific to fetus and newborn (P70-P74)	180	0,0
Dorsopathies (M40-M54)	173	0,0
Systemic atrophies primarily affecting the central nervous system (G10-G13)	166	0,0
Complications of labour and delivery (O60-O75)	160	0,0
Malignant neoplasm of thyroid and other endocrine glands (C73-C75)	155	0,0
Other congenital malformations of the digestive system (Q38-Q45)	149	0,0
Other infectious diseases (B99)	147	0,0
Other and unspecified disorders of the circulatory system (I95-I99)	146	0,0
Malignant neoplasm of bone and articular cartilage (C40-C41)	144	0,0
Inflammatory diseases of female pelvic organs (N70-N77)	142	0,0
Osteopathies and chondropathies (M80-M94)	138	0,0
Noninflammatory disorders of female genital tract (N80-N98)	134	0,0
Diseases of appendix (K35-K38)	120	0,0
Urticaria and erythema (L50-L54)	117	0,0
Conditions involving the integument and temperature regulation of fetus and newborn (P80-P83)	110	0,0
Infections with a predominantly sexual mode of transmission (A50-A64)	106	0,0
Other diseases of upper respiratory tract (J30-J39)	103	0,0
Pregnancy with abortive outcome (O00-O08)	101	0,0
Diseases of myoneural junction and muscle (G70-G73)	97	0,0
Helminthiasis (B65-B83)	90	0,0
Diseases of middle ear and mastoid (H65-H75)	90	0,0
Other maternal disorders predominantly related to pregnancy (O20-O29)	75	0,0
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	75	0,0
Demyelinating diseases of the central nervous system (G35-G37)	72	0,0
Disorders of other endocrine glands (E20-E35)	69	0,0
Diseases of oral cavity, salivary glands and jaws (K00-K14)	67	0,0
Dermatitis and eczema (L20-L30)	65	0,0
Congenital malformations of the respiratory system (Q30-Q34)	63	0,0
Maternal care related to the fetus and amniotic cavity and possible delivery problems (O30-O48)	61	0,0
Sequelae of external causes of morbidity and mortality (Y85-Y89)	60	0,0
Other diseases of blood and blood-forming organs (D70-D77)	57	0,0
Haemolytic anaemias (D55-D59)	54	0,0
Congenital malformations of the urinary system (Q60-Q64)	54	0,0
Nutritional anaemias (D50-D53)	51	0,0
Other nutritional deficiencies (E50-E64)	48	0,0
Mood [affective] disorders (F30-F39)	38	0,0
Unspecified mental disorder (F99)	31	0,0
Birth trauma (P10-P15)	29	0,0
In situ neoplasms (D00-D09)	27	0,0
Disorders of breast (N60-N64)	27	0,0
Abnormal findings on examination of blood, without diagnosis (R70-R79)	25	0,0
Neurotic, stress-related and somatoform disorders (F40-F48)	24	0,0
Abnormal findings on diagnostic imaging and in function studies, without diagnosis (R90-R94)	23	0,0
Acute rheumatic fever (I00-I02)	21	0,0
Urolithiasis (N20-N23)	19	0,0
Cleft lip and cleft palate (Q35-Q37)	17	0,0
Symptoms and signs involving cognition, perception, emotional state and behaviour (R40-R46)	17	0,0
Nerve, nerve root and plexus disorders (G50-G59)	15	0,0
Bullous disorders (L10-L14)	15	0,0
Visual disturbances and blindness (H53-H54)	12	0,0
Abnormal findings on examination of other body fluids, substances and tissues, without diagnosis (R83-R89)	12	0,0
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	11	0,0

Appendix J: All underlying causes of death, 2008 (concluded)

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Number	Percent
All causes	592 073	100,0
Symptoms and signs involving the nervous and musculoskeletal systems (R25-R29)	10	0,0
Symptoms and signs involving the urinary system (R30-R39)	10	0,0
Certain zoonotic bacterial diseases (A20-A28)	9	0,0
Arthropod-borne viral fevers and viral haemorrhagic fevers (A90-A99)	8	0,0
Symptoms and signs involving the skin and subcutaneous tissue (R20-R23)	8	0,0
Other spirochaetal diseases (A65-A69)	6	0,0
Symptoms and signs involving speech and voice (R47-R49)	6	0,0
Disorders of eyelid, lacrimal system and orbit (H00-H06)	5	0,0
Other disorders of eye and adnexa (H55-H59)	5	0,0
Congenital malformations of eye, ear, face and neck (Q10-Q18)	5	0,0
Rickettsioses (A75-A79)	4	0,0
Pediculosis, acariasis and other infestations (B85-B89)	4	0,0
Other disorders of ear (H90-H95)	4	0,0
Papulosquamous disorders (L40-L45)	4	0,0
Disorders of adult personality and behaviour (F60-F69)	3	0,0
Disorders of sclera, cornea, iris and ciliary body (H15-H22)	3	0,0
Disorders of choroid and retina (H30-H36)	3	0,0
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	2	0,0
Disorders of vitreous body and globe (H43-H45)	2	0,0
Radiation-related disorders of the skin and subcutaneous tissue (L55-L59)	2	0,0
Disorders of skin appendages (L60-L75)	2	0,0
Congenital malformations of genital organs (Q50-Q56)	2	0,0
Disorders of psychological development (F80-F89)	1	0,0
Disorders of conjunctiva (H10-H13)	1	0,0
Glaucoma (H40-H42)	1	0,0
Disorders of ocular muscles, binocular movement, accommodation and refraction (H49-H52)	1	0,0

Appendix K: Detailed description of the broad groups of natural causes of death which were among the ten leading causes in 2008

Causes of death (based on the Tenth Revision, International Classification of Disease, 1992)		Number	%
Intestinal infectious diseases (A00–A09)			
A00	Cholera (A00)	11	0,0
A01	Typhoid and paratyphoid fevers (A01)	17	0,0
A02	Other salmonella infections(A02)	29	0,1
A03	Shigellosis (A03)	11	0,0
A04	Other bacterial intestinal infections (A04)	8	0,0
A05	Other bacterial food-borne intoxications (A05)	4	0,0
A06	Amoebiasis (A06)	12	0,0
A07	Other protozoal intestinal diseases (A07)	32	0,1
A08	Viral and other specified intestinal infections (A08)	56	0,1
A09	Diarrhoea and gastroenteritis of presumed infectious origin (A09)	39 171	99,5
Total		39 351	100,0
Tuberculosis (A15–A19)			
A16	Respiratory tuberculosis, not confirmed bacteriologically or histologically (A16)	62 955	84,1
A17	Tuberculosis of nervous system (A17)	3 595	4,8
A18	Tuberculosis of other organs (A18)	2 037	2,7
A19	Miliary tuberculosis (A19)	5 429	7,3
Drug-resistant tuberculosis			
U51	Multidrug-resistant tuberculosis	712	1,0
U52	Extensively drug-resistant tuberculosis	135	0,2
Total		74 863	100,0
Human immunodeficiency virus [HIV] disease (B20-B24)			
B20	Human immunodeficiency virus (HIV) disease resulting in infectious and parasitic diseases (B20)	7 520	49,8
B21	Human immunodeficiency virus (HIV) disease resulting in malignant neoplasms (B21)	249	1,6
B22	Human immunodeficiency virus (HIV) disease resulting in other specified diseases (B22)	4 357	28,9
B23	Human immunodeficiency virus (HIV) disease resulting in other conditions (B23)	1 085	7,2
B24	Unspecified human immunodeficiency virus (HIV) disease (B24)	1 886	12,5
Total		15 097	100,0
Certain disorders involving the immune mechanism (D80-D89)			
D80	Immunodeficiency with predominantly antibody defects (D80)	0	0,0
D81	Combined immunodeficiencies (D81)	5	0,0
D82	Immunodeficiency associated with other major defects (D82)	6	0,0
D83	Common variable immunodeficiency (D83)	39	0,3
D84	Other immunodeficiencies (D84)	14 547	99,4
D86	Sarcoidosis (D86)	33	0,2
D89	Other disorders involving the immune mechanism, not elsewhere classified (D89)	9	0,1
Total		14 639	100,0
Diabetes mellitus (E10-E14)			
E10	Insulin-dependent diabetes mellitus (E10)	208	1,1
E11	Non-insulin-dependent diabetes mellitus (E11)	1 005	5,1
E12	Malnutrition-related diabetes mellitus (E12)	4	0,0
E13	Other specified diabetes mellitus (E13)	0	0,0
E14	Unspecified diabetes mellitus (E14)	18 341	93,8
Total		19 558	100,0

Appendix K: Detailed description of the broad groups of natural causes of death which were among the ten leading causes in 2008 (continued)

Causes of death (based on the Tenth Revision, International Classification of Disease, 1992)		Number	%
Hypertensive diseases (I10-I15)			
I10	Essential (primary) hypertension (I10)	6 861	48,4
I11	Hypertensive heart disease (I11)	6 169	43,5
I12	Hypertensive renal disease (I12)	902	6,4
I13	Hypertensive heart and renal disease (I13)	245	1,7
	Total	14 177	100,0
Other forms of heart disease (I30-I52)			
I30	Acute pericarditis (I30)	10	0,0
I31	Other diseases of pericardium (I31)	178	0,7
I33	Acute and subacute endocarditis (I33)	72	0,3
I34	Nonrheumatic mitral valve disorders (I34)	99	0,4
I35	Nonrheumatic aortic valve disorders (I35)	193	0,7
I36	Nonrheumatic tricuspid valve disorders (I36)	2	0,0
I37	Pulmonary valve disorders (I37)	4	0,0
I38	Endocarditis, valve unspecified (I38)	246	0,9
I40	Acute myocarditis (I40)	50	0,2
I42	Cardiomyopathy (I42)	3 498	13,4
I44	Atrioventricular and left bundle-branch block (I44)	22	0,1
I45	Other conduction disorders (I45)	66	0,3
I46	Cardiac arrest (I46)	3 781	14,4
I47	Paroxysmal tachycardia (I47)	26	0,1
I48	Atrial fibrillation and flutter (I48)	365	1,4
I49	Other cardiac arrhythmias (I49)	230	0,9
I50	Heart failure (I50)	16 676	63,7
I51	Complications and ill-defined descriptions of heart disease (I51)	672	2,6
	Total	26 190	100
Cerebrovascular diseases (I60-I69)			
I60	Subarachnoid haemorrhage (I60)	349	1,4
I61	Intracerebral haemorrhage (I61)	984	4,0
I62	Other nontraumatic intracranial haemorrhage (I62)	422	1,7
I63	Cerebral infarction (I63)	518	2,1
I64	Stroke, not specified as haemorrhage or infarction (I64)	21 276	87,3
I65	Occlusion and stenosis of precerebral arteries, not resulting in cerebral infarction (I65)	0	0,0
I66	Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction (I66)	0	0,0
I67	Other cerebrovascular diseases (I67)	576	2,4
I69	Sequelae of cerebrovascular disease (I69)	238	1,0
	Total	24 363	100,0
Influenza and pneumonia (J10-J18)			
J10	Influenza due to identified influenza virus (J10)	27	0,1
J11	Influenza, virus not identified (J11)	538	1,2
J12	Viral pneumonia, not elsewhere classified (J12)	36	0,1
J13	Pneumonia due to <i>Streptococcus pneumoniae</i> (J13)	7	0,0
J14	Pneumonia due to <i>Haemophilus influenzae</i> (J14)	1	0,0
J15	Bacterial pneumonia, not elsewhere classified (J15)	243	0,5
J16	Pneumonia due to other infectious organisms, not elsewhere classified (J16)	7	0,0
J18	Pneumonia, organism unspecified (J18)	44 743	98,1
	Total	45 602	100,0

Appendix K: Detailed description of the broad groups of natural causes of death which were among the ten leading causes in 2008 (concluded)

Causes of death (based on the Tenth Revision, International Classification of Disease, 1992)		Number	%
Chronic lower respiratory diseases (J40-J47)			
J40	Bronchitis, not specified as acute or chronic (J40)	1 079	7,6
J41	Simple and mucopurulent chronic bronchitis (J41)	12	0,1
J42	Unspecified chronic bronchitis (J42)	536	3,8
J43	Emphysema (J43)	889	6,2
J44	Other chronic obstructive pulmonary disease (J44)	5 761	40,5
J45	Asthma (J45)	4 763	33,5
J46	Status asthmaticus (J46)	1 020	7,2
J47	Bronchiectasis (J47)	166	1,2
Total		14 226	100,0

Appendix L: The ten leading underlying natural causes of death by age and sex: South Africa, 2008

