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Mortality and causes of death in South Africa, 2009: Findings from death notification

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Mortality and causes of death in South Africa, 2009: Findings from death notification

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Preface

This statistical release presents information on mortality and causes of death in South Africa for deaths that occurred in 2009, as well as on deaths collected through the civil registration system in South Africa, maintained by the Department information on death occurrences from 1997 to 2008 to show trends in mortality and causes of death. It is based on data of Home Affairs.



PJ Lehohla
Statistician-General

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1. Introduction

1.1 Background

Statistics South Africa (Stats SA), in close collaboration with the National Department of Home Affairs (DHA) and the National Department of Health (DOH), annually produces statistical releases and data sets on mortality and causes of death based on information on deaths from the civil registration system in South Africa.

The registration of deaths in South Africa is governed by the Births and Deaths Registration Act, 1992 (Act No. 51 of 1992), as amended. The 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. After death registration is completed, a death certificate is issued to the informant. All death notification forms are then collected by Stats SA for data processing and publication of statistical releases and data sets on mortality and causes of death.

The statistics on mortality and causes of death 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.

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 2009 and differentials of mortality by selected demographic, social and geographic characteristics for deaths that occurred in 2009; and
- To present statistics on the causes of death for deaths that occurred in 2009, 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 2010/11 processing phase, focusing on deaths that occurred in 2009. Statistics for deaths that occurred between 1997 and 2008 are also provided (including late registrations processed in 2010/11) to show trends in mortality and causes of death.

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 sources, data processing and methods used to provide the results in this release. Issues related to data quality, including completeness of the processed information, late registrations, timeliness of death registration and reporting of causes of death information are also discussed in this section.

The overall levels, patterns, and trends of mortality are reported in Section 3. Specific emphasis is placed on age and sex of the deceased. The distributions of deaths by population group, marital status, place or institution of death occurrence, province of death occurrence and province of residence of the deceased 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

This section provides information on data sources; data processing methodology pertaining specifically to causes of death; data analysis; and an assessment of the quality of data on mortality and causes of death.

2.1 Data source

Death registration takes place at the Department of Home Affairs (DHA). After a death is registered, the DHA issues a death certificate to an informant who registered the death and where applicable, updates the national population register (NPR). The NPR is updated only for South African citizens 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 African citizens but who had sojourned temporarily in the country and all South African citizens and permanent residents who died before notice of their births had been registered are not captured in the NPR.

All death notification forms, including forms for deaths captured on the NPR as well as those not eligible for inclusion in the NPR, are then collected by Statistics South Africa (Stats SA) for data processing, analysis and dissemination of information on mortality and causes of death. While the NPR includes only South African citizens and permanent residents whose births were registered, Stats SA processes all death notification forms regardless of civil status. 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.

This release is based on information recorded on death notification forms received from DHA for deaths that occurred in 2009 and were registered at DHA, including late registrations for the period 1997–2008. The data reported in this release are based on Form BI-1663 (Notification / Register of Deaths / Stillbirth) which was introduced in South Africa in 1998 (see Appendix B). Where the occurrence of death could not be certified by a medical practitioner, Form BI-1680 (Death Report) 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. Form BI-1663 has recently been revised and renamed DHA-1663.

During the 2010/11 processing phase, Stats SA processed a total of 572 673 deaths that occurred in 2009 and 5 044 late registrations for deaths that occurred between 1997 and 2008 (excluding duplicate registrations). The figure for 2009 deaths processed by Stats SA is 7,6% higher than the number of 2009 deaths recorded on the NPR (532 713) by 20 July 2011. The number of deaths processed by Stats SA and those from the NPR show a similar trend; with Stats SA figures always higher than the NPR figures (see Figure 3.1).

2.2 Data processing

Processing of death notification forms collected from the DHA takes place at Stats SA. The stages of data processing include sorting forms by year of death, pasting labels of unique identifiers on each form, coding socio-demographic variables and the causes of death, data capturing and analysis of data.

Classification of the causes of death

The mortality statistics released in this document are compiled in accordance with the World Health Organization (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 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.

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

Stats SA follows the principle of 'what you see is what you code' in coding the information on causes of death provided by certifying officials. Furthermore, Stats SA has outlined specific guidelines for coding *immunosuppression* and *acquired immune suppression* which do not have codes in the ICD-10 manuals. In terms of the Stats SA coding procedures and guidelines, *immunosuppression* is coded as *immunodeficiency*, not as human immunodeficiency virus (HIV) disease. Certifying officials sometimes reported the underlying cause of death as *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. Codes U51 and U52 were assigned to *multidrug-resistant tuberculosis* (MDR-TB) and *extensively drug-resistant tuberculosis* (XDR-TB), respectively and included in the *tuberculosis* (A15-A19) broad group of 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 the WHO 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 98,5% of all records processed during the 2010/11 processing phase. 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.

2.3 Data analysis

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 2005 to 2009. 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 was used for the calculations (Stats SA, 2011). The crude death rates were also calculated for all deaths.

The analysis of information on causes of death was mainly based on ranking the underlying causes of death and providing proportions of deaths due to specific causes. 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.

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. Due to concerns about violence and deaths due to accidents in South Africa, natural and non-natural causes of death have been ranked separately. Furthermore, 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. Although in some cases these causes would have been among the ten leading underlying causes, they are excluded from the ranking.

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, district municipalities and provinces are in line with the 2011 municipal boundaries.

2.4 Data quality

Mortality and causes of death statistics can suffer from incomplete registration, missing data and causes of death attributed to ill-defined causes. Data quality for this release will assess completeness of death registration; the extent of late registrations; timeliness of death registration; completeness of information for selected variables; trends in ill-defined causes of death; and then apply the Mahapatra et al. (2007) framework to summarise the quality of mortality and cause-of-death statistics.

2.4.1 Completeness of death registration

Past releases on mortality and causes of death used the Preston and Hill (1980) method to estimate completeness of death registration in South Africa. Although this method had known limitations (such as the assumption on stability and dependency on intercensal growth rates), it was preferred over others due to less input requirements for the estimation and the fact that it provides estimates of completeness of death registration on an annual basis. The Preston and Hill (1980) method was deemed inappropriate for the estimation of the completeness for 2009 death data as we shift further away from 2007 when the Community Survey was conducted, and with consideration of the instability of the South African population.

Methods of estimating the completeness of death registration that do not assume a stable population include the Generalised Growth Balance (Hill, 1987) and the Synthetic Extinct Generations (Bennett and Horiuchi 1981, 1984) methods. These methods have been applied to estimate the completeness of death registration in South Africa [see for example, Dorrington and Bradshaw (2011); Khoza (forthcoming)] for the intercensal periods 1996–2001 and 2001–2007. While these methods are appropriate for the South African situation, their main disadvantage is that they provide completeness of death registration over an intercensal period, not on an annual basis. As such, estimates of completeness of death registration from 2008 will only be possible once the data from the 2011 population census are available.

The results from Dorrington and Bradshaw (2011) and Khoza (forthcoming) suggest that the completeness of death registration in South Africa between 2001 and 2007 was about 90% or more. In line with the recommendation of the Department of Health (2011: 53), completeness of death registration for 2009 is assumed to be 93%, taking into consideration that death registration continues to improve in the country.

2.4.2 Late registrations

The current processing phase (2010/11) included death notification forms for deaths that occurred in 2009 as well as additional death notification forms for the years 1997–2008 that had not been received by Stats SA in the previous processing phases. Table 2.1 provides information on the number of deaths published in November 2010 for the years 1997–2008; additional forms received during the current processing phase for these years; and the total number of deaths for each year as of September 2011.

In total, 5 044 additional death notification forms for 1997–2008 were processed during 2010/11 (excluding duplicates). The majority of the late registrations processed in 2010/11 (61,0%) were late registrations for deaths that occurred in 2008. The distribution of the updated deaths from 1997 to 2008 and for 2009 deaths by age and sex is provided in Appendices C (1997–1999), C.1 (2000–2002), C.2 (2003–2005), C.3 (2006–2008) and C.4 (2009).

Table 2.1: Number of deaths published in November 2010 and late registrations processed during the 2010/11 processing phase by year of death, 1997–2008

Year of death	Number of deaths published in November 2009	Additional forms received in the 2010/11 processing phase	Total number of deaths (by September 2011)
1997	317 132	19	317 151
1998	365 853	14	365 867
1999	381 820	19	381 839
2000	416 155	161	416 316
2001	454 882	89	454 971
2002	502 050	83	502 133
2003	556 779	103	556 882
2004	576 709	100	576 809
2005	598 131	109	598 240
2006	612 778	262	613 040
2007	603 094	1 006	604 100
2008	592 073	3 079	595 152
Total	5 977 456	5 044	5 982 500

2.4.3 Timeliness of death registration

Information pertaining to the date of death registration is captured at Stats SA from which the number of days it takes for a death to be registered following its occurrence can be calculated. Table 2.2 shows the distribution of the number of days it took for deaths that occurred in 2009 to be registered. About 11,2% of deaths were registered within the day of occurrence and about a quarter (24,8%) a day after they occurred. Over half (54,7%) of the deaths that occurred in 2009 were registered within two days of the occurrence of death; and two-thirds within three days. A large percentage (88,2%) of deaths were registered by the first week of death, and nearly all deaths (97,7%) were registered within the first month of occurrence. Less than 1% of deaths were registered after one year of death.

Following death registration, which takes place in regional offices, hospitals or mobile units manned by the DHA, the forms are forwarded to the DHA head office for further processing. Subsequently, the forms are collected by Stats SA for processing.

Table 2.2: Distribution of deaths by the number of days it takes to register a death, 2009

Number of days	Number of deaths	%	Cumulative %
Within a day of death	64 314	11,2	11,2
1 day	141 739	24,8	36,0
2 days	107 089	18,7	54,7
3 days	79 859	13,9	68,6
4 days	55 189	9,6	78,3
5 days	35 019	6,1	84,4
6 days	21 736	3,8	88,2
14-20 days	49 483	8,6	96,8
21-30 days	4 870	0,9	97,7
31-364 days	13 012	2,3	99,9
1 year +	363	0,1	100,0
Total	572 673	100,0	

2.4.4 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. Unknown cases refer to cases where more than one option was selected or where the information could not be classified according to specified categories. Unspecified cases are those where there was no response provided.

Table 2.3 shows that less than 1% of deaths had unknown or unspecified information for sex (0,2%), age (0,2%) and province of death occurrence (0,2%). About 10% of the deaths had unknown or unspecified information on province of residence (10,0%); 14,3% on place or institution of death occurrence; and 18,8% on marital status. For a relatively large percentage of deaths, the method used to ascertain cause of death was unspecified (21,3%), province of birth was unknown or unspecified (21,8%), and population group was not recorded (26,2%). More than half of all deaths had unknown or unspecified level of education, smoking status, pregnancy status, occupation and industry. There have not been any notable changes in reporting these variables over time.

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 2009 is available on request from Stats SA.

Table 2.3: Percentage of deaths classified as unknown/unspecified for selected variables, 2009

Variables	Applicable group	% unknown or unspecified
Sex	All	0,2
Age	All	0,2
Province of death occurrence	All	0,2
Province of usual residence of deceased	All	10,0
Place or institution of death occurrence	All	14,3
Marital status	All	18,8
Method used to ascertain cause of death	All	21,3
Province of birth	All	21,8
Population group	All	26,2
Education	Aged 6 and older	54,7
Smoking status	Aged 16 and older	56,1
Pregnancy status	Females aged 10–55	74,0
Occupation	Aged 15 and older	76,0
Industry	Aged 15 and older (economically active)	84,8

2.4.5 Quality of causes of death information

The quality of causes of death information may be assessed by the percentage of deaths due to *symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified* and specifically those due to *ill-defined and unknown causes of mortality*. This group includes all ill-defined conditions for which no diagnosis classified elsewhere is recorded. For practical purposes, these categories could be designated as not otherwise specified, or as unknown etiology, or as transient.

Table 2.4 shows that the percentage of deaths due to *symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified* during 1997 to 2009 was between 12% and 14% and did not change much over these 13 years. Similarly, the percentage of deaths due to *ill-defined and unknown causes of mortality* ranged between 10% and 13%, with no apparent pattern over time. The small difference between the whole chapter of *symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified* and the broad group of *ill-defined and unknown causes of mortality* shows that a great majority (over 90%) of deaths due to *symptoms, signs*

and abnormal clinical and laboratory findings not elsewhere classified were ill-defined and unknown causes of mortality – a group that includes sudden infant death syndrome, other sudden death with cause unknown, unattended death and other ill-defined and unspecified causes of mortality.

Table 2.4: Percentage of deaths classified to symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified, 1997–2009

Year of death	% of deaths due to symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified (R00-R99)	% of deaths due to ill-defined and unknown causes of mortality (R95-R99)
1997	13,2	11,5
1998	13,8	12,0
1999	12,2	10,4
2000	12,4	10,4
2001	12,6	10,9
2002	12,5	10,7
2003	12,5	10,7
2004	12,3	11,1
2005	12,4	11,4
2006	13,6	12,5
2007	13,9	13,0
2008	13,6	12,9
2009	13,7	12,7

2.4.6 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 statistical release, the framework proposed by Mahapatra et al. (2007) is used to assess the quality of the 2009 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 2.5 shows the results of the assessment framework for the 2009 mortality and causes of death data from the South African civil registration system, modified due to availability of information required. About 93% of deaths for 2009 were covered by the civil registration system, with both age and sex generally well-reported. The information on province of birth and population group was not well reported as over 20% for each variable had missing information. The relevance and comparability of mortality statistics is regarded as complete.

About half (48,6%) of the deaths occurred within a healthcare facility and 13,7% of all deaths were assigned ill-defined causes. The information on mortality is highly relevant and comparable over time. Based on routine tabulations by sex and 5-year age groups as well as the fact that tabulation of cause-of-death information is provided for the 9 provinces and 52 district municipalities in the country, relevance of cause-of-death statistics is regarded as completely relevant. Furthermore, the proportions of cause specific mortality are consistent between 2008 and 2009 and the international classification of diseases (10th revision) is used for coding causes of death. Therefore, comparability is also considered complete.

The table further shows that there is wide accessibility to statistical releases and data sets published on mortality and causes of death. However, it takes about 18 months to process the data at Stats SA, with more time required to send the death notification forms from the regional offices where the deaths are registered to head office for further processing before they can be collected by Stats SA. The mean time from end of reference period to publication is about two years.

Table 2.5: Assessment of the 2009 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 Missing data Population group Province of birth Province of residence Age Sex	93% 26,2% 21,8% 10,0% 0,2% 0,2%	Accuracy Proportion of deaths that occurred in healthcare facilities Proportion of deaths assigned to symptoms and signs of disease not elsewhere classified	48,6% 13,7%
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	100% 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		

3. Registered deaths

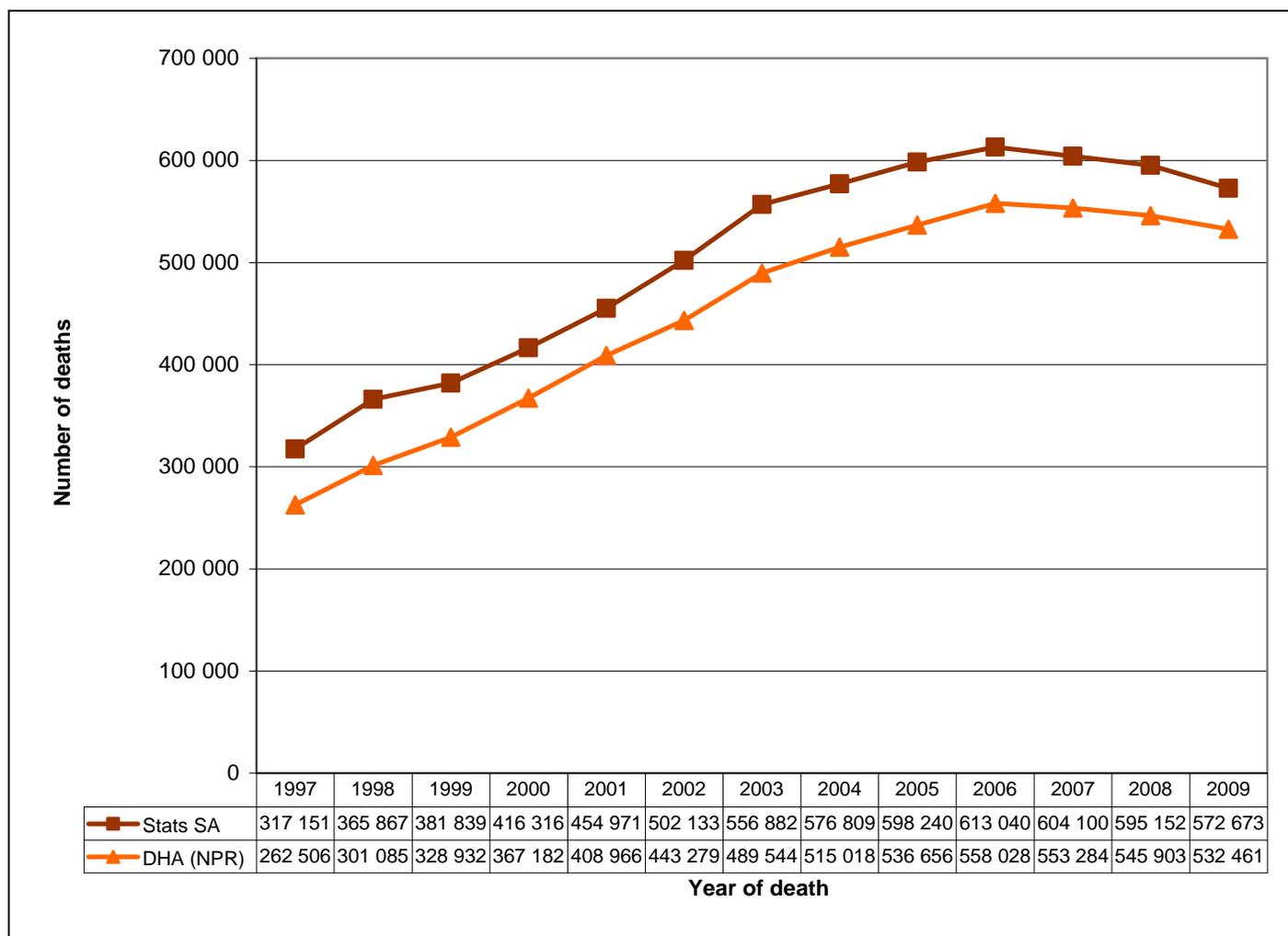
This section provides the distribution of deaths that occurred in 2009 by age, sex, population group, marital status, place or institution of death occurrence, province of death occurrence and province of usual residence of the deceased. The overall number of deaths is also provided by year of death for the period 1997–2009 to show recent trends in mortality using updated data that include late registrations processed in 2010/11.

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 1997–2009. 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 2009 was 572 673, indicating a decrease of 3,8% from a total of 595 152 deaths that had occurred in 2008 and were registered. The number of deaths on the NPR declined by 2,5% during the same period (from 545 903 in 2008 to 532 461 in 2009). Between 2007 and 2008, the number of deaths decreased by 1,5% and 1,3% for deaths processed by Stats SA and those on the NPR, respectively.

Figure 3.1: Number of registered deaths by source of data and year of death, 1997–2009*



*Data for 1997–2008 have been updated to include late registrations processed in 2010/11.

3.2 Age differentials

Table 3.1 shows that 6,6% of deaths occurred within the first year of life, with the contribution of this age having decreased from 7,7% as observed with the 2008 deaths (see Figure 3.2). A comparison of the remaining ages shows that the highest number of deaths that occurred in 2009 was among those aged 35–39 and 30–34 years, comprising respectively 8,6% and 8,5% of all deaths. These age groups were followed by those aged 40–44 (7,6%). The lowest percentage of deaths was among those aged 5–9 and 10–14 years (each comprising 0,8% of all deaths).

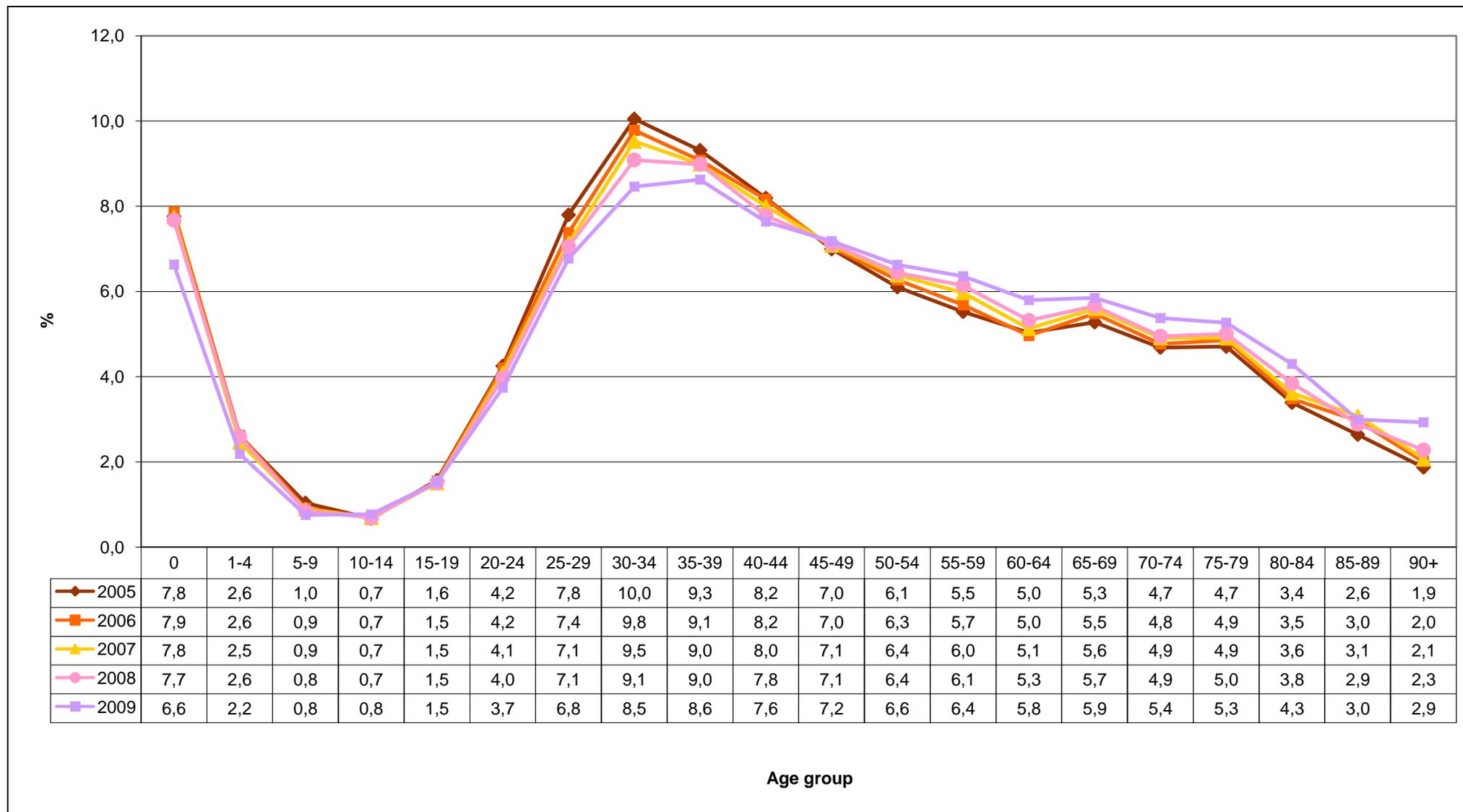
Table 3.1: Number and percentage distribution of deaths by age, 2009

Age group	Number	Percentage
0	37 974	6,6
1-4	12 497	2,2
5-9	4 313	0,8
10-14	4 397	0,8
15-19	8 697	1,5
20-24	21 434	3,7
25-29	38 792	6,8
30-34	48 446	8,5
35-39	49 396	8,6
40-44	43 743	7,6
45-49	41 147	7,2
50-54	37 940	6,6
55-59	36 426	6,4
60-64	33 189	5,8
65-69	33 507	5,9
70-74	30 783	5,4
75-79	30 167	5,3
80-84	24 614	4,3
85-89	17 154	3,0
90+	16 768	2,9
Unspecified	1 289	0,2
Total	572 673	100,0

The distributions of deaths by age and year of death for the past five years (2005 to 2009) are shown in Figure 3.2 to provide an indication of the age pattern of mortality over time. Absolute numbers are provided in Appendices C.2 to C.4, which show that 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 groups 30–34 and 35–39. The number of deaths between 2008 and 2009 decreased consistently for age groups younger than 60 years, with the exception of age group 10–14, and generally increased for ages 60 and older.

A general pattern observed in Figure 3.2 is that the age pattern of mortality was generally the same over the five-year period. Furthermore, the proportion of deaths decreased consistently over the five-year period for infants and for middle ages (from age group 20–24 up to 40–44) and increased at older ages (age group 50–54 and older). While the proportion of deaths was highest in age group 30–34 between 2005 and 2008, it shifted to age group 35–39 in 2009. The comparison between deaths occurring in 2008 and 2009 shows notable decreases in the number of deaths at ages 0 and 30–34. Conversely, there was a marked increase in the proportions dying at older ages.

Figure 3.2: Percentage distribution of deaths by age and year of death, 2005–2009*



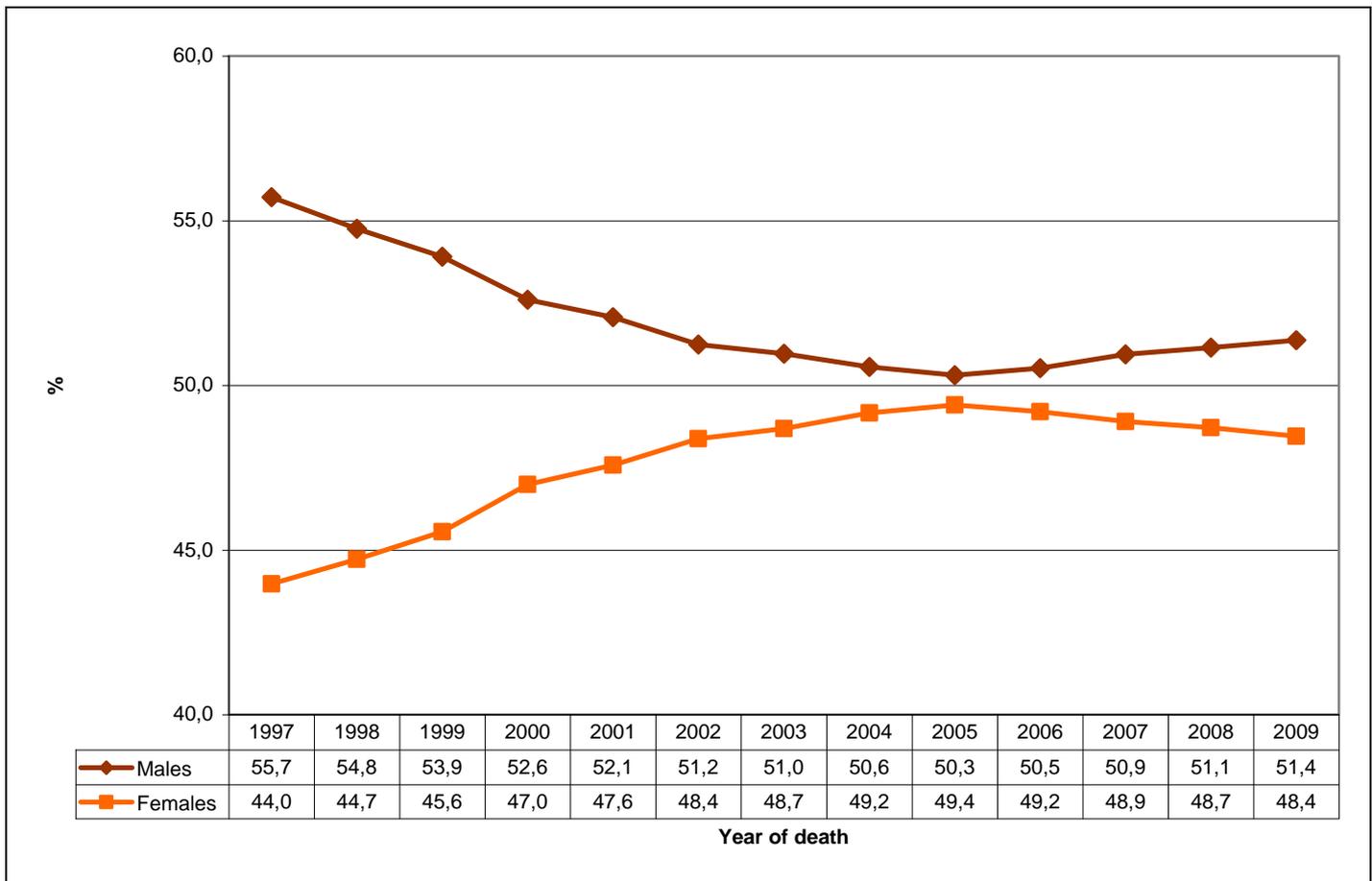
* (1) Excluding deaths with unspecified age (3 277 deaths in 2005; 1 364 deaths in 2006; 1 237 deaths in 2007; 1 042 in 2008 and 1 289 deaths in 2009).

(2) Data for 2005–2008 have been updated to include late registrations processed in 2010/11.

3.3 Sex differentials

The distribution of the number of deaths by sex shows that there were slightly more male (51,4%) than female deaths (48,4%) in 2009. About 0,2% of the deaths had unspecified information on the sex of the deceased. Since 1997, over half of all deaths were males (See Figure 3.3). However, the contribution of male deaths to the total number of deaths decreased from 1998, reaching its lowest point in 2005 when there were almost as many male deaths as female deaths. From 2006 to 2009 the proportion of male deaths increased, and vice versa for female deaths. The percentage distribution of deaths by sex from 1997–2009 indicates that the gap between male and female deaths generally narrowed down over time up to 2005, but appear to be widening again gradually over time.

Figure 3.3: Percentage distribution of deaths by sex and year of death, 1997–2009*



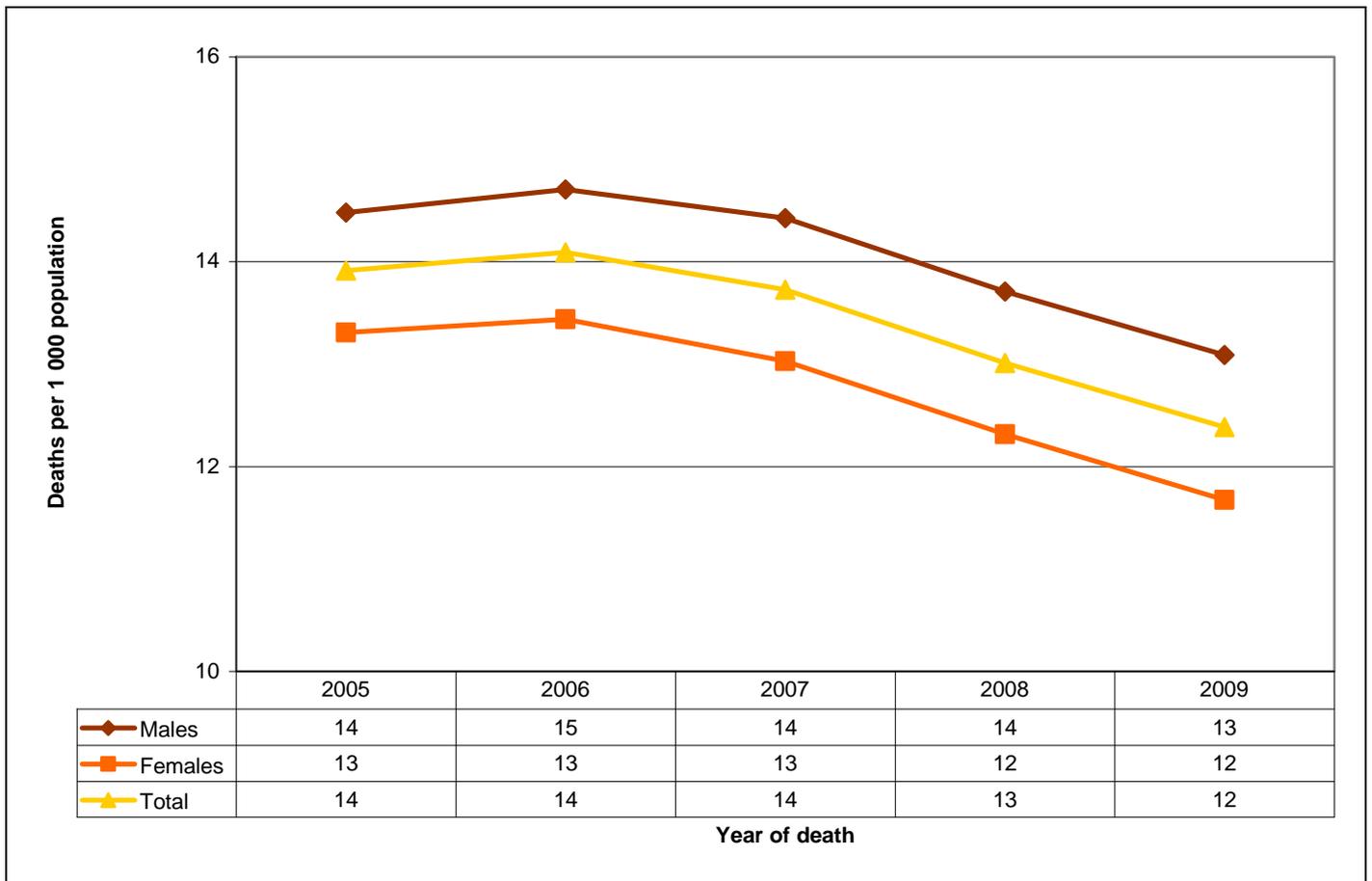
* (1) Excluding deaths with unspecified sex: (1 028 deaths in 1997; 1 928 deaths in 1998; 2 077 deaths in 1999; 1 721 deaths in 2000; 1 646 deaths in 2001, 1 944 deaths in 2002; 1 973 deaths in 2003; 1 615 deaths in 2004; 1 719 deaths in 2005; 1 741 deaths in 2006, 988 deaths in 2007; 826 in 2008 and 1 053 in 2009).

(2) Data for 1997–2008 updated to include late registrations processed in 2010/11.

The annual percentage changes in the number of deaths and year of death are shown in Appendix D. It is observed that from 1997 to 2005, female deaths increased at a higher rate than male deaths. This trend changed between 2005 and 2006 when the increase was higher for males. During the years 2006–2007, 2007–2008 and 2008–2009, the number of deaths for both males and females decreased, with higher decreases observed for females as compared to males for each of the three periods. Between 2008 and 2009, male deaths decreased by 3,4% while female deaths decreased by 4,3%.

Crude death rates (CDR) by sex were calculated for the period 2005–2009 using deaths adjusted for incompleteness to show sex differences in mortality, taking into account the population size for each sex. The 2005–2007 data were adjusted by 90% completeness of death registration while the 2008–2009 were adjusted by 93%. Figure 3.4 shows that crude death rates increased slightly between 2005 and 2006 for both males and females, after which they consistently decreased. The rates for both sexes are consistent with those reported in the mid-year population estimates (Stats SA, 2011). Over the five years, mortality rate was slightly higher for males as compared to females. In 2009, the crude rate for males was 13 deaths per 1 000 population, 12 deaths per 1 000 for females and the overall rate was 12 deaths per 1 000 population.

Figure 3.4: Crude Death Rates (CDR) by year of death and sex (adjusted number of deaths), 2005–2009*



*Data for 2005–2008 have been updated to include late registrations processed in 2010/11.

Age specific death rates (ASDRs) for the total population for the period 2005–2009 (deaths adjusted for incompleteness) are shown in Appendix E to provide an indication of the age pattern of mortality over the five-year period, taking into consideration population size at each age. Generally, the age pattern of death was the same for the five-year period, with rates higher at age 0 and from 60 years. 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. There is a noticeable drop in death rates in 2009 for most age groups, more so at age 0 and from age group 30–34 up to 40–44.

