

## STATISTICAL RELEASE

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# Mortality and causes of death in South Africa, 2016: 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 2016. Deaths for the years 1997–2015 are also included to show trends in mortality and causes of death, using updated information that includes late registrations. The statistical release is based on deaths collected through the South African civil registration system maintained by the Department of Home Affairs. The information on causes of death is as recorded on death notification forms completed by medical practitioners and other certifying officials.

A handwritten signature in black ink, appearing to read 'R. Maluleke', with a stylized initial 'R'.

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## Table of Contents

<b>Preface</b> .....	<b>ii</b>
<b>List of Tables</b> .....	<b>vii</b>
<b>List of Figures</b> .....	<b>viii</b>
<b>1. Introduction</b> .....	<b>1</b>
1.1 Background .....	1
1.2 Objectives of this statistical release .....	2
1.3 Scope of this statistical release .....	2
1.4 Organisation and presentation of this statistical release .....	2
<b>2. Data and methods</b> .....	<b>3</b>
2.1 Data source .....	3
2.2 Data processing.....	3
2.2.1 Classification of the causes of death.....	4
2.2.2 Generation of the underlying causes of death.....	4
2.3 Data editing .....	5
2.4 Assessment of the quality of data .....	5
2.5 Data analysis .....	6
<b>3. Mortality</b> .....	<b>7</b>
3.1 Levels and trends of mortality.....	7
3.2 Age differentials.....	8
3.3 Sex differentials .....	10
3.4 Age and sex differentials .....	11
3.4.1 Distribution of deaths by age and sex .....	11
3.4.2 Median ages at death by sex .....	11
3.4.3 Sex ratios by age.....	13
3.5 Population group differences in mortality .....	15
3.6 Marital status differences in mortality .....	15
3.7 Differences in mortality by smoking status .....	16
3.8 Differences in mortality by place or institution of death occurrence .....	16
3.9 Geographic variations in mortality .....	17
3.9.1 Differences by province, age and sex .....	17
3.9.2 Differences by district municipality, age and sex.....	18
<b>4. Causes of death</b> .....	<b>20</b>
4.1 Introduction .....	20
4.2 Reported causes of death .....	21
4.3 Method of ascertaining cause of death .....	22

4.4	Main groups of the underlying causes of death.....	23
4.5	Natural and non-natural causes of death .....	25
4.5.1	Natural and non-natural causes of death by age .....	28
4.6	Major groups of causes of death as per the Global Burden of Disease.....	28
4.7	Broad groups of natural causes of death .....	32
4.7.1	Overall pattern of the leading underlying natural causes of death.....	32
4.7.2	Leading underlying natural causes of death by sex .....	33
4.7.3	Leading underlying natural causes of death by age.....	36
4.7.4	Leading underlying natural causes of death for children aged below five years by age group .....	38
4.7.5	Leading underlying natural causes of death for the population aged 15–24 years.....	40
4.7.6	Leading underlying natural causes of death by province of death occurrence .....	40
4.7.7	Underlying causes of death by district/metropolitan municipality of death occurrence.....	43
4.7.8	Underlying natural causes of death by population group .....	45
4.8	Non-natural causes of death .....	45
4.8.1	Non-natural causes of death by age and sex.....	46
4.8.2	Non-natural causes of death by province of death occurrence.....	49
4.8.3	Non-natural causes of death by district municipality .....	51
4.9	Comparison between immediate, contributing and underlying causes of death.....	51
<b>5.</b>	<b>Summary and concluding remarks .....</b>	<b>54</b>
<b>6.</b>	<b>References .....</b>	<b>56</b>
	<b>Appendices.....</b>	<b>57</b>
Appendix A:	Definitions .....	57
Appendix B:	Death notification form (BI-1663).....	58
Appendix B1:	Death notification form (DHA-1663A).....	61
Appendix B2:	Death notification form (DHA-1663B).....	64
Appendix C:	Assessment of the quality of data.....	65
Appendix D:	Number of deaths by age, sex and year of death, 1997–1999 .....	73
Appendix D1:	Number of deaths by age, sex and year of death, 2000–2002 .....	74
Appendix D2:	Number of deaths by age, sex and year of death, 2003–2005 .....	75
Appendix D3:	Number of deaths by age, sex and year of death, 2006–2008 .....	76
Appendix D4:	Number of deaths by age, sex and year of death, 2009–2011 .....	77
Appendix D5:	Number of deaths by age, sex and year of death, 2012–2014 .....	78
Appendix D6:	Number of deaths by age, sex and year of death, 2015–2016 .....	79
Appendix E:	Year-to-year percentage changes in number of deaths by sex, 1997–2016 .....	80
Appendix F:	Age-specific death rates (ASDR) by year of death, 2012–2016 .....	81
Appendix G:	Sex ratios at death by year of death, 1997–2016 .....	82

Appendix H: Number of deaths by province of death occurrence and province usual residence of the deceased, 2016 .....	83
Appendix H1: Percentage distribution of deaths by province of death occurrence and province of usual residence of deceased, 2016.....	83
Appendix I: Number of deaths by age, province and district municipality of death occurrence, 2016 .....	84
Appendix I1: Percentage distribution of deaths by age, province and district municipality of death occurrence, 2016 .....	86
Appendix J: Number of deaths by sex, province and district municipality of death occurrence, 2016 .....	88
Appendix K: All underlying causes of death, 2016.....	90
Appendix L: Detailed description of the broad-based groups of natural causes of death which were among the ten leading causes, 2016.....	95
Appendix M: The ten leading underlying natural causes of death by age and sex: South Africa, 2016 .....	98
Appendix M1: The ten leading underlying natural causes of death by age and sex: Western Cape, 2016..	100
Appendix M2: The ten leading underlying natural causes of death by age and sex: Eastern Cape, 2016...	102
Appendix M3: The ten leading underlying natural causes of death by age and sex: Northern Cape, 2016 .	104
Appendix M4: The ten leading underlying natural causes of death by age and sex: Free State, 2016 .....	106
Appendix M5: The ten leading underlying natural causes of death by age and sex: KwaZulu-Natal, 2016 .	109
Appendix M6: The ten leading underlying natural causes of death by age and sex: North West, 2016 .....	112
Appendix M7: The ten leading underlying natural causes of death by age and sex: Gauteng, 2016 .....	114
Appendix M8: The ten leading underlying natural causes of death by age and sex: Mpumalanga, 2016 ....	116
Appendix M9: The ten leading underlying natural causes of death by age and sex: Limpopo, 2016 .....	118
Appendix N: Number of deaths by main groups of causes of death and district municipality of death occurrence (Western Cape, Eastern Cape and Northern Cape), 2016 .....	120
Appendix N1: Number of deaths by main groups of causes of death and district municipality of death occurrence (Free State, KwaZulu-Natal and North West), 2016.....	121
Appendix N2: Number of deaths by main groups of causes of death and district municipality of death occurrence (Gauteng, Mpumalanga and Limpopo), 2016.....	122
Appendix O: Percentage of deaths by main groups of causes of death and district municipality of death occurrence (Western Cape, Eastern Cape and Northern Cape), 2016 .....	123
Appendix O1: Percentage of deaths by main groups of causes of death and district municipality of death occurrence (Free State, KwaZulu-Natal and North West), 2016.....	124
Appendix O2: Percentage of deaths by main groups of causes of death and district municipality of death occurrence (Gauteng, Mpumalanga and Limpopo), 2016.....	125
Appendix P: The ten leading underlying natural causes of death by district municipality of death occurrence, Western Cape 2016.....	126
Appendix P1: The ten leading underlying natural causes of death by district municipality of death occurrence, Eastern Cape, 2016.....	127
Appendix P2: The ten leading underlying natural causes of death by district municipality of death occurrence, Northern Cape, 2016 .....	129

Appendix P3: The ten leading underlying natural causes of death by district municipality of death occurrence, Free State, 2016 .....	130
Appendix P4: The ten leading underlying natural causes of death by district municipality of death occurrence, KwaZulu-Natal, 2016 .....	131
Appendix P5: The ten leading underlying natural causes of death by district municipality of death occurrence, North West, 2016 .....	133
Appendix P6: The ten leading underlying natural causes of death by district municipality of death occurrence, Gauteng, 2016 .....	134
Appendix P7: The ten leading underlying natural causes of death by district municipality of death occurrence, Mpumalanga 2016 .....	135
Appendix P8: The ten leading underlying natural causes of death by district municipality of death occurrence, Limpopo 2016 .....	136
Appendix Q: Population group differences .....	137
Appendix Q: The ten leading underlying natural causes of death by population group, 2016 .....	138

## List of Tables

Table 3.1:	Number and percentage distribution of deaths by age, 2016 .....	8
Table 3.2:	Number and percentage of deaths by population group, 2016.....	15
Table 3.3:	Number and percentage distribution of deaths by marital status, 2016.....	15
Table 3.4:	Number and percentage distribution of deaths by smoking status among those aged 16 years and older, 2016 .....	16
Table 3.5:	Number and percentage distribution of deaths by place of death occurrence, 2016 .....	16
Table 3.6:	Distribution of deaths by province of death occurrence and province of usual residence of the deceased, 2016 .....	18
Table 4.1:	Distribution of death notification forms by number of causes recorded on the form.....	22
Table 4.2:	Number and percentage distribution of deaths by method used to ascertain the cause of death, 2016 .....	23
Table 4.3:	Number and percentage distribution of deaths by the 19 main groups .....	24
Table 4.4:	Number of natural and non-natural deaths by year of death, 1997–2016 .....	26
Table 4.5:	The ten leading underlying natural causes of death, 2014–2016 .....	33
Table 4.6:	The ten leading underlying natural causes of death for males and females, 2016 .....	34
Table 4.7:	The ten leading underlying natural causes of death for broad age groups, 2016 .....	37
Table 4.8:	The ten leading underlying natural causes of death for infants and children aged below five years, 2016.....	39
Table 4.9:	The ten leading underlying natural causes of death for the population aged 15–24 years, 2016.....	40
Table 4.10:	The ten leading underlying natural causes of death in each province of death occurrence, 2016.....	42
Table 4.11:	Distribution of non-natural causes of death by broad groups, 2016 .....	45
Table 4.12:	Distribution of deaths due to other external causes of accidental injury, 2016.....	46
Table 4.13:	Underlying non-natural causes of death by age group and sex, 2016 .....	48
Table 4.14:	Underlying non-natural causes of death by province, 2016.....	50
Table 4.15:	Distribution of the 20 most commonly reported causes of death, 2016.....	52
Table 4.16:	Number and percentage of deaths selected as underlying or reported as immediate or contributing causes of death, 2016 .....	53

## List of Figures

Figure 3.1: Number of registered deaths by year of death, 1997–2016 .....	7
Figure 3.2: Percentage distribution of deaths by age and year of death, 2012–2016 .....	9
Figure 3.3: Percentage distribution of deaths by sex and year of death, 1997–2016.....	10
Figure 3.4: Percentage distribution of deaths by age and sex, 2016 .....	11
Figure 3.5: Median ages at death by sex and year of death, 1997–2016.....	12
Figure 3.6: Sex ratios by age and year of death, 2012–2016 .....	14
Figure 4.1: Percentage distribution of deaths by selected main groups of causes of death, 2014–2016 .....	25
Figure 4.2: Percentage distribution of natural and non-natural causes of death by year of death, 1997–2016 .....	27
Figure 4.3: Percentage distribution of natural and non-natural causes of death by age, 2016 .....	28
Figure 4.4: Percentage distribution of deaths by group type and year of death, 1997–2016 .....	29
Figure 4.5: Percentage distribution of causes of death by sex, group type and age group .....	31
Figure 4.6: Distribution of deaths for the leading causes of death by year of death and sex, 2014–2016.....	35

## 1. Introduction

### 1.1 Background

The National Development Plan (NDP) adopted by South Africa envisions a life expectancy of at least 70 years, a largely HIV-free population below 20 years, 28% reduction in non-communicable diseases, 50% reduction in injuries, accidents and violence, infant mortality rate less than 20 per 1 000 live births, under-five mortality rate less than 30 per 1 000 live births, maternal mortality rate less than 100 per 100 000 live births and combating the tuberculosis and HIV/AIDS epidemics by 2030 (National Planning Commission [NPC], 2011). 'Health care for all' is one of the key development objectives outlined in the NDP amid commitments to achieve universal health coverage. South Africa adopted the United Nations Sustainable Development Goals (SDGs) that are also founded on leaving no one behind in health. Goal three of the SDGs aims to improve maternal and child health outcomes, end infectious diseases, reduce premature mortality from non-communicable diseases and injuries and ensure universal health coverage by 2030. Both the NDP and the SDGs are closely linked to Africa's Agenda 2063 which is a long-term inclusive and sustainable development framework for Africa. The Agenda envisages a continent characterised by universal access to healthcare, zero communicable deaths, zero maternal deaths, zero child deaths and countries capable of mobilising domestic funding for preventing, detecting and responding to public health threats such as non-communicable diseases, health needs of the youth population and malnutrition by 2063. Information on the number of deaths and their causes is invaluable in evaluating and tracking progress towards these national, regional and international goals. The information on the mortality levels, trends and differentials is important for the identification of emerging diseases and conditions, formulation of evidence-based health policies and tracking of the population health status. Consequently, cause-of-death statistics assist in the formulation of evidence-based health policies and guide priorities for intervention programmes (WHO, 2013; United Nations, 2014).

Mortality data from the civil registration system permit the production of mortality statistics on a continuous basis and contribute to the understanding of the burden of disease at national and local geographic levels. Given the huge importance of a well-functioning civil registration system in the production of complete, accurate, relevant and timely mortality statistics, the system needs to be anchored in an up-to-date legal and regulatory framework in order to enforce registration of deaths and ensure both continuity and consistency of the system (WHO, 2013). The registration of deaths in South Africa falls under the mandate of the Department of Home Affairs (DHA). It is governed by the Births and Deaths Registration Act 1992 (Act No. 51 of 1992) (Republic of South Africa, 1992). The Act has been amended several times, with the last amendment made in 2010 [Births and Deaths Registration Amendment Act (Act No. 18 of 2010)] (Republic of South Africa, 2010). The principal Act states that after a death occurs, notice of death should be given as soon as practicable. To better enforce the registration of deaths, the 2014 regulations of the Act mandate the registration of deaths within 72 hours (three days) from date of occurrence (Republic of South Africa, 2014). The principal Act further states that a medical practitioner should prescribe the cause of death if satisfied that the death was due to natural causes. However, if there is doubt that the death was due to natural causes, such a death must be reported to the police. After an investigation as to the circumstances of the death in terms of the Inquests Act, 1959 (Act No. 58 of 1959), the medical practitioner shall certify the cause of death (Republic of South Africa, 1959). Upon completion of death registration, a death certificate is issued to the informant. All death notification forms are subsequently collected by Statistics South Africa (Stats SA) from DHA biweekly for capturing, processing, assessment, analysis and dissemination of statistical reports and datasets on mortality and causes of death.

South Africa has experienced a remarkable improvement both in terms of coverage and timely registration of deaths; data quality, and continuous production and dissemination of vital statistics. Stats SA, in collaboration with DHA, National Department of Health (NDoH) and other stakeholders has ensured continued mortality data from the civil registration system. Sustained partnerships between the stakeholders are essential for improvements in mortality

statistics to be realised and the findings from this statistical release will inform efforts aimed at strengthening the civil registration and vital statistics systems in the country. The mandate of Stats SA (Statistics Act [Act No. 6 of 1999]) is the provision of reliable information on the levels and causes of mortality through the application of appropriate quality criteria and standards, classifications and procedures for vital statistics (Republic of South Africa, 1999). The DHA's primary need revolves around a complete and accurate national death register (Republic of South Africa, 1992) while the NDoH envisages advances in health outcomes through access to comprehensive quality health care services (NDoH, 2015).

## **1.2 Objectives of this statistical release**

This statistical release forms part of a regular series of publications by Stats SA on mortality and causes of death. The information used is obtained continuously from the South African civil registration system. The aim of this publication is two-fold:

- To present statistics on registered deaths by selected socio-demographic and geographic characteristics for deaths that occurred in 2016; and to outline trends in mortality over a 20-year period (1997–2016); and
- To provide information on the causes of death for deaths that occurred in 2016, based mainly on the underlying cause of death.

## **1.3 Scope of this statistical release**

All death notifications from DHA for deaths that occurred over the years 1997 to 2016 and reached Stats SA in time for the 2016/2017 processing phase have been used to produce this statistical release. Although the primary focus is on deaths that occurred in 2016, deaths for earlier years (1997–2015) are also included to show trends in mortality and causes of death using information that has been updated for late registrations or delayed transfer of forms. Stillbirths which are also collected through the South African civil registrations system are not included in this publication as they are published separately in the annual Stats SA statistical release on 'Perinatal deaths in South Africa' (P0309.4). Appendix A (see page 57) provides the definitions of technical terms used in this report. However, Stats SA plans to include perinatal deaths in the 2018 Mortality and Causes of Death report as well as in subsequent reports.

## **1.4 Organisation and presentation of this statistical release**

This release consists of five sections. The first section (introduction) presents information on the background and purpose of the release. Section two is the data and methods section which provides information on data sources, including methods used in data processing, data editing, quality assurance and data analysis. The third section on registered deaths reports on mortality levels, trends and differentials, specifically focusing on sociodemographic and geographic characteristics of the deceased. The fourth section mainly covers information on the underlying causes of death for 2016 death occurrences. Additionally, this section provides differentials in causes of death by natural versus non-natural causes, the Global Burden of Disease as well as immediate, contributing and underlying causes of death. Causes of death for the years 1997 to 2015 are also included to show patterns in mortality over the years. The last section presents a summary of the findings and concluding remarks.

## 2. Data and methods

In this section, focus is placed on data sources, methods used in data processing, data editing and data analysis. Procedures followed in assessment of the quality of data are also covered.

### 2.1 Data source

This statistical release is based on administrative records from death notification forms accumulated from the Department of Home Affairs (DHA). The DHA currently uses two death notification forms to register deaths: Form BI-1663 which was introduced in 1998 (see Appendix B on pages 58) and Form DHA-1663 which was introduced in 2009 as a replacement of Form BI-1663 (see Appendix B1 and B2 on pages 61–64). Form BI-1663 continues to be used in areas where it is still in stock. In the event that a medical practitioner could not certify the occurrence of death, a traditional leader (such as chief, induna, headman) completes Form DHA-1680 (referred to as the Death Report) to certify the occurrence of death and to provide a description of the circumstances that resulted in death. The completed Death Report is then sent to DHA where the information is transcribed on to either the BI-1663 or the DHA-1663. The two death notifications (Form BI-1663 and Form DHA-1663) were merged into one dataset as the data elements in these two forms are largely comparable. The main difference between the two forms is in the registration of perinatal deaths (stillbirths and deaths occurring within the first seven days of life). Form BI-1663 records perinatal deaths in the same section as all other deaths, whereas Form DHA-1663 has a separate section for the comprehensive recording of the details of perinatal deaths.

The Births and Deaths Registration Act, 1992 (Act No. 51 of 1992) amended in 2010 as the Births and Deaths Registration Amendment Act, 2010 (Act No. 18 of 2010) is the legislation governing the registration of deaths in South Africa (Republic of South Africa, 1992; Republic of South Africa, 2010). In addition, the 2014 Births and Deaths Regulations which repealed the 1992 Regulations prescribe that notice of death or stillbirth for all deaths that occur must be given within 72 hours of death occurrence by an informant, regardless of citizenship status of the deceased. After death registration is completed, the DHA issues a death certificate to the informant and updates the National Population Register (NPR). The NPR only includes deaths for South African citizens and permanent residents whose births records were already captured onto the NPR prior to death. Those not eligible for inclusion in the NPR are non-South African citizens 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. Statistics South Africa (Stats SA) collects all death notification forms, irrespective of the deceased's citizenship status for processing, analysis and dissemination of mortality and causes of death information. It is for this reason that the figure of deaths processed by Stats SA will always be higher than the figure of deaths recorded on the National Population registered (NPR) for the same period.

This statistical release is based on a total of 456 612 deaths that occurred in 2016 and 22 543 late death registrations for 1997 to 2015 that were registered at the DHA and reached Stats SA in time for the 2016/2017 processing phase. About 97,9% of these deaths were registered using the new form DHA-1663, and 2,1% were registered using the old form BI-1663.

### 2.2 Data processing

The processing of the completed death notification forms takes place at the Stats SA Data Processing Centre. The stages of data processing start with sorting the forms by year of death occurrence, pasting unique identifier labels on each of the forms, coding sociodemographic and causes of death variables, and end with data capturing.

## 2.2.1 Classification of the causes of death

Cause-of-death statistics in this publication are compiled using the International Classification of Diseases (ICD), 10th Revision 2016 Edition. The ICD-10 is published by the World Health Organization (WHO) and is revised from time to time in line with new adaptations, classifications and glossaries. All member states of the United Nations, including South Africa, agreed to use the ICD as the standard classification system for compiling morbidity and mortality statistics. The National Information System of South Africa also adopted it as a standard. The primary purpose of the ICD is to provide for the conversion of word descriptions of diseases or conditions to single alphanumeric codes, which permit easy storage, retrieval and analysis of data. It also allows for the systematic and standardised recording, analysis, interpretation comparison and sharing of morbidity and mortality data within a population and across countries.

The ICD-10 provides for the coding and classification of diseases and injuries and a wide range of signs, symptoms and other abnormal findings. According to the WHO (2016), the most effective public health objective is to prevent the underlying cause of death from operating. For this purpose, the WHO recommends that countries use the international form of medical certificate of cause of death to facilitate the selection of the underlying cause of death. The ICD-10 contains about 8 000 categories of causes of death which are organised into 21 chapters that consist of communicable diseases, non-communicable diseases, ill-defined causes of death and external causes of injury and death. Each chapter contains three-character categories that can be subdivided into 10 four-character subcategories. However, for international comparisons, three-character coding is the mandatory level for reporting morbidity and mortality statistics, while four-character coding is recommended for more specific details about the disease or condition resulting in morbidity or mortality.

Stats SA codes the causes-of-death data at four-character level where sufficient details about the causes of death were available. However, this statistical release analyses up to three-character level. The quality of the causes of mortality statistics depends on the completeness and accuracy of the certified death notification forms. When coding causes-of-death statistics, the coders at Statistics South Africa (Stats SA) follow the principle of '*what you see is what you code*'. The coders use the ICD-10 for categories of causes of death coded in the ICD-10 manual. For categories that are not coded in the ICD-10 manual, Stats SA has outlined specific guidelines and procedures. For example, according to these rules and procedures *immunosuppression* is coded as *immunodeficiency* and not as *human immunodeficiency virus (HIV) disease*. Medical practitioners sometimes report the cause of death as acquired immune suppression which is not coded in the ICD-10 manual. Based on the Stats SA guidelines, this is coded as *human immunodeficiency virus (HIV) disease (B20-B24)*. *Multidrug-resistant tuberculosis (MDR-TB)* and *extensively drug-resistant tuberculosis (XDR-TB)* were assigned the ICD-10 special codes U51 and U52, respectively, and are included in the *tuberculosis (A15-A19)* broad group causes of mortality.

## 2.2.2 Generation of the underlying causes of death

The ICD-10 defines the underlying cause of death as "(a) the disease or injury that initiated the sequence of events leading directly to death, or (b) the circumstances of the accident or violence that produced the fatal injury" (WHO, 2016: 31). Stats SA uses two software packages, namely Automated Classification of Medical Entities (ACME 2011) and IRIS for the automated derivation of the underlying causes of death. The ACME software was developed by the United States National Center for Health Statistics (NCHS). It applies the WHO ICD-10 rules on the selection of the underlying cause of death. The IRIS software is used for comparison of results with ACME. Likewise, this software uses the WHO rules international death certificate form and the causes of death are coded according to WHO ICD-10 rules. It is anticipated that only IRIS will be used in future for the derivation of the underlying causes of death. ACME and IRIS derived the same underlying cause for 86% of the death notification forms. The low concordance of the two systems in comparison to previous years is attributed to comparison at four-character level, whereas previously, comparison was done at three-character level. Where one software failed to derive the underlying cause

of death, the results of the other software were used. In instances where both software packages failed to derive the underlying cause of death, experienced coders at Stats SA derived the underlying cause of death manually.

### 2.3 Data editing

When all stages of data processing had been completed, the Stats SA editing program was used to check for accuracy and to flag implausible causes of death for investigation. In addition, two electronic tools both developed by WHO: Analyzing mortality levels and causes-of-death (ANACoD) version 2.0 and CoDEdit version 1.0 were used to further check data consistency and plausibility (WHO, 2014a and WHO, 2014b, respectively). The tools were developed to enhance the value of mortality statistics in informing health policies and programmes. Both tools were used to automatically check the 2016 death data for accuracy and consistency by highlighting cases with causes that were unlikely to cause death categorised by age and sex (sex-specific causes, age-specific causes and notifiable diseases) and possible misuse of ICD-10 codes as well as providing a summary of the records within the dataset (WHO, 2014a; WHO, 2014b). For example, for causes of death that are specific to one sex, the tools warns and flags for errors when the combination of sex and cause is wrong. The errors that were flagged by the tools were manually investigated (checked on the original death notification form) for verification and corrections were made where necessary.

The main difference between the two tools is that CoDEdit assesses data consistency and plausibility for each unit record while ANACoD checks the data at an aggregate level. However, this does not undermine the importance of ANACoD as it can calculate demographic indicators such as crude death rates, life expectancy and death registration completeness level.

### 2.4 Assessment of the quality of data

Mortality statistics from the civil registration system are the only source of health information data available at national and local administrative levels on a continuous basis. While the data have potential to support decentralised population health administration, their usefulness depends entirely on their quality (WHO, 2013). An accurate, complete and timely civil registration system provides the foundation for the production of reliable and routine vital statistics. However, the data can suffer from a range of quality limitations such as extent of late registrations, timeliness of death registration, completeness of death registration, timeliness of publishing, accuracy of reporting, ill-defined causes of death and misreporting or misclassification of causes of death. As such it is imperative to check the data quality and to be transparent about data limitations so that areas of improvement can be identified. For the purpose of this statistical release in addition to the ANACoD and CoDEdit electronic tools, the framework proposed by Mahapatra et al. (2007) was used to assess the quality of the 2016 causes of death data. This section presents a summary of the results of this assessment. A detailed discussion of the assessment is provided in Appendix C (see page 65).

Data processing, data analysis and publication of the 2016 statistical release took 14 months from the end of the 2016 reporting year. In the 2015 statistical release (Stats SA, 2017), an estimated 96% total adult deaths (15 years and older) completeness level was reported for the 2011–2016 intercensal/survey period. Male adults had a completeness level of 97%, higher than the adult female completeness level of 95%. For the 2016 deaths, the same estimate is maintained, and a revised estimate will be provided when new population data are available.

Similar to previous years, 2016 registered deaths had low levels of missing or unknown information for four variables, namely age, sex, province of death, and province of usual residence of the deceased. For cause-of-death statistics 47,5% of the deaths occurred within a healthcare facility. This is used as a proxy for the proportion of medically certified deaths. The 2016 deaths also had 13,2% of deaths attributed to ill-defined causes of death. With regard to timeliness of death registration 78,8% of death occurrences were registered within the 72 hours mandated by the Regulations legislative framework.

## 2.5 Data analysis

The analysis undertaken in this release are two-fold: mortality analysis and causes-of-death analysis. The first section on mortality presents information on selected sociodemographic variables and mortality patterns, the analysis of which is descriptive and is based on frequency distributions and cross-tabulations. The section also covers demographic indicators such as sex ratios at death, age-specific death rates and median ages at death. The sex ratios at death show the ratio of male deaths per 100 female deaths and age-specific death rates show variations in mortality taking into consideration the population size of each age group. The age-specific death rates indicate the number of deaths in a particular age group per 1 000 population in that age group while the median ages at death provide a basic measure of how early or late mortality occurs in a population over time.

Section two provides analysis of the information on causes of death mainly based on ranking the natural underlying causes of death and providing the proportions of deaths due to specific causes. The top-ranking causes determine the leading causes of death. The ranking indicates 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 perspective. Causes of death 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-ranked causes, they both received rank one, and the next cause received rank three.

In ranking natural underlying causes of death, *symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)*, were excluded as the information is not sufficiently detailed to be of use for public health purposes. It is therefore essential to raise awareness among certifying practitioners to seek sufficient evidence to assign causes of these deaths to the more precise categories through training programmes and other initiatives. Due to concerns about violence and deaths due to accidents in South Africa, natural and non-natural causes have been separated. Whereas no ranking was done for non-natural causes of death, for analysis they were disaggregated by characteristics of the deceased that relay important information on the levels and patterns of non-natural deaths such as age, sex and province of death.

The second section also provides information on causes of death based on the Global Burden of Disease where causes of deaths are categorised into three broad groups, namely Group I (communicable diseases), Group II (non-communicable diseases) and Group III (injuries) with the *symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)* deaths which are ill-defined natural causes of death prorated across communicable and non-communicable diseases categories.

This release also presents tables on mortality and causes of death for district municipalities in the country in the appendices section. Information on local municipalities is not provided in this release, but it can be made available in an aggregated dataset format and not as unit records datasets to users on request.

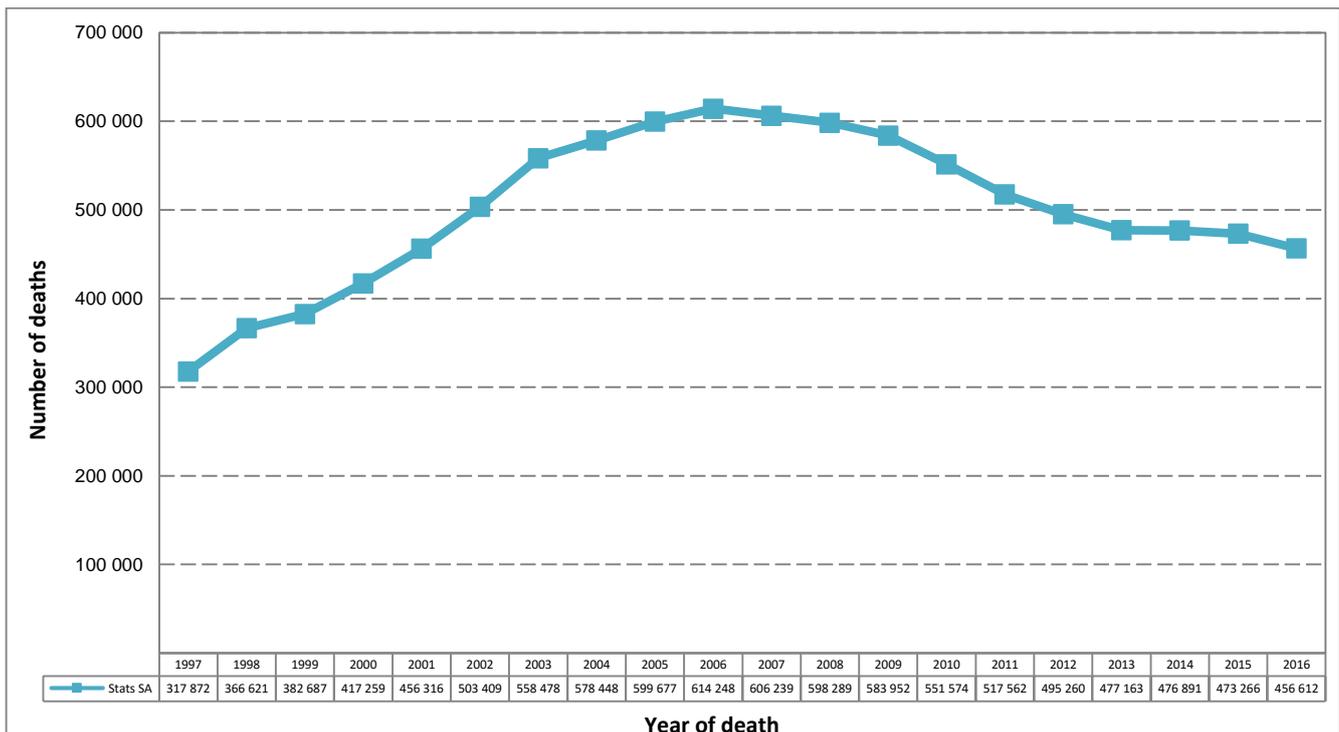
### 3. Mortality

The chapter mainly analyses 2016 death occurrences that were registered through the Department of Home Affairs (DHA) and that reached Statistics South Africa (Stats SA) in time for the 2016/2017 processing phase. The analysis presents absolute numbers and percentage distributions of 2016 deaths by selected background characteristics of the deceased such as age, sex, marital status, population group, place/institution of death and geographic information at provincial and district municipality levels based on 2016 municipal demarcations. Distribution of 2016 death occurrences by smoking status of the deceased is also included. This section furthermore provides levels and trends of registered deaths over a 20-year period (1997–2016) based mainly on age and sex differentials.

#### 3.1 Levels and trends of mortality

The absolute number of registered deaths processed by Stats SA for the years 1997 to 2016 is depicted in Figure 3.1. The figure shows that the number of registered deaths increased yearly from a low of 317 872 in 1997, reaching a high of 614 248 death occurrences in 2006. This equates to an increase in registered death occurrences of almost double during the two periods. Since 2007, a gradual decline in registered deaths was observed from 606 239 in 2007 to 456 612 in 2016. Overall, the figure indicates that the level of mortality is declining in the country. The comparison between deaths occurring in 2015 and 2016 indicates that the number of deaths processed by Stats SA for 2016 saw a decline of 3,5% from the 473 266 deaths processed for 2015. However, it is worth noting that the magnitude of the difference between 2015 and 2016 is expected to narrow as figures are updated with late registrations or delayed death notification forms still to be captured/processed. For example, in the 2015 statistical release, 474 659 deaths for 2014 and 460 236 deaths for 2015 were published, indicating that 2015 deaths declined by 3,0% based on 2014 levels (Stats SA, 2017). However, in this current statistical release, the gap has narrowed following the updating with late registrations and delayed death notifications: the 2015 deaths (473 266) now indicate a decline of 0,8% from the (476 891) 2014 deaths. It is therefore expected that the number of deaths recorded per year will increase following the additional death registrations, and these will be updated accordingly in the next statistical release.

**Figure 3.1: Number of registered deaths by year of death, 1997–2016\***



\*Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

### 3.2 Age differentials

Table 3.1 shows the number and percentage distribution of deaths by age for deaths that occurred in 2016. The highest proportion of deaths were amongst those aged 60–64 years (8,0%), closely followed by those aged 65–69 years and 55–59 years, with the former comprising 7,8% and the latter comprising 7,4% of total deaths. A general observation is that age groups 30–34 years to 75–79 years each represented over 6,0% of all deaths. Infants (age zero years) constituted 4,5% of the registered deaths. Age groups 5–9 years (0,6%) and 10–14 years (0,7%) had the lowest proportions of deaths, each comprising less than 1% of all deaths.

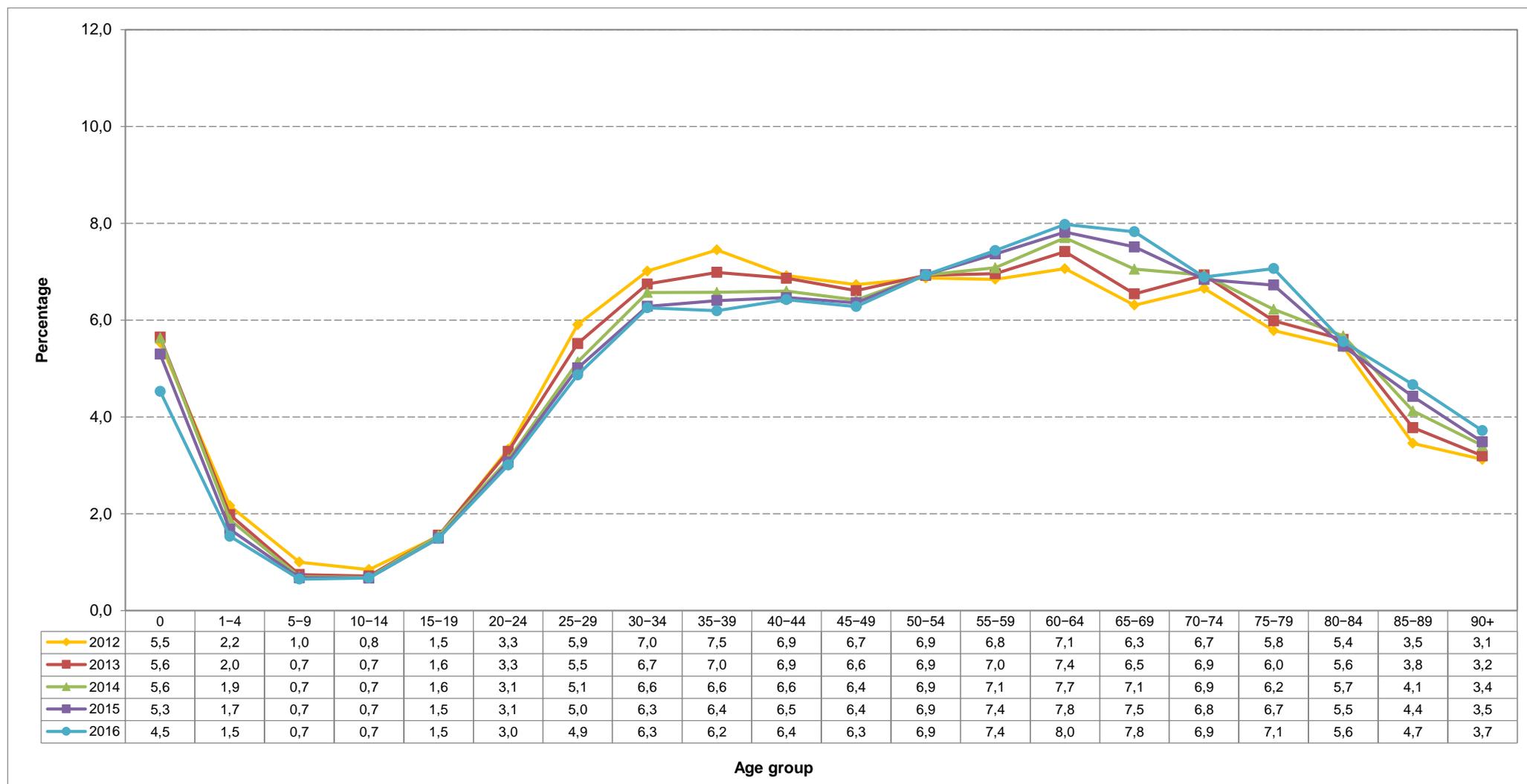
**Table 3.1: Number and percentage distribution of deaths by age, 2016**

Age group	Number	Percentage
0	20 649	4,5
1–4	7 008	1,5
5–9	2 966	0,6
10–14	3 083	0,7
15–19	6 821	1,5
20–24	13 708	3,0
25–29	22 209	4,9
30–34	28 519	6,2
35–39	28 244	6,2
40–44	29 290	6,4
45–49	28 635	6,3
50–54	31 618	6,9
55–59	33 917	7,4
60–64	36 372	8,0
65–69	35 684	7,8
70–74	31 418	6,9
75–79	32 210	7,1
80–84	25 323	5,5
85–89	21 280	4,7
90+	16 946	3,7
Unspecified	712	0,2
<b>Total</b>	<b>456 612</b>	<b>100,0</b>

Figure 3.2 shows the percentage distribution of deaths by age and year of death over the years 2012 to 2016. A general observation is that the age pattern of mortality was somewhat consistent over the five-year period. The pattern is generally characterised by high proportions of deaths amongst infants (age zero years), lower proportions for ages 1–4 years, lowest proportions between 5–9 years and 10–14 years, rising but still low proportions between age group 15–19 years and 20–24 years. High proportions averaging over 6,0% in all years from age group 30–34 years to 70–74 years, noteworthy increasing proportions for age group 75–79 years from a low of 5,8% in 2012 to 7,1% in 2016.

The figure further shows that in 2012, the proportion of deaths peaked at age group 35–39 years (7,5%), followed by 60–64 years (7,1%). Henceforth, age group 35–39 years' ranking went on a downward trend from the first position in 2012, to the second position in 2013, sixth rank in 2014, eighth highest in 2015 and further down to the tenth position in 2016, responsible for 6,2% of all deaths. The highest proportions of deaths were amongst age group 60–64 years for the years 2013 to 2016. The proportions increased consistently from 7,4% in 2013 to 8,0% in 2016. The lowest proportion of deaths was observed in age group 10–14 years (0,8%) in 2012, while for the rest of the years both age group 5–9 years and 10–14 years had the lowest proportions, each comprising 0,7% of deaths each year. The number distribution of the deaths by age, sex and year of death over a 20-year period (1997–2016) is presented in Appendices D (1997–1999), D.1 (2000–2002), D.2 (2003–2005), D.3 (2006–2008), D.4 (2009–2011), D.5 (2012–2014) and D.6 (2015–2016) [see pages 73–79].

**Figure 3.2: Percentage distribution of deaths by age and year of death, 2012–2016\***



\*(1) Excluding deaths with unspecified age.

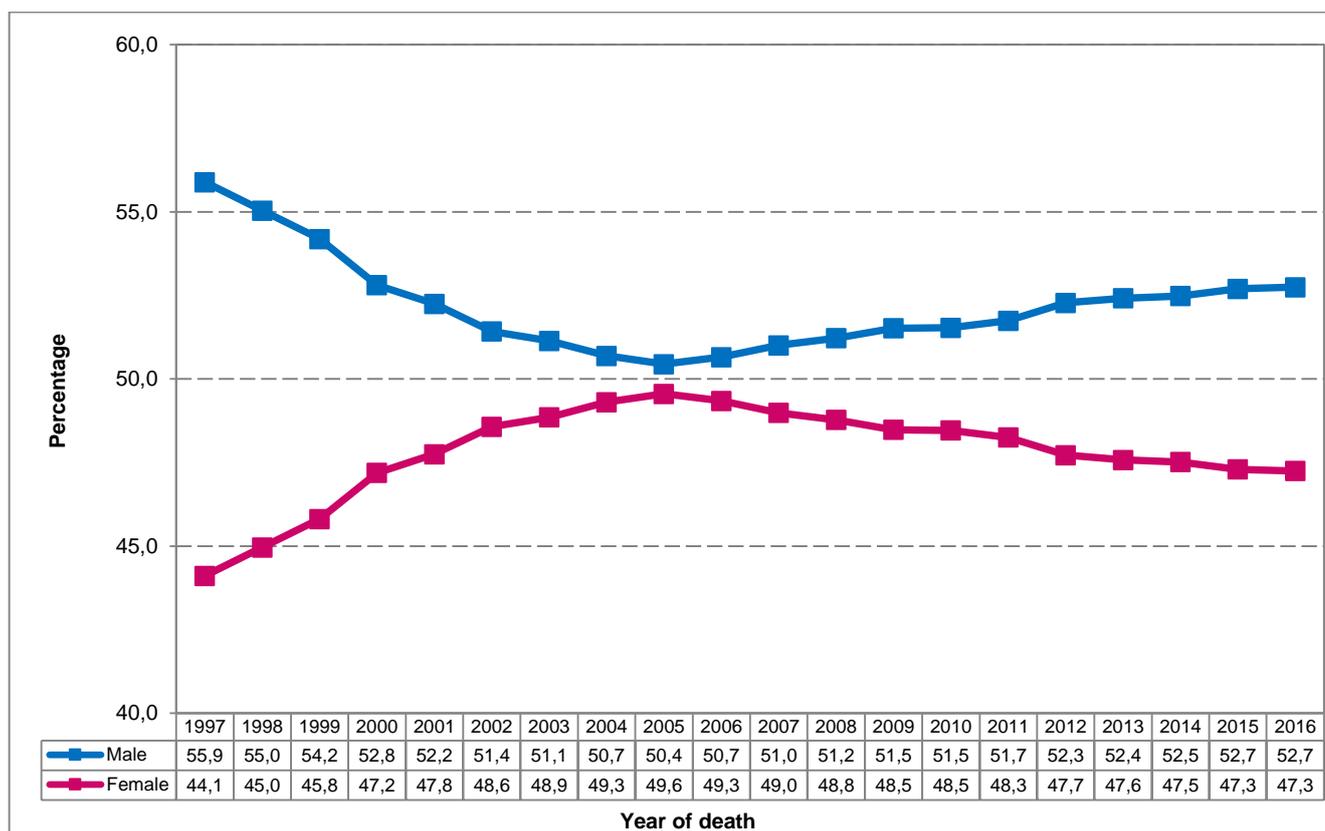
(2) Data for 2012–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

### 3.3 Sex differentials

The percentage distribution of deaths by sex and year of death from 1997 to 2016 is illustrated in Figure 3.3. Overall, for all the years, male deaths have consistently outnumbered female deaths. There was a huge gap between male and female proportions in 1997, but it narrowed down over time until 2005, and thereafter broadened again. The figure generally shows two distinct patterns:

- i. Prior to 2006, the proportion of male deaths decreased consistently while that of females increased. The proportion of male deaths was highest in 1997 (55,9%), decreasing to a low of 50,4% in 2005. In 2005, there were almost as many male deaths as female deaths. The latter accounted for 44,1% of all deaths in 1997 and increased yearly to a peak of 49,6% of all deaths in 2005.
- ii. The second pattern shows that from 2006 to 2016 the proportions of male deaths increased consistently, while a downward trend was observed among female deaths. During this period, the proportion of male deaths increased from 50,7% in 2006 to 52,7% in 2016. Female deaths decreased steadily from 49,3% in 2006 and reached 47,3% in 2016. The magnitude of the gap between male and female deaths widened from a 1,4 percentage points excess male deaths in 2006 to a 5,4 percentage points excess male deaths in 2016.

**Figure 3.3: Percentage distribution of deaths by sex and year of death, 1997–2016\***



\*(1) Excluding deaths with unspecified sex.

\*(2) Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

Further information on sex differentials is presented in Appendix E which shows the annual year-on-year percentage changes from 1997–1998 to 2015–2016 [see page 80]. Appendix F provides Age-specific Death Rates (ASDRs) for the years 2012 to 2016 in order to show differentials in mortality by age group taking into account the population size of each age group [see page 81]. The ASDRs provided should be interpreted with caution as they are based on observed number of deaths that have not been adjusted for incomplete death registration which may vary by age group.

### 3.4 Age and sex differentials

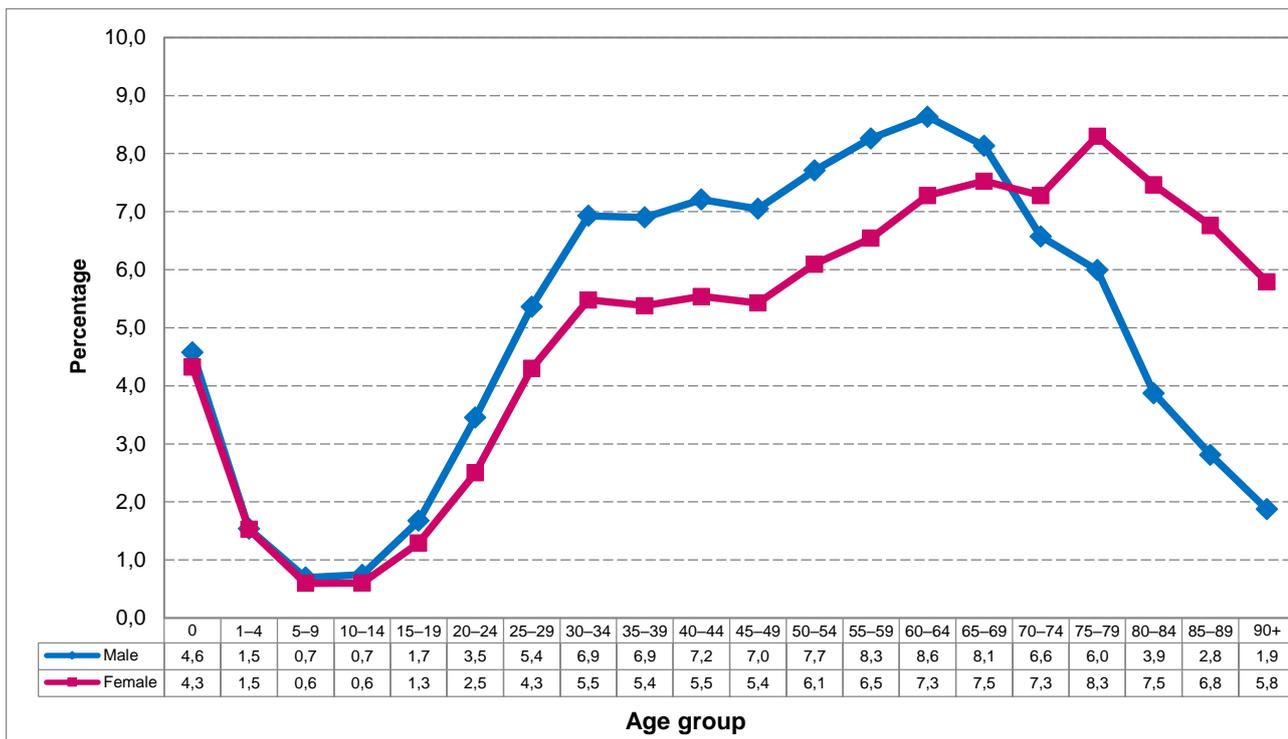
#### 3.4.1 Distribution of deaths by age and sex

Figure 3.4 shows the age and sex percentage distribution of the 2016 deaths. The absolute numbers are presented in Appendix D.6 [see page 79]. The figure shows that the male proportions exceeded those of female deaths from age group zero up to 65–69 years. At ages 70 years and above there were slightly more female than male deaths. The gap in the proportion of male and female deaths was highest at age groups 85–89 years and 90 years and above, where female demise outnumbered male deaths by 3,9 percentage points per age group and at age group 80–84 years (proportions of female deaths higher by 3,6 percentage points).

Male deaths peaked at age group 60–64 years (8,6%), followed by age groups 55–59 years (8,3%) and 65–69 (8,1%). The highest proportions for females were observed at age group 75–79 years with 8,3%, closely followed by 80–84 years and 65–69 years, each accounting for 7,5% of total female deaths.

The differences between proportions of male and female deaths were minimal at younger ages (from age zero to age group 15–19 years). The distribution shows that the percentage of male infant deaths (age zero) marginally exceeded the percentage of female infant deaths (4,6% for males and 4,3% for females). For both males and females the lowest proportions of deaths occurred amongst those aged 5–14 years (0,7% for males and 0,6% for females).

**Figure 3.4: Percentage distribution of deaths by age and sex, 2016\***



\*Excluding deaths with unspecified age and sex.

#### 3.4.2 Median ages at death by sex

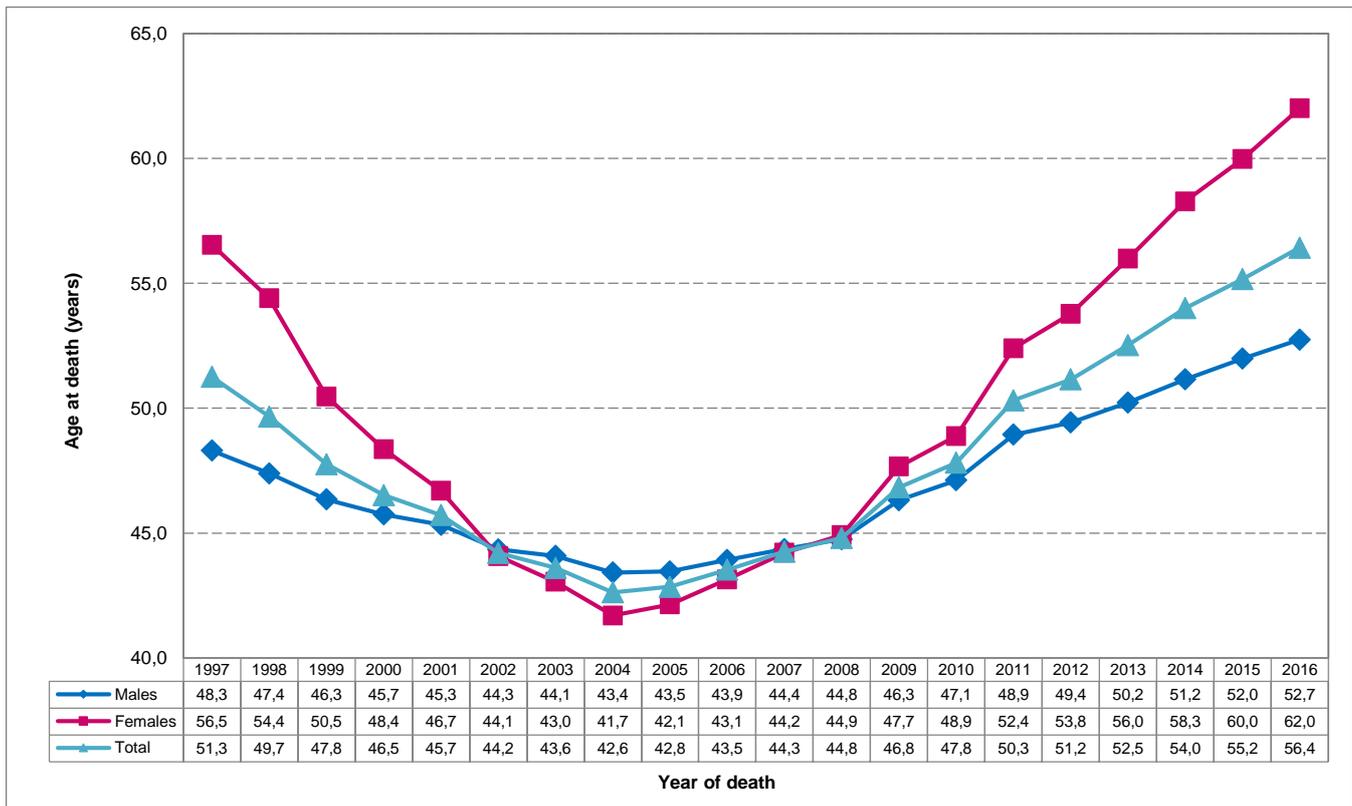
The median age at death shows how early or late mortality occurs in a population and specifies the age at which half of the reported deaths occur. The median ages at death by sex and year of death over the years 1997 to 2016 are presented in Figure 3.5. Trends in median ages at death are important in the analysis of changes in mortality patterns over time, such as an increase in the proportion of death occurring at older ages or at younger ages. The

former is indicative of improvements and postponement of mortality to older ages while the latter indicates premature mortality.

The figure shows that the median ages for males, females and total deaths decreased consistently from 1997 to 2004 and thereafter increased. It is also notable that both the declines and the increases were more pronounced amongst females relative to males. The median ages for total deaths abated from 51,3 years in 1997, to a low average age of 42,6 years in 2004 and went on to increase in 2005 reaching a high of 56,4 years in 2016. The median ages at death for males decreased from 48,3 years in 1997 to 43,4 years in 2004, while a reverse trend was observed between 2005 and 2016 from 43,5 years to 52,7 years in 2016. This reflects improvement in male mortality. However, the male average age for 2016 is lower than both the national and the female average. Similarly, the median ages for female deaths decreased prior to 2005, from 56,5 years in 1997 to 41,7 years in 2004. Between 2005 and 2016, the average age at death for females increased from 42,1 years in 2005 and peaked at 62,0 years in 2016. The 2016 median age at death for females surpasses the national average by 5,6 years and on average, based on 2016 median ages, females outlive males by 9,3 years.

A comparison of the sex differentials in median ages at death over the 20-year period (1997–2016) shows three patterns. In the first pattern, between 1997 and 2001, males died at younger ages relative to females. However, the gap narrowed over time from 8,2 years in 1997 to 1,4 years in 2001, indicating increased early mortality amongst females even though their average age at death was continuously higher than that for males. In the second pattern, between 2002 and 2007, female deaths occurred at younger ages in comparison to male deaths. The male median age at death exceeded the female median age at death by 0,2 years in 2002, increasing to a high of 1,7 years in 2004 before narrowing down to 0,2 years in 2007. In the third pattern, between 2008 and 2016 the pattern reversed, and the median age at death for females surpassed the median age at death for males with the gap persistently widening between the two periods. The male median age at death was trivially lower than the female median age at death by 0,1 years in 2008, increasing sharply to a 9,3 years disproportion in 2016.

**Figure 3.5: Median ages at death by sex and year of death, 1997–2016\***



\*Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

### 3.4.3 Sex ratios by age

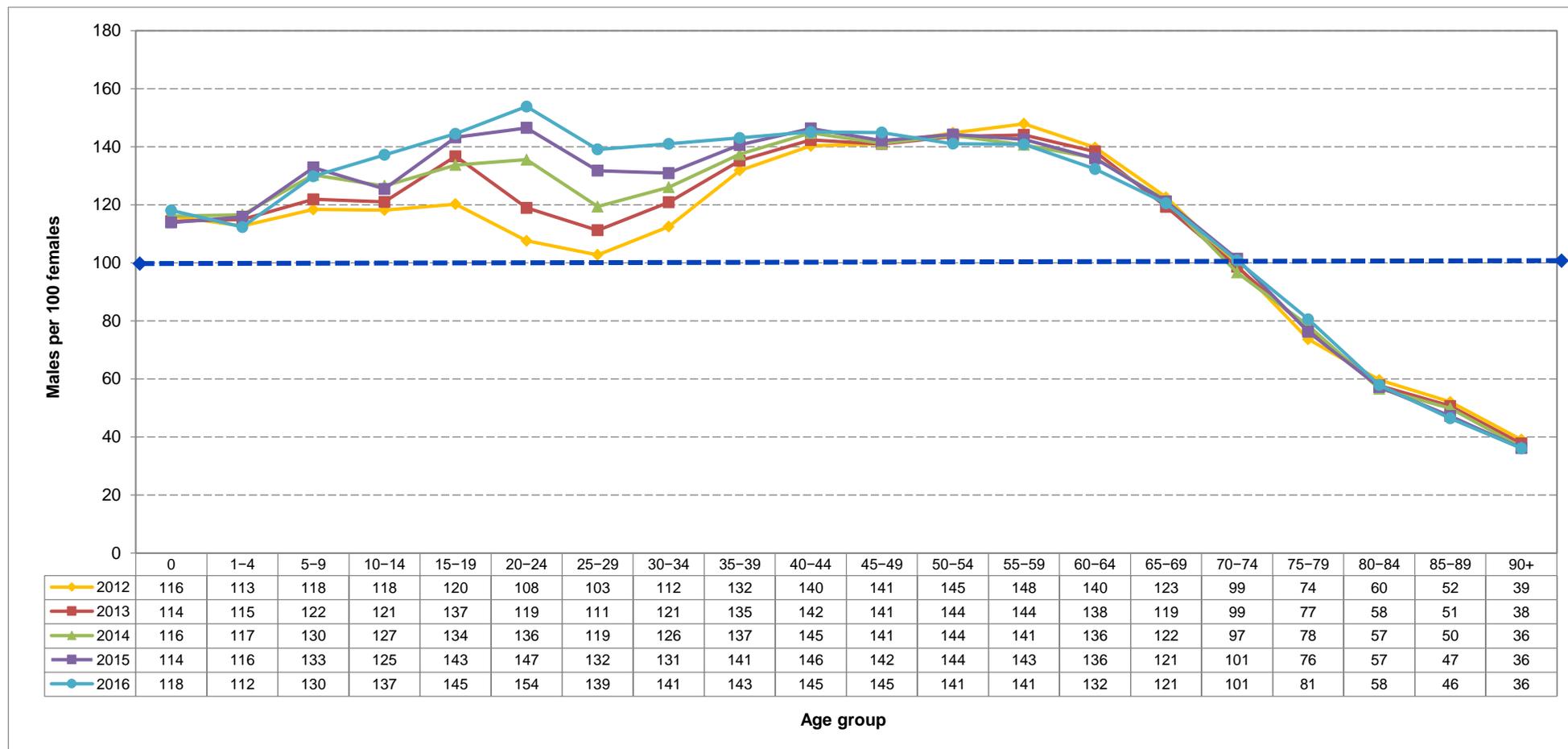
Figure 3.6 depicts the sex ratio at death by age group of the deceased and year of death for the period 2012–2016. The sex ratio at death (number of male deaths to female deaths) is a proxy that measures the relative risk of male mortality to female mortality. It is typically expressed in three ratios: a ratio above 100 indicating more male deaths than female deaths, a ratio of 100 indicating an equal number of male and female deaths and a ratio less than 100 indicating less male deaths relative to female deaths.

The figure shows that for all the years there were more male deaths than female deaths from age 0 to age group 65–69 years whereas female deaths consistently exceeded male deaths for ages 75 years and above. There were more female deaths for age group 70–74 years between 2012 and 2014. Thereafter, male deaths slightly exceeded female deaths for the years 2015 and 2016.

Variations by death year indicate that in 2012, the highest sex ratio (148 male deaths per 100 female deaths) was observed in the age group 55–59 years, and in 2013, both age group 50–55 years and 55–59 years had the highest sex ratio (each comprising 144 male deaths per 100 female deaths). In 2014, the highest sex ratio shifted down to age group 40–44 years, which had a sex ratio of 145 male deaths per 100 female deaths. The pattern further shifted to age group 20–24 years for the years 2015 and 2016 (147 and 154 male deaths per 100 female deaths, respectively). A trend analysis of the sex ratio at death for age group 20–24 years shows that it moved from a low of 108 male deaths per 100 female deaths in 2012 to a high of 154 male deaths per 100 female deaths in 2016, indicating an increase of 42,6% (46 years) from the 2012 sex ratio. In 2011 and earlier years, there were more female deaths for age groups 20–24 years and 25–29 years. This pattern has since reversed, implying improvements in female mortality during reproductive ages. Over the five-year period, the lowest sex ratios were observed in the 90 and above age group, moving from 39 male deaths per 100 female deaths in 2012 to 36 male deaths per 100 female deaths in 2016.

The overall sex ratios at death for 1997 to 2016 are shown in Appendix G (see page 82). The appendix depicts two trends. The first trend indicates that the sex ratios at death declined from a high of 127 male deaths per 100 female deaths in 1997 to a low of 102 male deaths per 100 female deaths in 2005. In the second pattern, the sex ratios went on an upward trend from 103 male deaths per 100 female deaths in 2006 to 112 male deaths per 100 female deaths in 2016. It is noteworthy that over the 20-year period, the sex ratios at death were always over 100, indicating that male deaths have consistently outnumbered female deaths.

Figure 3.6: Sex ratios by age and year of death, 2012–2016\*



\* (1) Excluding deaths with unspecified age and sex.  
 (2) Data for 2012–2015 have been updated to include late registrations processed/delayed death notification forms processed in 2016/2017.

### 3.5 Population group differences in mortality

Table 3.2 shows the distribution of the 2016 deaths by population group of the deceased. Black Africans had the highest percentage of deaths, comprising 70,0% of the total deaths, followed by the white population group (9,0%) and then the coloured population group (7,1%). The Indian/Asian population group (1,9%) accounted for the least percentage of registered deaths. The proportions observed are somewhat indicative of the variations in population size by population group. The table shows that black Africans accounted for the highest proportion of the total population (80,6%) while the Indian/Asian population group accounted for the least (2,5%). While there were more deaths amongst the white population group than the coloured population group, the latter accounted for a higher percentage of the total population (8,8%) than the former (8,1%). The table also shows that about 11,9% of the registered deaths were classified as unknown or unspecified. The proportion of deaths with missing information has decreased over time. However, analyses on population groups should be interpreted with caution as the proportion of deaths with missing information is still considerably high.

**Table 3.2: Number and percentage of deaths by population group, 2016**

Population group	Number	Percentage	Population group size*	Percentage of population group
Black African	319 653	70,0	44 809 060	80,6
White	41 246	9,0	4 516 785	8,1
Indian/Asian	8 463	1,9	1 388 842	2,5
Coloured	32 462	7,1	4 905 254	8,8
Other	595	0,1	-	0,0
Unknown or unspecified	54 193	11,9	-	0,0
<b>Total</b>	<b>456 612</b>	<b>100,0</b>	<b>55 619 940</b>	<b>100,0</b>

\*Source: Mid-year population estimates, 2017

### 3.6 Marital status differences in mortality

The number and percentage distribution of deaths by marital status of the deceased is presented in Table 3.3. In 2016, the majority of the deaths (45,8%) occurred amongst the never married, followed by the married (24,2%) and the widowed (10,7%). About 2,1% of the deaths occurred among people that were divorced.

It is worth noting that the variations in the percentage of deaths by marital status may be affected by differences in population sizes across the marital status categories. In addition, caution should be exercised when interpreting the results, as 17,1% of the death notification forms had missing information on marital status of the deceased.