All provinces, both sexes, all ages			All provinces, males, all ages			All provinces, females, all ages			
No.	%	No.	%	No.	%	No.	%	No.	%
1	74 863	12.6	41 034	13.6	1	33 746	11.7	33 746	11.7
2	45 602	7.7	22 243	7.3	2	23 290	8.1	23 290	8.1
3	39 351	6.6	18 187	6.0	3	21 095	7.3	21 095	7.3
4	26 190	4.4	11 862	3.9	4	14 311	5.0	14 311	5.0
5	24 363	4.1	10 170	3.4	5	14 187	4.9	14 187	4.9
6	19 558	3.3	8 392	2.8	6	11 814	4.1	11 814	4.1
7	15 097	2.5	7 738	2.6	7	8 741	3.0	8 741	3.0
8	14 639	2.5	7 210	2.4	8	8 029	2.8	8 029	2.8
9	14 226	2.4	7 026	2.3	9	7 873	2.7	7 873	2.7
10	14 177	2.4	6 589	2.2	10	6 475	2.2	6 475	2.2
All causes			592 073	100.0	All causes			592 073	100.0
All provinces, both sexes, 0-14			15 187	21.8	All provinces, females, 0-14			15 187	21.8
1	8 647	12.4	4 335	11.7	1	7 135	21.9	7 135	21.9
2	6 070	8.7	3 370	9.1	2	4 281	13.2	4 281	13.2
3	2 375	3.4	1 218	3.3	3	2 850	8.5	2 850	8.5
4	2 279	3.3	1 136	3.0	4	1 151	3.5	1 151	3.5
5	1 707	2.4	952	2.5	5	1 100	3.4	1 100	3.4
6	1 380	2.0	774	2.1	6	644	2.0	644	2.0
7	1 304	2.0	686	1.9	7	605	1.9	605	1.9
8	1 314	2.0	686	1.9	8	603	1.8	603	1.8
9	1 223	1.8	610	1.7	9	571	1.8	571	1.8
10	23 267	33.3	12 243	33.2	10	10 917	33.6	10 917	33.6
All causes			4 935	7.1	All causes			4 935	7.1
All provinces, both sexes, 15-49			69 744	100.0	All provinces, females, 15-49			69 744	100.0
1	54 759	20.3	28 251	20.2	1	26 463	20.5	26 463	20.5
2	23 183	8.6	10 703	7.6	2	12 451	9.6	12 451	9.6
3	16 432	6.1	6 909	4.8	3	9 721	7.5	9 721	7.5
4	12 127	4.5	5 603	4.0	4	6 618	5.0	6 618	5.0
5	11 229	4.2	4 847	3.5	5	6 373	4.9	6 373	4.9
6	9 091	3.3	3 734	2.7	6	5 349	4.1	5 349	4.1
7	6 265	2.3	2 989	2.1	7	3 317	2.6	3 317	2.6
8	6 135	2.3	2 941	2.1	8	3 138	2.4	3 138	2.4
9	4 004	1.5	1 927	1.4	9	2 071	1.6	2 071	1.6
10	3 703	1.4	1 793	1.3	10	1 909	1.5	1 909	1.5
All causes			269 442	100.0	All causes			269 442	100.0
All provinces, both sexes, 50-64			12 617	11.9	All provinces, females, 50-64			12 617	11.9
1	6 413	6.0	3 848	6.2	1	4 131	9.3	4 131	9.3
2	5 963	5.6	3 157	5.1	2	3 577	8.1	3 577	8.1
3	5 747	5.4	2 834	4.6	3	2 890	6.5	2 890	6.5
4	4 277	4.0	2 822	4.6	4	2 587	5.9	2 587	5.9
5	4 039	3.8	2 389	3.9	5	2 553	5.8	2 553	5.8
6	3 804	3.6	2 025	3.3	6	2 011	4.5	2 011	4.5
7	3 174	3.0	1 795	3.0	7	1 454	3.3	1 454	3.3
8	3 174	3.0	1 795	3.0	8	1 454	3.3	1 454	3.3
9	4 414	4.1	2 484	4.0	9	1 185	2.6	1 185	2.6
10	6 009	5.7	4 507	7.3	10	1 935	4.3	1 935	4.3
All causes			106 046	100.0	All causes			106 046	100.0
All provinces, both sexes, 65+			14 554	10.0	All provinces, females, 65+			14 554	10.0
1	13 619	9.3	5 232	8.4	1	8 256	11.3	8 256	11.3
2	8 442	5.8	3 741	5.9	2	6 707	8.1	6 707	8.1
3	7 309	5.0	3 324	5.6	3	5 658	6.9	5 658	6.9
4	6 592	4.5	3 042	5.2	4	3 982	4.8	3 982	4.8
5	4 960	3.4	2 784	4.4	5	3 521	4.3	3 521	4.3
6	4 542	3.1	2 379	3.7	6	2 951	3.5	2 951	3.5
7	3 651	2.5	1 878	3.0	7	2 215	2.7	2 215	2.7
8	60 575	41.5	26 319	41.5	8	21 622	24.4	21 622	24.4
9	4 129	2.8	2 190	3.5	9	1 961	2.4	1 961	2.4
10	145 873	100.0	63 474	100.0	10	33 797	41.0	33 797	41.0
All causes			145 873	100.0	All causes			145 873	100.0

* Including deaths due to MDR-TB and XDR-TB

Appendix L.1: The ten leading underlying natural causes of death by age and sex: Western Cape, 2008

Western Cape, both sexes, all ages			Western Cape, males, all ages			Western Cape, females, all ages			
No.	%	No.	%	No.	%	No.	%	No.	%
1	4 516	9.7	1	2 681	10.5	1	1 833	8.7	
2	2 770	5.9	2	1 590	6.2	2	1 635	7.8	
3	2 711	5.8	3	1 181	4.6	3	1 330	6.4	
4	2 393	5.1	4	1 075	4.2	4	1 179	5.6	
5	2 013	4.3	5	1 061	4.1	5	1 063	5.1	
6	1 958	4.2	6	1 009	3.9	6	1 052	4.9	
7	1 708	3.7	7	905	3.4	7	896	4.4	
8	1 538	3.3	8	960	3.7	8	971	4.5	
9	1 538	3.3	9	971	3.7	9	734	3.5	
10	1 301	2.9	10	597	2.3	10	611	2.9	
	17 901	36.3		8 998	35.0		8 715	41.7	
	6 073	13.0		4 759	18.5		1 302	6.2	
	46 728	100.0		25 728	100.0		20 916	100.0	
Western Cape, both sexes, 0-14			Western Cape, males, 0-14			Western Cape, females, 0-14			
1	384	10.9	1	206	10.6	1	173	11.2	
2	337	9.6	2	187	9.6	2	144	9.3	
3	180	5.1	3	89	4.6	3	97	6.3	
4	180	5.1	4	83	4.3	4	90	5.8	
5	137	3.9	5	74	3.8	5	65	4.2	
6	104	3.0	6	71	3.7	6	49	3.2	
7	96	2.7	7	48	2.5	7	45	2.9	
8	93	2.6	8	47	2.4	8	33	2.1	
9	89	2.5	9	43	2.2	9	28	1.8	
10	69	2.0	10	40	2.1	10	27	1.7	
	1 360	36.7		741	36.2		604	39.0	
	504	14.3		309	15.9		194	12.5	
	3 515	100.0		1 938	100.0		1 549	100.0	
Western Cape, both sexes, 15-49			Western Cape, males, 15-49			Western Cape, females, 15-49			
1	3 067	18.8	1	1 718	17.2	1	1 342	21.3	
2	1 666	10.2	2	767	7.7	2	899	14.3	
3	1 554	9.7	3	225	2.2	3	212	3.4	
4	333	2.0	4	194	1.9	4	158	2.5	
5	325	2.0	5	170	1.7	5	153	2.4	
6	307	1.9	6	163	1.7	6	137	2.2	
7	296	1.9	7	155	1.5	7	137	2.2	
8	268	1.6	8	147	1.5	8	128	2.0	
9	248	1.5	9	138	1.4	9	127	2.0	
10	248	1.5	10	123	1.2	10	125	2.0	
	4 773	29.2		2 516	25.1		2 155	34.2	
	4 437	27.2		3 632	36.9		738	11.7	
	16 339	100.0		10 009	100.0		6 303	100.0	
Western Cape, both sexes, 50-64			Western Cape, males, 50-64			Western Cape, females, 50-64			
1	979	9.6	1	675	11.4	1	521	12.4	
2	901	8.9	2	489	8.2	2	303	7.2	
3	704	6.9	3	420	7.1	3	282	6.7	
4	659	6.5	4	407	6.8	4	252	6.0	
5	637	6.3	5	380	6.4	5	217	5.2	
6	575	5.7	6	366	6.2	6	214	5.1	
7	570	5.6	7	286	4.8	7	209	5.0	
8	353	3.5	8	185	3.1	8	186	4.4	
9	351	3.5	9	165	2.8	9	183	4.4	
10	215	2.1	10	122	2.1	10	168	4.0	
	3 581	35.2		1 987	33.1		1 517	36.1	
	636	6.3		483	8.1		153	3.6	
	10 161	100.0		5 945	100.0		4 205	100.0	
Western Cape, both sexes, 65+			Western Cape, males, 65+			Western Cape, females, 65+			
1	1 778	10.7	1	907	11.7	1	984	11.1	
2	1 566	9.4	2	633	8.1	2	907	10.3	
3	1 074	6.5	3	581	7.5	3	680	7.3	
4	931	5.6	4	507	6.5	4	553	6.3	
5	926	5.6	5	462	5.9	5	423	4.8	
6	845	5.1	6	424	5.5	6	389	4.4	
7	574	3.4	7	367	4.5	7	284	3.3	
8	574	3.4	8	367	4.5	8	292	3.4	
9	305	1.9	9	286	3.3	9	206	2.6	
10	587	3.6	10	286	3.3	10	206	2.6	
	5 878	36.3		2 863	33.2		3 072	34.7	
	4 457	27.7		2 243	31.1		2 113	24.1	
	16 313	100.0		7 776	100.0		8 848	100.0	

* Including deaths due to MDR-TB and XDR-TB

Appendix L.3: The ten leading underlying natural causes of death by age and sex: Northern Cape, 2008

Northern Cape, both sexes, all ages			Northern Cape, males, all ages			Northern Cape, females, all ages			
No.	%	No.	%	No.	%	No.	%	No.	%
1	1768	11.6	1036	12.9	1	0.1	10.1	731	10.1
2	993	6.5	505	6.3	1	0.1	1.8	388	6.7
3	747	4.9	349	4.4	3	0.4	3.8	396	5.5
4	657	4.3	325	4.1	4	0.5	4.7	352	4.9
5	628	4.1	314	3.9	5	0.7	7.7	342	4.7
6	527	3.5	276	3.4	7	1.0	10.5	266	3.7
7	430	2.9	203	2.6	8	1.1	13.6	237	3.3
8	400	2.7	183	2.3	9	1.2	15.9	236	3.3
9	402	2.7	181	2.3	10	1.4	19.1	221	3.1
10	405	2.7	185	2.3	-	-	-	202	2.8
	7 011	45.9	3 495	43.6				3 421	47.3
	1 285	8.4	981	12.0				323	4.5
	15 263	100.0	8 013	100.0				7 237	100.0
Northern Cape, both sexes, 0-14			Northern Cape, males, 0-14			Northern Cape, females, 0-14			
1	343	18.7	191	18.8	1	18.8	18.8	152	18.4
2	160	8.7	86	9.5	2	10.4	10.4	84	10.4
3	151	8.2	75	7.4	3	6.6	6.6	53	6.6
4	96	5.2	56	5.5	4	4.7	4.7	48	5.9
5	91	5.0	47	4.6	5	4.2	4.2	38	4.7
6	82	4.5	44	4.3	6	4.2	4.2	34	4.2
7	56	3.1	32	3.2	7	3.0	3.0	24	3.0
8	38	2.1	21	2.1	8	2.1	2.1	17	2.1
9	33	1.8	19	1.9	9	2.1	2.1	17	2.1
10	27	1.5	19	1.9	10	1.6	1.6	13	1.6
	27	1.5	-	-				-	-
	569	31.0	348	34.3				284	32.6
	133	7.3	67	6.6				65	8.0
	1 833	100.0	1 015	100.0				809	100.0
Northern Cape, both sexes, 15-49			Northern Cape, males, 15-49			Northern Cape, females, 15-49			
1	1 230	19.3	659	19.8	1	18.8	18.8	570	18.8
2	474	7.5	235	7.1	2	7.8	7.8	238	7.8
3	342	5.4	149	4.5	3	6.4	6.4	195	6.4
4	312	4.9	131	3.9	4	6.0	6.0	181	6.0
5	246	3.9	98	2.9	5	4.7	4.7	180	4.7
6	195	3.0	78	2.3	6	2.9	2.9	85	2.9
7	142	2.2	58	1.7	7	2.4	2.4	63	2.4
8	124	1.9	48	1.4	8	2.4	2.4	64	2.4
9	90	1.4	45	1.4	9	1.7	1.7	53	1.7
10	81	1.2	44	1.3	10	1.6	1.6	49	1.6
	2 218	34.9	1 021	30.8				1 192	38.9
	934	14.7	742	22.3				192	6.3
	6 360	100.0	3 320	100.0				3 037	100.0
Northern Cape, both sexes, 50-64			Northern Cape, males, 50-64			Northern Cape, females, 50-64			
1	348	11.0	247	13.5	1	7.5	7.5	101	7.5
2	203	6.4	125	6.9	2	6.5	6.5	87	6.5
3	176	5.6	103	5.7	3	6.3	6.3	85	6.3
4	173	5.5	89	4.9	4	6.3	6.3	84	6.3
5	167	5.3	82	4.5	5	5.8	5.8	78	5.8
6	140	4.4	78	4.3	6	5.2	5.2	70	5.2
7	122	3.9	65	3.6	7	4.5	4.5	61	4.5
8	105	3.3	62	3.4	8	4.0	4.0	54	4.0
9	102	3.2	55	3.0	9	3.7	3.7	49	3.7
10	81	2.6	41	2.2	10	3.3	3.3	44	3.3
	1 417	44.8	776	42.6				597	44.5
	131	4.1	103	5.5				31	2.3
	3 165	100.0	1 823	100.0				1 341	100.0
Northern Cape, both sexes, 65+			Northern Cape, males, 65+			Northern Cape, females, 65+			
1	360	9.2	159	8.6	1	10.3	10.3	211	10.3
2	332	8.5	149	8.1	2	9.1	9.1	187	9.1
3	249	6.4	103	5.6	3	8.1	8.1	165	8.1
4	237	6.1	96	5.2	4	7.1	7.1	146	7.1
5	221	5.7	86	4.7	5	5.4	5.4	111	5.4
6	214	5.5	82	4.5	6	4.6	4.6	94	4.6
7	186	4.8	75	4.1	7	3.8	3.8	76	3.8
8	184	4.7	72	3.9	8	2.9	2.9	59	2.9
9	132	3.4	54	2.9	9	1.8	1.8	47	1.8
10	91	2.3	64	3.5	10	1.8	1.8	36	1.8
	1 653	42.4	754	40.8				843	41.2
	85	2.2	50	2.7				35	1.7
	3 894	100.0	1 846	100.0				2 048	100.0