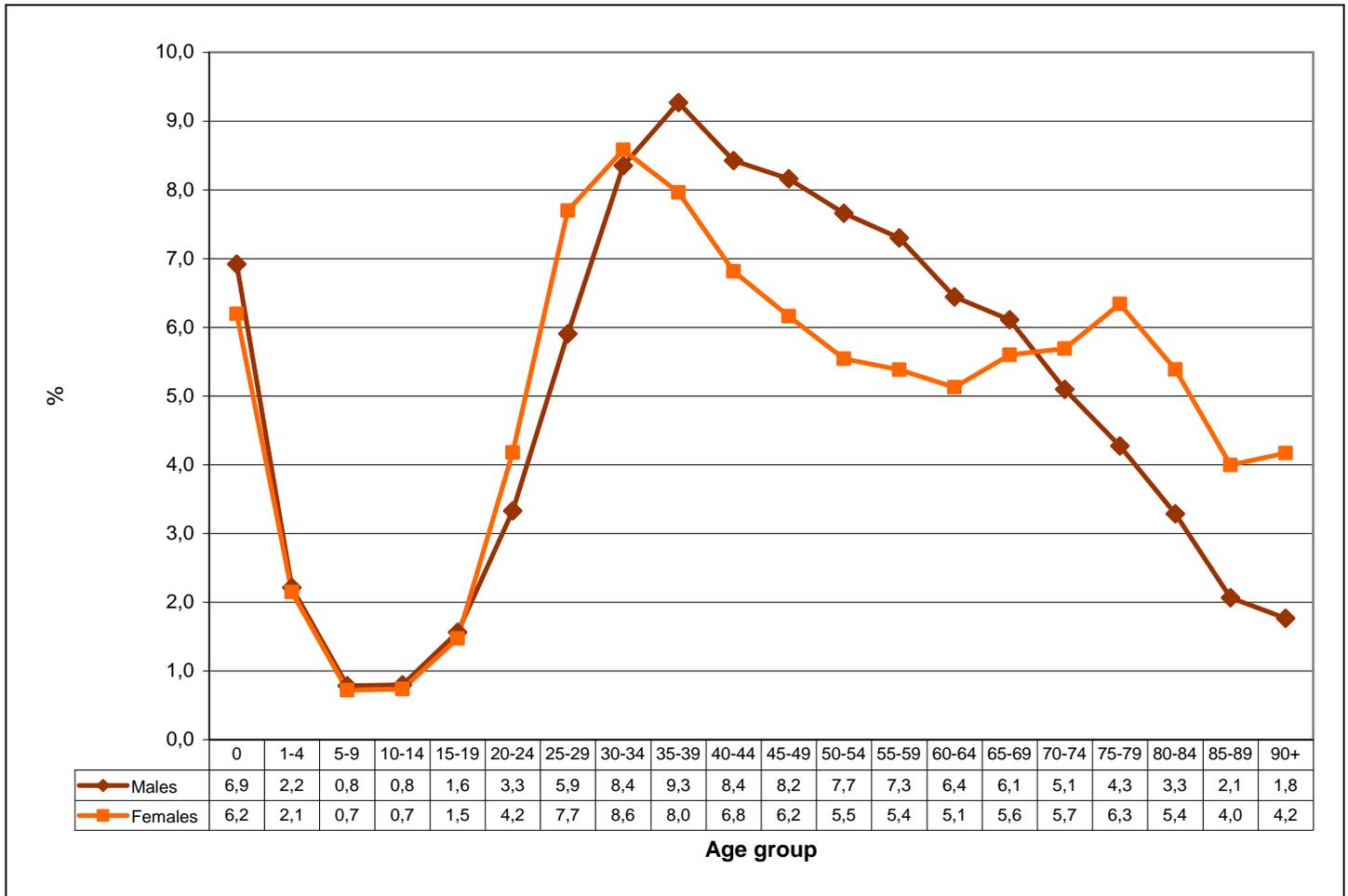
3.4 Age and sex differentials

Percentage distribution

The age and sex percentage distribution of deaths that occurred in 2009 is shown in Figure 3.5 (absolute numbers are provided in Appendix C.4). The absolute number of deaths shows that female deaths exceeded male deaths at ages 20–29 and from age group 70–75 up to age 90 and older. The highest percentage of male deaths occurred among those aged 35–39 (9,3%), followed by age group 30–34 (8,4%) and age group 40–44 (8,4%). For female deaths, the highest percentage of deaths was among those aged 30–34 (8,6%), followed by those aged 35–39 (8,0%) and those aged 25–29 (7,7%). About 6,9% and 6,2% 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 and 5–9.

The proportion of male deaths exceeded those of female deaths for deaths occurring from people at age group 0 to age group 15–19 as well as from age group 35–39 to age group 65–69. The gap in the proportions of deaths for males and females is particularly conspicuous between age groups 35–39 and 60–64. Proportions of male deaths decreased sharply and consistently from age group 35–39 while those for females decreased modestly from age group 30–34, increasing slightly from age group 65–69 after which they decreased again.

Figure 3.5: Percentage distribution of deaths by age and sex, 2009*



*Excluding 2 219 deaths with unspecified age and unspecified sex.

Median ages at death by sex

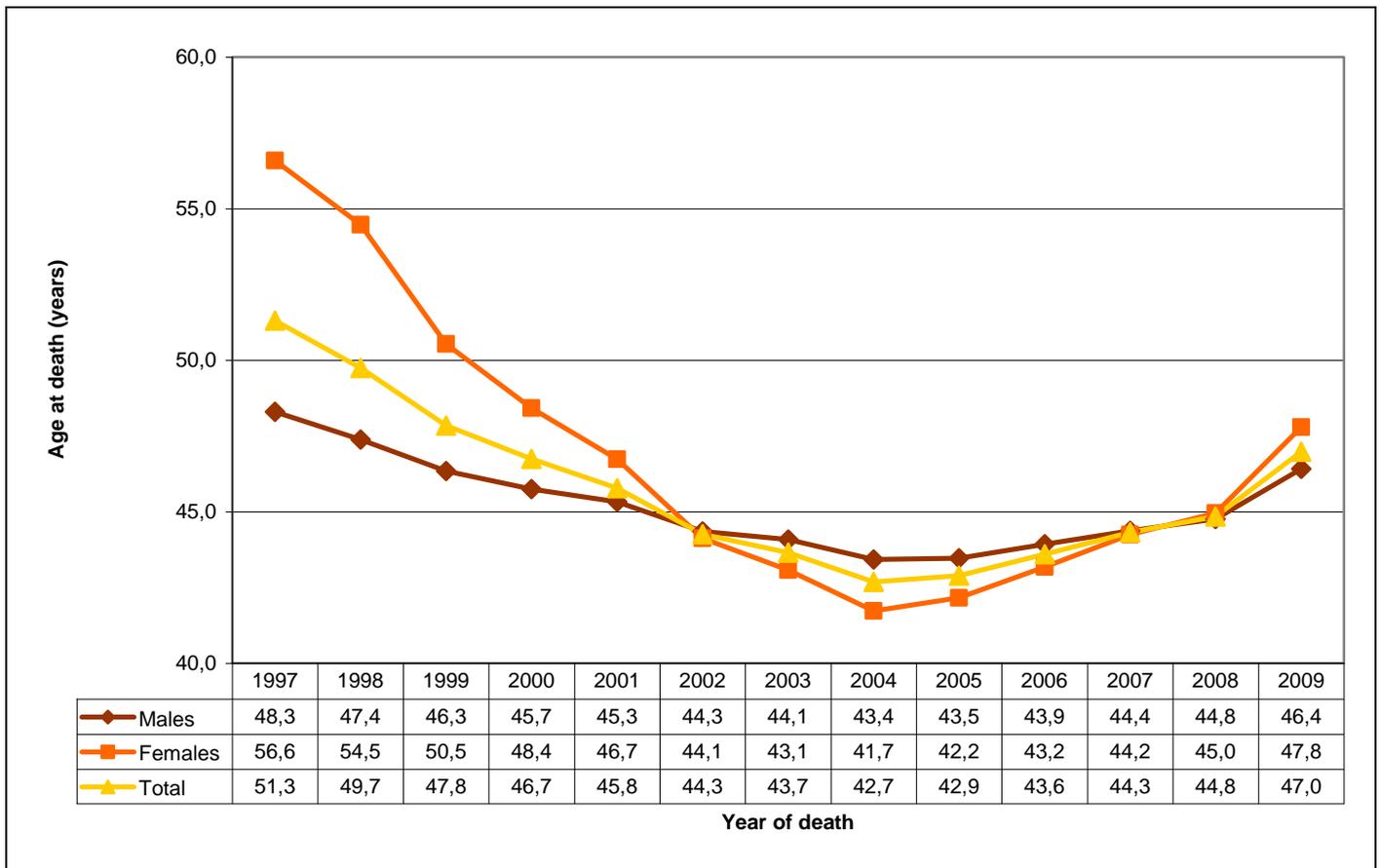
The median ages at death by sex are presented in Figure 3.6. Median ages show how early or late mortality occurs in the population and specifies the age at which half of the reported deaths occur. Lower median ages at death indicate that mortality is occurring earlier while higher median ages indicate 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. The decrease was more pronounced for females, which shows that mortality increased at a higher rate for females as compared to males. From 2005, the median ages increased again gradually for both sexes, 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 during this period. The median ages then converged in 2002, after which they deviated again up to 2007, with median ages higher for males than for females. By 2007, the median age at death for both males and females was around 44 years, increasing to about 45 years in 2008. The median ages for females (47,8 years) exceeded those for males (46,4 years) again in 2009.

The results generally show that between 1997 and 2002, females died at a later age than males on average, a pattern that was reversed between 2003 and 2007 when on average males died later than females. However, it is observed that the pattern is changing again in 2009, with females dying at a later age than males.

Figure 3.6: Median ages at death by sex and year of death, 1997–2009*



Data for 1997–2008 have been updated to include late registrations processed in 2010/11.

Sex ratios by age

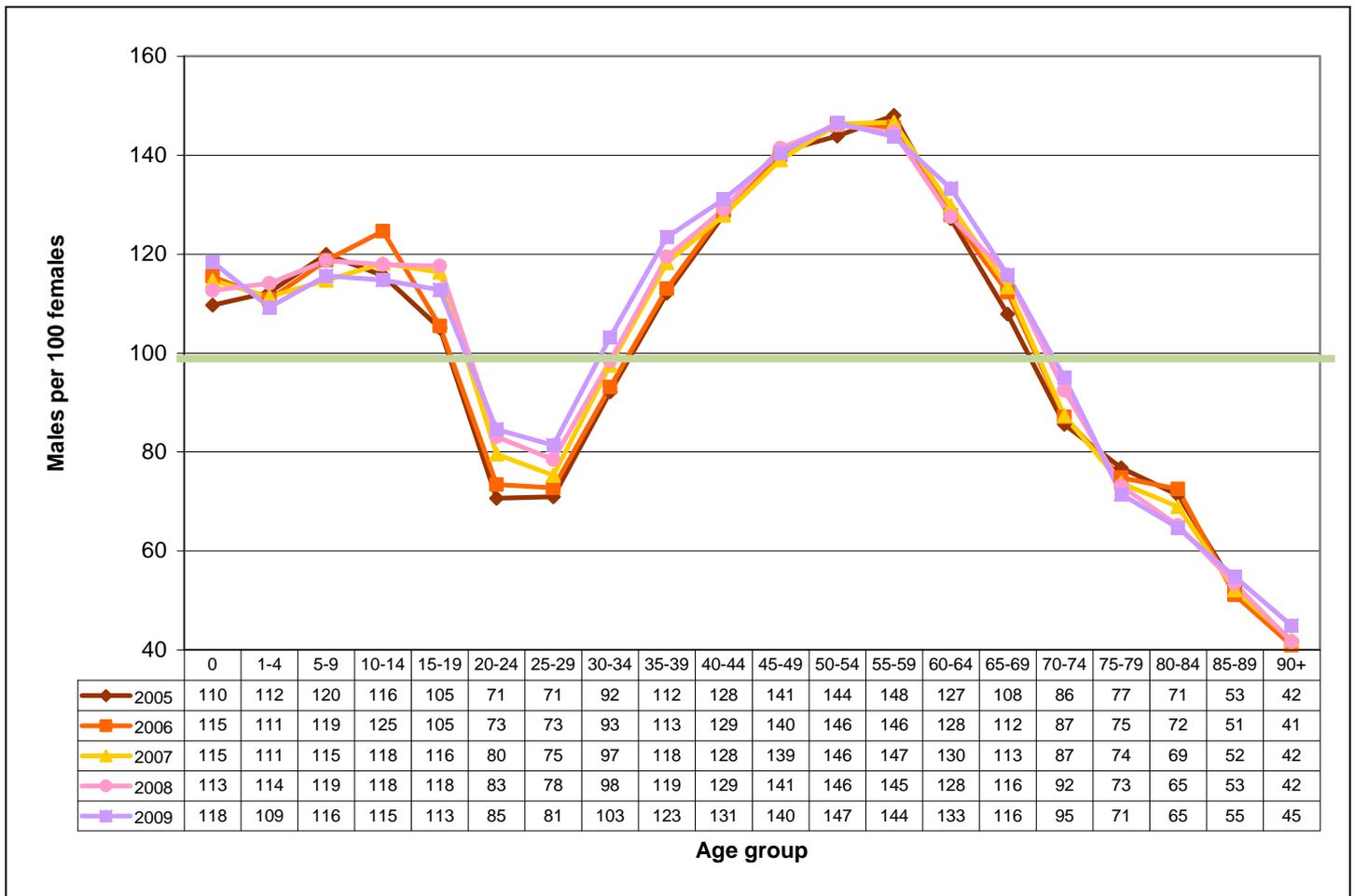
The sex ratio of deaths (the number of male deaths per 100 female deaths) is another measure that shows the relative number of male to female deaths. A ratio of 100 indicates that there is an equal number of male and female deaths, a number less than 100 indicates more female death occurrences; and a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

The overall sex ratios for 1997–2009 are shown in Appendix F. The sex ratio for 2009 deaths was 106 male deaths per 100 female deaths, indicating that there were more male than female deaths that occurred in 2009. Over the 13-year period, sex ratios at death have always been over 100, showing that male deaths have always exceeded female deaths. However, sex ratios decreased from 127 male deaths per 100 female deaths in 1997 to 102 male deaths per 100 female deaths in 2005. Sex ratios then increased by one male death per 100 female deaths every year from 2005 to 2009.

Figure 3.7 shows the sex ratios for the years 2005–2009 by age. It is observed that the age pattern of sex ratios was similar during these years. Generally, there were more male than female deaths from age 0 up to age group 15–19 and at age groups 35–39 up to 65–69. Female deaths exceeded male deaths at age groups 20–24 to 30–34 (with the exception of 2009) and from age group 70–74. Sex ratios consistently declined with age from age group 60–64.

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 2008 and 2009, female deaths in age group 20–24, decreased by 10,1% while male deaths in the same age group decreased by 8,5%. In age group 25–29, female and male deaths decreased by 9,2% and 5,8%, respectively.

Figure 3.7: Sex ratios by age and year of death, 2005–2009*



* (1) Excluding deaths with unspecified sex: (1 719 deaths in 2005; 1 741 deaths in 2006, 988 deaths in 2007; 826 in 2008 and 1 053 in 2009).
 (2) Data for 2005–2008 have been updated to include late registrations processed in 2010/11.

3.5 Population group differences in mortality

The distribution of deaths by population group is shown in Table 3.2. It is observed that black Africans contributed the highest percentage of registered deaths (61,7%) while Indian or Asians had the lowest percentage (1,3%). About 6,3% of the deaths occurred to the white population group and 4,4% to the coloured population group. This distribution is largely similar to that observed in the previous years.

Over a quarter (26,2%) of registered deaths in 2009 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. The poor reporting of population group during death registration has persisted since 1997.

Table 3.2: Number and percentage distribution of deaths by population group, 2009

Population group	Number	Percentage
Black African	353 607	61,7
Coloured	25 178	4,4
Indian or Asian	7 467	1,3
White	36 260	6,3
Other, unknown or unspecified	150 161	26,2
Total	572 673	100,0

3.6 Marital status differences in mortality

Table 3.3 shows that nearly half (47,1%) of the deceased were reported as never married at the time of death. About a quarter (24,3%) of the deceased were married or living with a partner as married people at the time of death while 8,3% were widowed and 1,6%, were divorced. The marital status of the deceased at the time of death was unknown or unspecified in 18,8% of the deaths.

Table 3.3: Number and percentage distribution of deaths by marital status, 2009

Marital status	Number	Percentage
Never married	269 500	47,1
Married or living as married	139 244	24,3
Widowed	47 491	8,3
Divorced	8 908	1,6
Unknown or unspecified	107 530	18,8
Total	572 673	100,0

3.7 Differences in mortality by place or institution of death occurrence

The number of deaths by place or institution of death occurrence shows that about 44,7% of the deaths took place in hospitals, 1,7% in hospital emergency rooms or as outpatients and 2,2% died in a nursing home (see Table 3.4). The total percentage of deaths occurring within a health facility is therefore 48,6%. Nearly a third (30,6%) of the deaths occurred at home while 2,4% were dead on arrival at a healthcare facility. This percentage distribution has remained largely the same over time.

Table 3.4: Number and percentage distribution of deaths by place of death occurrence, 2009

Place of death	Number	Percentage
Hospital	255 872	44,7
ER or Outpatient	9 678	1,7
Dead on arrival	13 650	2,4
Nursing home	12 691	2,2
Home	175 224	30,6
Other	23 478	4,1
Unknown or unspecified	82 080	14,3
Total	572 673	100,0

3.8 Geographic variations in mortality

This subsection provides information on the distribution of deaths by province of death occurrence, province of usual residence of the deceased as well as district municipalities of death occurrence for deaths that occurred in 2009. The information on geography was derived from place names, based on the 2011 municipal boundaries. The number and percentage distribution of deaths by province of death occurrence and province of usual residence of the deceased are provided in Appendix G and G.1, respectively. Appendix H provides the distribution of deaths at provincial and district municipality levels by age while the sex distribution is provided in Appendix I.

3.8.1 Differences by province

The distribution of deaths by province of death occurrence and province of usual residence of the deceased is presented in Table 3.5. It is important to note that the percentage distribution of deaths by province of occurrence is largely similar to the distribution of the South African population by province. However, the distribution of deaths by province of usual residence is affected by a large number of missing information, which when excluded, the distribution of deaths by province of usual residence of the deceased and province of death occurrence are similar. While province of death occurrence was unknown or unspecified in 0,2% of the deaths, province of usual residence of

the deceased was unknown or unspecified in 10,0% of deaths while province of birth (results not shown) was unknown or unspecified in 21,8% of the deaths.

Table 3.5 shows that the highest number of deaths in 2009 occurred in KwaZulu-Natal, followed by Gauteng and Eastern Cape. Over 20% of deaths occurred in KwaZulu-Natal (22,2%) and Gauteng (20,0%) while 14,3% occurred in Eastern Cape. The lowest percentage of deaths occurred in Northern Cape (2,6%) and less than 1% of deaths occurred outside South Africa. While the percentages for province of usual residence were not the same as those for province of death occurrence, the order of the percentages from highest to lowest remained the same for both.

The distribution of deaths by province of death occurrence and province of usual residence of the deceased shows that the majority of deaths in 2009 (at least 79% in each province) occurred within the province of usual residence (see Appendix G). Free State had the highest proportion (93,8%) of the deceased dying within their province usual of residence while North West had the lowest at 79,2%. Those who resided in North West but died elsewhere mainly died in Gauteng (7,9%). Generally, most of those who did not die within their province of usual residence died in bordering provinces, particularly in Gauteng.

Subsequent analysis on geography focuses only on place of death occurrence; not on place of residence or place of birth of the deceased. The information on place of residence and place of birth of the deceased is available on request from Stats SA.

The age-sex distribution of deaths by province showed wide disparities by province (see Appendix H). With regard to age, North West had the highest proportion of children dying in infancy (9,4%) while Western Cape had the highest proportion of those dying at old ages (aged 65 and older). More than a third (36,3%) of those who died in Western Cape were 65 years and older. Eastern Cape appeared to have the smallest proportion of children dying in infancy (3,5%) – this may also indicate poor reporting of infant deaths in the province.

The results presented in Appendix G show that the sex ratio at death ranged from 97 male deaths per 100 female deaths in Limpopo to 120 male deaths per 100 female deaths in Western Cape. Limpopo was the only province where there were more females dying than males while in Eastern Cape there were nearly as many females as males dying.

Table 3.5: Distribution of deaths by province of death occurrence and province of usual residence of the deceased, 2009

Province	Province of death occurrence		Province of usual residence of deceased	
	Number	%	Number	%
Western Cape	45 398	7,9	38 428	6,7
Eastern Cape	82 132	14,3	70 131	12,2
Northern Cape	15 082	2,6	14 555	2,5
Free State	47 265	8,3	46 264	8,1
KwaZulu-Natal	127 369	22,2	113 593	19,8
North West	40 372	7,0	36 639	6,4
Gauteng	114 729	20,0	101 354	17,7
Mpumalanga	45 703	8,0	43 692	7,6
Limpopo	52 907	9,2	49 377	8,6
Foreign	637	0,1	1 283	0,2
Unknown or unspecified	1 079	0,2	57 357	10,0
Total	572 673	100,0	572 673	100,0

3.8.2 Differences by district municipality of death occurrence

The number of deaths by age and municipality of death occurrence is shown in Appendix H. The results show that at least 10% of deaths occurred among infants in Dr Ruth Segomotsi Mompati in North West (10,5%); John Taolo Gaetsewe in Northern Cape (10,2%); and Ekurhuleni in Gauteng (10,0%). District municipalities in Eastern Cape appear to have the lowest percentage of children who died within the year of birth, which as highlighted above may be a reflection of reporting.

The sex distribution of the deceased is provided in Appendix I. It is observed that all district municipalities in Western Cape, Northern Cape, North West, Gauteng and Mpumalanga had more male than female deaths as the sex ratios were all more than 100 in each of the district municipalities in these provinces. Some district municipalities in other provinces had more female than male deaths, particularly in Eastern Cape, KwaZulu-Natal and Limpopo. For example, for 100 female deaths, there were 93 male deaths in Alfred Nzo (Eastern Cape); 96 male deaths in Sisonke (KwaZulu-Natal) and 90 male deaths in Greater Sekhukhune (Limpopo).

4. Causes of death

4.1 Introduction

This section presents information on causes of death for all registered deaths that occurred in 2009 as well as some comparisons with data from 1997 to 2008, updated for late registrations. 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 causes that considers the leading underlying natural 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 in Part A and Part B (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 2009. Only 275 forms (less than 1%) 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 (59,0%) had only one cause recorded; just over a quarter (26,9%) had two causes recorded; 10,3% had three causes recorded; and 3,8% had four to six causes recorded. The pattern of recording causes on the death notification forms for 2009 is similar to that observed in the previous years.

The distribution of the number of causes of death recorded on death notification forms by province (results not shown) indicates that it is only in Western Cape where over half of the forms (53,7%) had two or more causes. The provinces with the lowest proportions of recording two or more causes were Limpopo (30,9%), Free State (36,6%), North West (36,8%) and Mpumalanga (38,9%).

Table 4.1: Distribution of death notification forms by the number of causes entered on the form, 2009

Number of reported causes of death	Number of death notification forms	Percentage
No cause given	275	0,0
One cause	337 774	59,0
Two causes	153 923	26,9
Three causes	59 188	10,3
Four causes	17 134	3,0
Five causes	4 356	0,8
Six causes	23	0,0
Total	572 673	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 (53,0%) of the deaths the causes of death were ascertained by opinions of medical personnel (33,5% opinion of the attending medical practitioner, 17,3% opinion of attending medical practitioner on duty and 2,2% opinion of registered professional nurse). An interview with family members was used to certify the cause of death for 14,9% of the deaths while an autopsy was used in less than 10% (8,6%) of the deaths. Further analysis of the data (results not showed) indicated that those aged 5–14 had a higher proportion of causes of death ascertained through autopsy and the percentage was also higher among males as compared to females.

Table 4.2: Number and percentage distribution of deaths by method used to ascertain the cause of death, 2009

Method of ascertaining cause of death	Number	Percentage
Autopsy	49 141	8,6
Opinion of attending medical practitioner	191 683	33,5
Opinion of attending medical practitioner on duty	99 173	17,3
Opinion of registered professional nurse	12 579	2,2
Interview of family member	85 366	14,9
Other	12 603	2,2
Unspecified	122 128	21,3
Total	572 673	100,0

4.4 Main groups of the underlying causes of death

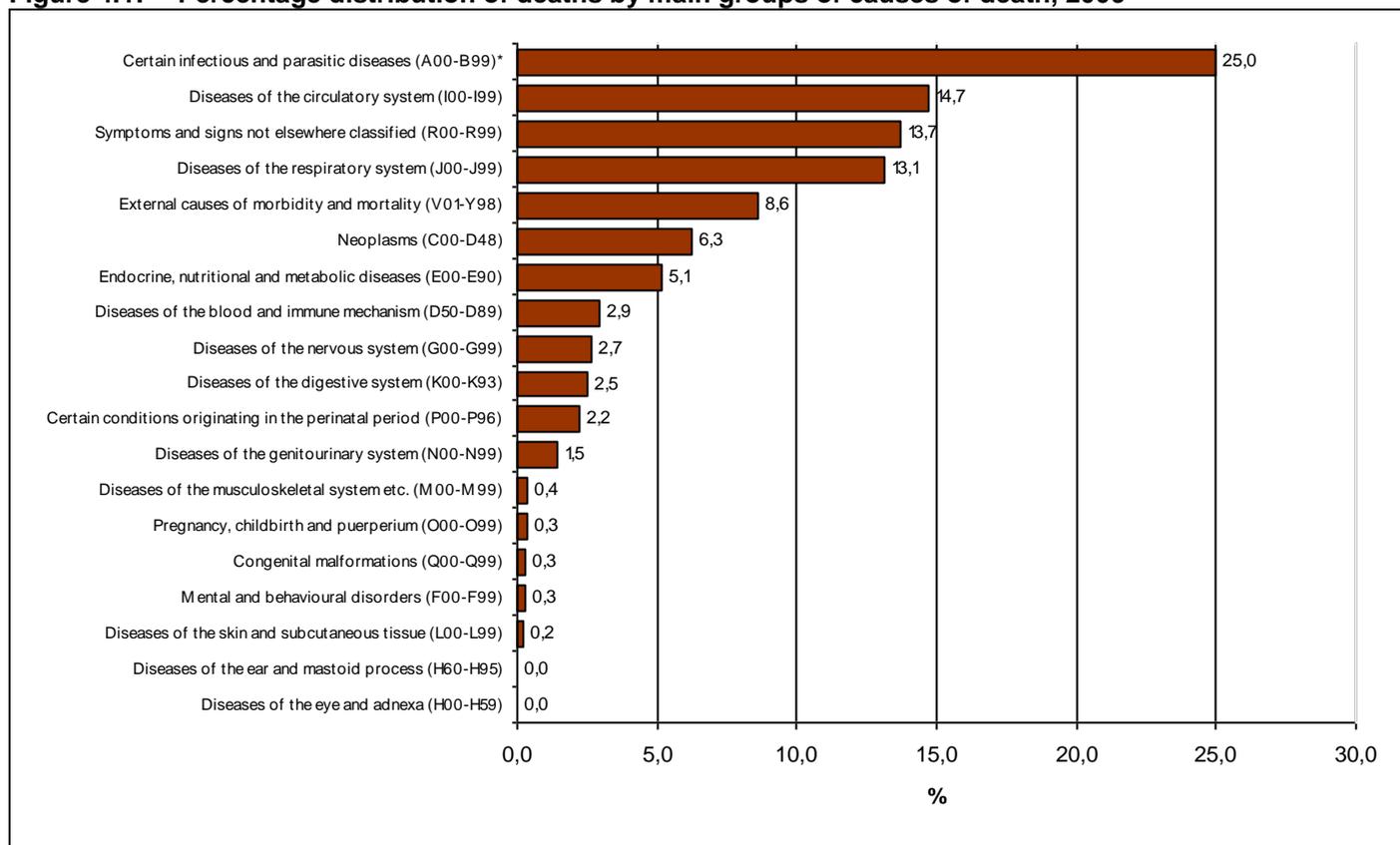
Figure 4.1 shows the percentage distribution of deaths by the 19 main groups (chapters) of the classification of causes of death. The top ranking main group of causes of death in 2009 (as has been the case in the previous years) was *certain infections and parasitic diseases*, comprising a quarter (25,0%) of all deaths. This group also includes 1 184 deaths due to *multidrug-resistant tuberculosis* (MDR-TB) and 151 deaths due to *extensively drug-resistant tuberculosis* (XDR-TB). The reported number of deaths due to MDR-TB increased by 65,6% between 2008 and 2009 (from 715 deaths in 2008 to 1 184 deaths in 2009) and XDR-TB increased by 11,0% (from 136 deaths in 2008 to 151 deaths in 2009).

The second most common main group of causes of death was *diseases of the circulatory system* (14,7%) followed by *symptoms and signs not elsewhere classified* (13,7%), and *diseases of the respiratory system* (13,1%). Less than 10% of the deaths were due to *external causes of morbidity and mortality* (8,6%) and each of the other main groups. *Neoplasms* comprised 6,3% of all deaths, *certain conditions originating in the perinatal period* contributed 2,2% of all deaths, while *pregnancy, childbirth and puerperium* contributed 0,3% of all deaths.

The percentage distribution of deaths by selected main groups of causes of death (with at least 2% of deaths in 2009) for 2007–2009 is shown in Figure 4.2. It is observed that the proportion of deaths by main groups of causes of death has remained more or less the same during the period 2007–2009. *Certain infectious and parasitic diseases* were the most common causes of death for the three years and accounted for about a quarter of deaths for each year. *Symptoms and signs not elsewhere classified*, *diseases of the circulatory and diseases of the respiratory system* each contributed between 13% and 15% of the deaths for each year and for each cause.

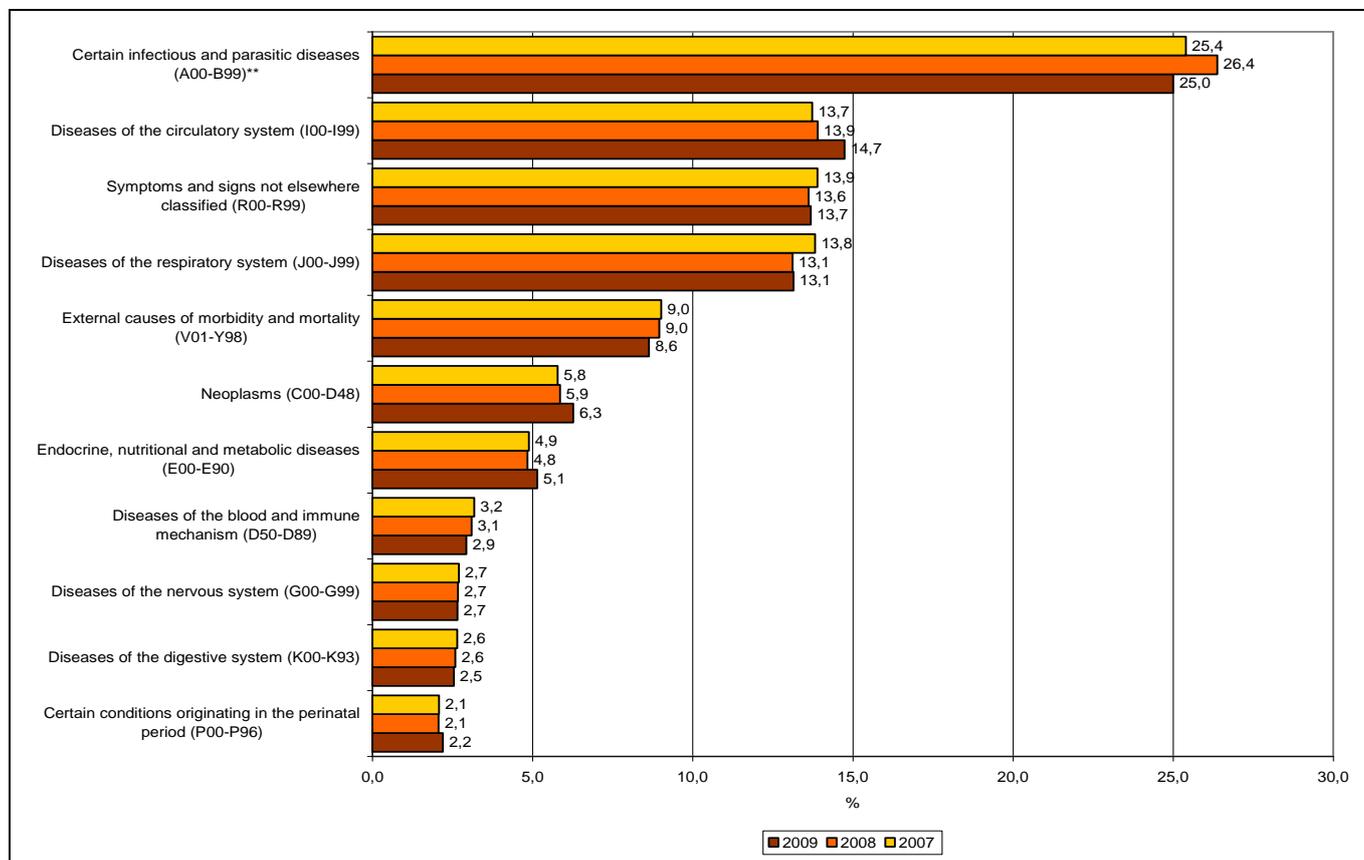
The proportions of death due to *neoplasms* and *diseases of the circulatory system* increased slightly each year over the three-year period while those of *diseases of the blood and immune mechanism* decreased. For the rest of the main groups the proportions were either inconsistent over time or remained generally the same.

Figure 4.1: Percentage distribution of deaths by main groups of causes of death, 2009



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

Figure 4.2: Percentage distribution of deaths by selected main groups of causes of death and year of death occurrence, 2007–2009*



*Data for 2007 and 2008 have been updated to include late registrations processed in 2010/11.

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

4.5 Natural and non-natural causes of death

Table 4.3 and Figure 4.3 show the number and percentage of deaths due to natural and non-natural causes, respectively, from 1997 to 2009. The number of natural deaths increased consistently from 263 057 deaths in 1997 to 559 812 deaths in 2006 after which the number decreased, reaching 523 217 deaths in 2009. There was no consistent pattern with the number of non-natural deaths over the 13-year period, except for the period between 2001 and 2005 when deaths due to non-natural causes increased annually. There was a consistent decrease in the number of deaths due to non-natural causes from 2007.

The number of deaths due to natural causes decreased by 1,4% between 2007 and 2008 and by 3,4% between 2008 and 2009. Similarly, the number of deaths due to non-natural causes decreased by 2,1% between 2007 and 2008 and by 7,2% between 2008 and 2009.

Figure 4.3 shows 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% for two years before increasing again to 91,4% in 2009. In 2009, 91,4% of deaths were due to natural causes and 8,6% due to non-natural causes.

Table 4.3: Number of natural and non-natural deaths by year of death, 1997–2009*

Year of death	Number of natural deaths	Number of non-natural deaths	Total
1997	263 057	54 094	317 151
1998	310 760	55 107	365 867
1999	328 504	53 335	381 839
2000	366 536	49 780	416 316
2001	404 633	50 338	454 971
2002	450 670	51 463	502 133
2003	504 047	52 835	556 882
2004	523 456	53 353	576 809
2005	544 277	53 963	598 240
2006	559 812	53 228	613 040
2007	549 645	54 455	604 100
2008	541 852	53 300	595 152
2009	523 217	49 456	572 673

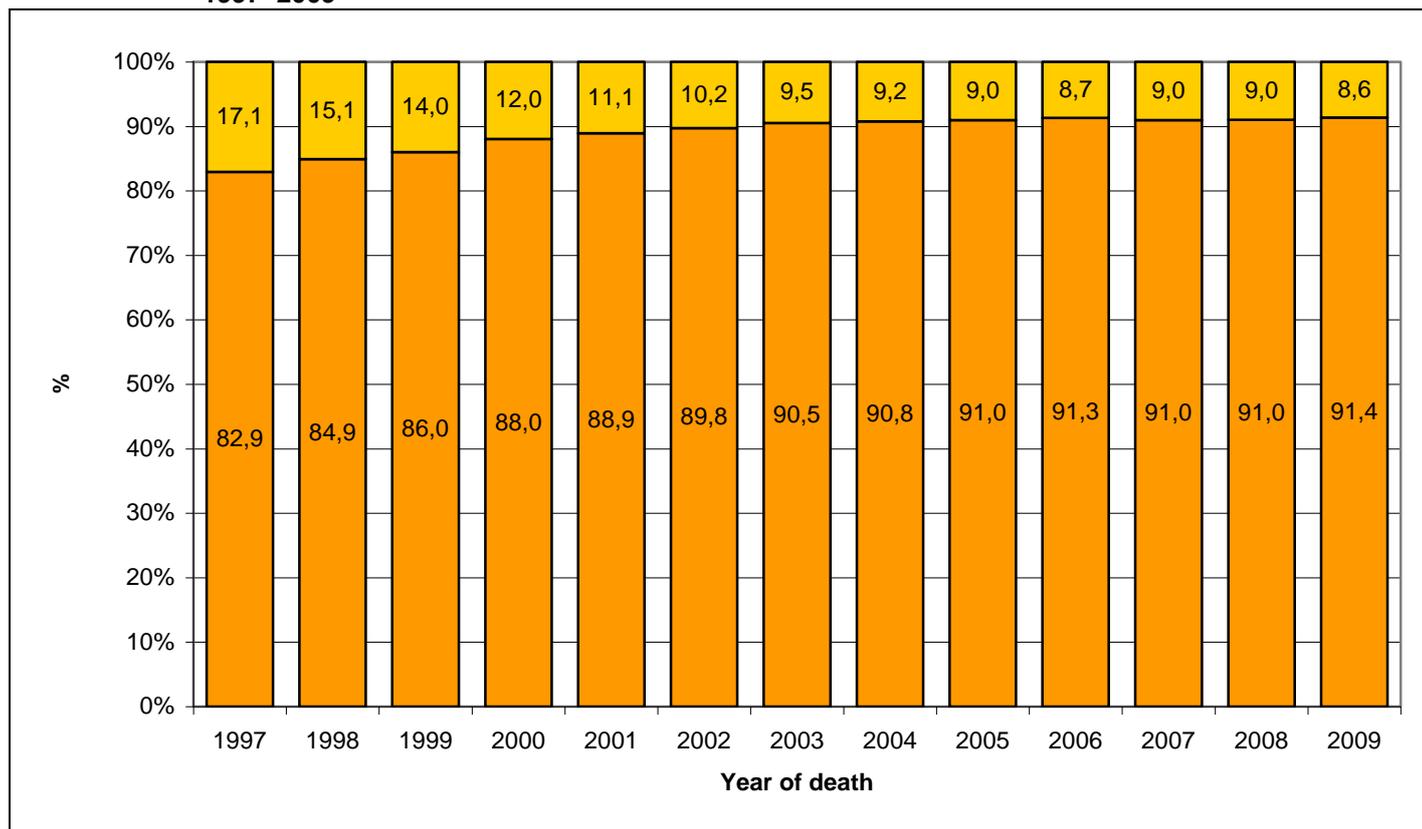
*Data for 1997–2008 have been updated to include late registrations processed in 2010/11.

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 2009. The general pattern observed is that the proportion of deaths due to non-natural causes increased almost 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 40,3% of the deaths were due to non-natural causes. Other ages with higher proportions (over 20%) of deaths due to non-natural causes were age groups 20–24 (32,0%), 5–9 (25,2%) and 10–14 (23,9%). 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.