**Table 3.3: Number and percentage distribution of deaths by marital status, 2016**

Marital status	Number	Percentage
Never married	209 113	45,8
Married	110 649	24,2
Widowed	49 046	10,7
Divorced	9 680	2,1
Unknown or unspecified	78 124	17,1
<b>Total</b>	<b>456 612</b>	<b>100,0</b>

### 3.7 Differences in mortality by smoking status

Table 3.4 shows the distribution of the 2016 death occurrences by smoking status of the deceased. Smoking status of the deceased refers to the smoking of tobacco on most days in the five years preceding death among the deceased aged 16 years and above. This information is important for the understanding of tobacco-related deaths. The table shows that 19,5% of the deceased were reported as smokers while 41,2% were reported as non-smokers. However, the high proportion of deaths with missing information on smoking status is indicative of poor reporting of this information and the results should be interpreted with caution. Thirty-three per cent (33,3%) of the deaths in 2016 had missing information on smoking status, down from 33,5% in 2015 and 34,2% in 2014.

**Table 3.4: Number and percentage distribution of deaths by smoking status among those aged 16 years and older, 2016**

Smoking status	Number	Percentage
Yes	81 975	19,5
No	173 178	41,2
Do not know	25 524	6,1
Unknown or unspecified	139 888	33,3
<b>Total</b>	<b>420 565</b>	<b>100,0</b>

### 3.8 Differences in mortality by place or institution of death occurrence

Table 3.5 shows the distribution of the deaths by place or institution of death occurrence for 2016. The results indicate that 43,2% of the deaths took place in a hospital, 2,6% in a nursing home and 1,7% died in an emergency room or as outpatients. Altogether, these three places of death occurrence account for 47,5% of total deaths and give an indication of the proportion of deaths that occurred in a healthcare facility. About 22,6% of deaths occurred at home and 2,0% of the deceased were already declared dead upon arrival at healthcare facilities. Approximately 23,2% of the death notification forms had missing information on place or institution of death, and as such, the information should be interpreted with caution.

**Table 3.5: Number and percentage distribution of deaths by place of death occurrence, 2016**

Place of death	Number	Percentage
Hospital	197 146	43,2
Home	103 313	22,6
Nursing home	11 785	2,6
Dead on arrival	9 211	2,0
Emergency room/out-patient	7 920	1,7
Other	21 325	4,7
Unknown or unspecified	105 912	23,2
<b>Total</b>	<b>456 612</b>	<b>100,0</b>

### 3.9 Geographic variations in mortality

This subsection provides information on the distribution of deaths by province of death occurrence, province of usual residence and district municipality of deaths for deaths that occurred in 2016, based on the 2011 municipality boundaries. Appendices I (see page 84) and I.1 (see page 86) provide the number and percentage distribution of death at provincial and district municipality levels by age, respectively. The sex distribution is provided in Appendix J (see page 88).

#### 3.9.1 Differences by province, age and sex

Table 3.6 presents the number and percentage distribution of the 2016 deaths by province of death occurrence and province of usual residence of the deceased. The number and percentage distributions largely reflect the population sizes of the provinces of death occurrence and usual residence. In general, the majority of deaths occurred within the province of usual residence. The distribution of deaths by province of death shows that the highest proportion of deaths (21,3%) occurred in Gauteng province, closely followed by KwaZulu-Natal (18,6%) and Eastern Cape (14,5%). The lowest percentages of deaths were observed in Northern Cape (3,0%) and Free State (7,0%).

Similarly, the distribution of deaths by province of usual residence indicates that Gauteng (20,6%) comprised the highest proportion of deaths, followed by KwaZulu-Natal (18,4%) and Eastern Cape (14,6%). The lowest proportion of deaths occurred amongst those who were usual residents in Northern Cape (3,0%) and Free State (7,0%). A total of 216 deaths occurred to South Africa citizens in a foreign country and 1 397 (0,3%) of the deceased were usual residents in a foreign country.

Subsequent analysis on the geographic distribution of deaths shows that 2016 registered deaths predominantly occurred within the province of usual residence (see Appendices H, page 83 and H1 page 83). At least 91,5% (North West) of deaths occurred within the province of usual residence in all provinces, with as much as 95,8% of the deceased dying within their usual residential province in Western Cape and KwaZulu-Natal. The highest proportion of people who died outside South Africa were usual residents of Gauteng (26,9%) and a high proportion of people who died outside of South Africa (31,8%) who had missing province of death information were mostly usual residents in Gauteng.

It must be noted that further analysis on geography focuses only on province/district municipality of death occurrence and not on province/district municipality of residence or birth occurrence. However, further information on the distribution of deaths by place of residence or birth occurrence is available on request from Stats SA.

**Table 3.6: Distribution of deaths by province of death occurrence and province of usual residence of the deceased, 2016**

Province	Province of death occurrence		Province of usual residence of deceased	
	Number	Percentage	Number	Percentage
Western Cape	48 141	10,5	47 219	10,3
Eastern Cape	66 067	14,5	66 481	14,6
Northern Cape	13 868	3,0	13 756	3,0
Free State	31 796	7,0	31 820	7,0
KwaZulu-Natal	84 755	18,6	83 791	18,4
North West	35 405	7,8	35 640	7,8
Gauteng	97 437	21,3	93 984	20,6
Mpumalanga	33 261	7,3	34 046	7,5
Limpopo	45 578	10,0	45 990	10,1
Foreign	216	0,0	1 397	0,3
Unspecified	88	0,0	2 488	0,5
<b>Total</b>	<b>456 612</b>	<b>100,0</b>	<b>456 612</b>	<b>100,0</b>

The number distribution of deaths by age and province of death occurrence as shown in Appendix I (see page 84) indicates that Gauteng had the highest number of deaths for all age groups (age 0 [5 264], 15–44 years [27 966], 45–64 years [28 330] and 65 years and older [33 137]) except for age group 1–14 years, where KwaZulu-Natal had the highest number of deaths [2 498]. It must be noted that the distribution of deaths does not take into account potential underreporting of deaths at specific ages, which may vary by district of death occurrence.

Percentage variations in 2016 deaths by age and district municipality are presented in Appendix I1 (see page 86). At province level, North West (6,3%) had the highest proportion of infant deaths, followed by Northern Cape (5,9%). Limpopo (4,2%) had the highest percentage of deaths amongst children 1–14 years. Deaths in Mpumalanga (32,0%) had the highest percentage in the 15–44 years age category, followed by KwaZulu-Natal (30,7%). Northern Cape had the highest proportion of deaths occurring in the 45–64 years age group (31,2%), while Western Cape had the highest percentage of elderly deaths [ages 65 and older (40,1%)].

The sex ratios at death depicted in Appendix J (see page 88) show that Western Cape (123 male deaths per 100 female deaths) had the highest sex ratio of death and Gauteng (118 male deaths per 100 female deaths) had the second highest. Limpopo was the only province with a sex ratio below 100 (99 male deaths per 100 female deaths). In the remaining provinces, the sex ratio at death ranged from a high of 114 male deaths per 100 female deaths in Northern Cape and North West to a low of 107 male deaths per 100 female deaths in KwaZulu-Natal.

### 3.9.2 Differences by district municipality, age and sex

The number distribution of deaths by age and district municipality of death occurrence as shown in Appendix I (see page 84) indicates that out of the 52 district municipalities, the top three district municipalities were metropolitan municipalities: City of Cape Town (30 114), City of Johannesburg (29 366) and Ekurhuleni (25 787). The district municipalities that recorded the least number of deaths were Central Karoo (796), Namakwa (1 192) and Overberg (2 227). Differentials by age group indicate that Ekurhuleni had the highest number of deaths for age 0 (1 667) and 1–14 years (785) and City of Johannesburg had the highest number of deaths amongst those aged 15–44 years (8 559). Lastly, City of Cape Town had the highest number of deaths for age groups 45–64 years (8 857) and 65 years and above (11 783).

Appendix I1 (see page 86) indicates that John Taolo Gaetsewe district in Northern Cape and Ruth Segomotsi Mompati district in North West (9,5% and 8,2%, respectively) comprised the highest proportions of deaths occurring

during infancy (age zero). Deaths among children aged 1–14 years were mostly found in Vhembe district in Limpopo (4,7%) and O.R. Tambo district in Eastern Cape (4,6%). The lowest proportions of deaths occurring during infancy and among children 1–14 years were reported in Amathole district in Eastern Cape (1,8%) and in Eden district in Western Cape (0,7%), respectively. O.R. Tambo district in Eastern Cape also had the highest percentage of deaths among those aged 15–44 years (34,2%), followed by uThungulu district in KwaZulu-Natal (33,2%). Namakwa district in Northern Cape (17,9%) had the lowest proportion of deaths occurring in the 15–44 years age category. Central Karoo district in Western Cape and Nelson Mandela Bay in the Eastern Cape (33,5%) had the highest proportion of deaths for the age group 45–64 years, whereas uMkhanyakude district in KwaZulu-Natal (23,0%) had the lowest. The deaths among the elderly (65 years and older) were mostly found in Namakwa district in Northern Cape (47,6%) and in Overberg district in Western Cape (45,0%). Gert Sibande district in Mpumalanga (29,2%) was the district municipality with the lowest percentage of deaths for age group 65 years and older.

Appendix J (see page 88) shows the sex distribution of the deceased by the district municipality of death occurrence. Four district municipalities had sex ratios below 100: Vhembe district in Limpopo (94 male deaths per 100 female deaths), Mopani district in Limpopo (95 male deaths per 100 female deaths), Harry Gwala district (previously known as Sisonke district) in KwaZulu-Natal (98 male deaths per 100 female deaths) and Sekhukhune district (previously known as Greater Sekhukhune district) in Limpopo (99 male deaths per 100 female deaths). The district municipalities where there were equal male and female deaths were Alfred Nzo district in Eastern Cape and Capricorn district in Limpopo (100 male per 100 female deaths). Overall, the district level analysis of deaths by sex shows that 2016 deaths were predominantly characterised by excess male deaths in comparison to female deaths. In total, 46 out of the 52 district municipalities had sex ratios at death above 100 ranging from 101 male deaths per 100 female deaths in Amajuba and uMzinyathi districts in KwaZulu-Natal to 137 male deaths per 100 female deaths in Overberg district in Western Cape. Deaths that occurred outside of South Africa had a sex ratio of 221 male deaths per 100 female deaths.

## 4. Causes of death

This section provides information on causes of death for individual deaths that occurred in 2016 and were registered with DHA and whose death notification forms reached Stats SA during the 2016/2017 processing phase. In addition, comparisons are made with deaths that occurred between 1997 and 2015, updated for late registrations. This section has nine subsections, namely:

- I. Introduction
- II. Reported causes of death
- III. Method of ascertaining the cause of death
- IV. Main groups of the underlying causes of death
- V. Natural and non-natural causes of death
- VI. Major group of causes of death
- VII. Broad groups of natural causes of death
- VIII. Non-natural causes of death
- IX. Comparison between immediate, contributing and underlying causes of death.

### 4.1 Introduction

The information on causes of death provided is as recorded on death notification forms completed by medical practitioners and other certifying officials. Information on the cause of death can only be completed by medical practitioners according to the Births and Deaths Registration Act (Act No. 51 of 1992).

Causes of death data in this publication are classified using the 10th revision of the International Classification of Diseases (ICD-10) as discussed in Section 2.2.1 of Chapter 2. The ICD, which is recommended by the World Health Organization (WHO), is mainly intended for the classification of diseases and injuries with a formal diagnosis. This allows for the systematic recording, analysis, interpretation and comparison of mortality and morbidity data collected in different countries at different times. The analysis undertaken focuses mainly on the underlying cause of death (defined as the disease or injury that initiated the train of events leading directly to death; or the circumstances of the accident or violence which produced the fatal injury) [WHO, 1992]. Information on underlying causes of death is provided according to 19 of the 22 main groups (chapters) of the classification of morbidity or mortality (excluding Chapters 19, 21 and 22).

Analysis of causes of death over the years has shown that South Africa generally has higher levels of violence and deaths due to accidents; as a result, deaths due to non-natural causes were analysed as a separate group. All deaths that were not attributable, or may not have been attributable to natural causes are referred to as non-natural causes of death. Such deaths are subjected to medico-legal investigation as stipulated by the Inquest Act (Act No. 58 of 1959). This requires that an autopsy must be undertaken to ascertain the cause of death. Once completed, the results of the inquest are then forwarded to the DHA, which issues the final death certificate.

Analyses carried out in this section also include describing causes of death by age, sex and province of occurrence. Trend analysis for the period 1997–2016 was undertaken for the classification of natural and non-natural causes of death while a three-year trend analysis covering the period 2014–2016 was undertaken for the analysis of main groups and broad groups of the underlying causes of death.

South Africa has in recent years seen a rise in non-communicable diseases (see previous reports on mortality and causes of death); as a result, this section also includes an analysis on the Global Burden of Disease. The Global Burden of Disease describes mortality and morbidity from major diseases, injuries and risk factors to health, and is

a critical resource for informed policymaking as it provides a tool to quantify and compare the effects of different diseases in a population.

The last subsection highlights a comparison between underlying, immediate and contributing causes of death. This analysis gives an overview of the recorded instances of multiple causes of death and utilises information on all causes of death recorded on each death notification form.

## 4.2 Reported causes of death

Information on diseases, injuries or complications that caused death is provided on a death notification form when a death is registered at the DHA. Forms BI-1663 (see Appendix B, section G on page 58) and DHA-1663 (see Appendix B1, sections G.1 and G.2 on pages 64) make provision for recording information on diseases, injuries or complications that caused death. Section G.1 of the DHA-1663 provides a section for recording cause of death for adult deaths while Section G.2 is for recording perinatal deaths. Both forms BI-1663 and DHA-1663 have Part 1 and Part 2 on causes of death. Part 1 is for reporting the chain of events which directly lead to the death while Part 2 is for other important diseases or conditions that were present at the time of death and may have contributed, but did not lead to the death.

Table 4.1 shows information on the number of causes of death provided on each death notification form for deaths that occurred in 2016. Close to one per cent (0,9%) of the forms had no cause of death recorded on the forms. These are as a result of two scenarios:

Scenario 1: This is a situation where the page for recording causes of death information was missing when the form was received from the DHA, but there is a doctor's tick to show that it was a natural cause but with no specific cause given.

Scenario 2: This is where the page with causes of death information was missing when the form was received from the DHA, but the doctor indicated that the death was still under investigation and therefore cause of death had not yet been established.

In both scenarios, the age of the deceased was used to establish the underlying cause of death. ICD-10 codes such as R99 (other ill-defined and unspecified causes of mortality) and P96 (other conditions originating in the perinatal period) were used for these deaths, depending on the age of the deceased. ICD-10 code R99 (other ill-defined and unspecified causes of mortality) was used for adult deaths, while P96 (other conditions originating in the perinatal period) was used for perinatal deaths.

Of the 4 051 forms with no causes of death, 2 761 (68,2%) of these had a doctor's tick to show that it was a natural cause of death but no specific cause given, and for the remaining 1 290 (31,8%), the doctors indicated that they were "not in a position to certify" or that the "death was under investigation".

The results presented in Table 4.1 showed that the majority of death notification forms (53,1%) had only one cause of death recorded; just over a quarter (25,9%) had two causes recorded; 13,9% had three causes recorded; and 6,2% had four to six causes recorded on them. The pattern of recording causes on the death notification forms for 2016 is similar to that observed in the previous years.

**Table 4.1: Distribution of death notification forms by number of causes recorded on the form**

Number of reported causes of death	Number of death notification forms	Percentage
No cause	4 051	0,9
One cause	242 450	53,1
Two causes	118 354	25,9
Three causes	63 644	13,9
Four causes	21 836	4,8
Five causes	6 257	1,4
Six causes	20	0,0
<b>Total</b>	<b>456 612</b>	<b>100,0</b>

#### 4.3 Method of ascertaining 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. The options on method of ascertainment differ according to the form used by the medical practitioner to certify the death. When the BI-1663 form was revised, the option on responses for the method used to ascertain the cause of death was slightly changed. Post-mortem examination was included for deaths which occurred after seven days of birth, while for perinatal deaths the following options below were included in the death notification form:

- I. Certified cause of death has been confirmed by autopsy;
- II. Autopsy information may be available later; and
- III. Autopsy not performed.

Therefore the differences in the options between the old form (BI-1663) and new form (DHA-1663) forms are:

- BI-1663 form has six options (autopsy, opinion of attending medical practitioner, opinion of attending medical practitioner on duty, opinion of professional nurse, interview of family member and other).
- DHA-1663 form (for deaths occurring after one week of birth) has the same six options plus an additional option, namely "post-mortem examination".
- DHA-1663 form (for perinatal deaths) has three options (autopsy, autopsy results may be available later and autopsy not performed).

In order to avoid complexities in analysis, categories on DHA-1663 and BI-1663 were combined, and Table 4.2 shows the resulting categories after combining comparable information in both forms. The most common method of ascertaining the cause of death in 2016 was post-mortem examination with 25,1%, followed by 16,0% deaths ascertained through opinion of attending medical practitioner. About twelve per cent (11,7%) of deaths were ascertained through the opinion of a registered professional nurse and 9,8% by means of an autopsy. There were 1,5% causes of death that were ascertained by conducting an interview with a family member of the deceased to establish the cause of death. These results should be interpreted with caution as more than a third (32,5%) constitutes unspecified cases.

**Table 4.2: Number and percentage distribution of deaths by method used to ascertain the cause of death, 2016**

Method of ascertaining cause of death	Number	Percentage
Post-mortem examination	114 489	25,1
Opinion of attending medical practitioner	73 133	16,0
Opinion of registered professional nurse	53 294	11,7
Autopsy	44 758	9,8
Opinion of attending medical practitioner on duty	7 625	1,7
Interview of family member	6 843	1,5
Other	6 404	1,4
Autopsy not performed	1 428	0,3
Autopsy results may be available later*	40	0,0
Unknown or unspecified	148 598	32,5
<b>Total</b>	<b>456 612</b>	<b>100,0</b>

\*For perinatal deaths only.

#### 4.4 Main groups of the underlying causes of death

This subsection gives an overview of the underlying causes of death for main groups (chapters) of classification of causes of death. The ICD-10 classifies diseases and related health problems into 22 chapters, of which 19 are used in the reporting of information on underlying causes of death (see Table 4.3 on page 24). The chapters excluded in this report are chapters 19, 21 and 22, as mentioned in Section 4.1, and are briefly discussed below:

- Chapter 19: *Injury, poisoning and certain other consequences of external causes (S00-T98)*. These codes are used to classify causes of death in other causes but not in the underlying causes.
- Chapter 21: *Factors influencing health status and contact with health services (Z00-Z99)*. These are only used in morbidity coding.
- Chapter 22: Codes for special purposes. These codes are used by WHO for the provisional assignment of new diseases of uncertain aetiology. *U51* and *+* were used for coding *multidrug-resistant tuberculosis (MDR-TB)* and *extensively drug-resistant tuberculosis (XDR-TB)* in this release for individual causes of death, but were both recoded to the broad group of *tuberculosis (A15-A19)* in the analyses.

Table 4.3 shows the number and percentage distribution of deaths by the 19 main groups (chapters) of the classification of causes of death. *Diseases of the circulatory system* were the most common underlying cause of death main group, comprising 18,5% deaths in 2016. This group has overtaken *certain infectious and parasitic diseases* in 2016, since for all the previous years, *certain infectious and parasitic diseases* was the most common main group of underlying causes. *Certain infectious and parasitic diseases* in 2016 was the second most common main group of underlying causes, comprising 18,2% deaths. This group also included 1 007 deaths due to *MDR-TB* and 114 deaths due to *XDR-TB*.

*Diseases of the respiratory system* and *neoplasm* were the third and fourth most common main group of underlying causes responsible for 9,4% and 9,3 deaths, respectively. *Endocrine, nutritional and metabolic diseases* were fifth and was responsible for 7,0% deaths, while *certain conditions originating in the perinatal period* contributed to 1,8% of all deaths.

Deaths due to *external causes of morbidity and mortality* comprised 11,2% of all deaths, whilst ill-defined deaths due to *symptoms and signs not elsewhere classified (R00-R99)* contributed 13,2%.

**Table 4.3: Number and percentage distribution of deaths by the 19 main groups**

No.	Main groups of underlying causes of death (based on ICD-10)	Number	Percentage
1	Certain infectious and parasitic diseases (A00-B99)*	83 004	18,2
2	Neoplasms (C00-D48)	42 630	9,3
3	Diseases of the blood and immune mechanism (D50-D89)	12 512	2,7
4	Endocrine, nutritional and metabolic diseases (E00-E90)	32 119	7,0
5	Mental and behavioural disorders (F00-F99)	2 289	0,5
6	Diseases of the nervous system (G00-G99)	9 747	2,1
7	Diseases of the eye and adnexa (H00-H59)	31	0,0
8	Diseases of the ear and mastoid process (H60-H95)	66	0,0
9	Diseases of the circulatory system (I00-I99)	84 315	18,5
10	Diseases of the respiratory system (J00-J99)	42 798	9,4
11	Diseases of the digestive system (K00-K93)	11 781	2,6
12	Diseases of the skin and subcutaneous tissue (L00-L99)	1 025	0,2
13	Diseases of the musculoskeletal system etc. (M00-M99)	1 821	0,4
14	Diseases of the genitourinary system (N00-N99)	9 444	2,1
15	Pregnancy, childbirth and puerperium (O00-O99)	815	0,2
16	Certain conditions originating in the perinatal period (P00-P96)	8 309	1,8
17	Congenital malformations (Q00-Q99)	2 329	0,5
18	Symptoms and signs not elsewhere classified (R00-R99)	60 335	13,2
19	External causes of morbidity and mortality (V01-Y98)	51 242	11,2
		<b>456 612</b>	<b>100,0</b>

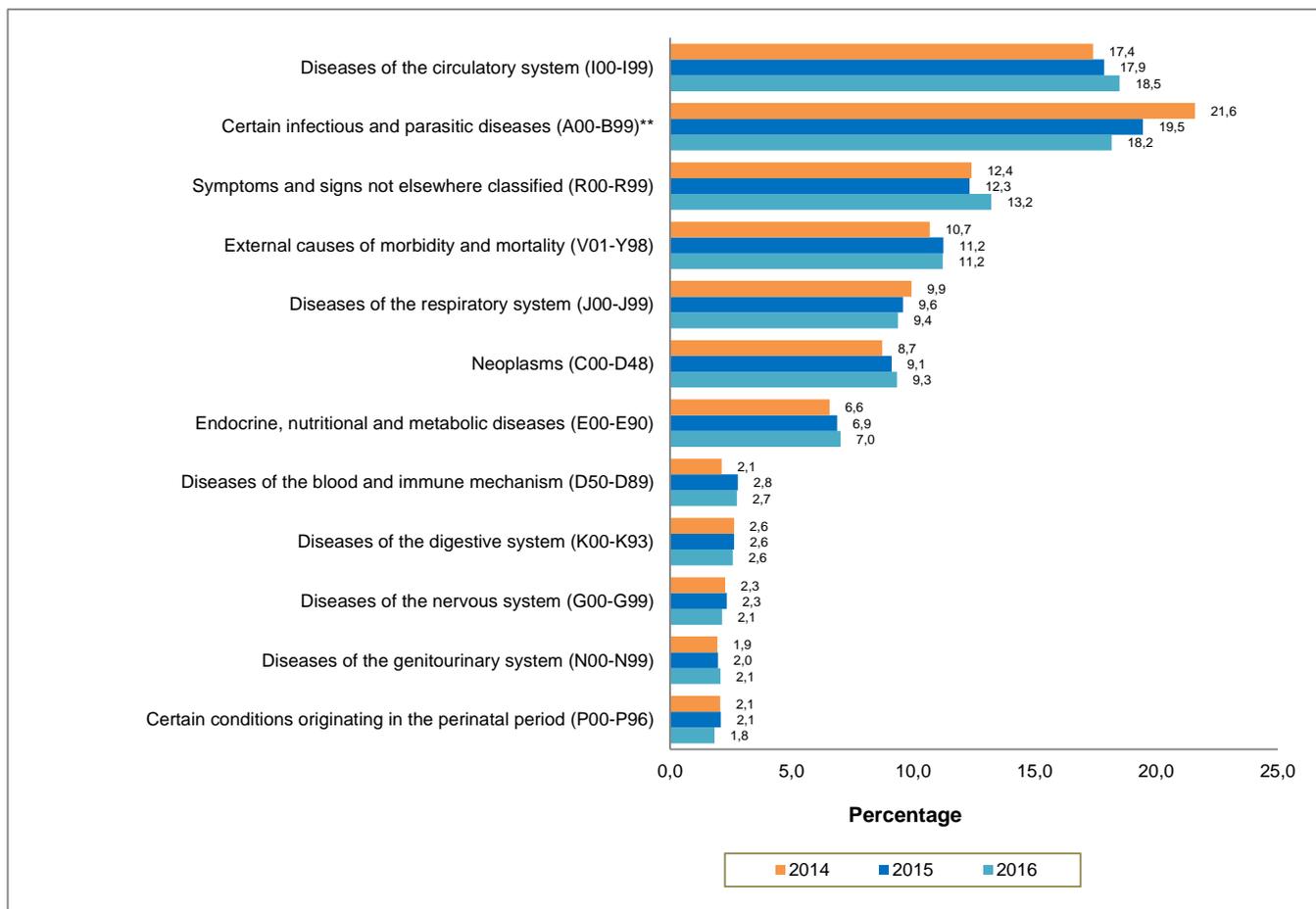
\*Including deaths due to *MDR-TB* and *XDR-TB*.

The percentages do not add to a 100 due to rounding off.

Figure 4.1 shows a three-year trend analysis for selected main groups of underlying causes of deaths for the years 2014 to 2016. The most noticeable changing patterns were those of *certain infectious and parasitic diseases* which declined from 21,6% in 2014 to a low of 18,2% in 2016 in the three-year period. The other prominent pattern was the increase in the proportion of deaths due to *diseases of the circulatory system*, which increased from 17,4% in 2014 to 18,5% in 2016. This was the first time that deaths due to this main group were higher than deaths due to *certain infectious and parasitic diseases*.

The proportions of deaths due to *endocrine, nutritional and metabolic diseases*, *neoplasms* and *diseases of the genitourinary system* increased slightly each year over the three-year period, while those due to *diseases of the respiratory system* decreased.

**Figure 4.1: Percentage distribution of deaths by selected main groups of causes of death, 2014–2016**



\*(1) Data for 2014–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

(2) Excluding main groups with less than 1% of deaths.

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

### 4.5 Natural and non-natural causes of death

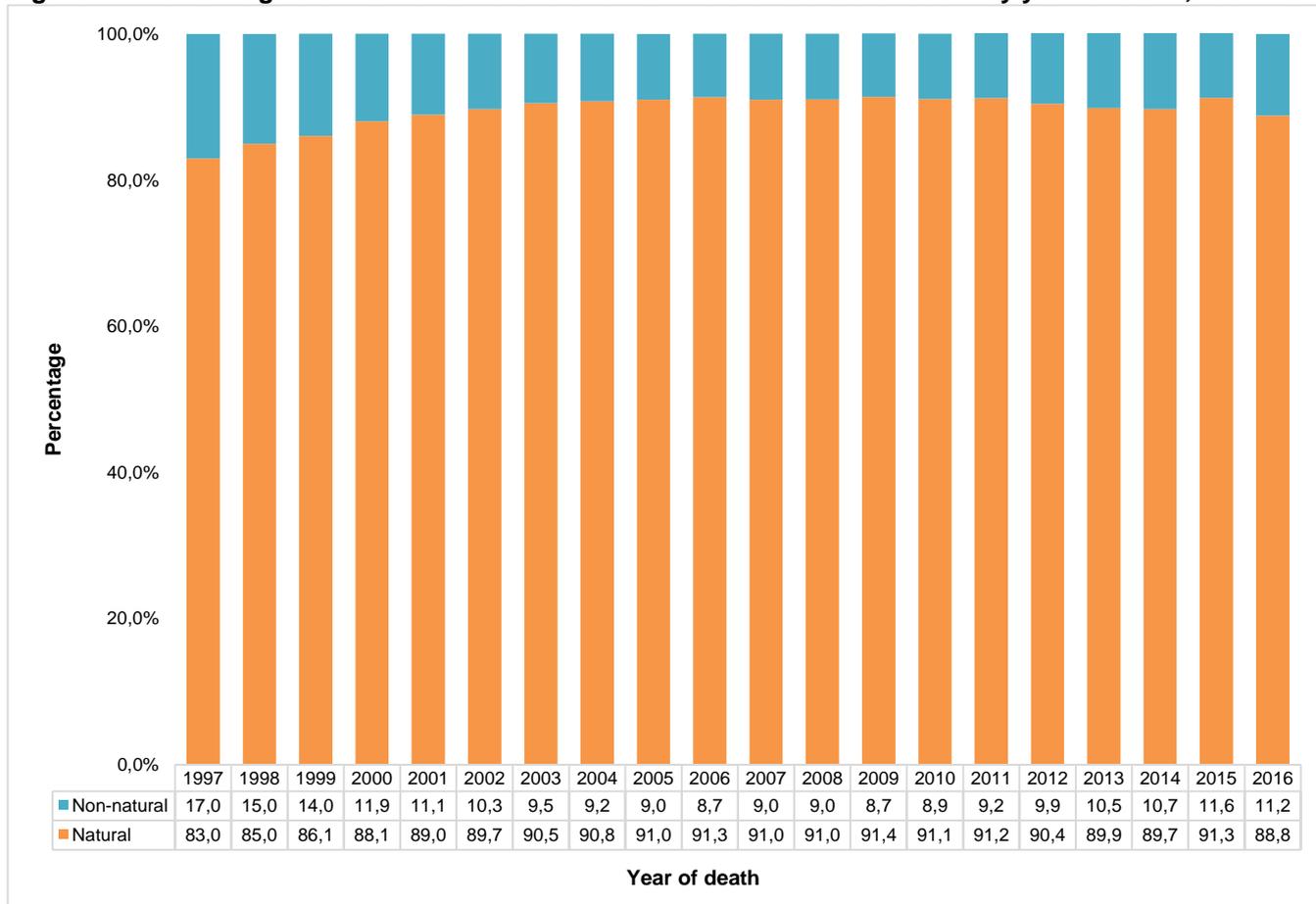
According to the ICD-10 codebook, all causes of death from chapters 1 to 18 of ICD-10 are classified as natural causes and chapter 20 (*V01-Y98*) as non-natural causes. This section discusses both natural causes of death and chapter 20, which are deaths due to non-natural causes. Table 4.4 and Figure 4.2 show the number and percentage of deaths due to natural and non-natural causes, respectively, from 1997 to 2016. Generally, the proportion of deaths due to natural causes is significantly higher than deaths due to non-natural causes. This trend has been observed for all the previous years.

**Table 4.4: Number of natural and non-natural deaths by year of death, 1997–2016**

<b>Year of death</b>	<b>Number of natural deaths</b>	<b>Number of non-natural deaths</b>	<b>Total</b>
1997	263 725	54 147	<b>317 872</b>
1998	311 454	55 167	<b>366 621</b>
1999	329 286	53 401	<b>382 687</b>
2000	367 415	49 844	<b>417 259</b>
2001	405 881	50 435	<b>456 316</b>
2002	451 617	51 792	<b>503 409</b>
2003	505 514	52 964	<b>558 478</b>
2004	524 993	53 455	<b>578 448</b>
2005	545 602	54 075	<b>599 677</b>
2006	560 943	53 305	<b>614 248</b>
2007	551 606	54 633	<b>606 239</b>
2008	544 609	53 680	<b>598 289</b>
2009	533 114	50 838	<b>583 952</b>
2010	502 231	49 343	<b>551 574</b>
2011	470 287	47 275	<b>517 562</b>
2012	446 324	48 936	<b>495 260</b>
2013	427 321	49 842	<b>477 163</b>
2014	425 952	50 939	<b>476 891</b>
2015	420 038	53 228	<b>473 266</b>
2016	405 370	51 242	<b>456 612</b>

There has been a consistent decrease in the proportion of deaths due to non-natural causes for the period 1997 to 2006, after which the proportion of non-natural deaths started to increase. Between the years 2007 and 2008, the proportion of non-natural deaths remained the same at 9,4% and thereafter steadily increasing to as high as 11,8% in 2015, after which it slightly dropped to 11,2% in 2016.

**Figure 4.2: Percentage distribution of natural and non-natural causes of death by year of death, 1997–2016**

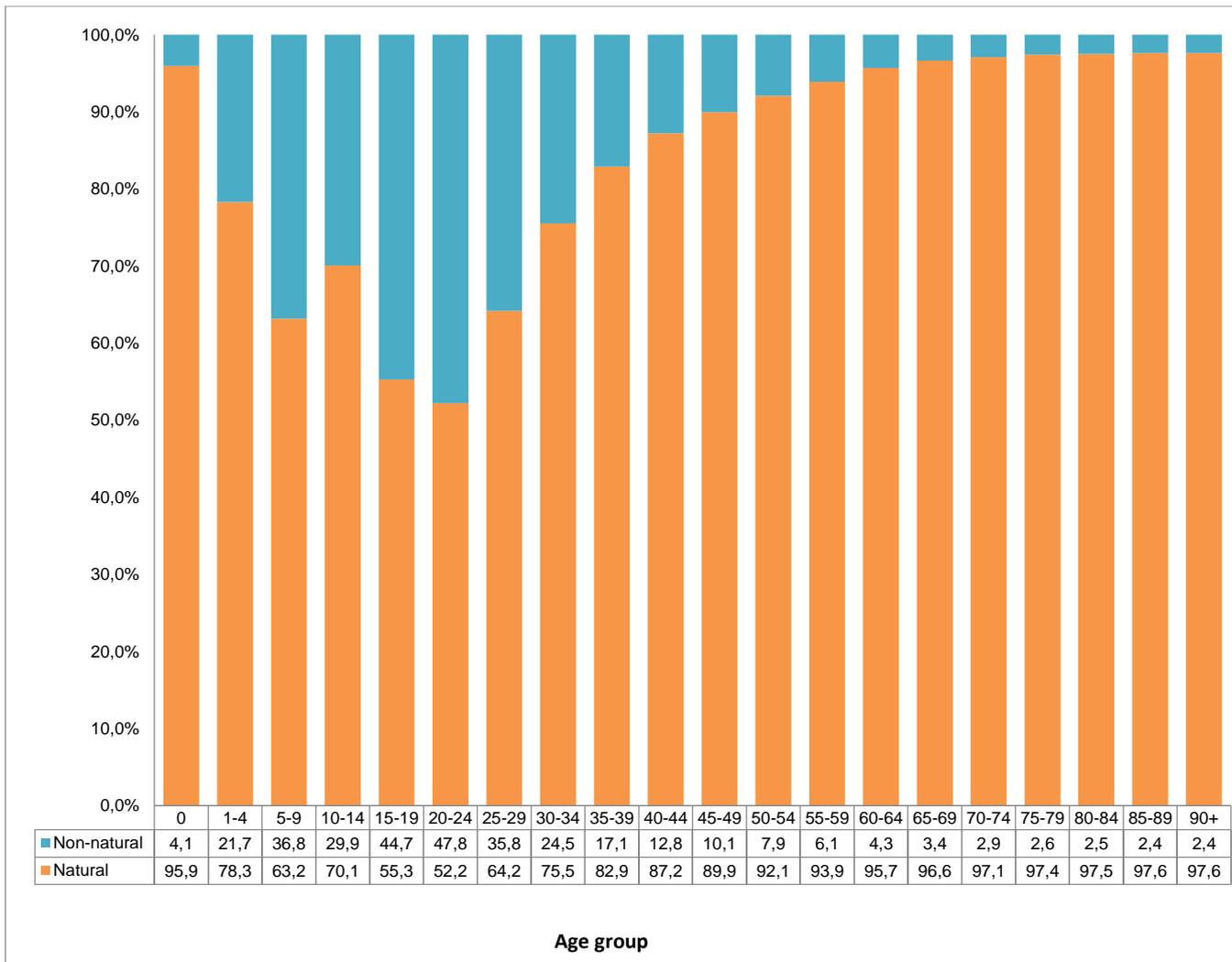


\*Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

### 4.5.1 Natural and non-natural causes of death by age

Figure 4.3 shows the percentage distribution of deaths due to natural and non-natural causes classified by age group for deaths that occurred in 2016. The general pattern observed is that the proportion of deaths due to non-natural causes increased almost consistently from age 0 to age group 20–24 with the exception of the peak observed at age group 5–9, and decreased in age group 10–14 and then increased thereafter. The age group that was mostly affected by non-natural causes was 20–24 at 47,8% of the deaths. From age group 20–24, the proportion of deaths due to non-natural causes decreases with an increase in age.

**Figure 4.3: Percentage distribution of natural and non-natural causes of death by age, 2016\***



\*Excluding deaths with unspecified age.

### 4.6 Major groups of causes of death as per the Global Burden of Disease

The Global Burden of Disease (GBD) Study is an all-inclusive program of disease burden that assesses mortality and disability from major diseases, injuries, and risk factors. It is a landmark initiative that systematically quantifies the prevalence, morbidity, and mortality for hundreds of diseases, injuries, and risk factors of global health importance. This is a useful measure as countries can combine this type of evidence along with information about policies and their costs to decide how to set their health and GBD makes comparisons across populations, enabling understanding of the changing health challenges facing people across the world.

The nineteen ICD-10 chapters used in the reporting of information on underlying causes of death can be further condensed into three groups of causes of death as per the Global Burden of Disease cause list:

**Group I:**

- Communicable diseases (e.g. *Tuberculosis, pneumonia, diarrhoea, malaria, measles*);
- Maternal and perinatal causes (e.g. *maternal haemorrhage, birth trauma*); and
- Nutritional conditions (e.g. *protein-energy malnutrition*).

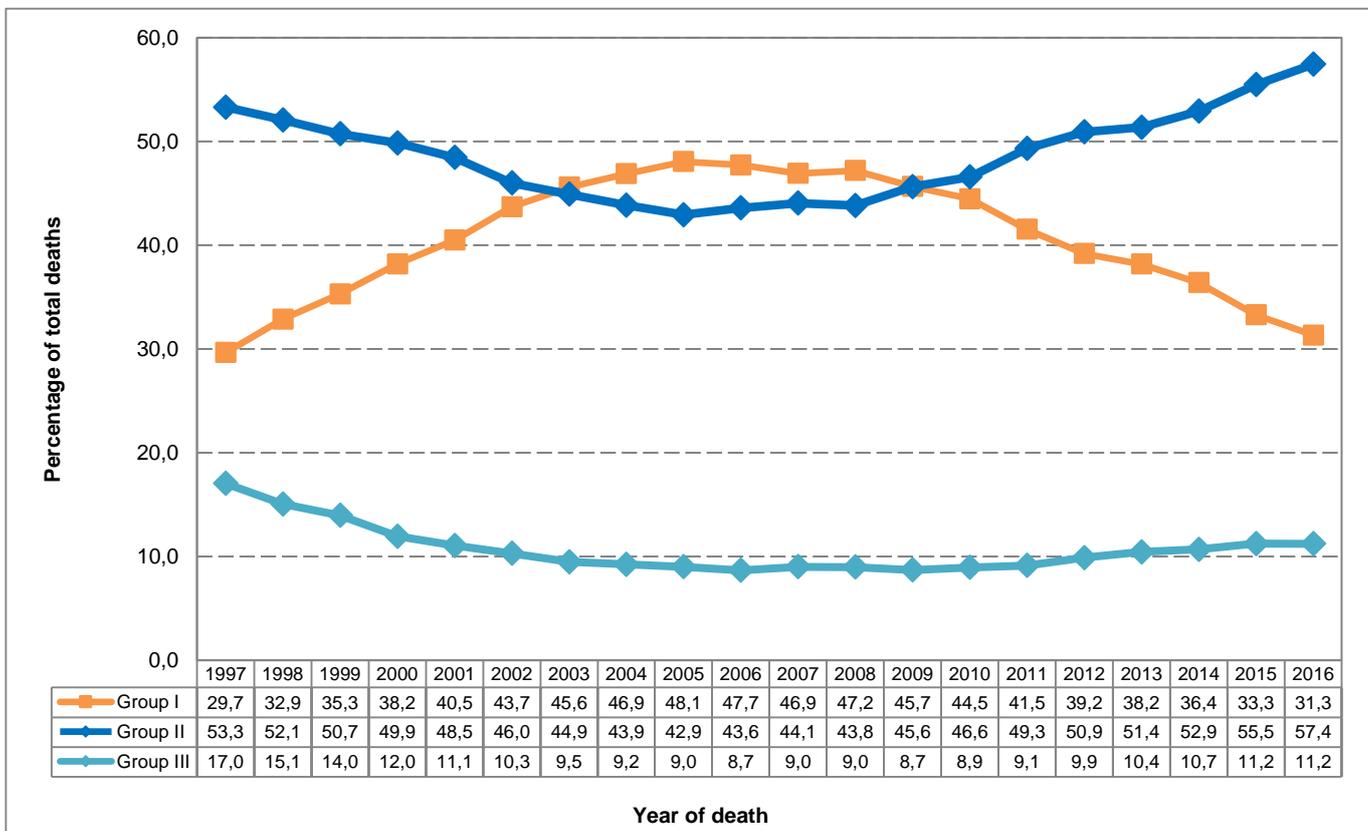
**Group II:** Non-communicable diseases (e.g. *cancer, diabetes, heart disease and asthma*).

**Group III:** External causes of mortality (e.g. *accidents, homicide and suicide*).

Communicable diseases are diseases caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi and can be spread, directly or indirectly, from one person to another. These include, amongst other diseases, *diarrhoea, tuberculosis and pneumonia*. Non-communicable diseases are medical conditions or diseases that are non-infectious or non-transmissible among people. These diseases last for longer periods of time and progress slowly and include, amongst others, *cancer, asthma and heart diseases*. External causes of mortality are the non-natural causes of death which are discussed in chapter 20 of the ICD-10.

Figure 4.4 shows the proportion of deaths by group type and year of death. The pattern observed shows that South Africa is going through an epidemiological change with deaths resulting mainly from non-communicable diseases. In the past seven years (2011–2016), there has been a notable shift in the causes of death away from infectious diseases towards non-communicable diseases. This period is also characterised by increases in the proportion of deaths due to external causes of mortality.

**Figure 4.4: Percentage distribution of deaths by group type and year of death, 1997–2016\***



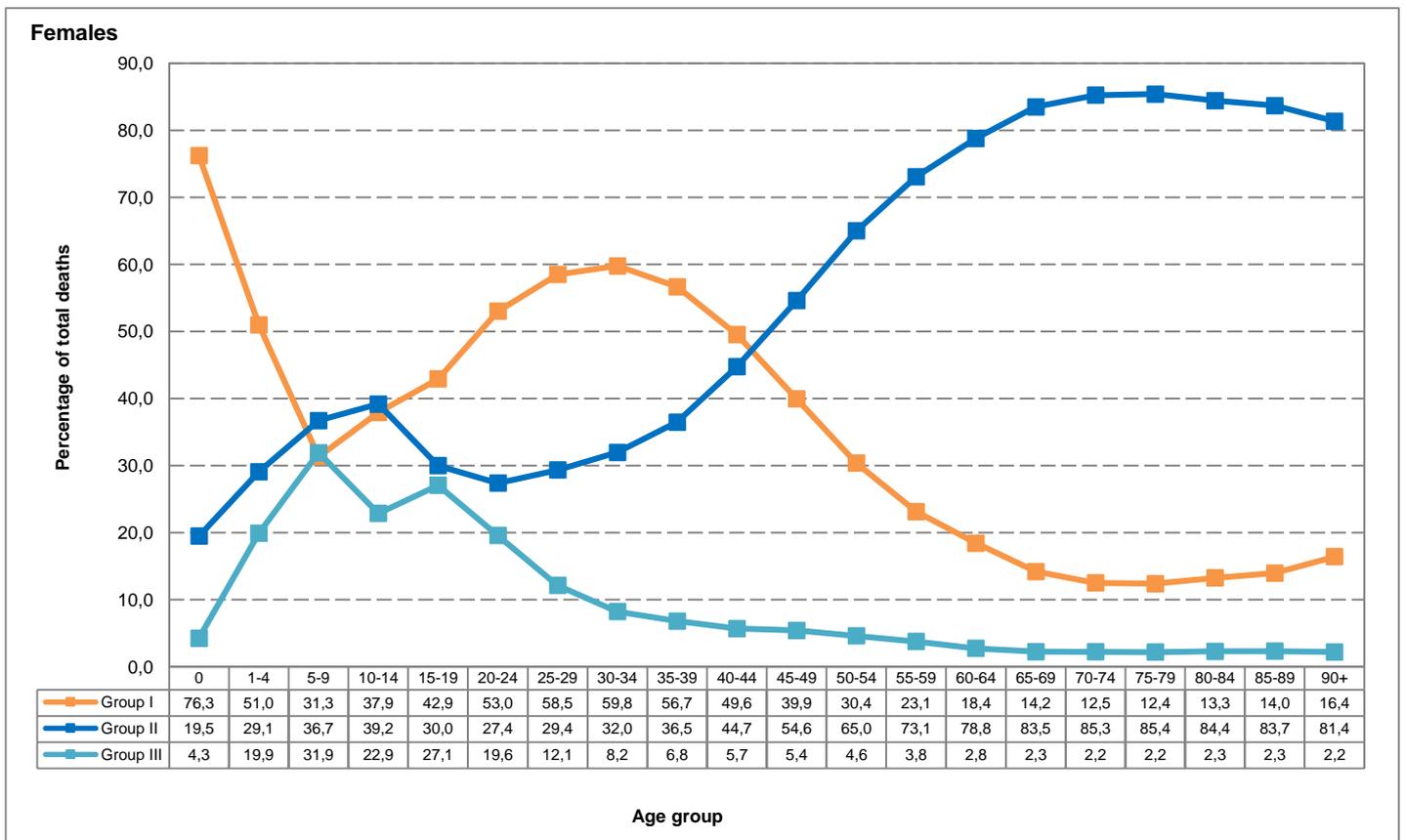
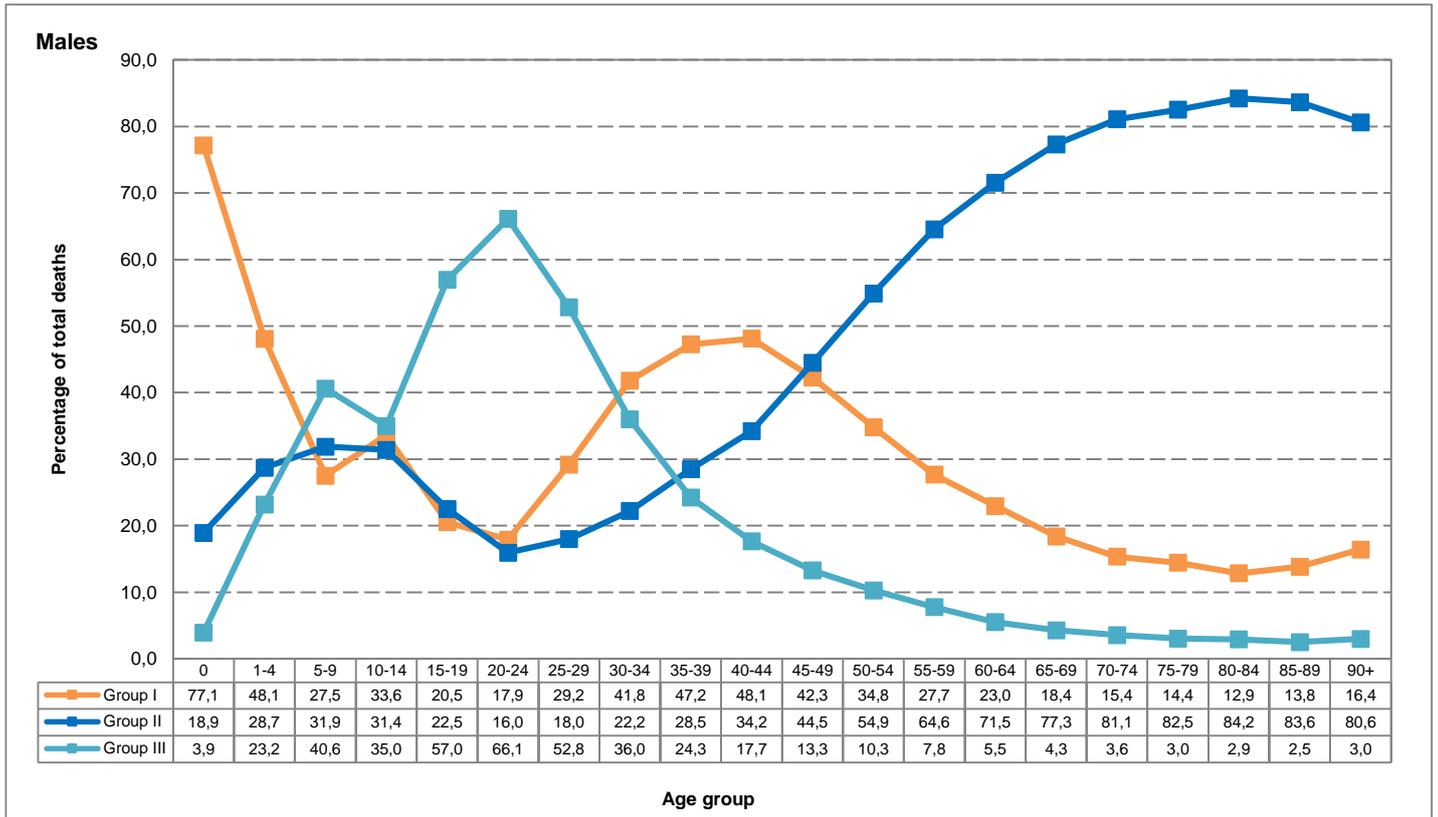
\*(1) Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.  
 (2) Redistributed ill-defined diseases (R00-R99) proportionately to causes in Group I and Group II.

Figure 4.5 shows the percentage distribution of causes of death by sex, group type and age group. The pattern on Group I remained the same as that observed in the previous years (reference 2014, 2015) for both sexes, whereby the proportion of deaths due to Group I causes (communicable diseases, maternal, perinatal and nutritional conditions) was high among children age 0 to 4 years, although declining with age for both males and females. The highest percentage of male and female deaths due to communicable diseases occurred among those aged 0 years (77,1% for males and 76,3% for females). Deaths due to communicable diseases then again peak at ages 40–44 (48,1%) for males while it peaks again at ages 30–34 (59,8%) for females. For males both sexes, the proportion of deaths due to communicable diseases was less than 20% at ages 65 years and older.

Similar to communicable diseases (Group 1) the pattern for Group II remained the same as that observed in the previous years (reference 2014, 2015) for both sexes, whereby the distribution is bimodal. Deaths due to non-communicable diseases for both sexes are lowest among children age 0 to 4 years, with the first peak observed at age group 10–14 years for both sexes and thereafter decreases to a low of 16,0% for males and 27,4% for females at age group 20–24 for both sexes. The second peak for non-communicable diseases is observed at older ages (70–79 for females and 80–84 for males). Deaths due to non-communicable diseases rise dramatically at older ages for both sexes due to the increasing incidence of *neoplasms, cardiovascular diseases and ischaemic heart diseases*.

The proportion of deaths due to external causes of death was higher for males compared to females at all ages. For males, the proportion of deaths due to this group was particularly high at ages 20–24 where at least 66,1% of deaths due to external causes exceeded deaths due to other causes. For both sexes, the proportion of deaths due to injuries decreased steadily with age for those aged 40 years and older.

Figure 4.5: Percentage distribution of causes of death by sex, group type and age group



\*Redistributed unknown age and ill-defined diseases (R00-R99) proportionately to causes in Group I and Group II.

## 4.7 Broad groups of natural causes of death

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

The ranking excludes *symptoms, signs and abnormal findings, not elsewhere classified* as well as all non-natural deaths (external causes of morbidity and mortality).

### 4.7.1 Overall pattern of the leading underlying natural causes of death

The ten leading underlying causes of death in South Africa in 2014–2016 are shown in Table 4.5. The distribution of deaths by all broad groups of causes of death ranked by frequency (including non-natural causes and *symptoms and signs not elsewhere classified*) for 2016 is shown in appendix K (see page 90) while the breakdown of individual causes for the broad groups that were among the ten leading causes in 2016 is provided in Appendix L (see page 95).

Nine of the ten leading natural underlying causes of death were the same for the three years as shown in Table 4.5. The only difference was *intestinal infectious diseases* which was amongst the ten leading underlying causes of death in 2014 but moved out of the top ten afterwards and was replaced by *ischaemic heart diseases*. *Tuberculosis* remained the main leading cause of death in the three-year period, although the proportion of deaths due to *TB* declined in the three-year period from 8,3% in 2014 to 6,5% in 2016.

*Diabetes mellitus* which ranked third in 2014 and accounting for 5,1% deaths moved to being the second most common natural cause of death and maintained the same position in 2016, being responsible for 5,5% deaths. *Cerebrovascular diseases* and *influenza and pneumonia* were the only two diseases which moved two positions down between 2014 and 2016. *Cerebrovascular diseases* which ranked second in 2014 moved to position four in 2016 and was responsible for 5,1% deaths while *influenza and pneumonia* moved from fifth rank in 2014 (responsible for 4,8% deaths) to seventh rank in 2016 (responsible for 4,3% deaths), which means that there has been a significant decrease in the proportion of deaths due to these causes.

*Human immunodeficiency virus (HIV) disease* which was the sixth leading cause of death in 2014, moved to the fifth position in 2015 and 2016 (responsible for about 5% of all deaths in all the three years).

**Table 4.5: The ten leading underlying natural causes of death, 2014–2016\***

Causes of death (based on ICD-10)	2014			2015			2016		
	Rank	Number	%	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)	1	39 695	8,3	1	34 042	7,2	1	29 513	6,5
Diabetes mellitus (E10-E14)	3	24 092	5,1	2	25 774	5,4	2	25 255	5,5
Other forms of heart disease (I30-I52)	4	23 009	4,8	4	23 299	4,9	3	23 515	5,1
Cerebrovascular diseases (I60-I69)	2	24 258	5,1	3	23 505	5,0	4	23 137	5,1
Human immunodeficiency virus [HIV] disease (B20-B24)	6	22 866	4,8	5	22 557	4,8	5	21 830	4,8
Hypertensive diseases (I10-I15)	7	18 416	3,9	7	19 845	4,2	6	19 960	4,4
Influenza and pneumonia (J09-J18)	5	22 878	4,8	6	21 001	4,4	7	19 638	4,3
Other viral diseases (B25-B34)	9	14 574	3,1	8	16 475	3,5	8	16 577	3,6
Ischaemic heart diseases (I20-I25)	...	...	...	10	12 714	2,7	9	12 883	2,8
Chronic lower respiratory diseases (J40-J47)	10	12 793	2,7	9	13 006	2,7	10	12 659	2,8
Intestinal infectious diseases (A00-A09)	8	14 834	3,1	...	...	...	...	...	...
Other natural causes		208 537	43,7		207 820	43,9		200 403	43,9
Non-natural causes		50 939	10,7		53 228	11,2		51 242	11,2
<b>All causes</b>		<b>476 891</b>	<b>100,0</b>		<b>473 266</b>	<b>100,0</b>		<b>456 612</b>	<b>100,0</b>

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

#### 4.7.2 Leading underlying natural causes of death by sex

The distribution of the ten leading underlying natural causes of death by sex in 2016 is shown in Table 4.6 and indicates different patterns of underlying natural causes between males and females. The ten leading causes of male deaths contributed 42,0% of all male deaths, while the ten leading causes for females contributed 48,5% of all female deaths.

Nine of the ten leading causes of death were the same for both males and females, although their ranks differed greatly by sex with the exception of *malignant neoplasms of female genital organs* which ranked tenth for females. *Tuberculosis* was the leading cause of death amongst males (responsible for 7,6% deaths) while *diabetes mellitus* was leading amongst females (responsible for 7,2% deaths) in 2016. *Human immunodeficiency virus [HIV] disease* ranked second amongst males (4,6%) while the second ranked underlying cause of death amongst females was *cerebrovascular diseases*, accounting for 6,2% deaths. *Cerebrovascular diseases* was ranked sixth amongst males (4,0%).

In terms of communicable and non-communicable diseases in the top five leading underlying causes of death for the two sexes, three of the first five leading causes of death amongst males were communicable diseases whereas for females only one of the top five was a communicable diseases and the rest were non-communicable diseases.

With regard to the gaps in underlying causes of death between the two sexes, the widest gap was *hypertensive diseases* with a gap of five positions. It ranked as high as fourth amongst females (responsible for 5,8% deaths) while it ranked ninth amongst males (responsible for 3,2% deaths). *Tuberculosis*, *human immunodeficiency virus [HIV] disease*, *diabetes mellitus* and *cerebrovascular diseases* all had a difference of three to five positions.

**Table 4.6: The ten leading underlying natural causes of death for males and females, 2016\***

Causes of death (based on ICD-10)	Male			Female		
	Rank	Number	%	Rank	Number	%
Tuberculosis (A15-A19)	1	18 153	7,6	5	11 246	5,2
Human immunodeficiency virus [HIV] disease (B20-B24)	2	11 021	4,6	6	10 724	5,0
Other forms of heart disease (I30-I52)	3	10 990	4,6	3	12 485	5,8
Influenza and pneumonia (J09-J18)	4	10 160	4,2	7	9 409	4,4
Diabetes mellitus (E10-E14)	5	9 723	4,0	1	15 506	7,2
Cerebrovascular diseases (I60-I69)	6	9 704	4,0	2	13 396	6,2
Other viral diseases (B25-B34)	7	8 122	3,4	8	8 379	3,9
Chronic lower respiratory diseases (J40-J47)	8	7 805	3,3	...	...	...
Hypertensive diseases (I10-I15)	9	7 567	3,2	4	12 374	5,8
Ischaemic heart diseases (I20-I25)	10	7 404	3,1	9	5 464	2,5
Malignant neoplasms of female genital organs (C51-C58)	...	...	...	10	5 413	2,5
Other natural causes		99 834	41,6		99 169	46,1
Non-natural causes		39 518	16,5		11 423	5,3
<b>All causes</b>		<b>240 001</b>	<b>100,0</b>		<b>214 988</b>	<b>100,0</b>

\*Data from 2014–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

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

... Category not in top ten.

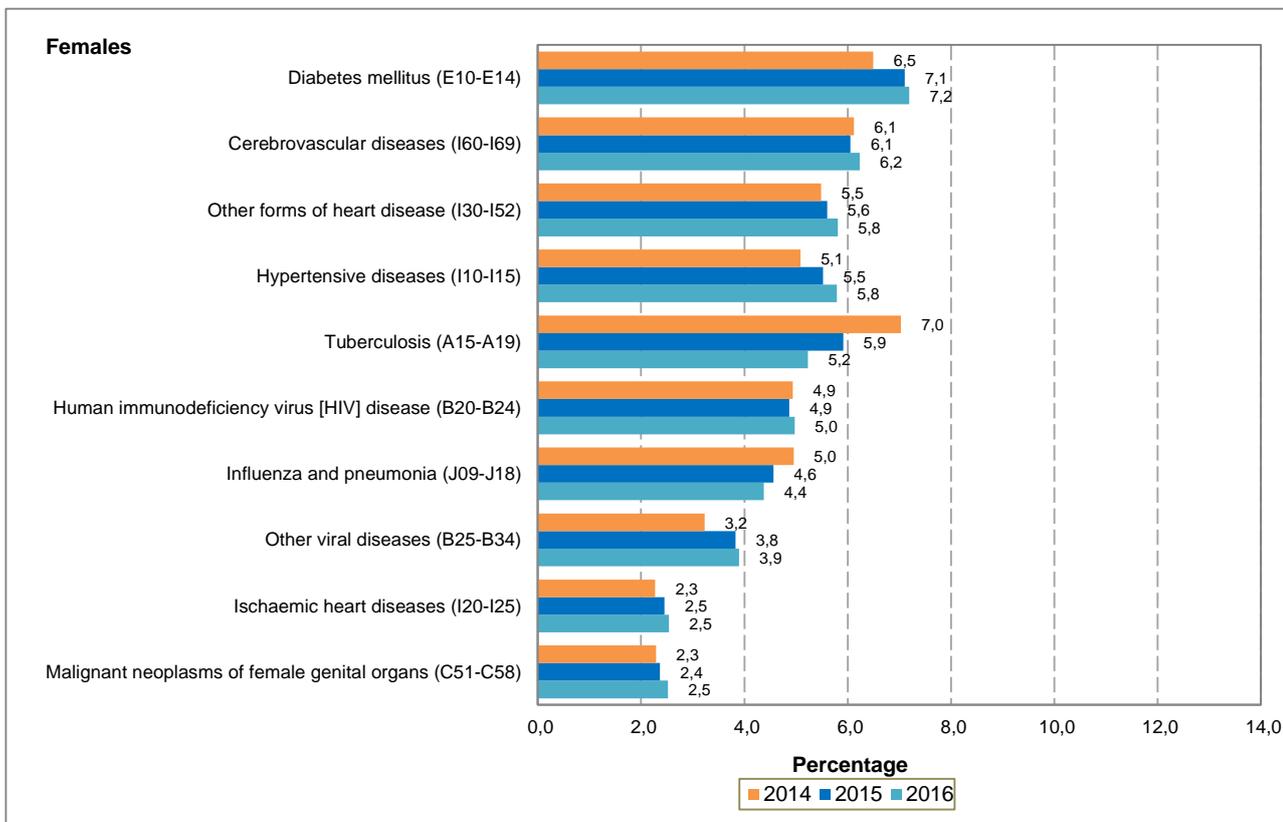
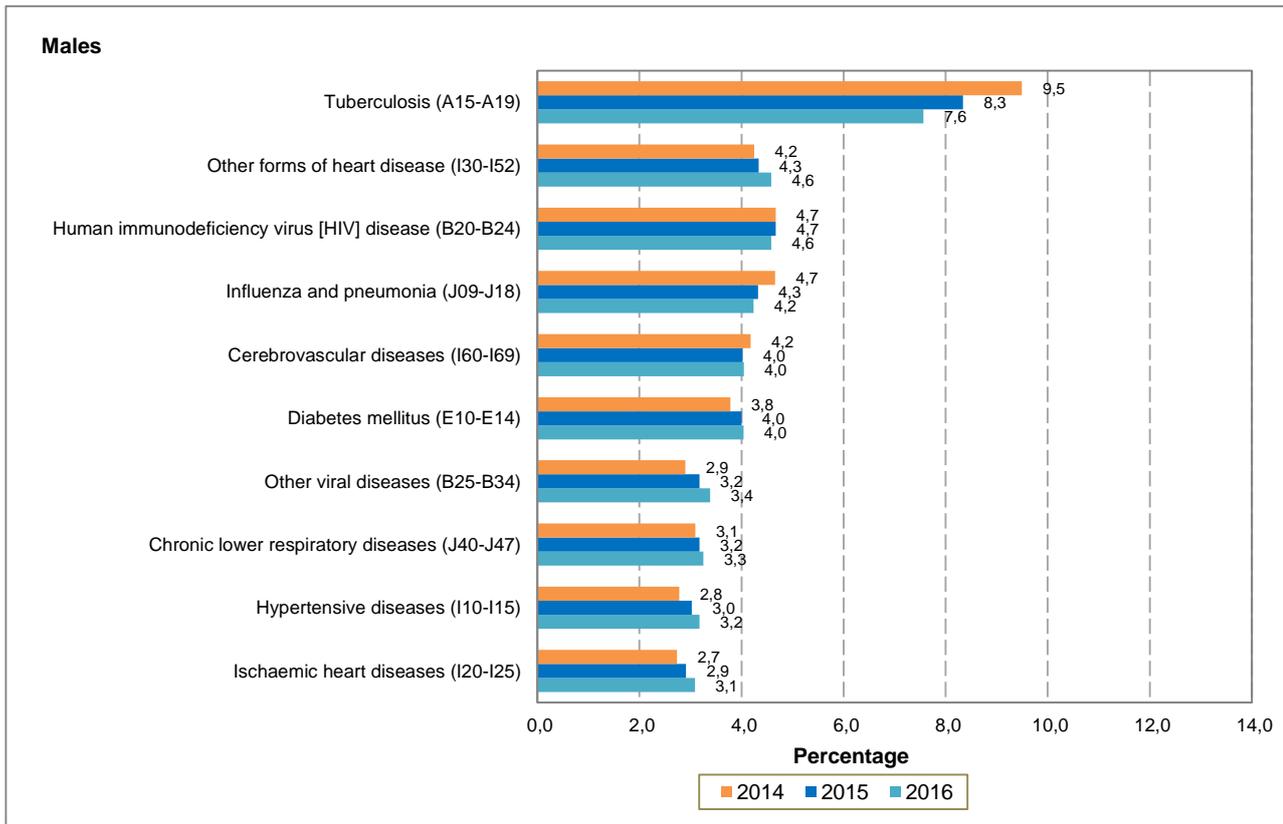
Figure 4.6 shows the ten leading natural causes of death classified by sex for a three-year period (2014–2016). Over this three-year period, *tuberculosis* remained the leading cause of death for males. However, for females, *diabetes mellitus* surpassed *tuberculosis* as the leading cause of death in 2016. For females, deaths due to diabetes mellitus have been on a steady increase, accounting for 6,5% deaths in 2014, then moving higher to 7,1% in 2015 and to another high of 7,2 % in 2016.