* Including deaths due to MDR-TB and XDR-TB

Appendix L.4: The ten leading underlying natural causes of death by age and sex: Free State, 2008

Free State, both sexes, all ages			Free State, males, all ages			Free State, females, all ages					
No.	%	No.	%	No.	%	No.	%	No.	%		
1	13.0	6 379	12.9	3 209	12.9	3 209	12.9	3 224	13.3		
2	11.8	5 772	12.6	3 151	12.6	3 151	12.6	2 580	10.6		
3	9.4	4 622	8.6	2 133	8.6	2 133	8.6	2 487	10.3		
4	4.7	2 305	4.1	1 024	4.1	1 024	4.1	1 281	5.3		
5	4.2	2 049	3.6	908	3.6	908	3.6	1 141	4.7		
6	3.9	1 763	3.5	761	3.5	761	3.5	1 002	4.1		
7	2.6	1 213	2.4	510	2.4	510	2.4	712	3.4		
8	2.6	1 213	2.4	510	2.4	510	2.4	712	3.4		
9	1.9	932	1.9	501	2.0	501	2.0	401	1.7		
10	1.9	932	1.9	483	1.9	483	1.9	339	1.4		
	37.8	18 552	36.7	9 140	36.7	9 140	36.7	9 381	38.8		
	6.6	3 244	10.0	2 487	10.0	2 487	10.0	756	3.1		
	100.0	49 111	100.0	24 923	100.0	24 923	100.0	24 163	100.0		
Free State, both sexes, 0-14			Free State, males, 0-14			Free State, females, 0-14					
1	25.7	1 751	26.2	940	26.2	940	26.2	810	25.1		
2	16.1	1 096	16.0	576	16.0	576	16.0	519	16.1		
3	8.6	587	8.8	316	8.8	316	8.8	271	8.4		
4	4.5	306	4.3	154	4.3	154	4.3	152	4.7		
5	2.9	200	3.0	107	3.0	107	3.0	104	3.2		
6	2.9	197	2.9	100	2.8	100	2.8	97	3.0		
7	2.9	196	2.6	92	2.6	92	2.6	92	2.9		
8	2.4	162	2.2	78	2.2	78	2.2	84	2.6		
9	1.9	131	1.9	68	1.9	68	1.9	65	2.0		
10	1.8	124	1.8	64	1.8	64	1.8	63	2.0		
	26.2	1 785	26.1	937	26.1	937	26.1	837	26.0		
	4.3	291	4.5	161	4.5	161	4.5	129	4.0		
	100.0	6 826	100.0	3 593	100.0	3 593	100.0	3 223	100.0		
Free State, both sexes, 15-49			Free State, males, 15-49			Free State, females, 15-49					
1	18.4	4 294	19.3	2 262	19.3	2 262	19.3	2 030	17.5		
2	15.0	3 507	13.7	1 606	13.7	1 606	13.7	1 898	16.4		
3	8.4	1 972	6.7	781	6.7	781	6.7	914	10.2		
4	6.8	1 582	5.7	688	5.7	688	5.7	1 180	7.9		
5	2.9	671	3.1	368	3.1	368	3.1	303	2.6		
6	2.3	546	2.5	251	2.5	251	2.5	237	2.6		
7	2.2	503	2.2	249	2.1	249	2.1	252	2.2		
8	1.8	420	1.7	195	1.7	195	1.7	252	1.9		
9	1.4	318	1.2	132	1.2	132	1.2	173	1.8		
10	1.1	252	1.1	122	1.1	122	1.1	213	1.8		
	26.2	6 878	27.4	3 213	27.4	3 213	27.4	3 634	31.3		
	9.8	2 295	15.8	1 858	15.8	1 858	15.8	437	3.8		
	100.0	23 338	100.0	11 732	100.0	11 732	100.0	11 596	100.0		
Free State, both sexes, 50-64			Free State, males, 50-64			Free State, females, 50-64					
1	11.1	1 024	13.1	638	13.1	638	13.1	337	10.3		
2	11.1	1 009	11.6	612	11.6	612	11.6	335	8.7		
3	6.2	560	5.4	285	5.4	285	5.4	286	7.5		
4	5.8	527	5.2	271	5.2	271	5.2	275	7.2		
5	5.4	493	5.0	261	5.0	261	5.0	266	6.9		
6	5.2	469	4.5	238	4.5	238	4.5	222	5.8		
7	4.0	360	3.5	183	3.5	183	3.5	196	5.1		
8	3.7	341	3.1	163	3.1	163	3.1	115	3.0		
9	2.6	234	2.7	144	2.7	144	2.7	105	2.7		
10	2.2	201	2.2	136	2.2	136	2.2	103	2.7		
	38.2	3 479	37.1	1 952	37.1	1 952	37.1	1 461	38.1		
	4.4	402	6.2	326	6.2	326	6.2	76	2.0		
	100.0	9 099	100.0	5 259	100.0	5 259	100.0	3 837	100.0		
Free State, both sexes, 65+			Free State, males, 65+			Free State, females, 65+					
1	11.8	1 157	10.8	467	10.8	467	10.8	690	12.5		
2	9.9	973	8.2	355	8.2	355	8.2	619	11.2		
3	7.8	765	6.1	263	6.1	263	6.1	479	8.7		
4	7.4	723	5.7	244	5.7	244	5.7	410	7.4		
5	6.4	628	4.9	218	4.9	218	4.9	410	7.4		
6	4.5	441	3.8	165	3.8	165	3.8	231	4.2		
7	4.1	402	3.5	144	3.5	144	3.5	231	4.2		
8	3.8	372	3.0	132	3.0	132	3.0	231	4.2		
9	2.6	256	2.2	103	2.2	103	2.2	139	2.5		
10	2.6	256	2.2	103	2.2	103	2.2	139	2.5		
	36.4	3 626	38.1	1 624	38.1	1 624	38.1	1 110	2.1		
	2.5	246	3.1	134	3.1	134	3.1	199	3.6		
	100.0	9 824	100.0	4 318	100.0	4 318	100.0	5 504	100.0		

* Including deaths due to MDR-TB and XDR-TB

Appendix L.5: The ten leading underlying natural causes of death by age and sex: KwaZulu-Natal, 2008

KwaZulu-Natal, both sexes, all ages			KwaZulu-Natal, males, all ages			KwaZulu-Natal, females, all ages		
No.	%	No.	%	No.	%	No.	%	No.
1	22 779	16.9	12 156	18.0	1	10 598	15.7	
2	9 812	7.3	4 513	6.7	2	Intestinal infectious diseases (A00-A09)		
3	7 665	5.7	3 803	5.6	3	Intestinal infectious diseases (A00-A09)		
4	6 237	4.6	2 385	3.5	4	Influenza and pneumonia (J10-J18)		
5	5 216	3.9	2 287	3.4	5	Cerebrovascular diseases (I60-I69)		
6	4 887	3.6	2 249	3.3	6	Other forms of heart disease (I30-I52)		
7	4 843	3.6	1 720	2.7	7	Human immunodeficiency virus [HIV] disease (B20-B24)		
8	3 943	2.9	1 730	2.7	8	Diabetes mellitus (E10-E14)		
9	2 569	1.9	1 283	2.0	9	Human immunodeficiency virus [HIV] disease (B20-B24)		
10	2 542	1.9	1 480	2.2	10	Other viral diseases (B25-B34)		
	52 790	39.1	24 807	36.8		Other viral diseases (B25-B34)		
	134 907	100.0	67 422	100.0		Chronic lower respiratory diseases (J40-J47)		
						Other natural causes		
						Non-natural		
						All causes		
KwaZulu-Natal, both sexes, 0-14			KwaZulu-Natal, males, 0-14			KwaZulu-Natal, females, 0-14		
1	3 239	21.4	1 719	19.9	1	Intestinal infectious diseases (A00-A09)		
2	1 459	9.7	764	10.8	2	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)		
3	1 384	9.2	393	5.4	3	Influenza and pneumonia (J10-J18)		
4	773	5.1	368	5.9	4	Tuberculosis (A15-A19)		
5	451	3.0	208	2.7	5	Disorders related to length of gestation and fetal growth (P05-P08)		
6	431	2.9	204	2.8	6	Malnutrition (E40-E46)		
7	329	2.2	191	2.2	7	Infections specific to the perinatal period (P35-P39)		
8	310	2.1	158	1.9	8	Infections specific to the perinatal period (P35-P39)		
9	289	1.9	157	1.9	9	Human immunodeficiency virus [HIV] disease (B20-B24)		
10	261	1.7	140	1.8	10	Other viral diseases (B25-B34)		
	5 073	33.6	2 607	32.3		Inflammatory diseases (B50-B64)		
	11 200	7.4	643	8.4		Other natural causes		
	15 119	100.0	7 982	100.0		Non-natural		
						All causes		
KwaZulu-Natal, both sexes, 15-49			KwaZulu-Natal, males, 15-49			KwaZulu-Natal, females, 15-49		
1	17 529	25.5	8 875	25.2	1	Tuberculosis (A15-A19)		
2	4 684	6.8	1 953	5.6	2	Intestinal infectious diseases (A00-A09)		
3	3 993	5.8	1 794	5.1	3	Influenza and pneumonia (J10-J18)		
4	3 218	4.7	1 347	3.8	4	Human immunodeficiency virus [HIV] disease (B20-B24)		
5	1 826	2.6	825	2.3	5	Other viral diseases (B25-B34)		
6	1 306	1.9	529	1.5	6	Certain disorders involving the immune mechanism (D80-D89)		
7	1 090	1.6	479	1.4	7	Inflammatory diseases of the central nervous system (G00-G09)		
8	990	1.4	409	1.2	8	Other acute lower respiratory infections (J20-J22)		
9	832	1.2	409	1.2	9	Other forms of heart disease (I30-I52)		
10	19 498	28.4	8 948	25.4	10	Cerebrovascular diseases (I60-I69)		
	68 725	100.0	35 189	100.0		Other natural causes		
						Non-natural		
						All causes		
KwaZulu-Natal, both sexes, 50-64			KwaZulu-Natal, males, 50-64			KwaZulu-Natal, females, 50-64		
1	3 222	14.6	2 172	16.9	1	Tuberculosis (A15-A19)		
2	1 619	7.3	750	5.9	2	Diabetes mellitus (E10-E14)		
3	1 515	6.8	700	5.5	3	Cerebrovascular diseases (I60-I69)		
4	1 112	5.0	620	4.8	4	Influenza and pneumonia (J10-J18)		
5	1 033	4.7	612	4.8	5	Other forms of heart disease (I30-I52)		
6	1 020	4.6	546	4.3	6	Ischaemic heart diseases (I20-I25)		
7	776	3.5	539	4.2	7	Intestinal infectious diseases (A00-A09)		
8	711	3.2	453	3.5	8	Chronic lower respiratory diseases (J40-J47)		
9	630	2.8	324	2.5	9	Hypertensive diseases (I10-I15)		
10	510	2.3	316	2.5	10	Malignant neoplasm of digestive organs (C15-C26)		
	8 698	39.3	4 835	37.7		Other natural causes		
	22 128	100.0	12 821	100.0		Non-natural		
						All causes		
KwaZulu-Natal, both sexes, 65+			KwaZulu-Natal, males, 65+			KwaZulu-Natal, females, 65+		
1	3 679	12.8	1 125	10.0	1	Cerebrovascular diseases (I60-I69)		
2	2 743	9.6	1 026	9.1	2	Other forms of heart disease (I30-I52)		
3	2 612	9.1	839	7.4	3	Diabetes mellitus (E10-E14)		
4	1 482	5.2	689	6.1	4	Ischaemic heart diseases (I20-I25)		
5	1 435	5.0	677	6.0	5	Tuberculosis (A15-A19)		
6	1 184	4.1	472	4.2	6	Chronic lower respiratory diseases (J40-J47)		
7	1 025	3.6	459	4.1	7	Influenza and pneumonia (J10-J18)		
8	914	3.2	409	3.6	8	Human immunodeficiency virus [HIV] disease (B20-B24)		
9	851	3.0	340	3.0	9	Hypertensive diseases (I10-I15)		
10	1 178	36.4	459	2.5	10	Malignant neoplasm of digestive organs (C15-C26)		
	11 978	36.0	4 539	42.7		Other natural causes		
	28 646	100.0	11 267	100.0		Non-natural		
						All causes		