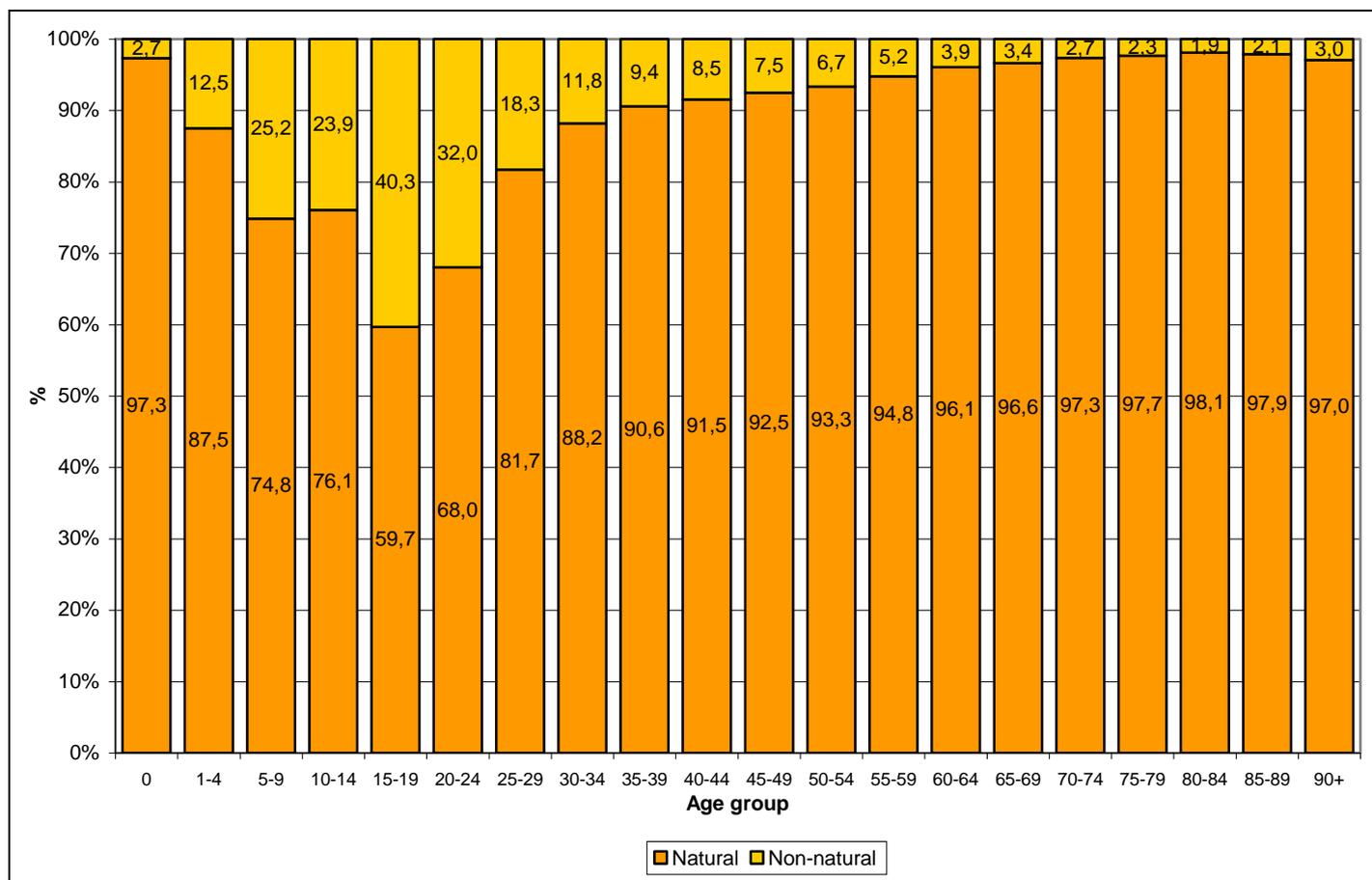
The distribution by sex showed that of the male deaths that occurred in 2009, 12,9% were due to non-natural causes while non-natural causes affected 4,1% of female deaths.

Figure 4.3: Percentage distribution of natural and non-natural causes of death by year of death, 1997–2009*



*Data for 1997–2008 have been updated to include late registrations processed in 2010/11.

Figure 4.4: Percentage distribution of natural and non-natural causes of death by age, 2009*



*Excluding 1 289 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 of death by frequency among those eligible for ranking as described in Section 2. The top-ranking causes determine the leading underlying natural causes of death.

Overall pattern of the leading underlying natural causes of death

The ten leading underlying causes of death in South Africa in 2007–2009 are shown in Table 4.4. The distribution of deaths by all broad groups of causes of death ranked by frequency (including non-natural causes and symptoms and signs not elsewhere classified) for 2009 is shown in Appendix J while the breakdown of individual causes for the broad groups that were among the ten leading causes in 2009 is provided in Appendix K.

Table 4.4 shows that the ten leading natural underlying causes of death were the same for the three years, with the first six having the same rank order. *Chronic lower respiratory diseases*, *certain disorders involving the immune mechanism*, *HIV disease* and *hypertensive diseases* exchanged positions over the three years. For example, while *chronic lower respiratory diseases* were the seventh leading cause in 2007, it was the ninth in 2008 and 2009.

Tuberculosis was the leading cause of death during the three years, accounting for at least 12% of all deaths each year (12,8% in 2007; 12,6% in 2008; and 12,0% in 2009). *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 and 2009, accounting for 2,5% and 3,1% of all deaths, respectively, having increased from the ninth leading cause in 2007. *Certain disorders involving the immune mechanism* was the eighth leading cause of death in 2007 and 2008, accounting for 2,5% of deaths in each year and the tenth leading cause in 2009 accounting for 2,3% of deaths.

A comparison of the absolute number of deaths for the ten leading underlying natural causes of death during 2007–2009 shows that the number of deaths due to *tuberculosis*, *influenza and pneumonia*, *chronic lower respiratory diseases* and *certain disorders involving the immune mechanism* consistently decreased over time while those due to *other forms of heart disease*, *HIV disease* and *hypertensive diseases* consistently increased. The pattern was not consistent for the others.

While the contribution of *tuberculosis* and *influenza and pneumonia* consistently decreased over time, it increased for *other forms of heart disease*, *HIV disease* and *hypertensive diseases*. On one hand, the number of deaths due to *tuberculosis* decreased by 2,4% between 2007 and 2008 and by 8,3% between 2008 and 2009 and those due to *influenza and pneumonia* decreased by 8,5% and 6,2% between 2007 and 2008 and between 2008 and 2009, respectively. On the other hand, deaths due to *HIV disease* increased by 11,8% between 2007 and 2008 and by 15,8% between 2008 and 2009 while those due to *hypertensive diseases* increased by 6,0% and 8,1% between 2007 and 2008 and between 2008 and 2009, respectively. While there was no consistent pattern observed for deaths due to *intestinal infectious diseases*, they had the greatest decrease of 22,4% between 2008 and 2009.

Table 4.4: The ten leading underlying natural causes of death, 2007–2009*

Causes of death (based on the 10 th revision, International Classification of diseases, 1992)	2009			2008			2007		
	Rank	Number	%	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)	1	69 003	12,0	1	75 238	12,6	1	77 091	12,8
Influenza and pneumonia (J09-J18)	2	42 964	7,5	2	45 806	7,7	2	50 035	8,3
Intestinal infectious diseases (A00-A09)	3	30 675	5,4	3	39 512	6,6	3	37 553	6,2
Other forms of heart disease (I30-I52)	4	26 462	4,6	4	26 306	4,4	4	26 144	4,3
Cerebrovascular diseases (I60-I69)	5	24 835	4,3	5	24 453	4,1	5	25 438	4,2
Diabetes mellitus (E10-E14)	6	20 523	3,6	6	19 622	3,3	6	20 215	3,3
Human immunodeficiency virus [HIV] disease (B20-B24)	7	17 570	3,1	7	15 172	2,5	9	13 571	2,2
Hypertensive diseases (I10-I15)	8	15 386	2,7	10	14 230	2,4	10	13 429	2,2
Chronic lower respiratory diseases (J40-J47)	9	14 184	2,5	9	14 322	2,4	7	15 386	2,5
Certain disorders involving the immune mechanism (D80-D89)	10	13 096	2,3	8	14 711	2,5	8	15 349	2,5
Other natural causes		248 519	43,4		252 480	42,4		255 434	42,3
Non-natural causes		49 456	8,6		53 300	9,0		54 455	9,0
All causes		572 673	100,0		595 152	100,0		604 100	100,0

*Data for 2007–2008 have been updated to include late registrations processed in 2010/11.

** 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 by sex in 2009 is shown in Table 4.5. Overall, eight of the ten leading causes were the same for both sexes, although with different ranks beyond the fifth leading cause of death. On one hand, *chronic lower respiratory diseases* and *ischaemic heart diseases* were among the ten leading causes of death for males, but not for females. On the other hand, *hypertensive diseases* and *other viral diseases* were among the top ten underlying causes of death for females but not for males.

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 30% of all deaths for each sex. While the ranks may be the same, the contribution of each cause to the total deaths differed for each sex. For example, although *tuberculosis* was the leading underlying cause of death for males and for females, it accounted for 13,0% of male deaths and 11,0% of female deaths.

Human immunodeficiency virus (HIV) disease was the sixth leading cause of death for males (accounting for 2,9% of male deaths), but was the eighth leading cause of death among females (accounting for 3,3% of female deaths). *Certain disorders involving the immune mechanism* was the tenth and ninth leading cause of death for males (2,1%) and females (2,5%), respectively. *Other viral diseases* accounted for 2,3% of female deaths and was not among the ten leading causes of death for males.

Table 4.5: The ten leading underlying natural causes of death for males and females, 2009*

Causes of death (based on the 10th revision, International Classification of Diseases, 1992)	Male			Female		
	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)**	1	38 290	13,0	1	30 628	11,0
Influenza and pneumonia (J09-J18)	2	21 269	7,2	2	21 606	7,8
Intestinal infectious diseases (A00-A09)	3	14 338	4,9	3	16 254	5,9
Other forms of heart disease (I30-I52)	4	11 895	4,0	4	14 543	5,2
Cerebrovascular diseases (I60-I69)	5	10 395	3,5	5	14 426	5,2
Human immunodeficiency virus [HIV] disease (B20-B24)	6	8 507	2,9	8	9 034	3,3
Chronic lower respiratory diseases (J40-J47)	7	8 428	2,9	...	...	...
Diabetes mellitus (E10-E14)	8	8 183	2,8	6	12 335	4,4
Ischaemic heart diseases (I20-I25)	9	7 259	2,5	...	...	...
Certain disorders involving the immune mechanism (D80-D89)	10	6 080	2,1	9	6 996	2,5
Hypertensive diseases (I10-I15)	...	...	...	7	9 471	3,4
Other viral diseases (B25-B34)	...	...	...	10	6 375	2,3
Other natural causes		121 454	41,3		124 497	44,9
Non-natural causes		38 069	12,9		11 288	4,1
Total		294 167	100,0		277 453	100,0

*Excluding 1 053 cases with unspecified sex

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

... Category not in top ten

The number of deaths associated with the ten leading causes of death classified by sex for the period 2007–2009 is shown in Figure 4.5. Over the three year period, *tuberculosis* remained the leading cause of death for both males and females, followed by *influenza and pneumonia* and then *intestinal infectious diseases*.

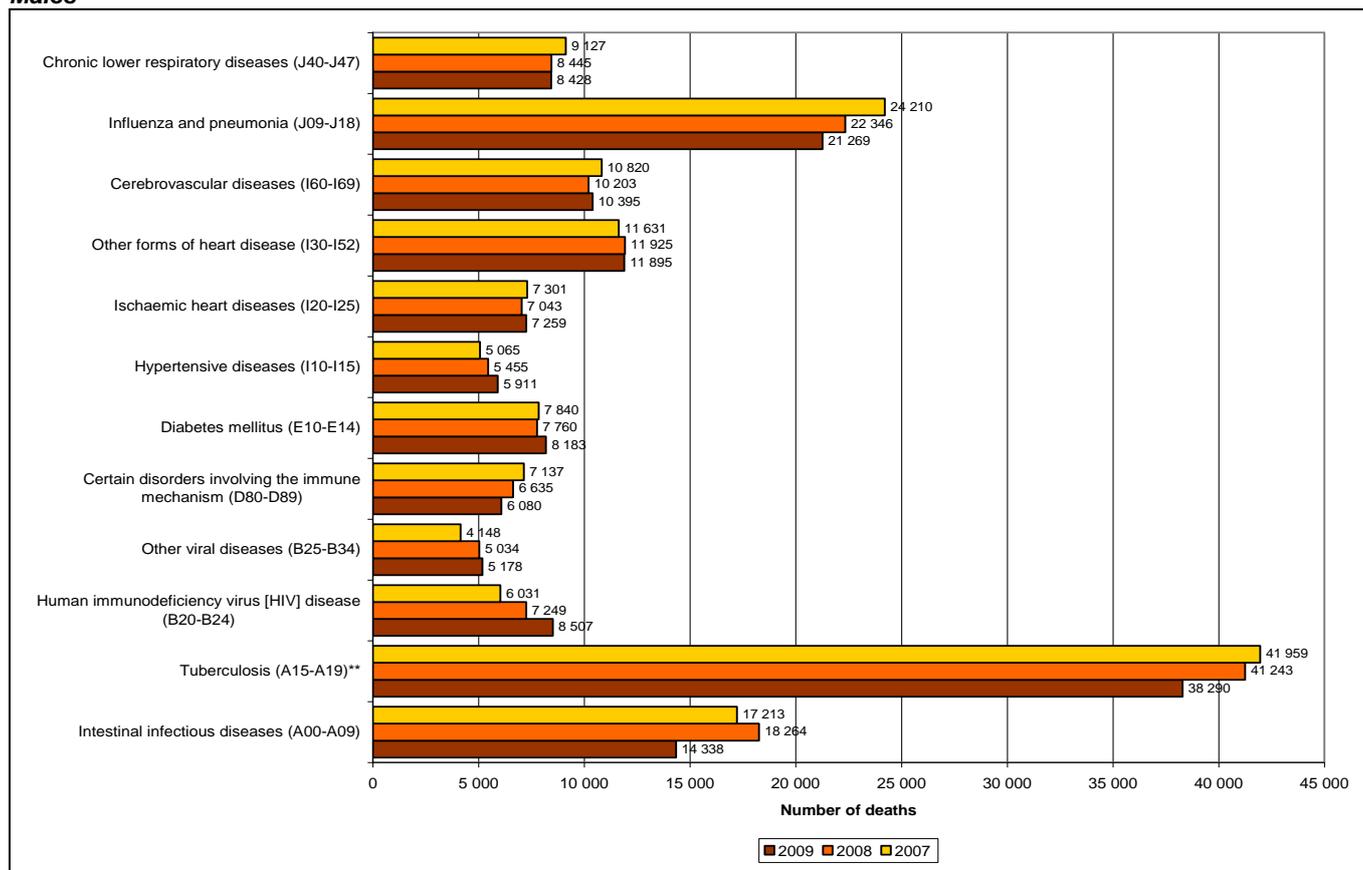
The main similarity between males and females is that there were year-by-year increases in the number of deaths due to *HIV disease* and *hypertensive diseases* for both sexes and decreases in the number of deaths due to *tuberculosis*, *certain disorders involving the immune mechanism*, *influenza and pneumonia* and *chronic lower respiratory infections* for both sexes.

For both sexes, the greatest decrease between 2008 and 2009 was observed in the number of deaths due to *intestinal infectious diseases* (21,5% for males and 23,2% for females) and the greatest increase in the number of deaths due to *HIV disease* (17,4% for males and 14,3% for females). There were no marked differences in the number of deaths due to *cerebrovascular diseases*, *other forms of heart diseases* and *ischaemic heart diseases* over the three-year period for both sexes.

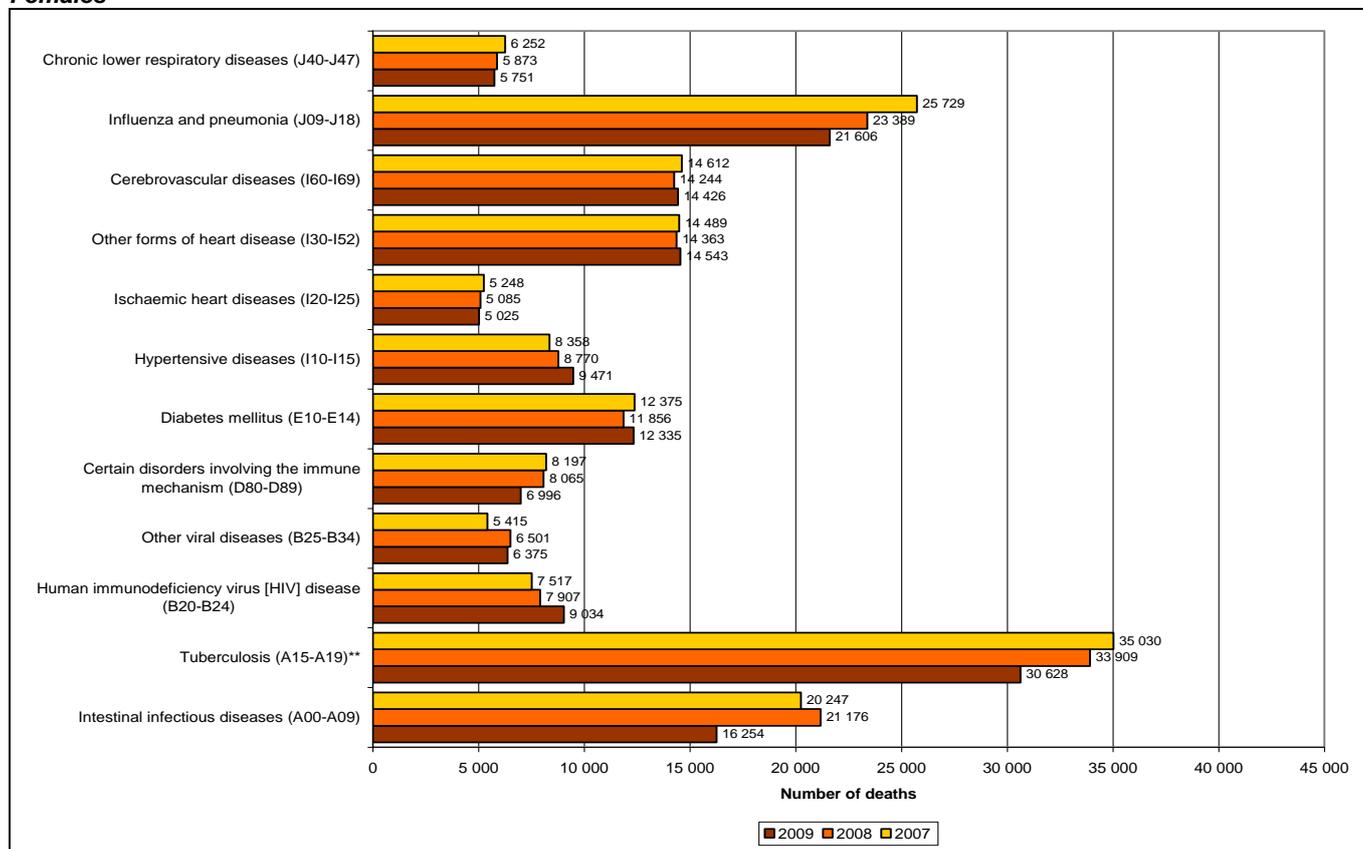
Further comparison between males and females shows that female deaths exceeded male deaths in all specified causes with the exception of *tuberculosis*, *ischaemic heart diseases* and *chronic lower respiratory infections*.

Figure 4.5: Distribution of deaths for the leading causes of death by year of death and sex, 2007–2009*

Males



Females



*Data for 2007–2008 have been updated to include late registrations processed in 2010/11.

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

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 2009 are given in Table 4.6. It is observed that 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, *tuberculosis* was the leading underlying natural cause of death for those aged 15–49 and 50–64 (contributing 19,6% and 11,4% of deaths in each of these age groups, respectively) but was the fifth leading cause of death for those aged 0–14 (contributing 3,4% of deaths in this age group) and the eighth leading cause of death for those aged 65 years and older (contributing 3,3%). The leading underlying natural cause of death for those aged 0–14 was *intestinal infectious disease* and *cerebrovascular diseases* were leading among those who were aged 65 years and older at the time of their death.

For those aged 0–14 years, *intestinal infectious diseases* and *influenza and pneumonia* contributed over a quarter of deaths (28,1%) in this age group. *Malnutrition* was the fourth leading cause of death, contributing 3,5% of deaths in this age group and HIV disease the tenth, contributing 1,7%. Amongst those aged 15–49 *tuberculosis* (19,6%) was the leading cause of death, followed by *influenza and pneumonia* (8,6%) and *HIV disease* (5,5%). *HIV disease* appeared among the ten leading causes of death in age groups 0–14 and 15–49 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 *cerebrovascular diseases* were the leading cause of death among those aged 65 and older, contributing 9,8% of deaths in this age group, it was the fourth leading cause of death among those aged 50–64, accounting for 5,6% of deaths.

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 18,3% and 29,8% of deaths in each age group, respectively. *Malignant neoplasm of digestive organs* was the only neoplasm appearing among the leading causes of death in ages 50–64 and 65 years and older and contributed 3,0% of deaths in each age group.

Leading underlying natural causes of death for infants and children

Table 4.7 shows the ten leading causes of death for neonatal deaths (for babies aged 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.

It is observed that there were no overlapping leading underlying causes of death for those who died during the neonatal and postneonatal period. Neonatal deaths mainly resulted from conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities were among the ten leading causes). The leading cause of death for neonatal deaths in 2009 was *respiratory and cardiovascular disorders specific to the perinatal period*, accounting for 42,0% 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* (11,2%) and *infections specific to the perinatal period* (10,1%). Congenital malformations appearing in the ten leading natural causes of neonatal deaths contributed a total of 4,0% of the deaths during the neonatal period.

The leading cause of death for those who died during the postneonatal period was *intestinal infectious diseases* (26,8%) followed by *influenza and pneumonia* (17,9%). These two causes contributed 44,7% of deaths during this period. *Malnutrition* (4,2%) was the third leading cause of death, *tuberculosis* (2,2%) the sixth and *HIV disease* (2,0%) the eighth.

For overall infant deaths, the leading cause of death was *intestinal infectious diseases* (17,4%), followed by *respiratory and cardiovascular disorders specific to the perinatal period* (15,2%) and *influenza and pneumonia* (11,7%). These three causes accounted for 44,2% of all infant deaths. The three leading causes of death for those aged 1–4 years were *intestinal infectious diseases* (21,6%), *influenza and pneumonia* (12,0%) and *malnutrition* (7,6%). *Tuberculosis* (5,2%) was the fourth leading cause of death while *HIV disease* (2,2%) was the fifth and *certain disorders involving the immune mechanism* (2,1%) were the sixth.

Five underlying natural causes of death that were common for infants and children (aged 1–4 years) were: *intestinal infectious diseases*, *influenza and pneumonia*, *malnutrition* and *other acute lower respiratory infections*. *Intestinal infectious diseases* were the leading cause for both ages and contributed 17,4% of infant deaths and 21,6% of those aged 1–4 years.

Table 4.6: The ten leading underlying natural causes of death for broad age groups, 2009

Causes of death (based on the 10 th Revision, International Classification of Diseases, 1992)	0-14			15-49			50-64			65+		
	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%
Intestinal infectious diseases (A00-A09)	1	9 972	16,9	4	13 075	5,2	9	3 493	3,2	10	4 092	2,7
Influenza and pneumonia (J09-J18)	2	6 666	11,3	2	21 587	8,6	3	6 580	6,1	5	8 035	5,3
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	3	5 759	9,7	...	...	...	...	...	...
Malnutrition (E40-E46)	4	2 042	3,5	...	...	...	...	...	...
Tuberculosis (A15-A19)*	5	2 032	3,4	1	49 403	19,6	1	12 221	11,4	8	5 092	3,3
Disorders related to length of gestation and fetal growth (P05-P08)	6	1 719	2,9	...	...	...	...	...	...
Other disorders originating in the perinatal period (P90-P96)	7	1 563	2,6	...	...	...	...	...	...
Infections specific to the perinatal period (P35-P39)	8	1 409	2,4	...	...	...	...	...	...
Other acute lower respiratory infections (J20-J22)	9	1 022	1,7	9	4 050	1,6	...	...	...
Human immunodeficiency virus [HIV] disease (B20-B24)	10	1 011	1,7	3	13 953	5,5	...	...	...
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	5	9 865	3,9	...	...	...
Other viral diseases (B25-B34)	...	...	...	6	8 946	3,6	...	...	...
Other forms of heart disease (I30-I52)	...	...	...	7	5 956	2,4	5	5 951	5,5	2	13 906	9,1
Inflammatory diseases of the central nervous system (G00-G09)	...	...	...	8	5 725	2,3	...	...	...
Cerebrovascular diseases (I60-I69)	...	...	...	10	3 631	1,4	4	6 064	5,6	1	15 039	9,8
Diabetes mellitus (E10-E14)	...	...	...	...	...	...	2	6 813	6,3	3	10 909	7,1
Chronic lower respiratory diseases (J40-J47)	...	...	...	...	...	...	6	4 282	4,0	7	6 793	4,4
Hypertensive diseases (I10-I15)	...	...	...	...	...	...	7	4 148	3,9	4	9 379	6,1
Ischaemic heart diseases (I20-I25)	...	...	...	...	...	...	8	3 499	3,3	6	7 200	4,7
Malignant neoplasm of digestive organs (C15-C26)	...	...	...	...	...	...	10	3 269	3,0	9	4 615	3,0
Other natural causes		21 266	35,9		80 832	32,1		45 490	42,3		63 969	41,8
Non-natural causes		4 720	8,0		34 632	13,8		5 745	5,3		3 964	2,6
All causes		59 181	100,0		251 655	100,0		107 555	100,0		152 993	100,0

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

... Category not in top ten

Table 4.7: The ten leading underlying natural causes of death for infants and children, 2009

Causes of death (based on the 10 th Revision, International Classification of Diseases, 1992)	Neonatal			Post-neonatal			Less than 1 year			1-4 years		
	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1	5 648	42,0	...	...	...	2	5 754	15,2	...	...	...
Disorders related to length of gestation and fetal growth (P05-P08)	2	1 594	11,9	...	...	...	4	1 703	4,5	...	...	...
Other disorders originating in the perinatal period (P90-P96)	3	1 508	11,2	...	...	...	5	1 556	4,1	...	...	...
Infections specific to the perinatal period (P35-P39)	4	1 353	10,1	...	...	...	6	1 406	3,7	...	...	...
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	5	964	7,2	...	...	...	8	972	2,6	...	...	...
Digestive system disorders of fetus and newborn (P75-P78)	6	490	3,6	...	...	...	...	...	...	...	...	...
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	7	349	2,6	...	...	...	...	...	...	...	...	...
Other congenital malformations (Q80-Q89)	8	268	2,0	...	...	...	...	...	...	...	...	...
Congenital malformations of the circulatory system (Q20-Q28)	9	155	1,2	...	...	...	...	...	...	...	...	...
Congenital malformations of the nervous system (Q00-Q07)	10	109	0,8	...	...	...	...	...	...	...	...	...
Intestinal infectious diseases (A00-A09)	...	...	...	1	6 574	26,8	1	6 608	17,4	1	2 702	21,6
Influenza and pneumonia (J09-J18)	...	...	...	2	4 392	17,9	3	4 430	11,7	2	1 500	12,0
Malnutrition (E40-E46)	...	...	...	3	1 032	4,2	7	1 045	2,8	3	950	7,6
Other acute lower respiratory infections (J20-J22)	...	...	...	4	664	2,7	9	687	1,8	7	226	1,8
Other bacterial diseases (A30-A49)	...	...	...	5	545	2,2	10	551	1,5	...	...	...
Tuberculosis (A15-A19)	...	...	...	6	542	2,2	...	...	...	4	647	5,2
Protozoal diseases (B50-B64)	...	...	...	7	501	2,0	...	...	...	...	...	...
Human immunodeficiency virus [HIV] disease (B20-B24)	...	...	...	8	486	2,0	...	...	...	5	279	2,2
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	9	453	1,8	...	...	...	6	259	2,1
Other viral diseases (B25-B34)	...	...	...	10	407	1,7	...	...	...	9	200	1,6
Inflammatory diseases of the central nervous system (G00-G09)	...	...	...	...	...	...	...	...	...	8	216	1,7
Other forms of heart disease (I30-I52)	...	...	...	...	...	...	...	...	...	10	184	1,5
Other natural causes		865	6,4		8 052	32,8		12 239	32,2		3 775	30,2
Non-natural		140	1,0		883	3,6		1 023	2,7		1 559	12,5
All causes		13 443	100,0		24 531	100,0		37 974	100,0		12 497	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 4.8. *Tuberculosis* was the leading cause of death for those aged 15–24, accounting for 14,1% of deaths in this age group, followed by *influenza and pneumonia* (6,3%) and *intestinal infectious diseases* (3,9%). *HIV disease, other viral diseases* and *certain disorders involving the immune mechanism* were the fourth, fifth and sixth leading causes of death, respectively. The ten leading causes of death in 2009 were the same as those observed in 2008, although some causes changed ranks.

Table 4.8: The ten leading underlying natural causes of death for the population aged 15–24 years, 2009

Causes of death (based on the 10 th Revision, International Classification of Diseases, 1992)	15-24 years		
	Rank	Number	%
Tuberculosis (A15-A19)	1	4 244	14,1
Influenza and pneumonia (J09-J18)	2	1 887	6,3
Intestinal infectious diseases (A00-A09)	3	1 170	3,9
Human immunodeficiency virus [HIV] disease (B20-B24)	4	1 069	3,5
Other viral diseases (B25-B34)	5	801	2,7
Certain disorders involving the immune mechanism (D80-D89)	6	759	2,5
Inflammatory diseases of the central nervous system (G00-G09)	7	706	2,3
Other forms of heart disease (I30-I52)	8	624	2,1
Episodic and paroxysmal disorders (G40-G47)	9	351	1,2
Other acute lower respiratory infections (J20-J22)	10	330	1,1
Other natural causes		7 828	26,0
Non-natural causes		10 362	34,4
Total		30 131	100,0

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

Leading underlying natural causes of death by province of death occurrence

Table 4.9 shows the provincial differences in the ranking of the ten leading underlying causes of death for 2009. 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. 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 (16,2%) followed by Eastern Cape (13,6%), Mpumalanga (13,4%) and North West (12,3%). The proportion of deaths due to *tuberculosis* in these provinces were all higher than the national average of 12,0% in 2009. The lowest proportion of deaths due to *tuberculosis* was observed in Limpopo and Western Cape, contributing 8,9% of deaths in each province.

The causes of death that were common for all the nine provinces were *tuberculosis, diabetes mellitus, cerebrovascular diseases, hypertensive diseases* and *other forms of heart disease*. However, the ranks of these causes differed between provinces. For example, while *diabetes mellitus* was the second leading cause of death in Western Cape (6,2%), it was the eighth leading cause of death in Northern Cape (3,0%), Free State (2,7%) and North West (2,6%).

HIV disease was among the ten leading causes of death in all provinces except Free State and Limpopo. It was the second leading cause of death in Northern Cape, accounting for 5,9% of deaths in the province and fourth in Western Cape, accounting for 5,2% of all deaths in this province. *Influenza and pneumonia* and *intestinal infectious diseases* were among the ten leading causes of death in all provinces, with the exception of Western Cape.

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 of death only in Limpopo.

Table 4.9: The ten leading underlying natural causes of death in each province of death occurrence, 2009

Causes of death (based on the 10 th 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	4 041	8,9	1	11 132	13,6	1	1 465	9,7	2	5 179	11,0	1	20 618	16,2	1	4 982	12,3	1	10 595	9,2	1	6 137	13,4	2	4 696	8,9	
Diabetes mellitus (E10-E14)	2	2 824	6,2	7	2 773	3,4	8	449	3,0	8	1 262	2,7	6	4 901	3,8	8	1 063	2,6	6	3 689	3,2	7	1 593	3,5	6	1 924	3,6	
Ischaemic heart diseases (I20-I25)	3	2 775	6,1	...	...	...	...	...	...	10	812	1,7	...	...	0,0	...	...	...	8	2 905	2,5	...	...	0,0	...	...	...
HIV disease (B20-B24)	4	2 347	5,2	8	2 349	2,9	2	883	5,9	...	...	...	7	4 743	3,7	9	980	2,4	7	3 223	2,8	6	1 752	3,8	...	...	...
Cerebrovascular diseases (I60-I69)	5	2 274	5,0	5	3 315	4,0	4	632	4,2	6	1 787	3,8	4	6 257	4,9	5	1 572	3,9	5	4 382	3,8	4	2 151	4,7	5	2 397	4,5	
Chronic lower respiratory diseases (J40-J47)	6	1 984	4,4	4	3 344	4,1	7	575	3,8	9	944	2,0	...	...	...	10	945	2,3	10	2 399	2,1	...	...	...	9	916	1,7
Malignant neoplasm of digestive organs (C15-C26)	7	1 825	4,0
Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	8	1 665	3,7
Hypertensive diseases (I10-I15)	9	1 564	3,4	10	2 112	2,6	9	447	3,0	7	1 267	2,7	10	2 631	2,1	6	1 536	3,8	9	2 889	2,5	9	1 380	3,0	7	1 525	2,9	
Other forms of heart disease (I30-I52)	10	1 534	3,4	3	3 641	4,4	5	582	3,9	4	2 411	5,1	5	5 351	4,2	4	2 285	5,7	3	6 152	5,4	5	2 009	4,4	4	2 415	4,6	
Influenza and pneumonia (J10-J18)	...	...	...	2	3 689	4,5	3	844	5,6	1	5 872	12,4	3	7 197	5,7	2	3 895	9,6	2	9 573	8,3	2	4 279	9,4	1	6 424	12,1
Intestinal infectious diseases (A00-A09)	...	...	...	6	3 059	3,7	6	577	3,8	3	3 190	6,7	2	7 907	6,2	3	2 331	5,8	4	4 820	4,2	3	3 493	7,6	3	4 522	8,5
Other viral diseases (B25-B34)	9	2 169	2,6	8	3 798	3,0
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	...	...	...	10	383	2,5	5	2 094	4,4	...	...	...	7	1 282	3,2	...	...	...	8	1 480	3,2	8	1 238	2,3
Other acute lower respiratory infections (J20-J22)	...	...	...	...	...	...	...	...	...	...	...	...	9	2 669	2,1	...	...	...	...	...	...	10	1 077	2,4	...	...	...
Inflammatory diseases of the central nervous system (G00-G09)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	717	1,4
Other natural causes		17 283	38,1		37 333	45,5		6 970	46,2		19 319	40,9		50 498	39,6		16 611	41,1		53 245	46,4		16 381	35,8		22 262	42,1	
Non-natural causes		5 282	11,6		7 216	8,8		1 275	8,5		3 128	6,6		10 799	8,5		2 890	7,2		10 857	9,5		3 971	8,7		3 871	7,3	
All causes		45 398	100,0		82 132	100,0		15 082	100,0		47 265	100,0		127 369	100,0		40 372	100,0		114 729	100,0		45 703	100,0		52 907	100,0	

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

** Rank

... Category not in top ten

Underlying causes of death (main groups) by district municipality of death occurrence

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

Appendices M to M.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 affected at least 30% of deaths occurring in KwaZulu-Natal (31,7%) and Mpumalanga (30,0%). Only 18,5% of deaths occurring in Western Cape were due to certain infectious and parasitic diseases. The district municipalities worst affected by certain infectious and parasitic diseases were those in KwaZulu-Natal, particularly Umkhanyakude (37,8%), iLembebe (37,6%), Uthungulu (36,6%) and Zululand (36,6%).

Diseases of the respiratory system were more prevalent in Free State and Mpumalanga where these causes contributed 17,7% and 15,8% of all deaths in these provinces, respectively. With regard to district municipalities, over 20% of deaths in Greater Sekhukhune, Limpopo (26,1%), Amajuba, KwaZulu-Natal (22,0%), Ngaka Modiri Molema, North West (21,8), Thabo Mofutsanyane, Free State (21,1%) and Lejweleputswa, Free State (20,6%) were due to diseases of the respiratory system.

Western Cape had the highest proportion of deaths due to diseases of the circulatory system (19,4%) and neoplasms (15,8%). Diseases of the circulatory system were also the most common cause of death for all district municipalities in this province, with the exception of Cape Winelands where the most common main group of death was certain infectious and parasitic diseases.

Information on the ten leading natural causes of death by district municipality (Appendix N to N.8) shows that, with the exception of three districts, the leading causes were either *tuberculosis* or *influenza and pneumonia*. *Tuberculosis* was the leading cause of death in the majority of district municipalities in seven provinces: all in Western Cape, Eastern Cape and KwaZulu-Natal; three out of four in North West; two out of three in Mpumalanga; and three out of five in Northern Cape and Gauteng. The main 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 in Mangaung metropolitan municipality and in two out of five district municipalities in Limpopo. Other than *tuberculosis* and *influenza and pneumonia*, other diseases that appeared as leading underlying causes in other district municipalities were *other forms of heart disease* (Namakwa in Northern Cape) and *intestinal infectious diseases* (Mopani in Limpopo, and John Taolo Gaetsewe in Northern Cape).

HIV disease was among the ten leading underlying causes of death in at least one district municipality in all provinces except Limpopo where it did not appear as a leading underlying cause of death in any of the district municipalities. It was among the ten leading causes of death in all district municipalities in Western Cape and in all except one in each of the following provinces: Eastern Cape (exception was Chris Hani), Northern Cape (exception was Namakwa), KwaZulu-Natal (exception was Amajuba), North West (exception was Ngaka Modiri Molema), and Mpumalanga (exception was Nkangala). Only one municipality in Free State (Lejweleputswa) had *HIV disease* among the ten leading causes of death. The districts mostly affected by *HIV disease* were Umkhanyakude (KwaZulu-Natal), contributing 12,4% of all deaths in this district and Siyanda and Frances Baard both in Northern Cape, contributing 9,6% and 7,0% of deaths, respectively.

Underlying causes of death by population group

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 O and O.1, respectively.

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. This information is provided on the first page of the death notification form and is used to issue a death certificate (see Appendix B). On the second page of the form (see Appendix B, reverse side), certifying officials are requested to indicate specific causes of death beginning with the immediate cause of death and ending with the underlying cause of death from which the underlying causes of death can be classified as natural or non-natural. This release uses the specified cause from the second page of the death notification form 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.