The overall pattern for the two sexes shows that the proportion of deaths due to *tuberculosis* and *influenza and pneumonia* decreased in the three-year period for each sex. For males, the proportion of deaths due to *tuberculosis* reduced from 9,5% in 2014 to 7,6% in 2016, whereas for females, deaths reduced from 7,0% to 5,2% in the same time period. Deaths from *influenza and pneumonia* reduced from 5,0% (2014) to 4,4% (2016) among females, while it reduced from 4,7% to 4,2% among males.

For both sexes, five underlying natural causes of death increased in proportion and all were non-communicable diseases. The five diseases which increased and were common among the two sexes were *other forms of heart diseases*, *ischaemic heart diseases* and *hypertensive diseases*. The other two which increased over the three-year period were *chronic lower respiratory diseases* and *malignant neoplasm of digestive system* for males while for females it was *diabetes* and *neoplasm of female genital organs*.

There was a slight decline in *HIV* deaths between 2015 and 2016 for males. Deaths due to *HIV* reduced slightly from 4,7% in 2015 to 4,6% for male deaths, while female *HIV* deaths increased slightly from 4,9% to 5,0%. The other causes showed no noticeable pattern for both sexes.

**Figure 4.6: Distribution of deaths for the leading causes of death by year of death and sex, 2014–2016\***



\*Data for 2014–2015 have been updated with late registrations/delayed death notification forms processed in 2015/2016.

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

### 4.7.3 Leading underlying natural causes of death by age

Table 4.7 shows the ten leading underlying natural causes of death for broad age groups (0, 1–14, 15–44, 45–64, and 65 years and older) for 2016. For each of these age groups, *influenza and pneumonia* was among the ten leading natural causes of death though the ranking varied greatly by age. It was the leading natural cause of death for those aged 1–14 years, second leading underlying cause for age 0, fifth for age 15–44 years and seventh for age group 65 years and older while it was eight for age group 45–64 years.

For age group 0, *respiratory and cardiovascular disorders specific to the perinatal period* was the leading underlying natural cause of death (responsible for 14,8% deaths) and *intestinal infectious diseases* was the third leading underlying natural cause of death (responsible for 6,7%) for this age group. *Other disorders originating in the perinatal period, Disorders related to length of gestation and fetal growth, Infections specific to perinatal period, Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery, Congenital malformations of the circulatory system* and *Other bacterial diseases* were in the ten leading underlying causes of death only for infants (aged less than 1 year) and were ranked fourth, fifth, sixth, seventh, ninth and tenth, respectively.

*Intestinal infectious diseases* ranked second for age group 1–14 years, accounting for 6,6% deaths, followed by *malnutrition* occupying third ranking and accounting for 3,7% deaths. *Malnutrition* was in the ten leading underlying causes of death only for age groups 0 and 1–14 years. It ranked eighth for age group 0 (accounting for 3,2% infant deaths) while it ranked fourth for age group 1–14 years (accounting for 3,7% deaths). *Cerebral palsy and other paralytic syndromes* (2,3%), *inflammatory diseases of the central nervous system* (1,7%) and *metabolic disorders* (1,6%) were among on the top ten leading natural causes of death only for age group 1–14 years, with rankings eighth, ninth and tenth, respectively.

*Tuberculosis* was the first leading underlying cause of death for age group 15–44 years (11,2%), followed by *human immunodeficiency virus [HIV] disease* (10,5%). *Other viral diseases* were the third leading underlying natural cause of death for this age group (responsible for 7,6% of deaths). *Certain disorders involving the immune mechanism* (4,5%) were among the ten leading underlying causes of death only in this age group, and ranking fourth. *Renal failure* was in the ten leading causes of death for only age group 15–44 years and 65 years and older. It ranked eight for age group 15–44 and tenth for ages 65 years and older.

The leading underlying natural cause of death for age group 45–64 years was *tuberculosis* (responsible for 8,0% of deaths). *Diabetes mellitus* (7,1%) ranked second while *Human immunodeficiency virus [HIV] disease* (5,3%) ranked third. For age group 65 years and older, *cerebrovascular diseases* was the leading underlying natural cause of death (accounting for 9,0% deaths), followed closely by *diabetes mellitus* (8,9%) which ranked second and *hypertensive diseases*, which ranked third (responsible for 8,4% deaths). *Ischaemic heart diseases* was in the top ten leading causes of death only in this age group and ranked fifth (responsible for 4,8% deaths).

For age groups 45–64 and 65 years and older, seven of the ten leading underlying causes of death were the same, and differed in rankings only. The only differences were *human immunodeficiency virus [HIV] disease* and *other viral diseases*, which were in the top ten for age group 45–64 years but not in age group 65 years and older, while *renal failure* and *ischaemic heart diseases* were in the top ten for age group 65 years and older but not for age group 45–64 years. The only underlying causes of death which had the same ranking amongst the two groups were *other forms of heart diseases* and *diabetes mellitus*, which ranked 4<sup>th</sup> and 2<sup>nd</sup> respectively, for both groups.

*Hypertensive diseases, chronic lower respiratory diseases and malignant neoplasm of digestive organs* were amongst the ten leading underlying natural causes of death for only age groups 60–64 years and 65 years and older. The top ten leading underlying natural causes of death for both these age groups were dominated by non-communicable diseases. This gives an indication that these diseases were dominant only amongst the elderly. For age group 45–64 years, six of the ten causes of death were non-communicable diseases while for age group 65 years and older eight of the ten were non-communicable diseases.

**Table 4.7: The ten leading underlying natural causes of death for broad age groups, 2016\***

Causes of death (based on ICD-10)	0			1-14			15-44			45-64			65+		
	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1	3 065	14,8	...	...	...	...	...	...	...	...	...	...	...	...
Influenza and pneumonia (J09-J18)	2	1 716	8,3	1	942	7,2	5	5 011	3,9	8	4 947	3,8	7	6 981	4,3
Intestinal infectious diseases (A00-A09)	3	1 376	6,7	2	866	6,6	9	1 398	1,1	...	...	...	...	...	...
Other disorders originating in the perinatal period (P90-P96)	4	1 224	5,9	...	...	...	...	...	...	...	...	...	...	...	...
Disorders related to length of gestation and fetal growth (P05-P08)	5	1 113	5,4	...	...	...	...	...	...	...	...	...	...	...	...
Infections specific to the perinatal period (P35-P39)	6	1 094	5,3	...	...	...	...	...	...	...	...	...	...	...	...
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	7	997	4,8	...	...	...	...	...	...	...	...	...	...	...	...
Malnutrition (E40-E46)	8	664	3,2	3	481	3,7	...	...	...	...	...	...	...	...	...
Congenital malformations of the circulatory system (Q20-Q28)	9	586	2,8	...	...	...	...	...	...	...	...	...	...	...	...
Other bacterial diseases (A30-A49)	10	377	1,8	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis (A15-A19)*	...	...	...	4	450	3,4	1	14 367	11,2	1	10 471	8,0	9	4 050	2,5
Other forms of heart disease (I30-I52)	...	...	...	5	345	2,6	6	3 415	2,7	4	6 708	5,1	4	12 827	7,9
Human immunodeficiency virus [HIV] disease (B20-B24)	...	...	...	6	324	2,5	2	13 569	10,5	3	6 901	5,3	...	...	...
Other viral diseases (B25-B34)	...	...	...	7	315	2,4	3	9 782	7,6	7	5 375	4,1	...	...	...
Cerebral palsy and other paralytic syndromes (G80-G83)	...	...	...	8	303	2,3	...	...	...	...	...	...	...	...	...
Inflammatory diseases of the central nervous system (G00-G09)	...	...	...	9	224	1,7	...	...	...	...	...	...	...	...	...
Metabolic disorders (E70-E90)	...	...	...	10	213	1,6	...	...	...	...	...	...	...	...	...
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	...	...	...	4	5 783	4,5	...	...	...	...	...	...
Cerebrovascular diseases (I60-I69)	...	...	...	...	...	...	7	1 701	1,3	5	6 668	5,1	1	14 679	9,0
Renal failure (N17-N19)	...	...	...	...	...	...	8	1 602	1,2	...	...	...	10	3 566	2,2
Diabetes mellitus (E10-E14)	...	...	...	...	...	...	10	1 357	1,1	2	9 280	7,1	2	14 544	8,9
Hypertensive diseases (I10-I15)	...	...	...	...	...	...	...	...	...	6	5 408	4,2	3	13 562	8,3
Chronic lower respiratory diseases (J40-J47)	...	...	...	...	...	...	...	...	...	9	4 551	3,5	6	6 994	4,1
Malignant neoplasms of digestive organs (C15-C26)	...	...	...	...	...	...	...	...	...	10	4 306	3,3	8	5 173	3,2
Ischaemic heart diseases (I20-I25)	...	...	...	...	...	...	...	...	...	...	...	...	5	7 773	4,8
Other Natural causes	...	7 594	36,8	...	5 057	38,7	...	37 682	29,3	...	56 897	43,6	...	68 209	41,9
Non-natural causes	...	843	4,1	...	3 536	27,1	...	33 124	25,7	...	9 030	6,9	...	4 504	2,8
<b>All causes</b>		<b>20 649</b>	<b>100,0</b>		<b>13 056</b>	<b>100,0</b>		<b>128 791</b>	<b>100,0</b>		<b>130 542</b>	<b>100,0</b>		<b>162 862</b>	<b>100,0</b>

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

#### 4.7.4 Leading underlying natural causes of death for children aged below five years by age group

The ten leading natural causes of death for neonatal deaths (less than 29 days), post-neonatal deaths (29 days to 11 months), all infant deaths (aged less than one year), and children aged 1–4 years and under five deaths are shown in Table 4.8. Infant deaths are composed of both neonatal and post-neonatal deaths.

There was a total of 9 273 neonatal deaths in 2016. Deaths due to *respiratory and cardiovascular disorders specific to the perinatal period* was the leading underlying cause of death amongst neonates, accounting for 32,9% deaths in 2016. *Other disorders originating in the perinatal period* ranked second, contributing 13,2% of deaths. Neonatal deaths mainly resulted from the main groups of *conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities*. The ten leading underlying causes of death during the neonatal period constituted 91,9% of deaths.

The leading underlying cause of death for those who died during the post-neonatal period was *influenza and pneumonia* which accounted for 15,1% of deaths, followed by *intestinal infectious diseases* which was responsible for 11,5% of post-neonatal deaths. The third leading underlying cause of death was *malnutrition* (5,8%) followed by *other bacterial diseases* (3,3%). *Congenital malformations of the circulatory system* was the only underlying cause of death present in the top ten for both infants and children aged below 5 years. It ranked ninth (responsible for 2,6% neonatal deaths), whereas it ranked fifth for post-neonatal deaths (responsible for 3,0%).

Among infants (less than one year) the leading underlying cause of deaths was *respiratory and cardiovascular disorders specific to the perinatal period* (14,8%). *Influenza and pneumonia* ranked second at 8,3%. *Intestinal infectious diseases* ranked third, accounting for 6,7% of infant deaths.

For age group 1–4, the leading cause of death was *influenza and pneumonia*, accounting for 9,4% deaths, followed by *intestinal infectious diseases* which ranked second (accounting for 9,3% deaths). *Malnutrition* (6,5%) ranked third. *Other forms of heart diseases* (2,6%) was the fourth leading cause of death while *tuberculosis* (2,5%) was the fifth. *Tuberculosis and human immunodeficiency virus (HIV) disease* were amongst the ten leading causes of death only for children aged 1–4 years.

*Respiratory and cardiovascular disorders specific to the perinatal period* was the leading cause of death for children under five years, accounting for 11,1% deaths, followed by *influenza and pneumonia* (responsible for 8,6% deaths). *Intestinal infectious diseases* (7,3%) was ranked third and *other disorders originating in the perinatal period* (4,4%) was ranked fourth.

**Table 4.8: The ten leading underlying natural causes of death for infants and children aged below five years, 2016\***

Causes of death (based on ICD-10)	Neonatal (0–28 days)			Post-neonatal (29 days to 11 months)			Less than 1 year			1–4 years			Under-5 years		
	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%	Rank	Number	%
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1	3 055	32,9	...	...	...	1	3 065	14,8	...	...	...	1	3 065	11,1
Other disorders originating in the perinatal period (P90-P96)	2	1 224	13,2	...	...	...	4	1 224	5,9	...	...	...	4	1 224	4,4
Infections specific to the perinatal period (P35-P39)	3	1 056	11,4	...	...	...	6	1 094	5,3	...	...	...	7	1 094	4,0
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	4	993	10,7	...	...	...	7	997	4,8	...	...	...	8	997	3,6
Disorders related to length of gestation and fetal growth (P05-P08)	5	959	10,3	...	...	...	5	1 113	5,4	...	...	...	6	1 120	4,0
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	6	345	3,7	...	...	...	...	...	...	...	...	...	...	...	...
Other congenital malformations (Q80-Q89)	7	279	3,0	...	...	...	...	...	...	...	...	...	...	...	...
Digestive system disorders of fetus and newborn (P75-P78)	8	258	2,8	...	...	...	...	...	...	...	...	...	...	...	...
Congenital malformations of the circulatory system (Q20-Q28)	9	245	2,6	5	341	3,0	9	586	2,8	10	098	1,4	9	684	2,5
Chromosomal abnormalities, not elsewhere classified (Q90-Q99)	10	119	1,3	...	...	...	...	...	...	...	...	...	...	...	...
Influenza and pneumonia (J09-J18)	...	...	...	1	1 716	15,1	2	1 716	8,3	1	659	9,4	2	2 375	8,6
Intestinal infectious diseases (A00-A09)	...	...	...	2	1 306	11,5	3	1 376	6,7	2	655	9,3	3	2 031	7,3
Malnutrition (E40-E46)	...	...	...	3	665	5,8	8	665	3,2	3	456	6,5	5	1 120	4,0
Other bacterial diseases (A30-A49)	...	...	...	4	376	3,3	10	377	1,8	...	...	...	10	473	1,7
Other acute lower respiratory infections (J20-J22)	...	...	...	6	326	2,9	...	...	...	8	113	1,6	...	...	...
Metabolic disorders (E70-E90)	...	...	...	7	298	2,6	...	...	...	6	158	2,3	...	...	...
Other diseases of the respiratory system (J95-J99)	...	...	...	8	259	2,3	...	...	...	...	...	...	...	...	...
Other viral diseases (B25-B34)	...	...	...	9	249	2,2	...	...	...	7	137	2,0	...	...	...
Other forms of heart disease (I30-I52)	...	...	...	10	210	1,8	...	...	...	4	180	2,6	...	...	...
Tuberculosis (A15-A19)	...	...	...	...	...	...	...	...	...	5	176	2,5	...	...	...
Human immunodeficiency virus [HIV] disease (B20-B24)	...	...	...	...	...	...	...	...	...	9	109	1,6	...	...	...
Other Natural causes		646	7,0		4 882	42,9		7 594	36,8		2 746	39,2		11 110	40,2
Non-natural causes		094	1,0		749	6,6		843	4,1		1 521	21,7		2 364	8,5
<b>All causes</b>		<b>9 273</b>	<b>100,0</b>		<b>11 377</b>	<b>100,0</b>		<b>20 650</b>	<b>100,0</b>		<b>7 008</b>	<b>100,0</b>		<b>27 657</b>	<b>100,0</b>

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

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

The World Health Organization recommended that the 15–24 age group also be included in the analysis for causes of death for international comparison (WHO, 1992). Table 4.9 shows the ten leading underlying natural causes of death for age group 15–24. *Tuberculosis* was the leading cause of death in this age group, accounting for 7,0% of the deaths. It was followed by the *human immunodeficiency virus [HIV] disease* (responsible for 5,7% deaths). *Other viral diseases* ranked third, accounting at 4,3% deaths. *Influenza and pneumonia* (2,7%), *certain disorders involving the immune mechanism* (2,5%), *other forms of heart diseases* (2,1%) and *episodic and paroxysmal disorders* (1,5%) ranked fourth, fifth, sixth and seventh, respectively.

**Table 4.9: The ten leading underlying natural causes of death for the population aged 15–24 years, 2016**

Causes of death (based on ICD-10)	15–24		
	Rank	Number	Percentage
Tuberculosis (A15-A19)	1	1 444	7,0
Human immunodeficiency virus [HIV] disease (B20-B24)	2	1 165	5,7
Other viral diseases (B25-B34)	3	890	4,3
Influenza and pneumonia (J09-J18)	4	562	2,7
Certain disorders involving the immune mechanism (D80-D89)	5	511	2,5
Other forms of heart disease (I30-I52)	6	427	2,1
Episodic and paroxysmal disorders (G40-G47)	7	298	1,5
Inflammatory diseases of the central nervous system (G00-G09)	8	228	1,1
Intestinal infectious diseases (A00-A09)	9	211	1,0
Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	10	161	0,8
Other natural causes		5 027	24,5
Non natural		9 605	46,8
<b>All causes</b>		<b>20 529</b>	<b>100</b>

\*Including deaths due to *MDR-TB* and *XDR-TB*. The percentages add to more than 100 due to rounding off

#### 4.7.6 Leading underlying natural causes of death by province of death occurrence

Table 4.10 shows the provincial differences in the ranking of the ten leading underlying natural causes of death for 2016. *Tuberculosis* was the leading cause of death in all provinces except Western Cape, Gauteng and Limpopo. It ranked fifth in Western Cape and second in Gauteng and fourth in Limpopo. It is worth noting that although *tuberculosis* ranked the first leading underlying cause of death in six provinces, the proportion of deaths attributed to *tuberculosis* differed greatly by province. The highest proportion of deaths due to *tuberculosis* was observed in Mpumalanga (8,0%), followed by Eastern Cape at 7,9% deaths, and thirdly, by KwaZulu-Natal at 7,6% deaths.

*Diabetes mellitus* (7,7%) was the leading cause of death in Western Cape whereas *other forms of heart diseases* (5,6%) were the leading cause of death in Gauteng and *influenza and pneumonia* (7,6%) was the leading cause of death in Limpopo. Six of the ten leading underlying natural causes of death were common for all the provinces. These were *diabetes mellitus*, *HIV disease*, *cerebrovascular diseases*, *tuberculosis*, *hypertensive diseases* and *other forms of heart diseases*.

*Influenza and pneumonia* has remained the leading underlying cause of death in Limpopo since 1997. There has been no change in the ten leading underlying causes of death for any of the provinces between 2015 and 2016 (see 2015 report for comparison) although there has been changes in some provinces in terms of rankings.

In the Western Cape, the second leading underlying cause of death was *human immunodeficiency virus (HIV)* (6,2%) whereas in Gauteng, *tuberculosis* was the second leading underlying cause of death, accounting for 4,8% deaths, and the second leading underlying cause of death in Limpopo was *diabetes mellitus*, which accounted for 6,3% deaths. *Human immunodeficiency virus (HIV)* was the second leading underlying cause of death in three provinces, namely Western Cape, Northern Cape and Eastern Cape, accounting for 6,2%; 6,1% and 5,7% deaths, respectively. It was the fourth leading underlying cause of death in KwaZulu-Natal, accounting for 6,2% deaths in the province.

*Diabetes mellitus* was ranked second in Limpopo (6,3%), third in Eastern Cape (5,0%), KwaZulu-Natal (6,6%) and Mpumalanga (5,2%). Other forms of heart diseases which ranked the leading underlying natural cause of death in Gauteng, ranked second in KwaZulu-Natal (responsible for 7,4% deaths), and ranked third in both Northern Cape and North West, accounting for 5,5% deaths in each province. *Influenza and pneumonia*, which ranked first in Limpopo, was ranked second in Free State (6,3%) and third in Gauteng, accounting for 4,7% deaths in the province. *Influenza and pneumonia* was not in the top ten leading underlying causes of death only in the Western Cape.

*Ischaemic heart diseases* featured in five provinces, namely Western Cape, Northern Cape, KwaZulu-Natal, Mpumalanga and Gauteng. *Intestinal infectious diseases* and *renal failure* were amongst the top ten leading causes of death only in Limpopo while *malignant neoplasms of respiratory and intrathoracic organs* were in the top ten leading natural causes of death only in the Western Cape. *Malignant neoplasms of digestive organs* were in the top ten only in three provinces namely Eastern Cape, Western Cape and KwaZulu-Natal.

The underlying causes of death for all the provinces were a combination of communicable and non-communicable diseases. Western Cape had the highest number of non-communicable diseases with eight out of the ten being non-communicable diseases, followed by Northern Cape with seven of the ten. Detailed information on the distribution of the ten leading underlying causes by provinces, sex and age is provided in appendices M to M9 (see pages 98–118).

**Table 4.10: The ten leading underlying natural causes of death in each province of death occurrence, 2016\***

Causes of death (based on ICD-10)	Western Cape			Eastern Cape			Northern Cape			Free State			KwaZulu-Natal			North West			Gauteng			Mpumalanga			Limpopo		
	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%
Diabetes mellitus (E10-E14)	1	3 711	7,7	3	3 346	5,1	6	643	4,6	5	1 668	5,2	3	5 579	6,6	6	1 651	4,7	4	4 047	4,2	3	1 744	5,2	2	2 859	6,3
Human immunodeficiency virus [HIV] disease (B20-B24)	2	2 980	6,2	2	3 793	5,7	2	849	6,1	8	1 522	4,8	4	5 298	6,3	8	1 209	3,4	8	2 998	3,1	7	1 632	4,9	7	1 545	3,4
Ischaemic heart diseases (I20-I25)	3	2 866	6,0	...	...	...	9	489	3,5	...	...	...	9	2 398	2,8	...	...	...	7	3 230	3,3	10	969	2,9	...	...	...
Cerebrovascular diseases (I60-I69)	4	2 682	5,6	5	3 128	4,7	5	718	5,2	4	1 713	5,4	5	5 076	6,0	7	1 535	4,3	5	3 818	3,9	2	1 811	5,4	3	2 645	5,8
Tuberculosis (A15-A19)**	5	2 461	5,1	1	5 210	7,9	1	937	6,8	1	1 995	6,3	1	6 406	7,6	1	2 615	7,4	2	4 701	4,8	1	2 661	8,0	4	2 518	5,5
Chronic lower respiratory diseases (J40-J47)	6	2 373	4,9	7	2 456	3,7	7	601	4,3	10	757	2,4	...	...	...	10	946	2,7	10	2 445	2,5	...	...	...	...	...	...
Malignant neoplasms of digestive organs (C15-C26)	7	2 204	4,6	10	1 604	2,4	...	...	...	...	...	...	10	1 854	2,2	...	...	...	...	...	...	...	...	...	...	...	...
Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	8	2 193	4,6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hypertensive diseases (I10-I15)	9	1 868	3,9	6	2 823	4,3	4	759	5,5	3	1 748	5,5	6	3 216	3,8	2	2 059	5,8	6	3 371	3,5	6	1 672	5,0	5	2 438	5,3
Other forms of heart disease (I30-I52)	10	1 473	3,1	4	3 145	4,8	3	762	5,5	6	1 583	5,0	2	6 266	7,4	3	1 963	5,5	1	5 467	5,6	8	1 346	4,0	8	1 498	3,3
Influenza and pneumonia (J09-J18)	...	...	...	9	1 919	2,9	8	570	4,1	2	1 992	6,3	8	2 818	3,3	5	1 723	4,9	3	4 552	4,7	5	1 677	5,0	1	3 445	7,6
Other viral diseases (B25-B34)	...	...	...	8	2 161	3,3	...	...	...	7	1 558	4,9	7	3 068	3,6	4	1 775	5,0	...	...	...	4	1 736	5,2	6	2 359	5,2
Certain disorders involving the immune mechanism (D80-D89)	...	...	...	...	...	...	10	485	3,5	9	1 001	3,1	...	...	...	9	1 124	3,2	9	2 962	3,0	9	1 028	3,1	...	...	...
Intestinal infectious diseases (A00-A09)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	1 340	2,9
Renal failure (N17-N19)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	934	2,0
Other natural causes		16 947	35,2		28 754	43,5		5 599	40,4		13 060	41,1		32 521	38,4		15 435	43,6		49 076	50,4		13 149	39,5		19 797	43,4
Non-natural causes		6 383	13,3		7 728	11,7		1 456	10,5		3 199	10,1		10 255	12,1		3 370	9,5		10 770	11,1		3 836	11,5		4 200	9,2
<b>All causes</b>		<b>48 141</b>	<b>100,0</b>		<b>66 067</b>	<b>100,0</b>		<b>13 868</b>	<b>100,0</b>		<b>31 796</b>	<b>100,0</b>		<b>84 755</b>	<b>100,0</b>		<b>35 405</b>	<b>100,0</b>		<b>97 437</b>	<b>100,0</b>		<b>33 261</b>	<b>100,0</b>		<b>45 578</b>	<b>100,0</b>

\*Excluding deaths that occurred outside South Africa and deaths with unspecified province of death

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

... Category not in top ten

#### 4.7.7 Underlying causes of death by district/metropolitan municipality of death occurrence

##### Main group

The main groups of underlying natural causes of death by district/metropolitan municipalities are provided in Appendices N to O.2 (see pages 120–125). The number of deaths by main groups of causes of death for each district/metropolitan municipality of death occurrence is provided in Appendices N to N.2 (see pages 120–122), while Appendices O to O.2 show the main groups of causes of death for each district/metropolitan municipality of death occurrence by their percentage distribution.

In order to simplify the analysis of main groups at district level, the main groups or ICD chapters were re-grouped into 11 groups. The main group “*other natural causes*” includes *mental and behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, disease of the skin and subcutaneous tissue, disease of musculoskeletal system, diseases of the genitourinary system, congenital malformations, symptoms and signs not elsewhere classified and pregnancy, childbirth and puerperium*.

Appendices O to O.2 show that *certain infectious and parasitic diseases* was the most common main group of causes of death in four of the nine provinces. The exceptions were Western Cape, Gauteng, Free State, KwaZulu-Natal and Northern Cape where *diseases of the circulatory system* was the most common main group of causes of death. The proportion of deaths due to *certain infectious and parasitic diseases* was highest in Mpumalanga (accounting for 22,4% deaths in the province), followed by KwaZulu-Natal at 20,7%. The province with the lowest proportion of deaths due to *certain infectious and parasitic diseases* was Gauteng with 14,4% due to this main group. The district municipalities worst affected by *certain infectious and parasitic diseases* were those in KwaZulu-Natal, particularly uMkhanyakude (27,2%), Zululand (24,4%), iLembe (24,2%) and uThukela (24,0%). The other district with the highest number of deaths due to *certain infectious and parasitic diseases* was Ehlanzeni in Mpumalanga, accounting for 25,2% of all deaths in the district, followed by Thabo Mofutsanyane in Free State with 24,9% deaths due to this main group of underlying causes.

For the observation period 1997–2016, it was the first time the main group *diseases of the circulatory system* was the leading underlying natural cause of death in South Africa. It also was the first time it was amongst the leading underlying natural cause of death in more than one province. Traditionally, it has been the leading cause of death in the Western Cape alone. For Western Cape and Gauteng provinces, *diseases of the circulatory system* was the most common main group of underlying causes for all districts and for three of the five districts in Free State with the exception of Mangaung and Thabo Mofutsanyane. The district with the highest proportion of deaths due to diseases of the circulatory system were John Taolo Gaetsewe and Namakwa both in the Northern Cape accounting for 26,9% and 25,0% deaths in each district respectively followed closely by eThekweni metropolitan with 24,8% deaths due to this main group.

Neoplasms was more prevalent in Western Cape (18,2%) and Gauteng (10,9%). Deaths due to Neoplasms were less than 10% in the rest of the other provinces. The district/metropolitan municipalities where neoplasms were more prevalent were Overberg (20,3%) and Eden (18,9%) both in the Western Cape, followed by Namakwa (18,4%) in the Northern Cape then City of Cape Town (18,2%). *Diseases from perinatal conditions* which generally affects infants were more widespread in Dr Ruth Segomotsi Mompati (3,4%) in North West and John Taolo Gaetsewe (3,4%) in Northern Cape.

## Broad groups

Appendices P to P8 (see pages 126–136) present the ranking of the ten leading natural causes of death by district/metropolitan municipality of death occurrence. *Tuberculosis* was the leading underlying cause of death in 24 of the 52 districts in South Africa. It was the leading underlying cause of death in at least one district for all the provinces except in the Western Cape. The provinces with the highest number of districts affected by *tuberculosis* were North West, Eastern Cape, and KwaZulu-Natal. In the North West province, *tuberculosis* was the leading cause of death for all the districts, and in Eastern Cape, seven of the eight districts had *tuberculosis* as the leading underlying cause of death while six of the eleven districts in KwaZulu-Natal had *tuberculosis* as the leading underlying cause of death. For Limpopo, Northern Cape and Gauteng, only one district had *tuberculosis* as the leading underlying cause of death in each province.

The following underlying causes of death were all leading underlying causes of death in at least one district in 2016: *Tuberculosis* (24); *other forms of heart diseases* (7); *diabetes mellitus* (6); *influenza and pneumonia* (5); *human immunodeficiency virus* (4); *chronic lower respiratory diseases* (2); *hypertensive diseases* (2); *ischaemic heart diseases* (1); and *cerebrovascular diseases* (1).

*HIV disease* was part of the ten leading causes of death for all districts in Western Cape, KwaZulu-Natal, Eastern Cape and Mpumalanga. It was the leading cause of death for uMkhanyakude and Zululand both in KwaZulu-Natal, Mangaung in Free State and Pixley ka Seme in Northern Cape. The only districts where *HIV disease* was not among the ten leading underlying causes of death were Fezile Dabi in the Free State, Ngaka Modiri Molema and Bojanala both in North West, Greater Sekhukhune in Limpopo and Sedibeng in Gauteng. The district with the highest percentage of deaths (over 10%) due to *HIV disease* were uMkhanyakude (13,7%) in KwaZulu-Natal.

*Cerebrovascular diseases* were a leading cause of death in West Coast, accounting for 8,0% deaths in the district whereas *ischaemic heart disease* was the leading cause of death in Overberg, accounting for 7,2% deaths in the district.

Analysis of the broad group of underlying causes of death by the eight metropolitan municipalities (metros) revealed that three of the eight metros had communicable diseases as the leading underlying causes of death. *Tuberculosis* was the leading underlying cause of death for Ekurhuleni and Buffalo City while *HIV disease* was the leading underlying cause for Mangaung. The rest of the metros had non-communicable diseases as the leading cause of death. *Other forms of heart diseases* were the leading cause of death at eThekweni in KwaZulu-Natal, City of Johannesburg and Tshwane in Gauteng, while *diabetes mellitus* was the leading underlying cause of death for City of Cape Town in Western Cape and Nelson Mandela Bay in Eastern Cape. For all the eight districts, non-communicable diseases were more than the communicable diseases in the top ten causes of death for each district. Six of the ten leading causes of death were non-communicable diseases for eThekweni, City of Johannesburg, City of Tshwane and Ekurhuleni; seven of the ten for Mangaung, Buffalo City and Nelson Mandela Bay and finally eight of the ten were non-communicable diseases for City of Cape Town.

#### 4.7.8 Underlying natural 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 distribution of underlying causes of death by population group are provided in appendices Q and Q.1 (see pages 137–138).

#### 4.8 Non-natural causes of death

The focus of this subsection is on non-natural causes of death. Information on non-natural causes of death is important in South Africa, considering the high levels of violence experienced in the country. This section profiles non-natural causes of death based on all *external causes of morbidity and mortality (V01-Y98)* derived from the causes of death specified on the death notification forms.

On the death notification form, where insufficient details are provided to code the non-natural cause of death accurately, Stats SA codes such deaths as other external causes of accidental injury or event of undetermined intent in line with the recommendations of WHO in classifying unknown non-natural causes of death (WHO, 2009b). This therefore contributes to the high percentage of unspecified causes of non-natural deaths. Results therefore on non-natural causes of death should therefore be interpreted mindful of the fact that nearly three-quarters of non-natural causes of death were not adequately classified. The unexpected lower number of deaths due to *transport accidents, assault, complications of medical and surgical care, intentional self-harm or sequelae of external causes of morbidity and mortality* may have been partly the result of causes classified as *other external causes of accidental injury or event of undetermined intent*.

Table 4.11 shows the number and percentage distribution of broad groups of non-natural causes of death. A proportion of 11,2% (refer to Table 4.3) of all deaths that occurred in 2016 were due to *external causes of morbidity and mortality*. It is observed that the majority of non-natural causes of death resulted from *other external causes of accidental injury* (66,5%). In terms of all deaths, *other external causes of accidental injury* accounted for 7,5%.

*Assault* was the second most common non-natural cause of death and accounted for 14,8% of non-natural causes and 1,7% of all reported deaths. The third most common cause of non-natural deaths was *transport accidents* (12,5% and 1,4% of all deaths), followed by *event of undetermined intent* (3,2%) and *complications of medical and surgical care* (2,0%). About 1% of non-natural deaths were due to *intentional self-harm* and 0,2% were due to *sequelae of external causes of morbidity and mortality*.

**Table 4.11: Distribution of non-natural causes of death by broad groups, 2016**

Causes of death (based on ICD-10, 1992)	Number	Percentage of non-natural causes	Percentage of all causes (N = 456 612)
Other external causes of accidental injury (W00-X59)	34 096	66,5	7,5
Assault (X85-Y09)	7 568	14,8	1,7
Transport accidents (V01-V99)	6 425	12,5	1,4
Event of undetermined intent (Y10-Y34)	1 640	3,2	0,4
Complications of medical and surgical care (Y40-Y84)	1 001	2,0	0,2
Intentional self-harm (X60-X84)	425	0,8	0,1
Sequelae of external causes of morbidity and mortality (Y85-Y89)	86	0,2	0,0
Legal intervention and operations of war (Y35-Y36)	1	0,0	0,0
<b>Total</b>	<b>51 242</b>	<b>100,0</b>	

A breakdown of deaths due to *other external causes of accidental injury* is provided in Table 4.12 to provide information that can be used to better understand deaths due to this cause, which comprised 66,5% of all non-natural deaths. The table shows that more than half of these deaths were due to *accidental exposure to other and unspecified factors* (50,3%). This includes *accidents not elsewhere classified* and *exposure to unspecified factor causing other and unspecified injury*. The next common cause was *exposure to inanimate mechanical forces* (18,2%) and these include deaths *due to discharge from other and unspecified firearms*. *Other accidental threats to breathing* (14,5%) was third which comprises *accidental hanging and strangulation*. *Exposure to smoke, fire and flames* (6,8%) was the fourth most common *external cause of accidental injury* followed by *accidental drowning and submersion* (4,1%).

**Table 4.12: Distribution of deaths due to other external causes of accidental injury, 2016**

Cause of death (based on ICD-10)	Number	Percentage
Accidental exposure to other and unspecified factors (X58-X59)	17 139	50,3
Exposure to inanimate mechanical forces (W20-W49)	6 217	18,2
Other accidental threats to breathing (W75-W84)	4 937	14,5
Exposure to smoke, fire and flames (X00-X09)	2 328	6,8
Accidental drowning and submersion (W65-W74)	1 411	4,1
Accidental poisoning by and exposure to noxious substances (X40-X49)	905	2,7
Exposure to electric current, radiation and extreme ambient air temperature and pressure (W85-W99)	396	1,2
Exposure to forces of nature (X30-X39)	437	1,3
Falls (W00-W19)	200	0,6
Contact with venomous animals and plants (X20-X29)	54	0,2
Exposure to animate mechanical forces (W50-W64)	48	0,1
Overexertion, travel and privation (X50-X57)	13	0,0
Contact with heat and hot substances (X10-X19)	11	0,0
<b>Total</b>	<b>34 096</b>	<b>100,0</b>

#### 4.8.1 Non-natural causes of death by age and sex

This subsection focuses on the distribution of non-natural causes of death by sex and broad age groups (0, 1–14, 15–29, 30–44, 45–64 and 65 and older). The 15–44 age group as recommended by the WHO (1992) has been divided into two age groups (15–29 and 30–44) for the analysis of non-natural deaths due to differing patterns in non-natural causes for these age groups. Table 4.13 shows the distribution of non-natural causes of death by sex and broad age groups for deaths that occurred in 2016. The absolute numbers and percentages for both sexes may not be similar to the results presented in Table 4.11, as deaths with missing sex and age are excluded.

For both sexes, the age group mostly affected by non-natural causes of death was age group 15–29 where 22,6% of all deaths in this age group were due to non-natural causes. The age group least affected by non-natural causes was ages 65 years and older where only 2,6% deaths in this age group were due to non-natural causes. *Assault* was more common among those aged 15–29, accounting for 22,4% of non-natural deaths in this age group.

Differences by sex show an expected pattern – males had a higher proportion of deaths due to non-natural causes (16,4%) as compared to females (5,3%). Furthermore, for each of the age groups, males had higher proportions of deaths due to non-natural causes compared to females, [except for age 0 where female deaths (4,3%) are higher than male deaths (3,9%)]. The difference between male and female deaths is wider at age group 15–29 where as

much as 57,9% of male deaths resulted from non-natural cause compared to 16,8% of female deaths in the same age group. This is the only age group where the proportion of non-natural deaths for males is more than that of natural deaths.

For both males and females, non-natural deaths due *to complications of medical and surgical care* increased with an increase in age with the exception of those aged less than a year. Deaths due to this cause were higher at infancy (those aged less than a year). This cause of death was higher amongst females as compared to males for all age groups. For specific causes, the main difference between males and females was the percentage of deaths due to *assault* as well as *complications of medical and surgical care*. On the one hand, as much as 16,9% of male non-natural deaths were due to *assault*, while 7,4% of female deaths were due to the same cause. On the other hand, 4,5% of female non-natural deaths were due to *complications of medical and surgical care* while 1,2% of male deaths were due to the same cause.

Non-natural deaths due *to transport accidents* amongst females constituted 14,7%, and amongst males it accounted for 12,0%. For each of the sexes, *intentional self-harm* and *sequelae of external causes of morbidity and mortality* were uncommon, each comprising less than 1% of deaths for each sex.

For all age groups, *other external cause of accidental injury* was the highest non-natural cause of death followed by *assault*. However, these broad groups do not give valuable information; they cover non-natural deaths not adequately classified.

**Table 4.13: Underlying non-natural causes of death by age group and sex, 2016\***

Causes of death based on ICD-10	Number							Percentage						
	0	1-14	15-29	30-44	45-64	65+	Total	0	1-14	15-29	30-44	45-64	65+	Total
<b>Both sexes*</b>														
Transport accidents (V01-V99)	35	547	2 027	2 084	1 347	344	6 384	4,2	15,5	11,6	13,5	14,9	7,6	12,8
Other external causes of accidental injury (W00-X59)	738	2 741	10 593	10 174	6 147	3 379	33 772	89,5	77,9	60,6	65,8	68,2	75,1	67,8
Intentional self-harm (X60-X84)	0	15	192	129	67	20	423	0,0	0,4	1,1	0,8	0,7	0,4	0,8
Assault (X85-Y09)	13	65	3 909	2 470	842	210	7 509	1,6	1,8	22,4	16,0	9,3	4,7	15,1
Event of undetermined intent (Y10-Y34)	10	128	622	467	307	93	1 627	1,2	3,6	3,6	3,0	3,4	2,1	3,3
Legal intervention and operations of war (Y35-Y36)	0	0	0	0	1	0	1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Complications of medical and surgical care (Y40-Y84)	29	22	122	129	274	418	0	3,5	0,6	0,7	0,8	3,0	9,3	0,0
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	1	9	17	26	33	86	0,0	0,0	0,1	0,1	0,3	0,7	0,2
<b>Subtotal</b>	<b>825</b>	<b>3 622</b>	<b>17 170</b>	<b>14 730</b>	<b>9 400</b>	<b>4 697</b>	<b>50 541</b>	<b>100,0</b>						
Non-natural causes	825	3 622	17 170	14 730	9 400	4 697	50 541	3,9	26,1	39,5	16,8	7,2	3,0	11,1
Natural causes	19 422	10 254	26 332	72 696	121 341	153 476	406 829	96,1	73,9	60,5	83,2	92,8	97,0	88,9
<b>All causes</b>	<b>21 897</b>	<b>13 876</b>	<b>43 502</b>	<b>87 426</b>	<b>130 741</b>	<b>158 173</b>	<b>457 370</b>	<b>100,0</b>						
<b>Males**</b>														
Transport accidents (V01-V99)	24	317	1 531	1 653	976	212	4 713	5,6	14,7	10,5	12,7	14,3	8,8	12,0
Other external causes of accidental injury (W00-X59)	381	1 723	8 867	8 664	4 681	1 795	26 111	88,4	79,9	60,9	66,5	68,7	74,5	66,3
Intentional self-harm (X60-X84)		11	153	111	53	17	345	0,0	0,5	1,1	0,9	0,8	0,7	0,9
Assault (X85-Y09)	8	43	3 591	2 203	701	119	6 665	1,9	2,0	24,7	16,9	10,3	4,9	16,9
Event of undetermined intent (Y10-Y34)	1	54	339	335	228	58	1 015	0,2	2,5	2,3	2,6	3,3	2,4	2,6
Complications of medical and surgical care (Y40-Y84)	17	9	59	54	157	187	483	3,9	0,4	0,4	0,4	2,3	7,8	1,2
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	0	8	12	22	21	63	0,0	0,0	0,1	0,1	0,3	0,9	0,2
<b>Subtotal</b>	<b>431</b>	<b>2 157</b>	<b>14 548</b>	<b>13 032</b>	<b>6 818</b>	<b>2 409</b>	<b>39 395</b>	<b>100,0</b>						
Non-natural causes	431	2 157	14 548	13 032	6 818	2 409	39 395	3,9	30,2	57,9	25,9	9,0	3,4	16,4
Natural causes	10 532	4 982	10 594	37 370	69 027	67 697	200 202	96,1	69,8	42,1	74,1	91,0	96,6	83,6
<b>All causes</b>	<b>10 963</b>	<b>7 139</b>	<b>25 142</b>	<b>50 402</b>	<b>75 845</b>	<b>70 106</b>	<b>239 597</b>	<b>100,0</b>						
<b>Females**</b>														
Transport accidents (V01-V99)	11	230	496	431	371	132	1 671	2,8	16,9	17,0	17,7	16,9	6,3	14,7
Other external causes of accidental injury (W00-X59)	357	1 018	1 726	1 510	1 466	1 584	7 661	90,4	74,7	59,0	61,9	66,8	75,9	67,2
Intentional self-harm (X60-X84)	0	4	39	18	14	3	78	0,0	0,3	1,3	0,7	0,6	0,1	0,7
Assault (X85-Y09)	5	22	318	267	141	91	844	1,3	1,6	10,9	11,0	6,4	4,4	7,4
Event of undetermined intent (Y10-Y34)	9	74	283	132	79	35	612	2,3	5,4	9,7	5,4	3,6	1,7	5,4
Legal intervention and operations of war (Y35-Y36)	0	0	0	0	1	0	1	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Complications of medical and surgical care (Y40-Y84)	12	13	63	75	117	231	511	3,0	1,0	2,2	3,1	5,3	11,1	4,5
Sequelae of external causes of morbidity and mortality (Y85-Y89)	0	1	1	5	4	12	23	0,0	0,1	0,0	0,2	0,2	0,6	0,2
<b>Subtotal</b>	<b>395</b>	<b>1 362</b>	<b>2 926</b>	<b>2 438</b>	<b>2 193</b>	<b>2 088</b>	<b>11 401</b>	<b>100,0</b>						
Non-natural causes	395	1 362	2 926	2 438	2 193	2 088	11 402	4,3	23,2	16,8	6,9	4,0	2,3	5,3
Natural causes	8 879	4 504	14 468	32 787	52 244	90 539	203 421	95,6	76,8	83,2	93,1	96,0	97,7	94,7
<b>All causes</b>	<b>9 284</b>	<b>5 866</b>	<b>17 394</b>	<b>35 225</b>	<b>54 437</b>	<b>92 627</b>	<b>214 823</b>	<b>100,0</b>						

\*Excluding cases with unspecified age and sex.

\*\*Excluding cases with unspecified age.

#### 4.8.2 Non-natural causes of death by province of death occurrence

The distribution of the underlying non-natural causes of death by province of death occurrence for 2016 is shown in Table 4.14. It is observed that Western Cape (13,3%) had the highest proportion of deaths due to non-natural causes, followed by KwaZulu-Natal (12,1%), Eastern Cape (11,7%) and Mpumalanga (11,5%). All these provinces exceeded the national average of 11,2% of deaths due to non-natural causes in 2016. The lowest proportions of deaths due to non-natural causes were observed in Limpopo (9,2%) and North West (9,5%).

The most common causes of non-natural deaths in all provinces were *other external causes of accidental injury* where more than half of non-natural deaths resulted from this broad group in each province except for Northern Cape where non-natural deaths due to this cause were 39,4%. The proportion of deaths due to *other external causes of accidental injury* was highest in Gauteng (78,4%) and Mpumalanga (78,1%). Western Cape (24,4%) had the highest proportion of deaths due to *assault*, followed by Eastern Cape at 22,0% and deaths due to this cause were lowest in Mpumalanga (5,2%). *Assault* was also low in Limpopo (8,0%).

*Transport accidents* were highest in Limpopo, responsible for 31,8% of non-natural deaths, followed closely by Northern Cape at 31,7%. *Transport accidents* were also high in the Free State province (19,4%) and North West (16,1%). Traditionally, Limpopo has always had the highest proportion of *transport accidents* in South Africa compared to the rest of the other provinces. The same can be said about *assault* in the Western Cape,, which has generally been higher than the rest of the other provinces.

*Intentional self-harm* and *sequelae of external causes of morbidity and mortality* were least common, each affecting about 5% or less of non-natural deaths in each province except for Northern Cape where 5,8% of non-natural deaths were due to *intentional self-harm*. *Complications of medical and surgical care* were least common, comprising less than 5% of non-natural deaths in each province.

**Table 4.14: Underlying non-natural causes of death by province, 2016**

Causes of death (based on ICD-10)	Western Cape		Eastern Cape		Northern Cape		Free State		KwaZulu-Natal		North West		Gauteng		Mpumalanga		Limpopo	
	No.	%																
Transport accidents (V01-V99)	481	7,5	882	11,4	461	31,7	620	19,4	1 336	13,0	542	16,1	265	2,5	494	12,9	1 335	31,8
Other external causes of accidental injury (W00-X59)	4 085	64,0	4 716	61,0	574	39,4	1 812	56,6	6 878	67,1	2 202	65,3	8 448	78,4	2 997	78,1	2 356	56,1
Intentional self-harm (X60-X84)	26	0,4	18	0,2	84	5,8	29	0,9	204	2,0	6	0,2	14	0,1	027	0,7	16	0,4
Assault (X85-Y09)	1 555	24,4	1 699	22,0	262	18,0	520	16,3	1 404	13,7	427	12,7	1 160	10,8	199	5,2	338	8,0
Event of undetermined intent (Y10-Y34)	083	1,3	296	3,8	31	2,1	153	4,8	236	2,3	142	4,2	525	4,9	070	1,8	102	2,4
Legal intervention and operations of war (Y35-Y36)	0	0,0	000	0,0	000	0,0	000	0,0	000	0,0	000	0,0	000	0,0	000	0,0	001	0,0
Complications of medical and surgical care (Y40-Y84)	131	2,1	106	1,4	36	2,5	63	2,0	186	1,8	46	1,4	335	3,1	47	1,2	49	1,2
Sequelae of external causes of morbidity and mortality (Y85-Y89)	22	0,3	11	0,1	8	0,5	2	0,1	11	0,1	5	0,1	22	0,2	2	0,1	3	0,1
<b>Subtotal</b>	<b>6 383</b>	<b>100,0</b>	<b>7 728</b>	<b>100,0</b>	<b>1 456</b>	<b>100,0</b>	<b>3 199</b>	<b>100,0</b>	<b>10 255</b>	<b>100,0</b>	<b>3 370</b>	<b>100,0</b>	<b>10 770</b>	<b>100,0</b>	<b>3 836</b>	<b>100,0</b>	<b>4 200</b>	<b>100,0</b>
Non-natural	6 383	13,3	7 728	11,7	1 456	10,5	3 199	10,1	10 255	12,1	3 370	9,5	10 770	11,1	3 836	11,5	4 200	9,2
Natural causes	41 758	86,7	58 339	88,3	12 412	89,5	28 597	89,9	74 500	87,9	32 035	90,5	86 667	88,9	29 425	88,5	41 378	90,8
<b>Total</b>	<b>48 141</b>	<b>100,0</b>	<b>66 067</b>	<b>100,0</b>	<b>13 868</b>	<b>100,0</b>	<b>31 796</b>	<b>100,0</b>	<b>84 755</b>	<b>100,0</b>	<b>35 405</b>	<b>100,0</b>	<b>97 437</b>	<b>100,0</b>	<b>33 261</b>	<b>100,0</b>	<b>45 578</b>	<b>100,0</b>

\*Excluding deaths that occurred outside South Africa and deaths with unspecified province of death.

### 4.8.3 Non-natural causes of death by district municipality

The information provided in Appendices O to O.2 shows the proportion of deaths due to non-natural causes for each of the district municipalities. As noted above, the provinces with the highest proportion of deaths due to non-natural causes were Western Cape, Gauteng, Eastern Cape, Mpumalanga and KwaZulu-Natal.

The district with the highest proportion of deaths due to *external causes of morbidity and mortality* (non-natural causes) was Central Karoo in Western Cape, where as much as 15,2% of deaths in this district were due to this main group of causes of death. Central Karoo was followed by City of Cape Town with 14,5% deaths due to *external causes of morbidity and mortality*. The national average for *external causes of morbidity and mortality* was 11,2%. There were a total of 25 districts which were higher than the national average. The other three in the top five were uThungulu (13,7%), Nkangala (13,4%) and eThekweni (13,3%).

Districts with the lowest proportion of non-natural causes of death were City of Tshwane (7,2%) in Gauteng; Harry Gwala (7,8%) in KwaZulu-Natal; Dr Ruth Segomotsi Mompati (8,2%) and Ngaka Modiri Molema (8,1%) in North West; and Mopani in Limpopo (8,3%).

## 4.9 Comparison between immediate, contributing and underlying causes of death

The death notification form makes provision for several causes of death to be reported on each form. As provided in Table 4.1, the maximum number of causes recorded was six. These causes are recorded as either immediate, contributing or underlying. For the 2016 deaths, over half of the forms (53,1%) had just one cause of death indicated while 46,6% had two or more causes.

This section provides information on the total number of causes of death entered on each form when reporting the cause of death. It aggregates the total number of causes mentioned on each form, and these are then grouped by broad groups of underlying causes of death. The broad groups of underlying causes of death were then ranked, and the twenty leading causes based on all causes of death recorded on each form are shown in Table 4.15. 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* to indicate the frequency of mentioning any cause on the death notification form.

*Other forms of heart diseases* were the most frequently recorded cause of death in 2016, mentioned in a total of 55 112 (12,1%) death notification forms, followed by *Ill-defined and unknown causes of mortality* mentioned in 53 129 (11,6%) forms. *Hypertensive diseases* was mentioned in 52 655 (11,5%) death notification forms and *tuberculosis* was mentioned in 47 206 (10,3%) death notification forms. *Influenza and pneumonia* (9,4%) was the fifth most commonly recorded cause of death. *Other external causes of accidental injury* was the sixth most commonly mentioned cause (7,8%) and the only non-natural cause appearing among the 20 most commonly mentioned causes of death. The *human immunodeficiency virus [HIV] disease* (5,0%) was ranked twelfth among the 20 most commonly mentioned causes of death.

**Table 4.15: Distribution of the 20 most commonly reported causes of death, 2016**

Rank	Causes of death (based on ICD-10)	Number of deaths in which the causes were reported	Percentage of all deaths
1	Other forms of heart disease (I30-I52)	55 112	12,1
2	Ill-defined and unknown causes of mortality (R95-R99)	53 129	11,6
3	Hypertensive diseases (I10-I15)	52 655	11,5
4	Tuberculosis (A15-A19)*	47 206	10,3
5	Influenza and pneumonia (J09-J18)	42 812	9,4
6	Other external causes of accidental injury (W00-X59)	35 509	7,8
7	Cerebrovascular diseases (I60-I69)	34 704	7,6
8	Diabetes mellitus (E10-E14)	28 688	6,3
9	Other viral diseases (B25-B34)	28 004	6,1
10	Renal failure (N17-N19)	27 932	6,1
11	Other bacterial diseases (A30-A49)	27 056	5,9
12	Human immunodeficiency virus [HIV] disease (B20-B24)	22 811	5,0
13	Ischaemic heart diseases (I20-I25)	19 432	4,3
14	Chronic lower respiratory diseases (J40-J47)	18 586	4,1
15	Metabolic disorders (E70-E90)	16 392	3,6
16	Other diseases of the respiratory system (J95-J99)	16 076	3,5
17	Intestinal infectious diseases (A00-A09)	15 857	3,5
18	Malignant neoplasm of ill-defined, secondary and unspecified sites(C76-C80)	14 158	3,1
19	Certain disorders involving the immune mechanism (D80-D89)	11 864	2,6
20	Malignant neoplasm of digestive organs (C15-C26)	10 989	2,4

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 4.5 for 2016 deaths are presented in Table 4.16 to show the breakdown of the number of deaths by whether the death was selected as the underlying cause or whether it was reported as the immediate or contributing cause.

Within each category, the counts of underlying causes and immediate or contributing causes are not duplicated, so that they can be summed up to equal the total number of times a specific cause of death was recorded on a death notification form. The table shows that in over 80% of deaths where *HIV disease* (95,4%) and *diabetes mellitus* (87,8%) were mentioned, they were selected as underlying causes. In less than half of the cases where *hypertensive diseases* (38,2%), *other forms of heart disease* (42,7%) and *influenza and pneumonia* (45,9%) were mentioned, they were selected as the underlying causes.

**Table 4.16: Number and percentage of deaths selected as underlying or reported as immediate or contributing causes of death, 2016**

Causes of death (ICD-10)	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	29 513	17 693	47 206	62,5	37,5	100,0
Diabetes mellitus (E10-E14)	2	25 184	3 504	28 688	87,8	12,2	100,0
Other forms of heart disease (I30-I52)	3	23 515	31 597	55 112	42,7	57,3	100,0
Cerebrovascular diseases (I60-I69)	4	23 137	11 567	34 704	66,7	33,3	100,0
Human immunodeficiency virus [HIV] disease (B20-B24)	5	21 766	1 045	22 811	95,4	4,6	100,0
Hypertensive diseases (I10-I15)	6	20 095	32 560	52 655	38,2	61,8	100,0
Influenza and pneumonia (J09-J18)	7	19 638	23 174	42 812	45,9	54,1	100,0
Other viral diseases (B25-B34)	8	16 577	11 427	28 004	59,2	40,8	100,0
Ischaemic heart diseases (I20-I25)	9	12 883	6 549	19 432	66,3	33,7	100,0
Chronic lower respiratory diseases (J40-J47)	10	12 659	5 927	18 586	68,1	31,9	100,0

## 5. Summary and concluding remarks

This report provides information on levels, trends and patterns in mortality and cause-of-death statistics by sociodemographic and geographic characteristics. The mortality indicators and cause of death indicators presented in this report are critical indicators providing information on the health status of the South African population. The main focus is on 2016 death occurrences; however, information on deaths that occurred during the period 1997 to 2015 is included in order to show trends in mortality. The cause-of-death statistics in this statistical release provide information on the leading underlying natural causes of death, patterns and trends in non-natural underlying causes of death, as well as comparison between immediate, contributing and underlying causes of death.

Overall, the results on mortality levels and trends indicate that mortality continues to decline in the country. The general trend of registered deaths processed by Stats SA indicated an increase in death occurrences from 1997 to 2006 when the number of deaths peaked at 614 248, and a decrease thereafter. In 2016, a total of 456 612 deaths occurred, marking a decline of 3,5% from the 473 266 death occurrences for 2015 that have been updated for late registration. The 2015 death occurrences increased by 13 030 (2,8%) from the 460 236 deaths published in the 2015 statistical release.

Mortality differentials by age showed that in the recent years (2013–2016), death peaks as people progress into old age as indicated amongst those aged 60–64 years. In terms of sex differentials in mortality, in 2016, male deaths peaked at age group 60–64 years (8,6%), while female deaths peaked at a much older age group (75–79 years [8,3%]). Largely, there were more male deaths observed between 1997 and 2016. In 2016, the sex ratio at death was 112 male deaths per 100 female deaths. When disaggregated by age, 2016 deaths were characterised by higher male deaths from infancy to 70–74 years, with excess female deaths from ages 75 years and older. Overall, these results show that mortality now occurs at older ages for both sexes, which is an indication of a decline in premature mortality. Median ages at death further highlighted improvements in mortality as the median for total deaths increased from 42,6 years in 2004, reaching 56,4 years in 2016. Female deaths had a higher median age at death than their male counterparts (62,0 years and 52,7 years, respectively). This translates to female deaths surpassing the national average by 5,6 years and outliving males by 9,3 years. Other mortality differentials indicated that most 2016 death occurrences occurred in the most populous provinces, namely Gauteng (21,3%) and KwaZulu-Natal (18,6%). It is worth noting that a high proportion of deaths continue to occur at home instead of in healthcare facilities, and this may impact on the accuracy of the certification of causes of death. In 2016, about 22,6% of the deaths occurred at home.

Overall, 405 370 (88,8%) deaths that took place in 2016 were due to natural causes and 51 242 (11,2%) were attributed to non-natural causes. For the first time, since 1997, *certain infectious and parasitic diseases*, which decreased from 21,6% in 2014 to 18,2% in 2016 were ousted from being the leading underlying main group of natural causes to the second position. *Diseases of the circulatory system* which increased from 17,4% in 2014 to 18,5% in 2016, was the top ranking underlying main group of natural causes. Generally, in terms of the Global Burden of Disease, more deaths occurred from non-communicable diseases since 2009, with the highest proportions (57,4%) observed in 2016. Communicable disease were responsible for 31,3% of deaths in 2016. The proportion of deaths due to non-natural causes were higher for males compared to females at all ages, with the proportions of deaths due to non-natural causes particularly high for males aged 20–24 years (66,1%).

Notably, the top 3 leading natural causes of death for males had a combination of communicable and non-communicable diseases, while for females there were only non-communicable diseases. *Tuberculosis* maintained its rank as the leading cause of death in South Africa, albeit with declining proportions (down to 6,5% in 2016 from 8,3% in 2014). *Diabetes mellitus* (5,5%) was the second leading natural cause of death, followed by *other forms of heart disease* and *cerebrovascular diseases*, both ranking third place at 5,1% each. *Human immunodeficiency virus [HIV] disease* moved from the sixth position in 2014 and remained in the fifth position for both 2015 and 2016 deaths. Overall, the results show a considerable burden of disease from non-communicable disease and concerning signs of a sizable proportion of deaths associated with *diabetes mellitus*, particularly for females.

Information on the leading causes of death by sex showed that in 2016 more male deaths (7,6%) were attributable to *tuberculosis*, while most female deaths (7,2%) were due to *diabetes mellitus*. *Tuberculosis* moved from the third position in 2015 to the fifth position for females in 2016, while among males *diabetes mellitus* ranked sixth in both 2015 and 2016. In 2016, there were 15 466 *diabetes mellitus* deaths among females, 62,7% higher than the 9 692 deaths recorded for males. *Human immunodeficiency virus [HIV] disease* was the third leading cause of death for males (4,6%) while it was the sixth leading cause of death for females (5,0%).

As recommended by WHO to fine-tune focus on reports of mortality and causes of death by including age group 15–24 for international comparison, it was observed that there were 53,2% deaths due to natural and 46,8% deaths due to non-natural causes within this age group. The leading natural causes of death among this age group were *tuberculosis* (7,0%), followed by *human immunodeficiency virus [HIV] disease* (5,7%). Infants mostly succumbed to *respiratory and cardiovascular disorders specific to the perinatal period* (14,8%) from a total of 20 469 deaths in 2016. Based on provincial differentials, *diabetes mellitus* in Western Cape, *other forms of heart diseases* in Gauteng and *influenza and pneumonia* in Limpopo were the leading underlying natural causes. For the rest of the provinces, *tuberculosis* was the top-ranked natural cause.

Males had a higher proportion of deaths due to non-natural causes (16,4%) as compared to females (5,3%). The distribution of non-natural causes of death by sex in 2016 showed that there were 39 395 male deaths, 71,1% higher than the 11 402 deaths observed among females. *Assault* was leading for males and *transport accidents* were at the forefront for females. By province of death, Western Cape (13,3%) had the highest proportion, followed by KwaZulu-Natal (12,1%) and Eastern Cape (11,7%). All these provinces exceeded the aforementioned national average of 11,2% of deaths.

This statistical release also addressed quality issues of data on mortality and causes of death from the civil registration system. Maintaining high quality of information is vital for the improvement of the population health status and for monitoring progress towards national, regional and international goals. Timely registration of deaths was noted, as the majority of deaths (78,8%) were registered within the three days stipulated by the legislative framework. Declines in ill-defined causes of death were noted following training of medical practitioners in the certification of the death registration forms from 2012 to 2013. The proportions moved from 13,6% in 2012 to 12,7% in 2013, and down to a low of 12,3% in 2015. However, in 2016, the proportions increased to 13,2%. It is worth noting that this regression may be due to death notification forms that are sealed with glue, which makes them ineligible for capturing. Future scale-up of initiatives aimed at improving death registration and reducing spoiled forms are needed to strengthen completeness and quality of causes of death information in the country.

## 6. References

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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* in relation to a child, means the birth of a child born alive.

*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.

*Perinatal deaths* are a combination of stillbirths and infants who die in the first week after birth (early neonatal deaths)

*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 [ ] / STILLBORN CHILD [ ]

Identity number of deceased, Surname, Maiden Name (If female), Forenames, Date of death, Date of birth, Age at last birthday, Sex, No. of hours alive

MARITAL STATUS OF DECEASED: Single, Civil Marriage, Living as married, Widowed, Religious Law Marriage, Divorced, Customary Marriage

PLACE OF BIRTH, PLACE OF DEATH, PLACE OF REGISTRATION OF DEATH, CITIZENSHIP OF DECEASED

B PARTICULARS OF INFORMANT

Identity number, Initials and Surname, Relationship to deceased, Postal address, Postal Code, Dialling Code, Telephone No.

C PARTICULARS OF FUNERAL UNDERTAKER: Initials and Surname, Designation No., Place of burial / cremation, Date, Signature

D CERTIFICATE BY ATTENDING MEDICAL PRACTITIONER / PROFESSIONAL NURSE

I, the undersigned, hereby certify that the deceased named in Section A, to the best of my knowledge and belief, died solely and exclusively due to NATURAL CAUSES specified in Section G

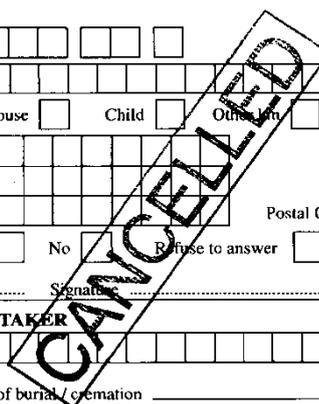
I, the undersigned, am not in the position to certify that the deceased died exclusively due to natural causes

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, Under investigation, Natural

Initials and Surname, Place of post-mortem, Date, Signature, Date signed

E FOR OFFICIAL USE ONLY

Registration of death approved and burial order issued, Address, Force No. / Designation No., Persal No., Date, Signature



Left thumb print of deceased

Left thumb print of informant

Office Stamp of Funeral Undertaker

Office Stamp

\* Someone who smokes tobacco on most days

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

Identity number of deceased, Surname, Maiden Name (If female), Forenames, Date of death, Date of birth, Age at last birthday, Sex, If death occurred within 24 hours after birth, No. of hours alive

MARITAL STATUS OF DECEASED: Single, Civil Marriage, Living as married, Widowed, Religious Law Marriage, Divorced, Customary Marriage

PLACE OF BIRTH, PLACE OF DEATH, PLACE OF REGISTRATION OF DEATH, CITIZENSHIP OF DECEASED

Left thumb print of deceased

B PARTICULARS OF INFORMANT

Identity number, Initials and Surname, Relationship to deceased, Postal address, Postal Code, Dialling Code, Telephone No., Was the next of kin of the deceased a smoker\* during the past five years?