* Including deaths due to MDR-TB and XDR-TB

Appendix L.6: The ten leading underlying natural causes of death by age and sex: North West, 2008

North West, both sexes, all ages			North West, males, all ages			North West, females, all ages		
No.	%	No.	%	No.	%	No.	%	No.
1	5 615	12.4	5 615	13.7	5 615	13.7	5 615	13.7
2	4 302	9.5	4 302	9.5	4 302	9.5	4 302	9.5
3	3 426	7.5	3 426	7.5	3 426	7.5	3 426	7.5
4	2 434	5.4	2 434	5.0	2 434	5.0	2 434	5.0
5	1 729	3.8	1 729	3.5	1 729	3.5	1 729	3.5
6	1 395	3.1	1 395	2.9	1 395	2.9	1 395	2.9
7	1 377	3.0	1 377	2.9	1 377	2.9	1 377	2.9
8	1 177	2.6	1 177	2.6	1 177	2.6	1 177	2.6
9	935	2.1	935	2.1	935	2.1	935	2.1
10	922	2.0	922	1.8	922	1.8	922	1.8
	18 538	40.8	18 538	38.9	18 538	38.9	18 538	38.9
	3 616	8.0	2 796	11.7	3 616	8.0	3 616	8.0
	45 390	100.0	45 390	100.0	45 390	100.0	45 390	100.0
North West, both sexes, 0-14			North West, males, 0-14			North West, females, 0-14		
1	1 778	14.3	1 778	14.0	1 778	14.0	1 778	14.0
2	1 033	8.5	1 033	7.4	1 033	7.4	1 033	7.4
3	617	5.0	617	4.3	617	4.3	617	4.3
4	357	2.9	357	2.5	357	2.5	357	2.5
5	222	1.8	222	1.6	222	1.6	222	1.6
6	206	1.7	206	1.5	206	1.5	206	1.5
7	176	1.4	176	1.3	176	1.3	176	1.3
8	167	1.4	167	1.2	167	1.2	167	1.2
9	144	1.2	144	1.0	144	1.0	144	1.0
10	130	1.1	130	1.0	130	1.0	130	1.0
	2 001	16.3	2 001	14.5	2 001	14.5	2 001	14.5
	3 799	30.8	2 835	20.8	3 799	30.8	3 799	30.8
	7 206	100.0	7 206	100.0	7 206	100.0	7 206	100.0
North West, both sexes, 15-49			North West, males, 15-49			North West, females, 15-49		
1	4 027	20.1	4 027	20.9	4 027	20.9	4 027	20.9
2	2 178	10.9	2 178	11.2	2 178	11.2	2 178	11.2
3	1 024	5.1	1 024	5.3	1 024	5.3	1 024	5.3
4	718	3.6	718	3.6	718	3.6	718	3.6
5	672	3.3	672	3.2	672	3.2	672	3.2
6	624	3.1	624	2.9	624	2.9	624	2.9
7	585	2.9	585	2.8	585	2.8	585	2.8
8	523	2.6	523	2.5	523	2.5	523	2.5
9	476	2.3	476	2.2	476	2.2	476	2.2
10	276	1.4	276	1.3	276	1.3	276	1.3
	6 174	30.8	6 174	26.8	6 174	26.8	6 174	26.8
	2 509	12.5	2 061	19.5	2 509	12.5	2 509	12.5
	20 026	100.0	20 026	100.0	20 026	100.0	20 026	100.0
North West, both sexes, 50-64			North West, males, 50-64			North West, females, 50-64		
1	1 056	13.5	1 056	15.9	1 056	15.9	1 056	15.9
2	561	7.2	561	8.2	561	8.2	561	8.2
3	455	5.8	455	6.7	455	6.7	455	6.7
4	349	4.5	349	5.1	349	5.1	349	5.1
5	331	4.2	331	4.8	331	4.8	331	4.8
6	290	3.7	290	4.2	290	4.2	290	4.2
7	286	3.7	286	4.1	286	4.1	286	4.1
8	192	2.5	192	2.8	192	2.8	192	2.8
9	168	2.2	168	2.4	168	2.4	168	2.4
10	134	1.7	134	1.9	134	1.9	134	1.9
	3 134	40.2	3 134	38.8	3 134	38.8	3 134	38.8
	7 800	100.0	7 800	100.0	7 800	100.0	7 800	100.0
North West, both sexes, 65+			North West, males, 65+			North West, females, 65+		
1	1 171	11.5	1 171	10.9	1 171	10.9	1 171	10.9
2	994	9.7	994	9.4	994	9.4	994	9.4
3	891	8.7	891	8.3	891	8.3	891	8.3
4	596	5.8	596	5.6	596	5.6	596	5.6
5	519	5.1	519	4.9	519	4.9	519	4.9
6	379	3.7	379	3.6	379	3.6	379	3.6
7	319	3.1	319	3.0	319	3.0	319	3.0
8	286	2.8	286	2.7	286	2.7	286	2.7
9	251	2.5	251	2.4	251	2.4	251	2.4
10	144	1.4	144	1.4	144	1.4	144	1.4
	4 367	42.9	4 367	42.4	4 367	42.4	4 367	42.4
	10 227	100.0	10 227	100.0	10 227	100.0	10 227	100.0

* Including deaths due to MDR-TB and XDR-TB

Appendix L.7: The ten leading underlying natural causes of death by age and sex: Gauteng, 2008

Gauteng, both sexes, all ages			Gauteng, males, all ages			Gauteng, females, all ages		
No.	%	No.	%	No.	%	No.	%	No.
1	11 367	9.5	1	6 241	10.2	1	12 690	9.4
2	10 137	8.3	2	4 990	8.1	2	5 130	9.4
3	6 222	5.0	3	2 979	4.9	3	5 112	9.4
4	5 875	4.8	4	2 809	4.6	4	3 226	5.6
5	4 957	3.6	5	1 853	3.0	5	3 069	5.6
6	3 996	3.2	6	1 683	2.8	6	2 202	4.0
7	3 956	3.2	7	1 583	2.6	7	2 042	4.0
8	2 752	2.3	8	1 295	2.1	8	1 551	2.8
9	2 646	2.2	9	1 196	2.0	9	1 325	2.4
10	2 616	2.1	10	1 316	2.1	10	1 345	2.4
	52 196	44.6		25 972	42.4		25 718	47.2
	11 642	10.3		8 982	14.7		2 632	4.8
All causes	115 909	100.0	All causes	61 278	100.0	All causes	54 432	100.0
Gauteng, both sexes, 0-14			Gauteng, males, 0-14			Gauteng, females, 0-14		
1	2 701	18.4	1	1 419	18.3	1	1 289	18.6
2	1 826	12.5	2	924	11.7	2	917	13.4
3	1 673	11.4	3	903	11.9	3	738	10.8
4	440	3.0	4	245	3.2	4	189	2.8
5	385	2.6	5	212	2.7	5	164	2.4
6	338	2.3	6	172	2.2	6	163	2.4
7	290	2.0	7	141	1.8	7	149	2.2
8	256	1.7	8	137	1.8	8	137	2.0
9	256	1.7	9	130	1.7	9	127	1.9
10	251	1.7	10	123	1.6	10	119	1.7
	5 267	36.0		2 805	36.2		2 419	35.5
	965	6.6		532	6.9		431	6.3
All causes	14 648	100.0	All causes	7 743	100.0	All causes	6 822	100.0
Gauteng, both sexes, 15-49			Gauteng, males, 15-49			Gauteng, females, 15-49		
1	8 617	16.6	1	4 532	15.6	1	4 078	17.3
2	5 320	10.2	2	2 520	10.0	2	2 791	11.8
3	2 388	4.6	3	1 188	4.2	3	1 336	5.7
4	2 177	4.2	4	1 051	3.6	4	1 038	4.4
5	2 002	3.8	5	963	3.1	5	989	4.2
6	1 646	3.2	6	925	2.9	6	969	4.1
7	1 632	3.1	7	792	2.5	7	869	3.7
8	1 350	2.6	8	672	2.1	8	772	3.4
9	1 250	2.4	9	575	1.8	9	632	2.7
10	669	1.3	10	351	1.3	10	383	1.6
	16 942	32.6		8 265	28.7		8 594	36.4
	8 353	16.1		4 874	24.8		4 669	19.6
All causes	52 041	100.0	All causes	28 383	100.0	All causes	23 603	100.0
Gauteng, both sexes, 50-64			Gauteng, males, 50-64			Gauteng, females, 50-64		
1	1 886	8.8	1	1 211	9.6	1	675	7.7
2	1 402	6.5	2	866	6.8	2	583	6.7
3	1 363	6.4	3	779	6.2	3	536	6.1
4	1 103	5.1	4	612	4.8	4	527	6.0
5	1 086	5.1	5	594	4.7	5	491	5.6
6	813	3.8	6	557	4.4	6	344	3.9
7	729	3.4	7	458	3.6	7	313	3.6
8	725	3.4	8	442	3.5	8	305	3.5
9	690	3.2	9	380	3.0	9	286	3.3
10	620	2.9	10	307	2.4	10	238	2.7
	9 648	45.0		5 417	42.8		4 135	47.2
	1 362	6.4		1 029	8.1		333	3.8
All causes	21 427	100.0	All causes	12 652	100.0	All causes	8 766	100.0
Gauteng, both sexes, 65+			Gauteng, males, 65+			Gauteng, females, 65+		
1	2 660	9.7	1	1 063	8.8	1	1 576	10.4
2	2 166	7.9	2	870	7.0	2	1 320	8.7
3	1 887	6.8	3	846	6.8	3	1 145	7.5
4	1 626	5.9	4	742	6.0	4	1 001	6.6
5	1 597	5.7	5	689	5.6	5	877	5.8
6	1 513	5.5	6	602	4.9	6	755	5.0
7	1 109	4.0	7	512	4.1	7	507	3.3
8	866	3.5	8	505	4.1	8	300	2.0
9	827	3.3	9	445	3.9	9	363	2.4
10	527	2.3	10	347	2.8	10	312	2.2
	11 985	43.5		5 183	41.0		6 516	42.9
	888	3.2		495	4.0		390	2.6
All causes	27 563	100.0	All causes	12 359	100.0	All causes	15 192	100.0

* Including deaths due to MDR-TB and XDR-TB

Appendix L-8: The ten leading underlying natural causes of death by age and sex: Mpumalanga, 2008