Table 4.10 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* (63,0% of non-natural causes and 5,4% of all causes). *Event of undetermined intent*, the second most common non-natural cause of death, accounted for 13,5% of non-natural causes and 1,2% of all causes of death. The third most common cause of non-natural deaths was *transport accidents* (11,5%), followed by *assault* (10,3%). *Complications of medical and surgical care*, *intentional self-harm* and *sequelae of external causes of morbidity and mortality* each accounted for less than 1% of non-natural causes of death.

Table 4.10: Distribution of non-natural causes of death by broad groups, 2009

Causes of death (based on the 10 th Revision, International Classification of Disease, 1992)	Number	% of non-natural causes	% of all causes (N=572 673)
Other external causes of accidental injury (W00-X59)	31 166	63,0	5,4
Event of undetermined intent (Y10-Y34)	6 683	13,5	1,2
Transport accidents (V01-V99)	5 674	11,5	1,0
Assault (X85-Y09)	5 089	10,3	0,9
Complications of medical and surgical care (Y40-Y84)	438	0,9	0,1
Intentional self-harm (X60-X84)	373	0,8	0,1
Sequelae of external causes of morbidity and mortality (Y85-Y89)	33	0,1	0,0
All non-natural causes	49 456	100,0	

A breakdown of deaths due to *other external causes of accidental injury* is provided in Table 4.11 to provide information that can be used for a better understanding of deaths due to this cause, which comprised nearly two-thirds of all non-natural deaths. The table shows that 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* (98,3% of these due to *discharge from other and unspecified firearms*), followed by *other accidental threats to breathing* (62,8% of these due to *other accidental hanging and strangulation*) and *exposure to smoke, fire and flames*.

Table 4.11: Distribution of deaths due to other external causes of accidental injury, 2009

Causes of death (based on the 10 th Revision, International Classification of Disease, 1992)	Number	%
Accidental exposure to other and unspecified factors (X58-X59)	16 748	53,7
Exposure to inanimate mechanical forces (W20-W49)	4 814	15,4
Other accidental threats to breathing (W75-W84)	4 331	13,9
Exposure to smoke, fire and flames (X00-X09)	2 241	7,2
Accidental drowning and submersion (W65-W74)	1 412	4,5
Accidental poisoning by and exposure to noxious substances (X40-X49)	826	2,7
Exposure to forces of nature (X30-X39)	324	1,0
Exposure to electric current, radiation and extreme ambient air temperature and pressure (W85-W99)	237	0,8
Falls (W00-W19)	125	0,4
Contact with venomous animals and plants (X20-X29)	57	0,2
Exposure to animate mechanical forces (W50-W64)	32	0,1
Contact with heat and hot substances (X10-X19)	13	0,0
Overexertion, travel and privation (X50-X57)	6	0,0
Total	31 166	100,0

Non-natural causes of death by age and sex

Table 4.12 shows 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 2009. The numbers and percentages of deaths for both sexes presented in this table are not the same as the ones presented in Table 4.10 as information in Table 4.12 excludes deaths with unspecified age. It is noted that the order of the causes of death for both sexes and for male and for females was generally the same, with *other external cause of accidental injury* leading the non-natural causes of death, followed by *event of undetermined intent*.

The results show that the age group mostly affected by non-natural causes of death was age group 15–49 for both sexes, accounting for 13,8% of all deaths in this age group. The age group least affected by non-natural causes was those aged 65 years and older where less than 3% (2,6%) 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 non-natural causes of death in all age groups. *Assault* was more common among those aged 15–49, affecting 12,8% of non-natural deaths in this age group. The same observation was made for males. In the case of females, *transport accidents* were more common for all age groups.

Differences by sex show that males had a higher proportion of deaths due to non-natural causes (12,9%) as compared to females (4,1%). Furthermore, for each of the age groups, males had a higher proportion of deaths due to non-natural causes than females, with the gap much wider at age group 15–49 where as much as 21,5% of male deaths resulted from non-natural causes compared to 5,2% of females in the same age group. In terms of absolute numbers, the total number of male deaths due to non-natural causes was more than three times the total number of female deaths (37 752 versus 11 243). The differences were particularly wide in age group 15–49 where male deaths exceeded female deaths by 4,6 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 11,6% of male non-natural deaths were due to *assault*, while 6,0% of female deaths were due to the same cause. On the other hand, 2,0% of female non-natural deaths were due to *complications of medical and surgical care* while 0,6% of male deaths were due to the same cause. Furthermore, for each of the age groups (with the exception of those aged 65 years and older), females had a higher proportion of deaths due to *transport accidents* than males, while males had a higher proportion of deaths due to *assault* than females, with the exception of age group 50–64.

Table 4.12: Underlying non-natural causes of death by age group and sex, 2009

Causes of death (based on the 10 th Revision, International Classification of Disease, 1992)	Number					Percentage				
	0-14	15-49	50-64	65+	Total	0-14	15-49	50-64	65+	Total
Both sexes*										
Other external causes of accidental injury (W00-X59)	3 461	20 824	3 752	2 870	30 907	73,3	60,1	65,3	72,4	63,0
Event of undetermined intent (Y10-Y34)	468	4 975	786	388	6 617	9,9	14,4	13,7	9,8	13,5
Transport accidents (V01-V99)	637	3 891	753	356	5 637	13,5	11,2	13,1	9,0	11,5
Assault (X85-Y09)	79	4 434	350	193	5 056	1,7	12,8	6,1	4,9	10,3
Complications of medical and surgical care (Y40-Y84)	66	192	56	124	438	1,4	0,6	1,0	3,1	0,9
Intentional self-harm (X60-X84)	9	300	43	21	373	0,2	0,9	0,7	0,5	0,8
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	16	5	12	33	0,0	0,0	0,1	0,3	0,1
Sub-total	4 720	34 632	5 745	3 964	49 061	100,0	100,0	100,0	100,0	100,0
Non-natural causes	4 720	34 632	5 745	3 964	49 061	8,0	13,8	5,3	2,6	8,6
Natural	54 461	217 023	101 810	149 029	522 323	92,0	86,2	94,7	97,4	91,4
All causes	59 181	251 655	107 555	152 993	571 384	100,0	100,0	100,0	100,0	100,0
Male**										
Other external causes of accidental injury (W00-X59)	2 093	17 093	2 875	1 478	23 539	74,1	60,1	65,5	70,3	62,4
Event of undetermined intent (Y10-Y34)	268	4 028	600	223	5 119	9,5	14,2	13,7	10,6	13,6
Transport accidents (V01-V99)	375	3 034	573	217	4 199	13,3	10,7	13,1	10,3	11,1
Assault (X85-Y09)	50	3 951	266	112	4 379	1,8	13,9	6,1	5,3	11,6
Complications of medical and surgical care (Y40-Y84)	31	97	33	51	212	1,1	0,3	0,8	2,4	0,6
Intentional self-harm (X60-X84)	7	224	38	12	281	0,2	0,8	0,9	0,6	0,7
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	13	2	8	23	0,0	0,0	0,0	0,4	0,1
Sub-total	2 824	28 440	4 387	2 101	37 752	100,0	100,0	100,0	100,0	100,0
Non-natural causes	2 824	28 440	4 387	2 101	37 752	9,0	21,5	7,0	3,2	12,9
Natural	28 691	103 948	58 558	64 360	255 557	91,0	78,5	93,0	96,8	87,1
All causes	31 515	132 388	62 945	66 461	293 309	100,0	100,0	100,0	100,0	100,0
Female***										
Other external causes of accidental injury (W00-X59)	1 355	3 700	876	1 389	7 320	72,1	60,2	64,6	74,7	65,1
Event of undetermined intent (Y10-Y34)	199	940	186	165	1 490	10,6	15,3	13,7	8,9	13,3
Transport accidents (V01-V99)	262	855	180	139	1 436	13,9	13,9	13,3	7,5	12,8
Assault (X85-Y09)	27	477	84	81	669	1,4	7,8	6,2	4,4	6,0
Complications of medical and surgical care (Y40-Y84)	35	95	23	73	226	1,9	1,5	1,7	3,9	2,0
Intentional self-harm (X60-X84)	2	76	5	9	92	0,1	1,2	0,4	0,5	0,8
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	3	3	4	10	0,0	0,0	0,2	0,2	0,1
Sub-total	1 880	6 146	1 357	1 860	11 243	100,0	100,0	100,0	100,0	100,0
Non-natural causes	1 880	6 146	1 357	1 860	11 243	6,9	5,2	3,0	2,2	4,1
Natural	25 314	112 786	43 175	84 627	265 902	93,1	94,8	97,0	97,8	95,9
All causes	27 194	118 932	44 532	86 487	277 145	100,0	100,0	100,0	100,0	100,0

* Excluding 1 289 cases with unspecified, ** Excluding 858 cases with unspecified age; *** Excluding 308 cases with unspecified age.

Non-natural causes of death by province of death occurrence

The distribution of the underlying non-natural causes of death by province for 2009 is shown in Table 4.13. It is observed that Western Cape had the highest proportion of deaths due to non-natural causes (11,6%), followed by Gauteng (9,5%); Eastern Cape (8,8%); and Mpumalanga (8,7%). All these provinces exceeded the national average of 8,6% of deaths due to non-natural causes in 2009. The lowest proportion of deaths due to non-natural causes were observed in Free State (6,6%), North West (7,2%) and Limpopo (7,3%).

The most common causes of non-natural deaths in all provinces were *other external causes of accidental injury* but the proportion due to this cause was lowest in Limpopo (42,6%) and highest in Mpumalanga (84,9%). The second leading causes of non-natural deaths differed by province. *Event of undetermined intent* was the second leading non-natural cause of death in KwaZulu-Natal, North West and Gauteng. *Assault* was the second leading non-natural cause of death in Western Cape, Eastern Cape and Northern Cape. *Transport accidents* were the second leading cause of non-natural causes in Free State, Mpumalanga and Limpopo. *Complications of medical and surgical care, intentional self-harm and sequelae of external causes of morbidity and mortality* were least common, each affecting less than 2,5% of non-natural deaths in each province.

The highest proportion of deaths due to *transport accidents* was observed in Limpopo where over a third (37,0%) of non-natural cases were due to this cause; *assault* was highest in Western Cape (19,7%); and intentional self-harm highest in Northern Cape (2,4%). Conversely the proportion of deaths due to *transport accidents* was lowest in Gauteng (5,0%); and *assault* lowest in Mpumalanga (3,1%).

Non-natural causes of death by district municipalities

The information provided in Appendix N to N.8 also shows the proportion of deaths due to non-natural causes for each of the district municipalities. The lowest percentage of deaths due to non-natural causes was observed in North West in Dr Ruth Segomotsi Mompati where 5,4% of deaths in this district was due to non-natural causes of death. The highest was observed in Western Cape in Central Karoo where non-natural causes contributed 16,9% of all deaths in this district. All districts in Western Cape had at least 10% of their deaths resulting from non-natural causes. Conversely, at most, 8% of deaths in each district in Free State were due to non-natural causes.

Table 4.13: Underlying non-natural causes of death by province, 2009

Causes of death (based on the 10 th 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)	3 106	58,8	3 970	55,0	843	66,1	1 761	56,3	7 014	65,0	1 633	56,5	7 713	71,0	3 373	84,9	1 650	42,6
Event of undetermined intent (Y10-Y34)	516	9,8	1 150	15,9	45	3,5	263	8,4	1 692	15,7	537	18,6	1 886	17,4	79	2,0	500	12,9
Transport accidents (V01-V99)	486	9,2	764	10,6	137	10,7	547	17,5	993	9,2	410	14,2	540	5,0	330	8,3	1 434	37,0
Assault (X85-Y09)	1 038	19,7	1 247	17,3	213	16,7	488	15,6	860	8,0	275	9,5	610	5,6	125	3,1	220	5,7
Complications of medical and surgical care (Y40-Y84)	42	0,8	60	0,8	4	0,3	46	1,5	94	0,9	24	0,8	88	0,8	38	1,0	39	1,0
Intentional self-harm (X60-X84)	88	1,7	22	0,3	31	2,4	21	0,7	137	1,3	10	0,3	14	0,1	24	0,6	26	0,7
Sequelae of external causes of morbidity and mortality (Y85-Y89)	6	0,1	3	0,0	2	0,2	2	0,1	9	0,1	1	0,0	6	0,1	2	0,1	2	0,1
Subtotal	5 282	31,4	7 216	29,0	1 275	30,4	3 128	35,3	10 799	19,4	2 890	24,9	10 857	11,6	3 971	13,1	3 871	44,5
Non-natural causes	5 282	11,6	7 216	8,8	1 275	8,5	3 128	6,6	10 799	8,5	2 890	7,2	10 857	9,5	3 971	8,7	3 871	7,3
Natural causes	40 116	88,4	74 916	91,2	13 807	91,5	44 137	93,4	116 570	91,5	37 482	92,8	103 872	90,5	41 732	91,3	49 036	92,7
All causes	45 398	100,0	82 132	100,0	15 082	100,0	47 265	100,0	127 369	100,0	40 372	100,0	114 729	100,0	45 703	100,0	52 907	100,0

4.8 Comparison between immediate, contributing and underlying causes of death

The second page of the death notification form makes provision for several causes to be reported on each form, with a maximum of six causes recorded on death notification forms in 2009. Causes recorded can be indicated as immediate, contributing or underlying. For the 2009 deaths, the majority of forms for 2009 deaths (59,0%) had just one cause of death indicated, with 41,0% having two or more causes.

This section provides information on the total number of causes of death reported on each form. Table 4.14 shows the total number of times specific causes of death were recorded on the 2009 death notification forms as either underlying, immediate or contributing causes for the 20 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 2009, mentioned in a total of 82 821 death notification forms, followed by *ill-defined and unknown cause of mortality* mentioned in 74 853 forms. That is, 14,5% and 13,1% of all death notification forms had *tuberculosis* and *ill-defined and unknown cause of mortality*, respectively, recorded as either immediate, contributing or underlying cause of death. The third most commonly mentioned cause, representing 12,3% of deaths was *influenza and pneumonia*. *Other external causes of accidental injury* were the eighth most commonly mentioned causes (5,7%) and the only non-natural cause appearing among the 20 most commonly mentioned causes of death. *Certain disorders involving the immune mechanism* was the ninth most commonly mentioned cause of death (4,5%), *other viral diseases* was the tenth (4,1%) and *HIV disease* was on seventeenth place (3,1%).

Based on the 20 most commonly mentioned causes, the most common main groups of causes of death mentioned on death notification forms in 2009 were *certain infectious and parasitic diseases, diseases of the circulatory system and diseases of the respiratory system*. Almost a third (31,6%) of forms mentioned *certain infectious and parasitic diseases* on the 2009 forms, while *diseases of the circulatory system* were mentioned on 25,6% of the forms, and *diseases of the respiratory system* in 22,0% of the forms.

Table 4.14: Distribution of the 20 most commonly reported causes of death, 2009

Rank	Causes of death (based on the 10 th Revision, International Classification of Disease, 1992)	Number of deaths in which the cause was reported	% of all deaths
1	Tuberculosis (A15-A19)*	82 821	14,5
2	Ill-defined and unknown causes of mortality (R95-R99)	74 853	13,1
3	Influenza and pneumonia (J09-J18)	70 250	12,3
4	Other forms of heart disease (I30-I52)	56 112	9,8
5	Hypertensive diseases (I10-I15)	37 131	6,5
6	Cerebrovascular diseases (I60-I69)	35 226	6,2
7	Intestinal infectious diseases (A00-A09)	35 199	6,1
8	Other external causes of accidental injury (W00-X59)	32 600	5,7
9	Certain disorders involving the immune mechanism (D80-D89)	25 975	4,5
10	Other viral diseases (B25-B34)	23 330	4,1
11	Diabetes mellitus (E10-E14)	22 991	4,0
12	Metabolic disorders (E70-E90)	21 609	3,8
13	Other bacterial diseases (A30-A49)	21 385	3,7
14	Other diseases of the respiratory system (J95-J99)	20 493	3,6
15	Chronic lower respiratory diseases (J40-J47)	19 824	3,5
16	Renal failure (N17-N19)	19 133	3,3
17	Human immunodeficiency virus [HIV] disease (B20-B24)	18 039	3,1
18	Ischaemic heart diseases (I20-I25)	17 975	3,1
19	General symptoms and signs (R50-R69)	16 860	2,9
20	Other acute lower respiratory infections (J20-J22)	15 154	2,6

*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 20 most commonly mentioned causes. The ten leading underlying natural causes of death shown in Table 4.4 for 2009 deaths are presented in Table 4.15 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, 69 003 deaths had *tuberculosis* as the underlying cause and another 13 818 deaths had it as an immediate or contributing cause. This gives a total of 82 821 death notification forms that had *tuberculosis* mentioned on them.

The table shows that in over 80% of deaths where *HIV disease* (97,4%), *diabetes mellitus* (89,3%), *intestinal infectious diseases* (87,1%) and *tuberculosis* (83,3%) were mentioned, they were selected as underlying causes. In less than half of the cases where *other forms of heart disease* (47,2%) and *hypertensive diseases* (41,4%) were mentioned, they were selected as the underlying causes.

Table 4.15: Number and percentage of deaths selected as underlying or reported as immediate or contributing causes of death: 2009

Causes of death (based on the 10 th 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	69 003	13 818	82 821	83,3	16,7	100,0
Influenza and pneumonia (J09-J18)	2	42 964	27 286	70 250	61,2	38,8	100,0
Intestinal infectious diseases (A00-A09)	3	30 675	4 524	35 199	87,1	12,9	100,0
Other forms of heart disease (I30-I52)	4	26 462	29 650	56 112	47,2	52,8	100,0
Cerebrovascular diseases (I60-I69)	5	24 835	10 391	35 226	70,5	29,5	100,0
Diabetes mellitus (E10-E14)	6	20 523	2 468	22 991	89,3	10,7	100,0
Human immunodeficiency virus [HIV] disease (B20-B24)	7	17 570	469	18 039	97,4	2,6	100,0
Hypertensive diseases (I10-I15)	8	15 386	21 745	37 131	41,4	58,6	100,0
Chronic lower respiratory diseases (J40-J47)	9	14 184	5 640	19 824	71,5	28,5	100,0
Certain disorders involving the immune mechanism (D80-D89)	10	13 096	12 879	25 975	50,4	49,6	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 2009 as well as information on death occurrences from 1997 to 2008 to provide recent trends in mortality. The release is 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 572 673 deaths that occurred in 2009 were registered at DHA and processed at Statistics South Africa (Stats SA) during the 2010/11 processing phase. The results show that mortality continues to decrease in the country as observed from 2007 in the data processed by 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 1,5% between 2007 and 2008 and by 3,8% between 2008 and 2009. The decrease was also observed for male and female deaths, with female deaths declining at a higher rate than male deaths. Other indicators showing decreasing mortality were crude death rates and median ages at death.

The majority of deaths occurred among the black African population group and most deaths occurred in healthcare facilities even though about 30% still occurred at home. The highest number of deaths occurred 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 a quarter of all deaths. The number of both natural and non-natural causes decreased between 2008 and 2009, with non-natural deaths decreasing at a higher rate than natural causes (7,2% for non-natural causes and 3,4% for natural causes).

Tuberculosis continued to be the leading cause of death in South Africa, accounting for 12% 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* was the seventh leading cause of death and accounted for 3,1% of all deaths in 2009.

Between 2007 and 2009, the number of deaths consistently decreased for *tuberculosis*, *influenza and pneumonia*, *chronic lower respiratory diseases* and *certain disorders involving the immune mechanism* and consistently increased for *other forms of heart disease*, *HIV disease* and *hypertensive diseases*. Although the overall number of deaths due to *tuberculosis* is decreasing, those due to *multidrug-resistant tuberculosis* and *extensively drug-resistant tuberculosis* continue to increase at a high rate.

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 sixth leading cause of death for males, contributing 2,9% of male deaths in 2009 while it ranked eighth for the females, contributing 3,3% of female deaths.

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 causes in other district municipalities were *intestinal infectious diseases* and *other forms of heart 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 years and older age group.

The majority of non-natural causes of death were due to *other external causes of accidental injury*, and accounted for nearly two-thirds of all non-natural deaths. The highest percentage of deaths due to non-natural causes was observed for those aged 15–19 compared to other age groups; and the number of deaths was generally higher for males of all age groups compared to females. Also, compared to other provinces, the province of death occurrence that had the highest number of deaths was Western Cape. *Transport accidents* contributed 11,5% of non-natural causes while *assault* contributed 10,3%. Deaths due to *transport accidents* were particularly high in Limpopo,

accounting for 37,0% of non-natural deaths, while those due to *assault* were highest in Northern Cape, causing 16,7% of non-natural deaths.

While the completeness of death registration has improved over time, currently estimated at around 93%, coupled with timely registration of death occurrence, there are still concerns about the quality of the content of both mortality statistics and causes of death statistics. Some variables on the death notification forms are not completed fully, particularly for population group, education, smoking status, pregnancy status, occupation and industry. In addition, there is a high percentage of deaths (13,7%) classified to symptoms, signs and abnormal clinical findings. Furthermore, it takes about two years from the end of the reference period to the publication of information of a specific year.

The status of the quality of content on mortality and causes of death data has not changed much over time. As such, areas of improvement identified include accurate and fully completed information on the death notification forms; correct and detailed certification of causes of death; and timely publication of information on mortality and causes of death. 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 this 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), 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:

* Please refer to instructions

A01857265

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 PLACE OF BIRTH (municipal district or country if abroad) PLACE OF DEATH (City / Town / Village) PLACE OF REGISTRATION OF DEATH CITIZENSHIP 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"/>		Left thumb print 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 <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"/> Please 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 _____		Office Stamp of Funeral Undertaker	
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 _____ SAMDC / SANC Reg. No. _____ Date signed Y Y Y Y M M D D Postal Address _____ Postal Code _____		Office Stamp	
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 Mortuary Reference _____ SAMDC Reg. No. _____		Office Stamp	
E FOR OFFICIAL USE ONLY Registration of death approved and burial order issued <input type="checkbox"/> Address _____ Force No. / Designation No. _____ Peral No. _____ Date _____ Signature _____		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	14 926	13 254	314	28 494	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	1 706	1 252	17	2 975	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	3 777	2 475	23	6 275	4 105	2 902	62	7 069	4 353	3 325	88	7 766
20-24	8 175	5 447	49	13 671	8 790	6 902	109	15 801	8 637	8 287	105	17 029
25-29	10 922	7 427	43	18 392	13 075	9 851	110	23 036	13 885	12 606	141	26 632
30-34	11 830	7 185	49	19 064	14 363	9 701	126	24 190	16 288	12 254	119	28 661
35-39	11 966	6 855	51	18 872	14 603	8 915	97	23 615	16 444	10 802	111	27 357
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	12 219	6 362	50	18 631	14 182	7 671	87	21 940	14 968	8 511	98	23 577
50-54	11 288	6 236	29	17 553	12 995	7 205	79	20 279	13 862	7 751	79	21 692
55-59	12 641	7 923	45	20 609	13 920	8 873	107	22 900	14 055	8 672	84	22 811
60-64	11 183	9 287	50	20 520	12 417	9 993	59	22 469	12 677	10 035	82	22 794
65-69	12 460	11 037	45	23 542	13 236	12 453	83	25 772	12 820	12 311	91	25 222
70-74	11 285	10 059	48	21 392	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	4 257	7 804	34	12 095	4 449	7 942	51	12 442
90+	2 028	4 730	13	6 771	2 363	5 560	29	7 952	2 210	5 380	30	7 620
Unspecified	3 109	2 362	106	5 577	2 821	2 092	195	5 108	1 491	1 108	109	2 708
Total	176 680	139 443	1 028	317 151	200 324	163 615	1 928	365 867	205 826	173 936	2 077	381 839

*Data have been updated to include late registrations processed in 2010/11.

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	15 000	13 523	351	28 874	15 465	14 070	307	29 842	17 866	16 186	338	34 390
1-4	5 379	4 917	86	10 382	5 876	5 299	78	11 253	6 317	5 676	87	12 080
5-9	1 997	1 595	29	3 621	2 120	1 706	28	3 854	2 400	1 961	17	4 378
10-14	1 720	1 337	36	3 093	1 746	1 463	22	3 231	1 866	1 484	24	3 374
15-19	4 318	3 484	72	7 874	4 471	3 903	62	8 436	4 735	4 284	58	9 077
20-24	8 873	9 865	84	18 822	8 934	10 915	83	19 932	9 569	12 475	109	22 153
25-29	15 068	15 710	105	30 883	16 839	19 269	108	36 216	18 627	23 295	133	42 055
30-34	18 479	15 797	108	34 384	20 896	18 717	109	39 722	23 871	23 512	145	47 528
35-39	18 544	13 591	94	32 229	21 078	15 852	100	37 030	24 066	19 428	124	43 618
40-44	17 118	11 006	77	28 201	19 326	12 840	94	32 260	21 572	15 482	113	37 167
45-49	16 113	9 560	78	25 751	17 887	10 934	62	28 883	19 285	12 645	110	32 040
50-54	15 282	9 094	64	24 440	16 885	10 135	73	27 093	18 596	11 244	102	29 942
55-59	13 925	8 871	72	22 868	14 551	9 124	65	23 740	15 398	10 003	71	25 472
60-64	14 233	11 254	66	25 553	15 102	12 062	66	27 230	16 160	12 699	79	28 938
65-69	12 584	12 064	52	24 700	13 014	12 793	64	25 871	13 739	13 277	63	27 079
70-74	13 115	14 136	67	27 318	14 037	15 120	60	29 217	13 786	15 469	62	29 317
75-79	10 351	11 533	48	21 932	10 848	12 036	61	22 945	11 091	12 832	70	23 993
80-84	8 483	12 638	31	21 152	9 162	13 906	47	23 115	9 536	14 188	60	23 784
85-89	4 681	8 226	27	12 934	4 580	8 358	31	12 969	4 373	8 315	34	12 722
90+	2 530	6 526	31	9 087	3 023	7 157	28	10 208	3 294	7 662	33	10 989
Unspecified	1 185	890	143	2 218	1 044	782	98	1 924	1 137	788	112	2 037
Total	218 978	195 617	1 721	416 316	236 884	216 441	1 646	454 971	257 284	242 905	1 944	502 133

*Data have been updated to include late registrations processed in 2010/11.

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

Age group	2003				2004				2005			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	19 945	18 028	434	38 407	21 728	19 164	530	41 422	24 037	21 922	474	46 433
1-4	7 125	6 276	78	13 479	8 250	7 620	71	15 941	8 208	7 310	80	15 598
5-9	2 776	2 196	28	5 000	3 185	2 799	13	5 997	3 358	2 800	21	6 179
10-14	2 001	1 641	25	3 667	2 138	1 773	12	3 923	2 145	1 855	17	4 017
15-19	4 836	4 550	70	9 456	4 678	4 610	40	9 328	4 768	4 540	52	9 360
20-24	10 328	14 165	104	24 597	10 362	15 042	76	25 480	10 486	14 850	89	25 425
25-29	20 004	26 191	146	46 341	19 791	27 518	110	47 419	19 307	27 235	105	46 647
30-34	27 463	28 098	139	55 700	28 419	30 599	79	59 097	28 783	31 230	105	60 118
35-39	26 414	22 622	112	49 148	28 198	25 121	86	53 405	29 397	26 222	99	55 718
40-44	24 707	18 405	116	43 228	26 438	20 527	67	47 032	27 449	21 465	83	48 997
45-49	22 017	14 465	85	36 567	23 073	16 228	64	39 365	24 416	17 355	76	41 847
50-54	20 558	12 870	67	33 495	21 091	14 082	46	35 219	21 500	14 946	57	36 503
55-59	17 180	10 975	49	28 204	18 041	12 010	32	30 083	19 686	13 300	47	33 033
60-64	17 371	13 290	56	30 717	16 948	13 382	28	30 358	16 831	13 239	34	30 104
65-69	14 651	13 882	53	28 586	15 191	13 788	25	29 004	16 362	15 171	36	31 569
70-74	14 459	16 364	55	30 878	13 428	15 415	25	28 868	12 904	15 077	33	28 014
75-79	12 060	14 108	56	26 224	11 794	14 066	15	25 875	12 208	15 906	35	28 149
80-84	9 442	13 695	39	23 176	8 639	11 945	21	20 605	8 429	11 828	21	20 278
85-89	5 435	10 193	36	15 664	5 034	9 472	19	14 525	5 444	10 332	17	15 793
90+	3 380	8 146	18	11 544	3 286	7 473	14	10 773	3 285	7 881	15	11 181
Unspecified	1 657	940	207	2 804	1 920	928	242	3 090	1 975	1 079	223	3 277
Total	283 809	271 100	1 973	556 882	291 632	283 562	1 615	576 809	300 978	295 543	1 719	598 240

*Data have been updated to include late registrations processed in 2010/11.

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

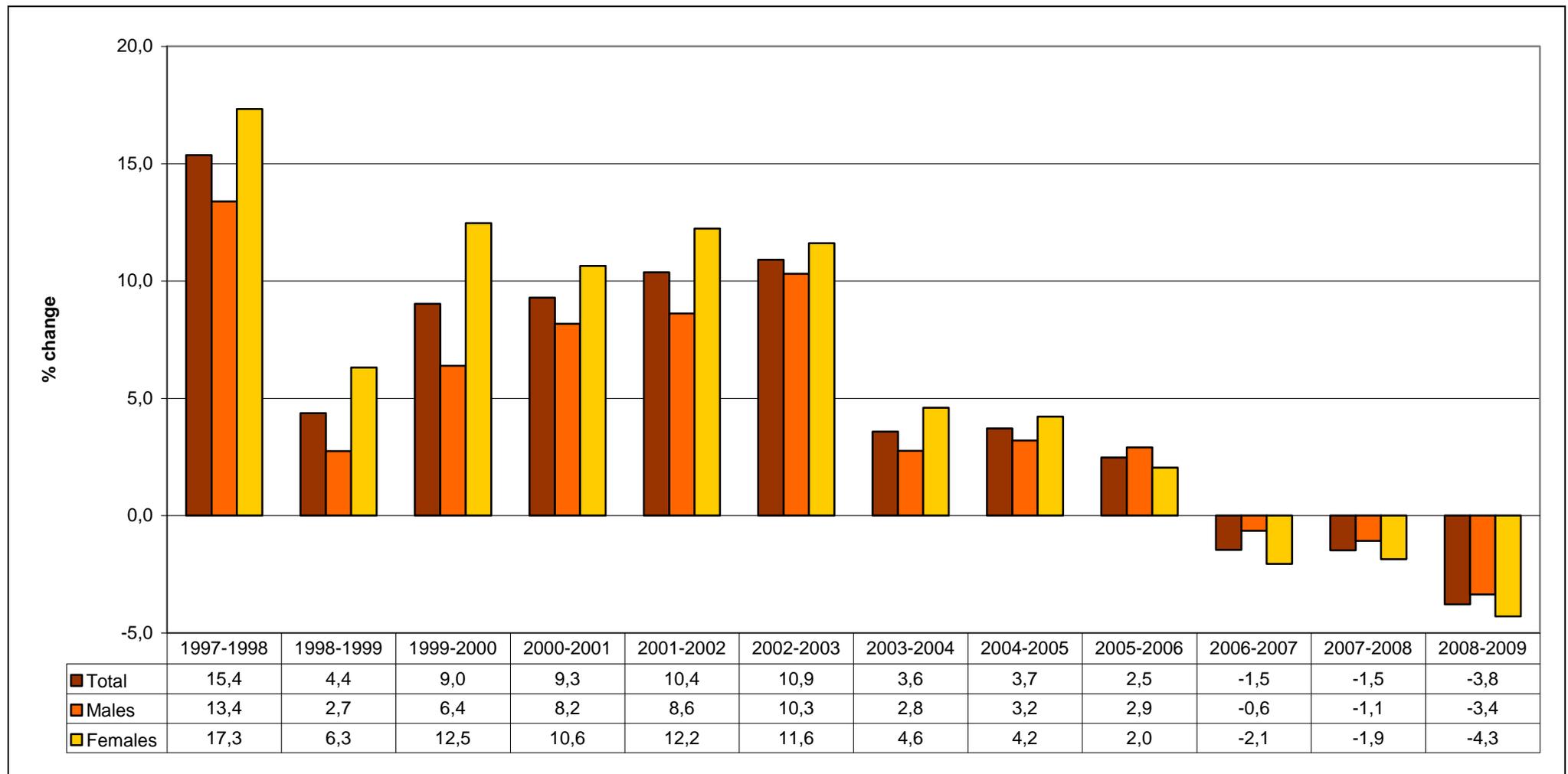
Age group	2006				2007				2008			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	25 480	22 074	725	48 279	24 801	21 637	412	46 850	24 032	21 342	288	45 662
1-4	8 384	7 566	117	16 067	7 804	7 009	47	14 860	8 189	7 180	31	15 400
5-9	3 024	2 547	17	5 588	2 864	2 498	4	5 366	2 723	2 295	6	5 024
10-14	2 385	1 914	14	4 313	2 245	1 901	2	4 148	2 225	1 888	2	4 115
15-19	4 846	4 595	38	9 479	4 879	4 195	15	9 089	4 845	4 121	26	8 992
20-24	10 865	14 800	97	25 762	10 918	13 731	49	24 698	10 703	12 889	41	23 633
25-29	19 007	26 145	82	45 234	18 498	24 571	66	43 135	18 450	23 517	42	42 009
30-34	28 879	31 012	93	59 984	28 381	29 114	65	57 560	26 798	27 231	53	54 082
35-39	29 485	26 093	77	55 655	29 406	24 869	47	54 322	29 086	24 353	46	53 485
40-44	28 108	21 852	73	50 033	27 103	21 205	45	48 353	26 071	20 209	27	46 307
45-49	25 144	17 953	45	43 142	24 871	17 891	43	42 805	24 793	17 534	30	42 357
50-54	22 797	15 609	40	38 446	22 902	15 650	17	38 569	22 735	15 566	21	38 322
55-59	20 646	14 185	40	34 871	21 432	14 618	23	36 073	21 591	14 937	19	36 547
60-64	17 067	13 348	25	30 440	17 492	13 483	10	30 985	17 743	13 908	16	31 667
65-69	17 756	15 816	24	33 596	17 953	15 842	9	33 804	18 060	15 605	10	33 675
70-74	13 594	15 610	26	29 230	13 828	15 835	8	29 671	14 151	15 305	2	29 458
75-79	12 723	17 020	24	29 767	12 591	17 081	4	29 676	12 568	17 194	4	29 766
80-84	8 949	12 345	20	21 314	8 909	12 927	2	21 838	9 026	13 856	1	22 883
85-89	6 146	12 031	11	18 188	6 362	12 212	2	18 576	5 980	11 198	1	17 179
90+	3 565	8 714	9	12 288	3 683	8 790	12	12 485	3 973	9 547	27	13 547
Unspecified	864	356	144	1 364	799	332	106	1 237	664	245	133	1 042
Total	309 714	301 585	1 741	613 040	307 721	295 391	988	604 100	304 406	289 920	826	595 152

*Data have been updated to include late registrations processed in 2010/11.