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. I, the undersigned, am not in the position to certify that the deceased died exclusively due to natural causes.

Postal Address, Postal Code, SAMDC / SANC Reg. No., Date signed

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, Under investigation, Natural (Cause of Death as indicated in Section G). Initials and Surname, Place of post-mortem, Date, Signature, Date signed

Postal Address, Postal Code, Mortuary Reference, SAMDC Reg. No.

E FOR OFFICIAL USE ONLY

Registration of death approved and burial order issued, Address, Force No. / Designation No., Persal No., Date, Signature, Initials and Surname of Registrar

Office Stamp

\* Someone who smokes tobacco on most days

Appendix B: Reverse side of the BI-1663 death notification form

NOTIFICATION / REGISTER OF DEATH / STILL BIRTH
INFORMATION FOR MEDICAL AND HEALTH USE ONLY
(After completion seal to ensure confidentiality)

BI - 1663
Page 2

Space for Bar Code
SERIAL No:
A 01857265

FILE No: DATE:

F DEMOGRAPHIC DETAILS

Initials and Surname of deceased
Identity Number
Place of death 1. Hospital: (Inpatient ER/ Outpatient DOA) 2. Nursing Home 3. Home 4. Other (Specify)

FACILITY NAME (If not institution, give street and number)
Usual residential address of deceased # Suburb
Town / Village
Name of Plot, Farm, etc. Census Enumerator Area
Street name and number Magist. Dist.

Deceased's Education (Specify only highest class completed/achieved)
None Gr1 Gr2 Gr3 Gr4 Gr5 Gr6 Gr7 Gr8 Form 1 Gr9 Form 2 Gr10 Form 3 NTC1 Gr11 Form 4 NTC2 Gr12 Form 5 NTC3 Univ Tech CODE
Postal Code
Province
Country

USUAL OCCUPATION OF DECEASED (give type of work done during most of working life. Do not use retired)
TYPE OF BUSINESS/INDUSTRY (e.g. Mining, Farming) refer to instructions

Was the deceased a smoker\* five years ago? ( ) : Yes Do not know Not applicable (minor)

G MEDICAL CERTIFICATE OF CAUSE OF DEATH

PART 1. Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock, or heart failure. List only one cause on each line.

IMMEDIATE CAUSE (Final disease or condition resulting in death)
Sequentially list conditions, if any, leading to immediate cause. Enter UNDERLYING CAUSE last (Disease or injury that initiated events resulting in death)
a. Due to (or as a consequence of)
b. Due to (or as a consequence of)
c. Due to (or as a consequence of)
d. Due to (or as a consequence of)

Approximate interval between onset and Death (Days/Months/Years)

FOR OFFICE USE ONLY ICD-10

PART 2. Other significant conditions contributing to death but not resulting in the underlying cause given in Part 1.

If a female, was she pregnant 42 days prior to death? ( ) : Yes No

If stillborn, please write mass in grams

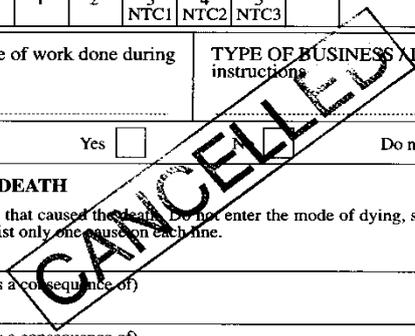
Do you consider the deceased to be: African White Indian Coloured Other (Specify)

Method of ascertainment of cause of death:

1. Autopsy 2. Opinion of attending medical practitioner 3. Opinion of attending medical practitioner on duty
4. Opinion of registered professional nurse 5. Interview of family member
6. Other (Specify)

# Where someone lived on most days

\* Someone who smokes tobacco on most days







**Appendix B1: Death notification form (DHA-1663A) – page 3 of 3**

G.P.-s. 09/09



REPUBLIC OF SOUTH AFRICA  
DEPARTMENT OF HOME AFFAIRS

**NOTICE OF DEATH / STILL BIRTH**  
[Births and Deaths Registration Act 51 of 1992]  
[Regulations 11 and 14]

DHA-1663 A  
Page 3 of 3

BARCODE

To be completed in full and submitted at the Department of Home Affairs' office by the informant or authorised funeral undertaker. The form to be completed in black ink with BLOCK LETTERS. Please mark with  the CORRECT box, where required. All fields are COMPULSORY. Incomplete applications and applications that are not legible may be considered invalid. (Note: The fingerprints of the deceased, the informant and the undertaker must be taken by the undertaker)

Serial number

**E. PARTICULARS OF FUNERAL UNDERTAKER**

**Instructions:** Section E to be completed by **Funeral Undertaker**. The undertaker must take his or her finger print, the finger print of the deceased and the informant. **Authorised Funeral Undertaker or Informant** may submit the completed form to the nearest Home Affairs office.

47. Name of Funeral Parlour

48. DHA Designation No.  49. Company Reg. No.

50. SARS Reg. No. (Income tax reference no.)

**Details of Funeral Undertaker or Authorised Representative**

51. Identity No. (Passport No. if foreigner)

52. Surname

53. Forenames

54. Business Address

Street

Town

Province  Postal Code

Telephone No. (Office)  Cellphone No.

55. Date of collection of corpse  Y Y Y Y M M D D 56. Date of Cremation (if applicable)  Y Y Y Y M M D D

57. Place of Burial (City / Town / Village)  Province

58. Date of Burial  Y Y Y Y M M D D 59. Grave No. (if available)

**Name of person who collected the deceased:**

60. Identity No. (Passport No. if foreigner)

61. Surname

62. Forenames

Place signed \_\_\_\_\_  
Date signed  Y Y Y Y M M D D Signature \_\_\_\_\_

Office stamp of funeral undertaker

**F. FOR OFFICIAL USE ONLY**

**Registration of death approved, DHA-1663 received by (particulars of DHA official):**

63. Identity No.

64. Surname

65. Forenames

66. Persal No.

**Documents included with this notice:**  Copy of the deceased's ID  Copy of ID document of the informant  
 DHA - 6 (if applicable)  DHA - 1680 (if applicable)

**DHA-1663 was submitted by:**  Informant  Funeral Undertaker

Office stamp of DHA

Left thumbprint of funeral undertaker

**Appendix B2: Death notification form (DHA-1663B)**

**NOTICE OF DEATH / STILL BIRTH**  
 Confirmation for Medical and Health use Only  
 (After completion seal to ensure confidentiality)

DHA-1663 B  
 Page 1 of 1

To be completed in full and submitted at the Department of Home Affairs' office by the informant or authorised party. The form to be completed in black ink with **BLOCK LETTERS**. Please mark with  the CORRECT box, where required.  
**All fields are COMPULSORY. Incomplete applications and applications that are not legible may be considered invalid.**

File no \_\_\_\_\_ Date \_\_\_\_\_

**G. MEDICAL CERTIFICATE OF CAUSE OF DEATH**  
 Instructions: Section G is to be filled out by Medical Practitioner / Professional Nurse / Forensic Pathologist, who has determined the cause of death

**PARTICULARS OF DECEASED**

67. Identity No. (Passport No. if foreigner) \_\_\_\_\_

68. Gender  68.1 Male  68.2 Female  68.3 Indeterminable

69. Surname \_\_\_\_\_

70. Forenames \_\_\_\_\_

71. Population Group  71.1 African  71.2 White  71.3 Indian/Asian  71.4 Coloured  71.5 Other (specify) \_\_\_\_\_

72. Place of Death  72.1 Hospital/Inpatient  72.2 ER/Outpatient  72.3 DOA  72.4 Nursing Home  72.5 At Home  72.6 Other (specify) \_\_\_\_\_

73. Name of Health Facility/Practice \_\_\_\_\_

74. Facility Contact Telephone No. incl. Area Code \_\_\_\_\_

75. Patient File No. \_\_\_\_\_

76. Contact Person at Facility: Surname \_\_\_\_\_  
 Forenames \_\_\_\_\_  
 Role/Rank \_\_\_\_\_

**G.1 FOR DEATHS OCCURRING AFTER ONE WEEK OF BIRTH**  
 Instructions: Section G.1 is to be completed for all deaths that occurred after one week of birth

**77. CAUSES OF DEATH**

Part 1	Approximate interval between onset and death (Days / Months / Years)	For office use only ICD-10
Enter the disease, injuries or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line		
IMMEDIATE CAUSE (final disease or condition resulting in death) a) _____ Due to (or as a consequence of) _____		
Sequentially list conditions, if any, leading to immediate cause. b) _____ Due to (or as a consequence of) _____		
Enter UNDERLYING CAUSE last (Disease or injury that initiated events resulting in death) c) _____ Due to (or as a consequence of) _____		
d) _____		
Part 2 Other significant conditions contributing to death but not resulting in underlying cause given in Part 1 _____		

78. If a female, was she pregnant at the time of death or up to 42 days prior to death? (  )  82.1 Yes  82.2 No

79. Method used to ascertain the cause of death (tick all that apply):  
 79.1 Autopsy  79.2 Post mortem examination  79.3 Opinion of attending medical practitioner  79.4 Opinion of attending medical practitioner on duty  
 79.5 Opinion of registered professional nurse  79.6 Interview of family member  79.7 Other (specify) \_\_\_\_\_

**G.2 FOR STILL BIRTHS AND DEATHS OCCURRING WITHIN ONE WEEK OF BIRTH (PERINATAL DEATHS)**  
 Instructions: Section G.2 is to be completed for all still births and deaths that occurred within one week of birth (perinatal deaths)

Mother	Child
80. Identity Number _____	89. Type of death: <input type="checkbox"/> 89.1 Still birth <input type="checkbox"/> 89.2 Live birth
81. Date Of Birth Y Y Y Y M M D D _____	90. Birth weight (in grams) _____
82. Age of last birthday/ DoB unknown _____	91. This birth was: <input type="checkbox"/> 91.1 Single birth <input type="checkbox"/> 91.2 First twin <input type="checkbox"/> 91.3 Second twin <input type="checkbox"/> 91.4 Other multiple
83. Number of previous pregnancies resulting in: <input type="checkbox"/> 83.1 Live births <input type="checkbox"/> 83.2 Still births <input type="checkbox"/> 83.3 Abortions	92. If still born, heartbeat ceased: <input type="checkbox"/> 92.1 Before labour <input type="checkbox"/> 92.2 During labour but before delivery <input type="checkbox"/> 92.3 Before delivery but not known whether before or during labour
84. Outcome of last previous pregnancy (tick one): <input type="checkbox"/> 84.1 Live birth <input type="checkbox"/> 84.2 Still birth <input type="checkbox"/> 84.3 Abortion	93. If death occurred within 24 hours after birth, number of hours alive _____
85. Date of last previous delivery Y Y Y Y M M D D _____	94. Attendant at birth: <input type="checkbox"/> 94.1 Physician <input type="checkbox"/> 94.2 Trained midwife <input type="checkbox"/> 94.3 Other trained person (specify) _____ <input type="checkbox"/> 94.4 Other (specify) _____
86. First day of last menstrual period Y Y Y Y M M D D _____	
Or, if unknown, estimated duration of pregnancy (in completed weeks) _____	
87. Method of delivery: <input type="checkbox"/> 87.1 Spontaneous <input type="checkbox"/> 87.4 Vacuum extractor <input type="checkbox"/> 87.2 Forceps delivery <input type="checkbox"/> 87.5 Caesarean section <input type="checkbox"/> 87.3 Forceps and rotation <input type="checkbox"/> 87.6 Other (specify) _____	
88. Antenatal care two or more visits: <input type="checkbox"/> 88.1 Yes <input type="checkbox"/> 88.2 No <input type="checkbox"/> 88.3 Unknown	

**95. CAUSES OF DEATH**

a. Main disease or conditions in foetus or infant \_\_\_\_\_

b. Other diseases or conditions in foetus or infant \_\_\_\_\_

c. Main maternal disease or condition affecting foetus or infant \_\_\_\_\_

d. Other maternal diseases or conditions affecting foetus or infant \_\_\_\_\_

e. Other relevant circumstances \_\_\_\_\_

96. Autopsy information (  )  
 96.1 Certified causes of death has been confirmed by autopsy  96.2 Autopsy information may be available later  96.3 Autopsy not performed

## Appendix C: Assessment of the quality of data

Reliable real-time information on the number of deaths and causes of mortality is important for the evaluation of population health status at national, district and local administrative levels. This section provides an assessment of the quality of registered deaths based on timeliness, completeness, accuracy of information and on the proportion of deaths assigned to ill-defined causes. The accuracy and completeness of civil registration mortality statistics depends on both coverage and the ability of medical practitioners to correctly identify and certify the cause of death (WHO, 2013). Data assessment is valuable for improvements to be realised in coverage, quality and consistency of cause-of-death statistics. Moreover, when the extent of quality of vital statistics data is known, even incomplete information can yield valuable insights into mortality patterns and the causes of death.

The data confrontation conducted in this section borders around that the production of good quality mortality data requires a system in which: *all* deaths are registered (this standard is assessed through level of completeness), *all* deaths are timely registered (this standard is assessed through the proportion of deaths registered within the 3-days mandate in South Africa), *all* deaths are timely published (this standard is assessed through calculating the time lapse from end of the reference period to publication of statistics), *all* deaths are medically certified (this standard is assessed through proportion of deaths occurring in a health care facility and proportion ill-defined) and *all* deaths are generalisable (this standard is assessed through availability of mortality data at national and subnational levels).

### Completeness of death registration

Completeness of death registration refers to the extent to which deaths occurring in a population in a given year are registered in the civil registration system. Two indirect demographic techniques, namely the General Growth Balance method (GGB) (Hill, 1987) and the Synthetic Extinct Generations method (SEG) (Bennett and Horiuchi, 1981 and 1984) were used for estimating the completeness of adult deaths (15 years and older). The output from the GGB was used as an input in the estimation process in the SEG (as recommended by Bennett and Horiuchi, 1981) to obtain consistent estimates by age. To date, estimation of completeness has been done for four intercensal/survey periods: 1996–2001 (89%), 2001–2007 (93%), 2007–2011 (94%) and 2011–2016 (96%). For this current publication the latest estimates (2011–2016) are adopted. Overall, the completeness of adult death registration has improved over the years. In the 2011–2016 intercensal/survey period completeness level for male adult deaths was estimated at 97% whereas for females it was slightly lower (95%). Estimates for child deaths (0–14 years) will be made available when appropriate methods of estimation have been established.

### Timeliness of death registration

The Regulations for the Registration of Births and Deaths in South Africa mandates that deaths should be registered within 72-hours (three days) of occurrence (Republic of South Africa, 2014). Accordingly, timeliness of death registration in this publication is calculated as the number of days it took to register a death from the date of occurrence to the date of registration. Table C.1 shows the distribution of the 2016 death occurrences by the number of days it took to register the deaths. The table shows that 78,8% of the deaths in 2016 were registered within the period stipulated in the regulations. In 2016, 15,8% of deaths were registered with a day of occurrence, increasing to 46,7% by the first day, 65,5% by the second day and 78,8% by the third day. A vast majority of deaths (93,5%) were registered within the first week in which they occurred and by the end of the first month 98,6% of the deaths were registered. While 21,2% of the deaths were registered later than the mandated time period, at least they were registered within a year of death occurrence and reached Stats SA in time for the production of the statistical release. Concerted efforts are needed for the improvement in the adherence to the legislative framework and for the reduction of deaths that do not reach Stats SA in time for the production of the statistical release.

**Table C.1: Distribution of deaths by the number of days it took to register the death, 2016**

Number of days	Number of deaths	Percentage	Cumulative percentage
Within a day of death	72 083	15,8	15,8
1 day	141 014	30,9	46,7
2 days	85 838	18,8	65,5
3 days	60 659	13,3	78,8
4 days	35 590	7,8	86,5
5 days	20 471	4,5	91,0
6 days	11 488	2,5	93,5
7–13 days	18 717	4,1	97,6
14–20 days	2 855	0,6	98,3
21–30 days	1 689	0,4	98,6
31–364 days	6 061	1,3	100,0
1 year+	147	0,0	100,0
<b>Total</b>	<b>456 612</b>	<b>100,0</b>	

### Timeliness of publication of statistics

Table C.2 presents information on the timeliness of published statistics focussing on the number of deaths published in the 2015 statistical release and the additional delayed or late registrations received during the 2016/2017 processing phase for the years 1997 to 2015. According to the United Nations (UN) recommendation, for civil registration mortality statistics to be considered timely they ought to be published and disseminated before one-year from the end of the year of death occurrence (UN, 2014). This 2016 statistical release did not achieve this recommendation as it is published 14 months from the end of the reporting year.

Table C.2 shows that deaths continue to be registered after the end of each year of reporting. These deaths give an indication of the extent to which the data from the previous years were registered late or delayed. In general, the year immediately preceding the year of reporting, in this case 2015 usually has the highest number of additional forms and overtime this number continues to lessen suggesting that the deaths get close to the true value over time. The table shows that a total of 22 543 deaths were registered later than the year in which they occurred and were processed during the 2016/2017 processing phase. Deaths from 2015 accounted for the highest number 13 030 (57,8%) of additional deaths. Appendices D (1997–1999), D.1 (2000–2002), D.2 (2003–2005), D.3 (2006–2008), D.4 (2009–2011), D.5 (2012–2014) and D.6 (2015–2016) [see pages 72 –76] present the number distribution of the deaths by age, sex and year of death over a 20-year period (1997–2016) where years before 2016 have been updated with late or delayed registrations processed during the 2016/2017 processing phase.

**Table C.2: Number of deaths published in the 2015 statistical release and late registrations processed during the 2016/2017 data processing phase by year of death, 1997–2015**

Year of death	Number of deaths published in 2015 statistical release	Additional forms received in the 2016/2017 processing phase	Total number of deaths (2016 Statistical release)
1997	317 860	12	317 872
1998	366 585	36	366 621
1999	382 624	63	382 687
2000	417 191	68	417 259
2001	456 238	78	456 316
2002	503 335	74	503 409
2003	558 388	90	558 478
2004	578 355	93	578 448
2005	599 593	84	599 677
2006	614 158	90	614 248
2007	606 112	127	606 239
2008	598 165	124	598 289
2009	583 419	533	583 952
2010	551 320	254	551 574
2011	515 427	2 135	517 562
2012	493 493	1 767	495 260
2013	475 510	1 653	477 163
2014	474 659	2 232	476 891
2015	460 236	13 030	473 266
<b>Total</b>	<b>9 552 668</b>	<b>22 543</b>	<b>9 575 211</b>

### Data confrontation

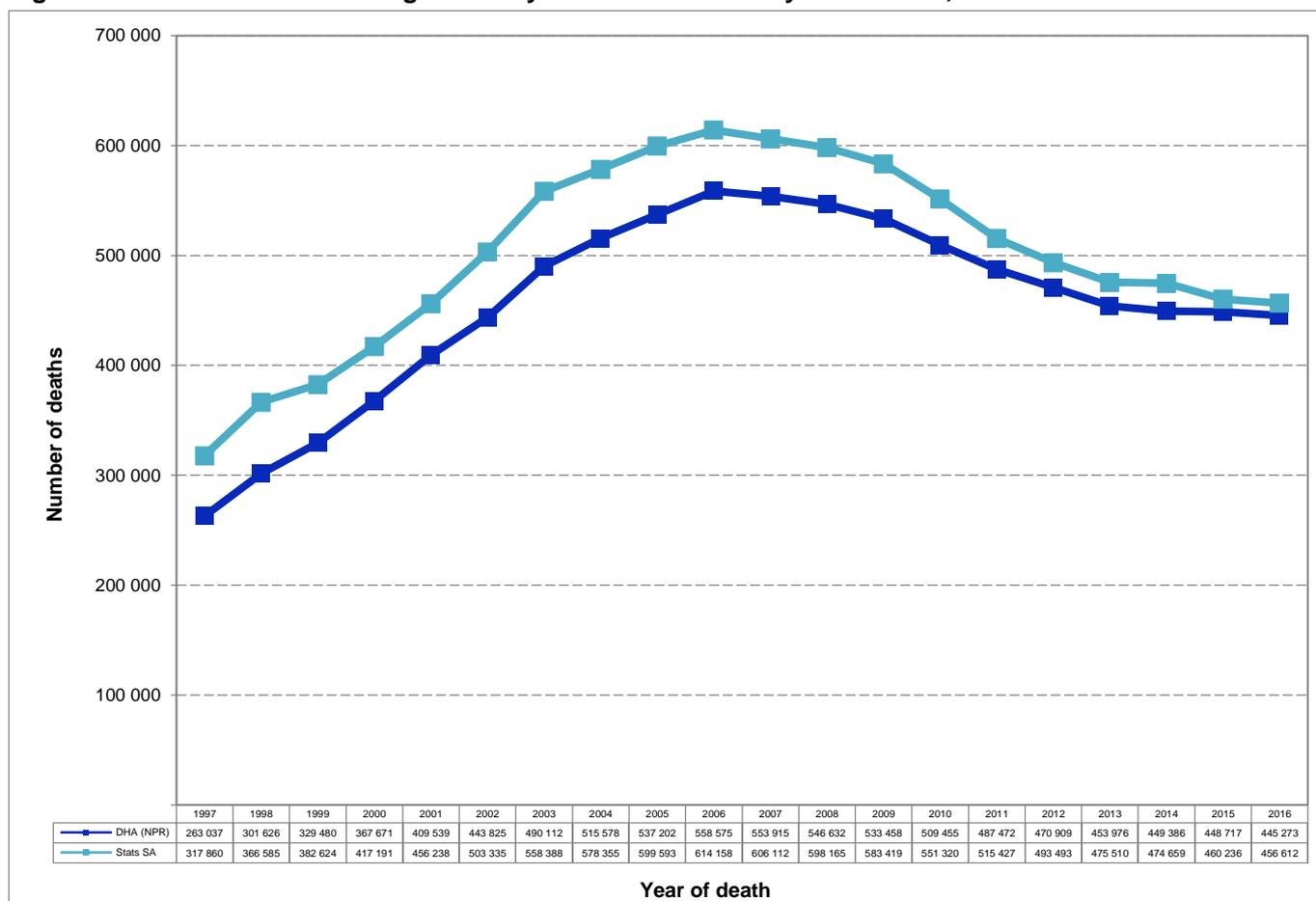
The number of deaths recorded on the National Population Register (NPR) maintained by the DHA and those processed by Stats SA for the years 1997 to 2016 are depicted on Figure C.1. The comparison of data from the two systems is one of the methods of evaluating civil registration data quality in terms of the completeness dimension. This method is used in order to check if the two systems follow the expected patterns based on known characteristics of the data from the two systems. The figure shows that over the 20-year period (1997–2016) the number of deaths for both systems increased consistently between 1997 and 2006, and thereafter decreased yearly between 2007 and 2016. However, logically, for all the years the number of deaths processed by Stats SA has always been higher than the number of deaths collated on the NPR. The logic is based on the deceased population covered in each of the systems:

- For a death to be registered on the NPR the birth should be registered on the NPR and the deceased should be eligible for inclusion based on the citizenship status. The NPR consists of deaths to South African citizens and permanent residents whose birth records exist on the NPR.
- Similarly, the data processed by Stats SA, has deaths for the deceased eligible for inclusion in the NPR. However, Stats SA also has deaths for the deceased who were not eligible for inclusion in the NPR and those who were eligible but their births were not registered on the NPR.
- Based on these differences, the number of deaths processed and published by Stats SA will always be expected to be higher than those recorded on the NPR.

The table shows that the number of deaths on the NPR increased from 263 037 in 1997 to 558 575 in 2006, while for Stats SA the number of deaths increased from 317 860 to 614 158 in 2006. In 2016, there were 445 273 deaths on the NPR, which was a decline of 19,6% from the 553 815 deaths for 2007. For the deaths processed by Stats SA,

a 24,7% decrease was observed from 606 112 deaths in 2007 to 456 612 deaths in 2016. Over the years, Stats SA and NPR deaths have become more comparable, implying that more South African citizens and permanent residents are being captured on the NPR. This is indicated by the magnitude of the difference between the two systems. In 1997, Stats SA deaths were higher than NPR deaths by 21%, decreasing to 10% in 2006, and further down to a 3% difference in 2016. However, the difference between the 2016 data is expected to increase as Stats SA will receive late registrations or delayed deaths for 2016 that did not make it in time for the 2016/2017 processing phase.

**Figure C.1: Number of deaths registered by source of data and year of death, 1997–2016\***



\*Data for 1997–2015 have been updated with late registrations / delayed death notification forms processed in 2016/2017.

**Quality of causes of death information**

The evaluation of ill-defined and non-specific causes of death is one of the plausibility checks that has to be done on causes of death data. Ill-defined and non-specific causes of death are causes that are insufficiently detailed to be of value for public health purposes (WHO, 2013). The ill-defined causes are classified into categories including symptoms and signs (e.g. chest pain, headache, senility, enlarged liver or fever), abnormal clinical and laboratory findings (e.g. abnormal findings in urine or blood cells) and non-specific causes that denote the mode of dying (e.g. renal failure, brain failure, cardiac arrest, heart failure or shock). All the categories fail to precisely specify the underlying cause of death which is important for disease control and prevention purposes. In general, causes such as renal failure or brain failure should not be reported as the underlying causes of death because organ failure does not usually occur without a precipitating cause and also it can result from a range of underlying causes (WHO, 2013). For example, renal failure can be due to diabetes mellitus, high blood pressure, suicide by poisoning and stab injury.

Table C.3 show the number and percentage distribution of ill-defined causes of death by sex of the deceased. In total, for both sexes there were 112 539 deaths attributed to ill-defined causes in 2016. Females accounted for 58 581

(52,1%) of the ill-defined deaths compared to 53 958 (47,9%) amongst males. *Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)* comprised the highest percentage of ill-defined causes of death for both males and females (55,0% and 52,0%, respectively). *Heart failure (I50)* featured as the second highest ill-defined cause of death for both males (9,8%) and females (10,9%). The second highest ill-defined cause of death was *Cardiac arrest (I46)*. The third highest for both sexes was *essential (primary) hypertension (I10)*, which was responsible for 10,8% of ill-defined deaths amongst females and 6,9% amongst males. *Essential (primary) hypertension (I10)* is high blood pressure that by definition does not have an identifiable cause. However, genetic factors appear to play a major role in the occurrence of *essential (primary) hypertension (I10)*.

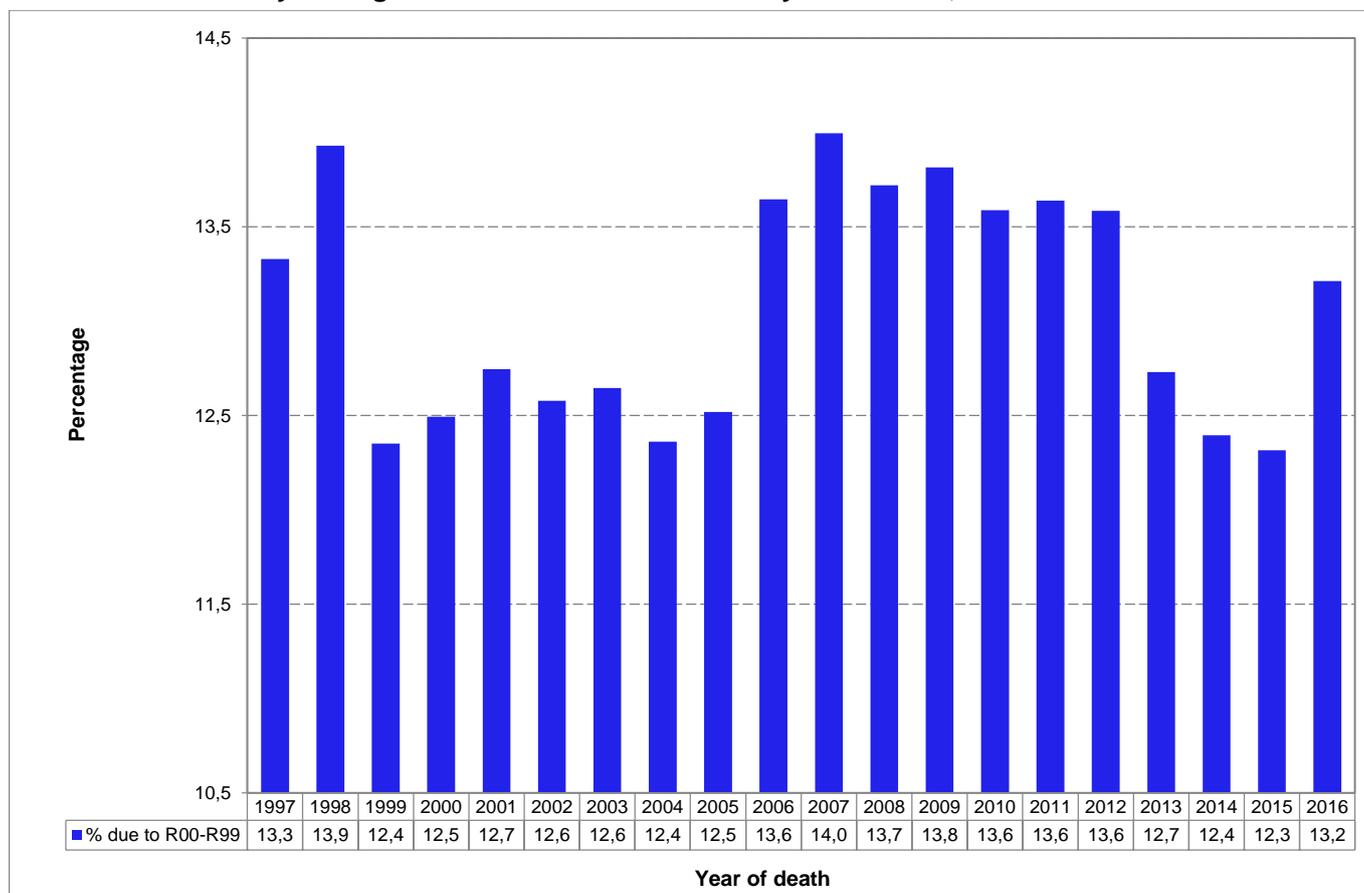
**Table C.3: Number and percentage distribution of ill-defined causes of death by sex of the deceased, 2016\***

Underlying cause of death (based in ICD-10)	Number			Percentage		
	Male	Female	Both sexes	Male	Female	Both sexes
Streptococcal septicaemia (A40)	1	2	3	0,0	0,0	0,0
Other septicaemia (A41)	2 409	2 900	5 309	4,5	5,0	4,7
Malignant neoplasm of other and ill-defined sites (C76)	180	252	432	0,3	0,4	0,4
Malignant neoplasm without specification of site (C80)	1 631	1 525	3 156	3,0	2,6	2,8
Malignant neoplasm of independent (primary) multiple sites (C97)	0	0	0	0,0	0,0	0,0
Disseminated intravascular coagulation [defibrination syndrome] (D65)	61	56	117	0,1	0,1	0,1
Volume depletion (E86)	889	913	1 802	1,6	1,6	1,6
Essential (primary) hypertension (I10)	3 737	6 300	10 037	6,9	10,8	8,9
Cardiac arrest (I46)	2 891	3 299	6 190	5,4	5,6	5,5
Heart failure (I50)	5 285	6 410	11 695	9,8	10,9	10,4
Complications and ill-defined descriptions of heart disease (I51)	504	509	1 013	0,9	0,9	0,9
Other and unspecified disorders of circulatory system (I99)	18	23	41	0,0	0,0	0,0
Pulmonary oedema (J81)	127	188	315	0,2	0,3	0,3
Respiratory failure, not elsewhere classified (J96)	829	785	1 614	1,5	1,3	1,4
Hepatic failure, not elsewhere classified (K72)	681	586	1 267	1,3	1,0	1,1
Acute renal failure (N17)	526	512	1 038	1,0	0,9	0,9
Chronic renal failure (N18)	1 240	1 118	2 358	2,3	1,9	2,1
Unspecified renal failure (N19)	2 282	2 108	4 390	4,2	3,6	3,9
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	29 651	30 482	60 133	55,0	52,0	53,4
Event of undetermined intent (Y10-Y34)	1 016	613	1 629	1,9	1,0	1,4
<b>Total of ill-defined</b>	<b>53 958</b>	<b>58 581</b>	<b>112 539</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

\*Excluding deaths with unspecified sex.

Table C.3 above shows that 53,4% of ill-defined causes of death were attributed to *symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified*. It is therefore important to analyse trends in reporting this causes of death category for a better understanding of the category. Figure C.2 below presents the percentage distribution of ill-defined causes of death for the years 1997–2016. Overall, over the years 1997 to 2016 the results show that the percentage of deaths due to this category ranged between 12% and 14%. The lowest proportion of 12,3% was recorded in 2015 and the highest proportion of 14,0% was recorded in 2007. In 2008, 13,7% of the total deaths were assigned to ill-defined causes, increasing to 13,8% in 2009 before stabilizing at 13,6% between 2010 and 2012. The proportion assigned to ill-defined went on a downward trend from 12,7% in 2013 to a low of 12,3% in 2015. In 2016, the proportions increased to 13,2%. The 2016 proportion is indicative of regressing improvements in the reporting of causes of deaths. It is worth noting that while the observed deterioration may be real, there is also a growing issue of death notification forms that are sealed with glue such that when they are opened for capturing at Stats SA they have already been spoiled by the glue and the causes of death information is no longer legible.

**Figure C.2: Percentage distribution of deaths assigned to symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified and year of death, 1997–2016\***



**Assessment framework for death registration data**

This publication adopted the framework proposed by Mahapatra et al. (2007) to assess the quality of the 2016 death registration data from the South African civil registration system. The framework recommends the assessment of the data based on five quality assurance indicators, namely: level of accuracy, relevance, comparability, timeliness and accessibility. The results of the framework for the 2016 mortality and causes of death data are shown in Table 2.4 and Table 2.5. The general vital statistics and causes of deaths columns both evaluate the quality of death registration data in terms of five quality indicators: level of accuracy, relevance, comparability, timeliness and accessibility.

Table C.4 shows information on the proportion of missing information as indicated by the unknown or unspecified information for selected socio-demographic variables. Overall, the table gives an indication of the level of accuracy. The unknown cases denote cases where either more than one option was selected on the death notification form or the information could not be classified according to specified categories. The unspecified cases refer to missing data for that variable. Of the total 2016 deaths, less than 1% had missing information on province of usual residence of the deceased (0,5%), age of the deceased (0,4%), sex of the deceased (0,2) and province of death occurrence (0,02%). These four variables have generally been well reported over time. A notable decrease in missing information was observed for providence of death occurrence from 0,2% in 2015 to 0,02% in 2016 and province of usual residence of the deceased from 0,9% in 2015 to 0,5% in 2016.

Table C.4 also shows that population group of the deceased had 11,9% missing information, marital status of the deceased had 17,1% and the province of birth variable was incomplete. Four variables, namely place or institution of death occurrence (23,2%), method used to ascertain cause of death (32,5%), smoking status (33,3%), and

education (49,5%) had high missing information above 20% but below 50%. The 2016 results further indicate that occupation (85,9%), industry and pregnancy status (64,9%) remain the three variables with over half or the information classified as unknown or unspecified. In this publication, no analyses were undertaken on all variables with over half of the information classified as missing including the education variable with 49,5% missing information. However, these variables are also published by Stats SA on the dataset containing unit records on mortality and causes of death.

In terms of the level of completeness dimension, Table C.5 shows that for the 2011–2016 intercensal/survey period, about 95% of the total adult deaths (15 years and above) were registered on the civil registration system with a 97% completeness level estimated for males and 95% estimated for females. The death data from the civil registration is regarded as complete in terms of the relevance and comparability of mortality and causes of death statistics indicators. The data is relevant as it is routinely tabulated by sex and 5-year age groups and the information is provided for the nine provinces and 52 district municipalities in the country. The data also meets the comparability quality assurance dimension as the ICD-10 which is recommended for international comparability was used for coding causes of death, the tools used in coding causes of death for 2016 were similar to those used in previous years and the variables in the civil registration deaths for 2016 have been consistent over the years. Accordingly, the data are comparable within the country and at the international level.

For the accuracy dimension in the cause-of-deaths statistics category 47,5% of the deaths occurred within a health care facility in 2016. This percentage is a proxy for the percentage of deaths whose causes are more likely to be detailed enough for the underlying cause to be derived. While less than 50% of the deaths occurred in a health care facility, it is still good that all deaths in South Africa are mandated to be certified by medical practitioners. According to Mahapatra et al. (2007) no more than 10% of deaths should be assigned to *symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified* categories. The 2016 data shows that 13,2% of all deaths were assigned to ill-defined causes. This is a shortfall of 3,2% from the recommended threshold. Improvements are needed in the reduction of ill-defined causes of death.

The timeliness of the 2016 statistical release is not within the expected time frame of one-year lapse from end of reference period. The time from end of reference period to publication was 14 months. The capturing and coding of the data took 11 months while the processing of the 2016 data on causes of death took three months. Table C.5 further shows that there is wide accessibility to the statistical release and data sets on mortality and causes of death. The data published on this statistical release can be accessed in a wide range of formats from the Stats SA website and through the Stats SA User Information Services.

**Table C.4: Percentage of deaths classified as unknown/unspecified for selected variables, 2016**

Variables	Applicable group	Percentage unknown or unspecified
Sex	All	0,4
Age	All	0,2
Province of death occurrence	All	0,02
Province of usual residence of deceased	All	0,5
Province of birth	All	**
Population group	All	11,9
Place or institution of death occurrence	All	23,2
Method used to ascertain cause of death	All	32,5
Marital status	All	17,1
Smoking status	Aged 16 and older	33,3
Education	Aged 6 and older	49,5
Occupation	Aged 15 and older	85,9
Industry	Aged 15 and older (economically active)	**
Pregnancy status	Females aged 10–55	64,9

**Table C.5: Assessment of the 2016 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
<b>Accuracy</b> Completeness of death registration  <b>Missing data</b> See Table 2.4 on page 35	96% total deaths 97% male and 95% female	<b>Accuracy</b> Proportion of deaths that occurred in healthcare facilities  Proportion of deaths assigned to symptoms and signs of disease not elsewhere classified	47,5%  13,2%
<b>Relevance</b> 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%	<b>Relevance</b> Routine tabulation by sex and 5-year age groups  Number of cause-of-death tabulation areas	100%  9 provinces and 52 district municipalities
<b>Comparability</b> Stability of key definitions over time  Uniformity of definitions across areas	100%  100%	<b>Comparability</b> Consistency of cause specific mortality proportions over consecutive years  ICD coding for certification and coding of causes of death, revision used and code level to which tabulations are published	100%  Coding causes of death using the tenth revision at 4/5-digit level
<b>Timeliness</b> Processing time  Mean time from end of reference period to publication	3 months  14 months		
<b>Accessibility</b> Media - number of formats in which data are released  Metadata  Availability of user service	Two: website and compact discs  Published on the web and with compact disc and available on request  <u>Email: <a href="mailto:info@statssa.gov.za">info@statssa.gov.za</a></u> / Tel: 012 310 8600 / Fax (012) 310 8500 / 8495		

\*Based on the framework proposed by Mahapatra et al. (2007)

**Appendix D: 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
<b>0</b>	12 990	11 546	203	<b>24 739</b>	14 930	13 260	314	<b>28 504</b>	14 738	13 458	438	<b>28 634</b>
<b>1–4</b>	4 053	3 651	52	<b>7 756</b>	4 862	4 489	96	<b>9 447</b>	5 070	4 640	98	<b>9 808</b>
<b>5–9</b>	1 706	1 255	17	<b>2 978</b>	1 780	1 435	36	<b>3 251</b>	1 898	1 510	34	<b>3 442</b>
<b>10–14</b>	1 547	1 195	20	<b>2 762</b>	1 695	1 288	23	<b>3 006</b>	1 651	1 306	23	<b>2 980</b>
<b>15–19</b>	3 777	2 480	24	<b>6 281</b>	4 111	2 912	63	<b>7 086</b>	4 356	3 336	89	<b>7 781</b>
<b>20–24</b>	8 185	5 470	54	<b>13 709</b>	8 800	6 930	113	<b>15 843</b>	8 654	8 311	107	<b>17 072</b>
<b>25–29</b>	10 941	7 468	44	<b>18 453</b>	13 094	9 895	113	<b>23 102</b>	13 909	12 678	142	<b>26 729</b>
<b>30–34</b>	11 860	7 213	52	<b>19 125</b>	14 396	9 756	130	<b>24 282</b>	16 321	12 310	121	<b>28 752</b>
<b>35–39</b>	12 008	6 891	52	<b>18 951</b>	14 634	8 954	98	<b>23 686</b>	16 485	10 852	111	<b>27 448</b>
<b>40–44</b>	11 815	6 427	37	<b>18 279</b>	13 971	7 956	95	<b>22 022</b>	15 244	8 949	92	<b>24 285</b>
<b>45–49</b>	12 250	6 388	52	<b>18 690</b>	14 220	7 699	90	<b>22 009</b>	15 008	8 541	103	<b>23 652</b>
<b>50–54</b>	11 334	6 258	31	<b>17 623</b>	13 028	7 223	79	<b>20 330</b>	13 907	7 779	81	<b>21 767</b>
<b>55–59</b>	12 680	7 939	47	<b>20 666</b>	13 960	8 890	108	<b>22 958</b>	14 095	8 692	85	<b>22 872</b>
<b>60–64</b>	11 207	9 299	51	<b>20 557</b>	12 447	10 002	60	<b>22 509</b>	12 708	10 057	85	<b>22 850</b>
<b>65–69</b>	12 491	11 054	49	<b>23 594</b>	13 267	12 464	85	<b>25 816</b>	12 849	12 325	91	<b>25 265</b>
<b>70–74</b>	11 301	10 067	49	<b>21 417</b>	12 750	11 801	53	<b>24 604</b>	12 869	12 260	71	<b>25 200</b>
<b>75–79</b>	11 211	12 345	46	<b>23 602</b>	11 430	12 487	87	<b>24 004</b>	10 707	11 588	63	<b>22 358</b>
<b>80–84</b>	6 607	8 786	34	<b>15 427</b>	7 885	11 045	49	<b>18 979</b>	7 605	11 324	73	<b>19 002</b>
<b>85–89</b>	3 955	6 920	26	<b>10 901</b>	4 262	7 808	35	<b>12 105</b>	4 453	7 947	51	<b>12 451</b>
<b>90+</b>	2 032	4 732	13	<b>6 777</b>	2 363	5 567	29	<b>7 959</b>	2 211	5 383	30	<b>7 624</b>
<b>Unspecified</b>	3 113	2 366	106	<b>5 585</b>	2 822	2 101	196	<b>5 119</b>	1 491	1 112	112	<b>2 715</b>
<b>Total</b>	<b>177 063</b>	<b>139 750</b>	<b>1 059</b>	<b>317 872</b>	<b>200 707</b>	<b>163 962</b>	<b>1 952</b>	<b>366 621</b>	<b>206 229</b>	<b>174 358</b>	<b>2 100</b>	<b>382 687</b>

\*Data for 1997–1999 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix D1: 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
<b>0</b>	15 016	13 533	352	<b>28 901</b>	15 486	14 079	307	<b>29 872</b>	17 893	16 215	340	<b>34 448</b>
<b>1–4</b>	5 388	4 934	86	<b>10 408</b>	5 893	5 310	78	<b>11 281</b>	6 327	5 698	87	<b>12 112</b>
<b>5–9</b>	1 999	1 600	29	<b>3 628</b>	2 126	1 709	29	<b>3 864</b>	2 404	1 964	17	<b>4 385</b>
<b>10–14</b>	1 723	1 338	36	<b>3 097</b>	1 752	1 467	22	<b>3 241</b>	1 869	1 490	24	<b>3 383</b>
<b>15–19</b>	4 323	3 495	72	<b>7 890</b>	4 483	3 917	63	<b>8 463</b>	4 743	4 294	60	<b>9 097</b>
<b>20–24</b>	8 885	9 916	88	<b>18 889</b>	8 952	10 970	87	<b>20 009</b>	9 587	12 531	112	<b>22 230</b>
<b>25–29</b>	15 101	15 770	107	<b>30 978</b>	16 888	19 364	114	<b>36 366</b>	18 668	23 403	137	<b>42 208</b>
<b>30–34</b>	18 520	15 853	114	<b>34 487</b>	20 951	18 796	112	<b>39 859</b>	23 938	23 602	154	<b>47 694</b>
<b>35–39</b>	18 581	13 654	97	<b>32 332</b>	21 141	15 914	101	<b>37 156</b>	24 127	19 503	129	<b>43 759</b>
<b>40–44</b>	17 178	11 053	85	<b>28 316</b>	19 396	12 919	97	<b>32 412</b>	21 636	15 545	118	<b>37 299</b>
<b>45–49</b>	16 144	9 587	80	<b>25 811</b>	17 957	10 971	64	<b>28 992</b>	19 321	12 698	112	<b>32 131</b>
<b>50–54</b>	15 316	9 119	67	<b>24 502</b>	16 950	10 169	74	<b>27 193</b>	18 655	11 268	103	<b>30 026</b>
<b>55–59</b>	13 970	8 882	76	<b>22 928</b>	14 612	9 139	66	<b>23 817</b>	15 438	10 021	72	<b>25 531</b>
<b>60–64</b>	14 268	11 266	69	<b>25 603</b>	15 140	12 083	68	<b>27 291</b>	16 207	12 716	82	<b>29 005</b>
<b>65–69</b>	12 608	12 077	53	<b>24 738</b>	13 037	12 826	65	<b>25 928</b>	13 763	13 298	65	<b>27 126</b>
<b>70–74</b>	13 133	14 152	68	<b>27 353</b>	14 072	15 140	60	<b>29 272</b>	13 807	15 483	62	<b>29 352</b>
<b>75–79</b>	10 360	11 544	48	<b>21 952</b>	10 871	12 058	61	<b>22 990</b>	11 113	12 842	72	<b>24 027</b>
<b>80–84</b>	8 495	12 649	32	<b>21 176</b>	9 173	13 932	47	<b>23 152</b>	9 552	14 208	60	<b>23 820</b>
<b>85–89</b>	4 683	8 231	27	<b>12 941</b>	4 586	8 374	31	<b>12 991</b>	4 379	8 320	34	<b>12 733</b>
<b>90+</b>	2 531	6 533	31	<b>9 095</b>	3 027	7 168	28	<b>10 223</b>	3 296	7 669	33	<b>10 998</b>
<b>Unspecified</b>	1 192	896	146	<b>2 234</b>	1 054	789	101	<b>1 944</b>	1 139	791	115	<b>2 045</b>
<b>Total</b>	<b>219 414</b>	<b>196 082</b>	<b>1 763</b>	<b>417 259</b>	<b>237 547</b>	<b>217 094</b>	<b>1 675</b>	<b>456 316</b>	<b>257 862</b>	<b>243 559</b>	<b>1 988</b>	<b>503 409</b>

\*Data for 2000–2002 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix D2: 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	19 972	18 054	435	<b>38 461</b>	21 801	19 219	533	<b>41 553</b>	24 088	21 969	476	<b>46 533</b>
1–4	7 151	6 292	79	<b>13 522</b>	8 279	7 638	72	<b>15 989</b>	8 239	7 331	80	<b>15 650</b>
5–9	2 781	2 206	28	<b>5 015</b>	3 192	2 804	13	<b>6 009</b>	3 369	2 805	21	<b>6 195</b>
10–14	2 004	1 643	25	<b>3 672</b>	2 142	1 781	14	<b>3 937</b>	2 152	1 863	17	<b>4 032</b>
15–19	4 842	4 566	70	<b>9 478</b>	4 691	4 626	42	<b>9 359</b>	4 780	4 554	53	<b>9 387</b>
20–24	10 359	14 221	106	<b>24 686</b>	10 381	15 118	78	<b>25 577</b>	10 501	14 911	90	<b>25 502</b>
25–29	20 057	26 309	154	<b>46 520</b>	19 837	27 633	113	<b>47 583</b>	19 343	27 319	110	<b>46 772</b>
30–34	27 553	28 199	145	<b>55 897</b>	28 503	30 710	79	<b>59 292</b>	28 840	31 341	108	<b>60 289</b>
35–39	26 480	22 713	115	<b>49 308</b>	28 260	25 212	88	<b>53 560</b>	29 454	26 315	101	<b>55 870</b>
40–44	24 797	18 476	123	<b>43 396</b>	26 522	20 612	70	<b>47 204</b>	27 520	21 509	87	<b>49 116</b>
45–49	22 089	14 502	90	<b>36 681</b>	23 128	16 282	68	<b>39 478</b>	24 486	17 416	80	<b>41 982</b>
50–54	20 633	12 900	68	<b>33 601</b>	21 150	14 120	47	<b>35 317</b>	21 546	14 983	57	<b>36 586</b>
55–59	17 233	11 004	49	<b>28 286</b>	18 093	12 041	33	<b>30 167</b>	19 731	13 326	47	<b>33 104</b>
60–64	17 417	13 321	58	<b>30 796</b>	16 991	13 412	31	<b>30 434</b>	16 864	13 257	34	<b>30 155</b>
65–69	14 687	13 897	53	<b>28 637</b>	15 227	13 814	26	<b>29 067</b>	16 387	15 203	38	<b>31 628</b>
70–74	14 491	16 401	58	<b>30 950</b>	13 454	15 433	26	<b>28 913</b>	12 920	15 098	35	<b>28 053</b>
75–79	12 082	14 134	56	<b>26 272</b>	11 823	14 090	16	<b>25 929</b>	12 233	15 934	35	<b>28 202</b>
80–84	9 457	13 709	39	<b>23 205</b>	8 654	11 967	21	<b>20 642</b>	8 445	11 847	21	<b>20 313</b>
85–89	5 439	10 205	37	<b>15 681</b>	5 041	9 478	19	<b>14 538</b>	5 456	10 352	17	<b>15 825</b>
90+	3 382	8 158	18	<b>11 558</b>	3 292	7 481	14	<b>10 787</b>	3 292	7 889	15	<b>11 196</b>
Unspecified	1 682	959	215	<b>2 856</b>	1 936	931	246	<b>3 113</b>	1 978	1 083	226	<b>3 287</b>
<b>Total</b>	<b>284 588</b>	<b>271 869</b>	<b>2 021</b>	<b>558 478</b>	<b>292 397</b>	<b>284 402</b>	<b>1 649</b>	<b>578 448</b>	<b>301 624</b>	<b>296 305</b>	<b>1 748</b>	<b>599 677</b>

\*Data for 2003–2005 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix D3: 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
<b>0</b>	25 522	22 129	725	<b>48 376</b>	24 900	21 735	414	<b>47 049</b>	24 165	21 472	301	<b>45 938</b>
<b>1–4</b>	8 407	7 597	117	<b>16 121</b>	7 853	7 065	47	<b>14 965</b>	8 243	7 226	31	<b>15 500</b>
<b>5–9</b>	3 033	2 554	17	<b>5 604</b>	2 883	2 508	4	<b>5 395</b>	2 741	2 311	7	<b>5 059</b>
<b>10–14</b>	2 389	1 921	15	<b>4 325</b>	2 252	1 913	2	<b>4 167</b>	2 238	1 894	2	<b>4 134</b>
<b>15–19</b>	4 854	4 606	39	<b>9 499</b>	4 896	4 223	16	<b>9 135</b>	4 870	4 144	27	<b>9 041</b>
<b>20–24</b>	10 882	14 844	98	<b>25 824</b>	10 948	13 812	53	<b>24 813</b>	10 753	12 963	45	<b>23 761</b>
<b>25–29</b>	19 040	26 241	86	<b>45 367</b>	18 562	24 682	72	<b>43 316</b>	18 526	23 648	48	<b>42 222</b>
<b>30–34</b>	28 927	31 097	96	<b>60 120</b>	28 469	29 247	69	<b>57 785</b>	26 916	27 391	57	<b>54 364</b>
<b>35–39</b>	29 539	26 164	80	<b>55 783</b>	29 501	24 972	50	<b>54 523</b>	29 244	24 497	48	<b>53 789</b>
<b>40–44</b>	28 171	21 912	79	<b>50 162</b>	27 189	21 288	49	<b>48 526</b>	26 200	20 321	31	<b>46 552</b>
<b>45–49</b>	25 196	17 991	45	<b>43 232</b>	24 964	17 972	43	<b>42 979</b>	24 920	17 638	31	<b>42 589</b>
<b>50–54</b>	22 836	15 642	42	<b>38 520</b>	22 972	15 693	17	<b>38 682</b>	22 852	15 634	21	<b>38 507</b>
<b>55–59</b>	20 684	14 206	42	<b>34 932</b>	21 492	14 666	23	<b>36 181</b>	21 688	15 012	22	<b>36 722</b>
<b>60–64</b>	17 091	13 360	27	<b>30 478</b>	17 537	13 517	11	<b>31 065</b>	17 821	13 959	17	<b>31 797</b>
<b>65–69</b>	17 776	15 833	25	<b>33 634</b>	18 011	15 884	9	<b>33 904</b>	18 128	15 667	12	<b>33 807</b>
<b>70–74</b>	13 609	15 616	28	<b>29 253</b>	13 861	15 878	8	<b>29 747</b>	14 200	15 369	2	<b>29 571</b>
<b>75–79</b>	12 744	17 034	25	<b>29 803</b>	12 619	17 109	4	<b>29 732</b>	12 630	17 255	4	<b>29 889</b>
<b>80–84</b>	8 959	12 358	21	<b>21 338</b>	8 929	12 951	4	<b>21 884</b>	9 070	13 898	2	<b>22 970</b>
<b>85–89</b>	6 156	12 037	12	<b>18 205</b>	6 377	12 230	2	<b>18 609</b>	6 008	11 232	1	<b>17 241</b>
<b>90+</b>	3 568	8 723	9	<b>12 300</b>	3 688	8 802	12	<b>12 502</b>	4 003	9 582	27	<b>13 612</b>
<b>Unspecified</b>	869	357	146	<b>1 372</b>	823	345	112	<b>1 280</b>	788	274	162	<b>1 224</b>
<b>Total</b>	<b>310 252</b>	<b>302 222</b>	<b>1 774</b>	<b>614 248</b>	<b>308 726</b>	<b>296 492</b>	<b>1 021</b>	<b>606 239</b>	<b>306 004</b>	<b>291 387</b>	<b>898</b>	<b>598 289</b>

\*Data for 2006–2008 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix D4: Number of deaths by age, sex and year of death, 2009–2011\***

Age group	2009				2010				2011			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	21 088	17 802	465	<b>39 355</b>	18 356	16 142	382	<b>34 880</b>	14 958	13 265	504	<b>28 727</b>
1–4	6 690	6 117	31	<b>12 838</b>	7 060	6 138	44	<b>13 242</b>	5 358	4 800	47	<b>10 205</b>
5–9	2 373	2 048	6	<b>4 427</b>	2 569	2 127	5	<b>4 701</b>	2 376	2 053	9	<b>4 438</b>
10–14	2 389	2 077	4	<b>4 470</b>	2 449	2 134	3	<b>4 586</b>	2 108	1 816	6	<b>3 930</b>
15–19	4 679	4 151	25	<b>8 855</b>	4 437	3 984	18	<b>8 439</b>	4 152	3 576	25	<b>7 753</b>
20–24	10 016	11 870	56	<b>21 942</b>	9 454	10 743	36	<b>20 233</b>	8 649	8 959	83	<b>17 691</b>
25–29	17 803	21 767	69	<b>39 639</b>	16 539	19 559	64	<b>36 162</b>	15 059	16 244	149	<b>31 452</b>
30–34	25 071	24 277	81	<b>49 429</b>	22 481	21 491	73	<b>44 045</b>	19 753	17 907	145	<b>37 805</b>
35–39	27 745	22 449	59	<b>50 253</b>	24 836	20 448	52	<b>45 336</b>	22 588	17 579	116	<b>40 283</b>
40–44	25 225	19 243	55	<b>44 523</b>	23 401	17 709	47	<b>41 157</b>	21 039	15 592	100	<b>36 731</b>
45–49	24 407	17 402	46	<b>41 855</b>	22 982	16 416	58	<b>39 456</b>	21 086	15 027	68	<b>36 181</b>
50–54	22 893	15 630	40	<b>38 563</b>	22 050	15 265	32	<b>37 347</b>	21 243	14 460	74	<b>35 777</b>
55–59	21 849	15 160	29	<b>37 038</b>	21 011	14 366	33	<b>35 410</b>	20 519	14 333	54	<b>34 906</b>
60–64	19 264	14 435	20	<b>33 719</b>	20 140	14 840	30	<b>35 010</b>	20 538	15 082	61	<b>35 681</b>
65–69	18 264	15 764	16	<b>34 044</b>	17 331	14 636	21	<b>31 988</b>	17 088	14 360	26	<b>31 474</b>
70–74	15 205	15 993	17	<b>31 215</b>	15 879	16 742	15	<b>32 636</b>	16 632	16 943	22	<b>33 597</b>
75–79	12 769	17 833	9	<b>30 611</b>	11 797	16 167	8	<b>27 972</b>	11 762	16 578	18	<b>28 358</b>
80–84	9 812	15 173	9	<b>24 994</b>	9 951	16 259	11	<b>26 221</b>	10 008	16 815	14	<b>26 837</b>
85–89	6 168	11 253	2	<b>17 423</b>	5 776	10 523	5	<b>16 304</b>	6 021	11 227	13	<b>17 261</b>
90+	5 256	11 688	1	<b>16 945</b>	4 092	10 749	10	<b>14 851</b>	4 400	11 454	7	<b>15 861</b>
Unspecified	1 229	380	205	<b>1 814</b>	1 007	264	327	<b>1 598</b>	1 373	645	596	<b>2 614</b>
<b>Total</b>	<b>300 195</b>	<b>282 512</b>	<b>1 245</b>	<b>583 952</b>	<b>283 598</b>	<b>266 702</b>	<b>1 274</b>	<b>551 574</b>	<b>266 710</b>	<b>248 715</b>	<b>2 137</b>	<b>517 562</b>

\*Data for 2009–2011 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

## Appendix D5: Number of deaths by age, sex and year of death, 2012–2014\*

Age group	2012				2013				2014			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	14 360	12 364	527	<b>27 251</b>	14 041	12 284	516	<b>26 841</b>	14 104	12 143	538	<b>26 785</b>
1–4	5 627	4 993	48	<b>10 668</b>	4 999	4 348	66	<b>9 413</b>	4 781	4 100	64	<b>8 945</b>
5–9	2 670	2 255	7	<b>4 932</b>	1 938	1 590	12	<b>3 540</b>	1 871	1 436	10	<b>3 317</b>
10–14	2 258	1 910	4	<b>4 172</b>	1 855	1 533	6	<b>3 394</b>	1 808	1 429	8	<b>3 245</b>
15–19	4 126	3 431	20	<b>7 577</b>	4 246	3 105	31	<b>7 382</b>	4 211	3 149	21	<b>7 381</b>
20–24	8 463	7 863	84	<b>16 410</b>	8 450	7 103	69	<b>15 622</b>	8 482	6 256	80	<b>14 818</b>
25–29	14 677	14 285	126	<b>29 088</b>	13 736	12 348	140	<b>26 224</b>	13 197	11 051	176	<b>24 424</b>
30–34	18 199	16 180	155	<b>34 534</b>	17 468	14 450	154	<b>32 072</b>	17 328	13 748	171	<b>31 247</b>
35–39	20 794	15 770	119	<b>36 683</b>	19 012	14 061	134	<b>33 207</b>	18 005	13 099	155	<b>31 259</b>
40–44	19 841	14 139	96	<b>34 076</b>	19 099	13 416	117	<b>32 632</b>	18 492	12 771	113	<b>31 376</b>
45–49	19 349	13 719	87	<b>33 155</b>	18 332	13 004	78	<b>31 414</b>	17 812	12 614	77	<b>30 503</b>
50–54	19 972	13 790	71	<b>33 833</b>	19 354	13 486	75	<b>32 915</b>	19 409	13 484	73	<b>32 966</b>
55–59	20 075	13 571	52	<b>33 698</b>	19 496	13 527	53	<b>33 076</b>	19 653	13 966	60	<b>33 679</b>
60–64	20 258	14 493	30	<b>34 781</b>	20 436	14 765	50	<b>35 251</b>	21 091	15 498	41	<b>36 630</b>
65–69	17 100	13 945	24	<b>31 069</b>	16 896	14 162	33	<b>31 091</b>	18 390	15 127	22	<b>33 539</b>
70–74	16 302	16 451	15	<b>32 768</b>	16 352	16 574	19	<b>32 945</b>	16 194	16 755	17	<b>32 966</b>
75–79	12 074	16 391	18	<b>28 483</b>	12 372	16 055	24	<b>28 451</b>	12 990	16 578	21	<b>29 589</b>
80–84	10 013	16 790	11	<b>26 814</b>	9 736	16 859	16	<b>26 611</b>	9 744	17 212	18	<b>26 974</b>
85–89	5 822	11 181	11	<b>17 014</b>	6 034	11 914	13	<b>17 961</b>	6 522	13 077	10	<b>19 609</b>
90+	4 315	11 051	8	<b>15 374</b>	4 157	11 027	11	<b>15 195</b>	4 326	11 881	4	<b>16 211</b>
Unspecified	1 488	736	656	<b>2 880</b>	1 018	427	481	<b>1 926</b>	761	224	443	<b>1 428</b>
<b>Total</b>	<b>257 783</b>	<b>235 308</b>	<b>2 169</b>	<b>495 260</b>	<b>249 027</b>	<b>226 038</b>	<b>2 098</b>	<b>477 163</b>	<b>249 171</b>	<b>225 598</b>	<b>2 122</b>	<b>476 891</b>

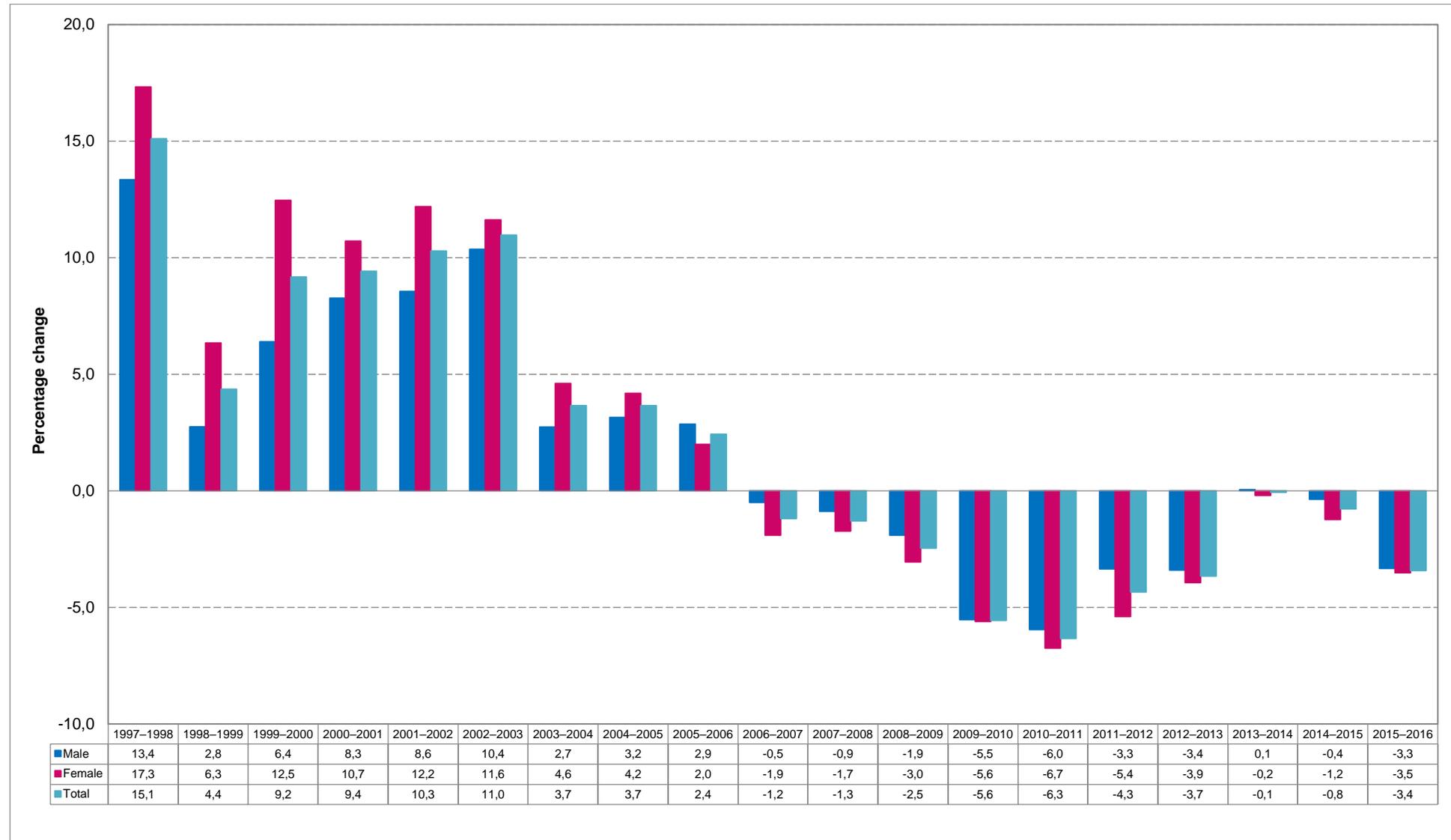
\*Data for 2012–2014 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix D6: Number of deaths by age, sex and year of death, 2015–2016\***