Mpumalanga, both sexes, all ages				Mpumalanga, males, all ages				Mpumalanga, females, all ages			
	No.	%		No.	%		No.	%		No.	%
1	6 626	13.9	Tuberculosis (A15-A19)	3 574	14.8	Tuberculosis (A15-A19)	3 048	13.0	1	3 574	14.8
2	4 934	10.4	Influenza and pneumonia (J10-J18)	2 450	10.2	Influenza and pneumonia (J10-J18)	2 477	10.6	2	2 450	10.2
3	4 616	9.7	Ischaemic heart diseases (I20-I25)	2 136	8.9	Ischaemic heart diseases (I20-I25)	2 169	9.5	3	4 616	9.7
4	2 160	4.6	Cerebrovascular diseases (I60-I69)	914	3.9	Cerebrovascular diseases (I60-I69)	1 265	5.4	4	2 160	4.6
5	2 072	4.3	Other forms of heart disease (I30-I52)	953	4.0	Other forms of heart disease (I30-I52)	1 089	5.1	5	2 072	4.3
6	1 391	2.9	Certain disorders involving the immune mechanism (D80-D89)	542	2.3	Certain disorders involving the immune mechanism (D80-D89)	596	3.2	6	1 391	2.9
7	1 329	2.8	Diabetes mellitus (E10-E14)	528	2.2	Diabetes mellitus (E10-E14)	601	3.4	7	1 329	2.8
8	1 325	2.8	Chronic lower respiratory diseases (J40-J47)	524	2.2	Chronic lower respiratory diseases (J40-J47)	614	2.6	8	1 325	2.8
9	1 015	2.1	Hypertensive diseases (I10-I15)	483	2.0	Hypertensive diseases (I10-I15)	484	2.1	9	1 015	2.1
10	982	2.1	Other acute lower respiratory infections (J20-J22)	347	1.5	Other acute lower respiratory infections (J20-J22)	383	1.7	10	982	2.1
	19 220	35.5	Other natural causes	2 948	12.2	Other natural causes	3 383	15.6		19 220	35.5
	3 881	8.1	Non-natural	2 948	12.2	Non-natural	3 383	15.6		3 881	8.1
All causes	47 651	100.0	All causes	24 129	100.0	All causes	29 415	100.0	All causes	23 435	100.0
Mpumalanga, both sexes, 0-14				Mpumalanga, males, 0-14				Mpumalanga, females, 0-14			
1	1 662	26.7	1	875	28.7	1	875	26.7	1	1 662	26.7
2	930	15.0	2	465	13.9	2	465	13.9	2	930	15.0
3	478	7.7	3	262	8.0	3	262	7.3	3	478	7.7
4	262	4.2	4	141	4.3	4	141	4.2	4	262	4.2
5	202	3.2	5	104	3.2	5	104	3.4	5	202	3.2
6	182	2.9	6	101	3.1	6	101	3.3	6	182	2.9
7	176	2.8	7	92	2.8	7	92	2.7	7	176	2.8
8	174	2.8	8	85	2.6	8	85	2.5	8	174	2.8
9	114	1.8	9	70	2.1	9	70	2.1	9	114	1.8
10	95	1.5	10	51	1.6	10	51	1.5	10	95	1.5
	1 555	25.0	Other natural causes	814	24.9	Other natural causes	731	25.1		1 555	25.0
	389	6.3	Non-natural	224	6.8	Non-natural	163	5.6		389	6.3
All causes	6 219	100.0	All causes	3 274	100.0	All causes	2 915	100.0	All causes	2 915	100.0
Mpumalanga, both sexes, 15-49				Mpumalanga, males, 15-49				Mpumalanga, females, 15-49			
1	4 945	20.7	1	2 519	21.0	1	2 519	20.4	1	4 945	20.7
2	1 967	8.4	2	1 250	10.4	2	1 250	10.4	2	1 967	8.4
3	1 888	8.2	3	809	6.7	3	809	6.7	3	1 888	8.2
4	1 284	5.4	4	549	4.6	4	549	4.6	4	1 284	5.4
5	800	3.3	5	323	2.7	5	323	2.7	5	800	3.3
6	704	2.9	6	284	2.4	6	284	2.4	6	704	2.9
7	526	2.2	7	238	1.9	7	238	1.9	7	526	2.2
8	476	2.0	8	228	1.9	8	228	1.9	8	476	2.0
9	415	1.7	9	168	1.6	9	168	1.6	9	415	1.7
10	6 707	28.1	10	3 117	26.0	10	3 117	26.0	10	6 707	28.1
	2 710	11.3	Other natural causes	1 203	10.4	Other natural causes	1 178	10.4		2 710	11.3
	23 899	100.0	Non-natural	2 002	18.4	Non-natural	2 002	18.4		23 899	100.0
All causes	23 899	100.0	All causes	12 002	100.0	All causes	11 878	100.0	All causes	11 878	100.0
Mpumalanga, both sexes, 50-64				Mpumalanga, males, 50-64				Mpumalanga, females, 50-64			
1	1 047	12.9	1	681	14.7	1	681	14.7	1	1 047	12.9
2	709	8.7	2	421	9.1	2	421	9.1	2	709	8.7
3	492	6.0	3	258	5.6	3	258	5.6	3	492	6.0
4	488	6.0	4	251	5.4	4	251	5.4	4	488	6.0
5	470	5.8	5	251	5.4	5	251	5.4	5	470	5.8
6	462	5.7	6	202	4.3	6	202	4.3	6	462	5.7
7	339	4.2	7	173	3.7	7	173	3.7	7	339	4.2
8	299	3.7	8	158	3.4	8	158	3.4	8	299	3.7
9	222	2.7	9	123	2.6	9	123	2.6	9	222	2.7
10	2 958	36.3	10	1 099	23.3	10	1 099	23.3	10	2 958	36.3
	4 460	5.6	Other natural causes	1 887	36.3	Other natural causes	1 887	36.3		4 460	5.6
	8 142	100.0	Non-natural	4 645	100.0	Non-natural	4 645	100.0		8 142	100.0
All causes	8 142	100.0	All causes	4 645	100.0	All causes	4 645	100.0	All causes	4 645	100.0
Mpumalanga, both sexes, 65+				Mpumalanga, males, 65+				Mpumalanga, females, 65+			
1	1 253	13.5	1	454	11.0	1	454	11.0	1	1 253	13.5
2	1 034	11.2	2	382	9.2	2	382	9.2	2	1 034	11.2
3	828	8.9	3	319	7.7	3	319	7.7	3	828	8.9
4	630	6.8	4	305	7.4	4	305	7.4	4	630	6.8
5	619	6.7	5	223	5.4	5	223	5.4	5	619	6.7
6	465	5.0	6	213	5.2	6	213	5.2	6	465	5.0
7	361	3.9	7	200	4.8	7	200	4.8	7	361	3.9
8	319	3.4	8	188	4.3	8	188	4.3	8	319	3.4
9	165	1.8	9	108	2.6	9	108	2.6	9	165	1.8
10	3 059	33.0	10	1 447	35.0	10	1 447	35.0	10	3 059	33.0
	279	3.0	Other natural causes	1 168	28.1	Other natural causes	1 168	28.1		279	3.0
	9 267	100.0	Non-natural	4 135	100.0	Non-natural	4 135	100.0		9 267	100.0
All causes	9 267	100.0	All causes	4 135	100.0	All causes	4 135	100.0	All causes	4 135	100.0

* Including deaths due to MDL, TB and XDR-TB

Appendix L.9: The ten leading underlying natural causes of death by age and sex: Limpopo, 2008

Limpopo, both sexes, all ages			Limpopo, males, all ages			Limpopo, females, all ages			
No.	%	No.	%	No.	%	No.	%	No.	%
1	5 989	11.2	1	2 761	10.6	1	2 223	11.9	
2	5 274	9.9	2	2 668	10.2	2	2 857	10.5	
3	4 854	9.1	3	2 414	9.2	3	2 183	8.0	
4	2 574	4.8	4	1 088	4.2	4	1 485	5.5	
5	2 193	4.1	5	963	3.5	5	1 300	4.9	
6	1 619	3.0	6	711	2.7	6	908	3.3	
7	1 389	2.6	7	592	2.4	7	822	3.1	
8	1 389	2.6	8	520	2.0	8	682	2.4	
9	1 389	2.6	9	530	2.0	9	393	1.4	
10	679	1.3	10	348	1.3	10	377	1.4	
	22 665	42.5		10 668	40.9		11 897	43.8	
	3 894	7.3		2 872	11.0		1 019	3.7	
All causes	53 319	100.0	All causes	26 098	100.0	All causes	27 190	100.0	
Limpopo, both sexes, 0-14			Limpopo, males, 0-14			Limpopo, females, 0-14			
1	1 941	26.3	1	1 075	26.0	1	934	26.8	
2	1 160	15.7	2	576	14.9	2	582	16.7	
3	483	6.6	3	267	6.9	3	212	6.1	
4	228	3.1	4	111	2.9	4	117	3.4	
5	207	2.8	5	105	2.7	5	102	2.9	
6	133	1.8	6	78	2.0	6	55	1.6	
7	114	1.5	7	61	1.6	7	54	1.5	
8	111	1.5	8	56	1.4	8	53	1.5	
9	103	1.4	9	53	1.4	9	50	1.4	
10	83	1.1	10	48	1.2	10	36	1.0	
	2 352	31.9		1 226	31.7		1 117	32.0	
	454	6.2		280	7.2		174	5.0	
All causes	7 369	100.0	All causes	3 866	100.0	All causes	3 486	100.0	
Limpopo, both sexes, 15-49			Limpopo, males, 15-49			Limpopo, females, 15-49			
1	3 404	15.4	1	1 720	16.3	1	1 689	14.6	
2	2 931	13.3	2	1 240	11.8	2	1 683	14.6	
3	1 980	9.8	3	852	8.1	3	1 305	11.3	
4	1 087	5.4	4	400	3.8	4	680	5.9	
5	476	2.2	5	207	2.0	5	314	2.7	
6	461	2.1	6	202	1.9	6	253	2.2	
7	452	2.0	7	166	1.6	7	251	2.2	
8	370	1.7	8	182	1.6	8	250	2.2	
9	320	1.5	9	147	1.3	9	182	1.5	
10	289	1.3	10	147	1.3	10	182	1.5	
	7 535	34.1		3 205	31.2		4 239	36.7	
	2 172	11.6		2 003	19.0		539	4.9	
All causes	22 113	100.0	All causes	10 549	100.0	All causes	11 567	100.0	
Limpopo, both sexes, 50-64			Limpopo, males, 50-64			Limpopo, females, 50-64			
1	870	10.1	1	538	11.6	1	321	9.2	
2	782	9.1	2	481	8.9	2	281	8.1	
3	590	6.8	3	309	6.0	3	272	7.8	
4	478	5.5	4	240	4.7	4	238	6.9	
5	433	5.0	5	232	4.5	5	212	6.1	
6	409	4.7	6	221	4.3	6	177	5.1	
7	376	4.4	7	201	3.9	7	175	5.0	
8	287	3.1	8	185	3.6	8	112	3.2	
9	184	2.1	9	130	2.5	9	97	2.8	
10	172	2.0	10	99	1.9	10	82	2.4	
	3 610	41.8		2 124	41.2		1 403	40.4	
	462	5.4		358	6.9		103	3.0	
All causes	8 633	100.0	All causes	5 168	100.0	All causes	3 473	100.0	
Limpopo, both sexes, 65+			Limpopo, males, 65+			Limpopo, females, 65+			
1	1 671	11.0	1	637	9.8	1	1 034	11.9	
2	1 544	10.2	2	539	8.3	2	1 005	11.6	
3	1 114	7.3	3	483	7.4	3	631	7.3	
4	892	5.9	4	357	5.5	4	535	6.2	
5	647	4.3	5	307	4.7	5	391	4.5	
6	580	3.8	6	256	3.9	6	335	3.9	
7	485	3.0	7	245	3.8	7	148	1.7	
8	368	2.4	8	242	3.7	8	138	1.6	
9	292	1.9	9	167	2.6	9	153	1.8	
10	149	1.0	10	87	1.3	10	117	1.3	
	6 646	45.6		2 891	44.3		4 010	46.1	
	394	2.6		222	3.4		172	2.0	
All causes	15 164	100.0	All causes	6 485	100.0	All causes	8 668	100.0	

* Including deaths due to MDR-TB and XDR-TB

Appendix M: Population group differences

As much as 26,3% of death notification forms did not state the population group of the deceased. Although the importance of population group in mortality is acknowledged, further analysis by population group is restricted to the appendix as the results are not considered accurate due to this large number of unspecified cases. Readers are therefore advised to treat the breakdowns of deaths by population group with caution.

Appendix M.1 provides the breakdown of the ten leading causes of death by population group (including cases where population group was reported as unknown, unspecified or 'other') for the 2008 deaths. The ranks of the causes of death differed widely between the four population groups. However, five causes (*influenza and pneumonia, other forms of heart disease, cerebrovascular diseases, diabetes mellitus, and hypertensive diseases*) were among the ten leading causes in all population groups. These common causes of death had different ranks and different contributions to the overall number of deaths. For example, *influenza and pneumonia* was the second leading cause of death among black Africans, contributing 9,1% of deaths in this group and was the tenth leading cause among Indians/Asians, contributing 2,5% of the deaths.

Tuberculosis was the leading underlying natural cause of death for black African and coloured population groups, accounting for 14,7% and 9,6%, respectively, of all deaths in these groups. *Diabetes* was the leading cause of death among Indians/Asians while *ischaemic heart diseases* were the leading cause among the white population group. The three leading causes of death for the white population group were all *diseases of the circulatory system*, all contributing a quarter of all deaths in this age group.

Intestinal infectious diseases, certain disorders involving the immune mechanism, human immunodeficiency virus [HIV] disease and other viral diseases were among the ten leading causes of natural deaths only for the black African population group while *ischaemic heart diseases, malignant neoplasms of digestive organs, chronic lower respiratory system diseases and renal failure* were among the ten leading underlying causes of natural deaths for all population groups, except for the black African population group.

Tuberculosis was among the leading underlying natural causes of death for all population groups, except the white population group, ranking first among black Africans and coloureds and ninth among the Indian/Asian population. *Malignant neoplasms of respiratory and intrathoracic organs* were among the ten leading underlying causes of death only for the white and coloured population groups while *renal failure* was among the ten leading underlying causes of death only for the white and Indian/Asian population groups.