Appendix C.4: Number of deaths by age, sex and year of death, 2009

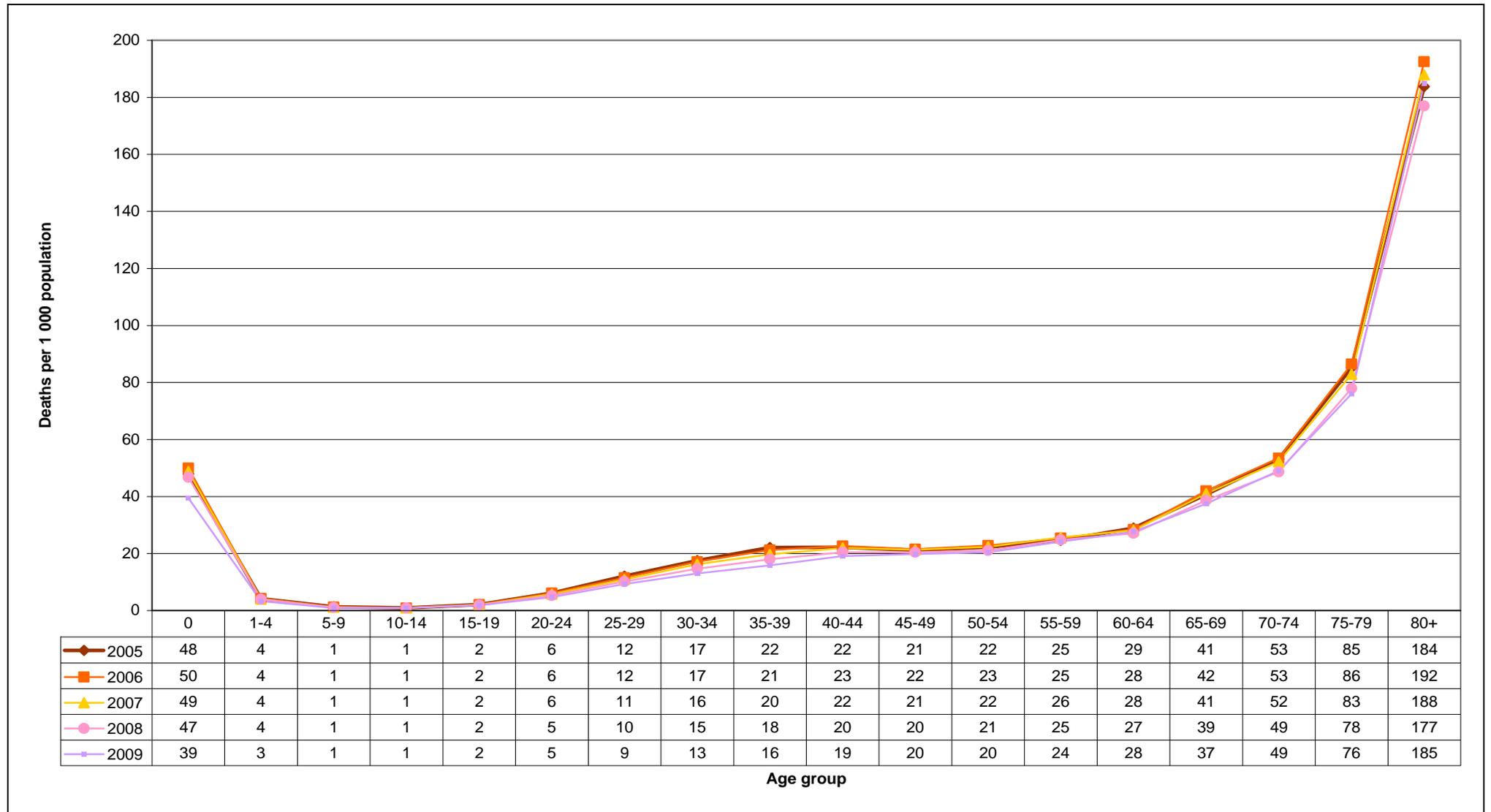
Age group	2009			
	Male	Female	Unsp.	Total
0	20 348	17 191	435	37 974
1-4	6 511	5 959	27	12 497
5-9	2 309	1 998	6	4 313
10-14	2 347	2 046	4	4 397
15-19	4 598	4 078	21	8 697
20-24	9 798	11 591	45	21 434
25-29	17 376	21 356	60	38 792
30-34	24 563	23 810	73	48 446
35-39	27 259	22 091	46	49 396
40-44	24 784	18 909	50	43 743
45-49	24 010	17 097	40	41 147
50-54	22 529	15 378	33	37 940
55-59	21 465	14 935	26	36 426
60-64	18 951	14 219	19	33 189
65-69	17 970	15 526	11	33 507
70-74	14 990	15 777	16	30 783
75-79	12 573	17 587	7	30 167
80-84	9 662	14 943	9	24 614
85-89	6 070	11 082	2	17 154
90+	5 196	11 572	0	16 768
Unspecified	858	308	123	1 289
Total	294 167	277 453	1 053	572 673

Appendix D: Year-to-year annual percentage changes in number of deaths by sex, 1997–2009*



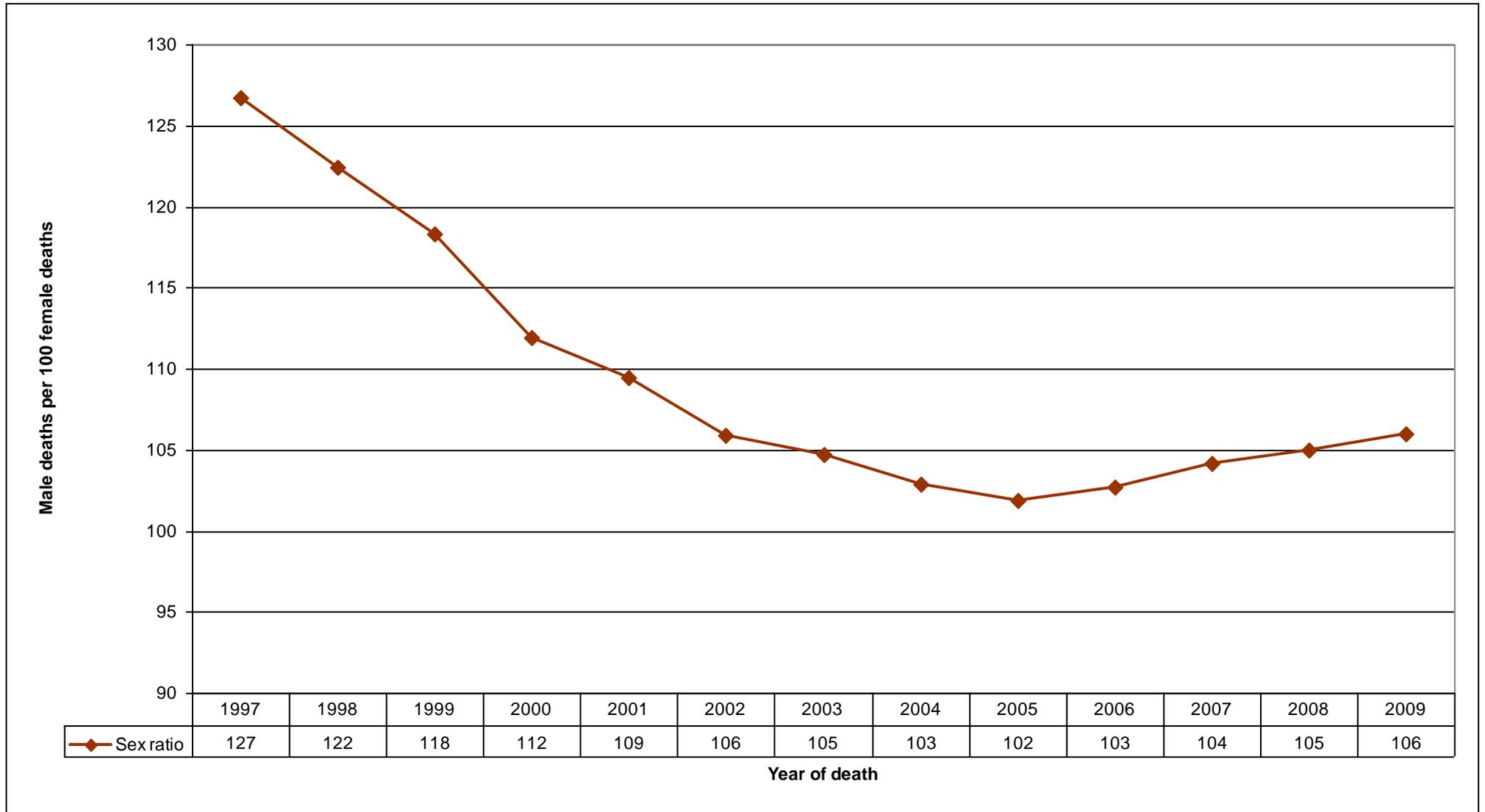
*Data for 1997-2008 have been updated to include late registrations processed in 2010/11.

Appendix E: Age specific death rates (ASDR) by year of death, 2005–2009*



*Data for 2005-2008 have been updated to include late registrations processed in 2010/11. All deaths adjusted for incompleteness of death registration.

Appendix F: Sex ratios at death by year of death, 1997–2009*



*Data for 1997-2008 have been updated to include late registrations processed in 2010/11.

Appendix G: Number of deaths by province of death occurrence and province of usual residence of the deceased, 2009

Province of death	Province of usual residence											Total
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	Foreign	Unspecified	
Western Cape	37 315	370	163	62	465	98	217	36	100	62	6 510	45 398
Eastern Cape	295	66 951	57	95	1 124	57	315	240	112	64	12 822	82 132
Northern Cape	144	105	13 479	98	46	272	74	12	70	9	773	15 082
Free State	40	215	209	44 314	153	404	590	81	152	170	937	47 265
KwaZulu-Natal	186	1 739	47	190	110 080	70	447	422	122	96	13 970	127 369
North West	48	111	356	290	57	31 974	1 284	128	291	81	5 752	40 372
Gauteng	264	347	109	882	827	3 193	96 542	1 879	1 734	321	8 631	114 729
Mpumalanga	29	133	31	111	403	121	1 079	39 710	972	167	2 947	45 703
Limpopo	54	89	86	89	206	338	517	1 012	45 637	215	4 664	52 907
Foreign	17	6	3	82	26	25	176	24	11	94	173	637
Unspecified	36	65	15	51	206	87	113	148	176	4	178	1 079
Total	38 428	70 131	14 555	46 264	113 593	36 639	101 354	43 692	49 377	1 283	57 357	572 673

Appendix G.1: Percentage distribution of deaths by province of death occurrence and province of usual residence of the deceased, 2009

Province of death	Province of usual residence											Total
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	Foreign	Unspecified	
Western Cape	82,2	0,8	0,4	0,1	1,0	0,2	0,5	0,1	0,2	0,1	14,3	100,0
Eastern Cape	0,4	81,5	0,1	0,1	1,4	0,1	0,4	0,3	0,1	0,1	15,6	100,0
Northern Cape	1,0	0,7	89,4	0,6	0,3	1,8	0,5	0,1	0,5	0,1	5,1	100,0
Free State	0,1	0,5	0,4	93,8	0,3	0,9	1,2	0,2	0,3	0,4	2,0	100,0
KwaZulu-Natal	0,1	1,4	0,0	0,1	86,4	0,1	0,4	0,3	0,1	0,1	11,0	100,0
North West	0,1	0,3	0,9	0,7	0,1	79,2	3,2	0,3	0,7	0,2	14,2	100,0
Gauteng	0,2	0,3	0,1	0,8	0,7	2,8	84,1	1,6	1,5	0,3	7,5	100,0
Mpumalanga	0,1	0,3	0,1	0,2	0,9	0,3	2,4	86,9	2,1	0,4	6,4	100,0
Limpopo	0,1	0,2	0,2	0,2	0,4	0,6	1,0	1,9	86,3	0,4	8,8	100,0
Foreign	2,7	0,9	0,5	12,9	4,1	3,9	27,6	3,8	1,7	14,8	27,2	100,0
Unspecified	3,3	6,0	1,4	4,7	19,1	8,1	10,5	13,7	16,3	0,4	16,5	100,0

Appendix H: Number of deaths by age, province and district municipality of death occurrence, 2009*

Province of death occurrence	District municipality of death occurrence	Age							
		0	1-4	5-14	15-49	50-64	65+	Unsp.	Total
Western Cape	Cape Winelands	336	79	49	2 102	1 629	2 138	7	6 340
	Central Karoo	48	13	5	319	208	269	0	862
	City of Cape Town Metro	1 591	331	232	9 870	6 101	10 369	43	28 537
	Eden	235	46	39	1 572	1 174	1 981	10	5 057
	Overberg	79	14	10	496	371	719	2	1 691
	West Coast	139	20	22	991	718	1 003	5	2 898
	Unspecified	3	1	0	4	3	2	0	13
	Total	2 431	504	357	15 354	10 204	16 481	67	45 398
Eastern Cape	Alfred Nzo	272	215	213	4 581	1 511	2 675	7	9 474
	Amathole	479	253	232	6 322	2 778	5 481	16	15 561
	Buffalo City Metro	422	165	119	4 941	2 461	3 620	27	11 755
	Cacadu	271	72	43	1 874	1 073	1 538	2	4 873
	Chris Hani	350	155	98	3 872	1 817	3 109	9	9 410
	Joe Gqabi	227	106	76	2 365	1 012	1 755	1	5 542
	Nelson Mandela Bay Metro	624	211	130	5 773	3 271	4 035	8	14 052
	O.R.Tambo	265	244	248	5 568	1 870	3 235	22	11 452
	Unspecified	1	2	0	6	3	1	0	13
Total	2 911	1 423	1 159	35 302	15 796	25 449	92	82 132	
Northern Cape	Frances Baard	281	110	50	1 927	1 008	1 110	1	4 487
	John Taolo Gaetsewe	281	82	25	1 221	499	635	1	2 744
	Namakwa	41	10	9	330	240	469	0	1 099
	Pixley ka Seme	226	55	23	1 058	576	703	0	2 641
	Siyanda	251	92	59	1 686	847	1 168	8	4 111
	Total	1 080	349	166	6 222	3 170	4 085	10	15 082
Free State	Fezile Dabi	558	162	77	3 096	1 455	1 809	2	7 159
	Lejweleputswa	1 011	287	132	5 597	2 159	2 150	40	11 376
	Mangaung Metro	875	232	158	6 190	2 687	3 186	3	13 331
	Thabo Mofutsanyane	1 186	325	205	6 159	2 419	2 869	16	13 179
	Xhariep	168	40	22	924	487	575	0	2 216
	Unspecified	2	0	0	2	0	0	0	4
	Total	3 800	1 046	594	21 968	9 207	10 589	61	47 265
KwaZulu-Natal	Amajuba	443	140	117	3 307	1 189	1 379	29	6 604
	eThekweni Metro	2 044	691	792	18 839	7 267	9 581	151	39 365
	iLembe	405	152	166	3 280	1 156	1 521	40	6 720
	Sisonke	283	108	102	2 185	760	1 158	7	4 603
	Ugu	663	262	281	5 718	1 946	3 084	35	11 989
	UMgungundlovu	524	179	247	6 811	2 567	3 482	9	13 819
	Umkhanyakude	395	137	167	3 070	995	1 571	21	6 356
	Umzinyathi	435	147	135	2 866	1 037	1 562	26	6 208
	Uthukela	592	198	162	4 383	1 530	1 924	12	8 801
	Uthungulu	951	246	237	5 855	1 821	2 382	83	11 575
	Zululand	792	256	176	4 487	1 414	1 790	23	8 938
	Unspecified	204	80	51	1 147	355	552	2	2 391
Total	7 731	2 596	2 633	61 948	22 037	29 986	438	127 369	

*Excluding 1 079 deaths with unspecified province of death occurrence

Appendix H: Number of deaths by age, province and district municipality of death occurrence, 2009* (concluded)

Province of death occurrence	District municipality of death occurrence	Age							
		0	1-4	5-14	15-49	50-64	65+	Unsp.	Total
North West	Bojanala	1 189	387	167	5 888	2 643	3 501	45	13 820
	Dr Kenneth Kaunda	875	191	101	4 028	1 845	2 202	20	9 262
	Dr Ruth Segomotsi Mompati	681	258	86	2 617	1 170	1 687	3	6 502
	Ngaka Modiri Molema	1 056	320	139	4 588	1 936	2 730	8	10 777
	Unspecified	1	0	0	6	1	3	0	11
	Total	3 802	1 156	493	17 127	7 595	10 123	76	40 372
Gauteng	City of Johannesburg Metro	2 709	681	437	15 976	6 988	9 937	229	36 957
	City of Tshwane Metro	1 779	617	391	10 505	5 241	8 149	12	26 694
	Ekurhuleni Metro	3 065	704	390	14 128	5 718	6 527	39	30 571
	Sedibeng	891	196	134	4 440	2 271	2 651	25	10 608
	West Rand	899	231	129	4 558	1 949	2 072	25	9 863
	Unspecified	4	0	0	19	5	8	0	36
	Total	9 347	2 429	1 481	49 626	22 172	29 344	330	114 729
Mpumalanga	Ehlanzeni	946	545	448	9 407	3 225	4 176	83	18 830
	Gert Sibande	1 320	333	228	6 960	2 586	2 788	23	14 238
	Nkangala	807	293	210	5 842	2 467	2 953	37	12 609
	Unspecified	0	0	0	16	6	4	0	26
	Total	3 073	1 171	886	22 225	8 284	9 921	143	45 703
Limpopo	Capricorn	1 053	471	258	5 987	2 589	4 697	4	15 059
	Greater Sekhukhune	665	355	206	4 774	1 846	3 652	2	11 500
	Mopani	868	464	187	4 568	1 805	3 229	22	11 143
	Vhembe	669	348	178	3 530	1 672	3 520	26	9 943
	Waterberg	437	158	90	2 205	877	1 475	2	5 244
	Unspecified	1	0	0	7	2	8	0	18
	Total	3 693	1 796	919	21 071	8 791	16 581	56	52 907
Foreign	Total	7	4	5	341	120	159	1	637

*Excluding 1 079 deaths with unspecified province of death occurrence

Appendix I: Number of deaths by sex, province and district municipality of death occurrence, 2009*

Province of death occurrence	District municipality of death occurrence	Sex				Sex ratio ²
		Male	Female	Unspecified	Total	
Western Cape	Cape Winelands	3 508	2 818	14	6 340	124
	Central Karoo	483	378	1	862	128
	City of Cape Town Metro	15 323	13 155	59	28 537	116
	Eden	2 785	2 265	7	5 057	123
	Overberg	985	704	2	1 691	140
	West Coast	1 633	1 262	3	2 898	129
	Unspecified	6	7	0	13	86
	Total	24 723	20 589	86	45 398	120
Eastern Cape	Alfred Nzo	4 566	4 894	14	9 474	93
	Amathole	7 609	7 941	11	15 561	96
	Buffalo City Metro	6 010	5 732	13	11 755	105
	Cacadu	2 495	2 364	14	4 873	106
	Chris Hani	4 639	4 760	11	9 410	97
	Joe Gqabi	2 691	2 843	8	5 542	95
	Nelson Mandela Bay Metro	7 334	6 704	14	14 052	109
	O.R.Tambo	5 600	5 837	15	11 452	96
	Unspecified	7	6	0	13	117
	Total	40 951	41 081	100	82 132	100
Northern Cape	Frances Baard	2 357	2 120	10	4 487	111
	John Taolo Gaetsewe	1 404	1 340	0	2 744	105
	Namakwa	626	472	1	1 099	133
	Pixley ka Seme	1 341	1 296	4	2 641	103
	Siyanda	2 131	1 976	4	4 111	108
	Total	7 859	7 204	19	15 082	109
Free State	Fezile Dabi	3 751	3 406	2	7 159	110
	Lejweleputswa	5 938	5 425	13	11 376	109
	Mangaung Metro	6 823	6 495	13	13 331	105
	Thabo Mofutsanyane	6 617	6 553	9	13 179	101
	Xhariep	1 087	1 128	1	2 216	96
	Unspecified	3	1	0	4	300
	Total	24 219	23 008	38	47 265	105
KwaZulu-Natal	Amajuba	3 310	3 281	13	6 604	101
	eThekweni Metro	20 092	19 240	33	39 365	104
	iLembe	3 453	3 260	7	6 720	106
	Sisonke	2 254	2 339	10	4 603	96
	Ugu	6 030	5 948	11	11 989	101
	UMgungundlovu	6 893	6 904	22	13 819	100
	Umkhanyakude	3 155	3 193	8	6 356	99
	Umzinyathi	3 071	3 127	10	6 208	98
	Uthukela	4 555	4 235	11	8 801	108
	Uthungulu	5 781	5 770	24	11 575	100
	Zululand	4 445	4 471	22	8 938	99
	Unspecified	1 135	1 247	9	2 391	91
Total	64 174	63 015	180	127 369	102	

*Excluding 1 079 deaths with unspecified province of death occurrence

² Male deaths per 100 female deaths

Appendix I: Number of deaths by sex, province and district municipality of death occurrence, 2009* (concluded)

Province of death occurrence	District municipality of death occurrence	Sex				Sex ratio ³
		Male	Female	Unspecified	Total	
North West	Bojanala	7 456	6 329	35	13 820	118
	Dr Kenneth Kaunda	4 945	4 291	26	9 262	115
	Dr Ruth Segomotsi Mompati	3 279	3 210	13	6 502	102
	Ngaka Modiri Molema	5 597	5 164	16	10 777	108
	Unspecified	6	5	0	11	120
	Total	21 283	18 999	90	40 372	112
Gauteng	City of Johannesburg Metro	19 388	17 357	212	36 957	112
	City of Tshwane Metro	14 078	12 569	47	26 694	112
	Ekurhuleni Metro	16 120	14 377	74	30 571	112
	Sedibeng	5 503	5 090	15	10 608	108
	West Rand	5 367	4 472	24	9 863	120
	Unspecified	15	21	0	36	71
	Total	60 471	53 886	372	114 729	112
Mpumalanga	Ehlanzeni	9 677	9 105	48	18 830	106
	Gert Sibande	7 201	7 015	22	14 238	103
	Nkangala	6 568	6 016	25	12 609	109
	Unspecified	19	7	0	26	271
	Total	23 465	22 143	95	45 703	106
Limpopo	Capricorn	7 498	7 540	21	15 059	99
	Greater Sekhukhune	5 453	6 031	16	11 500	90
	Mopani	5 461	5 671	11	11 143	96
	Vhembe	4 899	5 029	15	9 943	97
	Waterberg	2 726	2 514	4	5 244	108
	Unspecified	8	10	0	18	80
	Total	26 045	26 795	67	52 907	97
Foreign	Total	426	211		637	202

*Excluding 1 079 deaths with unspecified province of death occurrence

³ Male deaths per 100 female deaths

Appendix J: All underlying causes of death, 2009

Causes of death (based on the 10th revision, International Classification of Diseases, 1992)	Number	Percent
All causes	572 673	100,0
Ill-defined and unknown causes of mortality (R95-R99)	72 887	12,7
Tuberculosis (A15-A19)	69 003	12,0
Influenza and pneumonia (J09-J18)	42 964	7,5
Other external causes of accidental injury (W00-X59)	31 166	5,4
Intestinal infectious diseases (A00-A09)	30 675	5,4
Other forms of heart disease (I30-I52)	26 462	4,6
Cerebrovascular diseases (I60-I69)	24 835	4,3
Diabetes mellitus (E10-E14)	20 523	3,6
Human immunodeficiency virus [HIV] disease (B20-B24)	17 570	3,1
Hypertensive diseases (I10-I15)	15 386	2,7
Chronic lower respiratory diseases (J40-J47)	14 184	2,5
Certain disorders involving the immune mechanism (D80-D89)	13 096	2,3
Ischaemic heart diseases (I20-I25)	12 291	2,1
Other viral diseases (B25-B34)	11 564	2,0
Malignant neoplasm of digestive organs (C15-C26)	9 430	1,6
Inflammatory diseases of the central nervous system (G00-G09)	7 903	1,4
Other acute lower respiratory infections (J20-J22)	7 874	1,4
Renal failure (N17-N19)	6 703	1,2
Event of undetermined intent (Y10-Y34)	6 683	1,2
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	5 765	1,0
Other bacterial diseases (A30-A49)	5 689	1,0
Transport accidents (V01-V99)	5 674	1,0
Diseases of liver (K70-K77)	5 301	0,9
Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	5 285	0,9
Assault (X85-Y09)	5 089	0,9
Other diseases of the respiratory system (J95-J99)	5 015	0,9
Malignant neoplasm of female genital organs (C51-C58)	4 229	0,7
General symptoms and signs (R50-R69)	4 191	0,7
Protozoal diseases (B50-B64)	4 008	0,7
Metabolic disorders (E70-E90)	3 943	0,7
Episodic and paroxysmal disorders (G40-G47)	3 760	0,7
Aplastic and other anaemias (D60-D64)	3 094	0,5
Malignant neoplasms of ill-defined, secondary & unspecified sites (C76-C80)	3 058	0,5
Mycoses (B35-B49)	2 837	0,5
Malignant neoplasm of breast (C50)	2 753	0,5
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	2 676	0,5
Other respiratory diseases principally affecting the interstitium (J80-J84)	2 636	0,5
Malignant neoplasms stated or presumed primary of lymphoid, haematopoietic & related tissue (C81-C96)	2 569	0,4
Malnutrition (E40-E46)	2 529	0,4
Diseases of oesophagus, stomach and duodenum (K20-K31)	2 505	0,4
Malignant neoplasm of male genital organs (C60-C63)	2 414	0,4
Noninfective enteritis and colitis (K50-K52)	2 341	0,4
Other disorders of glucose regulation and pancreatic internal secretion (E15-E16)	1 847	0,3
Disorders related to length of gestation and fetal growth (P05-P08)	1 729	0,3
Other diseases of intestines (K55-K63)	1 569	0,3
Other disorders originating in the perinatal period (P90-P96)	1 565	0,3
Diseases of arteries, arterioles and capillaries (I70-I79)	1 550	0,3
Infections specific to the perinatal period (P35-P39)	1 412	0,2
Malignant neoplasm of mesothelial and soft tissue (C45-C49)	1 341	0,2
Lung diseases due to external agents (J60-J70)	1 270	0,2

Appendix J: All underlying causes of death, 2009 (continued)

Causes of death (based on the 10th revision, International Classification of Diseases, 1992)	Number	Percent
All causes	572 673	100,0
Other disorders of the nervous system (G90-G99)	1 108	0,2
Other diseases of the digestive system (K90-K93)	1 084	0,2
Organic, including symptomatic, mental disorders (F00-F09)	1 049	0,2
Neoplasms of uncertain or unknown behaviour (D37-D48)	1 035	0,2
Malignant neoplasm of lip, oral cavity and pharynx (C00-C14)	1 026	0,2
Disorders of gallbladder, biliary tract and pancreas (K80-K87)	1 009	0,2
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	974	0,2
Symptoms and signs involving the circulatory and respiratory systems (R00-R09)	849	0,1
Arthropathies (M00-M25)	820	0,1
Malignant neoplasm of urinary tract (C64-C68)	819	0,1
Other obstetric conditions, not elsewhere classified (O95-O99)	811	0,1
Other degenerative diseases of the nervous system (G30-G32)	800	0,1
Other disorders of the skin and subcutaneous tissue (L80-L99)	756	0,1
Cerebral palsy and other paralytic syndromes (G80-G83)	751	0,1
Other diseases of pleura (J90-J94)	662	0,1
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	657	0,1
Soft tissue disorders (M60-M79)	628	0,1
Sequelae of infectious and parasitic diseases (B90-B94)	570	0,1
Congenital malformations of the circulatory system (Q20-Q28)	550	0,1
Digestive system disorders of fetus and newborn (P75-P78)	545	0,1
Malignant neoplasm of eye, brain and other parts of central nervous system (C69-C72)	516	0,1
Malignant neoplasm of skin (C43-C44)	509	0,1
Infections of the skin and subcutaneous tissue (L00-L08)	449	0,1
Coagulation defects, purpura and other haemorrhagic conditions (D65-D69)	441	0,1
Complications of medical and surgical care (Y40-Y84)	438	0,1
Chronic rheumatic heart diseases (I05-I09)	390	0,1
Viral infections characterized by skin and mucous membrane lesions (B00-B09)	387	0,1
Malignant neoplasms of independent multiple sites (C97)	385	0,1
Systemic connective tissue disorders (M30-M36)	379	0,1
Symptoms and signs involving the digestive system and abdomen (R10-R19)	373	0,1
Intentional self-harm (X60-X84)	373	0,1
Suppurative and necrotic conditions of lower respiratory tract (J85-J86)	370	0,1
Other congenital malformations (Q80-Q89)	367	0,1
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	362	0,1
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	340	0,1
Renal tubulo-interstitial diseases (N10-N16)	339	0,1
Viral hepatitis (B15-B19)	323	0,1
Diseases of peritoneum (K65-K67)	315	0,1
Oedema, proteinuria and hypertensive disorders in pregnancy, childbirth and the puerperium (O10-O16)	305	0,1
Extrapyramidal and movement disorders (G20-G26)	298	0,1
Other diseases of urinary system (N30-N39)	282	0,0
Diseases of male genital organs (N40-N51)	267	0,0
Obesity and other hyperalimentation (E65-E68)	263	0,0
Glomerular diseases (N00-N08)	248	0,0
Congenital malformations of the nervous system (Q00-Q07)	248	0,0
Other disorders of kidney and ureter (N25-N29)	244	0,0
Viral infections of the central nervous system (A80-A89)	241	0,0
Disorders of thyroid gland (E00-E07)	240	0,0
Schizophrenia, schizotypal and delusional disorders (F20-F29)	236	0,0
Chromosomal abnormalities, not elsewhere classified (Q90-Q99)	232	0,0

Appendix J: All underlying causes of death, 2009 (continued)

Causes of death (based on the 10th revision, International Classification of Diseases, 1992)	Number	Percent
All causes	572 673	100,0
Complications predominantly related to the puerperium (O85-O92)	223	0,0
Hernia (K40-K46)	217	0,0
Benign neoplasms (D10-D36)	214	0,0
Polyneuropathies and other disorders of the peripheral nervous system (G60-G64)	212	0,0
Complications of labour and delivery (O60-O75)	207	0,0
Acute upper respiratory infections (J00-J06)	192	0,0
Pregnancy with abortive outcome (O00-O08)	192	0,0
Systemic atrophies primarily affecting the central nervous system (G10-G13)	187	0,0
Inflammatory diseases of female pelvic organs (N70-N77)	168	0,0
Malignant neoplasm of thyroid and other endocrine glands (C73-C75)	166	0,0
Osteopathies and chondropathies (M80-M94)	157	0,0
Malignant neoplasm of bone and articular cartilage (C40-C41)	147	0,0
Dorsopathies (M40-M54)	147	0,0
Other and unspecified disorders of the circulatory system (I95-I99)	146	0,0
Diseases of appendix (K35-K38)	142	0,0
Urticaria and erythema (L50-L54)	140	0,0
Other congenital malformations of the digestive system (Q38-Q45)	130	0,0
Noninflammatory disorders of female genital tract (N80-N98)	118	0,0
Conditions involving the integument and temperature regulation of fetus and newborn (P80-P83)	111	0,0
Other infectious diseases (B99)	109	0,0
Other diseases of upper respiratory tract (J30-J39)	108	0,0
Infections with a predominantly sexual mode of transmission (A50-A64)	99	0,0
Transitory endocrine and metabolic disorders specific to fetus and newborn (P70-P74)	93	0,0
Demyelinating diseases of the central nervous system (G35-G37)	91	0,0
Diseases of myoneural junction and muscle (G70-G73)	89	0,0
Diseases of middle ear and mastoid (H65-H75)	82	0,0
Disorders of other endocrine glands (E20-E35)	76	0,0
Other maternal disorders predominantly related to pregnancy (O20-O29)	76	0,0
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	74	0,0
Helminthiases (B65-B83)	69	0,0
Diseases of oral cavity, salivary glands and jaws (K00-K14)	69	0,0
Other nutritional deficiencies (E50-E64)	67	0,0
Maternal care related to the fetus and amniotic cavity and possible delivery problems (O30-O48)	66	0,0
Other diseases of blood and blood-forming organs (D70-D77)	62	0,0
Congenital malformations of the respiratory system (Q30-Q34)	62	0,0
Nutritional anaemias (D50-D53)	59	0,0
Congenital malformations of the urinary system (Q60-Q64)	53	0,0
Dermatitis and eczema (L20-L30)	47	0,0
Haemolytic anaemias (D55-D59)	46	0,0
Mood [affective] disorders (F30-F39)	43	0,0
Unspecified mental disorder (F99)	37	0,0
Sequelae of external causes of morbidity and mortality (Y85-Y89)	33	0,0
Disorders of breast (N60-N64)	28	0,0
Bullous disorders (L10-L14)	25	0,0
Abnormal findings on examination of blood, without diagnosis (R70-R79)	23	0,0
Birth trauma (P10-P15)	22	0,0
Urolithiasis (N20-N23)	21	0,0
Symptoms and signs involving cognition, perception, emotional state and behaviour (R40-R46)	16	0,0
Visual disturbances and blindness (H53-H54)	15	0,0
Acute rheumatic fever (I00-I02)	14	0,0

Appendix J: All underlying causes of death, 2009 (concluded)

Causes of death (based on the 10th revision, International Classification of Diseases, 1992)	Number	Percent
All causes	572 673	100,0
Symptoms and signs involving the urinary system (R30-R39)	14	0,0
Abnormal findings on diagnostic imaging and in function studies, without diagnosis (R90-R94)	14	0,0
Neurotic, stress-related and somatoform disorders (F40-F48)	13	0,0
Cleft lip and cleft palate (Q35-Q37)	13	0,0
Certain zoonotic bacterial diseases (A20-A28)	9	0,0
In situ neoplasms (D00-D09)	9	0,0
Nerve, nerve root and plexus disorders (G50-G59)	8	0,0
Congenital malformations of eye, ear, face and neck (Q10-Q18)	8	0,0
Symptoms and signs involving the nervous and musculoskeletal systems (R25-R29)	8	0,0
Arthropod-borne viral fevers and viral haemorrhagic fevers (A90-A99)	7	0,0
Disorders of eyelid, lacrimal system and orbit (H00-H06)	6	0,0
Abnormal findings on examination of other body fluids, substances and tissues, without diagnosis (R83-R89)	6	0,0
Glaucoma (H40-H42)	5	0,0
Disorders of skin appendages (L60-L75)	5	0,0
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	4	0,0
Symptoms and signs involving the skin and subcutaneous tissue (R20-R23)	4	0,0
Disorders of choroid and retina (H30-H36)	3	0,0
Other disorders of eye and adnexa (H55-H59)	3	0,0
Papulosquamous disorders (L40-L45)	3	0,0
Radiation-related disorders of the skin and subcutaneous tissue (L55-L59)	3	0,0
Congenital malformations of genital organs (Q50-Q56)	3	0,0
Symptoms and signs involving speech and voice (R47-R49)	3	0,0
Abnormal findings on examination of urine, without diagnosis (R80-R82)	3	0,0
Other spirochaetal diseases (A65-A69)	2	0,0
Rickettsioses (A75-A79)	2	0,0
Pediculosis, acariasis and other infestations (B85-B89)	2	0,0
Disorders of adult personality and behaviour (F60-F69)	2	0,0
Disorders of conjunctiva (H10-H13)	2	0,0
Disorders of vitreous body and globe (H43-H45)	2	0,0
Disorders of ocular muscles, binocular movement, accommodation and refraction (H49-H52)	2	0,0
Other disorders of ear (H90-H95)	2	0,0
Other disorders of the musculoskeletal system (M95-M99)	2	0,0
Disorders of psychological development (F80-F89)	1	0,0
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	1	0,0
Disorders of sclera, cornea, iris and ciliary body (H15-H22)	1	0,0
Disorders of optic nerve and visual pathways (H46-H48)	1	0,0
Diseases of inner ear (H80-H83)	1	0,0

Appendix K: Detailed description of the broad groups of natural causes of death which were among the ten leading causes in 2009

Causes of death (based on the 10th Revision, International Classification of Disease, 1992)		Number	%
Intestinal infectious diseases (A00–A09)			
A00	Cholera (A00)	47	0,2
A01	Typhoid and paratyphoid fevers (A01)	12	0,0
A02	Other salmonella infections(A02)	22	0,1
A03	Shigellosis (A03)	12	0,0
A04	Other bacterial intestinal infections (A04)	0	0,0
A05	Other bacterial food-borne intoxications (A05)	0	0,0
A06	Amoebiasis (A06)	19	0,1
A07	Other protozoal intestinal diseases (A07)	14	0,0
A08	Viral and other specified intestinal infections (A08)	60	0,2
A09	Diarrhoea and gastroenteritis of presumed infectious origin (A09)	30 489	99,4
Total		30 675	100,0
Tuberculosis (A15–A19)			
A16	Respiratory tuberculosis, not confirmed bacteriologically or histologically (A16)	56 125	81,3
A17	Tuberculosis of nervous system (A17)	3 671	5,3
A18	Tuberculosis of other organs (A18)	1 930	2,8
A19	Miliary tuberculosis (A19)	5 942	8,6
Drug-resistant tuberculosis (U51-U52)			
U51	Multidrug-resistant tuberculosis (U51)	1 184	1,7
U52	Extensively drug-resistant tuberculosis (U52)	151	0,2
Total		69 003	100,0
Human immunodeficiency virus [HIV] disease (B20-B24)			
B20	Human immunodeficiency virus (HIV) disease resulting in infectious and parasitic diseases (B20)	8 834	50,3
B21	Human immunodeficiency virus (HIV) disease resulting in malignant neoplasms (B21)	286	1,6
B22	Human immunodeficiency virus (HIV) disease resulting in other specified diseases (B22)	5 327	30,3
B23	Human immunodeficiency virus (HIV) disease resulting in other conditions (B23)	1 147	6,5
B24	Unspecified human immunodeficiency virus (HIV) disease (B24)	1 976	11,2
Total		17 570	100,0
Certain disorders involving the immune mechanism (D80-D89)			
D80	Immunodeficiency with predominantly antibody defects (D80)	3	0,0
D81	Combined immunodeficiencies (D81)	2	0,0
D82	Immunodeficiency associated with other major defects (D82)	6	0,0
D83	Common variable immunodeficiency (D83)	21	0,2
D84	Other immunodeficiencies (D84)	13 015	99,4
D86	Sarcoidosis (D86)	40	0,3
D89	Other disorders involving the immune mechanism, not elsewhere classified (D89)	9	0,1
Total		13 096	100,0
Diabetes mellitus (E10-E14)			
E10	Insulin-dependent diabetes mellitus (E10)	237	1,2
E11	Non-insulin-dependent diabetes mellitus (E11)	1 135	5,5
E12	Malnutrition-related diabetes mellitus (E12)	2	0,0
E13	Other specified diabetes mellitus (E13)	0	0,0
E14	Unspecified diabetes mellitus (E14)	19 149	93,3
Total		20 523	100,0

Appendix K: Detailed description of the broad groups of natural causes of death which were among the ten leading causes in 2009 (continued)

Causes of death (based on the 10th Revision, International Classification of Disease, 1992)		Number	%
Hypertensive diseases (I10-I15)			
I10	Essential (primary) hypertension (I10)	7 467	48,5
I11	Hypertensive heart disease (I11)	6 627	43,1
I12	Hypertensive renal disease (I12)	1 045	6,8
I13	Hypertensive heart and renal disease (I13)	247	1,6
	Total	15 386	100,0
Other forms of heart disease (I30-I52)			
I30	Acute pericarditis (I30)	10	0,0
I31	Other diseases of pericardium (I31)	238	0,9
I33	Acute and subacute endocarditis (I33)	71	0,3
I34	Nonrheumatic mitral valve disorders (I34)	88	0,3
I35	Nonrheumatic aortic valve disorders (I35)	201	0,8
I36	Nonrheumatic tricuspid valve disorders (I36)	0	0,0
I37	Pulmonary valve disorders (I37)	4	0,0
I38	Endocarditis, valve unspecified (I38)	196	0,7
I40	Acute myocarditis (I40)	36	0,1
I42	Cardiomyopathy (I42)	3 485	13,2
I44	Atrioventricular and left bundle-branch block (I44)	29	0,1
I45	Other conduction disorders (I45)	56	0,2
I46	Cardiac arrest (I46)	4 106	15,5
I47	Paroxysmal tachycardia (I47)	25	0,1
I48	Atrial fibrillation and flutter (I48)	402	1,5
I49	Other cardiac arrhythmias (I49)	274	1,0
I50	Heart failure (I50)	16 405	62,0
I51	Complications and ill-defined descriptions of heart disease (I51)	836	3,2
	Total	26 462	100,0
Cerebrovascular diseases (I60-I69)			
I60	Subarachnoid haemorrhage (I60)	342	1,4
I61	Intracerebral haemorrhage (I61)	951	3,8
I62	Other nontraumatic intracranial haemorrhage (I62)	481	1,9
I63	Cerebral infarction (I63)	521	2,1
I64	Stroke, not specified as haemorrhage or infarction (I64)	21 583	86,9
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)	650	2,6
I69	Sequelae of cerebrovascular disease (I69)	307	1,2
	Total	24 835	100,0
Influenza and pneumonia (J09-J18)			
J09	Influenza due to identified avian influenza virus (J09)	14	0,0
J10	Influenza due to identified influenza virus (J10)	33	0,1
J11	Influenza, virus not identified (J11)	743	1,7
J12	Viral pneumonia, not elsewhere classified (J12)	41	0,1
J13	Pneumonia due to Streptococcus pneumoniae (J13)	16	0,0
J14	Pneumonia due to Haemophilus influenzae (J14)	7	0,0
J15	Bacterial pneumonia, not elsewhere classified (J15)	245	0,6
J16	Pneumonia due to other infectious organisms, not elsewhere classified (J16)	6	0,0
J18	Pneumonia, organism unspecified (J18)	41 859	97,4
	Total	42 964	100,0