Age group	2015				2016			
	Male	Female	Unsp.	Total	Male	Female	Unsp.	Total
0	12 992	11 406	596	<b>24 994</b>	10 963	9 284	402	<b>20 649</b>
1–4	4 230	3 651	43	<b>7 924</b>	3 686	3 281	41	<b>7 008</b>
5–9	1 819	1 369	10	<b>3 198</b>	1 673	1 287	6	<b>2 966</b>
10–14	1 762	1 404	9	<b>3 175</b>	1 781	1 298	4	<b>3 083</b>
15–19	4 155	2 900	14	<b>7 069</b>	4 019	2 781	21	<b>6 821</b>
20–24	8 565	5 846	83	<b>14 494</b>	8 272	5 375	61	<b>13 708</b>
25–29	13 365	10 143	135	<b>23 643</b>	12 851	9 238	120	<b>22 209</b>
30–34	16 712	12 762	181	<b>29 655</b>	16 597	11 769	153	<b>28 519</b>
35–39	17 569	12 491	158	<b>30 218</b>	16 535	11 558	151	<b>28 244</b>
40–44	18 046	12 332	133	<b>30 511</b>	17 270	11 898	122	<b>29 290</b>
45–49	17 559	12 355	98	<b>30 012</b>	16 890	11 656	89	<b>28 635</b>
50–54	19 285	13 372	72	<b>32 729</b>	18 470	13 093	55	<b>31 618</b>
55–59	20 396	14 303	57	<b>34 756</b>	19 796	14 055	66	<b>33 917</b>
60–64	21 237	15 611	41	<b>36 889</b>	20 689	15 633	50	<b>36 372</b>
65–69	19 411	16 015	27	<b>35 453</b>	19 486	16 168	30	<b>35 684</b>
70–74	16 242	16 017	20	<b>32 279</b>	15 753	15 632	33	<b>31 418</b>
75–79	13 720	18 000	16	<b>31 736</b>	14 361	17 829	20	<b>32 210</b>
80–84	9 376	16 377	17	<b>25 770</b>	9 280	16 031	12	<b>25 323</b>
85–89	6 685	14 173	9	<b>20 867</b>	6 736	14 525	19	<b>21 280</b>
90+	4 360	12 071	13	<b>16 444</b>	4 489	12 442	15	<b>16 946</b>
Unspecified	783	226	441	<b>1 450</b>	404	155	153	<b>712</b>
<b>Total</b>	<b>248 269</b>	<b>222 824</b>	<b>2 173</b>	<b>473 266</b>	<b>240 001</b>	<b>214 988</b>	<b>1 623</b>	<b>456 612</b>

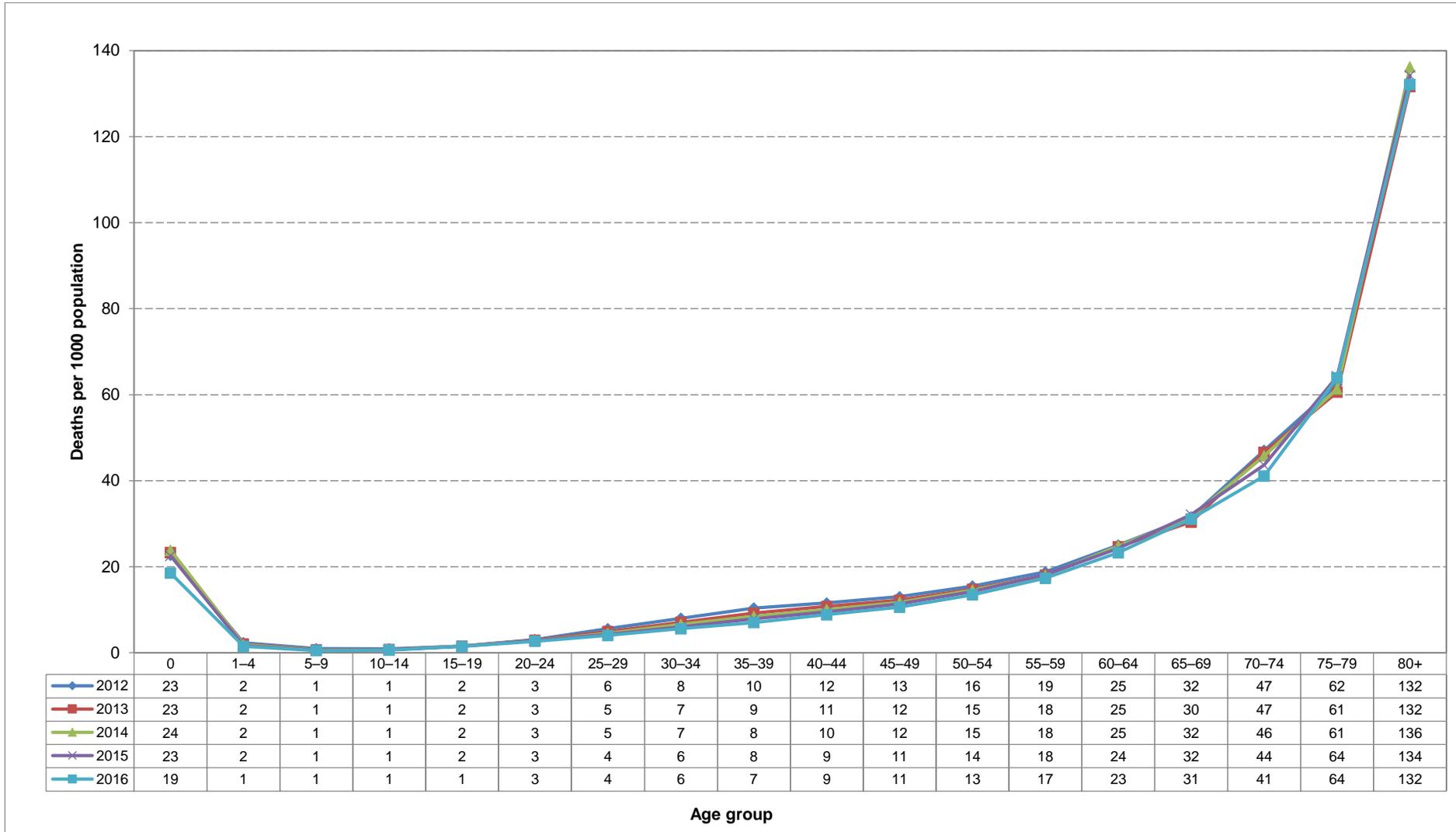
\*Data for 2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix E: Year-to-year percentage changes in number of deaths by sex, 1997–2016\***



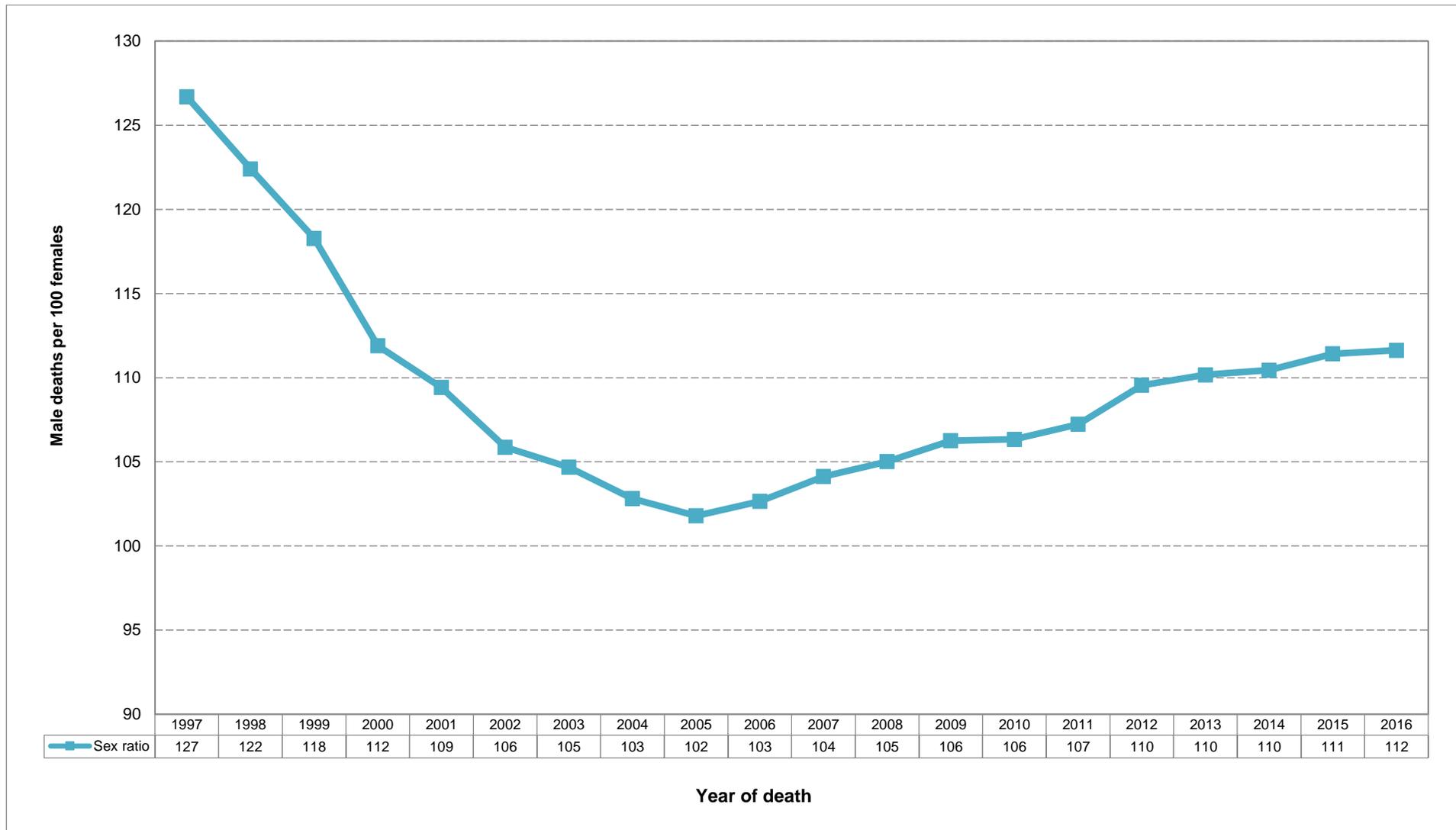
\* Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix F: Age-specific death rates (ASDR) by year of death, 2012–2016\***



\*Data for 2012–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix G: Sex ratios at death by year of death, 1997–2016\***



\* Data for 1997–2015 have been updated with late registrations/delayed death notification forms processed in 2016/2017.

**Appendix H: Number of deaths by province of death occurrence and province usual residence of the deceased, 2016**

Province of death occurrence	Province of usual residence of deceased											
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	Foreign	Unspecified	Total
Western Cape	46 121	477	168	66	382	64	278	65	117	48	355	<b>48 141</b>
Eastern Cape	269	63 612	74	118	906	68	418	174	71	80	277	<b>66 067</b>
Northern Cape	166	81	12 894	160	32	306	61	46	56	21	45	<b>13 868</b>
Free State	72	212	245	29 979	127	263	412	72	79	192	143	<b>31 796</b>
KwaZulu-Natal	189	1 352	31	176	81 182	77	518	341	126	111	652	<b>84 755</b>
North West	53	100	191	357	51	32 411	1 560	92	344	92	154	<b>35 405</b>
Gauteng	259	403	64	758	633	2 036	89 505	1 639	1 181	384	575	<b>97 437</b>
Mpumalanga	37	146	31	95	349	81	695	30 714	819	134	160	<b>33 261</b>
Limpopo	41	85	54	76	118	322	451	884	43 191	275	81	<b>45 578</b>
Foreign	7	3	3	33	7	8	58	13	2	57	25	<b>216</b>
Unspecified	5	10	1	2	4	4	28	6	4	3	21	<b>88</b>
<b>Total</b>	<b>47 219</b>	<b>66 481</b>	<b>13 756</b>	<b>31 820</b>	<b>83 791</b>	<b>35 640</b>	<b>93 984</b>	<b>34 046</b>	<b>45 990</b>	<b>1 397</b>	<b>2 488</b>	<b>456 612</b>

**Appendix H1: Percentage distribution of deaths by province of death occurrence and province of usual residence of deceased, 2016**

Province of death occurrence	Province of usual residence of deceased											
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	Foreign	Unspecified	Total
Western Cape	95,8	1,0	0,3	0,1	0,8	0,1	0,6	0,1	0,2	0,1	0,7	<b>100,0</b>
Eastern Cape	0,4	96,3	0,1	0,2	1,4	0,1	0,6	0,3	0,1	0,1	0,4	<b>100,0</b>
Northern Cape	1,2	0,6	93,0	1,2	0,2	2,2	0,4	0,3	0,4	0,2	0,3	<b>100,0</b>
Free State	0,2	0,7	0,8	94,3	0,4	0,8	1,3	0,2	0,2	0,6	0,4	<b>100,0</b>
KwaZulu-Natal	0,2	1,6	0,0	0,2	95,8	0,1	0,6	0,4	0,1	0,1	0,8	<b>100,0</b>
North West	0,1	0,3	0,5	1,0	0,1	91,5	4,4	0,3	1,0	0,3	0,4	<b>100,0</b>
Gauteng	0,3	0,4	0,1	0,8	0,6	2,1	91,9	1,7	1,2	0,4	0,6	<b>100,0</b>
Mpumalanga	0,1	0,4	0,1	0,3	1,0	0,2	2,1	92,3	2,5	0,4	0,5	<b>100,0</b>
Limpopo	0,1	0,2	0,1	0,2	0,3	0,7	1,0	1,9	94,8	0,6	0,2	<b>100,0</b>
Foreign	3,2	1,4	1,4	15,3	3,2	3,7	26,9	6,0	0,9	26,4	11,6	<b>100,0</b>
Unspecified	5,7	11,4	1,1	2,3	4,5	4,5	31,8	6,8	4,5	3,4	23,9	<b>100,0</b>

### Appendix I: Number of deaths by age, province and district municipality of death occurrence, 2016

Province of death occurrence	District municipality of death occurrence	Age						
		0	1–14	15–44	45–64	65+	Unsp.	Total
Western Cape	Cape Winelands	185	83	1 530	2 174	2 581	7	6 560
	Central Karoo	22	17	189	267	300	1	796
	City of Cape Town	1 097	520	7 801	8 857	11 783	56	30 114
	Eden	137	37	1 070	1 757	2 336	3	5 340
	Overberg	69	39	444	668	1 004	3	2 227
	West Coast	71	47	638	1 004	1 298	3	3 061
	Unspecified	4	1	9	12	17	0	43
	<b>Total</b>	<b>1 585</b>	<b>745</b>	<b>11 681</b>	<b>14 739</b>	<b>19 318</b>	<b>73</b>	<b>48 141</b>
Eastern Cape	Alfred Nzo	165	166	1 288	1 140	1 792	9	4 560
	Amathole	208	284	2 956	3 057	4 748	8	11 261
	Buffalo City	183	168	2 153	2 523	2 980	5	8 012
	Chris Hani	224	179	2 196	2 300	3 279	2	8 180
	Joe Gqabi	164	122	1 102	1 084	1 622	5	4 099
	Nelson Mandela Bay	299	171	3 038	3 835	4 109	9	11 461
	O.R. Tambo	343	589	4 393	3 082	4 417	3	12 827
	Sarah Baartman	149	94	1 441	1 837	2 031	4	5 556
	Unspecified	6	1	31	30	43	0	111
<b>Total</b>	<b>1 741</b>	<b>1 775</b>	<b>18 598</b>	<b>18 888</b>	<b>25 020</b>	<b>45</b>	<b>66 067</b>	
Northern Cape	Frances Baard	167	77	766	915	970	2	2 897
	John Taolo Gaetsewe	243	112	714	702	792	6	2 569
	Namakwa	35	17	213	359	567	1	1 192
	Pixley ka Seme	253	122	1 244	1 520	1 474	1	4 614
	Z.F. Mgcau	122	70	758	821	810	0	2 581
	Unspecified	1	1	4	3	6	0	15
	<b>Total</b>	<b>821</b>	<b>399</b>	<b>3 699</b>	<b>4 320</b>	<b>4 619</b>	<b>10</b>	<b>13 868</b>
Free State	Fezile Dabi	230	116	1 277	1 534	1 714	3	4 874
	Lejweleputswa	431	199	2 161	2 247	2 214	18	7 270
	Mangaung	366	211	2 072	2 558	2 702	14	7 923
	Thabo Mofutsanyane	495	267	2 477	2 606	2 924	7	8 776
	Xhariep	114	75	772	905	1 044	3	2 913
	Unspecified	4	0	11	13	12	0	40
	<b>Total</b>	<b>1 640</b>	<b>868</b>	<b>8 770</b>	<b>9 863</b>	<b>10 610</b>	<b>45</b>	<b>31 796</b>
KwaZulu-Natal	Amajuba	219	125	1 437	1 327	1 558	4	4 670
	eThekweni	682	556	6 816	6 430	8 360	30	22 874
	Harry Gwala	241	199	1 793	1 510	1 926	10	5 679
	iLembe	200	150	1 589	1 256	1 647	6	4 848
	Ugu	278	280	2 627	2 232	3 419	15	8 851
	uMgungundlovu	333	253	3 149	2 956	3 896	14	10 601
	uMkhanyakude	181	148	1 213	857	1 310	11	3 720
	uMzinyathi	226	142	1 217	1 074	1 609	9	4 277
	uThukela	305	197	2 049	1 728	2 141	12	6 432
	uThungulu	169	202	2 189	1 826	2 183	22	6 591
	Zululand	357	244	1 927	1 455	2 059	9	6 051
	Unspecified	7	1	48	39	65	1	161
<b>Total</b>	<b>3 198</b>	<b>2 498</b>	<b>26 054</b>	<b>22 690</b>	<b>30 172</b>	<b>143</b>	<b>84 755</b>	

### Appendix I: Number of deaths by age, province and district municipality of death occurrence, 2016\* (concluded)

Province of death occurrence	District municipality of death occurrence	Age						Total
		0	1–14	15–44	45–64	65+	Unsp.	
<b>North West</b>	Bojanala	732	406	3 476	3 695	4 495	31	<b>12 835</b>
	Dr Kenneth Kaunda	363	198	2 038	2 431	2 270	6	<b>7 306</b>
	Dr Ruth Segomotsi Mompati	459	217	1 463	1 648	1 791	4	<b>5 582</b>
	Ngaka Modiri Molema	665	410	2 707	2 834	3 009	6	<b>9 631</b>
	Unspecified	2	2	20	16	11	0	<b>51</b>
	<b>Total</b>	<b>2 221</b>	<b>1 233</b>	<b>9 704</b>	<b>10 624</b>	<b>11 576</b>	<b>47</b>	<b>35 405</b>
<b>Gauteng</b>	City of Johannesburg	1 646	784	8 559	8 446	9 837	94	<b>29 366</b>
	City of Tshwane	1 007	564	5 629	6 185	8 196	20	<b>21 601</b>
	Ekurhuleni	1 667	638	7 928	7 426	8 051	77	<b>25 787</b>
	Sedibeng	463	232	2 833	3 230	3 687	10	<b>10 455</b>
	West Rand	459	256	2 844	2 911	3 272	48	<b>9 790</b>
	Unspecified	22	13	173	132	95	3	<b>438</b>
	<b>Total</b>	<b>5 264</b>	<b>2 488</b>	<b>27 966</b>	<b>28 330</b>	<b>33 137</b>	<b>252</b>	<b>97 437</b>
<b>Mpumalanga</b>	Ehlanzeni	551	544	4 553	3 604	4 473	43	<b>13 768</b>
	Gert Sibande	626	302	2 890	2 527	2 625	13	<b>8 983</b>
	Nkangala	494	302	3 159	3 124	3 273	11	<b>10 363</b>
	Unspecified	7	3	55	36	46	0	<b>147</b>
	<b>Total</b>	<b>1 678</b>	<b>1 151</b>	<b>10 657</b>	<b>9 291</b>	<b>10 417</b>	<b>67</b>	<b>33 261</b>
<b>Limpopo</b>	Capricorn	751	496	3 183	3 357	4 938	6	<b>12 731</b>
	Mopani	623	412	2 374	2 292	3 497	5	<b>9 203</b>
	Sekhukhune	391	385	2 486	2 520	3 868	4	<b>9 654</b>
	Vhembe	439	410	2 005	2 149	3 756	8	<b>8 767</b>
	Waterberg	279	175	1 438	1 308	1 697	2	<b>4 899</b>
	Unspecified	9	19	103	78	115	0	<b>324</b>
	<b>Total</b>	<b>2 492</b>	<b>1 898</b>	<b>11 589</b>	<b>11 704</b>	<b>17 870</b>	<b>25</b>	<b>45 578</b>
<b>Foreign</b>		<b>1</b>	<b>1</b>	<b>47</b>	<b>67</b>	<b>100</b>	<b>0</b>	<b>216</b>

\* Excluding deaths with unspecified province of death occurrence.

### Appendix I1: Percentage distribution of deaths by age, province and district municipality of death occurrence, 2016

Province of death occurrence	District municipality of death occurrence	Age						
		0	1–14	15–44	45–64	65+	Unsp.	Total
Western Cape	Cape Winelands	2,8	1,3	23,3	33,1	39,3	0,1	100,0
	Central Karoo	2,8	2,1	23,7	33,5	37,7	0,1	100,0
	City of Cape Town	3,6	1,7	25,9	29,4	39,1	0,2	100,0
	Eden	2,6	0,7	20,0	32,9	43,7	0,1	100,0
	Overberg	3,1	1,8	19,9	30,0	45,1	0,1	100,0
	West Coast	2,3	1,5	20,8	32,8	42,4	0,1	100,0
	Unspecified	9,3	2,3	20,9	27,9	39,5	0,0	100,0
	<b>Total</b>	<b>3,3</b>	<b>1,5</b>	<b>24,3</b>	<b>30,6</b>	<b>40,1</b>	<b>0,2</b>	<b>100,0</b>
Eastern Cape	Alfred Nzo	3,6	3,6	28,2	25,0	39,3	0,2	100,0
	Amathole	1,8	2,5	26,2	27,1	42,2	0,1	100,0
	Buffalo City	2,3	2,1	26,9	31,5	37,2	0,1	100,0
	Chris Hani	2,7	2,2	26,8	28,1	40,1	0,0	100,0
	Joe Gqabi	4,0	3,0	26,9	26,4	39,6	0,1	100,0
	Nelson Mandela Bay	2,6	1,5	26,5	33,5	35,9	0,1	100,0
	O.R. Tambo	2,7	4,6	34,2	24,0	34,4	0,0	100,0
	Sarah Baartman	2,7	1,7	25,9	33,1	36,6	0,1	100,0
	Unspecified	5,4	0,9	27,9	27,0	38,7	0,0	100,0
	<b>Total</b>	<b>2,6</b>	<b>2,7</b>	<b>28,2</b>	<b>28,6</b>	<b>37,9</b>	<b>0,1</b>	<b>100,0</b>
Northern Cape	Frances Baard	5,8	2,7	26,4	31,6	33,5	0,1	100,0
	John Taolo Gaetsewe	9,5	4,4	27,8	27,3	30,8	0,2	100,0
	Namakwa	2,9	1,4	17,9	30,1	47,6	0,1	100,0
	Pixley ka Seme	5,5	2,6	27,0	32,9	31,9	0,0	100,0
	Z.F. Mgcawu	4,7	2,7	29,4	31,8	31,4	0,0	100,0
	Unspecified	6,7	6,7	26,7	20,0	40,0	0,0	100,0
	<b>Total</b>	<b>5,9</b>	<b>2,9</b>	<b>26,7</b>	<b>31,2</b>	<b>33,3</b>	<b>0,1</b>	<b>100,0</b>
Free State	Fezile Dabi	4,7	2,4	26,2	31,5	35,2	0,1	100,0
	Lejweleputswa	5,9	2,7	29,7	30,9	30,5	0,2	100,0
	Mangaung	4,6	2,7	26,2	32,3	34,1	0,2	100,0
	Thabo Mofutsanyane	5,6	3,0	28,2	29,7	33,3	0,1	100,0
	Xhariep	3,9	2,6	26,5	31,1	35,8	0,1	100,0
	Unspecified	10,0	0,0	27,5	32,5	30,0	0,0	100,0
	<b>Total</b>	<b>5,2</b>	<b>2,7</b>	<b>27,6</b>	<b>31,0</b>	<b>33,4</b>	<b>0,1</b>	<b>100,0</b>
KwaZulu-Natal	Amajuba	4,7	2,7	30,8	28,4	33,4	0,1	100,0
	eThekwini	3,0	2,4	29,8	28,1	36,5	0,1	100,0
	Harry Gwala	4,2	3,5	31,6	26,6	33,9	0,2	100,0
	iLembe	4,1	3,1	32,8	25,9	34,0	0,1	100,0
	Ugu	3,1	3,2	29,7	25,2	38,6	0,2	100,0
	uMgungundlovu	3,1	2,4	29,7	27,9	36,8	0,1	100,0
	uMkhanyakude	4,9	4,0	32,6	23,0	35,2	0,3	100,0
	uMzinyathi	5,3	3,3	28,5	25,1	37,6	0,2	100,0
	uThukela	4,7	3,1	31,9	26,9	33,3	0,2	100,0
	uThungulu	2,6	3,1	33,2	27,7	33,1	0,3	100,0
	Zululand	5,9	4,0	31,8	24,0	34,0	0,1	100,0
	Unspecified	4,3	0,6	29,8	24,2	40,4	0,6	100,0
	<b>Total</b>	<b>3,8</b>	<b>2,9</b>	<b>30,7</b>	<b>26,8</b>	<b>35,6</b>	<b>0,2</b>	<b>100,0</b>

### Appendix I1: Percentage distribution of deaths by age, province and district municipality of death occurrence, 2016\* (concluded)

Province of death occurrence	District municipality of death occurrence	Age						Total
		0	1–14	15–44	45–64	65+	Unsp.	
<b>North West</b>	Bojanala	5,7	3,2	27,1	28,8	35,0	0,2	100,0
	Dr Kenneth Kaunda	5,0	2,7	27,9	33,3	31,1	0,1	100,0
	Dr Ruth Segomotsi Mompati	8,2	3,9	26,2	29,5	32,1	0,1	100,0
	Ngaka Modiri Molema	6,9	4,3	28,1	29,4	31,2	0,1	100,0
	Unspecified	3,9	3,9	39,2	31,4	21,6	0,0	100,0
	<b>Total</b>	<b>6,3</b>	<b>3,5</b>	<b>27,4</b>	<b>30,0</b>	<b>32,7</b>	<b>0,1</b>	<b>100,0</b>
<b>Gauteng</b>	City of Johannesburg	5,6	2,7	29,1	28,8	33,5	0,3	100,0
	City of Tshwane	4,7	2,6	26,1	28,6	37,9	0,1	100,0
	Ekurhuleni	6,5	2,5	30,7	28,8	31,2	0,3	100,0
	Sedibeng	4,4	2,2	27,1	30,9	35,3	0,1	100,0
	West Rand	4,7	2,6	29,1	29,7	33,4	0,5	100,0
	Unspecified	5,0	3,0	39,5	30,1	21,7	0,7	100,0
	<b>Total</b>	<b>5,4</b>	<b>2,6</b>	<b>28,7</b>	<b>29,1</b>	<b>34,0</b>	<b>0,3</b>	<b>100,0</b>
<b>Mpumalanga</b>	Ehlanzeni	4,0	4,0	33,1	26,2	32,5	0,3	100,0
	Gert Sibande	7,0	3,4	32,2	28,1	29,2	0,1	100,0
	Nkangala	4,8	2,9	30,5	30,1	31,6	0,1	100,0
	Unspecified	4,8	2,0	37,4	24,5	31,3	0,0	100,0
	<b>Total</b>	<b>5,0</b>	<b>3,5</b>	<b>32,0</b>	<b>27,9</b>	<b>31,3</b>	<b>0,2</b>	<b>100,0</b>
<b>Limpopo</b>	Capricorn	5,9	3,9	25,0	26,4	38,8	0,0	100,0
	Mopani	6,8	4,5	25,8	24,9	38,0	0,1	100,0
	Sekhukhune	4,1	4,0	25,8	26,1	40,1	0,0	100,0
	Vhembe	5,0	4,7	22,9	24,5	42,8	0,1	100,0
	Waterberg	5,7	3,6	29,4	26,7	34,6	0,0	100,0
	Unspecified	2,8	5,9	31,8	24,1	35,5	0,0	100,0
	<b>Total</b>	<b>5,5</b>	<b>4,2</b>	<b>25,4</b>	<b>25,7</b>	<b>39,2</b>	<b>0,1</b>	<b>100,0</b>
<b>Foreign</b>	<b>Foreign</b>	<b>0,5</b>	<b>0,5</b>	<b>21,8</b>	<b>31,0</b>	<b>46,3</b>	<b>0,0</b>	<b>100,0</b>

Excluding deaths with unspecified province of death occurrence.

### Appendix J: Number of deaths by sex, province and district municipality of death occurrence, 2016\*

Province of death occurrence	District municipality of death occurrence	Sex of the deceased				Sex ratio at death**
		Male	Female	Unspecified	Total	
Western Cape	Cape Winelands	3 608	2 940	12	6 560	123
	Central Karoo	426	370	0	796	115
	City of Cape Town	16 512	13 539	63	30 114	122
	Eden	2 909	2 424	7	5 340	120
	Overberg	1 288	937	2	2 227	137
	West Coast	1 692	1 366	3	3 061	124
	Unspecified	25	18	0	43	139
	<b>Total</b>	<b>26 460</b>	<b>21 594</b>	<b>87</b>	<b>48 141</b>	<b>123</b>
Eastern Cape	Alfred Nzo	2 272	2 271	17	4 560	100
	Amathole	6 011	5 232	18	11 261	115
	Buffalo City	4 160	3 830	22	8 012	109
	Chris Hanani	4 233	3 931	16	8 180	108
	Joe Gqabi	2 134	1 952	13	4 099	109
	Nelson Mandela Bay	6 000	5 429	32	11 461	111
	O.R. Tambo	6 500	6 287	40	12 827	103
	Sarah Baartman	2 959	2 583	14	5 556	115
	Unspecified	55	56	0	111	98
	<b>Total</b>	<b>34 324</b>	<b>31 571</b>	<b>172</b>	<b>66 067</b>	<b>109</b>
Northern Cape	Frances Baard	1 531	1 356	10	2 897	113
	John Taolo Gaetsewe	1 370	1 195	4	2 569	115
	Namakwa	624	568	0	1 192	110
	Pixley ka Seme	2 461	2 148	5	4 614	115
	Z.F. Mgcawu	1 382	1 197	2	2 581	115
	Unspecified	11	4	0	15	275
	<b>Total</b>	<b>7 379</b>	<b>6 468</b>	<b>21</b>	<b>13 868</b>	<b>114</b>
Free State	Fezile Dabi	2 592	2 276	6	4 874	114
	Lejweleputswa	3 909	3 321	40	7 270	118
	Mangaung	4 205	3 685	33	7 923	114
	Thabo Mofutsanyane	4 487	4 272	17	8 776	105
	Xhariep	1 550	1 356	7	2 913	114
	Unspecified	24	16	0	40	150
	<b>Total</b>	<b>16 767</b>	<b>14 926</b>	<b>103</b>	<b>31 796</b>	<b>112</b>
KwaZulu-Natal	Amajuba	2 343	2 317	10	4 670	101
	eThekweni	12 178	10 645	51	22 874	114
	Harry Gwala	2 804	2 864	11	5 679	98
	iLembe	2 524	2 316	8	4 848	109
	Ugu	4 537	4 295	19	8 851	106
	uMgungundlovu	5 427	5 129	45	10 601	106
	uMkhanyakude	1 875	1 818	27	3 720	103
	uMzinyathi	2 148	2 117	12	4 277	101
	uThukela	3 272	3 148	12	6 432	104
	uThungulu	3 424	3 149	18	6 591	109
	Zululand	3 056	2 983	12	6 051	102
	Unspecified	77	84	0	161	92
	<b>Total</b>	<b>43 665</b>	<b>40 865</b>	<b>225</b>	<b>84 755</b>	<b>107</b>

### Appendix J: Number of deaths by sex, province and district municipality of death occurrence, 2016\* (concluded)

Province of death occurrence	District municipality of death occurrence	Sex of the deceased				Sex ratio at death**
		Male	Female	Unspecified	Total	
North West	Bojanala	6 789	5 981	65	12 835	114
	Dr Kenneth Kaunda	3 931	3 353	22	7 306	117
	Dr Ruth Segomotsi Mompati	2 894	2 668	20	5 582	108
	Ngaka Modiri Molema	5 120	4 474	37	9 631	114
	Unspecified	28	23		51	122
	<b>Total</b>		<b>18 762</b>	<b>16 499</b>	<b>144</b>	<b>35 405</b>
Gauteng	City of Johannesburg	15 740	13 372	254	29 366	118
	City of Tshwane	11 467	10 021	113	21 601	114
	Ekurhuleni	13 873	11 722	192	25 787	118
	Sedibeng	5 718	4 708	29	10 455	121
	West Rand	5 326	4 395	69	9 790	121
	Unspecified	246	187	5	438	132
	<b>Total</b>		<b>52 370</b>	<b>44 405</b>	<b>662</b>	<b>97 437</b>
Mpumalanga	Ehlanzeni	7 002	6 716	50	13 768	104
	Gert Sibande	4 789	4 172	22	8 983	115
	Nkangala	5 521	4 805	37	10 363	115
	Unspecified	91	56		147	163
	<b>Total</b>		<b>17 403</b>	<b>15 749</b>	<b>109</b>	<b>33 261</b>
Limpopo	Capricorn	6 365	6 346	20	12 731	100
	Mopani	4 473	4 703	27	9 203	95
	Sekhukhune	4 789	4 852	13	9 654	99
	Vhembe	4 249	4 498	20	8 767	94
	Waterberg	2 616	2 273	10	4 899	115
	Unspecified	177	147		324	120
	<b>Total</b>		<b>22 669</b>	<b>22 819</b>	<b>90</b>	<b>45 578</b>
Foreign	Foreign	148	67	1	216	221

\*Excluding deaths with unspecified province of death occurrence.

\*\* Male deaths per 100 female deaths.

**Appendix K: All underlying causes of death, 2016**

<b>Causes of death (based on the 10th revision, International Classification of Diseases, 1992)</b>	<b>Number</b>	<b>Percentage</b>
<b>All causes</b>	<b>456 612</b>	<b>100,0</b>
Ill-defined and unknown causes of mortality (R95-R99)	57 159	12,5
Other external causes of accidental injury (W00-X59)	34 096	7,5
Tuberculosis (A15-A19)	29 513	6,5
Diabetes mellitus (E10-E14)	25 255	5,5
Other forms of heart disease (I30-I52)	23 515	5,2
Cerebrovascular diseases (I60-I69)	23 137	5,1
Human immunodeficiency virus [HIV] disease (B20-B24)	21 830	4,8
Hypertensive diseases (I10-I15)	19 960	4,4
Influenza and pneumonia (J09-J18)	19 638	4,3
Other viral diseases (B25-B34)	16 577	3,6
Ischaemic heart diseases (I20-I25)	12 883	2,8
Chronic lower respiratory diseases (J40-J47)	12 659	2,8
Malignant neoplasms of digestive organs (C15-C26)	10 486	2,3
Certain disorders involving the immune mechanism (D80-D89)	9 736	2,1
Renal failure (N17-N19)	7 797	1,7
Assault (X85-Y09)	7 568	1,7
Intestinal infectious diseases (A00-A09)	6 630	1,5
Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	6 459	1,4
Transport accidents (V01-V99)	6 425	1,4
Other bacterial diseases (A30-A49)	5 425	1,2
Malignant neoplasms of female genital organs (C51-C58)	5 413	1,2
Other acute lower respiratory infections (J20-J22)	4 117	0,9
Diseases of liver (K70-K77)	4 092	0,9
Malignant neoplasms of breast (C50)	3 635	0,8
Metabolic disorders (E70-E90)	3 617	0,8
Malignant neoplasms of ill-defined, secondary and unspecified sites (C76-C80)	3 596	0,8
Episodic and paroxysmal disorders (G40-G47)	3 574	0,8
Malignant neoplasms of male genital organs (C60-C63)	3 325	0,7
Other diseases of the respiratory system (J95-J99)	3 255	0,7
Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	3 250	0,7
General symptoms and signs (R50-R69)	3 164	0,7
Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	3 076	0,7
Inflammatory diseases of the central nervous system (G00-G09)	2 507	0,6
Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)	2 249	0,5
Aplastic and other anaemias (D60-D64)	2 114	0,5
Diseases of oesophagus, stomach and duodenum (K20-K31)	2 087	0,5
Event of undetermined intent (Y10-Y34)	1 640	0,4
Other diseases of intestines (K55-K64)	1 620	0,4
Other respiratory diseases principally affecting the interstitium (J80-J84)	1 514	0,3
Organic, including symptomatic, mental disorders (F00-F09)	1 428	0,3
Diseases of arteries, arterioles and capillaries (I70-I79)	1 378	0,3

**Appendix K: All underlying causes of death, 2016 (continued)**

<b>Causes of death (based on the 10th revision, International Classification of Diseases, 1992)</b>	<b>Number</b>	<b>Percentage</b>
<b>All causes</b>	<b>456 612</b>	<b>100,0</b>
Malnutrition (E40-E46)	1 370	0,3
Other disorders originating in the perinatal period (P90-P96)	1 228	0,3
Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	1 212	0,3
Noninfective enteritis and colitis (K50-K52)	1 172	0,3
Malignant neoplasms of mesothelial and soft tissue (C45-C49)	1 149	0,3
Disorders related to length of gestation and fetal growth (P05-P08)	1 138	0,3
Neoplasms of uncertain or unknown behaviour (D37-D48)	1 112	0,2
Other diseases of the digestive system (K90-K93)	1 096	0,2
Infections specific to the perinatal period (P35-P39)	1 095	0,2
Disorders of gallbladder, biliary tract and pancreas (K80-K87)	1 025	0,2
Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	1 011	0,2
Malignant neoplasms of urinary tract (C64-C68)	1 010	0,2
Complications of medical and surgical care (Y40-Y84)	1 001	0,2
Other disorders of glucose regulation and pancreatic internal secretion (E15-E16)	950	0,2
Other degenerative diseases of the nervous system (G30-G32)	944	0,2
Other disorders of the nervous system (G90-G99)	939	0,2
Sequelae of infectious and parasitic diseases (B90-B94)	913	0,2
Cerebral palsy and other paralytic syndromes (G80-G83)	884	0,2
Arthropathies (M00-M25)	828	0,2
Malignant neoplasms of skin (C43-C44)	826	0,2
Congenital malformations of the circulatory system (Q20-Q28)	815	0,2
Protozoal diseases (B50-B64)	750	0,2
Lung diseases due to external agents (J60-J70)	733	0,2
Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified (I80-I89)	710	0,2
Malignant neoplasms of eye, brain and other parts of central nervous system (C69-C72)	620	0,1
Mycoses (B35-B49)	616	0,1
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	504	0,1
Systemic connective tissue disorders (M30-M36)	491	0,1
Other disorders of the skin and subcutaneous tissue (L80-L99)	485	0,1
Extrapyramidal and movement disorders (G20-G26)	427	0,1
Coagulation defects, purpura and other haemorrhagic conditions (D65-D69)	426	0,1
Intentional self-harm (X60-X84)	425	0,1
Other diseases of urinary system (N30-N39)	416	0,1
Obesity and other hyperalimentation (E65-E68)	408	0,1
Infections of the skin and subcutaneous tissue (L00-L08)	405	0,1
Other congenital malformations (Q80-Q89)	400	0,1
Disorders of thyroid gland (E00-E07)	380	0,1
Other diseases of pleura (J90-J94)	367	0,1
Chromosomal abnormalities, not elsewhere classified (Q90-Q99)	360	0,1
Viral hepatitis (B15-B19)	358	0,1
Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	352	0,1

**Appendix K: All underlying causes of death, 2016 (continued)**

<b>Causes of death (based on the 10th revision, International Classification of Diseases, 1992)</b>	<b>Number</b>	<b>Percentage</b>
<b>All causes</b>	<b>456 612</b>	<b>100,0</b>
Diseases of male genital organs (N40-N51)	327	0,1
Soft tissue disorders (M60-M79)	317	0,1
Chronic rheumatic heart diseases (I05-I09)	313	0,1
Digestive system disorders of fetus and newborn (P75-P78)	298	0,1
Hernia (K40-K46)	268	0,1
Renal tubulo-interstitial diseases (N10-N16)	268	0,1
Congenital malformations of the nervous system (Q00-Q07)	259	0,1
Other disorders of kidney and ureter (N25-N29)	254	0,1
Other obstetric conditions, not elsewhere classified (O94-O99)	239	0,1
Suppurative and necrotic conditions of lower respiratory tract (J85-J86)	236	0,1
Malignant neoplasms of thyroid and other endocrine glands (C73-C75)	234	0,1
Schizophrenia, schizotypal and delusional disorders (F20-F29)	234	0,1
Diseases of peritoneum (K65-K67)	207	0,1
Benign neoplasms (D10-D36)	205	0,0
Systemic atrophies primarily affecting the central nervous system (G10-G14)	185	0,0
Other congenital malformations of the digestive system (Q38-Q45)	184	0,0
Acute upper respiratory infections (J00-J06)	177	0,0
Oedema, proteinuria and hypertensive disorders in pregnancy, childbirth and the puerperium (O10-O16)	168	0,0
Other and unspecified disorders of the circulatory system (I95-I99)	157	0,0
Glomerular diseases (N00-N08)	145	0,0
Noninflammatory disorders of female genital tract (N80-N98)	140	0,0
Diseases of appendix (K35-K38)	135	0,0
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	134	0,0
Polyneuropathies and other disorders of the peripheral nervous system (G60-G64)	117	0,0
Complications of labour and delivery (O60-O75)	116	0,0
Pregnancy with abortive outcome (O00-O08)	110	0,0
Viral infections characterized by skin and mucous membrane lesions (B00-B09)	108	0,0
Other diseases of upper respiratory tract (J30-J39)	102	0,0
Diseases of myoneural junction and muscle (G70-G73)	98	0,0
Osteopathies and chondropathies (M80-M94)	97	0,0
Complications predominantly related to the puerperium (O85-O92)	97	0,0
Nutritional anaemias (D50-D53)	92	0,0
Conditions involving the integument and temperature regulation of fetus and newborn (P80-P83)	90	0,0
Malignant neoplasms of bone and articular cartilage (C40-C41)	87	0,0
Dorsopathies (M40-M54)	87	0,0
Congenital malformations of the respiratory system (Q30-Q34)	86	0,0
Sequelae of external causes of morbidity and mortality (Y85-Y89)	86	0,0
Other diseases of blood and blood-forming organs (D70-D77)	85	0,0
Disorders of other endocrine glands (E20-E35)	81	0,0
Viral infections of the central nervous system (A80-A89)	80	0,0
Diseases of oral cavity, salivary glands and jaws (K00-K14)	79	0,0

**Appendix K: All underlying causes of death, 2016 (continued)**

<b>Causes of death (based on the 10th revision, International Classification of Diseases, 1992)</b>	<b>Number</b>	<b>Percentage</b>
<b>All causes</b>	<b>456 612</b>	<b>100,0</b>
Congenital malformations of the urinary system (Q60-Q64)	78	0,0
Urticaria and erythema (L50-L54)	71	0,0
Infections with a predominantly sexual mode of transmission (A50-A64)	66	0,0
Demyelinating diseases of the central nervous system (G35-G37)	65	0,0
Diseases of middle ear and mastoid (H65-H75)	63	0,0
Haemolytic anaemias (D55-D59)	59	0,0
Other nutritional deficiencies (E50-E64)	58	0,0
Helminthiases (B65-B83)	57	0,0
Inflammatory diseases of female pelvic organs (N70-N77)	54	0,0
Other maternal disorders predominantly related to pregnancy (O20-O29)	47	0,0
Mood [affective] disorders (F30-F39)	45	0,0
Maternal care related to the fetus and amniotic cavity and possible delivery problems (O30-O48)	38	0,0
Mental retardation (F70-F79)	33	0,0
Other infectious diseases (B99)	31	0,0
Dermatitis and eczema (L20-L30)	31	0,0
Bullous disorders (L10-L14)	22	0,0
Disorders of breast (N60-N64)	22	0,0
Urolithiasis (N20-N23)	21	0,0
Unspecified mental disorder (F99)	18	0,0
Rickettsioses (A75-A79)	13	0,0
Arthropod-borne viral fevers and viral haemorrhagic fevers (A92-A99)	13	0,0
Acute rheumatic fever (I00-I02)	13	0,0
Birth trauma (P10-P15)	12	0,0
In situ neoplasms (D00-D09)	11	0,0
Neurotic, stress-related and somatoform disorders (F40-F48)	11	0,0
Certain zoonotic bacterial diseases (A20-A28)	10	0,0
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	10	0,0
Visual disturbances and blindness (H53-H54)	9	0,0
Transitory endocrine and metabolic disorders specific to fetus and newborn (P70-P74)	9	0,0
Cleft lip and cleft palate (Q35-Q37)	8	0,0
Nerve, nerve root and plexus disorders (G50-G59)	7	0,0
Disorders of skin appendages (L60-L75)	6	0,0
Other spirochaetal diseases (A65-A69)	5	0,0
Pediculosis, acariasis and other infestations (B85-B89)	5	0,0
Glaucoma (H40-H42)	5	0,0
Papulosquamous disorders (L40-L45)	5	0,0
Other diseases caused by chlamydiae (A70-A74)	4	0,0
Disorders of vitreous body and globe (H43-H45)	4	0,0
Congenital malformations of eye, ear, face and neck (Q10-Q18)	4	0,0
Symptoms and signs involving the urinary system (R30-R39)	4	0,0
Abnormal findings on examination of other body fluids, substances and tissues, without diagnosis (R83-R89)	4	0,0

**Appendix K: All underlying causes of death, 2016 (concluded)**

<b>Causes of death (based on the 10th revision, International Classification of Diseases, 1992)</b>	<b>Number</b>	<b>Percentage</b>
<b>All causes</b>	<b>456 612</b>	<b>100,0</b>
Disorders of eyelid, lacrimal system and orbit (H00-H06)	3	0,0
Disorders of conjunctiva (H10-H13)	3	0,0
Disorders of sclera, cornea, iris and ciliary body (H15-H22)	3	0,0
Abnormal findings on examination of blood, without diagnosis (R70-R79)	3	0,0
Disorders of adult personality and behaviour (F60-F69)	2	0,0
Disorders of psychological development (F80-F89)	2	0,0
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	2	0,0
Disorders of choroid and retina (H30-H36)	2	0,0
Diseases of external ear (H60-H62)	2	0,0
Disorders of optic nerve and visual pathways (H46-H48)	1	0,0
Other disorders of eye and adnexa (H55-H59)	1	0,0
Diseases of inner ear (H80-H83)	1	0,0
M40-M43	1	0,0
Congenital malformations of genital organs (Q50-Q56)	1	0,0
Symptoms and signs involving cognition, perception, emotional state and behaviour (R40-R46)	1	0,0
Legal intervention and operations of war (Y35-Y36)	1	0,0

### Appendix L: Detailed description of the broad-based groups of natural causes of death which were among the ten leading causes, 2016

Causes of death (based on ICD-10 Version: 2010)		Number	Percentage
<b>Tuberculosis (A15-A19)</b>			
A16	Respiratory tuberculosis, not confirmed bacteriologically or histologically (A16)	22 398	75,9
A17	Tuberculosis of nervous system (A17)	1 697	5,8
A18	Tuberculosis of other organs (A18)	1 038	3,5
A19	Miliary tuberculosis (A19)	3 259	11,0
<b>Drug-resistant tuberculosis</b>			
U51	Multi-drug resistant tuberculosis (U51)	1 007	3,4
U52	Extensively drug-resistant tuberculosis (U52)	114	0,4
<b>Total</b>		<b>29 513</b>	<b>100,0</b>
<b>Human immunodeficiency virus [HIV] disease (B20-B24)</b>			
B20	Human immunodeficiency virus [HIV] disease resulting in infectious and parasitic diseases (B20)	13 956	63,9
B21	Human immunodeficiency virus [HIV] disease resulting in malignant neoplasms (B21)	953	4,4
B22	Human immunodeficiency virus [HIV] disease resulting in other specified diseases (B22)	1 107	5,1
B23	Human immunodeficiency virus [HIV] disease resulting in other conditions (B23)	3 623	16,6
B24	Unspecified human immunodeficiency virus [HIV] disease (B24)	2 191	10,0
<b>Total</b>		<b>21 830</b>	<b>100,0</b>
<b>Other viral diseases (B25-B34)</b>			
B25	Cytomegaloviral disease (B25)	28	0,2
B26	Mumps (B26)	2	0,0
B27	Infectious mononucleosis (B27)	1	0,0
B30	Viral conjunctivitis (B30)	2	0,0
B33	Other viral diseases, not elsewhere classified (B33)	16 438	99,2
B34	Viral infection of unspecified site (B34)	106	0,6
<b>Total</b>		<b>16 577</b>	<b>100,0</b>
<b>Diabetes mellitus (E10-E14)</b>			
E10	Insulin-dependent diabetes mellitus (E10)	219	0,9
E11	Non-insulin-dependent diabetes mellitus (E11)	1 979	7,8
E12	Malnutrition-related diabetes mellitus (E12)	8	0,0
E13	Other specified diabetes mellitus (E13)	1	0,0
E14	Unspecified diabetes mellitus (E14)	23 048	91,3
<b>Total</b>		<b>25 255</b>	<b>100,0</b>

**Appendix L: Detailed description of the broad-based groups of natural causes of death which were among the ten leading causes, 2016 (continued)**

Causes of death (based on ICD-10: Version 2010)		Number	Percentage
	<b>Hypertensive disease (I10-I15)</b>		
I10	Essential (primary) hypertension (I10)	10 028	50,2
I11	Hypertensive heart disease (I11)	7 276	36,5
I12	Hypertensive renal disease (I12)	2 134	10,7
I13	Hypertensive heart and renal disease (I13)	522	2,6
	<b>Total</b>	<b>19 960</b>	<b>100,0</b>
	<b>Ischaemic heart diseases (I20-I25)</b>		
I20	Angina pectoris (I20)	91	0,7
I21	Acute myocardial infarction (I21)	9 958	77,3
I25	Chronic ischaemic heart disease (I25)	2 834	22,0
	<b>Total</b>	<b>12 883</b>	<b>100</b>
	<b>Other forms of heart disease (I30-I52)</b>		
I30	Acute pericarditis (I30)	10	0,0
I31	Other diseases of pericardium (I31)	107	0,5
I33	Acute and subacute endocarditis (I33)	72	0,3
I34	Nonrheumatic mitral valve disorders (I34)	99	0,4
I35	Nonrheumatic aortic valve disorders (I35)	255	1,1
I36	Nonrheumatic tricuspid valve disorders (I36)	6	0,0
I37	Pulmonary valve disorders (I37)	4	0,0
I38	Endocarditis, valve unspecified (I38)	187	0,8
I40	Acute myocarditis (I40)	24	0,1
I42	Cardiomyopathy (I42)	2 976	12,7
I44	Atrioventricular and left bundle-branch block (I44)	37	0,2
I45	Other conduction disorders (I45)	45	0,2
I46	Cardiac arrest (I46)	6 207	26,4
I47	Paroxysmal tachycardia (I47)	34	0,1
I48	Atrial fibrillation and flutter (I48)	468	2,0
I49	Other cardiac arrhythmias (I49)	259	1,1
I50	Heart failure (I50)	11 711	49,8
I51	Complications and ill-defined descriptions of heart disease (I51)	1 014	4,3
	<b>Total</b>	<b>23 515</b>	<b>100,0</b>
	<b>Cerebrovascular disease (I60-I69)</b>		
I60	Subarachnoid haemorrhage (I60)	524	2,3
I61	Intracerebral haemorrhage (I61)	1 725	7,5
I62	Other nontraumatic intracranial haemorrhage (I62)	899	3,9
I63	Cerebral infarction (I63)	594	2,6
I64	Stroke, not specified as haemorrhage or infection (I64)	18 332	79,2
I67	Other cerebrovascular diseases (I67)	614	2,7
I69	Sequelae of cerebrovascular disease (I69)	449	1,9
	<b>Total</b>	<b>23 137</b>	<b>100,0</b>

**Appendix L: Detailed description of the broad-based groups of natural causes of death which were among the ten leading causes, 2016 (concluded)**

Causes of death (based on ICD-10: Version 2010)		Number	Percentage
<b>Chronic lower respiratory diseases (J40-J47)</b>			
J40	Bronchitis, not specified as acute or chronic (J40)	267	2,1
J42	Unspecified chronic bronchitis (J42)	283	2,2
J43	Emphysema (J43)	782	6,2
J44	Other chronic obstructive pulmonary disease (J44)	7596	60,0
J45	Asthma (J45)	2838	22,4
J46	Status asthmaticus (J46)	715	5,6
J47	Bronchiectasis (J47)	178	1,4
	<b>Total</b>	<b>12659</b>	<b>100,0</b>
<b>Influenza and pneumonia (J09-J18)</b>			
J09	Influenza due to certain identified influenza virus (J09)	5	0,0
J10	Influenza due to other identified influenza virus (J10)	5	0,0
J11	Influenza, virus not identified (J11)	389	2,0
J12	Viral pneumonia, not elsewhere classified (J12)	17	0,1
J13	Pneumonia due to Streptococcus pneumoniae (J13)	4	0,0
J15	Bacterial pneumonia, not elsewhere classified (J15)	106	0,5
J18	Pneumonia, organism unspecified (J18)	19112	97,3
	<b>Total</b>	<b>19638</b>	<b>100,0</b>

## Appendix M: The ten leading underlying natural causes of death by age and sex: South Africa, 2016

South Africa, all ages			South Africa, males, all ages			South Africa, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	29 513	6,5	1	Tuberculosis (A15-A19)*	18 153	7,6	1	Diabetes mellitus (E10-E14)	15 466	7,2
2	Diabetes mellitus (E10-E14)	25 184	5,5	2	Other forms of heart disease (I30-I52)	10 990	4,6	2	Cerebrovascular diseases (I60-I69)	13 396	6,2
3	Other forms of heart disease (I30-I52)	23 515	5,1	3	Human immunodeficiency virus [HIV] disease (B20-B24)	10 989	4,6	3	Other forms of heart disease (I30-I52)	12 485	5,8
4	Cerebrovascular diseases (I60-I69)	23 137	5,1	4	Influenza and pneumonia (J09-J18)	10 160	4,2	4	Hypertensive diseases (I10-I15)	12 445	5,8
5	Human immunodeficiency virus [HIV] disease (B20-B24)	21 766	4,8	5	Cerebrovascular diseases (I60-I69)	9 704	4,0	5	Tuberculosis (A15-A19)*	11 246	5,2
6	Hypertensive diseases (I10-I15)	20 095	4,4	6	Diabetes mellitus (E10-E14)	9 692	4,0	6	Human immunodeficiency virus [HIV] disease (B20-B24)	10 693	5,0
7	Influenza and pneumonia (J09-J18)	19 638	4,3	7	Other viral diseases (B25-B34)	8 122	3,4	7	Influenza and pneumonia (J09-J18)	9 409	4,4
8	Other viral diseases (B25-B34)	16 577	3,6	8	Chronic lower respiratory diseases (J40-J47)	7 805	3,3	8	Other viral diseases (B25-B34)	8 379	3,9
9	Ischaemic heart diseases (I20-I25)	12 883	2,8	9	Hypertensive diseases (I10-I15)	7 630	3,2	9	Ischaemic heart diseases (I20-I25)	5 464	2,5
10	Chronic lower respiratory diseases (J40-J47)	12 659	2,8	10	Ischaemic heart diseases (I20-I25)	7 404	3,1	10	Malignant neoplasms of female genital organs (C51-C58)	5 413	2,5
	Other natural causes	200 403	43,9		Other natural causes	99 834	41,6		Other natural causes	99 169	46,1
	Non-natural causes	51 242	11,2		Non-natural causes	39 518	16,5		Non-natural causes	11 423	5,3
	<b>All causes</b>	<b>456 612</b>	<b>100,0</b>		<b>All causes</b>	<b>240 001</b>	<b>100,0</b>		<b>All causes</b>	<b>214 988</b>	<b>100,0</b>
South Africa, 0			South Africa, males, 0			South Africa, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	3 065	14,8	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1 676	15,3	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	1 296	14,0
2	Influenza and pneumonia (J09-J18)	1 716	8,3	2	Influenza and pneumonia (J09-J18)	928	8,5	2	Influenza and pneumonia (J09-J18)	776	8,4
3	Intestinal infectious diseases (A00-A09)	1 376	6,7	3	Intestinal infectious diseases (A00-A09)	705	6,4	3	Intestinal infectious diseases (A00-A09)	652	7,0
4	Other disorders originating in the perinatal period (P90-P96)	1 224	5,9	4	Other disorders originating in the perinatal period (P90-P96)	653	6,0	4	Other disorders originating in the perinatal period (P90-P96)	519	5,6
5	Disorders related to length of gestation and fetal growth (P05-P08)	1 113	5,4	5	Infections specific to the perinatal period (P35-P39)	579	5,3	5	Disorders related to length of gestation and fetal growth (P05-P08)	515	5,5
6	Infections specific to the perinatal period (P35-P39)	1 094	5,3	6	Disorders related to length of gestation and fetal growth (P05-P08)	562	5,1	6	Infections specific to the perinatal period (P35-P39)	498	5,4
7	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	997	4,8	7	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	545	5,0	7	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	422	4,5
8	Malnutrition (E40-E46)	664	3,2	8	Malnutrition (E40-E46)	330	3,0	8	Malnutrition (E40-E46)	324	3,5
9	Congenital malformations of the circulatory system (Q20-Q28)	586	2,8	9	Congenital malformations of the circulatory system (Q20-Q28)	325	3,0	9	Congenital malformations of the circulatory system (Q20-Q28)	254	2,7
10	Other bacterial diseases (A30-A49)	377	1,8	10	Other bacterial diseases (A30-A49)	213	1,9	10	Other bacterial diseases (A30-A49)	160	1,7
	Other natural causes	7 594	36,8		Other natural causes	4 016	36,6		Other natural causes	3 473	37,4
	Non-natural causes	843	4,1		Non-natural causes	431	3,9		Non-natural causes	395	4,3
	<b>All causes</b>	<b>20 649</b>	<b>100,0</b>		<b>All causes</b>	<b>10 963</b>	<b>100,0</b>		<b>All causes</b>	<b>9 284</b>	<b>100,0</b>
South Africa, 1-14			South Africa, males, 1-14			South Africa, females, 1-14					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	942	7,2	1	Influenza and pneumonia (J09-J18)	497	7,0	1	Influenza and pneumonia (J09-J18)	440	7,5
2	Intestinal infectious diseases (A00-A09)	866	6,6	2	Intestinal infectious diseases (A00-A09)	447	6,3	2	Intestinal infectious diseases (A00-A09)	413	7,0
3	Malnutrition (E40-E46)	481	3,7	3	Tuberculosis (A15-A19)*	255	3,6	3	Malnutrition (E40-E46)	234	4,0
4	Tuberculosis (A15-A19)*	450	3,4	4	Malnutrition (E40-E46)	243	3,4	4	Tuberculosis (A15-A19)*	195	3,3
5	Other forms of heart disease (I30-I52)	345	2,6	5	Other forms of heart disease (I30-I52)	168	2,4	5	Other forms of heart disease (I30-I52)	176	3,0
6	Human immunodeficiency virus [HIV] disease (B20-B24)	324	2,5	6	Cerebral palsy and other paralytic syndromes (G80-G83)	165	2,3	6	Human immunodeficiency virus [HIV] disease (B20-B24)	163	2,8
7	Other viral diseases (B25-B34)	315	2,4	7	Human immunodeficiency virus [HIV] disease (B20-B24)	160	2,2	7	Other viral diseases (B25-B34)	160	2,7
8	Cerebral palsy and other paralytic syndromes (G80-G83)	303	2,3	8	Other viral diseases (B25-B34)	154	2,2	8	Cerebral palsy and other paralytic syndromes (G80-G83)	138	2,4
9	Inflammatory diseases of the central nervous system (G00-G09)	224	1,7	9	Inflammatory diseases of the central nervous system (G00-G09)	115	1,6	9	Inflammatory diseases of the central nervous system (G00-G09)	109	1,9
10	Metabolic disorders (E70-E90)	213	1,6	10	Metabolic disorders (E70-E90)	107	1,5	10	Metabolic disorders (E70-E90)	106	1,8
	Other natural causes	5 057	38,7		Other natural causes	2 671	37,4		Other natural causes	2 370	40,4
	Non-natural causes	3 536	27,1		Non-natural causes	2 157	30,2		Non-natural causes	1 362	23,2
	<b>All causes</b>	<b>13 056</b>	<b>100,0</b>		<b>All causes</b>	<b>7 139</b>	<b>100,0</b>		<b>All causes</b>	<b>5 866</b>	<b>100,0</b>