Nine of the ten leading causes of death for the other/unknown/unspecified population group were similar to those of black Africans, with the first five having the same rank. The number of causes that were similar with the other/unknown/unspecified population group was five for the white population group, and six each for Indians/Asians and the coloured population group, with differing ranks.

The percentages of deaths due to non-natural causes did not differ widely between population groups, ranging from 9,1% among the black African population group to 11,5% among the coloured population group.

Appendix M.1: The ten leading underlying natural causes of death by population group, 2008

Causes of death (based on the Tenth Revision, International Classification of Diseases, 1992)	Black African		White		Indian/Asian		Coloured		Unknown/unspecified						
	Rank	Number	%	Rank	Number	%	Rank	Number	Rank	Number	%				
Tuberculosis (A15-A19)*	1	54 186	14,7	...	...	...	9	199	2,7	1	2 424	9,6	1	17 767	11,4
Influenza and pneumonia (J10-J18)	2	33 648	9,1	6	1 602	4,5	10	189	2,5	10	807	3,2	2	9 356	6,0
Intestinal infectious diseases (A00-A09)	3	29 780	8,1	...	...	...	...	...	...	...	...	...	3	8 720	5,6
Other forms of heart disease (I30-I52)	4	16 305	4,4	2	2 441	6,8	3	558	7,5	6	1 015	4,0	4	5 871	3,8
Cerebrovascular diseases (I60-I69)	5	15 271	4,1	3	2 024	5,6	4	373	5,0	5	1 340	5,3	5	5 355	3,4
Human immunodeficiency virus [HIV] disease (B20-B24)	6	11 069	3,0	...	...	...	...	...	...	...	...	...	8	3 316	2,1
Certain disorders involving the immune mechanism (D80-D89)	7	11 038	3,0	...	...	...	...	...	...	...	...	...	9	3 218	2,1
Diabetes mellitus (E10-E14)	8	10 815	2,9	7	1 552	4,3	1	1 049	14,1	2	1 595	6,3	6	4 547	2,9
Hypertensive diseases (I10-I15)	9	9 311	2,5	9	852	2,4	7	217	2,9	8	891	3,5	...	...	...
Other viral diseases (B25-B34)	10	8 098	2,2	...	...	...	...	...	...	...	...	...	10	3 172	2,0
Ischaemic heart diseases (I20-I25)	...	...	...	1	4 418	12,3	2	983	13,2	4	1 416	5,6	...	...	...
Malignant neoplasm of digestive organs (C15-C26)	...	...	...	4	1 922	5,4	6	228	3,1	9	853	3,4	...	...	...
Chronic lower respiratory diseases (J40-J47)	...	...	...	5	1 793	5,0	5	257	3,5	3	1 424	5,6	7	3 382	2,2
Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	...	...	...	8	1 266	3,5	...	...	...	7	914	3,6	...	...	...
Renal failure (N17-N19)	...	...	...	10	804	2,2	8	207	2,8	...	...	...	...	...	...
Other natural causes		134 928	36,7		13 902	38,8		2 427	32,7		9 669	38,3		78 359	50,4
Non-natural		33 634	9,1		3 284	9,2		740	10,0		2 913	11,5		12 379	8,0
All causes		368 083	100,0		35 860	100,0		7 427	100,0		25 261	100,0		155 442	100,0

*Including deaths due to MDR-TB and XDR-TB

... Category not in top ten

Appendix N: Number of deaths by main groups of causes of death and district municipality (Western Cape, Eastern Cape and Northern Cape), 2008

Province of death	District municipality of death	Certain infectious and parasitic diseases	Diseases of the respiratory system	Diseases of the circulatory system	External causes of morbidity and mortality	Neoplasms	Endocrine, nutritional and metabolic diseases	Diseases of the blood and immune mechanism	Diseases of the nervous system	Diseases of the digestive system	Perinatal conditions	Other causes	Total
		A00-B99	J00-J99	I00-I99	V01-Y98	C00-D48	E00-E90	D50-D89	G00-G99	K00-K93	P00-P96		
Western Cape	Cape Winelands	1 228	616	1 208	841	820	420	80	141	172	100	869	6 495
	Central Karoo	118	99	147	110	84	31	17	14	20	20	105	765
	City of Cape Town	5 625	2 247	5 459	3 795	4 291	2 140	317	688	634	589	3 534	29 319
	Eden	1 018	561	1 135	668	796	305	65	111	155	89	509	5 412
	Overberg	226	146	369	258	298	87	15	37	29	32	251	1 748
	West Coast	537	280	667	401	400	168	38	64	71	73	290	2 989
	Total	8 752	3 949	8 985	6 073	6 689	3 151	532	1 055	1 081	903	5 558	46 728
Eastern Cape	Alfred Nzo	713	816	206	331	79	108	177	77	83	20	1 794	4 404
	Amatole	7 055	3 662	4 086	2 570	1 957	1 251	778	867	587	185	4 366	27 364
	Cacadu	1 037	519	779	504	357	219	162	87	84	71	757	4 576
	Chris Hani	2 592	1 546	1 266	847	486	386	348	316	249	74	1 390	9 500
	Nelson Mandela Bay Metro	3 801	1 786	2 470	1 409	1 411	976	454	418	501	212	1 541	14 979
	O.R.Tambo	3 840	1 563	1 230	1 603	533	427	528	495	397	71	6 394	17 081
	Ukhahlamba	1 424	866	638	321	192	180	214	113	109	33	1 165	5 255
Total	20 462	10 758	10 675	7 585	5 015	3 547	2 661	2 373	2 010	666	17 407	83 159	
Northern Cape	Frances Baard	1 428	710	932	486	527	341	276	166	203	105	742	5 916
	Kgalagadi	429	512	229	149	81	77	39	43	56	112	1 135	2 862
	Namakwa	144	161	244	106	127	69	30	24	34	27	104	1 070
	Pixley ka Seme	656	364	455	239	168	137	67	54	80	75	246	2 541
	Siyanda	782	417	433	305	225	128	98	56	56	74	300	2 874
	Total	3 439	2 164	2 293	1 285	1 128	752	510	343	429	393	2 527	15 263

Appendix N.1: Number of deaths by main groups of causes of death and district municipality (Free State, KwaZulu-Natal and North West), 2008

Province of death	District municipality of death	Certain infectious and parasitic diseases	Diseases of the respiratory system	Diseases of the circulatory system	External causes of morbidity and mortality	Neoplasms	Endocrine, nutritional and metabolic diseases	Diseases of the blood and immune mechanism	Diseases of the nervous system	Diseases of the digestive system	Perinatal conditions	Other causes	Total	
		A00-B99	J00-J99	I00-I99	V01-Y98	C00-D48	E00-E90	D50-D89	G00-G99	K00-K93	P00-P96			
Free State	Fezile Dabi	2 058	1 377	1 333	546	353	521	395	202	195	216	426	7 622	
	Lejweleputswa	3 615	2 479	1 329	718	377	541	535	309	267	237	1 397	11 804	
	Motheo	3 454	1 897	1 615	1 092	931	617	648	290	312	271	3 832	14 959	
	Thabo Mofutsanyane	3 811	2 598	1 986	730	418	713	906	379	358	377	845	13 121	
	Xhariep	373	345	241	158	63	67	82	33	31	31	181	1 605	
	Total	13 311	8 696	6 504	3 244	2 142	2 459	2 566	1 213	1 163	1 132	6 681	49 111	
	KwaZulu-Natal	Amajuba	2 246	1 632	908	429	213	347	212	190	191	206	555	7 129
		eThekweni	11 746	3 526	5 640	4 283	2 369	2 352	694	1 208	1 018	839	7 411	41 086
		iLembe	2 795	575	861	591	210	347	173	160	171	132	893	6 908
		Sisonke	2 133	735	570	359	175	260	137	137	122	111	1 106	5 845
Ugu		4 309	1 421	1 710	985	472	677	431	344	269	220	1 286	12 124	
UMgungundlovu		4 641	1 646	2 166	1 274	812	848	251	414	343	144	2 265	14 804	
Umkhanyakude		2 683	349	678	508	222	181	63	129	101	119	1 514	6 547	
Umzimyathi		2 570	863	825	564	192	299	208	189	168	265	1 734	7 877	
Uthukela		3 316	1 331	1 376	782	291	433	339	311	241	214	819	9 453	
Uthungulu		4 891	1 135	1 505	1 155	403	574	269	312	297	335	1 769	12 645	
Zululand	3 756	878	1 051	723	238	361	271	370	279	219	2 343	10 489		
Total	45 086	14 091	17 290	11 653	5 597	6 679	3 048	3 764	3 200	2 804	21 695	134 907		
North West	Bojanala	3 460	2 074	2 214	1 315	474	747	606	269	275	372	3 018	14 824	
	Central	2 754	2 148	1 615	653	356	508	375	311	229	393	1 663	11 005	
	Dr Kenneth Kaunda	3 896	1 539	1 641	1 266	729	532	428	302	309	334	1 822	12 798	
	Dr Ruth Segomotsi Mompati	1 861	1 148	959	382	242	258	315	153	136	201	1 108	6 763	
Total	11 971	6 909	6 429	3 616	1 801	2 045	1 724	1 035	949	1 300	7 611	45 390		

Appendix N.2: Number of deaths by main groups of causes of death and district municipality (Gauteng, Mpumalanga and Limpopo), 2008

Province of death	District municipality of death	Certain infectious and parasitic diseases	Diseases of the respiratory system	Diseases of the circulatory system	External causes of morbidity and mortality	Neoplasms	Endocrine, nutritional and metabolic diseases	Diseases of the blood and immune mechanism	Diseases of the nervous system	Diseases of the digestive system	Perinatal conditions	Other causes	Total
		A00-B99	J00-J99	I00-I99	V01-Y98	C00-D48	E00-E90	D50-D89	G00-G99	K00-K93	P00-P96		
Gauteng	City of Johannesburg	7 869	4 060	5 096	3 934	3 332	1 500	1 072	957	959	894	8 210	37 883
	City of Tshwane	5 552	3 352	4 996	2 742	2 646	1 741	781	742	765	554	2 363	26 234
	Ekurhuleni	7 910	4 529	3 770	3 116	1 468	1 310	1 032	1 069	750	1 135	6 292	32 381
	Metsweding	224	111	208	150	35	47	64	45	16	6	52	958
	Sedibeng	2 445	2 111	1 909	926	645	625	305	393	281	324	930	10 894
	West Rand	1 893	1 165	962	774	336	316	175	242	176	196	1 324	7 559
	Total	25 893	15 328	16 941	11 642	8 462	5 539	3 429	3 448	2 947	3 109	19 171	115 909
Mpumalanga	Ehlanzeni	6 939	2 683	2 510	1 456	777	799	810	610	766	340	2 217	19 907
	Gert Sibande	4 421	2 718	1 721	1 187	464	686	765	458	527	372	1 609	14 928
	Nkangala	3 349	2 382	2 252	1 238	442	647	547	315	349	226	1 069	12 816
	Total	14 709	7 783	6 483	3 881	1 663	2 132	2 122	1 383	1 642	938	4 895	47 651
Limpopo	Capricorn	3 715	2 427	2 116	1 126	809	716	525	321	582	248	2 352	14 937
	Greater Sekhukhune	2 655	2 644	1 980	819	279	479	466	256	376	112	1 252	11 318
	Mopani	2 488	1 151	999	716	362	420	269	277	453	135	3 839	11 109
	Vhembe	2 324	946	846	690	453	533	237	191	388	214	3 161	9 983
	Waterberg	1 377	815	834	543	253	258	245	123	134	141	1 249	5 972
	Total	12 559	7 983	6 775	3 894	2 156	2 406	1 742	1 168	1 933	850	11 853	53 319

Appendix O: The ten leading underlying natural causes of death by district municipality, Western Cape, 2008

Cape Winelands			Central Karoo			City of Cape Town				
No.	%	No.	%	No.	%	No.	%	No.	%	
1	10,4	677	8,9	68	8,9	1	9,1	2 671	9,1	
2	6,0	389	7,3	56	7,3	2	6,4	1 863	6,4	
3	5,7	368	6,7	51	6,7	3	5,9	1 727	5,9	
4	5,5	357	4,4	34	4,4	4	5,1	1 484	5,1	
5	5,1	330	3,8	29	3,8	5	4,7	1 372	4,7	
6	3,5	228	3,3	25	3,3	6	3,8	1 112	3,8	
7	3,5	228	3,1	24	3,1	7	3,5	1 029	3,5	
8	3,2	210	3,1	24	3,1	8	3,4	1 010	3,4	
9	3,2	205	2,7	21	2,7	9	3,2	945	3,2	
10	2,7	175	2,5	19	2,5	10	3,2	926	3,2	
	38,3	2 487	39,7	304	39,7		38,8	11	38,8	
	12,9	841	14,4	110	14,4		12,9	385	12,9	
All causes	100,0	6 495	100,0	765	100,0	All causes	29	319	100,0	
Eden			Overberg			West Coast				
1	11,8	641	7,6	132	7,6	1	10,9	327	10,9	
2	6,4	349	6,5	113	6,5	2	7,4	222	7,4	
3	5,4	293	5,6	98	5,6	3	7,1	211	7,1	
4	5,1	276	5,0	87	5,0	4	4,7	141	4,7	
5	4,7	256	4,8	84	4,8	5	4,3	130	4,3	
6	4,4	239	4,5	78	4,5	6	3,9	118	3,9	
7	4,3	232	4,3	75	4,3	7	3,8	114	3,8	
8	3,8	205	4,1	72	4,1	8	3,7	110	3,7	
9	3,4	183	2,8	49	2,8	9	3,2	96	3,2	
10	3,1	167	2,5	43	2,5	10	2,6	79	2,6	
	35,2	1 903	37,7	659	37,7		34,8	1 040	34,8	
	12,3	668	14,8	258	14,8		13,4	401	13,4	
All causes	100,0	5 412	100,0	1 748	100,0	All causes	2 989	100,0	100,0	