Appendix K: Detailed description of the broad groups of natural causes of death which were among the ten leading causes in 2009 (concluded)

Causes of death (based on the 10 th Revision, International Classification of Disease, 1992)		Number	%
Chronic lower respiratory diseases (J40-J47)			
J40	Bronchitis, not specified as acute or chronic (J40)	822	5,8
J41	Simple and mucopurulent chronic bronchitis (J41)	3	0,0
J42	Unspecified chronic bronchitis (J42)	623	4,4
J43	Emphysema (J43)	867	6,1
J44	Other chronic obstructive pulmonary disease (J44)	6 123	43,2
J45	Asthma (J45)	4 552	32,1
J46	Status asthmaticus (J46)	1 009	7,1
J47	Bronchiectasis (J47)	185	1,3
Total		14 184	100,0

Appendix L: The ten leading underlying natural causes of death by age and sex: South Africa, 2009

All provinces, both sexes, all ages			All provinces, males, all ages			All provinces, females, all ages		
	No.	%		No.	%		No.	%
1 Tuberculosis (A15-A19)	69 003	12.0	1 Tuberculosis (A15-A19)	38 290	13.0	1 Tuberculosis (A15-A19)	30 628	11.0
2 Influenza and pneumonia (J09-J18)	42 964	7.5	2 Influenza and pneumonia (J09-J18)	21 269	7.2	2 Influenza and pneumonia (J09-J18)	21 606	7.8
3 Intestinal infectious diseases (A00-A09)	30 675	5.4	3 Intestinal infectious diseases (A00-A09)	14 338	4.9	3 Intestinal infectious diseases (A00-A09)	16 254	5.9
4 Other forms of heart disease (I30-I52)	26 462	4.6	4 Other forms of heart disease (I30-I52)	11 895	4.0	4 Other forms of heart disease (I30-I52)	14 543	5.2
5 Cerebrovascular diseases (I60-I69)	20 835	4.3	5 Cerebrovascular diseases (I60-I69)	10 395	3.5	5 Cerebrovascular diseases (I60-I69)	14 426	5.2
6 Diabetes mellitus (E10-E14)	24 523	3.6	6 Human immunodeficiency virus [HIV] disease (B20-B24)	8 507	2.9	6 Diabetes mellitus (E10-E14)	12 335	4.4
7 Human immunodeficiency virus [HIV] disease (B20-B24)	17 570	3.1	7 Chronic lower respiratory diseases (J40-J47)	8 428	2.9	7 Hypertensive diseases (I10-I15)	9 471	3.4
8 Hypertensive diseases (I10-I15)	15 386	2.7	8 Diabetes mellitus (E10-E14)	8 183	2.8	8 Human immunodeficiency virus [HIV] disease (B20-B24)	9 034	3.3
9 Chronic lower respiratory diseases (J40-J47)	14 184	2.5	9 Ischaemic heart diseases (I20-I25)	7 259	2.5	9 Certain disorders involving the immune mechanism (D80-D89)	6 996	2.5
10 Certain disorders involving the immune mechanism (D80-D89)	13 096	2.3	10 Certain disorders involving the immune mechanism (D80-D89)	6 080	2.1	10 Other viral diseases (B25-B34)	6 375	2.3
Other natural causes	248 519	43.4	Other natural causes	121 454	41.3	Other natural causes	124 497	44.9
Non-natural causes	49 456	8.6	Non-natural causes	38 069	12.9	Non-natural causes	11 288	4.1
All causes	572 673	100.0	All causes	294 167	100.0	All causes	277 453	100.0
All provinces, both sexes, 0-14			All provinces, males, 0-14			All provinces, females, 0-14		
	No.	%		No.	%		No.	%
1 Intestinal infectious diseases (A00-A09)	9 972	16.9	1 Intestinal infectious diseases (A00-A09)	5 235	16.6	1 Intestinal infectious diseases (A00-A09)	4 686	17.2
2 Influenza and pneumonia (J09-J18)	6 666	11.3	2 Influenza and pneumonia (J09-J18)	3 371	10.7	2 Influenza and pneumonia (J09-J18)	3 253	12.0
3 Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	5 759	9.7	3 Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	3 283	10.4	3 Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	2 381	8.8
4 Malnutrition (E40-E46)	2 042	3.5	4 Malnutrition (E40-E46)	1 044	3.3	4 Tuberculosis (A15-A19)	992	3.6
5 Tuberculosis (A15-A19)	2 032	3.4	5 Tuberculosis (A15-A19)	1 034	3.3	5 Malnutrition (E40-E46)	984	3.6
6 Disorders related to length of gestation and fetal growth (P05-P08)	1 719	2.9	6 Disorders related to length of gestation and fetal growth (P05-P08)	929	2.9	6 Disorders related to length of gestation and fetal growth (P05-P08)	751	2.8
7 Other disorders originating in the perinatal period (P90-P96)	1 563	2.6	7 Other disorders originating in the perinatal period (P90-P96)	639	2.7	7 Other disorders originating in the perinatal period (P90-P96)	689	2.5
8 Infections specific to the perinatal period (P35-P39)	1 409	2.4	8 Infections specific to the perinatal period (P35-P39)	802	2.5	8 Infections specific to the perinatal period (P35-P39)	589	2.2
9 Other acute lower respiratory infections (J20-J22)	1 022	1.7	9 Fetus and newborn affected by maternal factors and by complications of	555	1.8	9 Other acute lower respiratory infections (J20-J22)	500	1.8
10 Human immunodeficiency virus [HIV] disease (B20-B24)	1 011	1.7	10 Other acute lower respiratory infections (J20-J22)	516	1.6	10 Human immunodeficiency virus [HIV] disease (B20-B24)	496	1.8
Other natural causes	21 266	35.9	Other natural causes	11 083	35.2	Other natural causes	9 993	36.7
Non-natural causes	4 720	8.0	Non-natural causes	2 824	9.0	Non-natural causes	1 880	6.9
All causes	59 181	100.0	All causes	31 515	100.0	All causes	27 194	100.0
All provinces, both sexes, 15-49			All provinces, males, 15-49			All provinces, females, 15-49		
	No.	%		No.	%		No.	%
1 Tuberculosis (A15-A19)	49 403	19.6	1 Tuberculosis (A15-A19)	25 711	19.4	1 Tuberculosis (A15-A19)	23 639	19.9
2 Influenza and pneumonia (J09-J18)	21 587	8.6	2 Influenza and pneumonia (J09-J18)	10 100	7.6	2 Influenza and pneumonia (J09-J18)	11 458	9.6
3 Human immunodeficiency virus [HIV] disease (B20-B24)	13 953	5.5	3 Human immunodeficiency virus [HIV] disease (B20-B24)	6 521	4.9	3 Intestinal infectious diseases (A00-A09)	7 442	6.3
4 Intestinal infectious diseases (A00-A09)	13 075	5.2	4 Intestinal infectious diseases (A00-A09)	5 612	4.2	4 Human immunodeficiency virus [HIV] disease (B20-B24)	7 424	6.2
5 Certain disorders involving the immune mechanism (D80-D89)	9 865	3.9	5 Certain disorders involving the immune mechanism (D80-D89)	4 377	3.3	5 Certain disorders involving the immune mechanism (D80-D89)	5 482	4.6
6 Other viral diseases (B25-B34)	8 946	3.6	6 Other viral diseases (B25-B34)	3 857	2.9	6 Other viral diseases (B25-B34)	5 081	4.3
7 Other forms of heart disease (I30-I52)	5 956	2.4	7 Other forms of heart disease (I30-I52)	2 842	2.1	7 Other forms of heart disease (I30-I52)	3 101	2.6
8 Inflammatory diseases of the central nervous system (G00-G09)	5 725	2.3	8 Inflammatory diseases of the central nervous system (G00-G09)	2 704	2.0	8 Inflammatory diseases of the central nervous system (G00-G09)	3 016	2.5
9 Other acute lower respiratory infections (J20-J22)	4 050	1.6	9 Other acute lower respiratory infections (J20-J22)	2 002	1.5	9 Other acute lower respiratory infections (J20-J22)	2 040	1.7
10 Cerebrovascular diseases (I60-I69)	3 631	1.4	10 Cerebrovascular diseases (I60-I69)	1 734	1.3	10 Cerebrovascular diseases (I60-I69)	1 891	1.6
Other natural causes	80 832	32.1	Other natural causes	38 488	29.1	Other natural causes	42 212	35.5
Non-natural causes	34 632	13.8	Non-natural causes	28 440	21.5	Non-natural causes	6 146	5.2
All causes	251 655	100.0	All causes	132 388	100.0	All causes	118 932	100.0
All provinces, both sexes, 50-64			All provinces, males, 50-64			All provinces, females, 50-64		
	No.	%		No.	%		No.	%
1 Tuberculosis (A15-A19)	12 221	11.4	1 Tuberculosis (A15-A19)	8 339	13.2	1 Tuberculosis (A15-A19)	3 877	8.7
2 Diabetes mellitus (E10-E14)	6 813	6.3	2 Influenza and pneumonia (J09-J18)	3 989	6.3	2 Diabetes mellitus (E10-E14)	3 753	8.4
3 Influenza and pneumonia (J09-J18)	6 580	6.1	3 Other forms of heart disease (I30-I52)	3 267	5.2	3 Cerebrovascular diseases (I60-I69)	2 865	6.4
4 Cerebrovascular diseases (I60-I69)	6 064	5.6	4 Cerebrovascular diseases (I60-I69)	3 196	5.1	4 Other forms of heart disease (I30-I52)	2 680	6.0
5 Other forms of heart disease (I30-I52)	5 951	5.5	5 Diabetes mellitus (E10-E14)	3 057	4.9	5 Influenza and pneumonia (J09-J18)	2 584	5.8
6 Chronic lower respiratory diseases (J40-J47)	4 282	4.0	6 Chronic lower respiratory diseases (J40-J47)	2 861	4.5	6 Hypertensive diseases (I10-I15)	2 193	4.9
7 Hypertensive diseases (I10-I15)	4 148	3.9	7 Ischaemic heart diseases (I20-I25)	2 416	3.8	7 Intestinal infectious diseases (A00-A09)	1 688	3.8
8 Ischaemic heart diseases (I20-I25)	3 499	3.3	8 Malignant neoplasm of digestive organs (C15-C26)	2 091	3.3	8 Malignant neoplasm of female genital organs (C51-C58)	1 462	3.3
9 Intestinal infectious diseases (A00-A09)	3 493	3.2	9 Hypertensive diseases (I10-I15)	1 954	3.1	9 Chronic lower respiratory diseases (J40-J47)	1 419	3.2
10 Malignant neoplasm of digestive organs (C15-C26)	3 269	3.0	10 Intestinal infectious diseases (A00-A09)	1 798	2.9	10 Malignant neoplasm of digestive organs (C15-C26)	1 178	2.6
Other natural causes	45 490	42.3	Other natural causes	25 590	40.7	Other natural causes	19 476	43.7
Non-natural causes	5 745	5.3	Non-natural causes	4 387	7.0	Non-natural causes	1 357	3.0
All causes	107 555	100.0	All causes	62 945	100.0	All causes	44 532	100.0
All provinces, both sexes, 65+			All provinces, males, 65+			All provinces, females, 65+		
	No.	%		No.	%		No.	%
1 Cerebrovascular diseases (I60-I69)	15 039	9.8	1 Other forms of heart disease (I30-I52)	5 445	8.2	1 Cerebrovascular diseases (I60-I69)	9 631	11.1
2 Other forms of heart disease (I30-I52)	13 906	9.1	2 Cerebrovascular diseases (I60-I69)	5 404	8.1	2 Other forms of heart disease (I30-I52)	8 457	9.8
3 Diabetes mellitus (E10-E14)	10 909	7.1	3 Chronic lower respiratory diseases (J40-J47)	3 862	5.8	3 Diabetes mellitus (E10-E14)	7 049	8.2
4 Hypertensive diseases (I10-I15)	9 379	6.1	4 Diabetes mellitus (E10-E14)	3 859	5.8	4 Hypertensive diseases (I10-I15)	6 275	7.3
5 Influenza and pneumonia (J09-J18)	8 035	5.3	5 Influenza and pneumonia (J09-J18)	3 746	5.6	5 Influenza and pneumonia (J09-J18)	4 286	5.0
6 Ischaemic heart diseases (I20-I25)	7 200	4.7	6 Ischaemic heart diseases (I20-I25)	3 726	5.6	6 Ischaemic heart diseases (I20-I25)	3 472	4.0
7 Chronic lower respiratory diseases (J40-J47)	6 793	4.4	7 Hypertensive diseases (I10-I15)	3 103	4.7	7 Chronic lower respiratory diseases (J40-J47)	2 930	3.4
8 Tuberculosis (A15-A19)	5 092	3.3	8 Tuberculosis (A15-A19)	3 047	4.6	8 Intestinal infectious diseases (A00-A09)	2 424	2.8
9 Malignant neoplasm of digestive organs (C15-C26)	4 615	3.0	9 Malignant neoplasm of digestive organs (C15-C26)	2 420	3.6	9 Malignant neoplasm of digestive organs (C15-C26)	2 193	2.5
10 Intestinal infectious diseases (A00-A09)	4 092	2.7	10 Malignant neoplasm of male genital organs (C60-C63)	1 910	2.9	10 Tuberculosis (A15-A19)	2 044	2.4
Other natural causes	63 969	41.8	Other natural causes	27 838	41.9	Other natural causes	35 866	41.5
Non-natural causes	3 964	2.6	Non-natural causes	2 101	3.2	Non-natural causes	1 860	2.2
All causes	152 993	100.0	All causes	66 461	100.0	All causes	86 487	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, 2009

Western Cape, both sexes, all ages			Western Cape, males, all ages			Western Cape, females, all ages		
No.	%		No.	%		No.	%	
1	4 041	8,9	1	2 406	9,7	1	1 722	8,4
2	2 824	6,2	2	1 568	6,3	2	1 629	7,9
3	2 775	6,1	3	1 192	4,8	3	1 244	6,0
4	2 347	5,2	4	1 102	4,5	4	1 239	6,0
5	1 984	4,4	5	1 101	4,5	5	1 204	5,8
6	1 825	4,0	6	1 089	4,4	6	930	4,5
7	1 665	3,7	7	1 051	4,2	7	818	4,0
8	1 564	3,4	8	1 035	4,2	8	732	3,8
9	1 534	3,4	9	716	2,9	9	773	3,8
10	17 283	38,1	10	8 671	35,1	10	8 556	41,6
	5 282	11,6		4 159	16,8		1 108	5,4
	45 398	100,0		24 723	100,0		20 589	100,0
Western Cape, both sexes, 0-14			Western Cape, males, 0-14			Western Cape, females, 0-14		
No.	%		No.	%		No.	%	
1	337	10,2	1	184	10,5	1	157	10,5
2	316	9,6	2	180	10,3	2	124	8,3
3	186	5,7	3	99	5,7	3	91	6,1
4	172	5,2	4	91	5,2	4	68	4,5
5	151	4,6	5	88	5,0	5	62	4,1
6	93	2,8	6	58	2,7	6	52	3,5
	93			43			41	
	79	2,8	7	41	2,5	7	39	2,7
	74	2,4	8	36	2,3	8	36	2,6
	74	2,2	9	36	2,1	9	33	2,4
	65	2,0	10	34	1,9	10	36	2,2
	1 384	42,0		709	40,6		618	41,3
	342	10,4		195	11,2		144	9,6
	3 292	100,0		1 748	100,0		1 498	100,0
Western Cape, both sexes, 15-49			Western Cape, males, 15-49			Western Cape, females, 15-49		
No.	%		No.	%		No.	%	
1	2 714	17,7	1	1 547	16,7	1	1 164	19,1
2	1 916	12,5	2	850	9,2	2	1 064	17,5
3	320	2,1	3	213	2,3	3	185	3,0
4	290	1,9	4	184	2,0	4	165	2,7
5	280	1,8	5	168	1,8	5	151	2,5
6	278	1,8	6	144	1,6	6	147	2,4
7	277	1,8	7	135	1,5	7	140	2,3
8	277	1,8	8	130	1,4	8	129	2,1
9	260	1,7	9	130	1,4	9	116	1,9
10	238	1,6	10	129	1,4	10	113	1,9
	4 561	29,7		2 336	25,3		2 059	33,8
	3 943	25,7		3 273	35,4		661	10,8
	15 354	100,0		9 239	100,0		6 094	100,0
Western Cape, both sexes, 50-64			Western Cape, males, 50-64			Western Cape, females, 50-64		
No.	%		No.	%		No.	%	
1	975	9,6	1	612	10,2	1	540	12,8
2	905	8,9	2	478	8,0	2	292	6,9
3	727	7,1	3	451	7,5	3	281	6,7
4	718	7,0	4	446	7,4	4	247	5,9
5	654	6,4	5	435	7,3	5	241	5,7
6	653	6,4	6	412	6,9	6	239	5,7
7	554	5,4	7	307	5,1	7	203	4,8
8	396	3,9	8	193	3,2	8	202	4,8
9	294	2,9	9	176	2,9	9	201	4,8
10	290	2,8	10	159	2,7	10	169	4,0
	3 488	34,2		1 894	31,6		1 469	34,9
	550	5,4		425	7,1		124	2,9
	10 204	100,0		5 988	100,0		4 208	100,0
Western Cape, both sexes, 65+			Western Cape, males, 65+			Western Cape, females, 65+		
No.	%		No.	%		No.	%	
1	1 778	10,8	1	876	11,4	1	1 034	11,8
2	1 569	9,5	2	600	7,8	2	901	10,3
3	1 477	9,0	3	551	7,2	3	877	10,0
4	982	6,0	4	535	6,9	4	633	7,2
5	868	5,9	5	492	6,4	5	564	6,4
6	950	5,8	6	468	6,1	6	414	4,7
7	907	5,5	7	404	5,2	7	399	4,5
8	773	4,7	8	369	4,8	8	305	3,5
9	491	3,0	9	349	4,5	9	264	3,0
10	369	2,2	10	226	2,9	10	262	3,0
	5 805	35,2		2 594	33,7		2 947	33,6
	412	2,5		237	3,1		175	2,0
	16 481	100,0		7 701	100,0		8 775	100,0

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

Appendix L.2: The ten leading underlying natural causes of death by age and sex: Eastern Cape, 2009

Eastern Cape, both sexes, all ages			Eastern Cape, males, all ages			Eastern Cape, females, all ages		
No.	%		No.	%		No.	%	
1	11 132	13,6	1	6 016	14,7	1	5 110	12,4
2	3 689	4,5	2	1 899	4,6	2	2 062	5,0
3	3 641	4,4	3	1 753	4,3	3	1 948	4,7
4	3 344	4,1	4	1 578	3,9	4	1 930	4,7
5	3 315	4,0	5	1 366	3,3	5	1 738	4,2
6	3 059	3,7	6	1 348	3,3	6	1 703	4,1
7	2 773	3,4	7	1 035	2,5	7	1 445	3,5
8	2 349	2,9	8	1 028	2,5	8	1 355	3,3
9	2 169	2,6	9	963	2,4	9	1 320	3,2
10	2 112	2,6	10	904	2,2	10	1 262	3,1
	37 333	45,5		17 527	42,6		19 538	47,6
	7 216	8,8		5 534	13,5		1 670	4,1
All causes	82 132	100,0	All causes	40 951	100,0	All causes	41 081	100,0
Eastern Cape, both sexes, 0-14			Eastern Cape, males, 0-14			Eastern Cape, females, 0-14		
No.	%		No.	%		No.	%	
1	818	14,9	1	446	15,3	1	366	14,5
2	537	9,8	2	243	8,3	2	290	11,5
3	330	6,0	3	187	6,4	3	134	5,3
4	246	4,5	4	118	4,0	4	128	5,1
5	187	3,4	5	93	3,2	5	93	3,7
6	103	1,9	6	53	1,8	6	52	2,1
7	97	1,8	7	52	1,8	7	51	2,0
8	93	1,7	8	48	1,6	8	48	1,9
9	92	1,7	9	45	1,5	9	42	1,7
10	78	1,4	10	44	1,5	10	39	1,5
	2 212	40,3		1 102	37,8		1 033	40,8
	700	12,7		444	15,2		255	10,1
All causes	5 493	100,0	All causes	2 919	100,0	All causes	2 531	100,0
Eastern Cape, both sexes, 15-49			Eastern Cape, males, 15-49			Eastern Cape, females, 15-49		
No.	%		No.	%		No.	%	
1	7 342	20,8	1	3 636	20,4	1	3 700	21,3
2	1 899	5,4	2	790	4,4	2	1 108	6,4
3	1 772	5,0	3	707	4,0	3	1 064	6,1
4	1 541	4,4	4	692	3,9	4	895	5,1
5	1 536	4,4	5	641	3,6	5	871	5,0
6	1 399	4,0	6	526	2,9	6	848	4,9
7	772	2,2	7	354	2,0	7	442	2,5
8	757	2,1	8	328	1,8	8	402	2,3
9	546	1,5	9	309	1,7	9	299	1,7
10	541	1,5	10	292	1,6	10	237	1,4
	12 199	34,6		5 452	30,5		6 674	38,3
	4 988	14,2		4 123	23,1		869	5,0
All causes	35 302	100,0	All causes	17 850	100,0	All causes	17 409	100,0
Eastern Cape, both sexes, 50-64			Eastern Cape, males, 50-64			Eastern Cape, females, 50-64		
No.	%		No.	%		No.	%	
1	2 146	13,6	1	1 489	16,2	1	657	10,0
2	930	5,9	2	634	6,9	2	537	8,1
3	908	5,7	3	417	4,5	3	386	5,8
4	795	5,0	4	396	4,3	4	378	5,7
5	782	5,0	5	371	4,0	5	325	4,9
6	620	3,9	6	366	4,0	6	296	4,5
7	577	3,7	7	361	3,9	7	254	3,8
8	571	3,6	8	246	2,7	8	216	3,3
9	354	2,2	9	234	2,5	9	161	2,4
10	331	2,1	10	229	2,5	10	158	2,4
	6 965	44,1		3 865	42,1		2 998	45,4
	817	5,2		582	6,3		235	3,6
All causes	15 796	100,0	All causes	9 190	100,0	All causes	6 601	100,0
Eastern Cape, both sexes, 65+			Eastern Cape, males, 65+			Eastern Cape, females, 65+		
No.	%		No.	%		No.	%	
1	2 132	8,4	1	926	8,5	1	1 361	9,4
2	2 010	7,9	2	771	7,1	2	1 247	8,6
3	1 805	7,1	3	763	7,0	3	966	6,7
4	1 499	5,9	4	760	7,0	4	910	6,3
5	1 379	5,4	5	533	4,9	5	879	6,1
6	1 340	5,3	6	452	4,1	6	619	4,3
7	988	3,9	7	451	4,1	7	536	3,7
8	963	3,8	8	430	3,9	8	512	3,5
9	722	2,8	9	370	3,4	9	352	2,4
10	539	2,1	10	243	2,2	10	306	2,1
	11 410	44,8		4 876	44,6		6 523	44,9
	862	2,6		355	3,2		307	2,1
All causes	25 449	100,0	All causes	10 930	100,0	All causes	14 518	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, 2009

Northern Cape, both sexes, all ages			Northern Cape, males, all ages			Northern Cape, females, all ages		
No.	%		No.	%		No.	%	
1	1 465	9.7	1	864	11.0	1	601	8.3
2	883	5.9	2	430	5.5	2	464	6.4
3	844	5.6	3	419	5.3	3	414	5.7
4	632	4.2	4	382	4.9	4	375	5.2
5	582	3.9	5	281	3.6	5	310	4.3
6	577	3.8	6	272	3.5	6	296	4.1
7	575	3.8	7	257	3.3	7	271	3.8
8	449	3.0	8	206	2.6	7	271	3.8
9	447	3.0	9	188	2.4	9	194	2.7
10	383	2.5	10	178	2.3	10	193	2.7
	6 970	46.2		3 464	44.1		3 460	48.0
	1 275	8.5		918	11.7		355	4.9
All causes	15 082	100.0	All causes	7 859	100.0	All causes	7 204	100.0
Northern Cape, both sexes, 0-14			Northern Cape, males, 0-14			Northern Cape, females, 0-14		
No.	%		No.	%		No.	%	
1	255	16.0	1	138	16.5	1	117	15.7
2	140	8.8	2	77	9.2	2	63	8.5
3	140	8.8	3	76	9.1	3	60	8.1
4	102	6.4	4	55	6.6	4	53	7.1
5	85	5.3	5	33	4.0	5	44	5.9
6	61	3.8	6	31	3.7	6	27	3.6
7	39	2.4	7	24	2.9	7	20	2.7
8	36	2.3	8	19	2.3	8	17	2.3
9	31	1.9	8	19	2.3	9	16	2.2
9	31	1.9	10	14	1.7	10	12	1.6
	531	33.3		262	31.4		235	31.6
	144	9.0		87	10.4		55	7.4
All causes	1 595	100.0	All causes	835	100.0	All causes	743	100.0
Northern Cape, both sexes, 15-49			Northern Cape, males, 15-49			Northern Cape, females, 15-49		
No.	%		No.	%		No.	%	
1	1 024	16.5	1	570	17.3	1	454	15.5
2	747	12.0	2	347	10.5	2	400	13.7
3	382	6.1	3	169	5.1	3	213	7.3
4	281	4.5	4	138	4.2	4	143	4.9
5	185	3.0	5	78	2.4	5	107	3.7
6	126	2.0	6	65	2.0	6	69	2.4
7	120	1.9	7	60	1.8	7	67	2.3
8	117	1.9	8	59	1.8	8	57	1.9
9	110	1.8	9	51	1.5	9	53	1.8
10	104	1.7	9	51	1.5	9	53	1.8
	2 132	34.3		1 018	30.9		1 105	37.7
	894	14.4		685	20.8		209	7.1
All causes	6 222	100.0	All causes	3 291	100.0	All causes	2 930	100.0
Northern Cape, both sexes, 50-64			Northern Cape, males, 50-64			Northern Cape, females, 50-64		
No.	%		No.	%		No.	%	
1	297	9.4	1	205	11.5	1	92	6.6
2	210	6.6	2	151	8.5	2	87	6.3
3	157	5.0	3	86	4.8	3	78	5.6
4	149	4.7	4	70	3.9	4	73	5.2
5	138	4.4	5	68	3.8	5	72	5.2
6	136	4.3	5	68	3.8	6	63	4.5
7	122	3.8	5	68	3.8	7	59	4.2
8	120	3.8	8	63	3.5	8	52	3.7
9	109	3.4	9	60	3.4	9	49	3.5
10	101	3.2	10	50	2.8	10	42	3.0
	1 500	47.3		799	44.9		683	49.1
	131	4.1		90	5.1		41	2.9
All causes	3 170	100.0	All causes	1 778	100.0	All causes	1 391	100.0
Northern Cape, both sexes, 65+			Northern Cape, males, 65+			Northern Cape, females, 65+		
No.	%		No.	%		No.	%	
1	387	9.5	1	161	8.3	1	235	11.0
2	315	7.7	2	152	7.8	2	172	8.0
3	270	6.6	3	145	7.4	3	170	8.0
4	249	6.1	4	102	5.2	4	155	7.2
5	235	5.8	5	98	5.0	5	88	4.1
6	179	4.4	6	97	5.0	6	77	3.6
7	172	4.2	7	82	4.2	7	75	3.5
8	134	3.3	8	80	4.1	8	73	3.4
9	113	2.8	9	76	3.9	9	64	3.0
10	102	2.5	10	68	3.5	10	41	1.9
	1 825	44.7		832	42.7		938	43.9
	104	2.5		54	2.8		50	2.3
All causes	4 085	100.0	All causes	1 947	100.0	All causes	2 138	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, 2009

Free State, both sexes, all ages			Free State, males, all ages			Free State, females, all ages		
No.	%		No.	%		No.	%	
1	5 872	12,4	1	2 935	12,1	1	2 945	12,8
2	5 179	11,0	2	2 923	12,1	2	2 242	9,7
3	3 190	6,7	3	1 513	6,2	3	1 676	7,3
4	2 411	5,1	4	1 082	4,5	4	1 329	5,8
5	2 094	4,4	5	1 001	4,1	5	1 091	4,7
6	1 787	3,8	6	723	3,0	6	1 063	4,6
7	1 267	2,7	7	580	2,4	7	914	3,6
8	1 262	2,7	8	494	2,0	8	768	3,3
9	944	2,0	9	464	1,9	9	364	1,6
10	812	1,7	10	453	1,9	10	348	1,5
Other natural causes	19 319	40,9	Other natural causes	9 668	39,9	Other natural causes	9 277	40,3
Non-natural causes	3 128	6,6	Non-natural causes	2 383	9,8	Non-natural causes	743	3,2
All causes	47 265	100,0	All causes	24 219	100,0	All causes	23 008	100,0
Free State, both sexes, 0-14			Free State, males, 0-14			Free State, females, 0-14		
No.	%		No.	%		No.	%	
1	974	17,9	1	532	18,0	1	441	17,9
2	872	16,0	2	438	14,8	2	432	17,6
3	577	10,6	3	334	11,3	3	237	9,6
4	295	5,4	4	160	5,4	4	134	5,4
5	206	3,8	5	119	4,0	5	85	3,5
6	140	2,6	6	81	2,7	5	65	2,6
7	140	2,6	7	75	2,5	7	59	2,4
8	133	2,4	8	73	2,5	8	58	2,4
9	105	1,9	9	61	2,1	9	47	1,9
10	88	1,6	10	47	1,6	10	44	1,8
Other natural causes	1 627	29,9	Other natural causes	876	29,6	Other natural causes	741	30,1
Non-natural causes	283	5,2	Non-natural causes	165	5,6	Non-natural causes	118	4,8
All causes	5 440	100,0	All causes	2 961	100,0	All causes	2 461	100,0
Free State, both sexes, 15-49			Free State, males, 15-49			Free State, females, 15-49		
No.	%		No.	%		No.	%	
1	3 889	17,7	1	2 083	18,5	1	1 804	16,8
2	3 110	14,2	2	1 468	13,1	2	1 641	15,3
3	1 590	7,2	3	721	6,4	3	868	8,1
4	1 445	6,6	4	608	5,4	4	837	7,8
5	587	2,7	5	309	2,7	5	323	3,0
6	581	2,6	6	264	2,3	6	272	2,5
7	411	1,9	7	199	1,8	7	212	2,0
8	342	1,6	8	162	1,4	8	196	1,8
9	323	1,5	9	160	1,4	9	182	1,7
10	321	1,5	10	140	1,2	10	180	1,7
Other natural causes	7 205	32,8	Other natural causes	3 387	30,1	Other natural causes	3 777	35,2
Non-natural causes	2 164	9,9	Non-natural causes	1 740	15,5	Non-natural causes	424	4,0
All causes	21 968	100,0	All causes	11 241	100,0	All causes	10 716	100,0
Free State, both sexes, 50-64			Free State, males, 50-64			Free State, females, 50-64		
No.	%		No.	%		No.	%	
1	984	10,7	1	627	11,7	1	395	10,3
2	924	10,0	2	588	10,9	2	297	7,8
3	597	6,5	3	337	6,3	3	267	6,8
4	511	5,6	4	263	4,9	4	240	6,5
5	433	4,7	5	238	4,4	5	246	6,4
6	361	3,9	6	188	3,5	6	209	5,5
7	359	3,9	7	187	3,5	7	171	4,5
8	353	3,8	8	171	3,2	8	142	3,7
9	313	3,4	9	156	2,9	9	115	3,0
10	232	2,5	10	152	2,8	10	111	2,9
Other natural causes	3 717	40,4	Other natural causes	2 137	39,8	Other natural causes	1 542	40,3
Non-natural causes	423	4,6	Non-natural causes	331	6,2	Non-natural causes	92	2,4
All causes	9 207	100,0	All causes	5 375	100,0	All causes	3 827	100,0
Free State, both sexes, 65+			Free State, males, 65+			Free State, females, 65+		
No.	%		No.	%		No.	%	
1	1 194	11,3	1	466	10,1	1	728	12,1
2	970	9,2	2	424	9,2	2	653	10,9
3	900	8,5	3	317	6,9	3	499	8,3
4	727	6,9	4	245	5,3	4	476	7,9
5	639	6,0	5	235	5,1	4	415	6,9
6	462	4,4	6	228	5,0	6	227	3,8
7	412	3,9	7	224	4,9	6	227	3,8
8	410	3,9	8	163	4,0	8	167	2,8
9	226	2,1	9	148	3,2	9	109	1,9
10	224	2,1	10	132	2,9	10	101	1,7
Other natural causes	4 199	39,7	Other natural causes	1 871	40,7	Other natural causes	2 287	38,2
Non-natural causes	226	2,1	Non-natural causes	120	2,6	Non-natural causes	105	1,8
All causes	10 589	100,0	All causes	4 593	100,0	All causes	5 994	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, 2009

KwaZulu-Natal, both sexes, all ages			KwaZulu-Natal, males, all ages			KwaZulu-Natal, females, all ages		
No.	%		No.	%		No.	%	
1	20 618	16,2	1	11 190	17,4	1	9 404	14,9
2	7 907	6,2	2	3 727	5,8	2	4 156	6,6
3	7 197	5,7	3	3 616	5,6	3	3 863	6,1
4	6 257	4,9	4	2 390	3,7	4	3 570	5,7
5	5 351	4,2	5	2 276	3,5	5	3 103	4,9
6	4 901	3,7	6	1 798	2,8	6	3 072	4,9
7	4 743	3,7	7	1 738	2,7	7	2 476	3,9
8	3 798	3,0	8	1 735	2,7	8	2 059	3,3
9	2 669	2,1	9	1 485	2,3	9	1 655	2,6
10	2 631	2,1	10	1 381	2,2	10	1 282	2,0
Other natural causes	50 498	39,6	Other natural causes	23 988	37,4	Other natural causes	25 913	41,1
Non-natural causes	10 799	8,5	Non-natural causes	8 327	13,0	Non-natural causes	2 462	3,9
All causes	127 369	100,0	All causes	64 174	100,0	All causes	63 105	100,0
KwaZulu-Natal, both sexes, 0-14			KwaZulu-Natal, males, 0-14			KwaZulu-Natal, females, 0-14		
No.	%		No.	%		No.	%	
1	2 284	17,6	1	1 168	17,0	1	1 104	18,4
2	1 164	9,0	2	670	9,8	2	551	9,2
3	1 151	8,9	3	607	8,8	3	467	7,8
4	689	5,3	4	348	5,1	4	337	5,6
5	437	3,4	5	233	3,4	5	194	3,2
6	398	3,1	6	207	3,0	6	188	3,1
7	361	2,8	7	205	3,0	7	165	2,7
8	327	2,5	8	160	2,3	8	153	2,5
9	278	2,1	9	158	2,3	9	119	2,0
10	276	2,1	10	152	2,2	10	115	1,9
Other natural causes	4 445	34,3	Other natural causes	2 286	33,3	Other natural causes	2 140	35,6
Non-natural causes	1 150	8,9	Non-natural causes	669	9,7	Non-natural causes	480	8,0
All causes	12 960	100,0	All causes	6 863	100,0	All causes	6 103	100,0
KwaZulu-Natal, both sexes, 15-49			KwaZulu-Natal, males, 15-49			KwaZulu-Natal, females, 15-49		
No.	%		No.	%		No.	%	
1	15 390	24,8	1	7 911	24,3	1	7 465	25,4
2	3 804	6,1	2	1 778	5,5	2	2 034	6,9
3	3 795	6,1	2	1 770	5,4	3	2 017	6,9
4	3 700	6,0	4	1 761	5,4	4	1 929	6,6
5	2 998	4,8	5	1 347	4,1	5	1 648	5,6
6	1 598	2,6	6	762	2,3	6	856	2,9
7	1 560	2,5	7	740	2,3	7	820	2,8
8	1 536	2,5	8	716	2,2	8	795	2,7
9	1 152	1,9	9	575	1,8	9	586	2,0
10	950	1,5	10	441	1,4	10	579	2,0
Other natural causes	17 841	28,8	Other natural causes	8 377	25,7	Other natural causes	9 375	31,9
Non-natural causes	7 614	12,3	Non-natural causes	6 361	19,5	Non-natural causes	1 245	4,2
All causes	61 948	100,0	All causes	32 539	100,0	All causes	29 349	100,0
KwaZulu-Natal, both sexes, 50-64			KwaZulu-Natal, males, 50-64			KwaZulu-Natal, females, 50-64		
No.	%		No.	%		No.	%	
1	3 111	14,1	1	2 108	16,6	1	1 021	10,9
2	1 704	7,7	2	763	6,0	2	1 003	10,7
3	1 512	6,9	3	683	5,4	3	749	8,0
4	1 227	5,6	4	661	5,2	4	566	6,1
5	1 043	4,7	5	629	5,0	5	431	4,6
6	891	4,0	6	549	4,3	6	413	4,4
7	793	3,6	7	458	3,6	7	366	3,9
8	702	3,2	8	382	3,0	8	263	2,8
9	553	2,5	9	336	2,6	9	244	2,6
10	514	2,3	10	308	2,4	10	243	2,6
Other natural causes	8 834	40,1	Other natural causes	4 970	39,2	Other natural causes	3 728	39,9
Non-natural causes	1 153	5,2	Non-natural causes	845	6,7	Non-natural causes	308	3,3
All causes	22 037	100,0	All causes	12 692	100,0	All causes	9 335	100,0
KwaZulu-Natal, both sexes, 65+			KwaZulu-Natal, males, 65+			KwaZulu-Natal, females, 65+		
No.	%		No.	%		No.	%	
1	3 793	12,6	1	1 171	9,9	1	2 619	14,4
2	2 843	9,5	2	976	8,3	2	1 865	10,3
3	2 594	8,7	3	847	7,2	3	1 747	9,6
4	1 595	5,3	4	740	6,3	4	1 115	6,1
5	1 425	4,8	5	702	5,9	5	723	4,0
6	1 297	4,3	6	593	5,0	6	671	3,7
7	1 266	4,2	7	548	4,6	7	579	3,2
8	968	3,2	8	480	4,1	8	556	3,1
9	908	3,0	9	341	2,9	9	420	2,3
10	675	2,3	10	329	2,8	10	334	1,8
Other natural causes	11 815	39,4	Other natural causes	4 687	39,7	Other natural causes	7 126	39,2
Non-natural causes	807	2,7	Non-natural causes	386	3,3	Non-natural causes	421	2,3
All causes	29 986	100,0	All causes	11 800	100,0	All causes	18 176	100,0