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

## Appendix M: The ten leading underlying natural causes of death by age and sex: South Africa, 2016 (concluded)

South Africa, 15–44			South Africa, males, 15–44			South Africa, females, 15–44					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	14 367	11,2	1	Tuberculosis (A15-A19)*	8 047	10,7	1	Human immunodeficiency virus [HIV] disease (B20-B24)	7 095	13,5
2	Human immunodeficiency virus [HIV] disease (B20-B24)	13 569	10,5	2	Human immunodeficiency virus [HIV] disease (B20-B24)	6 417	8,5	2	Tuberculosis (A15-A19)*	6 249	11,9
3	Other viral diseases (B25-B34)	9 782	7,6	3	Other viral diseases (B25-B34)	4 479	5,9	3	Other viral diseases (B25-B34)	5 264	10,0
4	Certain disorders involving the immune mechanism (D80-D89)	5 783	4,5	4	Certain disorders involving the immune mechanism (D80-D89)	2 774	3,7	4	Certain disorders involving the immune mechanism (D80-D89)	2 977	5,7
5	Influenza and pneumonia (J09-J18)	5 011	3,9	5	Influenza and pneumonia (J09-J18)	2 533	3,4	5	Influenza and pneumonia (J09-J18)	2 450	4,7
6	Other forms of heart disease (I30-I52)	3 415	2,7	6	Other forms of heart disease (I30-I52)	1 799	2,4	6	Other forms of heart disease (I30-I52)	1 602	3,0
7	Cerebrovascular diseases (I60-I69)	1 701	1,3	7	Renal failure (N17-N19)	891	1,2	7	Malignant neoplasms of female genital organs (C51-C58)	1 204	2,3
8	Renal failure (N17-N19)	1 602	1,2	8	Cerebrovascular diseases (I60-I69)	874	1,2	8	Cerebrovascular diseases (I60-I69)	816	1,6
9	Intestinal infectious diseases (A00-A09)	1 398	1,1	9	Episodic and paroxysmal disorders (G40-G47)	865	1,1	9	Diabetes mellitus (E10-E14)	728	1,4
10	Diabetes mellitus (E10-E14)	1 357	1,1	10	Inflammatory diseases of the central nervous system (G00-G09)	676	0,9	10	Intestinal infectious diseases (A00-A09)	719	1,4
	Other natural causes	37 682	29,3		Other natural causes	18 609	24,6		Other natural causes	18 151	34,5
	Non-natural causes	33 124	25,7		Non-natural causes	27 580	36,5		Non-natural causes	5 364	10,2
	<b>All causes</b>	<b>128 791</b>	<b>100,0</b>		<b>All causes</b>	<b>75 544</b>	<b>100,0</b>		<b>All causes</b>	<b>52 619</b>	<b>100,0</b>
South Africa, 45–64			South Africa, males, 45–64			South Africa, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	10 471	8,0	1	Tuberculosis (A15-A19)*	7 229	9,5	1	Diabetes mellitus (E10-E14)	5 276	9,7
2	Diabetes mellitus (E10-E14)	9 280	7,1	2	Diabetes mellitus (E10-E14)	3 992	5,2	2	Tuberculosis (A15-A19)*	3 211	5,9
3	Human immunodeficiency virus [HIV] disease (B20-B24)	6 901	5,3	3	Human immunodeficiency virus [HIV] disease (B20-B24)	3 922	5,1	3	Cerebrovascular diseases (I60-I69)	3 170	5,8
4	Other forms of heart disease (I30-I52)	6 708	5,1	4	Other forms of heart disease (I30-I52)	3 826	5,0	4	Human immunodeficiency virus [HIV] disease (B20-B24)	2 961	5,4
5	Cerebrovascular diseases (I60-I69)	6 668	5,1	5	Cerebrovascular diseases (I60-I69)	3 484	4,6	5	Other forms of heart disease (I30-I52)	2 870	5,3
6	Hypertensive diseases (I10-I15)	5 408	4,2	6	Influenza and pneumonia (J09-J18)	3 100	4,1	6	Hypertensive diseases (I10-I15)	2 797	5,2
7	Other viral diseases (B25-B34)	5 375	4,1	7	Chronic lower respiratory diseases (J40-J47)	3 081	4,1	7	Other viral diseases (B25-B34)	2 428	4,5
8	Influenza and pneumonia (J09-J18)	4 947	3,8	8	Other viral diseases (B25-B34)	2 924	3,9	8	Malignant neoplasms of female genital organs (C51-C58)	2 394	4,4
9	Chronic lower respiratory diseases (J40-J47)	4 551	3,5	9	Ischaemic heart diseases (I20-I25)	2 872	3,8	9	Influenza and pneumonia (J09-J18)	1 838	3,4
10	Malignant neoplasms of digestive organs (C15-C26)	4 306	3,3	10	Malignant neoplasms of digestive organs (C15-C26)	2 620	3,5	10	Malignant neoplasms of digestive organs (C15-C26)	1 681	3,1
	Other natural causes	56 897	43,6		Other natural causes	31 977	42,2		Other natural causes	23 618	43,4
	Non-natural causes	9 030	6,9		Non-natural causes	6 818	9,0		Non-natural causes	2 193	4,0
	<b>All causes</b>	<b>130 542</b>	<b>100,0</b>		<b>All causes</b>	<b>75 845</b>	<b>100,0</b>		<b>All causes</b>	<b>54 437</b>	<b>100,0</b>
South Africa, 65+			South Africa, males, 65+			South Africa, females, 65+					
	No.	%		No.	%		No.	%			
1	Cerebrovascular diseases (I60-I69)	14 688	9,0	1	Cerebrovascular diseases (I60-I69)	5 304	7,5	1	Diabetes mellitus (E10-E14)	9 467	10,2
2	Diabetes mellitus (E10-E14)	14 556	8,9	2	Other forms of heart disease (I30-I52)	5 085	7,2	2	Cerebrovascular diseases (I60-I69)	9 373	10,1
3	Hypertensive diseases (I10-I15)	13 574	8,3	3	Diabetes mellitus (E10-E14)	5 079	7,2	3	Hypertensive diseases (I10-I15)	9 069	9,8
4	Other forms of heart disease (I30-I52)	12 836	7,8	4	Hypertensive diseases (I10-I15)	4 497	6,4	4	Other forms of heart disease (I30-I52)	7 742	8,3
5	Ischaemic heart diseases (I20-I25)	7 780	4,8	5	Chronic lower respiratory diseases (J40-J47)	4 098	5,8	5	Influenza and pneumonia (J09-J18)	3 905	4,2
6	Influenza and pneumonia (J09-J18)	7 022	4,3	6	Ischaemic heart diseases (I20-I25)	3 968	5,6	6	Ischaemic heart diseases (I20-I25)	3 805	4,1
7	Chronic lower respiratory diseases (J40-J47)	7 008	4,3	7	Influenza and pneumonia (J09-J18)	3 102	4,4	7	Chronic lower respiratory diseases (J40-J47)	2 900	3,1
8	Malignant neoplasms of digestive organs (C15-C26)	5 182	3,2	8	Malignant neoplasms of digestive organs (C15-C26)	2 666	3,8	8	Malignant neoplasms of digestive organs (C15-C26)	2 511	2,7
9	Tuberculosis (A15-A19)*	4 092	2,5	9	Malignant neoplasms of male genital organs (C60-C63)	2 655	3,8	9	Renal failure (N17-N19)	1 915	2,1
10	Renal failure (N17-N19)	3 571	2,2	10	Tuberculosis (A15-A19)*	2 533	3,6	10	Malignant neoplasms of female genital organs (C51-C58)	1 814	2,0
	Other natural causes	68 556	41,9		Other natural causes	28 991	41,1		Other natural causes	38 172	41,1
	Non-natural causes	4 709	2,9		Non-natural causes	2 532	3,6		Non-natural causes	2 109	2,3
	<b>All causes</b>	<b>163 574</b>	<b>100,0</b>		<b>All causes</b>	<b>70 510</b>	<b>100,0</b>		<b>All causes</b>	<b>92 782</b>	<b>100,0</b>

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

## Appendix M1: The ten leading underlying natural causes of death by age and sex: Western Cape, 2016

Western Cape, all ages			Western Cape, Males, all ages			Western Cape, females, all ages					
	No.	%		No.	%		No.	%			
1	Diabetes mellitus (E10-E14)	3 694	7,7	1	Ischaemic heart diseases (I20-I25)	1 652	6,2	1	Diabetes mellitus (E10-E14)	2 194	10,2
2	Human immunodeficiency virus [HIV] disease (B20-B24)	2 975	6,2	2	Tuberculosis (A15-A19)*	1 549	5,9	2	Human immunodeficiency virus [HIV] disease (B20-B24)	1 511	7,0
3	Ischaemic heart diseases (I20-I25)	2 866	6,0	3	Diabetes mellitus (E10-E14)	1 497	5,7	3	Cerebrovascular diseases (I60-I69)	1 470	6,8
4	Cerebrovascular diseases (I60-I69)	2 682	5,6	4	Human immunodeficiency virus [HIV] disease (B20-B24)	1 448	5,5	4	Ischaemic heart diseases (I20-I25)	1 212	5,6
5	Tuberculosis (A15-A19)*	2 461	5,1	5	Chronic lower respiratory diseases (J40-J47)	1 428	5,4	5	Hypertensive diseases (I10-I15)	1 155	5,3
6	Chronic lower respiratory diseases (J40-J47)	2 373	4,9	6	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	1 405	5,3	6	Malignant neoplasms of digestive organs (C15-C26)	998	4,6
7	Malignant neoplasms of digestive organs (C15-C26)	2 204	4,6	7	Cerebrovascular diseases (I60-I69)	1 211	4,6	7	Chronic lower respiratory diseases (J40-J47)	942	4,4
8	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	2 193	4,6	8	Malignant neoplasms of digestive organs (C15-C26)	1 203	4,5	8	Tuberculosis (A15-A19)*	908	4,2
9	Hypertensive diseases (I10-I15)	1 890	3,9	9	Hypertensive diseases (I10-I15)	733	2,8	9	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	788	3,6
10	Other forms of heart disease (I30-I52)	1 473	3,1	0	Other forms of heart disease (I30-I52)	695	2,6	0	Other forms of heart disease (I30-I52)	777	3,6
	Other natural causes	16 947	35,2		Other natural causes	8 408	31,8		Other natural causes	8 501	39,4
	Non-natural causes	6 383	13,3		Non-natural causes	5 231	19,8		Non-natural causes	1 138	5,3
	<b>All causes</b>	<b>48 141</b>	<b>100,0</b>		<b>All causes</b>	<b>26 460</b>	<b>100,0</b>		<b>All causes</b>	<b>21 594</b>	<b>100,0</b>
Western Cape, 0			Western Cape, Males, 0			Western Cape, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	176	11,1	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	100	11,6	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	75	10,6
2	Disorders related to length of gestation and fetal growth (P05-P08) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	131	8,3	2	Disorders related to length of gestation and fetal growth (P05-P08)	74	8,6	2	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	57	8,0
3	Other disorders originating in the perinatal period (P90-P96)	116	7,3	3	Other disorders originating in the perinatal period (P90-P96) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	66	7,6	3	Disorders related to length of gestation and fetal growth (P05-P08)	55	7,8
4	Influenza and pneumonia (J09-J18)	101	6,4	4	Influenza and pneumonia (J09-J18)	57	6,6	4	Influenza and pneumonia (J09-J18)	43	6,1
5	Congenital malformations of the circulatory system (Q20-Q28)	95	6,0	5	Congenital malformations of the circulatory system (Q20-Q28)	52	6,0	5	Intestinal infectious diseases (A00-A09)	35	4,9
6	Intestinal infectious diseases (A00-A09)	75	4,7	6	Intestinal infectious diseases (A00-A09)	47	5,4	6	Other disorders originating in the perinatal period (P90-P96)	33	4,7
7	Infections specific to the perinatal period (P35-P39)	71	4,5	7	Infections specific to the perinatal period (P35-P39)	35	4,1	7	Infections specific to the perinatal period (P35-P39)	32	4,5
8	Other acute lower respiratory infections (J20-J22)	67	4,2	8	Other acute lower respiratory infections (J20-J22)	35	4,1	8	Congenital malformations of the circulatory system (Q20-Q28)	27	3,8
9	Other diseases of the respiratory system (J95-J99)	50	3,2	9	Other diseases of the respiratory system (J20-J22)	30	3,5	9	Other diseases of the respiratory system (J95-J99)	23	3,2
10	Other natural causes	47	3,0	0	Other diseases of the respiratory system (J95-J99)	24	2,8	0	Other acute lower respiratory infections (J20-J22)	20	2,8
	Other natural causes	622	39,2		Other natural causes	326	37,7		Other natural causes	293	41,3
	Non-natural causes	34	2,1		Non-natural causes	18	2,1		Non-natural causes	16	2,3
	<b>All causes</b>	<b>1 585</b>	<b>100,0</b>		<b>All causes</b>	<b>864</b>	<b>100,0</b>		<b>All causes</b>	<b>709</b>	<b>100,0</b>
Western Cape, 1-14			Western Cape, Males, 1-14			Western Cape, females, 1-14					
	No.	%		No.	%		No.	%			
1	Cerebral palsy and other paralytic syndromes (G80-G83)	41	5,5	1	Cerebral palsy and other paralytic syndromes (G80-G83)	17	3,9	1	Cerebral palsy and other paralytic syndromes (G80-G83)	24	7,9
2	Intestinal infectious diseases (A00-A09)	28	3,8	2	Influenza and pneumonia (J09-J18)	15	3,4	2	Intestinal infectious diseases (A00-A09)	14	4,6
3	Influenza and pneumonia (J09-J18)	27	3,6	3	Intestinal infectious diseases (A00-A09)	14	3,2	3	Other forms of heart disease (I30-I52)	12	4,0
4	Other forms of heart disease (I30-I52)	22	3,0	4	Tuberculosis (A15-A19)*	11	2,5	4	Influenza and pneumonia (J09-J18)	11	3,6
5	Tuberculosis (A15-A19)*	21	2,8	5	Congenital malformations of the circulatory system (Q20-Q28)	11	2,5	5	Tuberculosis (A15-A19)*	10	3,3
6	Human immunodeficiency virus [HIV] disease (B20-B24)	14	1,9	6	Other forms of heart disease (I30-I52)	10	2,3	6	Human immunodeficiency virus [HIV] disease (B20-B24)	8	2,6
7	Congenital malformations of the circulatory system (Q20-Q28)	13	1,7	7	Malignant neoplasms of eye, brain and other parts of central nervous system (C69-C72)	8	1,8	7	Malnutrition (E40-E46)	6	2,0
8	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	12	1,6	8	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	8	1,8	8	Other bacterial diseases (A30-A49)	5	1,7
9	Malnutrition (E40-E46)	12	1,6	9	Human immunodeficiency virus [HIV] disease (B20-B24)	6	1,4	9	Other congenital malformations (Q80-Q89)	5	1,7
10	Malignant neoplasms of eye, brain and other parts of central nervous system (C69-C72)	11	1,5	0	Malignant neoplasms of thyroid and other endocrine glands (C73-C75)	6	1,4	0	Other viral diseases (B25-B34)	4	1,3
	Other natural causes	230	30,9		Other natural causes	117	26,7		Other natural causes	107	35,3
	Non-natural causes	313	42,1		Non-natural causes	216	49,2		Non-natural causes	97	32,0
	<b>All causes</b>	<b>744</b>	<b>100,0</b>		<b>All causes</b>	<b>439</b>	<b>100,0</b>		<b>All causes</b>	<b>303</b>	<b>100,0</b>

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

### Appendix M1: The ten leading underlying natural causes of death by age and sex: Western Cape, 2016 (concluded)

Western Cape, 15–44			Western Cape, Males, 15–44			Western Cape, females, 15–44					
	No.	%		No.	%		No.	%			
1	Human immunodeficiency virus [HIV] disease (B20-B24)	1 946	16,6	1	Human immunodeficiency virus [HIV] disease (B20-B24)	878	11,5	1	Human immunodeficiency virus [HIV] disease (B20-B24)	1 057	26,3
2	Tuberculosis (A15-A19)*	1 133	9,7	2	Tuberculosis (A15-A19)*	654	8,6	2	Tuberculosis (A15-A19)*	477	11,9
3	Other viral diseases (B25-B34)	336	2,9	3	Other viral diseases (B25-B34)	150	2,0	3	Other viral diseases (B25-B34)	185	4,6
4	Other forms of heart disease (I30-I52)	184	1,6	4	Other forms of heart disease (I30-I52)	103	1,3	4	Malignant neoplasms of female genital organs (C51-C58)	96	2,4
5	Certain disorders involving the immune mechanism (D80-D89)	167	1,4	5	Ischaemic heart diseases (I20-I25)	101	1,3	5	Certain disorders involving the immune mechanism (D80-D89)	88	2,2
6	Cerebrovascular diseases (I60-I69)	157	1,3	6	Malignant neoplasms of digestive organs (C15-C26)	80	1,0	6	Diabetes mellitus (E10-E14)	84	2,1
7	Diabetes mellitus (E10-E14)	156	1,3	7	Certain disorders involving the immune mechanism (D80-D89)	79	1,0	7	Cerebrovascular diseases (I60-I69)	84	2,1
8	Malignant neoplasms of digestive organs (C15-C26)	148	1,3	8	Cerebrovascular diseases (I60-I69)	73	1,0	8	Other forms of heart disease (I30-I52)	81	2,0
9	Ischaemic heart diseases (I20-I25)	145	1,2	9	Diabetes mellitus (E10-E14)	72	0,9	9	Malignant neoplasms of breast (C50)	78	1,9
10	Influenza and pneumonia (J09-J18)	113	1,0	10	Chronic lower respiratory diseases (J40-J47)	72	0,9	10	Malignant neoplasms of digestive organs (C15-C26)	66	1,6
	Other natural causes	2 702	23,1		Other natural causes	1 450	19,0		Other natural causes	1 153	28,8
	Non-natural causes	4 494	38,5		Non-natural causes	3 921	51,4		Non-natural causes	560	14,0
	<b>All causes</b>	<b>11 681</b>	<b>100,0</b>		<b>All causes</b>	<b>7 633</b>	<b>100,0</b>		<b>All causes</b>	<b>4 009</b>	<b>100,0</b>
Western Cape, 45–64			Western Cape, Males, 45–64			Western Cape, females, 45–64					
	No.	%		No.	%		No.	%			
1	Diabetes mellitus (E10-E14)	1 386	9,4	1	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	706	8,2	1	Diabetes mellitus (E10-E14)	763	12,4
2	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	1 026	7,0	2	Tuberculosis (A15-A19)*	680	7,9	2	Malignant neoplasms of digestive organs (C15-C26)	386	6,3
3	Chronic lower respiratory diseases (J40-J47)	998	6,8	3	Ischaemic heart diseases (I20-I25)	639	7,5	3	Human immunodeficiency virus [HIV] disease (B20-B24)	376	6,1
4	Tuberculosis (A15-A19)*	992	6,7	4	Chronic lower respiratory diseases (J40-J47)	631	7,4	4	Cerebrovascular diseases (I60-I69)	371	6,0
5	Ischaemic heart diseases (I20-I25)	943	6,4	5	Diabetes mellitus (E10-E14)	621	7,2	5	Chronic lower respiratory diseases (J40-J47)	366	5,9
6	Malignant neoplasms of digestive organs (C15-C26)	941	6,4	6	Malignant neoplasms of digestive organs (C15-C26)	555	6,5	6	Malignant neoplasms of breast (C50)	343	5,6
7	Human immunodeficiency virus [HIV] disease (B20-B24)	895	6,1	7	Human immunodeficiency virus [HIV] disease (B20-B24)	514	6,0	7	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	320	5,2
8	Cerebrovascular diseases (I60-I69)	815	5,5	8	Cerebrovascular diseases (I60-I69)	443	5,2	8	Tuberculosis (A15-A19)*	310	5,0
9	Hypertensive diseases (I10-I15)	506	3,5	9	Hypertensive diseases (I10-I15)	255	3,0	9	Ischaemic heart diseases (I20-I25)	304	4,9
10	Other forms of heart disease (I30-I52)	384	2,6	10	Other forms of heart disease (I30-I52)	224	2,6	10	Malignant neoplasms of female genital organs (C51-C58)	273	4,4
	Other natural causes	4 883	33,1		Other natural causes	2 549	29,8		Other natural causes	2 123	34,5
	Non-natural causes	970	6,6		Non-natural causes	747	8,7		Non-natural causes	223	3,6
	<b>All causes</b>	<b>14 739</b>	<b>100,0</b>		<b>All causes</b>	<b>8 564</b>	<b>100,0</b>		<b>All causes</b>	<b>6 158</b>	<b>100,0</b>
Western Cape, 65+			Western Cape, males, 65+			Western Cape, females, 65+					
	No.	%		No.	%		No.	%			
1	Diabetes mellitus (E10-E14)	2 166	11,1	1	Ischaemic heart diseases (I20-I25)	912	10,2	1	Diabetes mellitus (E10-E14)	1 357	12,9
2	Ischaemic heart diseases (I20-I25)	1 778	9,2	2	Diabetes mellitus (E10-E14)	808	9,0	2	Cerebrovascular diseases (I60-I69)	1 013	9,7
3	Cerebrovascular diseases (I60-I69)	1 703	8,8	3	Chronic lower respiratory diseases (J40-J47)	722	8,1	3	Ischaemic heart diseases (I20-I25)	864	8,3
4	Hypertensive diseases (I10-I15)	1 265	6,6	4	Cerebrovascular diseases (I60-I69)	690	7,7	4	Hypertensive diseases (I10-I15)	848	8,2
5	Chronic lower respiratory diseases (J40-J47)	1 261	6,5	5	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	634	7,1	5	Malignant neoplasms of digestive organs (C15-C26)	545	5,2
6	Malignant neoplasms of digestive organs (C15-C26)	1 114	5,7	6	Malignant neoplasms of digestive organs (C15-C26)	568	6,3	6	Chronic lower respiratory diseases (J40-J47)	538	5,2
7	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	1 081	5,6	7	Malignant neoplasms of male genital organs (C60-C63)	484	5,4	7	Other forms of heart disease (I30-I52)	520	5,0
8	Other forms of heart disease (I30-I52)	878	4,5	8	Hypertensive diseases (I10-I15)	416	4,7	8	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	447	4,3
9	Influenza and pneumonia (J09-J18)	520	2,7	9	Other forms of heart disease (I30-I52)	357	4,0	9	Malignant neoplasms of breast (C50)	351	3,4
10	Malignant neoplasms of male genital organs (C60-C63)	484	2,5	10	Influenza and pneumonia (J09-J18)	216	2,4	10	Influenza and pneumonia (J09-J18)	303	2,9
	Other natural causes	6 570	33,9		Other natural causes	2 824	31,5		Other natural causes	3 387	32,5
	Non-natural causes	572	2,9		Non-natural causes	329	3,7		Non-natural causes	242	2,3
	<b>All causes</b>	<b>19 392</b>	<b>100,0</b>		<b>All causes</b>	<b>8 960</b>	<b>100,0</b>		<b>All causes</b>	<b>10 415</b>	<b>100,0</b>

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

## Appendix M2: The ten leading underlying natural causes of death by age and sex: Eastern Cape, 2016

Eastern Cape, all ages			Eastern Cape, Males, all ages			Eastern Cape, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	5 210	7,9	1	Tuberculosis (A15-A19)*	151	9,2	1	Diabetes mellitus (E10-E14)	2 180	6,9
2	Human immunodeficiency virus [HIV] disease (B20-B24)	3 779	5,7	2	Human immunodeficiency virus [HIV] disease (B20-B24)	789	5,2	2	Tuberculosis (A15-A19)*	2 044	6,5
3	Diabetes mellitus (E10-E14)	3 334	5,0	3	Chronic lower respiratory diseases (J40-J47)	489	4,3	3	Human immunodeficiency virus [HIV] disease (B20-B24)	1 976	6,3
4	Other forms of heart disease (I30-I52)	3 145	4,8	4	Other forms of heart disease (I30-I52)	467	4,3	4	Cerebrovascular diseases (I60-I69)	1 862	5,9
5	Cerebrovascular diseases (I60-I69)	3 128	4,7	5	Cerebrovascular diseases (I60-I69)	261	3,7	5	Hypertensive diseases (I10-I15)	1 819	5,8
6	Hypertensive diseases (I10-I15)	2 849	4,3	6	Diabetes mellitus (E10-E14)	153	3,4	6	Other forms of heart disease (I30-I52)	1 673	5,3
7	Chronic lower respiratory diseases (J40-J47)	2 456	3,7	7	Hypertensive diseases (I10-I15)	030	3,0	7	Other viral diseases (B25-B34)	1 152	3,6
8	Other viral diseases (B25-B34)	2 161	3,3	8	Other viral diseases (B25-B34)	001	2,9	8	Chronic lower respiratory diseases (J40-J47)	964	3,1
9	Influenza and pneumonia (J09-J18)	1 919	2,9	9	Influenza and pneumonia (J09-J18)	961	2,8	9	Influenza and pneumonia (J09-J18)	955	3,0
10	Malignant neoplasms of digestive organs (C15-C26)	1 604	2,4	0	Malignant neoplasms of digestive organs (C15-C26)	857	2,5	0	Malignant neoplasms of digestive organs (C15-C26)	745	2,4
	Other natural causes	28 754	43,5		Other natural causes	128	41,2		Other natural causes	14 537	46,0
	Non-natural causes	7 728	11,7		Non-natural causes	037	17,6		Non-natural causes	1 664	5,3
	<b>All causes</b>	<b>66 067</b>	<b>100,0</b>		<b>All causes</b>	<b>324</b>	<b>100,0</b>		<b>All causes</b>	<b>31 571</b>	<b>100,0</b>
Eastern Cape, 0			Eastern Cape, Males, 0			Eastern Cape, females, 0					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18) Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	208	11,9	1	Influenza and pneumonia (J09-J18) Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	119	12,7	1	Influenza and pneumonia (J09-J18) Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	86	11,2
2	Intestinal infectious diseases (A00-A09)	166	9,5	2	Intestinal infectious diseases (A00-A09)	90	9,6	2	Intestinal infectious diseases (A00-A09)	68	8,9
3	Other disorders originating in the perinatal period (P90-P96)	117	6,7	3	Other disorders originating in the perinatal period (P90-P96)	70	7,5	3	Malnutrition (E40-E46)	45	5,9
4	Malnutrition (E40-E46)	90	5,2	4	Malnutrition (E40-E46)	45	4,8	4	Other disorders originating in the perinatal period (P90-P96)	41	5,4
5	Disorders related to length of gestation and fetal growth (P05-P08) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	84	4,8	5	Disorders related to length of gestation and fetal growth (P05-P08) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	41	4,4	5	Congenital malformations of the circulatory system (Q20-Q28)	40	5,2
6	Infections specific to the perinatal period (P35-P39)	62	3,6	6	Infections specific to the perinatal period (P35-P39)	34	3,6	6	Infections specific to the perinatal period (P35-P39) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	30	3,9
7	Congenital malformations of the circulatory system (Q20-Q28)	56	3,2	7	Other acute lower respiratory infections (J20-J22)	28	3,0	7	Disorders related to length of gestation and fetal growth (P05-P08)	24	3,1
8	Other diseases of the respiratory system (J95-J99)	43	2,5	8	Other bacterial diseases (A30-A49)	14	1,5	8	Other diseases of the respiratory system (J95-J99)	23	3,0
	Other natural causes	27	1,6		Other natural causes	13	1,4		Other natural causes	16	2,1
	Non-natural causes	333	19,1		Non-natural causes	182	19,4		Non-natural causes	142	18,5
	<b>All causes</b>	<b>1 741</b>	<b>100,0</b>		<b>All causes</b>	<b>939</b>	<b>100,0</b>		<b>All causes</b>	<b>766</b>	<b>100,0</b>
Eastern Cape, 1-14			Eastern Cape, Males, 1-14			Eastern Cape, females, 1-14					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	92	5,2	1	Influenza and pneumonia (J09-J18)	49	5,0	1	Influenza and pneumonia (J09-J18)	43	5,5
2	Intestinal infectious diseases (A00-A09)	83	4,7	2	Intestinal infectious diseases (A00-A09)	43	4,4	2	Intestinal infectious diseases (A00-A09)	39	5,0
3	Tuberculosis (A15-A19)*	55	3,1	3	Tuberculosis (A15-A19)*	32	3,2	3	Malnutrition (E40-E46)	27	3,5
4	Malnutrition (E40-E46)	50	2,8	4	Malnutrition (E40-E46)	23	2,3	4	Human immunodeficiency virus [HIV] disease (B20-B24)	26	3,3
5	Human immunodeficiency virus [HIV] disease (B20-B24)	47	2,6	5	Human immunodeficiency virus [HIV] disease (B20-B24)	20	2,0	5	Tuberculosis (A15-A19)*	23	2,9
6	Other forms of heart disease (I30-I52)	35	2,0	6	Cerebral palsy and other paralytic syndromes (G80-G83)	20	2,0	6	Other viral diseases (B25-B34)	18	2,3
7	Cerebral palsy and other paralytic syndromes (G80-G83)	34	1,9	7	Other forms of heart disease (I30-I52)	18	1,8	7	Other forms of heart disease (I30-I52)	16	2,0
8	Other viral diseases (B25-B34)	32	1,8	8	Chronic lower respiratory diseases (J40-J47)	16	1,6	8	Cerebral palsy and other paralytic syndromes (G80-G83)	14	1,8
9	Inflammatory diseases of the central nervous system (G00-G09)	27	1,5	9	Other viral diseases (B25-B34)	14	1,4	9	Inflammatory diseases of the central nervous system (G00-G09)	13	1,7
10	Episodic and paroxysmal disorders (G40-G47)	25	1,4	0	Inflammatory diseases of the central nervous system (G00-G09)	14	1,4	0	Episodic and paroxysmal disorders (G40-G47)	13	1,7
	Other natural causes	767	43,2		Other natural causes	404	41,0		Other natural causes	357	45,7
	Non-natural causes	527	29,7		Non-natural causes	332	33,7		Non-natural causes	192	24,6
	<b>All causes</b>	<b>1 774</b>	<b>100,0</b>		<b>All causes</b>	<b>985</b>	<b>100,0</b>		<b>All causes</b>	<b>781</b>	<b>100,0</b>

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

## Appendix M2: The ten leading underlying natural causes of death by age and sex: Eastern Cape, 2016 (concluded)

Eastern Cape, 15–44			Eastern Cape, Males, 15–44			Eastern Cape, females, 15–44					
	No.	%		No.	%		No.	%			
1	Human immunodeficiency virus [HIV] disease (B20-B24)	2 468	13,3	1	Tuberculosis (A15-A19)*	1 189	10,9	1	Human immunodeficiency virus [HIV] disease (B20-B24)	1 361	17,9
2	Tuberculosis (A15-A19)*	2 146	11,5	2	Human immunodeficiency virus [HIV] disease (B20-B24)	1 097	10,0	2	Tuberculosis (A15-A19)*	950	12,5
3	Other viral diseases (B25-B34)	1 348	7,2	3	Other viral diseases (B25-B34)	565	5,2	3	Other viral diseases (B25-B34)	779	10,2
4	Certain disorders involving the immune mechanism (D80-D89)	732	3,9	4	Certain disorders involving the immune mechanism (D80-D89)	367	3,4	4	Certain disorders involving the immune mechanism (D80-D89)	364	4,8
5	Other forms of heart disease (I30-I52)	419	2,3	5	Other forms of heart disease (I30-I52)	213	2,0	5	Other forms of heart disease (I30-I52)	204	2,7
6	Influenza and pneumonia (J09-J18)	373	2,0	6	Influenza and pneumonia (J09-J18)	191	1,8	6	Influenza and pneumonia (J09-J18)	182	2,4
7	Episodic and paroxysmal disorders (G40-G47)	273	1,5	7	Episodic and paroxysmal disorders (G40-G47)	182	1,7	7	Malignant neoplasms of female genital organs (C51-C58)	109	1,4
8	Chronic lower respiratory diseases (J40-J47)	203	1,1	8	Chronic lower respiratory diseases (J40-J47)	113	1,0	8	Diabetes mellitus (E10-E14)	106	1,4
9	Cerebrovascular diseases (I60-I69)	187	1,0	9	Cerebrovascular diseases (I60-I69)	91	0,8	9	Cerebrovascular diseases (I60-I69)	96	1,3
10	Diabetes mellitus (E10-E14)	165	0,9	10	Malignant neoplasms of digestive organs (C15-C26)	87	0,8	10	Chronic lower respiratory diseases (J40-J47)	90	1,2
	Other natural causes	5 306	28,5		Other natural causes	2 601	23,8		Other natural causes	2 636	34,6
	Non-natural causes	4 978	26,8		Non-natural causes	4 218	38,6		Non-natural causes	743	9,8
	<b>All causes</b>	<b>18 598</b>	<b>100,0</b>		<b>All causes</b>	<b>10 914</b>	<b>100,0</b>		<b>All causes</b>	<b>7 620</b>	<b>100,0</b>
Eastern Cape, 45–64			Eastern Cape, Males, 45–64			Eastern Cape, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	1 814	9,6	1	Tuberculosis (A15-A19)*	1 254	11,5	1	Diabetes mellitus (E10-E14)	808	10,2
2	Diabetes mellitus (E10-E14)	1 306	6,9	2	Human immunodeficiency virus [HIV] disease (B20-B24)	595	5,4	2	Tuberculosis (A15-A19)*	552	7,0
3	Human immunodeficiency virus [HIV] disease (B20-B24)	1 120	5,9	3	Chronic lower respiratory diseases (J40-J47)	590	5,4	3	Human immunodeficiency virus [HIV] disease (B20-B24)	523	6,5
4	Cerebrovascular diseases (I60-I69)	964	5,1	4	Other forms of heart disease (I30-I52)	538	4,9	4	Cerebrovascular diseases (I60-I69)	510	6,5
5	Other forms of heart disease (I30-I52)	913	4,8	5	Diabetes mellitus (E10-E14)	498	4,5	5	Hypertensive diseases (I10-I15)	434	5,6
6	Chronic lower respiratory diseases (J40-J47)	853	4,5	6	Cerebrovascular diseases (I60-I69)	452	4,1	6	Other forms of heart disease (I30-I52)	374	4,7
7	Hypertensive diseases (I10-I15)	778	4,2	7	Malignant neoplasms of digestive organs (C15-C26)	359	3,3	7	Other viral diseases (B25-B34)	294	3,7
8	Other viral diseases (B25-B34)	648	3,4	8	Other viral diseases (B25-B34)	350	3,2	8	Chronic lower respiratory diseases (J40-J47)	261	3,3
9	Malignant neoplasms of digestive organs (C15-C26)	613	3,2	9	Hypertensive diseases (I10-I15)	344	3,2	9	Malignant neoplasms of digestive organs (C15-C26)	254	3,2
10	Influenza and pneumonia (J09-J18)	436	2,3	10	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	291	2,7	10	Malignant neoplasms of female genital organs (C51-C58)	234	3,0
	Other natural causes	8 019	42,5		Other natural causes	4 602	42,1		Other natural causes	3 308	41,9
	Non-natural causes	1 424	7,5		Non-natural causes	1 070	9,8		Non-natural causes	351	4,4
	<b>All causes</b>	<b>18 888</b>	<b>100,0</b>		<b>All causes</b>	<b>10 943</b>	<b>100,0</b>		<b>All causes</b>	<b>7 903</b>	<b>100,0</b>
Eastern Cape, 65+			Eastern Cape, Males, 65+			Eastern Cape, females, 65+					
	No.	%		No.	%		No.	%			
1	Cerebrovascular diseases (I60-I69)	1 973	7,9	1	Chronic lower respiratory diseases (J40-J47)	762	7,2	1	Hypertensive diseases (I10-I15)	1 291	8,9
2	Hypertensive diseases (I10-I15)	1 900	7,6	2	Cerebrovascular diseases (I60-I69)	716	6,8	2	Diabetes mellitus (E10-E14)	1 270	8,7
3	Diabetes mellitus (E10-E14)	1 871	7,4	3	Other forms of heart disease (I30-I52)	689	6,5	3	Cerebrovascular diseases (I60-I69)	1 254	8,6
4	Other forms of heart disease (I30-I52)	1 764	7,0	4	Tuberculosis (A15-A19)*	664	6,3	4	Other forms of heart disease (I30-I52)	1 074	7,4
5	Chronic lower respiratory diseases (J40-J47)	1 368	5,5	5	Hypertensive diseases (I10-I15)	609	5,8	5	Chronic lower respiratory diseases (J40-J47)	605	4,2
6	Tuberculosis (A15-A19)*	1 178	4,7	6	Diabetes mellitus (E10-E14)	600	5,7	6	Tuberculosis (A15-A19)*	514	3,5
7	Malignant neoplasms of digestive organs (C15-C26)	873	3,5	7	Malignant neoplasms of digestive organs (C15-C26)	411	3,9	7	Influenza and pneumonia (J09-J18)	473	3,3
8	Influenza and pneumonia (J09-J18)	810	3,2	8	Malignant neoplasms of male genital organs (C60-C63)	359	3,4	8	Malignant neoplasms of digestive organs (C15-C26)	460	3,2
9	Ischaemic heart diseases (I20-I25)	655	2,6	9	Influenza and pneumonia (J09-J18)	337	3,2	9	Ischaemic heart diseases (I20-I25)	352	2,4
10	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	388	1,5	10	Ischaemic heart diseases (I20-I25)	303	2,9	10	Malignant neoplasms of female genital organs (C51-C58)	204	1,4
	Other natural causes	11 610	46,3		Other natural causes	4 736	44,9		Other natural causes	6 687	46,1
	Non-natural causes	676	2,7		Non-natural causes	357	3,4		Non-natural causes	317	2,2
	<b>All causes</b>	<b>25 066</b>	<b>100,0</b>		<b>All causes</b>	<b>10 543</b>	<b>100,0</b>		<b>All causes</b>	<b>14 501</b>	<b>100,0</b>

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

## Appendix M3: The ten leading underlying natural causes of death by age and sex: Northern Cape, 2016

Northern Cape, all ages			Northern Cape, Males, all ages			Northern Cape, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	937	6,8	1	Tuberculosis (A15-A19)*	587	8,0	1	Hypertensive diseases (I10-I15)	482	7,5
2	Human immunodeficiency virus [HIV] disease (B20-B24)	848	6,1	2	Human immunodeficiency virus [HIV] disease (B20-B24)	426	5,8	2	Human immunodeficiency virus [HIV] disease (B20-B24)	422	6,5
3	Other forms of heart disease (I30-I52)	762	5,5	3	Other forms of heart disease (I30-I52)	376	5,1	3	Cerebrovascular diseases (I60-I69)	416	6,4
4	Hypertensive diseases (I10-I15)	761	5,5	4	Chronic lower respiratory diseases (J40-J47)	356	4,8	4	Diabetes mellitus (E10-E14)	412	6,4
5	Cerebrovascular diseases (I60-I69)	718	5,2	5	Influenza and pneumonia (J09-J18)	315	4,3	5	Other forms of heart disease (I30-I52)	386	6,0
6	Diabetes mellitus (E10-E14)	642	4,6	6	Cerebrovascular diseases (I60-I69)	302	4,1	6	Tuberculosis (A15-A19)*	347	5,4
7	Chronic lower respiratory diseases (J40-J47)	601	4,3	7	Hypertensive diseases (I10-I15)	279	3,8	7	Influenza and pneumonia (J09-J18)	254	3,9
8	Influenza and pneumonia (J09-J18)	570	4,1	8	Ischaemic heart diseases (I20-I25)	265	3,6	8	Chronic lower respiratory diseases (J40-J47)	243	3,8
9	Ischaemic heart diseases (I20-I25)	489	3,5	9	Certain disorders involving the immune mechanism (D80-D89)	256	3,5	9	Certain disorders involving the immune mechanism (D80-D89)	228	3,5
1				1				1			
0	Certain disorders involving the immune mechanism (D80-D89)	485	3,5	0	Diabetes mellitus (E10-E14)	230	3,1	0	Ischaemic heart diseases (I20-I25)	224	3,5
	Other natural causes	5 599	40,4		Other natural causes	2 923	39,6		Other natural causes	664	41,2
	Non-natural causes	1 456	10,5		Non-natural causes	1 064	14,4		Non-natural causes	390	6,0
	<b>All causes</b>	<b>13 868</b>	<b>100,0</b>		<b>All causes</b>	<b>7 379</b>	<b>100,0</b>		<b>All causes</b>	<b>468</b>	<b>100,0</b>
Northern Cape, 0			Northern Cape, Males, 0			Northern Cape, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	101	12,3	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	63	14,5	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	35	9,3
2	Disorders related to length of gestation and fetal growth (P05-P08)	69	8,4	2	Disorders related to length of gestation and fetal growth (P05-P08)	39	9,0	2	Influenza and pneumonia (J09-J18)	33	8,8
3	Influenza and pneumonia (J09-J18)	67	8,2	3	Other disorders originating in the perinatal period (P90-P96)	37	8,5	3	Disorders related to length of gestation and fetal growth (P05-P08)	28	7,4
4	Intestinal infectious diseases (A00-A09)	61	7,4	4	Intestinal infectious diseases (A00-A09)	34	7,9	4	Intestinal infectious diseases (A00-A09)	26	6,9
5	Other disorders originating in the perinatal period (P90-P96)	55	6,7	5	Influenza and pneumonia (J09-J18)	34	7,9	5	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	20	5,3
6	Malnutrition (E40-E46)	42	5,1	6	Malnutrition (E40-E46)	24	5,5	6	Malnutrition (E40-E46)	18	4,8
7	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	33	4,0	7	Infections specific to the perinatal period (P35-P39)	15	3,5	7	Other disorders originating in the perinatal period (P90-P96)	17	4,5
8	Infections specific to the perinatal period (P35-P39)	29	3,5	8	Congenital malformations of the circulatory system (Q20-Q28)	15	3,5	8	Infections specific to the perinatal period (P35-P39)	14	3,7
9	Metabolic disorders (E70-E90)	24	2,9	9	Metabolic disorders (E70-E90)	12	2,8	9	Metabolic disorders (E70-E90)	12	3,2
1				1				1			
0	Congenital malformations of the circulatory system (Q20-Q28)	23	2,8	0	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	12	2,8	0	Other forms of heart disease (I30-I52)	11	2,9
	Other natural causes	281	34,2		Other natural causes	133	30,7		Other natural causes	142	37,7
	Non-natural causes	36	4,4		Non-natural causes	15	3,5		Non-natural causes	21	5,6
	<b>All causes</b>	<b>821</b>	<b>100,0</b>		<b>All causes</b>	<b>433</b>	<b>100,0</b>		<b>All causes</b>	<b>377</b>	<b>100,0</b>
Northern Cape, 1-14			Northern Cape, Males, 1-14			Northern Cape, females, 1-14					
	No.	%		No.	%		No.	%			
1	Malnutrition (E40-E46)	47	11,8	1	Malnutrition (E40-E46)	23	11,0	1	Malnutrition (E40-E46)	24	12,7
2	Intestinal infectious diseases (A00-A09)	31	7,8	2	Influenza and pneumonia (J09-J18)	15	7,2	2	Intestinal infectious diseases (A00-A09)	17	9,0
3	Other forms of heart disease (I30-I52)	22	5,5	3	Intestinal infectious diseases (A00-A09)	14	6,7	3	Other forms of heart disease (I30-I52)	10	5,3
4	Influenza and pneumonia (J09-J18)	22	5,5	4	Other forms of heart disease (I30-I52)	12	5,7	4	Cerebral palsy and other paralytic syndromes (G80-G83)	8	4,2
5	Cerebral palsy and other paralytic syndromes (G80-G83)	16	4,0	5	Tuberculosis (A15-A19)*	8	3,8	5	Tuberculosis (A15-A19)*	7	3,7
6	Tuberculosis (A15-A19)*	15	3,8	6	Cerebral palsy and other paralytic syndromes (G80-G83)	8	3,8	6	Human immunodeficiency virus [HIV] disease (B20-B24)	7	3,7
7	Human immunodeficiency virus [HIV] disease (B20-B24)	12	3,0	7	Human immunodeficiency virus [HIV] disease (B20-B24)	5	2,4	7	Influenza and pneumonia (J09-J18)	7	3,7
8	Other viral diseases (B25-B34)	11	2,8	8	Other viral diseases (B25-B34)	5	2,4	8	Other viral diseases (B25-B34)	6	3,2
9	Certain disorders involving the immune mechanism (D80-D89)	10	2,5	9	Certain disorders involving the immune mechanism (D80-D89)	5	2,4	9	Certain disorders involving the immune mechanism (D80-D89)	5	2,6
1				1				1			
0	Metabolic disorders (E70-E90)	8	2,0	0	Metabolic disorders (E70-E90)	4	1,9	0	Metabolic disorders (E70-E90)	4	2,1
	Other natural causes	94	23,6		Other natural causes	46	22,0		Other natural causes	48	25,4
	Non-natural causes	111	27,8		Non-natural causes	64	30,6		Non-natural causes	46	24,3
	<b>All causes</b>	<b>399</b>	<b>100,0</b>		<b>All causes</b>	<b>209</b>	<b>100,0</b>		<b>All causes</b>	<b>189</b>	<b>100,0</b>

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

### Appendix M3: The ten leading underlying natural causes of death by age and sex: Northern Cape, 2016 (concluded)

Northern Cape, 15–44			Northern Cape, Males, 15–44			Northern Cape, females, 15–44					
	No.	%		No.	%		No.	%			
1	Human immunodeficiency virus [HIV] disease (B20-B24)	513	13,9	1	Human immunodeficiency virus [HIV] disease (B20-B24)	240	11,5	1	Human immunodeficiency virus [HIV] disease (B20-B24)	273	17,0
2	Tuberculosis (A15-A19)*	435	11,8	2	Tuberculosis (A15-A19)*	233	11,2	2	Tuberculosis (A15-A19)*	200	12,5
3	Certain disorders involving the immune mechanism (D80-D89)	288	7,8	3	Certain disorders involving the immune mechanism (D80-D89)	138	6,6	3	Certain disorders involving the immune mechanism (D80-D89)	150	9,3
4	Other viral diseases (B25-B34)	240	6,5	4	Other viral diseases (B25-B34)	103	4,9	4	Other viral diseases (B25-B34)	136	8,5
5	Other forms of heart disease (I30-I52)	146	3,9	5	Other forms of heart disease (I30-I52)	80	3,8	5	Other forms of heart disease (I30-I52)	66	4,1
6	Influenza and pneumonia (J09-J18)	115	3,1	6	Influenza and pneumonia (J09-J18)	64	3,1	6	Influenza and pneumonia (J09-J18)	50	3,1
7	Episodic and paroxysmal disorders (G40-G47)	59	1,6	7	Episodic and paroxysmal disorders (G40-G47)	35	1,7	7	Episodic and paroxysmal disorders (G40-G47)	24	1,5
8	Cerebrovascular diseases (I60-I69)	55	1,5	8	Cerebrovascular diseases (I60-I69)	31	1,5	8	Cerebrovascular diseases (I60-I69)	24	1,5
9	Diabetes mellitus (E10-E14)	46	1,2	9	Diabetes mellitus (E10-E14)	26	1,2	9	Diseases of liver (K70-K77)	24	1,5
10	Diseases of liver (K70-K77)	44	1,2	10	Diseases of liver (K70-K77)	20	1,0	10	Malignant neoplasms of female genital organs (C51-C58)	22	1,4
	Other natural causes	867	16,2		Other natural causes	408	13,7		Other natural causes	456	19,3
	Non-natural causes	891	31,3		Non-natural causes	709	39,8		Non-natural causes	181	20,4
	<b>All causes</b>	<b>3 699</b>	<b>100,0</b>		<b>All causes</b>	<b>2 087</b>	<b>100,0</b>		<b>All causes</b>	<b>1 606</b>	<b>100,0</b>
Northern Cape, 45–64			Northern Cape, Males, 45–64			Northern Cape, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	379	8,8	1	Tuberculosis (A15-A19)*	269	10,7	1	Diabetes mellitus (E10-E14)	153	8,5
2	Human immunodeficiency virus [HIV] disease (B20-B24)	279	6,4	2	Human immunodeficiency virus [HIV] disease (B20-B24)	156	6,1	2	Human immunodeficiency virus [HIV] disease (B20-B24)	123	6,8
3	Chronic lower respiratory diseases (J40-J47)	259	6,0	3	Chronic lower respiratory diseases (J40-J47)	155	6,1	3	Cerebrovascular diseases (I60-I69)	123	6,8
4	Diabetes mellitus (E10-E14)	242	5,6	4	Ischaemic heart diseases (I20-I25)	113	4,5	4	Hypertensive diseases (I10-I15)	122	6,8
5	Cerebrovascular diseases (I60-I69)	229	5,3	5	Other forms of heart disease (I30-I52)	110	4,4	5	Tuberculosis (A15-A19)*	110	6,1
6	Hypertensive diseases (I10-I15)	217	5,0	6	Cerebrovascular diseases (I60-I69)	106	4,2	6	Chronic lower respiratory diseases (J40-J47)	104	5,8
7	Other forms of heart disease (I30-I52)	206	4,8	7	Influenza and pneumonia (J09-J18)	101	4,0	7	Other forms of heart disease (I30-I52)	96	5,3
8	Ischaemic heart diseases (I20-I25)	171	4,0	8	Certain disorders involving the immune mechanism (D80-D89)	99	3,9	8	Malignant neoplasms of female genital organs (C51-C58)	68	3,8
9	Certain disorders involving the immune mechanism (D80-D89)	164	3,8	9	Hypertensive diseases (I10-I15)	95	3,8	9	Certain disorders involving the immune mechanism (D80-D89)	64	3,6
10	Influenza and pneumonia (J09-J18)	151	3,5	10	Malignant neoplasms of digestive organs (C15-C26)	95	3,8	10	Other viral diseases (B25-B34)	61	3,4
	Other natural causes	1 738	40,2		Other natural causes	1 018	40,3		Other natural causes	693	38,6
	Non-natural causes	285	6,6		Non-natural causes	206	8,2		Non-natural causes	79	4,4
	<b>All causes</b>	<b>4 320</b>	<b>100,0</b>		<b>All causes</b>	<b>2 523</b>	<b>100,0</b>		<b>All causes</b>	<b>1 796</b>	<b>100,0</b>
Northern Cape, 65+			Northern Cape, Males, 65+			Northern Cape, females, 65+					
	No.	%		No.	%		No.	%			
1	Hypertensive diseases (I10-I15)	516	11,2	1	Chronic lower respiratory diseases (J40-J47)	187	8,8	1	Hypertensive diseases (I10-I15)	345	13,8
2	Cerebrovascular diseases (I60-I69)	432	9,3	2	Hypertensive diseases (I10-I15)	171	8,1	2	Cerebrovascular diseases (I60-I69)	268	10,7
3	Other forms of heart disease (I30-I52)	370	8,0	3	Other forms of heart disease (I30-I52)	167	7,9	3	Diabetes mellitus (E10-E14)	237	9,5
4	Diabetes mellitus (E10-E14)	352	7,6	4	Cerebrovascular diseases (I60-I69)	164	7,7	4	Other forms of heart disease (I30-I52)	203	8,1
5	Chronic lower respiratory diseases (J40-J47)	312	6,7	5	Ischaemic heart diseases (I20-I25)	138	6,5	5	Ischaemic heart diseases (I20-I25)	149	6,0
6	Ischaemic heart diseases (I20-I25)	287	6,2	6	Diabetes mellitus (E10-E14)	115	5,4	6	Chronic lower respiratory diseases (J40-J47)	124	5,0
7	Influenza and pneumonia (J09-J18)	215	4,6	7	Malignant neoplasms of male genital organs (C60-C63)	104	4,9	7	Influenza and pneumonia (J09-J18)	114	4,6
8	Malignant neoplasms of digestive organs (C15-C26)	148	3,2	8	Influenza and pneumonia (J09-J18)	101	4,7	8	Malignant neoplasms of digestive organs (C15-C26)	68	2,7
9	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	122	2,6	9	Malignant neoplasms of digestive organs (C15-C26)	80	3,8	9	Malignant neoplasms of female genital organs (C51-C58)	59	2,4
10	Malignant neoplasms of male genital organs (C60-C63)	104	2,2	10	Tuberculosis (A15-A19)*	75	3,5	10	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	49	2,0
	Other natural causes	1 638	35,4		Other natural causes	755	35,5		Other natural causes	821	32,8
	Non-natural causes	133	2,9		Non-natural causes	70	3,3		Non-natural causes	63	2,5
	<b>All causes</b>	<b>4 629</b>	<b>100,0</b>		<b>All causes</b>	<b>2 127</b>	<b>100,0</b>		<b>All causes</b>	<b>2 500</b>	<b>100,0</b>

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

## Appendix M4: The ten leading underlying natural causes of death by age and sex: Free State, 2016

Free State, both sexes, all ages			Free State, Males, all ages			Free State, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	1 995	6,3	1	Tuberculosis (A15-A19)*	1 281	7,6	1	Diabetes mellitus (E10-E14)	1 066	7,1
2	Influenza and pneumonia (J09-J18)	1 992	6,3	2	Influenza and pneumonia (J09-J18)	1 041	6,2	2	Hypertensive diseases (I10-I15)	1 046	7,0
3	Hypertensive diseases (I10-I15)	1 756	5,5	3	Other viral diseases (B25-B34)	816	4,9	3	Cerebrovascular diseases (I60-I69)	1 014	6,8
4	Cerebrovascular diseases (I60-I69)	1 713	5,4	4	Human immunodeficiency virus [HIV] disease (B20-B24)	776	4,6	4	Influenza and pneumonia (J09-J18)	945	6,3
5	Diabetes mellitus (E10-E14)	1 664	5,2	5	Hypertensive diseases (I10-I15)	708	4,2	5	Other forms of heart disease (I30-I52)	885	5,9
6	Other forms of heart disease (I30-I52)	1 583	5,0	6	Other forms of heart disease (I30-I52)	698	4,2	6	Human immunodeficiency virus [HIV] disease (B20-B24)	737	4,9
7	Other viral diseases (B25-B34)	1 558	4,9	7	Cerebrovascular diseases (I60-I69)	698	4,2	7	Other viral diseases (B25-B34)	734	4,9
8	Human immunodeficiency virus [HIV] disease (B20-B24)	1 518	4,8	8	Diabetes mellitus (E10-E14)	597	3,6	8	Tuberculosis (A15-A19)*	708	4,7
9	Certain disorders involving the immune mechanism (D80-D89)	1 001	3,1	9	Certain disorders involving the immune mechanism (D80-D89)	530	3,2	9	Certain disorders involving the immune mechanism (D80-D89)	467	3,1
10	Chronic lower respiratory diseases (J40-J47)	757	2,4	10	Chronic lower respiratory diseases (J40-J47)	504	3,0	10	Malignant neoplasms of female genital organs (C51-C58)	353	2,4
	Other natural causes	13 060	41,1		Other natural causes	6 665	39,8		Other natural causes	6 241	41,8
	Non-natural causes	3 199	10,1		Non-natural causes	2 453	14,6		Non-natural causes	730	4,9
	<b>All causes</b>	<b>31 796</b>	<b>100,0</b>		<b>All causes</b>	<b>16 767</b>	<b>100,0</b>		<b>All causes</b>	<b>14 926</b>	<b>100,0</b>
Free State, both sexes, 0			Free State, Males, 0			Free State, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	255	15,5	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	146	16,8	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	101	13,6
2	Influenza and pneumonia (J09-J18)	176	10,7	2	Influenza and pneumonia (J09-J18)	87	10,0	2	Influenza and pneumonia (J09-J18)	88	11,9
3	Intestinal infectious diseases (A00-A09)	109	6,6	3	Intestinal infectious diseases (A00-A09)	55	6,3	3	Intestinal infectious diseases (A00-A09)	53	7,1
4	Malnutrition (E40-E46)	105	6,4	4	Malnutrition (E40-E46)	54	6,2	4	Malnutrition (E40-E46)	48	6,5
5	Other disorders originating in the perinatal period (P90-P96) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	97	5,9	5	Other disorders originating in the perinatal period (P90-P96) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	51	5,9	5	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	41	5,5
6	Other acute lower respiratory infections (J20-J22)	92	5,6	6	Other acute lower respiratory infections (J20-J22)	49	5,7	6	Other disorders originating in the perinatal period (P90-P96)	41	5,5
7	Infections specific to the perinatal period (P35-P39)	79	4,8	7	Infections specific to the perinatal period (P35-P39)	43	5,0	7	Infections specific to the perinatal period (P35-P39)	34	4,6
8	Disorders related to length of gestation and fetal growth (P05-P08)	64	3,9	8	Disorders related to length of gestation and fetal growth (P05-P08)	32	3,7	8	Disorders related to length of gestation and fetal growth (P05-P08)	30	4,0
9	Other acute lower respiratory infections (J20-J22)	44	2,7	9	Congenital malformations of the circulatory system (Q20-Q28)	22	2,5	9	Other acute lower respiratory infections (J20-J22)	23	3,1
10	Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	43	2,6	10	Other acute lower respiratory infections (J20-J22)	21	2,4	10	Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	23	3,1
	Other natural causes	525	32,0		Other natural causes	281	32,4		Other natural causes	235	31,7
	Non-natural causes	51	3,1		Non-natural causes	26	3,0		Non-natural causes	25	3,4
	<b>All causes</b>	<b>1 640</b>	<b>100,0</b>		<b>All causes</b>	<b>867</b>	<b>100,0</b>		<b>All causes</b>	<b>742</b>	<b>100,0</b>
Free State, both sexes, 1–14			Free State, Males, 1–14			Free State, females, 1–14					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	70	8,1	1	Influenza and pneumonia (J09-J18)	37	7,6	1	Influenza and pneumonia (J09-J18)	33	8,6
2	Intestinal infectious diseases (A00-A09)	50	5,8	2	Tuberculosis (A15-A19)*	24	5,0	2	Intestinal infectious diseases (A00-A09)	27	7,1
3	Malnutrition (E40-E46)	47	5,4	3	Intestinal infectious diseases (A00-A09)	23	4,8	3	Malnutrition (E40-E46)	25	6,5
4	Tuberculosis (A15-A19)*	32	3,7	4	Malnutrition (E40-E46)	21	4,3	4	Human immunodeficiency virus [HIV] disease (B20-B24)	14	3,7
5	Human immunodeficiency virus [HIV] disease (B20-B24)	27	3,1	5	Cerebral palsy and other paralytic syndromes (G80-G83)	14	2,9	5	Certain disorders involving the immune mechanism (D80-D89)	12	3,1
6	Cerebral palsy and other paralytic syndromes (G80-G83)	21	2,4	6	Human immunodeficiency virus [HIV] disease (B20-B24)	13	2,7	6	Other acute lower respiratory infections (J20-J22)	10	2,6
7	Other viral diseases (B25-B34)	20	2,3	7	Episodic and paroxysmal disorders (G40-G47)	12	2,5	7	Other viral diseases (B25-B34)	9	2,4
8	Metabolic disorders (E70-E90)	19	2,2	8	Other viral diseases (B25-B34)	11	2,3	8	Metabolic disorders (E70-E90)	9	2,4
9	Certain disorders involving the immune mechanism (D80-D89)	18	2,1	9	Metabolic disorders (E70-E90)	10	2,1	9	Inflammatory diseases of the central nervous system (G00-G09)	9	2,4
10	Inflammatory diseases of the central nervous system (G00-G09)	18	2,1	10	Other bacterial diseases (A30-A49)	9	1,9	10	Tuberculosis (A15-A19)*	8	2,1
	Other natural causes	290	33,4		Other natural causes	151	31,2		Other natural causes	130	34,0
	Non-natural causes	256	29,5		Non-natural causes	159	32,9		Non-natural causes	96	25,1
	<b>All causes</b>	<b>836</b>	<b>100,0</b>		<b>All causes</b>	<b>484</b>	<b>100,0</b>		<b>All causes</b>	<b>382</b>	<b>100,0</b>

\*Including deaths due to *MDR-TB* and *XDR-TB*.**Appendix M4: The ten leading underlying natural causes of death by age and sex: Free State, 2016 (concluded)**

Free State, both sexes, 15–44			Free State, Males, 15–44			Free State, females, 15–44					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	958	10,9	1	Tuberculosis (A15-A19)*	584	11,3	1	Other viral diseases (B25-B34)	454	12,7
2	Other viral diseases (B25-B34)	898	10,2	2	Other viral diseases (B25-B34)	441	8,6	2	Human immunodeficiency virus [HIV] disease (B20-B24)	445	12,4
3	Human immunodeficiency virus [HIV] disease (B20-B24)	879	10,0	3	Human immunodeficiency virus [HIV] disease (B20-B24)	430	8,3	3	Tuberculosis (A15-A19)*	371	10,3
4	Certain disorders involving the immune mechanism (D80-D89)	569	6,5	4	Certain disorders involving the immune mechanism (D80-D89)	296	5,7	4	Certain disorders involving the immune mechanism (D80-D89)	270	7,5
5	Influenza and pneumonia (J09-J18)	513	5,8	5	Influenza and pneumonia (J09-J18)	267	5,2	5	Influenza and pneumonia (J09-J18)	243	6,8
6	Other forms of heart disease (I30-I52)	200	2,3	6	Other forms of heart disease (I30-I52)	96	1,9	6	Other forms of heart disease (I30-I52)	104	2,9
7	Cerebrovascular diseases (I60-I69)	121	1,4	7	Renal failure (N17-N19)	68	1,3	7	Malignant neoplasms of female genital organs (C51-C58)	71	2,0
8	Renal failure (N17-N19)	107	1,2	8	Diseases of liver (K70-K77)	56	1,1	8	Cerebrovascular diseases (I60-I69)	66	1,8
9	Diseases of liver (K70-K77)	98	1,1	9	Cerebrovascular diseases (I60-I69)	55	1,1	9	Inflammatory diseases of the central nervous system (G00-G09)	46	1,3
10	Diabetes mellitus (E10-E14)	91	1,0	10	Episodic and paroxysmal disorders (G40-G47)	53	1,0	10	Diabetes mellitus (E10-E14)	45	1,3
	Other natural causes	2 347	26,8		Other natural causes	1 176	22,9		Other natural causes	1 120	31,2
	Non-natural causes	1 989	22,7		Non-natural causes	1 627	31,6		Non-natural causes	351	9,8
	<b>All causes</b>	<b>8 770</b>	<b>100,0</b>		<b>All causes</b>	<b>5 149</b>	<b>100,0</b>		<b>All causes</b>	<b>3 586</b>	<b>100,0</b>
Free State, both sexes, 45–64			Free State, Males, 45–64			Free State, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	761	7,7	1	Tuberculosis (A15-A19)*	522	9,1	1	Diabetes mellitus (E10-E14)	394	9,5
2	Diabetes mellitus (E10-E14)	645	6,5	2	Influenza and pneumonia (J09-J18)	369	6,4	2	Hypertensive diseases (I10-I15)	280	6,8
3	Influenza and pneumonia (J09-J18)	584	5,9	3	Other viral diseases (B25-B34)	310	5,4	3	Cerebrovascular diseases (I60-I69)	274	6,6
4	Hypertensive diseases (I10-I15)	553	5,7	4	Human immunodeficiency virus [HIV] disease (B20-B24)	300	5,2	4	Human immunodeficiency virus [HIV] disease (B20-B24)	237	5,7
5	Cerebrovascular diseases (I60-I69)	551	5,6	5	Cerebrovascular diseases (I60-I69)	276	4,8	5	Tuberculosis (A15-A19)*	236	5,7
6	Other viral diseases (B25-B34)	540	5,5	6	Hypertensive diseases (I10-I15)	272	4,8	6	Other viral diseases (B25-B34)	228	5,5
7	Human immunodeficiency virus [HIV] disease (B20-B24)	538	5,4	7	Other forms of heart disease (I30-I52)	270	4,7	7	Influenza and pneumonia (J09-J18)	214	5,2
8	Other forms of heart disease (I30-I52)	468	4,7	8	Diabetes mellitus (E10-E14)	251	4,4	8	Other forms of heart disease (I30-I52)	198	4,8
9	Certain disorders involving the immune mechanism (D80-D89)	347	3,5	9	Chronic lower respiratory diseases (J40-J47)	211	3,7	9	Malignant neoplasms of female genital organs (C51-C58)	164	4,0
10	Chronic lower respiratory diseases (J40-J47)	290	2,9	10	Certain disorders involving the immune mechanism (D80-D89)	195	3,4	10	Certain disorders involving the immune mechanism (D80-D89)	151	3,7
	Other natural causes	3 969	40,2		Other natural causes	2 253	39,4		Other natural causes	1 624	39,4
	Non-natural causes	617	6,3		Non-natural causes	492	8,6		Non-natural causes	124	3,0
	<b>All causes</b>	<b>9 863</b>	<b>100,0</b>		<b>All causes</b>	<b>5 721</b>	<b>100,0</b>		<b>All causes</b>	<b>4 124</b>	<b>100,0</b>
Free State, both sexes, 65+			Free State, Males, 65+			Free State, females, 65+					
	No.	%		No.	%		No.	%			
1	Hypertensive diseases (I10-I15)	1 104	10,4	1	Hypertensive diseases (I10-I15)	381	8,4	1	Hypertensive diseases (I10-I15)	722	11,9
2	Cerebrovascular diseases (I60-I69)	1 036	9,7	2	Cerebrovascular diseases (I60-I69)	364	8,0	2	Cerebrovascular diseases (I60-I69)	672	11,0
3	Diabetes mellitus (E10-E14)	928	8,7	3	Other forms of heart disease (I30-I52)	324	7,1	3	Diabetes mellitus (E10-E14)	629	10,3
4	Other forms of heart disease (I30-I52)	896	8,4	4	Diabetes mellitus (E10-E14)	298	6,6	4	Other forms of heart disease (I30-I52)	572	9,4
5	Influenza and pneumonia (J09-J18)	649	6,1	5	Influenza and pneumonia (J09-J18)	281	6,2	5	Influenza and pneumonia (J09-J18)	367	6,0
6	Ischaemic heart diseases (I20-I25)	449	4,2	6	Chronic lower respiratory diseases (J40-J47)	263	5,8	6	Ischaemic heart diseases (I20-I25)	216	3,5
7	Chronic lower respiratory diseases (J40-J47)	423	4,0	7	Ischaemic heart diseases (I20-I25)	233	5,1	7	Chronic lower respiratory diseases (J40-J47)	159	2,6
8	Malignant neoplasms of digestive organs (C15-C26)	247	2,3	8	Malignant neoplasms of male genital organs (C60-C63)	188	4,1	8	Malignant neoplasms of digestive organs (C15-C26)	120	2,0
9	Tuberculosis (A15-A19)*	236	2,2	9	Tuberculosis (A15-A19)*	145	3,2	9	Malignant neoplasms of female genital organs (C51-C58)	118	1,9
10	Renal failure (N17-N19)	209	2,0	10	Malignant neoplasms of digestive organs (C15-C26)	127	2,8	10	Renal failure (N17-N19)	109	1,8
	Other natural causes	4 192	39,3		Other natural causes	1 793	39,4		Other natural causes	2 274	37,3
	Non-natural causes	286	2,7		Non-natural causes	149	3,3		Non-natural causes	134	2,2
	<b>All causes</b>	<b>10 655</b>	<b>100,0</b>		<b>All causes</b>	<b>4 546</b>	<b>100,0</b>		<b>All causes</b>	<b>6 092</b>	<b>100,0</b>