Appendix O.1: The ten leading underlying natural causes of death by district municipality, Eastern Cape, 2008

Alfred Nzo			Amatole			Cacadu			
No.	%	No.	%	No.	%	No.	%	No.	%
1	10.1	443	14.5	3 962	14.5	1	12.5	574	12.5
2	8.0	352	5.2	1 415	5.2	2	6.0	274	6.0
3	5.4	237	5.0	1 381	5.0	3	5.5	250	5.5
4	3.9	170	4.6	1 258	4.6	4	5.4	245	5.4
5	3.7	164	4.5	1 223	4.5	5	5.1	234	5.1
6	2.5	112	3.5	1 167	3.5	6	3.6	166	3.6
7	1.9	85	2.7	957	2.7	7	3.4	157	3.4
8	1.7	75	2.9	801	2.9	8	3.3	149	3.3
9	1.6	70	2.7	737	2.7	9	3.1	144	3.1
10	1.5	66	2.5	693	2.5	10	2.7	122	2.7
	52.2	2 299	40.9	11 200	40.9		38.4	1 757	38.4
	7.5	331	9.4	2 570	9.4		11.0	504	11.0
All causes	100.0	4 404	100.0	27 364	100.0	All causes	100.0	4 576	100.0
Chris Hani			Nelson Mandela			O.R. Tambo			
No.	%	No.	%	No.	%	No.	%	No.	%
1	14.8	1 408	17.1	2 588	17.1	1	11.4	1 954	11.4
2	6.6	625	5.6	837	5.6	2	4.9	832	4.9
3	6.4	606	5.2	774	5.2	3	3.4	573	3.4
4	5.8	555	4.5	674	4.5	4	2.8	476	2.8
5	4.6	435	4.4	665	4.4	5	2.7	461	2.7
6	4.0	376	4.1	617	4.1	6	2.6	437	2.6
7	3.1	296	4.0	598	4.0	7	2.5	421	2.5
8	3.1	294	2.9	431	2.9	8	2.4	411	2.4
9	2.8	270	2.9	427	2.9	9	2.1	354	2.1
10	2.6	247	2.6	387	2.6	10	1.8	314	1.8
	37.3	3 541	37.4	5 602	37.4		54.1	9 245	54.1
	8.9	847	9.4	1 409	9.4		9.4	1 603	9.4
All causes	100.0	9 500	100.0	14 979	100.0	All causes	100.0	17 081	100.0
Ukhahlamba									
No.	%	No.	%	No.	%	No.	%	No.	%
1	13.2	693	13.2						
2	7.8	408	7.8						
3	6.9	365	6.9						
4	5.6	296	5.6						
5	4.9	257	4.9						
6	3.7	193	3.7						
7	3.4	177	3.4						
8	3.3	175	3.3						
9	2.2	116	2.2						
10	2.2	115	2.2						
	40.7	2 139	40.7						
	6.1	321	6.1						
All causes	100.0	5 255	100.0						

Appendix O.2: The ten leading underlying natural causes of death by district municipality, Northern Cape, 2008

Frances Baard			Kgalagadi			Namaqualand			
No.	%	No.	%	No.	%	No.	%	No.	%
1	13,7	808	13,7	1	9,8	281	9,8	1	7,4
2	5,9	351	5,9	2	7,4	211	7,4	2	6,6
3	4,3	254	4,3	3	5,8	166	5,8	3	6,4
4	4,2	248	4,2	4	4,2	121	4,2	4	5,4
5	4,1	242	4,1	5	3,3	95	3,3	5	5,3
6	3,9	228	3,9	6	2,6	74	2,6	6	4,7
7	3,3	196	3,3	7	1,9	54	1,9	7	4,5
8	3,2	192	3,2	8	1,9	54	1,9	8	3,6
9	2,5	150	2,5	9	1,3	38	1,3	9	3,6
10	2,4	142	2,4	10	1,1	32	1,1	10	3,3
	44,3	2 619	44,3		55,5	1 587	55,5		39,4
	8,2	486	8,2		5,2	149	5,2		9,9
All causes	100,0	5 916	100,0	All causes	100,0	2 862	100,0	All causes	1 070
Pikley ka Somo			Siyanda						
No.	%	No.	%	No.	%	No.	%	No.	%
1	12,5	317	12,5	1	13,8	398	13,8		
2	5,4	137	5,4	2	6,8	194	6,8		
3	5,4	136	5,4	3	6,1	175	6,1		
4	5,4	136	5,4	4	5,2	150	5,2		
5	5,2	131	5,2	5	5,0	143	5,0		
6	5,1	129	5,1	6	4,2	122	4,2		
7	3,5	89	3,5	7	3,8	108	3,8		
8	3,1	78	3,1	8	3,1	89	3,1		
9	2,8	72	2,8	9	2,7	79	2,7		
10	2,6	66	2,6	10	2,6	76	2,6		
	39,8	1 011	39,8		38,0	1 035	38,0		
	9,4	239	9,4		10,6	305	10,6		
All causes	100,0	2 541	100,0	All causes	100,0	2 874	100,0		

Appendix O.3: The ten leading underlying natural causes of death by district municipality, Free State, 2008

	Fezile Dabi			Lelwepuetswa			Motho				
	No.	%	No.	%	No.	%	No.	%	No.	%	
1	Influenza and pneumonia (J10-J18)	973	12,8	1	Influenza and pneumonia (J10-J18)	1 988	16,7	1	Tuberculosis (A15-A19)	1 712	11,4
2	Tuberculosis (A15-A19)	836	11,0	2	Tuberculosis (A15-A19)	1 623	13,7	2	Influenza and pneumonia (J10-J18)	1 417	9,5
3	Intestinal infectious diseases (A00-A09)	750	9,8	3	Intestinal infectious diseases (A00-A09)	1 310	11,1	3	Intestinal infectious diseases (A00-A09)	887	5,9
4	Other forms of heart disease (I30-I52)	457	6,0	4	Other forms of heart disease (I30-I52)	473	4,0	4	Certain disorders involving the immune mechanism (D80-D89)	558	3,7
5	Cerebrovascular diseases (I60-I69)	337	4,4	5	Cerebrovascular diseases (I60-I69)	397	3,4	5	Cerebrovascular diseases (I60-I69)	458	3,1
6	Diabetes mellitus (E10-E14)	295	3,9	6	Certain disorders involving the immune mechanism (D80-D89)	368	3,1	6	Other forms of heart disease (I30-I52)	428	2,9
7	Hypertensive diseases (I10-I15)	292	3,8	7	Human immunodeficiency virus [HIV] disease (B20-B24)	258	2,2	7	Hypertensive diseases (I10-I15)	373	2,5
8	Certain disorders involving the immune mechanism (D80-D89)	257	3,4	8	Diabetes mellitus (E10-E14)	240	2,0	8	Diabetes mellitus (E10-E14)	341	2,3
9	Ischaemic heart diseases (I20-I25)	166	2,2	9	Chronic lower respiratory diseases (J40-J47)	213	1,8	9	Human immunodeficiency virus [HIV] disease (B20-B24)	225	1,5
10	Chronic lower respiratory diseases (J40-J47)	163	2,1	10	Hypertensive diseases (I10-I15)	206	1,7	10	Chronic lower respiratory diseases (J40-J47)	224	1,5
	Other natural causes	2 550	33,5		Other natural causes	4 030	34,1		Other natural causes	7 244	48,4
	Non-natural causes	546	7,2		Non-natural causes	718	6,1		Non-natural causes	1 092	7,3
	All causes	7 622	100,0		All causes	11 804	100,0		All causes	14 959	100,0
	Thabo Mofutsanyane			Xhariep							
	No.	%	No.	%	No.	%					
1	Influenza and pneumonia (J10-J18)	1 725	13,1	1	Influenza and pneumonia (J10-J18)	296	18,4				
2	Intestinal infectious diseases (A00-A09)	1 527	11,6	2	Tuberculosis (A15-A19)	190	11,8				
3	Tuberculosis (A15-A19)	1 411	10,8	3	Intestinal infectious diseases (A00-A09)	148	9,2				
4	Other forms of heart disease (I30-I52)	879	6,7	4	Cerebrovascular diseases (I60-I69)	89	5,5				
5	Certain disorders involving the immune mechanism (D80-D89)	792	6,0	5	Certain disorders involving the immune mechanism (D80-D89)	74	4,6				
6	Cerebrovascular diseases (I60-I69)	482	3,7	6	Other forms of heart disease (I30-I52)	68	4,2				
7	Diabetes mellitus (E10-E14)	406	3,1	7	Hypertensive diseases (I10-I15)	43	2,7				
8	Human immunodeficiency virus [HIV] disease (B20-B24)	350	2,7	8	Chronic lower respiratory diseases (J40-J47)	33	2,1				
9	Hypertensive diseases (I10-I15)	349	2,7	9	Diabetes mellitus (E10-E14)	31	1,9				
10	Chronic lower respiratory diseases (J40-J47)	299	2,3	9	Ischaemic heart diseases (I20-I25)	31	1,9				
	Other natural causes	4 171	31,8		Other natural causes	444	27,7				
	Non-natural causes	730	5,6		Non-natural causes	158	9,8				
	All causes	13 121	100,0		All causes	1 605	100,0				

Appendix O.4: The ten leading underlying natural causes of death by district municipality, KwaZulu-Natal, 2008