* 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, 2009

North West, both sexes, all ages			North West, males, all ages			North West, females, all ages		
No.	%		No.	%		No.	%	
1	4 982	12.3	1	2 900	13.6	1	2 080	10.9
2	3 895	9.6	2	1 992	9.4	2	1 894	10.0
3	2 331	5.8	3	1 151	5.4	3	1 173	6.2
4	2 285	5.7	4	1 111	5.2	4	1 166	6.1
5	1 572	3.9	5	761	3.6	5	981	5.2
6	1 536	3.8	6	643	3.0	6	809	4.3
7	1 282	3.2	7	555	2.6	7	637	3.4
8	1 063	2.6	8	554	2.6	8	607	3.2
9	980	2.4	9	458	2.2	9	522	2.7
10	945	2.3	10	455	2.1	10	456	2.4
	16 611	41.1		8 467	39.8		8 024	42.2
	2 890	7.2		2 236	10.5		650	3.4
	40 372	100.0		21 283	100.0		18 999	100.0
North West, both sexes, 0-14			North West, males, 0-14			North West, females, 0-14		
No.	%		No.	%		No.	%	
1	1 070	19.6	1	573	19.8	1	485	19.3
2	728	13.4	2	361	12.5	2	360	14.3
3	604	11.1	3	340	11.8	3	255	10.2
4	266	4.9	4	147	5.1	4	118	4.7
5	182	3.3	5	88	3.0	5	92	3.7
6	171	3.1	6	85	2.9	6	87	3.5
7	156	2.9	7	84	2.9	7	68	2.7
8	153	2.8	8	79	2.7	8	66	2.6
9	111	2.0	9	63	2.2	9	54	2.2
10	104	1.9	10	57	2.0	10	48	1.9
	1 636	30.0		848	29.4		769	30.6
	270	5.0		162	5.6		107	4.3
	5 451	100.0		2 887	100.0		2 509	100.0
North West, both sexes, 15-49			North West, males, 15-49			North West, females, 15-49		
No.	%		No.	%		No.	%	
1	3 432	20.1	1	1 866	20.9	1	1 565	19.1
2	2 102	10.9	2	1 007	11.3	2	1 094	13.4
3	950	5.5	3	457	5.1	3	492	6.0
4	780	5.1	4	356	4.0	4	452	5.5
5	766	3.6	5	314	3.5	5	424	5.2
6	640	3.4	6	289	3.2	6	350	4.3
7	550	3.1	7	268	3.0	7	282	3.4
8	282	1.9	8	135	1.5	8	147	1.8
9	280	1.7	9	133	1.5	9	147	1.8
10	214	1.4	10	110	1.2	10	122	1.5
	5 144	30.8		2 382	26.7		2 734	33.4
	1 987	12.5		1 615	18.1		372	4.5
	17 127	100.0		8 932	100.0		8 181	100.0
North West, both sexes, 50-64			North West, males, 50-64			North West, females, 50-64		
No.	%		No.	%		No.	%	
1	994	13.1	1	678	14.8	1	316	10.6
2	571	7.5	2	360	7.8	2	216	7.2
3	528	7.0	3	312	6.8	3	210	7.0
4	406	5.3	4	237	5.2	4	208	7.0
5	382	5.0	5	193	4.2	5	194	6.5
6	351	4.6	6	174	3.8	6	168	5.6
7	305	4.0	7	156	3.4	7	111	3.7
8	240	3.2	8	130	2.8	8	108	3.6
9	192	2.5	9	120	2.6	9	91	3.0
10	170	2.2	10	111	2.4	10	81	2.7
	3 075	40.5		1 818	39.6		1 212	40.5
	381	5.0		306	6.7		75	2.5
	7 595	100.0		4 595	100.0		2 990	100.0
North West, both sexes, 65+			North West, males, 65+			North West, females, 65+		
No.	%		No.	%		No.	%	
1	1 163	11.5	1	514	10.7	1	683	12.9
2	997	9.8	2	415	8.6	2	649	12.2
3	945	9.3	3	314	6.5	3	530	10.0
4	545	5.4	4	268	5.6	4	325	6.1
5	486	4.8	5	256	5.3	5	230	4.3
6	409	4.0	6	252	5.2	6	157	3.0
7	378	3.7	7	220	4.6	7	133	2.5
8	276	2.7	8	143	3.0	8	121	2.3
9	254	2.5	9	133	2.8	9	110	2.1
10	180	1.8	10	115	2.4	10	79	1.5
	4 276	42.2		2 058	42.8		2 200	41.4
	214	2.1		123	2.6		91	1.7
	10 123	100.0		4 812	100.0		5 308	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, 2009

Gauteng, both sexes, all ages			Gauteng, males, all ages			Gauteng, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)	10 595	9.2	1	Tuberculosis (A15-A19)	5 943	9.8	1	Influenza and pneumonia (J09-J18)	4 771	8.9
2	Influenza and pneumonia (J09-J18)	9 573	8.3	2	Influenza and pneumonia (J09-J18)	4 757	7.9	2	Tuberculosis (A15-A19)	4 613	8.6
3	Other forms of heart disease (I30-I52)	6 152	5.4	3	Other forms of heart disease (I30-I52)	2 840	4.7	3	Other forms of heart disease (I30-I52)	3 295	6.1
4	Intestinal infectious diseases (A00-A09)	4 820	4.2	4	Intestinal infectious diseases (A00-A09)	2 282	3.8	4	Intestinal infectious diseases (A00-A09)	2 517	4.7
5	Cerebrovascular diseases (I60-I69)	4 382	3.8	5	Cerebrovascular diseases (I60-I69)	2 014	3.3	5	Cerebrovascular diseases (I60-I69)	2 365	4.4
6	Diabetes mellitus (E10-E14)	3 699	3.2	6	Ischaemic heart diseases (I20-I25)	1 815	3.0	6	Diabetes mellitus (E10-E14)	2 093	3.9
7	Human immunodeficiency virus [HIV] disease (B20-B24)	3 223	2.8	7	Human immunodeficiency virus [HIV] disease (B20-B24)	1 564	2.6	7	Hypertensive diseases (I10-I15)	1 753	3.3
8	Ischaemic heart diseases (I20-I25)	2 905	2.5	8	Diabetes mellitus (E10-E14)	1 595	2.6	8	Human immunodeficiency virus [HIV] disease (B20-B24)	1 542	2.9
9	Hypertensive diseases (I10-I15)	2 889	2.5	9	Chronic lower respiratory diseases (J40-J47)	1 429	2.4	9	Certain disorders involving the immune mechanism (D80-D89)	1 130	2.1
10	Chronic lower respiratory diseases (J40-J47)	2 399	2.1	10	Malignant neoplasm of digestive organs (C15-C26)	1 265	2.1	10	Other viral diseases (B25-B34)	1 128	2.1
	Other natural causes	53 245	46.4		Other natural causes	26 364	43.6		Other natural causes	26 352	48.9
	Non-natural causes	10 857	9.5		Non-natural causes	8 503	14.1		Non-natural causes	2 327	4.3
	All causes	114 729	100.0		All causes	60 471	100.0		All causes	53 886	100.0
Gauteng, both sexes, 0-14			Gauteng, males, 0-14			Gauteng, females, 0-14					
	No.	%		No.	%		No.	%			
1	Intestinal infectious diseases (A00-A09)	1 808	13.6	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	961	13.6	1	Intestinal infectious diseases (A00-A09)	868	14.4
2	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1 692	12.8	2	Intestinal infectious diseases (A00-A09)	928	13.1	2	Respiratory and cardiovascular disorders specific to the perinatal period	708	11.7
3	Influenza and pneumonia (J09-J18)	1 447	10.9	3	Influenza and pneumonia (J09-J18)	729	10.3	3	Influenza and pneumonia (J09-J18)	702	11.6
4	Other disorders originating in the perinatal period (P90-P96)	503	3.8	4	Other disorders originating in the perinatal period (P90-P96)	274	3.9	4	Other disorders originating in the perinatal period (P90-P96)	220	3.6
5	Infections specific to the perinatal period (P35-P39)	438	3.3	5	Infections specific to the perinatal period (P35-P39)	244	3.4	5	Infections specific to the perinatal period (P35-P39)	188	3.1
6	Malnutrition (E40-E46)	348	2.6	6	Malnutrition (E40-E46)	176	2.5	6	Malnutrition (E40-E46)	168	2.8
7	Tuberculosis (A15-A19)	296	2.2	7	Tuberculosis (A15-A19)	170	2.4	7	Tuberculosis (A15-A19)	125	2.1
8	Other viral diseases (B25-B34)	221	1.7	8	Other viral diseases (B25-B34)	121	1.7	8	Other bacterial diseases (A30-A49)	100	1.7
9	Disorders related to length of gestation and fetal growth (P05-P08)	214	1.6	9	Disorders related to length of gestation and fetal growth (P05-P08)	113	1.6	8	Other viral diseases (B25-B34)	100	1.7
10	Other bacterial diseases (A30-A49)	212	1.6	10	Other bacterial diseases (A30-A49)	112	1.6	10	Human immunodeficiency virus [HIV] disease (B20-B24)	98	1.6
	Other natural causes	5 140	38.8		Other natural causes	2 708	38.2		Other natural causes	2 381	39.4
	Non-natural causes	938	7.1		Non-natural causes	554	7.8		Non-natural causes	380	6.3
	All causes	13 257	100.0		All causes	7 090	100.0		All causes	6 038	100.0
Gauteng, both sexes, 15-49			Gauteng, males, 15-49			Gauteng, females, 15-49					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)	7 835	15.8	1	Tuberculosis (A15-A19)	4 140	15.3	1	Tuberculosis (A15-A19)	3 673	16.4
2	Influenza and pneumonia (J09-J18)	5 049	10.2	2	Influenza and pneumonia (J09-J18)	2 458	9.1	2	Influenza and pneumonia (J09-J18)	2 569	11.5
3	Human immunodeficiency virus [HIV] disease (B20-B24)	2 516	5.1	3	Human immunodeficiency virus [HIV] disease (B20-B24)	1 279	4.7	3	Human immunodeficiency virus [HIV] disease (B20-B24)	1 234	5.5
4	Intestinal infectious diseases (A00-A09)	1 939	3.9	4	Intestinal infectious diseases (A00-A09)	877	3.2	4	Intestinal infectious diseases (A00-A09)	1 056	4.7
5	Certain disorders involving the immune mechanism (D80-D89)	1 658	3.3	5	Certain disorders involving the immune mechanism (D80-D89)	792	2.9	5	Other viral diseases (B25-B34)	874	3.9
6	Other forms of heart disease (I30-I52)	1 618	3.3	6	Other forms of heart disease (I30-I52)	791	2.9	6	Certain disorders involving the immune mechanism (D80-D89)	863	3.9
7	Other viral diseases (B25-B34)	1 507	3.0	7	Inflammatory diseases of the central nervous system (G00-G09)	658	2.4	7	Other forms of heart disease (I30-I52)	818	3.7
8	Inflammatory diseases of the central nervous system (G00-G09)	1 348	2.7	8	Other viral diseases (B25-B34)	631	2.3	8	Inflammatory diseases of the central nervous system (G00-G09)	690	3.1
9	Cerebrovascular diseases (I60-I69)	826	1.7	9	Cerebrovascular diseases (I60-I69)	405	1.5	9	Cerebrovascular diseases (I60-I69)	419	1.9
10	Renal failure (N17-N19)	640	1.3	10	Renal failure (N17-N19)	348	1.3	10	Protozoal diseases (B50-B64)	345	1.5
	Other natural causes	16 942	34.1		Other natural causes	8 323	30.7		Other natural causes	8 507	38.1
	Non-natural causes	7 748	15.6		Non-natural causes	6 430	23.7		Non-natural causes	1 308	5.9
	All causes	49 626	100.0		All causes	27 132	100.0		All causes	22 356	100.0
Gauteng, both sexes, 50-64			Gauteng, males, 50-64			Gauteng, females, 50-64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)	1 906	8.6	1	Tuberculosis (A15-A19)	1 287	9.9	1	Other forms of heart disease (I30-I52)	665	7.3
2	Other forms of heart disease (I30-I52)	1 485	6.7	2	Influenza and pneumonia (J09-J18)	849	6.5	2	Tuberculosis (A15-A19)	615	6.8
3	Influenza and pneumonia (J09-J18)	1 443	6.5	3	Other forms of heart disease (I30-I52)	816	6.3	3	Influenza and pneumonia (J09-J18)	591	6.5
4	Cerebrovascular diseases (I60-I69)	1 203	5.4	4	Cerebrovascular diseases (I60-I69)	676	5.2	4	Diabetes mellitus (E10-E14)	569	6.3
5	Diabetes mellitus (E10-E14)	1 157	5.2	5	Diabetes mellitus (E10-E14)	587	4.5	5	Cerebrovascular diseases (I60-I69)	527	5.8
6	Hypertensive diseases (I10-I15)	807	3.6	6	Ischaemic heart diseases (I20-I25)	478	3.6	6	Hypertensive diseases (I10-I15)	401	4.4
7	Ischaemic heart diseases (I20-I25)	792	3.6	7	Malignant neoplasm of digestive organs (C15-C26)	569	4.3	7	Malignant neoplasm of female genital organs (C51-C58)	339	3.7
8	Malignant neoplasm of digestive organs (C15-C26)	718	3.2	8	Chronic lower respiratory diseases (J40-J47)	445	3.4	8	Intestinal infectious diseases (A00-A09)	274	3.0
9	Chronic lower respiratory diseases (J40-J47)	666	3.0	9	Hypertensive diseases (I10-I15)	406	3.1	9	Malignant neoplasm of breast (C50)	266	2.9
10	Intestinal infectious diseases (A00-A09)	522	2.4	10	Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	302	2.3	10	Malignant neoplasm of digestive organs (C15-C26)	249	2.7
	Other natural causes	10 199	46.0		Other natural causes	5 629	43.1		Other natural causes	4 329	47.6
	Non-natural causes	1 274	5.7		Non-natural causes	1 007	7.7		Non-natural causes	267	2.9
	All causes	22 172	100.0		All causes	13 051	100.0		All causes	9 092	100.0
Gauteng, both sexes, 65+			Gauteng, males, 65+			Gauteng, females, 65+					
	No.	%		No.	%		No.	%			
1	Other forms of heart disease (I30-I52)	2 839	9.7	1	Other forms of heart disease (I30-I52)	1 122	8.6	1	Other forms of heart disease (I30-I52)	1 715	10.5
2	Cerebrovascular diseases (I60-I69)	2 337	8.0	2	Ischaemic heart diseases (I20-I25)	966	7.4	2	Cerebrovascular diseases (I60-I69)	1 415	8.7
3	Diabetes mellitus (E10-E14)	1 974	6.7	3	Cerebrovascular diseases (I60-I69)	922	7.1	3	Diabetes mellitus (E10-E14)	1 237	7.6
4	Ischaemic heart diseases (I20-I25)	1 737	5.9	4	Diabetes mellitus (E10-E14)	737	5.7	4	Hypertensive diseases (I10-I15)	1 141	7.0
5	Hypertensive diseases (I10-I15)	1 663	5.7	5	Influenza and pneumonia (J09-J18)	697	5.4	5	Influenza and pneumonia (J09-J18)	895	5.5
6	Influenza and pneumonia (J09-J18)	1 592	5.4	6	Chronic lower respiratory diseases (J40-J47)	688	5.3	6	Ischaemic heart diseases (I20-I25)	770	4.7
7	Chronic lower respiratory diseases (J40-J47)	1 210	4.1	7	Malignant neoplasm of digestive organs (C15-C26)	598	4.6	7	Chronic lower respiratory diseases (J40-J47)	522	3.2
8	Malignant neoplasm of digestive organs (C15-C26)	1 065	3.6	8	Hypertensive diseases (I10-I15)	522	4.0	8	Malignant neoplasm of digestive organs (C15-C26)	470	2.9
9	Renal failure (N17-N19)	694	2.3	9	Malignant neoplasm of male genital organs (C60-C63)	446	3.4	9	Renal failure (N17-N19)	332	2.0
10	Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	566	1.9	10	Renal failure (N17-N19)	351	2.7	10	Malignant neoplasm of female genital organs (C51-C58)	326	2.0
	Other natural causes	12 873	43.9		Other natural causes	5 507	42.4		Other natural causes	7 153	43.8
	Non-natural causes	801	2.7		Non-natural causes	437	3.4		Non-natural causes	362	2.2
	All causes	29 344	100.0		All causes	12 993	100.0		All causes	16 338	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, 2009

Mpumalanga, both sexes, all ages			Mpumalanga, males, all ages			Mpumalanga, females, all ages		
No.	%		No.	%		No.	%	
1	6 137	13.4	1	3 317	14.1	1	2 814	12.7
2	4 279	9.4	2	2 162	9.2	2	2 111	9.5
3	3 493	7.6	3	1 657	7.1	3	1 825	8.2
4	2 151	4.7	4	917	3.9	4	1 248	5.6
5	2 009	4.4	5	900	3.8	5	1 030	4.9
6	1 752	3.8	6	865	3.7	6	919	4.2
7	1 593	3.5	7	673	2.9	7	886	4.0
8	1 480	3.2	8	659	2.8	8	846	3.8
9	1 380	3.0	9	550	2.3	9	820	3.7
10	1 077	2.4	10	537	2.3	10	539	2.4
	16 381	35.8		8 200	34.9		8 115	36.6
	3 971	8.7		3 028	12.9		930	4.2
All causes	45 703	100.0	All causes	23 465	100.0	All causes	22 143	100.0
Mpumalanga, both sexes, 0-14			Mpumalanga, males, 0-14			Mpumalanga, females, 0-14		
No.	%		No.	%		No.	%	
1	1 079	21.0	1	585	21.7	1	488	20.4
2	672	13.1	2	328	12.2	2	342	14.3
3	463	9.0	3	263	9.7	3	191	8.0
4	213	4.2	4	102	3.8	4	111	4.6
5	165	3.2	5	86	3.2	5	93	3.9
6	160	3.1	6	80	3.0	6	76	3.2
7	155	3.0	7	72	2.7	7	69	2.9
8	117	2.3	8	67	2.5	8	50	2.1
9	109	2.1	9	64	2.4	9	45	1.9
10	96	1.9	10	55	2.0	10	42	1.8
	1 487	29.0		740	27.4		726	30.4
	414	8.1		257	9.5		155	6.5
All causes	5 130	100.0	All causes	2 699	100.0	All causes	2 388	100.0
Mpumalanga, both sexes, 15-49			Mpumalanga, males, 15-49			Mpumalanga, females, 15-49		
No.	%		No.	%		No.	%	
1	4 428	19.9	1	2 224	19.6	1	2 199	20.2
2	2 282	10.3	2	1 064	9.4	2	1 216	11.2
3	1 445	6.5	3	619	5.5	3	823	7.6
4	1 337	6.0	4	618	5.5	4	718	6.6
5	1 083	4.9	5	451	4.0	5	631	5.8
6	728	3.3	6	327	2.9	6	401	3.7
7	665	3.0	7	326	2.9	7	338	3.1
8	599	2.7	8	281	2.5	8	308	2.8
9	470	2.1	9	193	1.7	9	275	2.5
10	381	1.7	10	166	1.5	10	214	2.0
	6 082	27.4		2 869	25.3		3 206	29.5
	2 735	12.3		2 190	19.3		539	5.0
All causes	22 225	100.0	All causes	11 328	100.0	All causes	10 868	100.0
Mpumalanga, both sexes, 50-64			Mpumalanga, males, 50-64			Mpumalanga, females, 50-64		
No.	%		No.	%		No.	%	
1	1 043	12.6	1	717	14.9	1	326	9.4
2	653	7.9	2	423	8.8	2	283	8.1
3	543	6.6	3	260	5.4	3	246	7.1
4	507	6.1	3	260	5.4	4	230	6.6
5	472	5.7	5	252	5.2	5	229	6.6
6	463	5.6	6	242	5.0	6	211	6.1
7	363	4.4	7	189	3.9	7	204	5.9
8	292	3.5	8	158	3.3	8	123	3.5
9	225	2.7	9	130	2.7	9	108	3.1
10	215	2.6	10	127	2.6	10	102	2.9
	3 017	36.4		1 652	34.4		1 316	37.8
	491	5.9		392	8.2		99	2.8
All causes	8 284	100.0	All causes	4 802	100.0	All causes	3 477	100.0
Mpumalanga, both sexes, 65+			Mpumalanga, males, 65+			Mpumalanga, females, 65+		
No.	%		No.	%		No.	%	
1	1 241	12.5	1	461	10.2	1	779	14.5
2	1 015	10.2	2	440	9.7	2	575	10.7
3	882	8.9	3	342	7.5	3	553	10.3
4	793	8.0	4	328	7.2	4	498	9.3
5	665	6.7	5	295	6.5	5	323	6.0
6	486	4.9	6	263	5.8	6	281	5.2
7	434	4.4	7	204	4.5	7	171	3.2
8	327	3.3	8	201	4.4	8	147	2.7
9	322	3.2	9	175	3.9	9	126	2.3
10	184	1.9	10	126	2.8	10	94	1.7
	3 287	33.1		1 549	34.1		1 699	31.6
	285	2.9		152	3.4		133	2.5
All causes	9 921	100.0	All causes	4 536	100.0	All causes	5 379	100.0

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

Appendix L.9: The ten leading underlying natural causes of death by age and sex: Limpopo, 2009

Limpopo, both sexes, all ages			Limpopo, males, all ages			Limpopo, females, all ages		
No.	%		No.	%		No.	%	
1	6 424	12.1	1	3 040	11.7	1	3 379	12.6
2	4 696	8.9	2	2 624	10.1	2	2 513	9.4
3	4 522	8.5	3	2 006	7.7	3	2 072	7.7
4	2 415	4.6	4	1 061	4.1	4	1 478	5.5
5	2 397	4.5	5	919	3.5	5	1 354	5.1
6	1 924	3.6	6	841	3.2	6	1 081	4.0
7	1 525	2.9	7	680	2.6	7	845	3.2
8	1 238	2.3	8	579	2.2	8	740	2.8
9	916	1.7	9	498	1.9	9	414	1.5
10	717	1.4	10	353	1.4	10	383	1.4
Other natural causes	22 262	42.1	Other natural causes	10 599	40.7	Other natural causes	11 522	43.0
Non-natural causes	3 871	7.3	Non-natural causes	2 845	10.9	Non-natural causes	1 014	3.8
All causes	52 907	100.0	All causes	26 045	100.0	All causes	26 795	100.0
Limpopo, both sexes, 0-14			Limpopo, males, 0-14			Limpopo, females, 0-14		
No.	%		No.	%		No.	%	
1	1 325	20.7	1	676	19.7	1	647	22.0
2	939	14.7	2	488	14.2	2	447	15.2
3	470	7.3	3	258	7.5	3	199	6.8
4	241	3.8	4	113	3.3	4	127	4.3
5	173	2.7	5	97	2.8	5	83	2.8
6	168	2.6	6	90	2.6	6	69	2.3
7	110	1.7	7	65	1.9	7	45	1.5
8	100	1.6	8	61	1.8	8	41	1.4
9	92	1.4	9	56	1.6	9	38	1.3
10	80	1.2	10	45	1.3	10	35	1.2
Other natural causes	2 239	34.9	Other natural causes	1 191	34.8	Other natural causes	996	33.8
Non-natural causes	471	7.4	Non-natural causes	286	8.3	Non-natural causes	183	6.2
All causes	6 408	100.0	All causes	3 426	100.0	All causes	2 945	100.0
Limpopo, both sexes, 15-49			Limpopo, males, 15-49			Limpopo, females, 15-49		
No.	%		No.	%		No.	%	
1	3 223	15.3	1	1 661	16.0	1	1 767	16.5
2	3 089	14.7	2	1 321	12.8	2	1 562	14.6
3	1 884	8.9	3	738	7.1	3	1 145	10.7
4	944	4.5	4	346	3.3	4	598	5.6
5	498	2.4	5	219	2.1	5	300	2.8
6	480	2.3	6	198	1.9	6	260	2.4
7	436	2.1	7	190	1.8	7	246	2.3
8	347	1.6	8	173	1.7	8	173	1.6
9	288	1.4	9	145	1.4	9	143	1.3
10	264	1.3	10	131	1.3	10	141	1.3
Other natural causes	7 181	34.1	Other natural causes	3 300	31.9	Other natural causes	3 866	36.1
Non-natural causes	2 437	11.6	Non-natural causes	1 927	18.6	Non-natural causes	504	4.7
All causes	21 071	100.0	All causes	10 349	100.0	All causes	10 705	100.0
Limpopo, both sexes, 50-64			Limpopo, males, 50-64			Limpopo, females, 50-64		
No.	%		No.	%		No.	%	
1	936	10.6	1	604	11.5	1	357	10.2
2	878	10.0	2	579	11.0	2	279	7.9
3	589	6.7	3	309	5.9	3	274	7.8
4	545	6.2	4	290	5.5	4	255	7.3
5	435	4.9	5	238	4.5	5	205	5.8
6	420	4.8	6	234	4.4	6	201	5.7
7	403	4.6	7	215	4.1	7	165	4.7
8	237	2.7	8	177	3.4	8	121	3.4
9	179	2.0	9	123	2.3	9	81	2.3
10	178	2.0	10	116	2.2	10	60	1.7
Other natural causes	3 488	39.7	Other natural causes	1 993	37.8	Other natural causes	1 407	40.0
Non-natural causes	503	5.7	Non-natural causes	391	7.4	Non-natural causes	112	3.2
All causes	8 791	100.0	All causes	5 269	100.0	All causes	3 517	100.0
Limpopo, both sexes, 65+			Limpopo, males, 65+			Limpopo, females, 65+		
No.	%		No.	%		No.	%	
1	1 713	10.3	1	651	9.4	1	1 135	11.8
2	1 530	9.2	2	606	8.7	2	924	9.6
3	1 458	8.8	3	578	8.3	3	807	8.4
4	1 040	6.3	4	385	5.5	4	654	6.8
5	898	5.4	5	346	5.0	5	552	5.7
6	763	4.6	6	298	4.3	6	465	4.8
7	451	2.7	7	283	4.1	7	167	1.7
8	415	2.5	8	283	3.8	8	166	1.7
9	286	1.7	9	163	2.3	9	152	1.6
10	269	1.6	10	147	2.1	10	139	1.4
Other natural causes	7 321	44.2	Other natural causes	3 014	43.3	Other natural causes	4 246	44.2
Non-natural causes	437	2.6	Non-natural causes	227	3.3	Non-natural causes	210	2.2
All causes	16 581	100.0	All causes	6 961	100.0	All causes	9 617	100.0

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

Appendix M: Number of deaths by main groups of causes of death and district municipality of death occurrence (Western Cape, Eastern Cape and Northern Cape), 2009

		Certain infectious and parasitic diseases	Neoplasms	Diseases of blood and immune mechanism	Endocrine, nutritional and metabolic diseases	Diseases of the nervous system	Diseases of the circulatory system	Diseases of the respiratory system	Diseases of the digestive system	Perinatal conditions	External causes of morbidity and mortality	Other causes	Total
Province of death occurrence	District Municipality of death occurrence	A00-B99	C00-D48	D50-D89	E00-E90	G00-G99	I00-I99	J00-J99	K00-K93	P00-P96	V01-Y98		
Western Cape	Cape Winelands	1 233	926	48	422	145	1 143	610	148	125	810	730	6 340
	Central Karoo	159	97	21	31	8	164	102	17	21	146	96	862
	City of Cape Town Metro	5 325	4 606	273	2 292	696	5 464	2 136	632	621	3 204	3 288	28 537
	Eden	914	826	82	271	126	1 084	505	117	93	540	499	5 057
	Overberg	246	305	7	95	44	358	145	50	25	248	168	1 691
	West Coast	531	410	50	177	73	609	293	70	56	332	297	2 898
	Unspecified	4	1	0	0	1	1	1	0	0	2	3	13
	Total	8 412	7 171	481	3 288	1 093	8 823	3 792	1 034	941	5 282	5 081	45 398
Eastern Cape	Alfred Nzo	1 738	138	206	181	213	571	1 025	113	28	738	4 523	9 474
	Amathole	3 902	732	375	641	587	2 323	2 359	286	103	1 222	3 031	15 561
	Buffalo City Metro	3 129	1 265	280	680	305	1 940	1 346	333	82	1 292	1 103	11 755
	Cacadu	1 138	366	143	197	93	879	518	95	82	477	885	4 873
	Chris Hani	2 430	564	352	428	334	1 373	1 614	244	82	766	1 223	9 410
	Joe Gqabi	1 528	168	250	196	138	733	913	115	37	353	1 111	5 542
	Nelson Mandela Bay Metro	3 462	1 461	487	1 015	397	2 441	1 384	458	195	1 305	1 447	14 052
	O.R.Tambo	2 929	424	289	382	362	891	1 102	301	54	1 061	3 657	11 452
	Unspecified	5	1	1	0	0	0	0	1	0	2	3	13
	Total	20 261	5 119	2 383	3 720	2 429	11 151	10 261	1 946	663	7 216	16 983	82 132
Northern Cape	Frances Baard	1 113	408	203	210	107	640	533	140	93	361	679	4 487
	John Taolo Gaetsewe	477	85	39	73	47	228	454	45	102	162	1 032	2 744
	Namakwa	131	139	22	83	20	243	157	32	17	129	126	1 099
	Pixley ka Seme	607	201	96	162	50	469	418	77	86	223	252	2 641
	Siyanda	1 093	396	141	221	78	641	495	110	86	400	450	4 111
	Total	3 421	1 229	501	749	302	2 221	2 057	404	384	1 275	2 539	15 082

Appendix M.1: Number of deaths by main groups of causes of death and district municipality of death occurrence (Free State, KwaZulu-Natal and North West), 2009

		Certain infectious and parasitic diseases	Neoplasms	Diseases of blood and immune mechanism	Endocrine, nutritional and metabolic diseases	Diseases of the nervous system	Diseases of the circulatory system	Diseases of the respiratory system	Diseases of the digestive system	Perinatal conditions	External causes of morbidity and mortality	Other causes	Total
Province of death occurrence	District Municipality of death occurrence	A00-B99	C00-D48	D50-D89	E00-E90	G00-G99	I00-I99	J00-J99	K00-K93	P00-P96	V01-Y98		
Free State	Fezile Dabi	1 776	322	445	505	162	1 206	1 265	172	201	576	529	7 159
	Lejweleputswa	2 768	387	592	554	292	1 493	2 348	249	279	733	1 681	11 376
	Mangaung Metro	2 754	929	451	545	255	1 494	1 567	310	298	900	3 828	13 331
	Thabo Mofutsanyane	3 127	426	947	740	356	2 187	2 786	387	389	747	1 087	13 179
	Xhariep	506	115	134	89	32	297	394	38	39	172	400	2 216
	Unspecified	0	0	0	0	0	1	0	1	2	0	0	4
	Total		10 931	2 179	2 569	2 433	1 097	6 678	8 360	1 157	1 208	3 128	7 525	47 265
KwaZulu-Natal	Amajuba	1 841	231	197	365	206	981	1 452	186	169	408	568	6 604
	eThekweni Metro	10 800	2 377	586	2 265	1 130	5 843	3 636	1 007	749	3 738	7 234	39 365
	iLembe	2 527	204	146	387	168	874	546	170	146	632	920	6 720
	Sisonke	1 618	132	99	228	107	467	575	78	93	325	881	4 603
	Ugu	3 986	467	318	680	275	1 828	1 588	232	219	930	1 466	11 989
	UMgungundlovu	4 177	798	246	782	397	2 109	1 494	414	141	1 226	2 035	13 819
	Umkhanyakude	2 404	215	92	202	110	661	389	85	111	462	1 625	6 356
	Umzinyathi	2 036	187	76	283	129	750	586	108	186	508	1 359	6 208
	Uthukela	2 837	297	378	451	290	1 465	1 141	208	198	803	733	8 801
	Uthungulu	4 238	412	318	618	300	1 398	1 052	270	423	1 000	1 546	11 575
	Zululand	3 267	211	232	370	287	937	1 051	206	247	600	1 530	8 938
	Unspecified	683	41	44	98	89	183	238	60	57	167	731	2 391
	Total		40 414	5 572	2 732	6 729	3 488	17 496	13 748	3 024	2 739	10 799	20 628	127 369
North West	Bojanala	2 984	539	690	668	224	2 281	1 782	270	338	1 134	2 910	13 820
	Dr Kenneth Kaunda	2 777	656	288	365	227	1 256	1 136	274	283	766	1 234	9 262
	Dr Ruth Segomotsi Mompati	1 855	253	275	275	114	935	1 128	137	222	353	955	6 502
	Ngaka Modiri Molema	2 527	319	341	525	268	1 715	2 347	205	444	634	1 452	10 777
	Unspecified	1	0	0	0	0	2	1	0	0	3	4	11
	Total		10 144	1 767	1 594	1 833	833	6 189	6 394	886	1 287	2 890	6 555	40 372

Appendix M.2: Number of deaths by main groups of causes of death and district municipality of death occurrence (Gauteng, Mpumalanga and Limpopo), 2009

		Certain infectious and parasitic diseases	Neoplasms	Diseases of blood and immune mechanism	Endocrine, nutritional and metabolic diseases	Diseases of the nervous system	Diseases of the circulatory system	Diseases of the respiratory system	Diseases of the digestive system	Perinatal conditions	External causes of morbidity and mortality	Other causes	Total
Province of death occurrence	District Municipality of death occurrence	A00-B99	C00-D48	D50-D89	E00-E90	G00-G99	I00-I99	J00-J99	K00-K93	P00-P96	V01-Y98		
Gauteng	City of Johannesburg Metro	7 296	3 437	841	1 546	899	5 250	3 833	918	1 062	3 584	8 291	36 957
	City of Tshwane Metro	5 377	2 791	852	1 708	707	5 591	3 271	822	581	2 669	2 325	26 694
	Ekurhuleni Metro	6 821	1 598	776	1 248	1 016	3 869	4 233	747	1 159	2 743	6 361	30 571
	Sedibeng	2 252	591	283	599	370	2 066	1 972	280	323	869	1 003	10 608
	West Rand	2 159	372	331	409	369	1 233	1 563	221	257	991	1 958	9 863
	Unspecified	8	1	0	2	2	6	2	0	1	1	13	36
	Total		23 913	8 790	3 083	5 512	3 363	18 015	14 874	2 988	3 383	10 857	19 951	114 729
Mpumalanga	Ehlanzeni	6 546	835	707	931	623	2 557	2 406	655	316	1 523	1 731	18 830
	Gert Sibande	4 317	466	677	734	392	1 771	2 315	429	418	1 081	1 638	14 238
	Nkangala	2 823	457	466	733	379	2 153	2 497	300	231	1 362	1 208	12 609
	Unspecified	6	0	0	0	0	1	1	0	0	5	13	26
	Total		13 692	1 758	1 850	2 398	1 394	6 482	7 219	1 384	965	3 971	4 590	45 703
Limpopo	Capricorn	3 382	822	438	812	339	2 306	2 451	534	263	1 138	2 574	15 059
	Greater Sekhukhune	2 460	353	398	584	240	2 188	2 997	384	143	757	996	11 500
	Mopani	2 542	311	308	521	300	1 174	1 312	363	230	739	3 343	11 143
	Vhembe	2 126	485	217	627	199	775	917	319	202	701	3 375	9 943
	Waterberg	1 110	263	221	219	92	672	708	91	125	534	1 209	5 244
	Unspecified	2	0	0	0	0	7	1	0	0	2	6	18
	Total		11 622	2 234	1 582	2 763	1 170	7 122	8 386	1 691	963	3 871	11 503	52 907

Appendix N: The ten leading underlying natural causes of death by district municipality of death occurrence, Western Cape, 2009

Cape Winelands			Central Karoo			City of Cape Town Metro			
No.	%		No.	%		No.	%		
1	572	9,0	1	97	11,3	1	2 368	8,3	
2	390	6,2	2	62	7,2	2	1 978	6,9	
3	356	5,6	3	53	6,1	3	1 773	6,2	
4	338	5,3	4	49	5,7	4	1 656	5,8	
5	336	5,3	5	29	3,4	5	1 262	4,4	
6	333	5,3	6	24	2,8	6	1 177	4,1	
7	255	4,0	6	24	2,8	7	1 085	3,8	
8	244	3,8	6	24	2,8	8	1 039	3,6	
9	191	3,0	9	24	2,8	9	1 014	3,6	
10	174	2,7	10	21	2,4	10	951	3,3	
Other natural causes		2 341	36,9	Other natural causes		309	35,8	Other natural causes	
Non-natural causes		810	12,8	Non-natural causes		146	16,9	Non-natural causes	
All causes		6 340	100,0	All causes		862	100,0	All causes	
28 537		100,0	28 537		100,0	28 537		100,0	
Eden			Overberg			West Coast			
No.	%		No.	%		No.	%		
1	550	10,9	1	111	6,6	1	341	11,8	
2	321	6,3	2	109	6,4	2	210	7,2	
3	317	6,3	3	106	6,3	3	194	6,7	
4	281	5,6	4	79	4,7	4	159	5,5	
5	235	4,6	5	78	4,6	5	152	5,2	
6	204	4,0	5	78	4,6	6	101	3,5	
7	202	4,0	7	77	4,6	7	97	3,3	
8	183	3,6	8	75	4,4	8	92	3,2	
9	177	3,5	9	67	4,0	9	89	3,1	
10	160	3,2	10	51	3,0	10	79	2,7	
Other natural causes		1 887	37,3	Other natural causes		612	36,2	Other natural causes	
Non-natural causes		540	10,7	Non-natural causes		248	14,7	Non-natural causes	
All causes		5 057	100,0	All causes		1 691	100,0	All causes	
2 898		100,0	2 898		100,0	2 898		100,0	