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

## Appendix M5: The ten leading underlying natural causes of death by age and sex: KwaZulu-Natal, 2016

KwaZulu-Natal, all ages			KwaZulu-Natal, Males, all ages			KwaZulu-Natal, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	6 406	7,6	1	Tuberculosis (A15-A19)*	3 896	8,9	1	Diabetes mellitus (E10-E14)	3 628	8,9
2	Other forms of heart disease (I30-I52)	6 266	7,4	2	Human immunodeficiency virus [HIV] disease (B20-B24)	2 801	6,4	2	Other forms of heart disease (I30-I52)	3 515	8,6
3	Diabetes mellitus (E10-E14)	5 567	6,6	3	Other forms of heart disease (I30-I52)	2 743	6,3	3	Cerebrovascular diseases (I60-I69)	3 133	7,7
4	Human immunodeficiency virus [HIV] disease (B20-B24)	5 285	6,2	4	Cerebrovascular diseases (I60-I69)	1 939	4,4	4	Tuberculosis (A15-A19)*	2 486	6,1
5	Cerebrovascular diseases (I60-I69)	5 076	6,0	5	Diabetes mellitus (E10-E14)	1 933	4,4	5	Human immunodeficiency virus [HIV] disease (B20-B24)	2 471	6,0
6	Hypertensive diseases (I10-I15)	3 241	3,8	6	Other viral diseases (B25-B34)	1 542	3,5	6	Hypertensive diseases (I10-I15)	2 114	5,2
7	Other viral diseases (B25-B34)	3 068	3,6	7	Influenza and pneumonia (J09-J18)	1 444	3,3	7	Other viral diseases (B25-B34)	1 519	3,7
8	Influenza and pneumonia (J09-J18)	2 818	3,3	8	Ischaemic heart diseases (I20-I25)	1 382	3,2	8	Influenza and pneumonia (J09-J18)	1 371	3,4
9	Ischaemic heart diseases (I20-I25)	2 398	2,8	9	Hypertensive diseases (I10-I15)	1 127	2,6	9	Malignant neoplasms of female genital organs (C51-C58)	1 153	2,8
10	Malignant neoplasms of digestive organs (C15-C26)	1 854	2,2	10	Chronic lower respiratory diseases (J40-J47)	1 061	2,4	10	Ischaemic heart diseases (I20-I25)	1 014	2,5
	Other natural causes	32 521	38,4		Other natural causes	15 956	36,5		Other natural causes	16 088	39,4
	Non-natural causes	10 255	12,1		Non-natural causes	7 841	18,0		Non-natural causes	2 373	5,8
	<b>All causes</b>	<b>84 755</b>	<b>100,0</b>		<b>All causes</b>	<b>43 665</b>	<b>100,0</b>		<b>All causes</b>	<b>40 865</b>	<b>100,0</b>
KwaZulu-Natal, 0			KwaZulu-Natal, Males, 0			KwaZulu-Natal, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	491	15,4	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	255	15,4	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	211	14,4
2	Disorders related to length of gestation and fetal growth (P05-P08)	231	7,2	2	Intestinal infectious diseases (A00-A09)	123	7,4	2	Disorders related to length of gestation and fetal growth (P05-P08)	116	7,9
3	Intestinal infectious diseases (A00-A09)	223	7,0	3	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	117	7,0	3	Influenza and pneumonia (J09-J18)	100	6,8
4	Influenza and pneumonia (J09-J18)	212	6,6	4	Influenza and pneumonia (J09-J18)	112	6,7	4	Intestinal infectious diseases (A00-A09)	96	6,6
5	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	205	6,4	5	Disorders related to length of gestation and fetal growth (P05-P08)	110	6,6	5	Infections specific to the perinatal period (P35-P39)	88	6,0
6	Infections specific to the perinatal period (P35-P39)	173	5,4	6	Infections specific to the perinatal period (P35-P39)	82	4,9	6	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	80	5,5
7	Other disorders originating in the perinatal period (P90-P96)	151	4,7	7	Other disorders originating in the perinatal period (P90-P96)	78	4,7	7	Other disorders originating in the perinatal period (P90-P96)	68	4,7
8	Malnutrition (E40-E46)	95	3,0	8	Congenital malformations of the circulatory system (Q20-Q28)	50	3,0	8	Malnutrition (E40-E46)	46	3,1
9	Congenital malformations of the circulatory system (Q20-Q28)	92	2,9	9	Malnutrition (E40-E46)	48	2,9	9	Congenital malformations of the circulatory system (Q20-Q28)	42	2,9
10	Other bacterial diseases (A30-A49)	69	2,2	10	Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	40	2,4	10	Metabolic disorders (E70-E90)	35	2,4
	Other natural causes	745	23,3		Other natural causes	393	23,7		Other natural causes	326	22,3
	Non-natural causes	511	16,0		Non-natural causes	252	15,2		Non-natural causes	254	17,4
	<b>All causes</b>	<b>3 198</b>	<b>100,0</b>		<b>All causes</b>	<b>1 660</b>	<b>100,0</b>		<b>All causes</b>	<b>1 462</b>	<b>100,0</b>
KwaZulu-Natal, 1-14			KwaZulu-Natal, Males, 1-14			KwaZulu-Natal, females, 1-14					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	170	6,8	1	Influenza and pneumonia (J09-J18)	89	6,5	1	Influenza and pneumonia (J09-J18)	81	7,2
2	Intestinal infectious diseases (A00-A09)	147	5,9	2	Intestinal infectious diseases (A00-A09)	86	6,3	2	Intestinal infectious diseases (A00-A09)	60	5,3
3	Other forms of heart disease (I30-I52)	108	4,3	3	Tuberculosis (A15-A19)*	52	3,8	3	Other forms of heart disease (I30-I52)	58	5,1
4	Tuberculosis (A15-A19)*	103	4,1	4	Other forms of heart disease (I30-I52)	50	3,7	4	Tuberculosis (A15-A19)*	51	4,5
5	Human immunodeficiency virus [HIV] disease (B20-B24)	91	3,6	5	Human immunodeficiency virus [HIV] disease (B20-B24)	48	3,5	5	Human immunodeficiency virus [HIV] disease (B20-B24)	43	3,8
6	Cerebral palsy and other paralytic syndromes (G80-G83)	68	2,7	6	Malnutrition (E40-E46)	34	2,5	6	Other viral diseases (B25-B34)	37	3,3
7	Inflammatory diseases of the central nervous system (G00-G09)	65	2,6	7	Cerebral palsy and other paralytic syndromes (G80-G83)	34	2,5	7	Inflammatory diseases of the central nervous system (G00-G09)	34	3,0
8	Other viral diseases (B25-B34)	63	2,5	8	Inflammatory diseases of the central nervous system (G00-G09)	31	2,3	8	Cerebral palsy and other paralytic syndromes (G80-G83)	34	3,0
9	Malnutrition (E40-E46)	62	2,5	9	Other viral diseases (B25-B34)	26	1,9	9	Malnutrition (E40-E46)	27	2,4
10	Episodic and paroxysmal disorders (G40-G47)	39	1,6	10	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	25	1,8	10	Episodic and paroxysmal disorders (G40-G47)	18	1,6
	Other natural causes	857	34,3		Other natural causes	444	32,7		Other natural causes	406	36,0
	Non-natural causes	724	29,0		Non-natural causes	440	32,4		Non-natural causes	279	24,7
	<b>All causes</b>	<b>2 497</b>	<b>100,0</b>		<b>All causes</b>	<b>1 359</b>	<b>100,0</b>		<b>All causes</b>	<b>1 128</b>	<b>100,0</b>

\*Including deaths due to *MDR-TB* and *XDR-TB*.**Appendix M5: The ten leading underlying natural causes of death by age and sex: KwaZulu-Natal, 2016 (concluded)**

KwaZulu-Natal, 15-44			KwaZulu-Natal, Males, 15-44			KwaZulu-Natal, females, 15-44					
	No.	%		No.	%		No.	%			
1	Human immunodeficiency virus [HIV] disease (B20-B24)	3 474	13,3	1	Tuberculosis (A15-A19)*	1 884	12,1	1	Human immunodeficiency virus [HIV] disease (B20-B24)	1 679	16,1
2	Tuberculosis (A15-A19)*	3 400	13,0	2	Human immunodeficiency virus [HIV] disease (B20-B24)	1 789	11,5	2	Tuberculosis (A15-A19)*	1 500	14,4
3	Other viral diseases (B25-B34)	1 958	7,5	3	Other viral diseases (B25-B34)	948	6,1	3	Other viral diseases (B25-B34)	1 006	9,6
4	Other forms of heart disease (I30-I52)	897	3,4	4	Other forms of heart disease (I30-I52)	461	3,0	4	Certain disorders involving the immune mechanism (D80-D89)	437	4,2
5	Certain disorders involving the immune mechanism (D80-D89)	885	3,4	5	Certain disorders involving the immune mechanism (D80-D89)	446	2,9	5	Other forms of heart disease (I30-I52)	434	4,2
6	Influenza and pneumonia (J09-J18)	666	2,6	6	Influenza and pneumonia (J09-J18)	342	2,2	6	Influenza and pneumonia (J09-J18)	324	3,1
7	Cerebrovascular diseases (I60-I69)	363	1,4	7	Renal failure (N17-N19)	204	1,3	7	Malignant neoplasms of female genital organs (C51-C58)	310	3,0
8	Renal failure (N17-N19)	337	1,3	8	Episodic and paroxysmal disorders (G40-G47)	190	1,2	8	Cerebrovascular diseases (I60-I69)	173	1,7
9	Intestinal infectious diseases (A00-A09)	317	1,2	9	Cerebrovascular diseases (I60-I69)	188	1,2	9	Intestinal infectious diseases (A00-A09)	153	1,5
10	Malignant neoplasms of female genital organs (C51-C58)	310	1,2	10	Intestinal infectious diseases (A00-A09)	162	1,0	10	Inflammatory diseases of the central nervous system (G00-G09)	152	1,5
	Other natural causes	6 725	25,8		Other natural causes	3 321	21,4		Other natural causes	3 177	30,4
	Non-natural causes	6 722	25,8		Non-natural causes	5 600	36,0		Non-natural causes	1 104	10,6
	<b>All causes</b>	<b>26 054</b>	<b>100,0</b>		<b>All causes</b>	<b>15 535</b>	<b>100,0</b>		<b>All causes</b>	<b>10 449</b>	<b>100,0</b>
KwaZulu-Natal, 45-64			KwaZulu-Natal, Males, 45-64			KwaZulu-Natal, females, 45-64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	2 035	9,0	1	Tuberculosis (A15-A19)*	1 422	10,9	1	Diabetes mellitus (E10-E14)	1 150	12,0
2	Diabetes mellitus (E10-E14)	1 911	8,4	2	Other forms of heart disease (I30-I52)	961	7,4	2	Other forms of heart disease (I30-I52)	801	8,3
3	Other forms of heart disease (I30-I52)	1 764	7,8	3	Human immunodeficiency virus [HIV] disease (B20-B24)	852	6,5	3	Human immunodeficiency virus [HIV] disease (B20-B24)	651	6,7
4	Human immunodeficiency virus [HIV] disease (B20-B24)	1 507	6,6	4	Diabetes mellitus (E10-E14)	758	5,8	4	Cerebrovascular diseases (I60-I69)	637	6,6
5	Cerebrovascular diseases (I60-I69)	1 325	5,8	5	Cerebrovascular diseases (I60-I69)	687	5,3	5	Tuberculosis (A15-A19)*	611	6,4
6	Other viral diseases (B25-B34)	851	3,8	6	Ischaemic heart diseases (I20-I25)	521	4,0	6	Malignant neoplasms of female genital organs (C51-C58)	476	5,0
7	Hypertensive diseases (I10-I15)	811	3,6	7	Other viral diseases (B25-B34)	462	3,5	7	Hypertensive diseases (I10-I15)	442	4,7
8	Malignant neoplasms of digestive organs (C15-C26)	753	3,3	8	Malignant neoplasms of digestive organs (C15-C26)	450	3,4	8	Other viral diseases (B25-B34)	387	4,0
9	Ischaemic heart diseases (I20-I25)	739	3,3	9	Influenza and pneumonia (J09-J18)	412	3,2	9	Malignant neoplasms of digestive organs (C15-C26)	303	3,2
10	Influenza and pneumonia (J09-J18)	651	2,9	10	Chronic lower respiratory diseases (J40-J47)	400	3,1	10	Influenza and pneumonia (J09-J18)	237	2,5
	Other natural causes	8 639	38,1		Other natural causes	4 884	37,5		Other natural causes	3 454	36,0
	Non-natural causes	1 704	7,5		Non-natural causes	1 253	9,6		Non-natural causes	450	4,7
	<b>All causes</b>	<b>22 690</b>	<b>100,0</b>		<b>All causes</b>	<b>13 062</b>	<b>100,0</b>		<b>All causes</b>	<b>9 599</b>	<b>100,0</b>
KwaZulu-Natal, 65+			KwaZulu-Natal, Males, 65+			KwaZulu-Natal, females, 65+					
	No.	%		No.	%		No.	%			
1	Other forms of heart disease (I30-I52)	3 434	11,3	1	Other forms of heart disease (I30-I52)	1 235	10,2	1	Diabetes mellitus (E10-E14)	2 355	12,9
2	Diabetes mellitus (E10-E14)	3 417	11,3	2	Diabetes mellitus (E10-E14)	1 061	8,8	2	Cerebrovascular diseases (I60-I69)	2 318	12,7
3	Cerebrovascular diseases (I60-I69)	3 375	11,1	3	Cerebrovascular diseases (I60-I69)	1 056	8,8	3	Other forms of heart disease (I30-I52)	2 197	12,1
4	Hypertensive diseases (I10-I15)	2 267	7,5	4	Ischaemic heart diseases (I20-I25)	756	6,3	4	Hypertensive diseases (I10-I15)	1 591	8,7
5	Ischaemic heart diseases (I20-I25)	1 515	5,0	5	Hypertensive diseases (I10-I15)	676	5,7	5	Ischaemic heart diseases (I20-I25)	759	4,2
6	Influenza and pneumonia (J09-J18)	1 119	3,7	6	Chronic lower respiratory diseases (J40-J47)	563	4,7	6	Influenza and pneumonia (J09-J18)	629	3,5
7	Chronic lower respiratory diseases (J40-J47)	916	3,0	7	Tuberculosis (A15-A19)*	523	4,3	7	Renal failure (N17-N19)	437	2,4
8	Malignant neoplasms of digestive organs (C15-C26)	877	2,9	8	Influenza and pneumonia (J09-J18)	489	4,1	8	Malignant neoplasms of digestive organs (C15-C26)	430	2,4
9	Tuberculosis (A15-A19)*	849	2,8	9	Malignant neoplasms of digestive organs (C15-C26)	447	3,7	9	Malignant neoplasms of female genital organs (C51-C58)	367	2,0
10	Renal failure (N17-N19)	771	2,5	10	Renal failure (N17-N19)	333	2,8	10	Chronic lower respiratory diseases (J40-J47)	351	1,9
	Other natural causes	10 838	35,7		Other natural causes	4 441	36,8		Other natural causes	6 336	34,8
	Non-natural causes	938	3,1		Non-natural causes	469	3,9		Non-natural causes	457	2,5
	<b>All causes</b>	<b>30 316</b>	<b>100,0</b>		<b>All causes</b>	<b>12 049</b>	<b>100,0</b>		<b>All causes</b>	<b>18 227</b>	<b>100,0</b>

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

## Appendix M6: The ten leading underlying natural causes of death by age and sex: North West, 2016

North West, all ages			North West, Males, all ages			North West, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	2 615	7,4	1	Tuberculosis (A15-A19)*	1 623	8,7	1	Tuberculosis (A15-A19)*	1 278	7,7
2	Hypertensive diseases (I10-I15)	2 068	5,8	2	Hypertensive diseases (I10-I15)	975	5,2	2	Other forms of heart disease (I30-I52)	1 012	6,1
3	Other forms of heart disease (I30-I52)	1 963	5,5	3	Other forms of heart disease (I30-I52)	939	5,0	3	Influenza and pneumonia (J09-J18)	987	6,0
4	Other viral diseases (B25-B34)	1 775	5,0	4	Other viral diseases (B25-B34)	866	4,6	4	Other viral diseases (B25-B34)	979	5,9
5	Influenza and pneumonia (J09-J18)	1 723	4,9	5	Influenza and pneumonia (J09-J18)	785	4,2	5	Hypertensive diseases (I10-I15)	896	5,4
6	Diabetes mellitus (E10-E14)	1 647	4,7	6	Diabetes mellitus (E10-E14)	728	3,9	6	Cerebrovascular diseases (I60-I69)	803	4,9
7	Cerebrovascular diseases (I60-I69)	1 535	4,3	7	Cerebrovascular diseases (I60-I69)	666	3,5	7	Human immunodeficiency virus [HIV] disease (B20-B24)	772	4,7
8	Human immunodeficiency virus [HIV] disease (B20-B24)	1 204	3,4	8	Human immunodeficiency virus [HIV] disease (B20-B24)	633	3,4	8	Diabetes mellitus (E10-E14)	587	3,6
9	Certain disorders involving the immune mechanism (D80-D89)	1 124	3,2	9	Certain disorders involving the immune mechanism (D80-D89)	601	3,2	9	Chronic lower respiratory diseases (J40-J47)	535	3,2
10	Chronic lower respiratory diseases (J40-J47)	946	2,7	10	Chronic lower respiratory diseases (J40-J47)	534	2,8	10	Certain disorders involving the immune mechanism (D80-D89)	362	2,2
	Other natural causes	15 435	43,6		Other natural causes	7 871	42,0		Other natural causes	7 479	45,3
	Non-natural causes	3 370	9,5		Non-natural causes	2 541	13,5		Non-natural causes	809	4,9
	<b>All causes</b>	<b>35 405</b>	<b>100,0</b>		<b>All causes</b>	<b>18 762</b>	<b>100,0</b>		<b>All causes</b>	<b>16 499</b>	<b>100,0</b>
North West, 0			North West, Males, 0			North West, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	339	15,3	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	177	15,8	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	153	14,4
2	Intestinal infectious diseases (A00-A09)	215	9,7	2	Intestinal infectious diseases (A00-A09)	99	8,8	2	Intestinal infectious diseases (A00-A09)	111	10,5
3	Influenza and pneumonia (J09-J18)	185	8,3	3	Influenza and pneumonia (J09-J18)	88	7,9	3	Influenza and pneumonia (J09-J18)	92	8,7
4	Other disorders originating in the perinatal period (P90-P96)	141	6,3	4	Other disorders originating in the perinatal period (P90-P96)	75	6,7	4	Malnutrition (E40-E46)	66	6,2
5	Malnutrition (E40-E46)	130	5,9	5	Infections specific to the perinatal period (P35-P39)	64	5,7	5	Other disorders originating in the perinatal period (P90-P96)	64	6,0
6	Disorders related to length of gestation and fetal growth (P05-P08)	128	5,8	6	Malnutrition (E40-E46)	62	5,5	6	Disorders related to length of gestation and fetal growth (P05-P08)	58	5,5
7	Infections specific to the perinatal period (P35-P39)	120	5,4	7	Disorders related to length of gestation and fetal growth (P05-P08)	62	5,5	7	Infections specific to the perinatal period (P35-P39)	55	5,2
8	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	88	4,0	8	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	49	4,4	8	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	37	3,5
9	Other bacterial diseases (A30-A49)	53	2,4	9	Other bacterial diseases (A30-A49)	26	2,3	9	Other bacterial diseases (A30-A49)	27	2,5
10	Metabolic disorders (E70-E90)	46	2,1	10	Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	24	2,1	10	Metabolic disorders (E70-E90)	23	2,2
	Other natural causes	709	31,9		Other natural causes	355	31,7		Other natural causes	345	32,5
	Non-natural causes	67	3,0		Non-natural causes	38	3,4		Non-natural causes	29	2,7
	<b>All causes</b>	<b>2 221</b>	<b>100,0</b>		<b>All causes</b>	<b>1 119</b>	<b>100,0</b>		<b>All causes</b>	<b>1 060</b>	<b>100,0</b>
North West, 1-14			North West, Males, 1-14			North West, females, 1-14					
	No.	%		No.	%		No.	%			
1	Intestinal infectious diseases (A00-A09)	122	9,9	1	Intestinal infectious diseases (A00-A09)	65	9,7	1	Intestinal infectious diseases (A00-A09)	56	10,1
2	Influenza and pneumonia (J09-J18)	107	8,7	2	Influenza and pneumonia (J09-J18)	58	8,6	2	Influenza and pneumonia (J09-J18)	48	8,6
3	Malnutrition (E40-E46)	99	8,0	3	Malnutrition (E40-E46)	54	8,0	3	Malnutrition (E40-E46)	44	7,9
4	Tuberculosis (A15-A19)*	66	5,4	4	Tuberculosis (A15-A19)*	32	4,8	4	Tuberculosis (A15-A19)*	34	6,1
5	Other viral diseases (B25-B34)	36	2,9	5	Metabolic disorders (E70-E90)	15	2,2	5	Other viral diseases (B25-B34)	21	3,8
6	Metabolic disorders (E70-E90)	31	2,5	6	Other viral diseases (B25-B34)	14	2,1	6	Metabolic disorders (E70-E90)	16	2,9
7	Other bacterial diseases (A30-A49)	25	2,0	7	Human immunodeficiency virus [HIV] disease (B20-B24)	13	1,9	7	Other bacterial diseases (A30-A49)	14	2,5
8	Cerebral palsy and other paralytic syndromes (G80-G83)	21	1,7	8	Other bacterial diseases (A30-A49)	11	1,6	8	Cerebral palsy and other paralytic syndromes (G80-G83)	11	2,0
9	Human immunodeficiency virus [HIV] disease (B20-B24)	18	1,5	9	Other acute lower respiratory infections (J20-J22)	11	1,6	9	Certain disorders involving the immune mechanism (D80-D89)	10	1,8
10	Other forms of heart disease (I30-I52)	18	1,5	10	Episodic and paroxysmal disorders (G40-G47)	10	1,5	10	Other forms of heart disease (I30-I52)	10	1,8
	Other natural causes	405	32,8		Other natural causes	226	33,6		Other natural causes	171	30,8
	Non-natural causes	285	23,1		Non-natural causes	164	24,4		Non-natural causes	120	21,6
	<b>All causes</b>	<b>1 233</b>	<b>100,0</b>		<b>All causes</b>	<b>673</b>	<b>100,0</b>		<b>All causes</b>	<b>555</b>	<b>100,0</b>

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

## Appendix M6: The ten leading underlying natural causes of death by age and sex: North West, 2016 (concluded)

North West, 15–44			North West, Males, 15–44			North West, females, 15–44					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	1 271	13,1	1	Tuberculosis (A15-A19)*	712	13,1	1	Tuberculosis (A15-A19)*	550	13,0
2	Other viral diseases (B25-B34)	965	9,9	2	Other viral diseases (B25-B34)	450	8,3	2	Other viral diseases (B25-B34)	512	12,1
3	Human immunodeficiency virus [HIV] disease (B20-B24)	646	6,6	3	Human immunodeficiency virus [HIV] disease (B20-B24)	329	6,0	3	Certain disorders involving the immune mechanism (D80-D89)	356	8,4
4	Certain disorders involving the immune mechanism (D80-D89)	632	6,5	4	Certain disorders involving the immune mechanism (D80-D89)	273	5,0	4	Human immunodeficiency virus [HIV] disease (B20-B24)	316	7,5
5	Influenza and pneumonia (J09-J18)	507	5,2	5	Influenza and pneumonia (J09-J18)	255	4,7	5	Influenza and pneumonia (J09-J18)	250	5,9
6	Other forms of heart disease (I30-I52)	283	2,9	6	Other forms of heart disease (I30-I52)	144	2,6	6	Other forms of heart disease (I30-I52)	138	3,3
7	Other bacterial diseases (A30-A49)	132	1,4	7	Episodic and paroxysmal disorders (G40-G47)	65	1,2	7	Malignant neoplasms of female genital organs (C51-C58)	78	1,8
8	Intestinal infectious diseases (A00-A09)	122	1,3	8	Intestinal infectious diseases (A00-A09)	62	1,1	8	Other bacterial diseases (A30-A49)	73	1,7
9	Cerebrovascular diseases (I60-I69)	110	1,1	9	Cerebrovascular diseases (I60-I69)	60	1,1	9	Intestinal infectious diseases (A00-A09)	60	1,4
10	Episodic and paroxysmal disorders (G40-G47)	105	1,1	10	Other bacterial diseases (A30-A49)	58	1,1	10	Diabetes mellitus (E10-E14)	56	1,3
	Other natural causes	2 881	29,7		Other natural causes	1 381	25,4		Other natural causes	1 444	34,3
	Non-natural causes	2 050	21,1		Non-natural causes	1 651	30,3		Non-natural causes	385	9,1
	<b>All causes</b>	<b>9 704</b>	<b>100,0</b>		<b>All causes</b>	<b>5 440</b>	<b>100,0</b>		<b>All causes</b>	<b>4 218</b>	<b>100,0</b>
North West, 45–64			North West, Males, 45–64			North West, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	947	8,9	1	Tuberculosis (A15-A19)*	669	10,7	1	Diabetes mellitus (E10-E14)	364	8,4
2	Other viral diseases (B25-B34)	650	6,1	2	Other viral diseases (B25-B34)	346	5,5	2	Hypertensive diseases (I10-I15)	299	6,9
3	Diabetes mellitus (E10-E14)	634	6,0	3	Other forms of heart disease (I30-I52)	346	5,5	3	Other viral diseases (B25-B34)	299	6,9
4	Hypertensive diseases (I10-I15)	588	5,6	4	Influenza and pneumonia (J09-J18)	323	5,2	4	Tuberculosis (A15-A19)*	275	6,4
5	Other forms of heart disease (I30-I52)	573	5,4	5	Hypertensive diseases (I10-I15)	286	4,6	5	Other forms of heart disease (I30-I52)	227	5,2
6	Influenza and pneumonia (J09-J18)	518	4,9	6	Human immunodeficiency virus [HIV] disease (B20-B24)	282	4,5	6	Cerebrovascular diseases (I60-I69)	198	4,6
7	Human immunodeficiency virus [HIV] disease (B20-B24)	469	4,4	7	Diabetes mellitus (E10-E14)	268	4,3	7	Influenza and pneumonia (J09-J18)	192	4,4
8	Cerebrovascular diseases (I60-I69)	454	4,3	8	Cerebrovascular diseases (I60-I69)	254	4,1	8	Human immunodeficiency virus [HIV] disease (B20-B24)	185	4,3
9	Certain disorders involving the immune mechanism (D80-D89)	396	3,7	9	Chronic lower respiratory diseases (J40-J47)	254	4,1	9	Certain disorders involving the immune mechanism (D80-D89)	179	4,1
10	Chronic lower respiratory diseases (J40-J47)	367	3,5	10	Certain disorders involving the immune mechanism (D80-D89)	217	3,5	10	Malignant neoplasms of female genital organs (C51-C58)	172	4,0
	Other natural causes	4 363	41,1		Other natural causes	2 521	40,2		Other natural causes	1 775	41,0
	Non-natural causes	665	6,3		Non-natural causes	503	8,0		Non-natural causes	161	3,7
	<b>All causes</b>	<b>10 624</b>	<b>100,0</b>		<b>All causes</b>	<b>6 269</b>	<b>100,0</b>		<b>All causes</b>	<b>4 326</b>	<b>100,0</b>
North West, 65+			North West, Males, 65+			North West, females, 65+					
	No.	%		No.	%		No.	%			
1	Hypertensive diseases (I10-I15)	1 382	11,9	1	Other forms of heart disease (I30-I52)	473	9,0	1	Hypertensive diseases (I10-I15)	920	14,6
2	Other forms of heart disease (I30-I52)	1 077	9,3	2	Hypertensive diseases (I10-I15)	461	8,8	2	Other forms of heart disease (I30-I52)	604	9,5
3	Cerebrovascular diseases (I60-I69)	963	8,3	3	Cerebrovascular diseases (I60-I69)	409	7,8	3	Diabetes mellitus (E10-E14)	593	9,3
4	Diabetes mellitus (E10-E14)	909	7,8	4	Diabetes mellitus (E10-E14)	316	6,0	4	Cerebrovascular diseases (I60-I69)	553	8,7
5	Chronic lower respiratory diseases (J40-J47)	466	4,0	5	Chronic lower respiratory diseases (J40-J47)	286	5,4	5	Influenza and pneumonia (J09-J18)	190	3,0
6	Influenza and pneumonia (J09-J18)	406	3,5	6	Influenza and pneumonia (J09-J18)	215	4,1	6	Chronic lower respiratory diseases (J40-J47)	179	2,8
7	Tuberculosis (A15-A19)*	313	2,7	7	Tuberculosis (A15-A19)*	202	3,8	7	Ischaemic heart diseases (I20-I25)	156	2,5
8	Ischaemic heart diseases (I20-I25)	310	2,7	8	Malignant neoplasms of male genital organs (C60-C63)	167	3,2	8	Renal failure (N17-N19)	126	2,0
9	Malignant neoplasms of digestive organs (C15-C26)	251	2,2	9	Ischaemic heart diseases (I20-I25)	154	2,9	9	Malignant neoplasms of digestive organs (C15-C26)	117	1,8
10	Renal failure (N17-N19)	218	1,9	10	Malignant neoplasms of digestive organs (C15-C26)	133	2,5	10	Malignant neoplasms of female genital organs (C51-C58)	112	1,8
	Other natural causes	5 025	43,2		Other natural causes	2 260	43,0		Other natural causes	2 676	42,2
	Non-natural causes	303	2,6		Non-natural causes	185	3,5		Non-natural causes	114	1,8
	<b>All causes</b>	<b>11 623</b>	<b>100,0</b>		<b>All causes</b>	<b>5 261</b>	<b>100,0</b>		<b>All causes</b>	<b>6 340</b>	<b>100,0</b>

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

## Appendix M7: The ten leading underlying natural causes of death by age and sex: Gauteng, 2016

Gauteng, all ages			Gauteng, Males, all ages			Gauteng, females, all ages					
	No.	%		No.	%		No.	%			
1	Other forms of heart disease (I30-I52)	5 467	5,6	1	Tuberculosis (A15-A19)*	2 875	5,5	1	Other forms of heart disease (I30-I52)	2 733	6,2
2	Tuberculosis (A15-A19)*	4 701	4,8	2	Other forms of heart disease (I30-I52)	2 712	5,2	2	Diabetes mellitus (E10-E14)	2 272	5,1
3	Influenza and pneumonia (J09-J18)	4 552	4,7	3	Influenza and pneumonia (J09-J18)	2 421	4,6	3	Influenza and pneumonia (J09-J18)	2 102	4,7
4	Diabetes mellitus (E10-E14)	4 032	4,1	4	Ischaemic heart diseases (I20-I25)	1 979	3,8	4	Hypertensive diseases (I10-I15)	2 040	4,6
5	Cerebrovascular diseases (I60-I69)	3 818	3,9	5	Cerebrovascular diseases (I60-I69)	1 780	3,4	5	Cerebrovascular diseases (I60-I69)	2 020	4,5
6	Hypertensive diseases (I10-I15)	3 398	3,5	6	Diabetes mellitus (E10-E14)	1 753	3,3	6	Tuberculosis (A15-A19)*	1 794	4,0
7	Ischaemic heart diseases (I20-I25)	3 230	3,3	7	Human immunodeficiency virus [HIV] disease (B20-B24)	1 552	3,0	7	Other viral diseases (B25-B34)	1 465	3,3
8	Human immunodeficiency virus [HIV] disease (B20-B24)	2 986	3,1	8	Other viral diseases (B25-B34)	1 471	2,8	8	Human immunodeficiency virus [HIV] disease (B20-B24)	1 404	3,2
9	Other viral diseases (B25-B34)	2 962	3,0	9	Chronic lower respiratory diseases (J40-J47)	1 468	2,8	9	Malignant neoplasms of female genital organs (C51-C58)	1 252	2,8
10	Chronic lower respiratory diseases (J40-J47)	2 445	2,5	10	Hypertensive diseases (I10-I15)	1 348	2,6	10	Ischaemic heart diseases (I20-I25)	1 245	2,8
	Other natural causes	49 076	50,4		Other natural causes	24 698	47,2		Other natural causes	23 756	53,5
	Non-natural causes	10 770	11,1		Non-natural causes	8 313	15,9		Non-natural causes	2 322	5,2
	<b>All causes</b>	<b>97 437</b>	<b>100,0</b>		<b>All causes</b>	<b>52 370</b>	<b>100,0</b>		<b>All causes</b>	<b>44 405</b>	<b>100,0</b>
Gauteng, 0			Gauteng, Males, 0			Gauteng, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	858	16,3	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	459	16,3	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	375	16,3
2	Infections specific to the perinatal period (P35-P39)	460	8,7	2	Infections specific to the perinatal period (P35-P39)	256	9,1	2	Infections specific to the perinatal period (P35-P39)	194	8,4
3	Other disorders originating in the perinatal period (P90-P96)	379	7,2	3	Other disorders originating in the perinatal period (P90-P96)	180	6,4	3	Other disorders originating in the perinatal period (P90-P96)	173	7,5
4	Influenza and pneumonia (J09-J18)	298	5,7	4	Influenza and pneumonia (J09-J18)	170	6,0	4	Influenza and pneumonia (J09-J18)	126	5,5
5	Disorders related to length of gestation and fetal growth (P05-P08) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	249	4,7	5	Congenital malformations of the circulatory system (Q20-Q28)	127	4,5	5	Disorders related to length of gestation and fetal growth (P05-P08)	115	5,0
6	Congenital malformations of the circulatory system (Q20-Q28)	217	4,1	6	Disorders related to length of gestation and fetal growth (P05-P08) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	126	4,5	6	Intestinal infectious diseases (A00-A09)	91	3,9
7	Intestinal infectious diseases (A00-A09)	190	3,6	7	Intestinal infectious diseases (A00-A09)	96	3,4	7	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	89	3,9
8	Digestive system disorders of fetus and newborn (P75-P78)	120	2,3	8	Digestive system disorders of fetus and newborn (P75-P78)	59	2,1	8	Congenital malformations of the circulatory system (Q20-Q28)	84	3,6
9	Other congenital malformations (Q80-Q89)	100	1,9	9	Other bacterial diseases (A30-A49)	55	1,9	9	Digestive system disorders of fetus and newborn (P75-P78)	58	2,5
	Other natural causes	2 007	38,1		Other natural causes	1 080	38,3		Other congenital malformations (Q80-Q89)	45	2,0
	Non-natural causes	171	3,2		Non-natural causes	90	3,2		Other natural causes	882	38,2
	<b>All causes</b>	<b>5 264</b>	<b>100,0</b>		<b>All causes</b>	<b>2 821</b>	<b>100,0</b>		<b>All causes</b>	<b>2 307</b>	<b>100,0</b>
Gauteng, 1-14			Gauteng, Males, 1-14			Gauteng, females, 1-14					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	144	5,8	1	Influenza and pneumonia (J09-J18)	70	5,3	1	Influenza and pneumonia (J09-J18)	72	6,3
2	Intestinal infectious diseases (A00-A09)	114	4,6	2	Intestinal infectious diseases (A00-A09)	54	4,1	2	Intestinal infectious diseases (A00-A09)	59	5,2
3	Other forms of heart disease (I30-I52)	87	3,5	3	Other forms of heart disease (I30-I52)	43	3,2	3	Other forms of heart disease (I30-I52)	44	3,9
4	Cerebral palsy and other paralytic syndromes (G80-G83)	61	2,5	4	Tuberculosis (A15-A19)*	37	2,8	4	Malnutrition (E40-E46)	28	2,5
5	Tuberculosis (A15-A19)*	59	2,4	5	Cerebral palsy and other paralytic syndromes (G80-G83)	37	2,8	5	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	25	2,2
6	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	56	2,3	6	Malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81-C96)	30	2,3	6	Cerebral palsy and other paralytic syndromes (G80-G83)	24	2,1
7	Malnutrition (E40-E46)	56	2,3	7	Malnutrition (E40-E46)	28	2,1	7	Tuberculosis (A15-A19)*	22	1,9
8	Other viral diseases (B25-B34)	47	1,9	8	Other viral diseases (B25-B34)	26	2,0	8	Other viral diseases (B25-B34)	21	1,8
9	Metabolic disorders (E70-E90)	42	1,7	9	Metabolic disorders (E70-E90)	23	1,7	9	Other diseases of the respiratory system (J95-J99)	21	1,8
10	Other diseases of the respiratory system (J95-J99)	42	1,7	10	Congenital malformations of the circulatory system (Q20-Q28)	22	1,7	10	Metabolic disorders (E70-E90)	19	1,7
	Other natural causes	1 129	45,4		Other natural causes	580	43,6		Other natural causes	540	47,4
	Non-natural causes	650	26,1		Non-natural causes	381	28,6		Non-natural causes	265	23,2
	<b>All causes</b>	<b>2 487</b>	<b>100,0</b>		<b>All causes</b>	<b>1 331</b>	<b>100,0</b>		<b>All causes</b>	<b>1 140</b>	<b>100,0</b>

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

**Appendix M7: The ten leading underlying natural causes of death by age and sex: Gauteng, 2016 (concluded)**

Gauteng, 15–44			Gauteng, Males, 15–44			Gauteng, females, 15–44					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	2 496	8,9	1	Tuberculosis (A15-A19)*	1 420	8,4	1	Tuberculosis (A15-A19)*	1 056	9,7
2	Human immunodeficiency virus [HIV] disease (B20-B24)	1 763	6,3	2	Human immunodeficiency virus [HIV] disease (B20-B24)	841	5,0	2	Other viral diseases (B25-B34)	905	8,3
3	Other viral diseases (B25-B34)	1 740	6,2	3	Other viral diseases (B25-B34)	820	4,9	3	Human immunodeficiency virus [HIV] disease (B20-B24)	898	8,3
4	Certain disorders involving the immune mechanism (D80-D89)	1 439	5,1	4	Influenza and pneumonia (J09-J18)	768	4,6	4	Certain disorders involving the immune mechanism (D80-D89)	686	6,3
5	Influenza and pneumonia (J09-J18)	1 402	5,0	5	Certain disorders involving the immune mechanism (D80-D89)	733	4,4	5	Influenza and pneumonia (J09-J18)	619	5,7
6	Other forms of heart disease (I30-I52)	940	3,4	6	Other forms of heart disease (I30-I52)	550	3,3	6	Other forms of heart disease (I30-I52)	381	3,5
7	Renal failure (N17-N19)	453	1,6	7	Renal failure (N17-N19)	264	1,6	7	Malignant neoplasms of female genital organs (C51-C58)	269	2,5
8	Cerebrovascular diseases (I60-I69)	417	1,5	8	Cerebrovascular diseases (I60-I69)	241	1,4	8	Renal failure (N17-N19)	187	1,7
9	Inflammatory diseases of the central nervous system (G00-G09)	394	1,4	9	Inflammatory diseases of the central nervous system (G00-G09)	204	1,2	9	Inflammatory diseases of the central nervous system (G00-G09)	185	1,7
10	Other bacterial diseases (A30-A49)	362	1,3	10	Other bacterial diseases (A30-A49)	190	1,1	10	Cerebrovascular diseases (I60-I69)	170	1,6
	Other natural causes	9 563	34,2		Other natural causes	4 942	29,4		Other natural causes	4 430	40,8
	Non-natural causes	6 997	25,0		Non-natural causes	5 850	34,8		Non-natural causes	1 068	9,8
	<b>All causes</b>	<b>27 966</b>	<b>100,0</b>		<b>All causes</b>	<b>16 823</b>	<b>100,0</b>		<b>All causes</b>	<b>10 854</b>	<b>100,0</b>
Gauteng, 45–64			Gauteng, Males, 45–64			Gauteng, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	1 697	6,0	1	Tuberculosis (A15-A19)*	1 136	6,9	1	Diabetes mellitus (E10-E14)	767	6,6
2	Other forms of heart disease (I30-I52)	1 654	5,8	2	Other forms of heart disease (I30-I52)	943	5,7	2	Other forms of heart disease (I30-I52)	703	6,0
3	Diabetes mellitus (E10-E14)	1 556	5,5	3	Diabetes mellitus (E10-E14)	787	4,7	3	Malignant neoplasms of female genital organs (C51-C58)	587	5,0
4	Cerebrovascular diseases (I60-I69)	1 236	4,4	4	Influenza and pneumonia (J09-J18)	765	4,6	4	Tuberculosis (A15-A19)*	553	4,7
5	Influenza and pneumonia (J09-J18)	1 207	4,3	5	Ischaemic heart diseases (I20-I25)	738	4,5	5	Cerebrovascular diseases (I60-I69)	537	4,6
6	Human immunodeficiency virus [HIV] disease (B20-B24)	1 057	3,7	6	Cerebrovascular diseases (I60-I69)	693	4,2	6	Hypertensive diseases (I10-I15)	467	4,0
7	Ischaemic heart diseases (I20-I25)	1 030	3,6	7	Human immunodeficiency virus [HIV] disease (B20-B24)	628	3,8	7	Other viral diseases (B25-B34)	445	3,8
8	Other viral diseases (B25-B34)	1 000	3,5	8	Malignant neoplasms of digestive organs (C15-C26)	580	3,5	8	Influenza and pneumonia (J09-J18)	439	3,8
9	Hypertensive diseases (I10-I15)	953	3,4	9	Other viral diseases (B25-B34)	546	3,3	9	Malignant neoplasm of breast (C50)	430	3,7
10	Malignant neoplasms of digestive organs (C15-C26)	943	3,3	10	Hypertensive diseases (I10-I15)	486	3,0	10	Human immunodeficiency virus [HIV] disease (B20-B24)	425	3,6
	Other natural causes	14 074	49,7		Other natural causes	7 805	47,1		Other natural causes	5 861	50,2
	Non-natural causes	1 923	6,8		Non-natural causes	1 463	8,8		Non-natural causes	454	3,9
	<b>All causes</b>	<b>28 330</b>	<b>100,0</b>		<b>All causes</b>	<b>16 570</b>	<b>100,0</b>		<b>All causes</b>	<b>11 668</b>	<b>100,0</b>
Gauteng, 65+			Gauteng, Males, 65+			Gauteng, females, 65+					
	No.	%		No.	%		No.	%			
1	Other forms of heart disease (I30-I52)	2 712	8,1	1	Other forms of heart disease (I30-I52)	1 133	7,6	1	Other forms of heart disease (I30-I52)	1 576	8,5
2	Diabetes mellitus (E10-E14)	2 232	6,7	2	Ischaemic heart diseases (I20-I25)	1 085	7,3	2	Hypertensive diseases (I10-I15)	1 460	8,0
3	Hypertensive diseases (I10-I15)	2 209	6,6	3	Chronic lower respiratory diseases (J40-J47)	873	5,9	3	Diabetes mellitus (E10-E14)	1 375	7,4
4	Cerebrovascular diseases (I60-I69)	2 135	6,4	4	Diabetes mellitus (E10-E14)	853	5,7	4	Cerebrovascular diseases (I60-I69)	1 297	7,0
5	Ischaemic heart diseases (I20-I25)	1 970	5,9	5	Cerebrovascular diseases (I60-I69)	833	5,6	5	Ischaemic heart diseases (I20-I25)	881	4,8
6	Chronic lower respiratory diseases (J40-J47)	1 540	4,6	6	Hypertensive diseases (I10-I15)	744	5,1	6	Influenza and pneumonia (J09-J18)	846	4,6
7	Influenza and pneumonia (J09-J18)	1 501	4,5	7	Influenza and pneumonia (J09-J18)	648	4,4	7	Chronic lower respiratory diseases (J40-J47)	664	3,6
8	Malignant neoplasms of digestive organs (C15-C26)	1 212	3,6	8	Malignant neoplasms of digestive organs (C15-C26)	633	4,3	8	Malignant neoplasms of digestive organs (C15-C26)	578	3,1
9	Renal failure (N17-N19)	876	2,6	9	Malignant neoplasms of male genital organs (C60-C63)	626	4,2	9	Renal failure (N17-N19)	469	2,5
10	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	729	2,2	10	Malignant neoplasms of respiratory and intrathoracic organs (C30- C39)	436	2,9	10	Other bacterial diseases (A30-A49)	439	2,4
	Other natural causes	15 245	45,7		Other natural causes	6 432	43,4		Other natural causes	8 391	45,5
	Non-natural causes	1 029	3,1		Non-natural causes	529	3,6		Non-natural causes	460	2,5
	<b>All causes</b>	<b>33 390</b>	<b>100,0</b>		<b>All causes</b>	<b>14 825</b>	<b>100,0</b>		<b>All causes</b>	<b>18 436</b>	<b>100,0</b>

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

## Appendix M8: The ten leading underlying natural causes of death by age and sex: Mpumalanga, 2016

Mpumalanga, all ages			Mpumalanga, Males, all ages			Mpumalanga, females, all ages					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	2 661	8,0	1	Tuberculosis (A15-A19)*	1 645	9,5	1	Cerebrovascular diseases (I60-I69)	1 096	7,0
2	Cerebrovascular diseases (I60-I69)	1 811	5,4	2	Influenza and pneumonia (J09-J18)	865	5,0	2	Hypertensive diseases (I10-I15)	1 031	6,5
3	Diabetes mellitus (E10-E14)	1 741	5,2	3	Other viral diseases (B25-B34)	824	4,7	3	Diabetes mellitus (E10-E14)	1 027	6,5
4	Other viral diseases (B25-B34)	1 736	5,2	4	Human immunodeficiency virus [HIV] disease (B20-B24)	814	4,7	4	Tuberculosis (A15-A19)*	1 005	6,4
5	Hypertensive diseases (I10-I15)	1 682	5,1	5	Cerebrovascular diseases (I60-I69)	713	4,1	5	Other viral diseases (B25-B34)	904	5,7
6	Influenza and pneumonia (J09-J18)	1 677	5,0	6	Diabetes mellitus (E10-E14)	710	4,1	6	Human immunodeficiency virus [HIV] disease (B20-B24)	808	5,1
7	Human immunodeficiency virus [HIV] disease (B20-B24)	1 625	4,9	7	Hypertensive diseases (I10-I15)	651	3,7	7	Influenza and pneumonia (J09-J18)	808	5,1
8	Other forms of heart disease (I30-I52)	1 346	4,0	8	Other forms of heart disease (I30-I52)	595	3,4	8	Other forms of heart disease (I30-I52)	748	4,7
9	Certain disorders involving the immune mechanism (D80-D89)	1 028	3,1	9	Certain disorders involving the immune mechanism (D80-D89)	549	3,2	9	Certain disorders involving the immune mechanism (D80-D89)	477	3,0
10	Ischaemic heart diseases (I20-I25)	969	2,9	10	Ischaemic heart diseases (I20-I25)	521	3,0	10	Ischaemic heart diseases (I20-I25)	445	2,8
	Other natural causes	13 149	39,5		Other natural causes	6 595	37,9		Other natural causes	6 503	41,3
	Non-natural causes	3 836	11,5		Non-natural causes	2 921	16,8		Non-natural causes	897	5,7
	<b>All causes</b>	<b>33 261</b>	<b>100,0</b>		<b>All causes</b>	<b>17 403</b>	<b>100,0</b>		<b>All causes</b>	<b>15 749</b>	<b>100,0</b>
Mpumalanga, 0			Mpumalanga, Males, 0			Mpumalanga, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	276	16,4	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	143	15,8	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	126	17,0
2	Intestinal infectious diseases (A00-A09)	184	11,0	2	Influenza and pneumonia (J09-J18)	94	10,4	2	Intestinal infectious diseases (A00-A09)	95	12,8
3	Influenza and pneumonia (J09-J18)	158	9,4	3	Intestinal infectious diseases (A00-A09) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	87	9,6	3	Influenza and pneumonia (J09-J18)	63	8,5
4	Disorders related to length of gestation and fetal growth (P05-P08) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	86	5,1	4	Other disorders originating in the perinatal period (P90-P96)	45	5,0	4	Disorders related to length of gestation and fetal growth (P05-P08)	45	6,1
5	Other disorders originating in the perinatal period (P90-P96)	75	4,5	5	Disorders related to length of gestation and fetal growth (P05-P08)	45	5,0	5	Malnutrition (E40-E46)	31	4,2
6	Other acute lower respiratory infections (J20-J22)	70	4,2	6	Other acute lower respiratory infections (J20-J22)	40	4,4	6	Certain disorders involving the immune mechanism (D80-D89) Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	23	3,1
7	Infections specific to the perinatal period (P35-P39)	50	3,0	7	Other congenital malformations (Q80-Q89)	31	3,4	7	Infections specific to the perinatal period (P35-P39)	23	3,1
8	Certain disorders involving the immune mechanism (D80-D89)	47	2,8	8	Infections specific to the perinatal period (P35-P39)	25	2,8	8	Other disorders originating in the perinatal period (P90-P96)	23	3,1
9	Malnutrition (E40-E46)	45	2,7	9	Certain disorders involving the immune mechanism (D80-D89)	24	2,6	9	Other acute lower respiratory infections (J20-J22)	23	3,1
10	Other natural causes	44	2,6	10	Other natural causes	22	2,4	10	Other natural causes	18	2,4
	Non-natural causes	571	34,0		Non-natural causes	308	34,0		Non-natural causes	244	32,8
	Non-natural causes	72	4,3		Non-natural causes	42	4,6		Non-natural causes	29	3,9
	<b>All causes</b>	<b>1 678</b>	<b>100,0</b>		<b>All causes</b>	<b>906</b>	<b>100,0</b>		<b>All causes</b>	<b>743</b>	<b>100,0</b>
Mpumalanga, 1-14			Mpumalanga, Males, 1-14			Mpumalanga, females, 1-14					
	No.	%		No.	%		No.	%			
1	Intestinal infectious diseases (A00-A09)	101	8,8	1	Intestinal infectious diseases (A00-A09)	55	8,6	1	Intestinal infectious diseases (A00-A09)	45	8,9
2	Influenza and pneumonia (J09-J18)	86	7,5	2	Influenza and pneumonia (J09-J18)	50	7,8	2	Influenza and pneumonia (J09-J18)	36	7,1
3	Human immunodeficiency virus [HIV] disease (B20-B24)	44	3,8	3	Tuberculosis (A15-A19)*	24	3,7	3	Human immunodeficiency virus [HIV] disease (B20-B24)	23	4,5
4	Tuberculosis (A15-A19)*	41	3,6	4	Other viral diseases (B25-B34)	23	3,6	4	Tuberculosis (A15-A19)*	17	3,4
5	Other viral diseases (B25-B34)	40	3,5	5	Human immunodeficiency virus [HIV] disease (B20-B24)	21	3,3	5	Other viral diseases (B25-B34)	17	3,4
6	Other acute lower respiratory infections (J20-J22)	31	2,7	6	Other acute lower respiratory infections (J20-J22)	19	3,0	6	Metabolic disorders (E70-E90)	13	2,6
7	Metabolic disorders (E70-E90)	28	2,4	7	Certain disorders involving the immune mechanism (D80-D89)	16	2,5	7	Malnutrition (E40-E46)	12	2,4
8	Certain disorders involving the immune mechanism (D80-D89)	27	2,3	8	Metabolic disorders (E70-E90)	15	2,3	8	Episodic and paroxysmal disorders (G40-G47)	12	2,4
9	Malnutrition (E40-E46)	26	2,3	9	Malnutrition (E40-E46)	14	2,2	9	Other acute lower respiratory infections (J20-J22)	12	2,4
10	Episodic and paroxysmal disorders (G40-G47)	22	1,9	10	Inflammatory diseases of the central nervous system (G00-G09)	14	2,2	10	Certain disorders involving the immune mechanism (D80-D89)	11	2,2
	Other natural causes	405	35,2		Other natural causes	214	33,3		Other natural causes	187	37,0
	Non-natural causes	300	26,1		Non-natural causes	178	27,7		Non-natural causes	121	23,9
	<b>All causes</b>	<b>1 151</b>	<b>100,0</b>		<b>All causes</b>	<b>643</b>	<b>100,0</b>		<b>All causes</b>	<b>506</b>	<b>100,0</b>

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

## Appendix M8: The ten leading underlying natural causes of death by age and sex: Mpumalanga, 2016 (concluded)

Mpumalanga, 15–44			Mpumalanga, Males, 15–44			Mpumalanga, females, 15–44					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	1 369	12,8	1	Tuberculosis (A15-A19)*	757	12,9	1	Tuberculosis (A15-A19)*	602	12,7
2	Human immunodeficiency virus [HIV] disease (B20-B24)	991	9,3	2	Human immunodeficiency virus [HIV] disease (B20-B24)	449	7,6	2	Other viral diseases (B25-B34)	569	12,0
3	Other viral diseases (B25-B34)	988	9,3	3	Other viral diseases (B25-B34)	412	7,0	3	Human immunodeficiency virus [HIV] disease (B20-B24)	541	11,4
4	Certain disorders involving the immune mechanism (D80-D89)	557	5,2	4	Certain disorders involving the immune mechanism (D80-D89)	270	4,6	4	Certain disorders involving the immune mechanism (D80-D89)	285	6,0
5	Influenza and pneumonia (J09-J18)	460	4,3	5	Influenza and pneumonia (J09-J18)	215	3,7	5	Influenza and pneumonia (J09-J18)	243	5,1
6	Other acute lower respiratory infections (J20-J22)	274	2,6	6	Other acute lower respiratory infections (J20-J22)	126	2,1	6	Other acute lower respiratory infections (J20-J22)	146	3,1
7	Intestinal infectious diseases (A00-A09)	162	1,5	7	Intestinal infectious diseases (A00-A09)	79	1,3	7	Malignant neoplasms of female genital organs (C51-C58)	120	2,5
8	Other forms of heart disease (I30-I52)	160	1,5	8	Episodic and paroxysmal disorders (G40-G47)	76	1,3	8	Other forms of heart disease (I30-I52)	93	2,0
9	Inflammatory diseases of the central nervous system (G00-G09)	143	1,3	9	Renal failure (N17-N19)	70	1,2	9	Intestinal infectious diseases (A00-A09)	83	1,8
10	Renal failure (N17-N19)	143	1,3	10	Inflammatory diseases of the central nervous system (G00-G09)	69	1,2	10	Inflammatory diseases of the central nervous system (G00-G09)	74	1,6
	Other natural causes	2 916	27,4		Other natural causes	1 339	22,8		Other natural causes	1 509	31,9
	Non-natural causes	2 494	23,4		Non-natural causes	2 019	34,3		Non-natural causes	463	9,8
	<b>All causes</b>	<b>10 657</b>	<b>100,0</b>		<b>All causes</b>	<b>5 881</b>	<b>100,0</b>		<b>All causes</b>	<b>4 728</b>	<b>100,0</b>
Mpumalanga, 45–64			Mpumalanga, Males, 45–64			Mpumalanga, females, 45–64					
	No.	%		No.	%		No.	%			
1	Tuberculosis (A15-A19)*	899	9,7	1	Tuberculosis (A15-A19)*	625	11,7	1	Diabetes mellitus (E10-E14)	348	8,8
2	Diabetes mellitus (E10-E14)	637	6,9	2	Other viral diseases (B25-B34)	322	6,0	2	Tuberculosis (A15-A19)*	273	6,9
3	Other viral diseases (B25-B34)	587	6,3	3	Human immunodeficiency virus [HIV] disease (B20-B24)	299	5,6	3	Other viral diseases (B25-B34)	265	6,7
4	Human immunodeficiency virus [HIV] disease (B20-B24)	501	5,4	4	Diabetes mellitus (E10-E14)	287	5,4	4	Cerebrovascular diseases (I60-I69)	242	6,1
5	Cerebrovascular diseases (I60-I69)	480	5,2	5	Influenza and pneumonia (J09-J18)	244	4,6	5	Hypertensive diseases (I10-I15)	221	5,6
6	Hypertensive diseases (I10-I15)	414	4,5	6	Ischaemic heart diseases (I20-I25)	237	4,4	6	Human immunodeficiency virus [HIV] disease (B20-B24)	202	5,1
7	Influenza and pneumonia (J09-J18)	397	4,3	7	Cerebrovascular diseases (I60-I69)	237	4,4	7	Malignant neoplasms of female genital organs (C51-C58)	187	4,7
8	Ischaemic heart diseases (I20-I25)	371	4,0	8	Hypertensive diseases (I10-I15)	193	3,6	8	Other forms of heart disease (I30-I52)	155	3,9
9	Other forms of heart disease (I30-I52)	332	3,6	9	Certain disorders involving the immune mechanism (D80-D89)	183	3,4	9	Influenza and pneumonia (J09-J18)	153	3,9
10	Certain disorders involving the immune mechanism (D80-D89)	301	3,2	10	Chronic lower respiratory diseases (J40-J47)	182	3,4	10	Ischaemic heart diseases (I20-I25)	132	3,3
	Other natural causes	3 693	39,7		Other natural causes	2 013	37,7		Other natural causes	1 601	40,6
	Non-natural causes	679	7,3		Non-natural causes	512	9,6		Non-natural causes	165	4,2
	<b>All causes</b>	<b>9 291</b>	<b>100,0</b>		<b>All causes</b>	<b>5 334</b>	<b>100,0</b>		<b>All causes</b>	<b>3 944</b>	<b>100,0</b>
Mpumalanga, 65+			Mpumalanga, Males, 65+			Mpumalanga, females, 65+					
	No.	%		No.	%		No.	%			
1	Cerebrovascular diseases (I60-I69)	1 192	11,4	1	Hypertensive diseases (I10-I15)	417	9,0	1	Cerebrovascular diseases (I60-I69)	779	13,4
2	Hypertensive diseases (I10-I15)	1 186	11,3	2	Cerebrovascular diseases (I60-I69)	412	8,9	2	Hypertensive diseases (I10-I15)	769	13,2
3	Diabetes mellitus (E10-E14)	973	9,3	3	Diabetes mellitus (E10-E14)	360	7,8	3	Diabetes mellitus (E10-E14)	611	10,5
4	Other forms of heart disease (I30-I52)	822	7,8	4	Other forms of heart disease (I30-I52)	335	7,2	4	Other forms of heart disease (I30-I52)	485	8,3
5	Influenza and pneumonia (J09-J18)	576	5,5	5	Influenza and pneumonia (J09-J18)	262	5,6	5	Influenza and pneumonia (J09-J18)	313	5,4
6	Ischaemic heart diseases (I20-I25)	530	5,1	6	Ischaemic heart diseases (I20-I25)	248	5,3	6	Ischaemic heart diseases (I20-I25)	281	4,8
7	Tuberculosis (A15-A19)*	338	3,2	7	Tuberculosis (A15-A19)*	229	4,9	7	Renal failure (N17-N19)	130	2,2
8	Chronic lower respiratory diseases (J40-J47)	311	3,0	8	Chronic lower respiratory diseases (J40-J47)	184	4,0	8	Malignant neoplasms of female genital organs (C51-C58)	128	2,2
9	Renal failure (N17-N19)	259	2,5	9	Malignant neoplasms of male genital organs (C60-C63)	145	3,1	9	Chronic lower respiratory diseases (J40-J47)	127	2,0
10	Intestinal infectious diseases (A00-A09)	192	1,8	10	Renal failure (N17-N19)	128	2,8	10	Intestinal infectious diseases (A00-A09)	118	33,8
	Other natural causes	3 814	36,4		Other natural causes	1 749	37,7		Other natural causes	1 968	33,8
	Non-natural causes	291	2,8		Non-natural causes	170	3,7		Non-natural causes	119	2,0
	<b>All causes</b>	<b>10 484</b>	<b>100,0</b>		<b>All causes</b>	<b>4 639</b>	<b>100,0</b>		<b>All causes</b>	<b>5 828</b>	<b>100,0</b>

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

## Appendix M9: The ten leading underlying natural causes of death by age and sex: Limpopo, 2016

Limpopo, all ages			Limpopo, Males, all ages			Limpopo, females, all ages					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	3 445	7,6	1	Influenza and pneumonia (J09-J18)	1 724	7,6	1	Influenza and pneumonia (J09-J18)	1 714	7,5
2	Diabetes mellitus (E10-E14)	2 856	6,3	2	Tuberculosis (A15-A19)*	1 539	6,8	2	Diabetes mellitus (E10-E14)	1 671	7,3
3	Cerebrovascular diseases (I60-I69)	2 645	5,8	3	Diabetes mellitus (E10-E14)	1 183	5,2	3	Cerebrovascular diseases (I60-I69)	1 580	6,9
4	Tuberculosis (A15-A19)*	2 518	5,5	4	Other viral diseases (B25-B34)	1 162	5,1	4	Hypertensive diseases (I10-I15)	1 478	6,5
5	Hypertensive diseases (I10-I15)	2 444	5,4	5	Cerebrovascular diseases (I60-I69)	1 064	4,7	5	Other viral diseases (B25-B34)	1 195	5,2
6	Other viral diseases (B25-B34)	2 359	5,2	6	Hypertensive diseases (I10-I15)	965	4,3	6	Tuberculosis (A15-A19)*	973	4,3
7	Human immunodeficiency virus [HIV] disease (B20-B24)	1 542	3,4	7	Other forms of heart disease (I30-I52)	722	3,2	7	Human immunodeficiency virus [HIV] disease (B20-B24)	827	3,6
8	Other forms of heart disease (I30-I52)	1 498	3,3	8	Human immunodeficiency virus [HIV] disease (B20-B24)	715	3,2	8	Other forms of heart disease (I30-I52)	776	3,4
9	Intestinal infectious diseases (A00-A09)	1 340	2,9	9	Intestinal infectious diseases (A00-A09)	604	2,7	9	Intestinal infectious diseases (A00-A09)	735	3,2
10	Renal failure (N17-N19)	934	2,0	10	Renal failure (N17-N19)	487	2,1	10	Malignant neoplasms of female genital organs (C51-C58)	539	2,4
	Other natural causes	19 797	43,4		Other natural causes	9 416	41,5		Other natural causes	10 239	44,9
	Non-natural causes	4 200	9,2		Non-natural causes	3 088	13,6		Non-natural causes	1 092	4,8
	<b>All causes</b>	<b>45 578</b>	<b>100,0</b>		<b>All causes</b>	<b>22 669</b>	<b>100,0</b>		<b>All causes</b>	<b>22 819</b>	<b>100,0</b>
Limpopo, 0			Limpopo, Males, 0			Limpopo, females, 0					
	No.	%		No.	%		No.	%			
1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	401	16,1	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	241	17,8	1	Respiratory and cardiovascular disorders specific to the perinatal period (P20-P29)	152	13,6
2	Influenza and pneumonia (J09-J18)	317	12,7	2	Influenza and pneumonia (J09-J18)	172	12,7	2	Influenza and pneumonia (J09-J18)	145	13,0
3	Intestinal infectious diseases (A00-A09)	206	8,3	3	Intestinal infectious diseases (A00-A09)	106	7,8	3	Intestinal infectious diseases (A00-A09)	100	9,0
4	Other disorders originating in the perinatal period (P90-P96)	140	5,6	4	Other disorders originating in the perinatal period (P90-P96)	76	5,6	4	Other disorders originating in the perinatal period (P90-P96)	60	5,4
5	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	115	4,6	5	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	61	4,5	5	Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00-P04)	52	4,7
6	Disorders related to length of gestation and fetal growth (P05-P08)	93	3,7	6	Malnutrition (E40-E46)	52	3,8	6	Disorders related to length of gestation and fetal growth (P05-P08)	45	4,0
7	Malnutrition (E40-E46)	90	3,6	7	Disorders related to length of gestation and fetal growth (P05-P08)	45	3,3	7	Malnutrition (E40-E46)	38	3,4
8	Infections specific to the perinatal period (P35-P39)	67	2,7	8	Infections specific to the perinatal period (P35-P39)	32	2,4	8	Infections specific to the perinatal period (P35-P39)	34	3,0
9	Other congenital malformations (Q80-Q89)	47	1,9	9	Other bacterial diseases (A30-A49)	26	1,9	9	Other congenital malformations (Q80-Q89)	24	2,2
10	Other bacterial diseases (A30-A49)	43	1,7	10	Haemorrhagic and haematological disorders of fetus and newborn (P50-P61)	23	1,7	10	Other viral diseases (B25-B34)	19	1,7
	Other natural causes	855	34,3		Other natural causes	455	33,7		Other natural causes	390	35,0
	Non-natural causes	118	4,7		Non-natural causes	62	4,6		Non-natural causes	56	5,0
	<b>All causes</b>	<b>2 492</b>	<b>100,0</b>		<b>All causes</b>	<b>1 351</b>	<b>100,0</b>		<b>All causes</b>	<b>1 115</b>	<b>100,0</b>
Limpopo, 1-14			Limpopo, Males, 1-14			Limpopo, females, 1-14					
	No.	%		No.	%		No.	%			
1	Influenza and pneumonia (J09-J18)	224	11,8	1	Influenza and pneumonia (J09-J18)	114	11,3	1	Influenza and pneumonia (J09-J18)	109	12,4
2	Intestinal infectious diseases (A00-A09)	190	10,0	2	Intestinal infectious diseases (A00-A09)	93	9,2	2	Intestinal infectious diseases (A00-A09)	96	10,9
3	Malnutrition (E40-E46)	82	4,3	3	Malnutrition (E40-E46)	40	3,9	3	Malnutrition (E40-E46)	41	4,7
4	Other viral diseases (B25-B34)	62	3,3	4	Tuberculosis (A15-A19)*	35	3,5	4	Other viral diseases (B25-B34)	27	3,1
5	Tuberculosis (A15-A19)*	58	3,1	5	Other viral diseases (B25-B34)	35	3,5	5	Tuberculosis (A15-A19)*	23	2,6
6	Other bacterial diseases (A30-A49)	46	2,4	6	Other bacterial diseases (A30-A49)	26	2,6	6	Inflammatory diseases of the central nervous system (G00-G09)	21	2,4
7	Inflammatory diseases of the central nervous system (G00-G09)	39	2,1	7	Metabolic disorders (E70-E90)	18	1,8	7	Other bacterial diseases (A30-A49)	20	2,3
8	Metabolic disorders (E70-E90)	36	1,9	8	Inflammatory diseases of the central nervous system (G00-G09)	18	1,8	8	Human immunodeficiency virus [HIV] disease (B20-B24)	19	2,2
9	Episodic and paroxysmal disorders (G40-G47)	36	1,9	9	Episodic and paroxysmal disorders (G40-G47)	17	1,7	9	Episodic and paroxysmal disorders (G40-G47)	19	2,2
10	Human immunodeficiency virus [HIV] disease (B20-B24)	33	1,7	10	Cerebral palsy and other paralytic syndromes (G80-G83)	16	1,6	10	Metabolic disorders (E70-E90)	18	2,0
	Other natural causes	725	38,2		Other natural causes	380	37,5		Other natural causes	342	38,9
	Non-natural causes	366	19,3		Non-natural causes	221	21,8		Non-natural causes	145	16,5
	<b>All causes</b>	<b>1 897</b>	<b>100,0</b>		<b>All causes</b>	<b>1 013</b>	<b>100,0</b>		<b>All causes</b>	<b>880</b>	<b>100,0</b>