Amajuba			eThekweni			iLembe			Umgungundlovu			Umkhanyakade			Umzimnyathi			Uthungulu			Uthukela					
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
1	17.7	1 263	17.7	1	15.2	6 259	15.2	1	17.8	2 153	17.8	1	19.9	1 335	19.9	1	15.6	1 475	15.6	1	15.2	2 259	15.2			
2	9.8	699	9.8	2	5.7	2 353	5.7	2	5.0	966	5.0	2	7.7	603	7.7	2	6.6	1 110	6.6	2	5.7	1 876	5.7			
3	8.5	605	8.5	3	4.6	1 876	4.6	3	6.5	794	6.5	3	6.3	497	6.3	3	5.5	850	5.5	3	4.4	1 803	4.4			
4	8.3	594	8.3	4	5.9	1 803	5.9	4	5.9	712	5.9	4	5.3	414	5.3	4	5.0	551	5.0	4	4.0	1 653	4.0			
5	5.8	413	5.8	5	4.3	1 463	4.3	5	4.3	526	4.3	5	3.4	270	3.4	5	3.1	469	3.1	5	3.4	1 653	3.4			
6	4.1	295	4.1	6	3.6	1 134	3.6	6	3.6	433	3.6	6	2.8	186	2.8	6	2.4	289	2.4	6	2.4	1 634	2.4			
7	3.2	225	3.2	7	3.2	1 299	3.2	7	3.2	428	3.2	7	2.2	176	2.2	7	2.2	285	2.2	7	2.2	1 045	2.2			
8	2.7	192	2.7	8	2.5	1 045	2.5	8	2.5	421	2.5	8	2.1	164	2.1	8	2.1	249	2.1	8	2.1	927	2.1			
9	2.3	162	2.3	9	1.8	759	1.8	9	1.8	392	1.8	9	1.7	164	1.7	9	1.7	249	1.7	9	1.7	759	1.7			
10	1.7	120	1.7	10	1.9	759	1.9	10	1.9	334	1.9	10	1.5	160	1.5	10	1.5	213	1.5	10	1.5	17 195	1.5			
		429	6.0			4 283	10.4			3 980	32.8			985	8.1			1 274	8.6			591	8.6			
		2 132	29.9			17 195	41.9			985	8.1			3 245	41.2			2 900	30.7			2 288	33.1			
		7 129	100.0			41 086	100.0			12 124	100.0			7 877	100.0			14 804	100.0			6 908	100.0			
All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes		
1	19.4	1 134	19.4	1	17.8	2 153	17.8	1	17.8	2 153	17.8	1	19.9	1 335	19.9	1	15.6	1 475	15.6	1	15.2	2 259	15.2			
2	8.7	511	8.7	2	5.0	966	5.0	2	5.0	966	5.0	2	7.7	603	7.7	2	6.6	1 110	6.6	2	5.7	1 876	5.7			
3	5.5	321	5.5	3	4.6	1 463	4.6	3	6.5	794	6.5	3	6.3	497	6.3	3	5.5	850	5.5	3	4.4	1 803	4.4			
4	4.6	271	4.6	4	4.3	1 463	4.3	4	5.9	712	5.9	4	5.3	414	5.3	4	5.0	551	5.0	4	4.0	1 653	4.0			
5	4.3	249	4.3	5	3.6	1 134	3.6	5	4.3	526	4.3	5	3.4	270	3.4	5	3.1	469	3.1	5	3.4	1 653	3.4			
6	3.3	195	3.3	6	3.6	1 463	3.6	6	3.6	433	3.6	6	2.8	186	2.8	6	2.4	289	2.4	6	2.4	1 634	2.4			
7	2.8	166	2.8	7	2.5	1 045	2.5	7	2.5	428	2.5	7	2.2	176	2.2	7	2.2	285	2.2	7	2.2	1 045	2.2			
8	2.5	148	2.5	8	2.5	1 045	2.5	8	2.5	421	2.5	8	2.1	164	2.1	8	2.1	249	2.1	8	2.1	927	2.1			
9	2.3	133	2.3	9	1.8	759	1.8	9	1.8	392	1.8	9	1.7	164	1.7	9	1.7	249	1.7	9	1.7	759	1.7			
10	2.0	117	2.0	10	1.9	759	1.9	10	1.9	334	1.9	10	1.5	160	1.5	10	1.5	213	1.5	10	1.5	17 195	1.5			
		2 241	38.3			17 195	41.9			3 980	32.8			985	8.1			1 274	8.6			591	8.6			
		359	6.1			4 283	10.4			985	8.1			3 245	41.2			2 900	30.7			2 288	33.1			
		5 845	100.0			41 086	100.0			12 124	100.0			7 877	100.0			14 804	100.0			6 908	100.0			
All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes		
1	17.4	1 136	17.4	1	15.2	2 259	15.2	1	15.2	2 259	15.2	1	19.9	1 335	19.9	1	15.6	1 475	15.6	1	15.2	2 259	15.2			
2	14.6	957	14.6	2	5.7	1 876	5.7	2	5.0	966	5.0	2	7.7	603	7.7	2	6.6	1 110	6.6	2	5.7	1 876	5.7			
3	5.5	361	5.5	3	4.6	1 463	4.6	3	6.5	794	6.5	3	6.3	497	6.3	3	5.5	850	5.5	3	4.4	1 803	4.4			
4	4.1	270	4.1	4	4.3	1 463	4.3	4	5.9	712	5.9	4	5.3	414	5.3	4	5.0	551	5.0	4	4.0	1 653	4.0			
5	3.3	217	3.3	5	3.6	1 134	3.6	5	4.3	526	4.3	5	3.4	270	3.4	5	3.1	469	3.1	5	3.4	1 653	3.4			
6	2.8	185	2.8	6	3.6	1 463	3.6	6	3.6	433	3.6	6	2.8	186	2.8	6	2.4	289	2.4	6	2.4	1 634	2.4			
7	2.0	129	2.0	7	2.5	1 045	2.5	7	2.5	428	2.5	7	2.2	176	2.2	7	2.2	285	2.2	7	2.2	1 045	2.2			
8	1.8	121	1.8	8	2.5	1 045	2.5	8	2.5	421	2.5	8	2.1	164	2.1	8	2.1	249	2.1	8	2.1	927	2.1			
9	1.8	116	1.8	9	1.8	759	1.8	9	1.8	392	1.8	9	1.7	164	1.7	9	1.7	249	1.7	9	1.7	759	1.7			
10	1.3	86	1.3	10	1.9	759	1.9	10	1.9	334	1.9	10	1.5	160	1.5	10	1.5	213	1.5	10	1.5	17 195	1.5			
		2 461	37.6			17 195	41.9			3 980	32.8			985	8.1			1 274	8.6			591	8.6			
		508	7.8			4 283	10.4			985	8.1			3 245	41.2			2 900	30.7			2 288	33.1			
		6 847	100.0			41 086	100.0			12 124	100.0			7 877	100.0			14 804	100.0			6 908	100.0			
All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes		
1	18.6	2 347	18.6	1	19.7	2 071	19.7	1	19.7	2 071	19.7	1	19.9	1 335	19.9	1	15.6	1 475	15.6	1	15.2	2 259	15.2			
2	6.3	798	6.3	2	5.7	953	5.7	2	5.0	966	5.0	2	7.7	603	7.7	2	6.6	1 110	6.6	2	5.7	1 876	5.7			
3	6.0	754	6.0	3	5.3	558	5.3	3	6.5	794	6.5	3	6.3	497	6.3	3	5.5	850	5.5	3	4.4	1 803	4.4			
4	5.9	747	5.9	4	4.1	433	4.1	4	5.9	712	5.9	4	5.3	414	5.3	4	5.0	551	5.0	4	4.0	1 653	4.0			
5	4.7	591	4.7	5	3.4	361	3.4	5	4.3	526	4.3	5	3.4	270	3.4	5	3.1	469	3.1	5	3.4	1 653	3.4			
6	4.4	560	4.4	6	3.1	321	3.1	6	3.6	433	3.6	6	2.8	186	2.8	6	2.4	289	2.4	6	2.4	1 634	2.4			
7	3.8	486	3.8	7	2.7	283	2.7	7	2.5	428	2.5	7	2.2	176	2.2	7	2.2	285	2.2	7	2.2	1 045	2.2			
8	3.2	407	3.2	8	2.2	229	2.2	8	2.5	421	2.5	8	2.1	164	2.1	8	2.1	249	2.1	8	2.1	927	2.1			
9	2.4	307	2.4	9	1.7	176	1.7	9	1.7	392	1.7	9	1.7	164	1.7	9	1.7	249	1.7	9	1.7	759	1.7			
10	1.7	219	1.7	10	1.5	158	1.5	10	1.5	334	1.5	10	1.5	160	1.5	10	1.5	213	1.5	10	1.5	17 195	1.5			
		4 274	33.8			4 223	40.3			3 980	32.8			985	8.1			1 274	8.6			591	8.6			
		1 155	9.1			723	6.9			985	8.1			3 245	41.2			2 900	30.7			2 288	33.1			
		12 845	100.0			10 489	100.0			12 124	100.0			7 877	100.0			14 804	100.0			6 908	100.0			
All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes			All causes		

Appendix O.5: The ten leading underlying natural causes of death by district municipality, North West, 2008

Bojanala			Central			Dr. Kenneth Kaunda		
	No.	%		No.	%		No.	%
1	1 331	9,0	1	1 456	13,2	1	2 019	15,8
2	1 268	8,6	2	1 366	12,4	2	1 023	8,0
3	1 223	8,3	3	823	7,5	3	765	6,0
4	984	6,6	4	635	5,8	4	457	3,6
5	533	3,6	5	499	4,5	5	440	3,4
6	516	3,5	6	364	3,3	6	385	3,0
7	485	3,3	7	327	3,0	7	356	2,8
8	419	2,8	8	299	2,7	8	294	2,3
9	333	2,2	9	251	2,3	9	273	2,1
10	255	1,7	10	200	1,8	10	267	2,1
	6 182	41,6		4 132	37,5		5 253	41,0
	1 315	8,9		653	5,9		1 266	9,9
All causes	14 824	100,0	All causes	11 005	100,0	All causes	12 798	100,0
Dr. Ruth Segomotsi-Mompoti								
1	809	12,0	1	809	12,0	1	809	12,0
2	645	9,5	2	645	9,5	2	645	9,5
3	615	9,1	3	615	9,1	3	615	9,1
4	368	5,3	4	368	5,3	4	368	5,3
5	257	3,8	5	257	3,8	5	257	3,8
6	254	3,8	6	254	3,8	6	254	3,8
7	252	3,7	7	252	3,7	7	252	3,7
8	234	3,5	8	234	3,5	8	234	3,5
9	199	2,9	9	199	2,9	9	199	2,9
10	126	1,9	10	126	1,9	10	126	1,9
	2 632	38,9		2 632	38,9		2 632	38,9
	382	5,6		382	5,6		382	5,6
All causes	6 763	100,0	All causes	6 763	100,0	All causes	6 763	100,0

Appendix O.6: The ten leading underlying natural causes of death by district municipality, Gauteng, 2008

City of Johannesburg			City of Tshwane			Ekurhuleni		
	No.	%		No.	%		No.	%
1	3 326	8,8	1	2 313	8,8	1	3 655	11,3
2	2 588	6,8	2	1 806	6,9	2	3 268	10,1
3	1 684	4,4	3	1 765	6,7	3	1 786	5,5
4	1 431	3,8	4	1 494	5,7	4	1 387	4,3
5	1 271	3,4	5	1 089	4,2	5	1 059	3,3
6	1 083	2,9	6	1 062	4,0	6	917	2,8
7	1 048	2,8	7	868	3,3	7	827	2,6
8	907	2,4	8	863	3,3	8	733	2,3
9	872	2,3	9	643	2,5	9	695	2,1
10	784	2,1	10	605	2,3	10	669	2,1
	18 975	50,1		10 984	41,9		14 269	44,1
	3 934	10,4		2 742	10,5		3 116	9,6
All causes	37 883	100,0	All causes	26 234	100,0	All causes	32 381	100,0
Metsweding			Sedibeng			West Rand		
	No.	%		No.	%		No.	%
1	101	10,5	1	1 645	15,1	1	853	11,3
2	96	10,0	2	1 119	10,3	2	787	10,4
3	84	8,8	3	879	8,1	3	536	7,1
4	63	6,6	4	632	5,8	4	323	4,3
5	62	6,5	5	531	4,9	5	273	3,6
6	60	6,3	6	433	4,0	6	222	2,9
7	28	2,9	7	338	3,1	7	199	2,6
8	26	2,7	8	279	2,6	8	158	2,1
9	25	2,6	9	269	2,5	9	148	2,0
10	23	2,4	10	240	2,2	10	147	1,9
	240	25,1		3 603	33,1		3 139	41,5
	150	15,7		926	8,5		774	10,2
All causes	958	100,0	All causes	10 594	100,0	All causes	7 559	100,0

Appendix O.7: The ten leading underlying natural causes of death by district municipality, Mpumalanga, 2008

Ehlanzeni		Gert Sibande		Nkangala		
No.	%	No.	%	No.	%	
1	3 077	15.5	1 981	13.3	1 588	12.2
2	2 183	11.0	1 747	11.7	1 464	11.4
3	1 723	8.7	1 417	9.5	1 016	7.9
4	1 205	6.1	644	4.3	772	6.0
5	679	3.4	631	4.2	616	4.8
6	669	3.4	485	3.2	490	3.8
7	596	3.0	401	2.7	438	3.4
8	539	2.7	363	2.4	389	3.1
9	423	2.1	345	2.3	389	3.0
10	412	2.1	308	2.1	257	2.0
	6 945	34.9	5 419	36.3	4 169	32.5
	1 456	7.3	1 187	8.0	1 238	9.7
All causes	19 907	100.0	14 928	100.0	12 816	100.0

Appendix O.8: The ten leading underlying natural causes of death by district municipality, Limpopo, 2008

Capricorn			Greater Sekhukhune			Mopani			
No.	%	No.	%	No.	%	No.	%	No.	%
1	11,8	1 758	18,3	2 071	18,3	1 043	9,4	1 043	9,4
2	10,2	1 526	11,6	1 309	11,6	859	7,7	859	7,7
3	10,0	1 491	8,0	901	8,0	853	7,7	853	7,7
4	5,2	780	7,5	847	7,5	448	4,0	448	4,0
5	3,6	538	5,8	658	5,8	324	2,9	324	2,9
6	3,4	514	3,6	409	3,6	277	2,5	277	2,5
7	3,4	503	3,0	345	3,0	219	2,0	219	2,0
8	2,8	418	2,9	325	2,9	215	1,9	215	1,9
9	2,3	341	2,6	294	2,6	189	1,7	189	1,7
10	1,6	241	1,2	137	1,2	136	1,2	136	1,2
	38,2	5 701	28,3	3 203	28,3	5 830	52,5	5 830	52,5
	7,5	1 126	7,2	819	7,2	716	6,4	716	6,4
All causes	100,0	14 937	100,0	11 318	100,0	11 109	100,0	11 109	100,0
Vhembe			Waterberg						
No.	%	No.	%	No.	%	No.	%	No.	%
1	10,6	1 058	9,8	584	9,8				
2	8,7	871	9,4	560	9,4				
3	7,2	717	8,6	516	8,6				
4	3,5	353	5,3	318	5,3				
5	3,4	340	3,5	211	3,5				
6	3,1	305	3,3	196	3,3				
7	2,0	199	2,8	169	2,8				
8	1,8	182	2,7	163	2,7				
9	1,5	146	1,9	114	1,9				
10	1,4	140	1,7	100	1,7				
	49,9	4 982	41,8	2 498	41,8				
	6,9	690	9,1	543	9,1				
All causes	100,0	9 983	100,0	5 972	100,0				