Appendix N.1: The ten leading underlying natural causes of death by district municipality of death occurrence, Eastern Cape, 2009

Alfred Nzo			Amathole			Buffalo City Metro		
No.		%	No.		%	No.		%
1	Tuberculosis (A15-A19)	8,6	1	Tuberculosis (A15-A19)	11,2	1	Tuberculosis (A15-A19)	17,3
2	Other diseases of the respiratory system (J95-J99)	4,4	2	Chronic lower respiratory diseases (J40-J47)	6,2	2	Cerebrovascular diseases (I60-I69)	5,0
3	Intestinal infectious diseases (A00-A09)	4,4	3	Other forms of heart disease (I30-I52)	5,7	3	Other forms of heart disease (I30-I52)	4,9
4	Other forms of heart disease (I30-I52)	2,9	4	Cerebrovascular diseases (I60-I69)	4,9	4	Diabetes mellitus (E10-E14)	4,4
5	Influenza and pneumonia (J09-J18)	2,6	5	Influenza and pneumonia (J09-J18)	4,8	5	Malignant neoplasm of digestive organs (C15-C26)	4,3
6	Other viral diseases (B25-B34)	2,5	6	Intestinal infectious diseases (A00-A09)	4,3	6	Chronic lower respiratory diseases (J40-J47)	4,2
7	Other acute lower respiratory infections (J20-J22)	2,1	7	Other viral diseases (B25-B34)	4,2	7	Influenza and pneumonia (J09-J18)	3,9
8	Cerebrovascular diseases (I60-I69)	1,9	7	Human immunodeficiency virus [HIV] disease (B20-B24)	3,9	8	Hypertensive diseases (I10-I15)	2,7
9	Certain disorders involving the immune mechanism (D80-D89)	1,8	9	Diabetes mellitus (E10-E14)	3,0	9	Human immunodeficiency virus [HIV] disease (B20-B24)	2,6
10	Human immunodeficiency virus [HIV] disease (B20-B24)	1,5	10	Hypertensive diseases (I10-I15)	2,8	10	Intestinal infectious diseases (A00-A09)	2,5
	Other natural causes	59,4		Other natural causes	41,1		Other natural causes	37,2
	Non-natural causes	7,8		Non-natural causes	7,9		Non-natural causes	11,0
	All causes	100,0		All causes	100,0		All causes	100,0
	9 474			15 561			11 755	
Cacadu			Chris Hani			Joe Gqabi		
No.		%	No.		%	No.		%
1	Tuberculosis (A15-A19)	13,4	1	Tuberculosis (A15-A19)	14,5	1	Tuberculosis (A15-A19)	14,9
2	Other forms of heart disease (I30-I52)	5,1	2	Influenza and pneumonia (J09-J18)	8,3	2	Influenza and pneumonia (J09-J18)	6,7
3	Human immunodeficiency virus [HIV] disease (B20-B24)	5,0	3	Other forms of heart disease (I30-I52)	5,4	3	Other forms of heart disease (I30-I52)	6,1
4	Cerebrovascular diseases (I60-I69)	4,8	4	Intestinal infectious diseases (A00-A09)	5,4	4	Other diseases of the respiratory system (J95-J99)	5,4
5	Chronic lower respiratory diseases (J40-J47)	4,2	5	Chronic lower respiratory diseases (J40-J47)	5,4	5	Intestinal infectious diseases (A00-A09)	5,0
6	Influenza and pneumonia (J09-J18)	4,1	6	Cerebrovascular diseases (I60-I69)	4,4	6	Certain disorders involving the immune mechanism (D80-D89)	4,0
7	Ischaemic heart diseases (I20-I25)	3,7	7	Other viral diseases (B25-B34)	3,5	7	Human immunodeficiency virus [HIV] disease (B20-B24)	3,7
8	Hypertensive diseases (I10-I15)	3,5	8	Diabetes mellitus (E10-E14)	3,2	8	Cerebrovascular diseases (I60-I69)	3,5
9	Diabetes mellitus (E10-E14)	3,1	9	Certain disorders involving the immune mechanism (D80-D89)	3,1	9	Chronic lower respiratory diseases (J40-J47)	2,9
10	Certain disorders involving the immune mechanism (D80-D89)	2,6	10	Hypertensive diseases (I10-I15)	2,7	10	Other viral diseases (B25-B34)	2,4
	Other natural causes	40,7		Other natural causes	36,0		Other natural causes	39,0
	Non-natural causes	9,8		Non-natural causes	8,1		Non-natural causes	6,4
	All causes	100,0		All causes	100,0		All causes	100,0
	4 873			9 410			5 542	

Appendix N.1: The ten leading underlying natural causes of death by district municipality of death occurrence, Eastern Cape, 2009 (concluded)

Nelson Mandela Bay Metro			O.R. Tambo				
	No.	%		No.	%		
1	Tuberculosis (A15-A19)	2 221	15,8	1	Tuberculosis (A15-A19)	1 465	12,8
2	Diabetes mellitus (E10-E14)	812	5,8	2	Intestinal infectious diseases (A00-A09)	427	3,7
3	Cerebrovascular diseases (I60-I69)	658	4,7	3	Other viral diseases (B25-B34)	417	3,6
4	Hypertensive diseases (I10-I15)	643	4,6	4	Influenza and pneumonia (J09-J18)	415	3,6
5	Chronic lower respiratory diseases (J40-J47)	612	4,4	5	Human immunodeficiency virus [HIV] disease (B20-B24)	405	3,5
6	Other forms of heart disease (I30-I52)	491	3,5	6	Other forms of heart disease (I30-I52)	316	2,8
7	Ischaemic heart diseases (I20-I25)	489	3,5	7	Cerebrovascular diseases (I60-I69)	291	2,5
8	Influenza and pneumonia (J09-J18)	466	3,3	7	Chronic lower respiratory diseases (J40-J47)	282	2,5
9	Certain disorders involving the immune mechanism (D80-D89)	418	3,0	9	Diabetes mellitus (E10-E14)	278	2,4
10	Human immunodeficiency virus [HIV] disease (B20-B24)	355	2,5	10	Certain disorders involving the immune mechanism (D80-D89)	235	2,1
	Other natural causes	5 582	39,7		Other natural causes	5 860	51,2
	Non-natural causes	1 305	9,3		Non-natural causes	1 061	9,3
	All causes	14 052	100,0		All causes	11 452	100,0

Appendix N.2: The ten leading underlying natural causes of death by district municipality of death occurrence, Northern Cape, 2009

Frances Baard			John Taolo Gaetsewe			Namakwa					
No.		%	No.		%	No.		%			
1	Tuberculosis (A15-A19)	481	10,7	1	Intestinal infectious diseases (A00-A09)	175	6,4	1	Other forms of heart disease (I30-I52)	86	7,8
2	Human immunodeficiency virus [HIV] disease (B20-B24)	313	7,0	2	Tuberculosis (A15-A19)	156	5,7	2	Chronic lower respiratory diseases (J40-J47)	82	7,5
3	Influenza and pneumonia (J09-J18)	257	5,7	3	Influenza and pneumonia (J09-J18)	150	5,5	3	Tuberculosis (A15-A19)	74	6,7
4	Cerebrovascular diseases (I60-I69)	195	4,3	4	Other diseases of the respiratory system (J95-J99)	121	4,4	4	Diabetes mellitus (E10-E14)	62	5,6
5	Certain disorders involving the immune mechanism (D80-D89)	170	3,8	5	Other acute lower respiratory infections (J20-J22)	118	4,3	5	Ischaemic heart diseases (I20-I25)	52	4,7
6	Other forms of heart disease (I30-I52)	160	3,6	6	Human immunodeficiency virus [HIV] disease (B20-B24)	82	3,0	6	Cerebrovascular diseases (I60-I69)	51	4,6
7	Intestinal infectious diseases (A00-A09)	154	3,4	7	Other forms of heart disease (I30-I52)	69	2,5	7	Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	43	3,9
8	Hypertensive diseases (I10-I15)	135	3,0	7	Cerebrovascular diseases (I60-I69)	67	2,4	8	Other diseases of the respiratory system (J95-J99)	36	3,3
9	Chronic lower respiratory diseases (J40-J47)	118	2,6	9	Hypertensive diseases (I10-I15)	61	2,2	9	Hypertensive diseases (I10-I15)	32	2,9
10	Diabetes mellitus (E10-E14)	112	2,5	10	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	40	1,5	10	Malignant neoplasm of digestive organs (C15-C26)	25	2,3
	Other natural causes	2 031	45,3		Other natural causes	1 543	56,2		Other natural causes	427	38,9
	Non-natural causes	361	8,0		Non-natural causes	162	5,9		Non-natural causes	129	11,7
	All causes	4 487	100,0		All causes	2 744	100,0		All causes	1 099	100,0
Pixley ka Seme			Siyanda								
No.		%	No.		%	No.		%			
1	Tuberculosis (A15-A19)	307	11,6	1	Tuberculosis (A15-A19)	447	10,9				
2	Influenza and pneumonia (J09-J18)	183	6,9	2	Human immunodeficiency virus [HIV] disease (B20-B24)	393	9,6				
3	Cerebrovascular diseases (I60-I69)	146	5,5	3	Influenza and pneumonia (J09-J18)	234	5,7				
4	Chronic lower respiratory diseases (J40-J47)	142	5,4	4	Chronic lower respiratory diseases (J40-J47)	198	4,8				
5	Other forms of heart disease (I30-I52)	120	4,5	5	Cerebrovascular diseases (I60-I69)	173	4,2				
6	Intestinal infectious diseases (A00-A09)	90	3,4	6	Diabetes mellitus (E10-E14)	151	3,7				
7	Diabetes mellitus (E10-E14)	87	3,3	7	Other forms of heart disease (I30-I52)	147	3,6				
8	Human immunodeficiency virus [HIV] disease (B20-B24)	86	3,3	8	Hypertensive diseases (I10-I15)	141	3,4				
9	Hypertensive diseases (I10-I15)	78	3,0	9	Intestinal infectious diseases (A00-A09)	138	3,4				
10	Other viral diseases (B25-B34)	76	2,9	10	Certain disorders involving the immune mechanism (D80-D89)	120	2,9				
	Other natural causes	1 103	41,8		Other natural causes	1 569	38,2				
	Non-natural causes	223	8,4		Non-natural causes	400	9,7				
	All causes	2 641	100,0		All causes	4 111	100,0				

Appendix N.3: The ten leading underlying natural causes of death by district municipality of death occurrence, Free State, 2009

Fezile Dabi			Lejweleputswa			Mangaung Metro		
No.	%		No.	%		No.	%	
1	12,6	Influenza and pneumonia (J09-J18)	1	16,3	Influenza and pneumonia (J09-J18)	1	12,0	Tuberculosis (A15-A19)
2	10,8	Tuberculosis (A15-A19)	2	11,2	Tuberculosis (A15-A19)	2	8,6	Influenza and pneumonia (J09-J18)
3	7,9	Intestinal infectious diseases (A00-A09)	3	7,2	Intestinal infectious diseases (A00-A09)	3	3,9	Intestinal infectious diseases (A00-A09)
4	5,9	Other forms of heart disease (I30-I52)	4	4,8	Other forms of heart disease (I30-I52)	4	3,4	Other forms of heart disease (I30-I52)
5	4,9	Certain disorders involving the immune mechanism (D80-D89)	5	3,6	Certain disorders involving the immune mechanism (D80-D89)	5	3,2	Cerebrovascular diseases (I60-I69)
6	4,3	Diabetes mellitus (E10-E14)	6	3,5	Cerebrovascular diseases (I60-I69)	6	2,8	Certain disorders involving the immune mechanism (D80-D89)
7	4,2	Cerebrovascular diseases (I60-I69)	7	2,6	Human immunodeficiency virus [HIV] disease (B20-B24)	7	2,1	Hypertensive diseases (I10-I15)
8	3,8	Hypertensive diseases (I10-I15)	7	2,3	Hypertensive diseases (I10-I15)	8	2,1	Diabetes mellitus (E10-E14)
9	2,4	Chronic lower respiratory diseases (J40-J47)	9	2,0	Diabetes mellitus (E10-E14)	9	1,7	Malignant neoplasm of digestive organs (C15-C26)
10	2,0	Ischaemic heart diseases (I20-I25)	10	1,8	Chronic lower respiratory diseases (J40-J47)	10	1,4	Ischaemic heart diseases (I20-I25)
	33,2	Other natural causes		38,3	Other natural causes		51,9	Other natural causes
	8,0	Non-natural causes		6,4	Non-natural causes		6,8	Non-natural causes
	100,0	All causes		100,0	All causes		100,0	All causes
Thabo Mofutsanyane			Xhariep					
No.	%		No.	%				
1	12,6	Influenza and pneumonia (J09-J18)	1	13,6	Influenza and pneumonia (J09-J18)			
2	9,9	Tuberculosis (A15-A19)	2	10,5	Tuberculosis (A15-A19)			
3	8,6	Intestinal infectious diseases (A00-A09)	3	7,1	Intestinal infectious diseases (A00-A09)			
4	6,8	Other forms of heart disease (I30-I52)	4	5,6	Certain disorders involving the immune mechanism (D80-D89)			
5	6,3	Certain disorders involving the immune mechanism (D80-D89)	5	4,5	Cerebrovascular diseases (I60-I69)			
6	4,2	Cerebrovascular diseases (I60-I69)	6	4,1	Other forms of heart disease (I30-I52)			
7	3,1	Diabetes mellitus (E10-E14)	7	3,0	Chronic lower respiratory diseases (J40-J47)			
8	2,9	Hypertensive diseases (I10-I15)	8	2,6	Hypertensive diseases (I10-I15)			
9	2,5	Other diseases of the respiratory system (J95-J99)	9	1,9	Diabetes mellitus (E10-E14)			
10	2,4	Chronic lower respiratory diseases (J40-J47)	10	1,8	Other viral diseases (B25-B34)			
	35,0	Other natural causes		37,6	Other natural causes			
	5,7	Non-natural causes		7,8	Non-natural causes			
	100,0	All causes		100,0	All causes			

Appendix N.4: The ten leading underlying natural causes of death by district municipality of death occurrence, KwaZulu-Natal, 2009

Amajuba			eThekweni Metro			iLembe		
No.	%		No.	%		No.	%	
1	15,7	Tuberculosis (A15-A19)	1	14,9	Tuberculosis (A15-A19)	1	18,4	Tuberculosis (A15-A19)
2	9,0	Other acute lower respiratory infections (J20-J22)	2	5,1	Influenza and pneumonia (J09-J18)	2	8,5	Intestinal infectious diseases (A00-A09)
3	7,8	Influenza and pneumonia (J09-J18)	3	5,0	Other forms of heart disease (I30-I52)	3	6,3	Other viral diseases (B25-B34)
4	6,6	Intestinal infectious diseases (A00-A09)	4	4,9	Intestinal infectious diseases (A00-A09)	4	6,2	Cerebrovascular diseases (I60-I69)
5	6,4	Cerebrovascular diseases (I60-I69)	5	4,5	Diabetes mellitus (E10-E14)	5	4,1	Diabetes mellitus (E10-E14)
6	4,4	Other forms of heart disease (I30-I52)	6	4,0	Cerebrovascular diseases (I60-I69)	6	3,3	Influenza and pneumonia (J09-J18)
7	3,5	Diabetes mellitus (E10-E14)	7	3,4	Ischaemic heart diseases (I20-I25)	7	3,0	Other forms of heart disease (I30-I52)
8	3,3	Other diseases of the respiratory system (J95-J99)	7	2,8	Human immunodeficiency virus [HIV] disease (B20-B24)	8	2,1	Human immunodeficiency virus [HIV] disease (B20-B24)
9	2,4	Hypertensive diseases (I10-I15)	9	2,2	Other viral diseases (B25-B34)	9	2,1	Hypertensive diseases (I10-I15)
10	2,3	Certain disorders involving the immune mechanism (D80-D89)	10	1,8	Hypertensive diseases (I10-I15)	10	1,7	Chronic lower respiratory diseases (J40-J47)
	32,4	Other natural causes		42,1	Other natural causes		35,0	Other natural causes
	6,2	Non-natural causes		9,5	Non-natural causes		9,4	Non-natural causes
	100,0	All causes		100,0	All causes		100,0	All causes
Sisonke			Ugu			UMgungundlovu		
No.	%		No.	%		No.	%	
1	18,6	Tuberculosis (A15-A19)	1	17,1	Tuberculosis (A15-A19)	1	15,9	Tuberculosis (A15-A19)
2	6,6	Intestinal infectious diseases (A00-A09)	2	6,9	Influenza and pneumonia (J09-J18)	2	5,9	Intestinal infectious diseases (A00-A09)
3	5,8	Influenza and pneumonia (J09-J18)	3	6,8	Intestinal infectious diseases (A00-A09)	3	5,2	Cerebrovascular diseases (I60-I69)
4	4,7	Cerebrovascular diseases (I60-I69)	4	6,5	Cerebrovascular diseases (I60-I69)	4	5,1	Influenza and pneumonia (J09-J18)
5	4,7	Other viral diseases (B25-B34)	5	4,8	Human immunodeficiency virus [HIV] disease (B20-B24)	5	4,3	Diabetes mellitus (E10-E14)
6	4,6	Chronic lower respiratory diseases (J40-J47)	6	4,2	Diabetes mellitus (E10-E14)	6	3,9	Other forms of heart disease (I30-I52)
7	3,4	Diabetes mellitus (E10-E14)	7	3,5	Other forms of heart disease (I30-I52)	7	3,7	Human immunodeficiency virus [HIV] disease (B20-B24)
8	3,0	Human immunodeficiency virus [HIV] disease (B20-B24)	8	3,2	Chronic lower respiratory diseases (J40-J47)	8	2,8	Ischaemic heart diseases (I20-I25)
9	2,8	Other forms of heart disease (I30-I52)	9	3,0	Hypertensive diseases (I10-I15)	9	2,7	Other acute lower respiratory infections (J20-J22)
10	1,9	Certain disorders involving the immune mechanism (D80-D89)	10	2,4	Other viral diseases (B25-B34)	10	2,6	Hypertensive diseases (I10-I15)
	37,1	Other natural causes		33,9	Other natural causes		39,0	Other natural causes
	7,1	Non-natural causes		7,8	Non-natural causes		8,9	Non-natural causes
	100,0	All causes		100,0	All causes		100,0	All causes

Appendix N.4: The ten leading underlying natural causes of death by district municipality of death occurrence, KwaZulu-Natal, 2009 (concluded)

Umkhanyakude			Umzinyathi			Uthukela		
No.	%		No.	%		No.	%	
1	14,5	Tuberculosis (A15-A19)	1	16,8	Tuberculosis (A15-A19)	1	15,9	Tuberculosis (A15-A19)
2	12,4	Human immunodeficiency virus [HIV] disease (B20-B24)	2	6,3	Cerebrovascular diseases (I60-I69)	2	9,3	Influenza and pneumonia (J09-J18)
3	4,9	Intestinal infectious diseases (A00-A09)	3	6,2	Intestinal infectious diseases (A00-A09)	3	8,8	Intestinal infectious diseases (A00-A09)
4	3,9	Cerebrovascular diseases (I60-I69)	4	5,2	Influenza and pneumonia (J09-J18)	4	6,8	Cerebrovascular diseases (I60-I69)
5	3,6	Other viral diseases (B25-B34)	5	4,6	Other viral diseases (B25-B34)	5	5,0	Other forms of heart disease (I30-I52)
6	3,2	Influenza and pneumonia (J09-J18)	6	3,4	Other forms of heart disease (I30-I52)	6	3,7	Certain disorders involving the immune mechanism (D80-D89)
7	2,8	Other forms of heart disease (I30-I52)	7	2,9	Diabetes mellitus (E10-E14)	7	3,6	Diabetes mellitus (E10-E14)
8	2,1	Hypertensive diseases (I10-I15)	7	2,8	Human immunodeficiency virus [HIV] disease (B20-B24)	8	2,6	Human immunodeficiency virus [HIV] disease (B20-B24)
9	1,8	Diabetes mellitus (E10-E14)	9	1,9	Other acute lower respiratory infections (J20-J22)	9	2,4	Other viral diseases (B25-B34)
10	1,3	Other acute lower respiratory infections (J20-J22)	10	1,5	Chronic lower respiratory diseases (J40-J47)	10	2,4	Hypertensive diseases (I10-I15)
	42,1	Other natural causes		40,2	Other natural causes		30,4	Other natural causes
	7,3	Non-natural causes		8,2	Non-natural causes		9,1	Non-natural causes
	100,0	All causes		100,0	All causes		100,0	All causes
		6 356			6 208			8 801
Uthungulu			Zululand					
No.	%		No.	%				
1	17,4	Tuberculosis (A15-A19)	1	18,4	Tuberculosis (A15-A19)			
2	6,3	Human immunodeficiency virus [HIV] disease (B20-B24)	2	8,5	Intestinal infectious diseases (A00-A09)			
3	5,5	Influenza and pneumonia (J09-J18)	3	5,8	Influenza and pneumonia (J09-J18)			
4	5,3	Intestinal infectious diseases (A00-A09)	4	4,4	Other forms of heart disease (I30-I52)			
5	4,8	Other forms of heart disease (I30-I52)	5	4,2	Other viral diseases (B25-B34)			
6	4,0	Other viral diseases (B25-B34)	6	3,9	Cerebrovascular diseases (I60-I69)			
7	3,9	Diabetes mellitus (E10-E14)	7	3,6	Other acute lower respiratory infections (J20-J22)			
8	3,9	Cerebrovascular diseases (I60-I69)	8	3,1	Human immunodeficiency virus [HIV] disease (B20-B24)			
9	2,2	Certain disorders involving the immune mechanism (D80-D89)	9	2,8	Diabetes mellitus (E10-E14)			
9	2,2	Hypertensive diseases (I10-I15)	10	2,3	Inflammatory diseases of the central nervous system (G00-G09)			
	35,7	Other natural causes		36,2	Other natural causes			
	8,6	Non-natural causes		6,7	Non-natural causes			
	100,0	All causes		100,0	All causes			
		11 575			8 938			

Appendix N.5: The ten leading underlying natural causes of death by district municipality of death occurrence, North West, 2009

Bojanala			Dr Kenneth Kaunda			Dr Ruth Segomotsi Mompati					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)	1 257	9,1	1	Tuberculosis (A15-A19)	1 520	16,4	1	Tuberculosis (A15-A19)	808	12,4
2	Influenza and pneumonia (J09-J18)	1 118	8,1	2	Influenza and pneumonia (J09-J18)	661	7,1	2	Influenza and pneumonia (J09-J18)	488	7,5
3	Other forms of heart disease (I30-I52)	966	7,0	3	Intestinal infectious diseases (A00-A09)	431	4,7	3	Intestinal infectious diseases (A00-A09)	480	7,4
4	Intestinal infectious diseases (A00-A09)	811	5,9	4	Other forms of heart disease (I30-I52)	344	3,7	4	Other forms of heart disease (I30-I52)	313	4,8
5	Certain disorders involving the immune mechanism (D80-D89)	604	4,4	5	Cerebrovascular diseases (I60-I69)	324	3,5	5	Hypertensive diseases (I10-I15)	295	4,5
6	Cerebrovascular diseases (I60-I69)	558	4,0	6	Human immunodeficiency virus [HIV] disease (B20-B24)	293	3,2	6	Other acute lower respiratory infections (J20-J22)	276	4,2
7	Hypertensive diseases (I10-I15)	524	3,8	7	Chronic lower respiratory diseases (J40-J47)	258	2,8	7	Cerebrovascular diseases (I60-I69)	251	3,9
8	Diabetes mellitus (E10-E14)	406	2,9	7	Hypertensive diseases (I10-I15)	253	2,7	8	Other viral diseases (B25-B34)	244	3,8
9	Other viral diseases (B25-B34)	318	2,3	9	Certain disorders involving the immune mechanism (D80-D89)	241	2,6	9	Human immunodeficiency virus [HIV] disease (B20-B24)	219	3,4
10	Human immunodeficiency virus [HIV] disease (B20-B24)	283	2,0	10	Ischaemic heart diseases (I20-I25)	200	2,2	10	Certain disorders involving the immune mechanism (D80-D89)	205	3,2
	Other natural causes	5 841	42,3		Other natural causes	3 971	42,9		Other natural causes	2 570	39,5
	Non-natural causes	1 134	8,2		Non-natural causes	766	8,3		Non-natural causes	353	5,4
	All causes	13 820	100,0		All causes	9 262	100,0		All causes	6 502	100,0
Ngaka Modiri Molema			No.	%							
1	Influenza and pneumonia (J09-J18)	1 627	15,1								
2	Tuberculosis (A15-A19)	1 397	13,0								
3	Other forms of heart disease (I30-I52)	660	6,1								
4	Intestinal infectious diseases (A00-A09)	608	5,6								
5	Hypertensive diseases (I10-I15)	464	4,3								
6	Cerebrovascular diseases (I60-I69)	439	4,1								
7	Chronic lower respiratory diseases (J40-J47)	327	3,0								
8	Diabetes mellitus (E10-E14)	320	3,0								
9	Certain disorders involving the immune mechanism (D80-D89)	232	2,2								
10	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	224	2,1								
	Other natural causes	3 845	35,7								
	Non-natural causes	634	5,9								
	All causes	10 777	100,0								

Appendix N.6: The ten leading underlying natural causes of death by district municipality of death occurrence, Gauteng, 2009

City of Johannesburg Metro			City of Tshwane Metro			Ekurhuleni Metro		
No.	%		No.	%		No.	%	
1	3 083	8,3	1	2 231	8,4	1	3 273	10,7
2	2 334	6,3	2	1 939	7,3	2	2 837	9,3
3	1 594	4,3	3	1 882	7,1	3	1 459	4,8
4	1 429	3,9	4	1 270	4,8	4	1 285	4,2
5	1 150	3,1	5	1 162	4,4	5	1 045	3,4
6	1 080	2,9	6	1 151	4,3	6	810	2,6
7	1 058	2,9	7	1 041	3,9	7	795	2,6
8	921	2,5	7	932	3,5	8	696	2,3
9	850	2,3	9	776	2,9	9	624	2,0
10	755	2,0	10	664	2,5	10	606	2,0
	19 119	51,7		10 977	41,1		14 398	47,1
	3 584	9,7		2 669	10,0		2 743	9,0
All causes	36 957	100,0	All causes	26 694	100,0	All causes	30 571	100,0
Sedibeng			West Rand					
No.	%		No.	%				
1	1 484	14,0	1	1 035	10,5			
2	1 011	9,5	2	994	10,1			
3	743	7,0	3	642	6,5			
4	673	6,3	4	417	4,2			
5	559	5,3	5	356	3,6			
6	412	3,9	6	256	2,6			
7	342	3,2	7	235	2,4			
8	272	2,6	8	221	2,2			
9	266	2,5	9	217	2,2			
10	230	2,2	10	207	2,1			
	3 747	35,3		4 292	43,5			
	869	8,2		991	10,0			
All causes	10 608	100,0	All causes	9 863	100,0			

Appendix N.7: The ten leading underlying natural causes of death by district municipality of death occurrence, Mpumalanga, 2009

Ehlanzeni			Gert Sibande			Nkangala					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)	3 037	16,1	1	Tuberculosis (A15-A19)	1 781	12,5	1	Influenza and pneumonia (J09-J18)	1 534	12,2
2	Intestinal infectious diseases (A00-A09)	1 735	9,2	2	Influenza and pneumonia (J09-J18)	1 364	9,6	2	Tuberculosis (A15-A19)	1 316	10,4
3	Influenza and pneumonia (J09-J18)	1 381	7,3	3	Intestinal infectious diseases (A00-A09)	1 032	7,2	3	Other forms of heart disease (I30-I52)	727	5,8
4	Cerebrovascular diseases (I60-I69)	1 107	5,9	4	Human immunodeficiency virus [HIV] disease (B20-B24)	814	5,7	4	Intestinal infectious diseases (A00-A09)	724	5,7
5	Human immunodeficiency virus [HIV] disease (B20-B24)	756	4,0	5	Other forms of heart disease (I30-I52)	609	4,3	5	Hypertensive diseases (I10-I15)	589	4,7
6	Other forms of heart disease (I30-I52)	673	3,6	6	Certain disorders involving the immune mechanism (D80-D89)	562	3,9	6	Diabetes mellitus (E10-E14)	491	3,9
7	Diabetes mellitus (E10-E14)	619	3,3	7	Cerebrovascular diseases (I60-I69)	558	3,9	7	Cerebrovascular diseases (I60-I69)	485	3,8
8	Certain disorders involving the immune mechanism (D80-D89)	571	3,0	7	Diabetes mellitus (E10-E14)	483	3,4	8	Chronic lower respiratory diseases (J40-J47)	439	3,5
9	Other acute lower respiratory infections (J20-J22)	561	3,0	9	Hypertensive diseases (I10-I15)	337	2,4	9	Certain disorders involving the immune mechanism (D80-D89)	347	2,8
10	Other viral diseases (B25-B34)	483	2,6	10	Other acute lower respiratory infections (J20-J22)	308	2,2	10	Other viral diseases (B25-B34)	267	2,1
	Other natural causes	6 384	33,9		Other natural causes	5 309	37,3		Other natural causes	4 328	34,3
	Non-natural causes	1 523	8,1		Non-natural causes	1 081	7,6		Non-natural causes	1 362	10,8
	All causes	18 830	100,0		All causes	14 238	100,0		All causes	12 609	100,0

Appendix N.8: The ten leading underlying natural causes of death by district municipality of death occurrence, Limpopo, 2009

Capricorn			Greater Sekhukhune			Mopani		
No.	%		No.	%		No.	%	
1	12,2	Influenza and pneumonia (J09-J18)	1	21,4	Influenza and pneumonia (J09-J18)	1	9,0	Intestinal infectious diseases (A00-A09)
2	9,1	Tuberculosis (A15-A19)	2	9,5	Intestinal infectious diseases (A00-A09)	2	8,7	Influenza and pneumonia (J09-J18)
3	8,8	Intestinal infectious diseases (A00-A09)	3	8,0	Tuberculosis (A15-A19)	3	8,0	Tuberculosis (A15-A19)
4	5,1	Other forms of heart disease (I30-I52)	4	7,1	Cerebrovascular diseases (I60-I69)	4	4,1	Cerebrovascular diseases (I60-I69)
5	4,4	Hypertensive diseases (I10-I15)	5	6,5	Other forms of heart disease (I30-I52)	5	3,9	Other forms of heart disease (I30-I52)
6	4,1	Cerebrovascular diseases (I60-I69)	6	4,1	Hypertensive diseases (I10-I15)	6	3,4	Diabetes mellitus (E10-E14)
7	3,9	Diabetes mellitus (E10-E14)	7	3,5	Diabetes mellitus (E10-E14)	7	2,1	Certain disorders involving the immune mechanism (D80-D89)
8	2,3	Certain disorders involving the immune mechanism (D80-D89)	7	2,9	Certain disorders involving the immune mechanism (D80-D89)	8	2,0	Inflammatory diseases of the central nervous system (G00-G09)
9	2,0	Chronic lower respiratory diseases (J40-J47)	9	2,4	Chronic lower respiratory diseases (J40-J47)	9	1,6	Other viral diseases (B25-B34)
10	1,5	Other viral diseases (B25-B34)	10	1,4	Diseases of oesophagus, stomach and duodenum (K20-K31)	10	1,4	Hypertensive diseases (I10-I15)
	39,0	Other natural causes		26,7	Other natural causes		49,2	Other natural causes
	7,6	Non-natural causes		6,6	Non-natural causes		6,6	Non-natural causes
	100,0	All causes		100,0	All causes		100,0	All causes
Vhembe			Waterberg					
No.	%		No.	%				
1	9,6	Tuberculosis (A15-A19)	1	10,5	Tuberculosis (A15-A19)			
2	7,8	Intestinal infectious diseases (A00-A09)	2	9,1	Influenza and pneumonia (J09-J18)			
3	6,8	Influenza and pneumonia (J09-J18)	3	6,4	Intestinal infectious diseases (A00-A09)			
4	4,3	Diabetes mellitus (E10-E14)	4	3,7	Other forms of heart disease (I30-I52)			
5	3,3	Cerebrovascular diseases (I60-I69)	5	3,5	Cerebrovascular diseases (I60-I69)			
6	2,8	Other forms of heart disease (I30-I52)	6	3,5	Certain disorders involving the immune mechanism (D80-D89)			
7	1,8	Diseases of liver (K70-K77)	7	2,7	Hypertensive diseases (I10-I15)			
8	1,4	Other bacterial diseases (A30-A49)	8	2,5	Diabetes mellitus (E10-E14)			
8	1,4	Certain disorders involving the immune mechanism (D80-D89)	9	2,2	Ischaemic heart diseases (I20-I25)			
10	1,4	Renal failure (N17-N19)	10	1,9	Chronic lower respiratory diseases (J40-J47)			
	52,4	Other natural causes		43,9	Other natural causes			
	7,1	Non-natural causes		10,2	Non-natural causes			
	100,0	All causes		100,0	All causes			

Appendix O: Population group differences

In over a quarter (26,2%) of all deaths, population group was not specified. 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 useful for planning purposes due to this large number of unspecified cases. Readers are therefore advised to treat the breakdowns of deaths by population group with caution.

Appendix O.1 provides the breakdown of the ten leading causes of death for 2009 by population group (including cases where population group was reported as 'other', unknown or unspecified). The results show that four of the ten leading causes of death were common for the four population groups, namely *other forms of heart disease, cerebrovascular diseases, diabetes mellitus, and hypertensive diseases*. These common causes of death had different ranks and different contributions to the overall number of deaths for each population group. For example, *other forms of heart diseases* were the second leading cause of death among the white population group, third among the Indian/Asian population group, fourth among the Black African and seventh among the coloured population group.

Tuberculosis was the leading underlying natural cause of death for black African and coloured population groups, accounting for 13,9% and 9,0%, respectively, of all deaths in these groups. The leading cause of death among Indians/Asians was *diabetes mellitus* while *ischaemic heart diseases* were the leading cause among the white population group. The three leading and the ninth leading causes of death for the white population group were all *diseases of the circulatory system*, all contributing 28,2% of all deaths among the white population group.

On one hand, *intestinal infectious diseases, certain disorders involving the immune mechanism and other viral diseases* were among the ten leading causes of natural deaths only for the black African population group. On the other hand, *ischaemic heart diseases, malignant neoplasms of digestive organs and chronic lower respiratory system diseases* 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 tenth 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 7,9% among the white population group to 10,7 among the coloured population group.

Appendix O.1: The ten leading underlying natural causes of death by population group, 2009

Causes of death (based on the 10 th Revision, International Classification of Diseases, 1992)	Black African			White			Indian/Asian			Coloured			Other/Unknown/unspecified		
	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)*	1	49 094	13,9	...	...	...	10	147	2,0	1	2 257	9,0	1	17 243	11,5
Influenza and pneumonia (J09-J18)	2	31 427	8,9	6	1 659	4,6	9	173	2,3	...	...	...	2	8 917	5,9
Intestinal infectious diseases (A00-A09)	3	22 799	6,4	...	...	...	...	...	...	...	...	...	3	7 162	4,8
Other forms of heart disease (I30-I52)	4	16 280	4,6	2	2 622	7,2	3	592	7,9	7	965	3,8	4	6 003	4,0
Cerebrovascular diseases (I60-I69)	5	15 603	4,4	3	2 140	5,9	4	347	4,6	4	1 351	5,4	5	5 394	3,6
HIV disease (B20-B24)	6	12 683	3,6	...	...	...	...	...	...	10	826	3,3	7	3 986	2,7
Diabetes mellitus (E10-E14)	7	11 429	3,2	7	1 520	4,2	1	1 047	14,0	2	1 655	6,6	6	4 872	3,2
Hypertensive diseases (I10-I15)	8	10 048	2,8	9	910	2,5	7	239	3,2	6	966	3,8	...	...	...
Certain disorders involving the immune mechanism (D80-D89)	9	9 245	2,6	...	...	...	...	...	...	...	...	...	8	3 498	2,3
Other viral diseases (B25-B34)	10	7 988	2,3	...	...	...	...	...	...	...	...	...	9	3 377	2,2
Ischaemic heart diseases (I20-I25)	...	...	...	1	4 538	12,5	2	1 026	13,7	5	1 290	5,1	...	...	...
Malignant neoplasm of digestive organs (C15-C26)	...	...	...	4	1 966	5,4	5	264	3,5	9	858	3,4	...	...	...
Chronic lower respiratory diseases (J40-J47)	...	...	...	5	1 852	5,1	6	245	3,3	3	1 478	5,9	10	3 342	2,2
Malignant neoplasm of respiratory and intrathoracic organs (C30-39)	...	...	...	8	1 304	3,6	...	...	...	8	960	3,8	...	...	...
Renal failure (N17-N19)	...	...	...	10	817	2,3	8	199	2,7	...	...	...	...	...	...
Other natural causes		134 714	38,1		14 066	38,8		2 459	32,9		9 875	39,2		75 500	50,3
Non-natural causes		32 297	9,1		2 866	7,9		729	9,8		2 697	10,7		10 867	7,2
All causes		353 607	100,0		36 260	100,0		7 467	100,0		25 178	100,0		150 161	100,0

*Including deaths due to *MDR-TB* and *XDR-TB*
 ... Category not in top ten