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

## Appendix M9: The ten leading underlying natural causes of death by age and sex: Limpopo, 2016 (concluded)

Limpopo, 15–44			Limpopo, Males, 15–44			Limpopo, females, 15–44					
	No.	%		No.	%		No.	%			
1	Other viral diseases (B25-B34)	1 307	11,3	1	Tuberculosis (A15-A19)*	612	10,1	1	Other viral diseases (B25-B34)	718	13,0
2	Tuberculosis (A15-A19)*	1 156	10,0	2	Other viral diseases (B25-B34)	588	9,7	2	Tuberculosis (A15-A19)*	542	9,8
3	Human immunodeficiency virus [HIV] disease (B20-B24)	889	7,7	3	Influenza and pneumonia (J09-J18)	372	6,2	3	Human immunodeficiency virus [HIV] disease (B20-B24)	525	9,5
4	Influenza and pneumonia (J09-J18)	860	7,4	4	Human immunodeficiency virus [HIV] disease (B20-B24)	364	6,0	4	Influenza and pneumonia (J09-J18)	484	8,8
5	Certain disorders involving the immune mechanism (D80-D89)	512	4,4	5	Certain disorders involving the immune mechanism (D80-D89)	171	2,8	5	Certain disorders involving the immune mechanism (D80-D89)	340	6,2
6	Intestinal infectious diseases (A00-A09)	293	2,5	6	Intestinal infectious diseases (A00-A09)	119	2,0	6	Intestinal infectious diseases (A00-A09)	174	3,1
7	Renal failure (N17-N19)	198	1,7	7	Renal failure (N17-N19)	93	1,5	7	Malignant neoplasms of female genital organs (C51-C58)	129	2,3
8	Other forms of heart disease (I30-I52)	185	1,6	8	Other forms of heart disease (I30-I52)	85	1,4	8	Renal failure (N17-N19)	104	1,9
9	Diabetes mellitus (E10-E14)	181	1,6	9	Diabetes mellitus (E10-E14)	80	1,3	9	Diabetes mellitus (E10-E14)	101	1,8
10	Cerebrovascular diseases (I60-I69)	155	1,3	10	Cerebrovascular diseases (I60-I69)	73	1,2	10	Other forms of heart disease (I30-I52)	100	1,8
	Other natural causes	3 365	29,0		Other natural causes	1 505	25,0		Other natural causes	1 807	32,7
	Non-natural causes	2 488	21,5		Non-natural causes	1 969	32,6		Non-natural causes	504	9,1
	<b>All causes</b>	<b>11 589</b>	<b>100,0</b>		<b>All causes</b>	<b>6 031</b>	<b>100,0</b>		<b>All causes</b>	<b>5 528</b>	<b>100,0</b>
Limpopo, 45–64			Limpopo, Males, 45–64			Limpopo, females, 45–64					
	No.	%		No.	%		No.	%			
1	Diabetes mellitus (E10-E14)	962	8,2	1	Tuberculosis (A15-A19)*	648	9,5	1	Diabetes mellitus (E10-E14)	528	10,8
2	Tuberculosis (A15-A19)*	942	8,0	2	Influenza and pneumonia (J09-J18)	513	7,6	2	Other viral diseases (B25-B34)	361	7,4
3	Influenza and pneumonia (J09-J18)	819	7,0	3	Diabetes mellitus (E10-E14)	433	6,4	3	Influenza and pneumonia (J09-J18)	306	6,2
4	Other viral diseases (B25-B34)	793	6,8	4	Other viral diseases (B25-B34)	431	6,4	4	Tuberculosis (A15-A19)*	290	5,9
5	Cerebrovascular diseases (I60-I69)	609	5,2	5	Cerebrovascular diseases (I60-I69)	331	4,9	5	Hypertensive diseases (I10-I15)	282	5,8
6	Hypertensive diseases (I10-I15)	586	5,0	6	Hypertensive diseases (I10-I15)	304	4,5	6	Cerebrovascular diseases (I60-I69)	278	5,7
7	Human immunodeficiency virus [HIV] disease (B20-B24)	531	4,5	7	Human immunodeficiency virus [HIV] disease (B20-B24)	294	4,3	7	Human immunodeficiency virus [HIV] disease (B20-B24)	237	4,8
8	Other forms of heart disease (I30-I52)	408	3,5	8	Other forms of heart disease (I30-I52)	255	3,8	8	Malignant neoplasms of female genital organs (C51-C58)	232	4,7
9	Certain disorders involving the immune mechanism (D80-D89)	313	2,7	9	Chronic lower respiratory diseases (J40-J47)	171	2,5	9	Other forms of heart disease (I30-I52)	153	3,1
10	Renal failure (N17-N19)	269	2,3	10	Certain disorders involving the immune mechanism (D80-D89)	162	2,4	10	Certain disorders involving the immune mechanism (D80-D89)	150	3,1
	Other natural causes	4 718	40,3		Other natural causes	2 680	39,5		Other natural causes	1 897	38,7
	Non-natural causes	754	6,4		Non-natural causes	565	8,3		Non-natural causes	185	3,8
	<b>All causes</b>	<b>11 704</b>	<b>100,0</b>		<b>All causes</b>	<b>6 787</b>	<b>100,0</b>		<b>All causes</b>	<b>4 899</b>	<b>100,0</b>
Limpopo, 65+			Limpopo, Males, 65+			Limpopo, females, 65+					
	No.	%		No.	%		No.	%			
1	Cerebrovascular diseases (I60-I69)	1 874	10,5	1	Diabetes mellitus (E10-E14)	665	8,9	1	Cerebrovascular diseases (I60-I69)	1 217	11,7
2	Hypertensive diseases (I10-I15)	1 742	9,7	2	Cerebrovascular diseases (I60-I69)	657	8,8	2	Hypertensive diseases (I10-I15)	1 121	10,8
3	Diabetes mellitus (E10-E14)	1 702	9,5	3	Hypertensive diseases (I10-I15)	621	8,3	3	Diabetes mellitus (E10-E14)	1 037	10,0
4	Influenza and pneumonia (J09-J18)	1 225	6,8	4	Influenza and pneumonia (J09-J18)	553	7,4	4	Influenza and pneumonia (J09-J18)	670	6,4
5	Other forms of heart disease (I30-I52)	878	4,9	5	Other forms of heart disease (I30-I52)	368	4,9	5	Other forms of heart disease (I30-I52)	510	4,9
6	Renal failure (N17-N19)	441	2,5	6	Malignant neoplasms of male genital organs (C60-C63)	259	3,5	6	Intestinal infectious diseases (A00-A09)	247	2,4
7	Chronic lower respiratory diseases (J40-J47)	408	2,3	7	Chronic lower respiratory diseases (J40-J47)	256	3,4	7	Renal failure (N17-N19)	216	2,1
8	Intestinal infectious diseases (A00-A09)	396	2,2	8	Tuberculosis (A15-A19)*	231	3,1	8	Malignant neoplasms of female genital organs (C51-C58)	178	1,7
9	Tuberculosis (A15-A19)*	341	1,9	9	Renal failure (N17-N19)	225	3,0	9	Other bacterial diseases (A30-A49)	156	1,5
10	Ischaemic heart diseases (I20-I25)	283	1,6	10	Intestinal infectious diseases (A00-A09)	149	2,0	10	Chronic lower respiratory diseases (J40-J47)	152	1,5
	Other natural causes	8 132	45,4		Other natural causes	3 232	43,2		Other natural causes	4 691	45,1
	Non-natural causes	474	2,6		Non-natural causes	271	3,6		Non-natural causes	202	1,9
	<b>All causes</b>	<b>17 896</b>	<b>100,0</b>		<b>All causes</b>	<b>7 487</b>	<b>100,0</b>		<b>All causes</b>	<b>10 397</b>	<b>100,0</b>

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

### Appendix N: Number of deaths by main groups of causes of death and district municipality of death occurrence (Western Cape, Eastern Cape and Northern Cape), 2016

Province of death	District municipality of death	Certain infectious and parasitic diseases (A00-B99)*	Neoplasms (C00-D48)	Diseases of the blood and immune mechanism (D50-D89)	Endocrine, nutritional and metabolic diseases (E00-E90)	Diseases of the nervous system (G00-G99)	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Certain conditions originating in the perinatal period (P00-P96)	other natural causes	External causes of morbidity and mortality (V01-Y98)	Total
Western Cape	Cape Winelands	1 174	182	47	594	123	1 246	606	154	65	603	766	6 560
	Central Karoo	143	114	7	48	13	170	105	19	7	49	121	796
	City of Cape Town	4 179	5 493	248	2 735	739	5 765	2 190	700	477	3 229	4 359	30 114
	Eden	880	1 009	59	457	138	1 121	610	123	56	386	501	5 340
	Overberg	280	452	9	162	54	515	196	47	26	191	295	2 227
	West Coast	487	512	34	265	69	711	294	68	28	259	334	3 061
	Unspecified	3	5	-	3	1	11	6	1	-	6	7	43
	<b>Total (ALL)</b>	<b>7 146</b>	<b>8 767</b>	<b>404</b>	<b>4 264</b>	<b>1 137</b>	<b>9 539</b>	<b>4 007</b>	<b>1 112</b>	<b>659</b>	<b>4 723</b>	<b>6 383</b>	<b>48 141</b>
Eastern Cape	Alfred Nzo	596	105	23	122	56	375	211	62	51	2 476	483	4 560
	Amathole	2 111	697	295	731	294	2 009	1 485	204	35	2 024	1 376	11 261
	Buffalo City	1 643	980	192	560	181	1 551	928	190	56	738	993	8 012
	Chris Hani	1 675	542	194	465	175	1 294	868	188	62	1 822	895	8 180
	Joe Gqabi	682	179	138	205	78	523	324	75	30	1 450	415	4 099
	Nelson Mandela Bay	2 279	1 476	240	1 111	251	2 578	923	346	122	924	1 211	11 461
	O.R. Tambo	2 525	586	248	509	257	1 398	700	269	51	4 590	1 694	12 827
	Sarah Baartman	1 104	631	133	411	117	1 138	567	133	60	615	647	5 556
	Unspecified	21	6	5	7	3	13	10	3	4	25	14	111
	<b>Total (ALL)</b>	<b>12 636</b>	<b>5 202</b>	<b>1 468</b>	<b>4 121</b>	<b>1 412</b>	<b>10 879</b>	<b>6 016</b>	<b>1 470</b>	<b>471</b>	<b>14 664</b>	<b>7 728</b>	<b>66 067</b>
Northern Cape	Frances Baard	537	272	193	227	79	534	235	82	60	409	269	2 897
	John Taolo Gaetsewe	497	118	48	145	52	690	272	33	88	351	275	2 569
	Namakwa	96	219	17	99	26	297	149	33	22	104	130	1 192
	Pixley ka Seme	922	460	160	293	107	889	535	146	83	518	501	4 614
	Z F Mgcawu	517	254	141	183	64	458	314	59	49	267	275	2 581
	Unspecified	2	-	2	-	-	2	2	-	1	-	6	15
	<b>Total (ALL)</b>	<b>2 571</b>	<b>1 323</b>	<b>561</b>	<b>947</b>	<b>328</b>	<b>2 870</b>	<b>1 507</b>	<b>353</b>	<b>303</b>	<b>1 649</b>	<b>1 456</b>	<b>13 868</b>

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

### Appendix N1: Number of deaths by main groups of causes of death and district municipality of death occurrence (Free State, KwaZulu-Natal and North West), 2016

Province of death	District municipality of death	Certain infectious and parasitic diseases (A00-B99)*	Neoplasms (C00-D48)	Diseases of the blood and immune mechanism (D50-D89)	Endocrine, nutritional and metabolic diseases (E00-E90)	Diseases of the nervous system (G00-G99)	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Certain conditions originating in the perinatal period (P00-P96)	other natural causes	External causes of morbidity and mortality (V01-Y98)	Total
Free State	Fezile Dabi	925	322	243	394	119	1 146	618	131	84	409	483	4 874
	Lejweleputswa	1 213	416	300	519	145	1 265	1 073	197	168	1 184	790	7 270
	Mangaung	1 266	841	279	463	147	1 237	611	233	167	1 900	779	7 923
	Thabo Mofutsanyane	2 191	503	320	783	163	1 880	891	246	200	798	801	8 776
	Xhariep	468	275	106	156	46	597	244	75	45	557	344	2 913
	Unspecified	10	2	0	6	0	8	3	2	2	5	2	40
	<b>Total (ALL)</b>	<b>6 073</b>	<b>2 359</b>	<b>1 248</b>	<b>2 321</b>	<b>620</b>	<b>6 133</b>	<b>3 440</b>	<b>884</b>	<b>666</b>	<b>4 853</b>	<b>3 199</b>	<b>31 796</b>
KwaZulu-Natal	Amajuba	955	360	137	361	93	942	517	128	101	520	556	4 670
	Harry Gwala	1 320	377	132	470	141	1 117	587	121	100	873	441	5 679
	Ugu	1 974	646	211	717	212	1 624	629	203	127	1 453	1 055	8 851
	uMgungundlovu	2 081	1 109	165	1 078	220	2 261	715	335	147	1 239	1 251	10 601
	uMkhanyakude	1 011	256	130	192	80	611	187	102	69	644	438	3 720
	uMzinyathi	926	252	106	263	76	916	319	114	116	679	510	4 277
	uThukela	1 541	411	127	461	189	1 449	611	181	123	542	797	6 432
	uThungulu	1 409	555	184	422	144	1 018	354	202	60	1 338	905	6 591
	Zululand	1 477	297	182	431	128	1 122	446	127	129	1 061	651	6 051
	eThekwini	3 654	2 388	322	1 871	446	5 668	1 471	571	306	3 127	3 050	22 874
	iLembe	1 172	405	108	439	103	942	335	135	110	507	592	4 848
	Unspecified	34	15	10	11	2	28	10	5	4	33	9	161
<b>Total (ALL)</b>	<b>17 554</b>	<b>7 071</b>	<b>1 814</b>	<b>6 716</b>	<b>1 834</b>	<b>17 698</b>	<b>6 181</b>	<b>2 224</b>	<b>1 392</b>	<b>12 016</b>	<b>10 255</b>	<b>84 755</b>	
North West	Bojanala	2 385	822	470	1 011	227	2 539	1 314	319	292	2 071	1 385	12 835
	Dr Kenneth Kaunda	1 712	837	198	398	156	1 142	655	191	150	1 133	734	7 306
	Dr Ruth Segomotsi Mompati	1 186	329	359	420	117	996	616	102	187	815	455	5 582
	Ngaka Modiri Molema	1 694	401	423	586	170	1 701	872	185	262	2 559	778	9 631
	Unspecified	9	2	2	2	2	8	0	0	1	7	18	51
	<b>Total (ALL)</b>	<b>6 986</b>	<b>2 391</b>	<b>1 452</b>	<b>2 417</b>	<b>672</b>	<b>6 386</b>	<b>3 457</b>	<b>797</b>	<b>892</b>	<b>6 585</b>	<b>3 370</b>	<b>35 405</b>

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

## Appendix N2: Number of deaths by main groups of causes of death and district municipality of death occurrence (Gauteng, Mpumalanga and Limpopo), 2016

Province of death	District municipality of death	Certain infectious and parasitic diseases (A00-B99)*	Neoplasms (C00-D48)	Diseases of the blood and immune mechanism (D50-D89)	Endocrine, nutritional and metabolic diseases (E00-E90)	Diseases of the nervous system (G00-G99)	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Certain conditions originating in the perinatal period (P00-P96)	other natural causes	External causes of morbidity and mortality (V01-Y98)	Total
Gauteng	City of Johannesburg	3 850	3 531	663	1 254	636	4 451	2 318	852	738	7 312	3 761	29 366
	City of Tshwane	3 316	2 905	481	1 671	549	4 671	1 952	652	438	3 420	1 546	21 601
	Ekurhuleni	3 869	2 265	1 005	1 340	610	4 160	2 798	702	815	5 255	2 968	25 787
	Sedibeng	1 555	902	414	647	261	2 340	1 389	331	216	1 160	1 240	10 455
	West Rand	1 342	937	473	514	236	1 713	1 027	268	193	1 921	1 166	9 790
	Unspecified	83	44	19	22	7	67	35	5	9	58	89	438
	<b>Total (ALL)</b>	<b>14 015</b>	<b>10 584</b>	<b>3 055</b>	<b>5 448</b>	<b>2 299</b>	<b>17 402</b>	<b>9 519</b>	<b>2 810</b>	<b>2 409</b>	<b>19 126</b>	<b>10 770</b>	<b>97 437</b>
Mpumalanga	Ehlanzeni	3 473	1 031	485	939	332	2 767	1 391	404	181	1 390	1 375	13 768
	Gert Sibande	2 122	513	532	626	156	1 283	792	240	256	1 420	1 043	8 983
	Nkangala	1 830	549	249	697	189	1 939	1 257	231	191	1 846	1 385	10 363
	Unspecified	26	9	9	6	3	29	9	2	1	20	33	147
	<b>Total (ALL)</b>	<b>7 451</b>	<b>2 102</b>	<b>1 275</b>	<b>2 268</b>	<b>680</b>	<b>6 018</b>	<b>3 449</b>	<b>877</b>	<b>629</b>	<b>4 676</b>	<b>3 836</b>	<b>33 261</b>
Limpopo	Capricorn	2 372	1 045	244	996	231	2 103	1 342	376	307	2 575	1 140	12 731
	Mopani	1 795	546	287	827	217	1 284	1 130	271	235	1 849	762	9 203
	Sekhukhune	2 015	419	264	709	122	2 148	1 572	187	101	1 282	835	9 654
	Vhembe	1 186	476	295	709	106	869	597	281	132	3 363	753	8 767
	Waterberg	1 129	300	136	345	79	912	532	130	108	593	635	4 899
	Unspecified	52	17	5	21	4	36	32	7	3	72	75	324
	<b>Total (ALL)</b>	<b>8 549</b>	<b>2 803</b>	<b>1 231</b>	<b>3 607</b>	<b>759</b>	<b>7 352</b>	<b>5 205</b>	<b>1 252</b>	<b>886</b>	<b>9 734</b>	<b>4 200</b>	<b>45 578</b>

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

### Appendix O: Percentage of deaths by main groups of causes of death and district municipality of death occurrence (Western Cape, Eastern Cape and Northern Cape), 2016

Province of death	District municipality of death	Certain infectious and parasitic diseases (A00-B99)*	Neoplasms (C00-D48)	Diseases of the blood and immune mechanism (D50-D89)	Endocrine, nutritional and metabolic diseases (E00-E90)	Diseases of the nervous system (G00-G99)	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Certain conditions originating in the perinatal period (P00-P96)	other natural causes	External causes of morbidity and mortality (V01-Y98)	Total
Western Cape	Cape Winelands	17,9	18,0	0,7	9,1	1,9	19,0	9,2	2,3	1,0	9,2	11,7	100,0
	Central Karoo	18,0	14,3	0,9	6,0	1,6	21,4	13,2	2,4	0,9	6,2	15,2	100,0
	City of Cape Town	13,9	18,2	0,8	9,1	2,5	19,1	7,3	2,3	1,6	10,7	14,5	100,0
	Eden	16,5	18,9	1,1	8,6	2,6	21,0	11,4	2,3	1,0	7,2	9,4	100,0
	Overberg	12,6	20,3	0,4	7,3	2,4	23,1	8,8	2,1	1,2	8,6	13,2	100,0
	West Coast	15,9	16,7	1,1	8,7	2,3	23,2	9,6	2,2	0,9	8,5	10,9	100,0
	Unspecified	7,0	11,6	0,0	7,0	2,3	25,6	14,0	2,3	0,0	14,0	16,3	100,0
	<b>Total (ALL)</b>	<b>14,8</b>	<b>18,2</b>	<b>0,8</b>	<b>8,9</b>	<b>2,4</b>	<b>19,8</b>	<b>8,3</b>	<b>2,3</b>	<b>1,4</b>	<b>9,8</b>	<b>13,3</b>	<b>100,0</b>
Eastern Cape	Alfred Nzo	13,1	2,3	0,5	2,7	1,2	8,2	4,6	1,4	1,1	54,3	10,6	100,0
	Amathole	18,7	6,2	2,6	6,5	2,6	17,8	13,2	1,8	0,3	18,0	12,2	100,0
	Buffalo City	20,5	12,2	2,4	7,0	2,3	19,4	11,6	2,4	0,7	9,2	12,4	100,0
	Chris Hani	20,5	6,6	2,4	5,7	2,1	15,8	10,6	2,3	0,8	22,3	10,9	100,0
	Joe Gqabi	16,6	4,4	3,4	5,0	1,9	12,8	7,9	1,8	0,7	35,4	10,1	100,0
	Nelson Mandela Bay	19,9	12,9	2,1	9,7	2,2	22,5	8,1	3,0	1,1	8,1	10,6	100,0
	O.R. Tambo	19,7	4,6	1,9	4,0	2,0	10,9	5,5	2,1	0,4	35,8	13,2	100,0
	Sarah Baartman	19,9	11,4	2,4	7,4	2,1	20,5	10,2	2,4	1,1	11,1	11,6	100,0
	Unspecified	18,9	5,4	4,5	6,3	2,7	11,7	9,0	2,7	3,6	22,5	12,6	100,0
	<b>Total (ALL)</b>	<b>19,1</b>	<b>7,9</b>	<b>2,2</b>	<b>6,2</b>	<b>2,1</b>	<b>16,5</b>	<b>9,1</b>	<b>2,2</b>	<b>0,7</b>	<b>22,2</b>	<b>11,7</b>	<b>100,0</b>
Northern Cape	Frances Baard	18,5	9,4	6,7	7,8	2,7	18,4	8,1	2,8	2,1	14,1	9,3	100,0
	John Taolo Gaetsewe	19,3	4,6	1,9	5,6	2,0	26,9	10,6	1,3	3,4	13,7	10,7	100,0
	Namakwa	8,1	18,4	1,4	8,3	2,2	24,9	12,5	2,8	1,8	8,7	10,9	100,0
	Pixley ka Seme	20,0	10,0	3,5	6,4	2,3	19,3	11,6	3,2	1,8	11,2	10,9	100,0
	Z F Mgcawu	20,0	9,8	5,5	7,1	2,5	17,7	12,2	2,3	1,9	10,3	10,7	100,0
	Unspecified	13,3	0,0	13,3	0,0	0,0	13,3	13,3	0,0	6,7	0,0	40,0	100,0
	<b>Total (ALL)</b>	<b>18,5</b>	<b>9,5</b>	<b>4,0</b>	<b>6,8</b>	<b>2,4</b>	<b>20,7</b>	<b>10,9</b>	<b>2,5</b>	<b>2,2</b>	<b>11,9</b>	<b>10,5</b>	<b>100,0</b>

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

### Appendix O1: Percentage of deaths by main groups of causes of death and district municipality of death occurrence (Free State, KwaZulu-Natal and North West), 2016

Province of death	District municipality of death	Certain infectious and parasitic diseases (A00-B99)*	Neoplasms (C00-D48)	Diseases of the blood and immune mechanism (D50-D89)	Endocrine, nutritional and metabolic diseases (E00-E90)	Diseases of the nervous system (G00-G99)	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Certain conditions originating in the perinatal period (P00-P96)	other natural causes	External causes of morbidity and mortality (V01-Y98)	Total
Free State	Fezile Dabi	19,0	6,6	5,0	8,1	2,4	23,5	12,7	2,7	1,7	8,4	9,9	100,0
	Lejweleputswa	16,7	5,7	4,1	7,1	2,0	17,4	14,8	2,7	2,3	16,3	10,9	100,0
	Mangaung	16,0	10,6	3,5	5,8	1,9	15,6	7,7	2,9	2,1	24,0	9,8	100,0
	Thabo Mofutsanyane	25,0	5,7	3,6	8,9	1,9	21,4	10,2	2,8	2,3	9,1	9,1	100,0
	Xhariep	16,1	9,4	3,6	5,4	1,6	20,5	8,4	2,6	1,5	19,1	11,8	100,0
	Unspecified	25,0	5,0	0,0	15,0	0,0	20,0	7,5	5,0	5,0	12,5	5,0	100,0
	<b>Total</b>	<b>19,1</b>	<b>7,4</b>	<b>3,9</b>	<b>7,3</b>	<b>1,9</b>	<b>19,3</b>	<b>10,8</b>	<b>2,8</b>	<b>2,1</b>	<b>15,3</b>	<b>10,1</b>	<b>100,0</b>
KwaZulu-Natal	Amajuba	20,4	7,7	2,9	7,7	2,0	20,2	11,1	2,7	2,2	11,1	11,9	100,0
	Harry Gwala	23,2	6,6	2,3	8,3	2,5	19,7	10,3	2,1	1,8	15,4	7,8	100,0
	Ugu	22,3	7,3	2,4	8,1	2,4	18,3	7,1	2,3	1,4	16,4	11,9	100,0
	uMgungundlovu	19,6	10,5	1,6	10,2	2,1	21,3	6,7	3,2	1,4	11,7	11,8	100,0
	uMkhanyakude	27,2	6,9	3,5	5,2	2,2	16,4	5,0	2,7	1,9	17,3	11,8	100,0
	uMzinyathi	21,7	5,9	2,5	6,1	1,8	21,4	7,5	2,7	2,7	15,9	11,9	100,0
	uThukela	24,0	6,4	2,0	7,2	2,9	22,5	9,5	2,8	1,9	8,4	12,4	100,0
	uThungulu	21,4	8,4	2,8	6,4	2,2	15,4	5,4	3,1	0,9	20,3	13,7	100,0
	Zululand	24,4	4,9	3,0	7,1	2,1	18,5	7,4	2,1	2,1	17,5	10,8	100,0
	eThekwini	16,0	10,4	1,4	8,2	1,9	24,8	6,4	2,5	1,3	13,7	13,3	100,0
	iLembe	24,2	8,4	2,2	9,1	2,1	19,4	6,9	2,8	2,3	10,5	12,2	100,0
	Unspecified	21,1	9,3	6,2	6,8	1,2	17,4	6,2	3,1	2,5	20,5	5,6	100,0
<b>Total</b>	<b>20,7</b>	<b>8,3</b>	<b>2,1</b>	<b>7,9</b>	<b>2,2</b>	<b>20,9</b>	<b>7,3</b>	<b>2,6</b>	<b>1,6</b>	<b>14,2</b>	<b>12,1</b>	<b>100,0</b>	
North West	Bojanala	18,6	6,4	3,7	7,9	1,8	19,8	10,2	2,5	2,3	16,1	10,8	100,0
	Dr Kenneth Kaunda	23,4	11,5	2,7	5,4	2,1	15,6	9,0	2,6	2,1	15,5	10,0	100,0
	Dr Ruth Segomotsi Mompati	21,2	5,9	6,4	7,5	2,1	17,8	11,0	1,8	3,4	14,6	8,2	100,0
	Ngaka Modiri Molema	17,6	4,2	4,4	6,1	1,8	17,7	9,1	1,9	2,7	26,6	8,1	100,0
	Unspecified	17,6	3,9	3,9	3,9	3,9	15,7	0,0	0,0	2,0	13,7	35,3	100,0
<b>Total</b>	<b>19,7</b>	<b>6,8</b>	<b>4,1</b>	<b>6,8</b>	<b>1,9</b>	<b>18,0</b>	<b>9,8</b>	<b>2,3</b>	<b>2,5</b>	<b>18,6</b>	<b>9,5</b>	<b>100,0</b>	

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

## Appendix O2: Percentage of deaths by main groups of causes of death and district municipality of death occurrence (Gauteng, Mpumalanga and Limpopo), 2016

Province of death	District municipality of death	Certain infectious and parasitic diseases (A00-B99)*	Neoplasms (C00-D48)	Diseases of the blood and immune mechanism (D50-D89)	Endocrine, nutritional and metabolic diseases (E00-E90)	Diseases of the nervous system (G00-G99)	Diseases of the circulatory system (I00-I99)	Diseases of the respiratory system (J00-J99)	Diseases of the digestive system (K00-K93)	Certain conditions originating in the perinatal period (P00-P96)	other natural causes	External causes of morbidity and mortality (V01-Y98)	Total
Gauteng	City of Johannesburg	13,1	12,0	2,3	4,3	2,2	15,2	7,9	2,9	2,5	24,9	12,8	100,0
	City of Tshwane	15,4	13,4	2,2	7,7	2,5	21,6	9,0	3,0	2,0	15,8	7,2	100,0
	Ekurhuleni	15,0	8,8	3,9	5,2	2,4	16,1	10,9	2,7	3,2	20,4	11,5	100,0
	Sedibeng	14,9	8,6	4,0	6,2	2,5	22,4	13,3	3,2	2,1	11,1	11,9	100,0
	West Rand	13,7	9,6	4,8	5,3	2,4	17,5	10,5	2,7	2,0	19,6	11,9	100,0
	Unspecified	18,9	10,0	4,3	5,0	1,6	15,3	8,0	1,1	2,1	13,2	20,3	100,0
	<b>Total</b>	<b>14,4</b>	<b>10,9</b>	<b>3,1</b>	<b>5,6</b>	<b>2,4</b>	<b>17,9</b>	<b>9,8</b>	<b>2,9</b>	<b>2,5</b>	<b>19,6</b>	<b>11,1</b>	<b>100,0</b>
Mpumalanga	Ehlanzeni	25,2	7,5	3,5	6,8	2,4	20,1	10,1	2,9	1,3	10,1	10,0	100,0
	Gert Sibande	23,6	5,7	5,9	7,0	1,7	14,3	8,8	2,7	2,8	15,8	11,6	100,0
	Nkangala	17,7	5,3	2,4	6,7	1,8	18,7	12,1	2,2	1,8	17,8	13,4	100,0
	Unspecified	17,7	6,1	6,1	4,1	2,0	19,7	6,1	1,4	0,7	13,6	22,4	100,0
	<b>Total</b>	<b>22,4</b>	<b>6,3</b>	<b>3,8</b>	<b>6,8</b>	<b>2,0</b>	<b>18,1</b>	<b>10,4</b>	<b>2,6</b>	<b>1,9</b>	<b>14,1</b>	<b>11,5</b>	<b>100,0</b>
Limpopo	Capricorn	18,6	8,2	1,9	7,8	1,8	16,5	10,5	3,0	2,4	20,2	9,0	100,0
	Mopani	19,5	5,9	3,1	9,0	2,4	14,0	12,3	2,9	2,6	20,1	8,3	100,0
	Sekhukhune	20,9	4,3	2,7	7,3	1,3	22,2	16,3	1,9	1,0	13,3	8,6	100,0
	Vhembe	13,5	5,4	3,4	8,1	1,2	9,9	6,8	3,2	1,5	38,4	8,6	100,0
	Waterberg	23,0	6,1	2,8	7,0	1,6	18,6	10,9	2,7	2,2	12,1	13,0	100,0
	Unspecified	16,0	5,2	1,5	6,5	1,2	11,1	9,9	2,2	0,9	22,2	23,1	100,0
	<b>Total</b>	<b>18,8</b>	<b>6,1</b>	<b>2,7</b>	<b>7,9</b>	<b>1,7</b>	<b>16,1</b>	<b>11,4</b>	<b>2,7</b>	<b>1,9</b>	<b>21,4</b>	<b>9,2</b>	<b>100,0</b>

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

### Appendix P: The ten leading underlying natural causes of death by district municipality of death occurrence, Western Cape 2016\*

Cape Winelands			No.	%	Central Karoo			No.	%	City of Cape Town			No.	%
Diabetes mellitus (E10-E14)	1	517	7,9	Chronic lower respiratory diseases (J40-J47)	1	78	9,8	Diabetes mellitus (E10-E14)	1	2 403	8,0			
Human immunodeficiency virus [HIV] disease (B20-B24)	2	460	7,0	Tuberculosis (A15-A19)	2	61	7,7	Human immunodeficiency virus [HIV] disease (B20-B24)	2	1 867	6,2			
Tuberculosis (A15-A19)	3	437	6,7	Cerebrovascular diseases (I60-I69)	3	46	5,8	Ischaemic heart diseases (I20-I25)	3	1 769	5,9			
Chronic lower respiratory diseases (J40-J47)	4	422	6,4	Human immunodeficiency virus [HIV] disease (B20-B24)	4	44	5,5	Cerebrovascular diseases (I60-I69)	4	1 514	5,0			
Cerebrovascular diseases (I60-I69)	5	401	6,1	Hypertensive diseases (I10-I15)	5	40	5,0	Malignant neoplasms of digestive organs (C15-C26)	5	1 359	4,5			
Ischaemic heart diseases (I20-I25)	6	341	5,2	Ischaemic heart diseases (I20-I25)	6	40	5,0	Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	6	1 311	4,4			
Malignant neoplasms of digestive organs (C15-C26)	7	323	4,9	Diabetes mellitus (E10-E14)	7	36	4,5	Tuberculosis (A15-A19)	7	1 296	4,3			
Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	8	323	4,9	Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	8	30	3,8	Hypertensive diseases (I10-I15)	8	1 184	3,9			
Hypertensive diseases (I10-I15)	9	226	3,4	Other forms of heart disease (I30-I52)	9	26	3,3	Chronic lower respiratory diseases (J40-J47)	9	1 164	3,9			
Other forms of heart disease (I30-I52)	10	199	3,0	Malignant neoplasms of digestive organs (C15-C26)	10	23	2,9	Other forms of heart disease (I30-I52)	10	908	3,0			
Other natural causes		2 145	32,7	Other natural causes		251	31,5	Other natural causes		10 980	36,5			
Non-natural causes		766	11,7	Non-natural causes		121	15,2	Non-natural causes		4 359	14,5			
All causes		<b>6 560</b>	<b>100</b>	All causes		<b>796</b>	<b>100,0</b>	All causes		<b>30 114</b>	<b>100,0</b>			
Eden			No.	%	Overberg			No.	%	West Coast			No.	%
Diabetes mellitus (E10-E14)	1	396	7,4	Ischaemic heart diseases (I20-I25)	1	160	7,2	Cerebrovascular diseases (I60-I69)	1	244	8,0			
Chronic lower respiratory diseases (J40-J47)	2	360	6,7	Diabetes mellitus (E10-E14)	2	142	6,4	Tuberculosis (A15-A19)	2	223	7,3			
Tuberculosis (A15-A19)	3	347	6,5	Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	3	140	6,3	Chronic lower respiratory diseases (J40-J47)	3	218	7,1			
Cerebrovascular diseases (I60-I69)	4	347	6,5	Cerebrovascular diseases (I60-I69)	4	128	5,7	Diabetes mellitus (E10-E14)	4	215	7,0			
Ischaemic heart diseases (I20-I25)	5	343	6,4	Chronic lower respiratory diseases (J40-J47)	5	128	5,7	Ischaemic heart diseases (I20-I25)	5	210	6,9			
Human immunodeficiency virus [HIV] disease (B20-B24)	6	334	6,3	Malignant neoplasms of digestive organs (C15-C26)	6	112	5,0	Human immunodeficiency virus [HIV] disease (B20-B24)	6	166	5,4			
Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	7	262	4,9	Human immunodeficiency virus [HIV] disease (B20-B24)	7	107	4,8	Hypertensive diseases (I10-I15)	7	136	4,4			
Malignant neoplasms of digestive organs (C15-C26)	8	251	4,7	Hypertensive diseases (I10-I15)	8	103	4,6	Malignant neoplasms of digestive organs (C15-C26)	8	133	4,3			
Hypertensive diseases (I10-I15)	9	178	3,3	Tuberculosis (A15-A19)	9	96	4,3	Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	9	127	4,1			
Other forms of heart disease (I30-I52)	10	171	3,2	Other forms of heart disease (I30-I52)	10	81	3,6	Other forms of heart disease (I30-I52)	10	83	2,7			
Other natural causes		1 850	34,6	Other natural causes		735	33,0	Other natural causes		972	31,8			
Non-natural causes		501	9,4	Non-natural causes		295	13,2	non-natural causes		334	10,9			
All causes		<b>5 340</b>	<b>100</b>	All causes		<b>2 227</b>	<b>100,0</b>	All causes		<b>3 061</b>	<b>100,0</b>			

**Appendix P1: The ten leading underlying natural causes of death by district municipality of death occurrence, Eastern Cape, 2016\***

Alfred Nzo		No.	%	Amathole		No.	%	Buffalo City		No.	%
Tuberculosis (A15-A19)	1	214	4,7	Tuberculosis (A15-A19)	1	987	8,8	Tuberculosis (A15-A19)	1	664	8,3
Other forms of heart disease (I30-I52)	2	163	3,6	Other forms of heart disease (I30-I52)	2	598	5,3	Human immunodeficiency virus [HIV] disease (B20-B24)	2	575	7,2
Human immunodeficiency virus [HIV] disease (B20-B24)	3	155	3,4	Cerebrovascular diseases (I60-I69)	3	591	5,2	Other forms of heart disease (I30-I52)	3	524	6,5
Other viral diseases (B25-B34)	4	120	2,6	Hypertensive diseases (I10-I15)	4	588	5,2	Diabetes mellitus (E10-E14)	4	480	6,0
Cerebrovascular diseases (I60-I69)	5	116	2,5	Chronic lower respiratory diseases (J40-J47)	5	587	5,2	Cerebrovascular diseases (I60-I69)	5	403	5,0
Diabetes mellitus (E10-E14)	6	92	2,0	Diabetes mellitus (E10-E14)	6	573	5,1	Malignant neoplasms of digestive organs (C15-C26)	6	338	4,2
Influenza and pneumonia (J09-J18)	7	78	1,7	Influenza and pneumonia (J09-J18)	7	493	4,4	Hypertensive diseases (I10-I15)	7	331	4,1
Intestinal infectious diseases (A00-A09)	8	77	1,7	Human immunodeficiency virus [HIV] disease (B20-B24)	8	430	3,8	Chronic lower respiratory diseases (J40-J47)	8	328	4,1
Hypertensive diseases (I10-I15)	9	61	1,3	Other viral diseases (B25-B34)	9	401	3,6	Other diseases of the respiratory system (J95-J99)	9	290	3,6
Chronic lower respiratory diseases (J40-J47)	10	55	1,2	Malignant neoplasms of digestive organs (C15-C26)	10	285	2,5	Influenza and pneumonia (J09-J18)	10	231	2,9
Other natural		2 946	64,6	Other Natural causes		4 352	38,6	Other Natural causes		2 855	35,6
Non-Natural		483	10,6	Non-natural causes		1 376	12,2	Non-natural causes		993	12,4
All causes		<b>4 560</b>	<b>100,0</b>	All causes		<b>11 261</b>	<b>100,0</b>	All causes		<b>8 012</b>	<b>100,0</b>
Chris Hani		No.	%	Joe Gqabi		No.	%	Nelson Mandela Bay		No.	%
Tuberculosis (A15-A19)	1	692	8,5	Tuberculosis (A15-A19)	1	273	6,7	Diabetes mellitus (E10-E14)	1	993	8,7
Human immunodeficiency virus [HIV] disease (B20-B24)	2	440	5,4	Human immunodeficiency virus [HIV] disease (B20-B24)	2	199	4,9	Tuberculosis (A15-A19)	2	902	7,9
Cerebrovascular diseases (I60-I69)	3	415	5,1	Cerebrovascular diseases (I60-I69)	3	170	4,1	Human immunodeficiency virus [HIV] disease (B20-B24)	3	827	7,2
Hypertensive diseases (I10-I15)	4	383	4,7	Influenza and pneumonia (J09-J18)	4	151	3,7	Hypertensive diseases (I10-I15)	4	781	6,8
Other viral diseases (B25-B34)	5	357	4,4	Other viral diseases (B25-B34)	5	136	3,3	Cerebrovascular diseases (I60-I69)	5	682	6,0
Chronic lower respiratory diseases (J40-J47)	6	357	4,4	Other forms of heart disease (I30-I52)	6	132	3,2	Other forms of heart disease (I30-I52)	6	580	5,1
Diabetes mellitus (E10-E14)	7	355	4,3	Diabetes mellitus (E10-E14)	7	131	3,2	Chronic lower respiratory diseases (J40-J47)	7	504	4,4
Other forms of heart disease (I30-I52)	8	305	3,7	Certain disorders involving the immune mechanism (D80-D89)	8	126	3,1	Ischaemic heart diseases (I20-I25)	8	430	3,8
Influenza and pneumonia (J09-J18)	9	292	3,6	Hypertensive diseases (I10-I15)	9	121	3,0	Malignant neoplasms of digestive organs (C15-C26)	9	362	3,2
Malignant neoplasms of digestive organs (C15-C26)	10	185	2,3	Chronic lower respiratory diseases (J40-J47)	10	92	2,2	Other viral diseases (B25-B34)	10	348	3,0
Other natural causes		3 504	42,8	Other natural causes		2 153	52,5	Other Natural causes		3 841	33,5
Non-natural causes		895	10,9	non-natural causes		415	10,1	Non-natural causes		1 211	10,6
All causes		<b>8 180</b>	<b>100,0</b>	All causes		<b>4 099</b>	<b>100,0</b>	All causes		<b>11 461</b>	<b>100,0</b>

**Appendix P1: The ten leading underlying natural causes of death by district municipality of death occurrence, Eastern Cape, 2016\* (concluded)**

O.R. Tambo		No.	%	Sarah Baartman		No.	%
Tuberculosis (A15-A19)	1	1 016	7,9	Tuberculosis (A15-A19)	1	452	8,1
Human immunodeficiency virus [HIV] disease (B20-B24)	2	779	6,1	Human immunodeficiency virus [HIV] disease (B20-B24)	2	384	6,9
Other forms of heart disease (I30-I52)	3	609	4,7	Diabetes mellitus (E10-E14)	3	349	6,3
Cerebrovascular diseases (I60-I69)	4	433	3,4	Hypertensive diseases (I10-I15)	4	333	6,0
Other viral diseases (B25-B34)	5	422	3,3	Chronic lower respiratory diseases (J40-J47)	5	321	5,8
Diabetes mellitus (E10-E14)	6	368	2,9	Cerebrovascular diseases (I60-I69)	6	315	5,7
Influenza and pneumonia (J09-J18)	7	264	2,1	Other forms of heart disease (I30-I52)	7	231	4,2
Hypertensive diseases (I10-I15)	8	220	1,7	Ischaemic heart diseases (I20-I25)	8	204	3,7
Chronic lower respiratory diseases (J40-J47)	9	209	1,6	Other viral diseases (B25-B34)	9	159	2,9
Malignant neoplasms of digestive organs (C15-C26)	10	198	1,5	Malignant neoplasms of digestive organs (C15-C26)	10	157	2,8
Other natural causes		6 615	51,6	Other natural causes		2 004	36,1
Non-natural causes		1 694	13,2	Non-natural causes		647	11,6
All causes		<b>12 827</b>	<b>100,0</b>	All causes		<b>5 556</b>	<b>100,0</b>

### Appendix P2: The ten leading underlying natural causes of death by district municipality of death occurrence, Northern Cape, 2016\*

Frances Baard		no.	%	John Taolo Gaetsewe		No.	%	Namakwa		No.	%
Hypertensive diseases (I10-I15)	1	203	7,0	Other forms of heart disease (I30-I52)	1	429	16,7	Chronic lower respiratory diseases (J40-J47)	1	90	7,6
Tuberculosis (A15-A19)	2	182	6,3	Influenza and pneumonia (J09-J18)	2	179	7,0	Diabetes mellitus (E10-E14)	2	85	7,1
Certain disorders involving the immune mechanism (D80-D89)	3	182	6,3	Hypertensive diseases (I10-I15)	3	143	5,6	Ischaemic heart diseases (I20-I25)	3	85	7,1
Human immunodeficiency virus [HIV] disease (B20-B24)	4	159	5,5	Tuberculosis (A15-A19)	4	142	5,5	Cerebrovascular diseases (I60-I69)	4	81	6,8
Diabetes mellitus (E10-E14)	5	150	5,2	Human immunodeficiency virus [HIV] disease (B20-B24)	5	137	5,3	Hypertensive diseases (I10-I15)	5	75	6,3
Cerebrovascular diseases (I60-I69)	6	149	5,1	Other viral diseases (B25-B34)	6	100	3,9	Malignant neoplasms of digestive organs (C15-C26)	6	52	4,4
Other viral diseases (B25-B34)	7	130	4,5	Intestinal infectious diseases (A00-A09)	7	90	3,5	Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	7	51	4,3
Chronic lower respiratory diseases (J40-J47)	8	95	3,3	Diabetes mellitus (E10-E14)	8	75	2,9	Tuberculosis (A15-A19)	8	49	4,1
Malignant neoplasms of digestive organs (C15-C26)	9	83	2,9	Cerebrovascular diseases (I60-I69)	9	61	2,4	Other forms of heart disease (I30-I52)	9	38	3,2
Ischaemic heart diseases (I20-I25)	10	81	2,8	Ischaemic heart diseases (I20-I25)	10	52	2,0	Malignant neoplasms of male genital organs (C60-C63)	10	32	2,7
Other natural causes		1 214	41,9	Other natural causes		886	34,5	Other causes		424	35,6
Non-natural causes		269	9,3	Non-natural causes		275	10,7	Non-Natural causes		130	10,9
All causes		<b>2 897</b>	<b>100,0</b>	All causes		<b>2 569</b>	<b>100,0</b>	All causes		<b>1 192</b>	<b>100,0</b>
Pixley ka Seme		No.	%	Z.F. Mgcawu		No.	%				
Human immunodeficiency virus [HIV] disease (B20-B24)	1	365	7,9	Tuberculosis (A15-A19)	1	228	8,8				
Tuberculosis (A15-A19)	2	336	7,3	Human immunodeficiency virus [HIV] disease (B20-B24)	2	168	6,5				
Cerebrovascular diseases (I60-I69)	3	309	6,7	Hypertensive diseases (I10-I15)	3	148	5,7				
Chronic lower respiratory diseases (J40-J47)	4	237	5,1	Chronic lower respiratory diseases (J40-J47)	4	141	5,5				
Diabetes mellitus (E10-E14)	5	199	4,3	Diabetes mellitus (E10-E14)	5	134	5,2				
Ischaemic heart diseases (I20-I25)	6	192	4,2	Certain disorders involving the immune mechanism (D80-D89)	6	125	4,8				
Influenza and pneumonia (J09-J18)	7	192	4,2	Cerebrovascular diseases (I60-I69)	7	118	4,6				
Hypertensive diseases (I10-I15)	8	189	4,1	Influenza and pneumonia (J09-J18)	8	95	3,7				
Other forms of heart disease (I30-I52)	9	137	3,0	Other forms of heart disease (I30-I52)	9	85	3,3				
Certain disorders involving the immune mechanism (D80-D89)	10	122	2,6	Ischaemic heart diseases (I20-I25)	10	79	3,1				
Other natural causes		1 835	39,8	Other natural causes		985	38,2				
Non-natural causes		501	10,9	Non-natural causes		275	10,7				
All causes		<b>4 614</b>	<b>100,0</b>	All causes		<b>2 581</b>	<b>100,0</b>				

### Appendix P3: The ten leading underlying natural causes of death by district municipality of death occurrence, Free State, 2016\*

Fezile Dabi		No.	%	Lejweleputswa		No.	%	Mangaung			
Tuberculosis (A15-A19)	1	410	8,4	Influenza and pneumonia (J09-J18)	1	787	11	Human immunodeficiency virus [HIV] disease (B20-B24)	1	477	6,0
Hypertensive diseases (I10-I15)	2	350	7,2	Tuberculosis (A15-A19)	2	433	6	Cerebrovascular diseases (I60-I69)	2	368	4,6
Other forms of heart disease (I30-I52)	3	338	6,9	Diabetes mellitus (E10-E14)	3	352	5	Hypertensive diseases (I10-I15)	3	356	4,5
Influenza and pneumonia (J09-J18)	4	283	5,8	Hypertensive diseases (I10-I15)	4	347	5	Tuberculosis (A15-A19)	4	352	4,4
Cerebrovascular diseases (I60-I69)	5	271	5,6	Other forms of heart disease (I30-I52)	5	331	5	Diabetes mellitus (E10-E14)	5	345	4,4
Diabetes mellitus (E10-E14)	6	269	5,5	Other viral diseases (B25-B34)	6	318	4	Influenza and pneumonia (J09-J18)	6	309	3,9
Other viral diseases (B25-B34)	7	258	5,3	Cerebrovascular diseases (I60-I69)	7	314	4	Other forms of heart disease (I30-I52)	7	284	3,6
Certain disorders involving the immune mechanism (D80-D89)	8	192	3,9	Certain disorders involving the immune mechanism (D80-D89)	8	236	3	Other viral diseases (B25-B34)	8	243	3,1
Other acute lower respiratory infections (J20-J22)	9	153	3,1	Human immunodeficiency virus [HIV] disease (B20-B24)	9	220	3	Certain disorders involving the immune mechanism (D80-D89)	9	217	2,7
Ischaemic heart diseases (I20-I25)	10	135	2,8	Ischaemic heart diseases (I20-I25)	10	200	3	Malignant neoplasms of digestive organs (C15-C26)	10	194	2,4
Other natural		1 732	35,5	Other natural		2942	40	Other natural causes		3 999	50,5
Non-natural		483	9,9	Non-natural		790	11	Non-natural causes		779	9,8
<b>All causes</b>		<b>4 874</b>	<b>100,0</b>	<b>All causes</b>		<b>7270</b>	<b>100</b>	<b>All causes</b>		<b>7 923</b>	<b>100,0</b>
Thabo Mofutsanyane		No.	%	Xhariep		No.	%				
Tuberculosis (A15-A19)	1	656	7,5	Other forms of heart disease (I30-I52)	1	187	6,4				
Other viral diseases (B25-B34)	2	651	7,4	Cerebrovascular diseases (I60-I69)	2	186	6,4				
Diabetes mellitus (E10-E14)	3	581	6,6	Human immunodeficiency virus [HIV] disease (B20-B24)	3	169	5,8				
Hypertensive diseases (I10-I15)	4	578	6,6	Tuberculosis (A15-A19)	4	140	4,8				
Cerebrovascular diseases (I60-I69)	5	574	6,5	Influenza and pneumonia (J09-J18)	5	126	4,3				
Human immunodeficiency virus [HIV] disease (B20-B24)	6	564	6,4	Diabetes mellitus (E10-E14)	6	118	4,1				
Influenza and pneumonia (J09-J18)	7	485	5,5	Hypertensive diseases (I10-I15)	7	114	3,9				
Other forms of heart disease (I30-I52)	8	440	5,0	Certain disorders involving the immune mechanism (D80-D89)	8	93	3,2				
Certain disorders involving the immune mechanism (D80-D89)	9	263	3,0	Other viral diseases (B25-B34)	9	84	2,9				
Chronic lower respiratory diseases (I40-I47)	10	195	2,2	Chronic lower respiratory diseases (I40-I47)	10	83	2,8				
Other natural causes\		2 988	34,0	Other natural		1 269	43,6				
Non-natural causes		801	9,1	Non-natural		344	11,8				
<b>All causes</b>		<b>8 776</b>	<b>100,0</b>	<b>All causes</b>		<b>2 913</b>	<b>100,0</b>				

### Appendix P4: The ten leading underlying natural causes of death by district municipality of death occurrence, KwaZulu-Natal, 2016\*

Amajuba		No.	%	Harry Gwala		No.	%	Ugu		No.	%
Tuberculosis (A15-A19)	1	418	9,0	Tuberculosis (A15-A19)	1	480	8,5	Tuberculosis (A15-A19)	1	749	8,5
Other forms of heart disease (I30-I52)	2	351	7,5	Human immunodeficiency virus [HIV] disease (B20-B24)	2	471	8,3	Diabetes mellitus (E10-E14)	2	615	6,9
Diabetes mellitus (E10-E14)	3	292	6,3	Other forms of heart disease (I30-I52)	3	444	7,8	Human immunodeficiency virus [HIV] disease (B20-B24)	3	580	6,6
Other viral diseases (B25-B34)	4	264	5,7	Diabetes mellitus (E10-E14)	4	391	6,9	Cerebrovascular diseases (I60-I69)	4	549	6,2
Influenza and pneumonia (J09-J18)	5	255	5,5	Cerebrovascular diseases (I60-I69)	5	347	6,1	Other viral diseases (B25-B34)	5	427	4,8
Cerebrovascular diseases (I60-I69)	6	253	5,4	Influenza and pneumonia (J09-J18)	6	248	4,4	Hypertensive diseases (I10-I15)	6	420	4,7
Hypertensive diseases (I10-I15)	7	217	4,6	Hypertensive diseases (I10-I15)	7	220	3,9	Other forms of heart disease (I30-I52)	7	391	4,4
Renal failure (N17-N19)	8	150	3,2	Chronic lower respiratory diseases (J40-J47)	8	204	3,6	Chronic lower respiratory diseases (J40-J47)	8	252	2,8
Human immunodeficiency virus [HIV] disease (B20-B24)	9	137	2,9	Other viral diseases (B25-B34)	9	203	3,6	Influenza and pneumonia (J09-J18)	9	218	2,5
Certain disorders involving the immune mechanism (D80-D89)	10	103	2,2	Malignant neoplasms of digestive organs (C15-C26)	10	102	1,8	Malignant neoplasms of digestive organs (C15-C26)	10	204	2,3
Other natural causes		1 674	35,8	Other natural causes		2 128	37,5	Other Natural causes		3 391	38,3
Non-natural causes		556	11,9	Non-natural causes		441	7,8	Non-natural causes		1 055	11,9
All causes		<b>4 670</b>	<b>100,0</b>	All causes		<b>5 679</b>	<b>100,0</b>	All causes		<b>8 851</b>	<b>100,0</b>
uMgungundlovu		No.	%	uMkhanyakude		No.	%	uMzinyathi		No.	%
Diabetes mellitus (E10-E14)	1	902	8,5	Human immunodeficiency virus [HIV] disease (B20-B24)	1	510	13,7	Other forms of heart disease (I30-I52)	1	358	8,4
Human immunodeficiency virus [HIV] disease (B20-B24)	2	844	8,0	Cerebrovascular diseases (I60-I69)	2	247	6,6	Cerebrovascular diseases (I60-I69)	2	309	7,2
Tuberculosis (A15-A19)	3	636	6,0	Tuberculosis (A15-A19)	3	245	6,6	Tuberculosis (A15-A19)	3	305	7,1
Other forms of heart disease (I30-I52)	4	633	6,0	General symptoms and signs (R50-R69)	4	237	6,4	Human immunodeficiency virus [HIV] disease (B20-B24)	4	223	5,2
Cerebrovascular diseases (I60-I69)	5	614	5,8	Hypertensive diseases (I10-I15)	5	159	4,3	Diabetes mellitus (E10-E14)	5	215	5,0
Hypertensive diseases (I10-I15)	6	546	5,2	Diabetes mellitus (E10-E14)	6	144	3,9	Other viral diseases (B25-B34)	6	213	5,0
Ischaemic heart diseases (I20-I25)	7	362	3,4	Other forms of heart disease (I30-I52)	7	125	3,4	Hypertensive diseases (I10-I15)	7	160	3,7
Malignant neoplasms of digestive organs (C15-C26)	8	305	2,9	Other viral diseases (B25-B34)	8	123	3,3	Influenza and pneumonia (J09-J18)	8	144	3,4
Influenza and pneumonia (J09-J18)	9	303	2,9	Certain disorders involving the immune mechanism (D80-D89)	9	106	2,8	Other bacterial diseases (A30-A49)	9	91	2,1
Chronic lower respiratory diseases (J40-J47)	10	224	2,1	Intestinal infectious diseases (A00-A09)	10	83	2,2	Certain disorders involving the immune mechanism (D80-D89)	10	89	2,1
Other natural causes		3 981	37,6	Other natural causes		1 303	35,0	Other natural causes		1 660	38,8
Non-natural causes		1 251	11,8	Non-natural causes		438	11,8	Non-natural causes		510	11,9
All causes		<b>10 601</b>	<b>100,0</b>	All causes		<b>3 720</b>	<b>100,0</b>	All causes		<b>4 277</b>	<b>100,0</b>

**Appendix P4: The ten leading underlying natural causes of death by district municipality of death occurrence, KwaZulu-Natal, 2016\* (concluded)**

uThukela		No.	%	uThungulu		No.	%	Zululand		No.	%
Tuberculosis (A15-A19)	1	506	7,9	Tuberculosis (A15-A19)	1	519	7,9	Human immunodeficiency virus [HIV] disease (B20-B24)	1	570	9,4
Cerebrovascular diseases (I60-I69)	2	478	7,4	Cerebrovascular diseases (I60-I69)	2	417	6,3	Tuberculosis (A15-A19)	2	511	8,4
Human immunodeficiency virus [HIV] disease (B20-B24)	3	460	7,2	Human immunodeficiency virus [HIV] disease (B20-B24)	3	399	6,1	Other forms of heart disease (I30-I52)	3	388	6,4
Diabetes mellitus (E10-E14)	4	389	6,0	Diabetes mellitus (E10-E14)	4	341	5,2	Cerebrovascular diseases (I60-I69)	4	365	6,0
Influenza and pneumonia (J09-J18)	5	360	5,6	Other viral diseases (B25-B34)	5	301	4,6	Diabetes mellitus (E10-E14)	5	313	5,2
Other forms of heart disease (I30-I52)	6	340	5,3	Hypertensive diseases (I10-I15)	6	245	3,7	Influenza and pneumonia (J09-J18)	6	228	3,8
Hypertensive diseases (I10-I15)	7	332	5,2	Other forms of heart disease (I30-I52)	7	230	3,5	Hypertensive diseases (I10-I15)	7	196	3,2
Other viral diseases (B25-B34)	8	235	3,7	Malignant neoplasms of digestive organs (C15-C26)	8	152	2,3	Other viral diseases (B25-B34)	8	183	3,0
Intestinal infectious diseases (A00-A09)	9	232	3,6	Certain disorders involving the immune mechanism (D80-D89)	9	144	2,2	Certain disorders involving the immune mechanism (D80-D89)	9	135	2,2
Ischaemic heart diseases (I20-I25)	10	209	3,2	Influenza and pneumonia (J09-J18)	10	139	2,1	Intestinal infectious diseases (A00-A09)	10	122	2,0
Other natural causes		2 094	32,6	Other natural causes		2 799	42,5	Other natural causes		2 389	39,5
Non-natural causes		797	12,4	Non-natural causes		905	13,7	Non-natural causes		651	10,8
All causes		<b>6 432</b>	<b>100,0</b>	All causes		<b>6 591</b>	<b>100,0</b>	All causes		<b>6 051</b>	<b>100,0</b>
eThekweni		No.	%	iLembe		No.	%				
Other forms of heart disease (I30-I52)	1	2 768	12,1	Tuberculosis (A15-A19)	1	530	10,9				
Diabetes mellitus (E10-E14)	2	1 619	7,1	Cerebrovascular diseases (I60-I69)	2	364	7,5				
Tuberculosis (A15-A19)	3	1 492	6,5	Diabetes mellitus (E10-E14)	3	348	7,2				
Cerebrovascular diseases (I60-I69)	4	1 122	4,9	Other viral diseases (B25-B34)	4	245	5,1				
Ischaemic heart diseases (I20-I25)	5	1 003	4,4	Other forms of heart disease (I30-I52)	5	233	4,8				
Human immunodeficiency virus [HIV] disease (B20-B24)	6	920	4,0	Human immunodeficiency virus [HIV] disease (B20-B24)	6	177	3,7				
Influenza and pneumonia (J09-J18)	7	681	3,0	Ischaemic heart diseases (I20-I25)	7	171	3,5				
Other viral diseases (B25-B34)	8	647	2,8	Influenza and pneumonia (J09-J18)	8	157	3,2				
Malignant neoplasms of digestive organs (C15-C26)	9	601	2,6	Hypertensive diseases (I10-I15)	9	148	3,1				
Hypertensive diseases (I10-I15)	10	566	2,5	Renal failure (N17-N19)	10	110	2,3				
Other natural causes		8 405	36,7	Other natural causes		1 773	36,6				
Non-natural causes		3 050	13,3	Non-natural causes		592	12,2				
All causes		<b>22 874</b>	<b>100,0</b>	All causes		<b>4 848</b>	<b>100,0</b>				

**Appendix P5: The ten leading underlying natural causes of death by district municipality of death occurrence, North West, 2016\***

Bojanala		No.	%	Dr Kenneth Kaunda		No.	%	Dr Ruth Segomotsi Mompoti		No.	%
Tuberculosis (A15-A19)	1	906	7,1	Tuberculosis (A15-A19)	1	608	8,3	Tuberculosis (A15-A19)	1	396	7,1
Hypertensive diseases (I10-I15)	2	843	6,6	Human immunodeficiency virus [HIV] disease (B20-B24)	2	474	6,5	Hypertensive diseases (I10-I15)	2	387	6,9
Diabetes mellitus (E10-E14)	3	782	6,1	Other viral diseases (B25-B34)	3	389	5,3	Other viral diseases (B25-B34)	3	347	6,2
Other forms of heart disease (I30-I52)	4	779	6,1	Hypertensive diseases (I10-I15)	4	354	4,8	Influenza and pneumonia (J09-J18)	4	312	5,6
Influenza and pneumonia (J09-J18)	5	650	5,1	Influenza and pneumonia (J09-J18)	5	291	4,0	Other forms of heart disease (I30-I52)	5	293	5,2
Cerebrovascular diseases (I60-I69)	6	635	4,9	Cerebrovascular diseases (I60-I69)	6	287	3,9	Certain disorders involving the immune mechanism (D80-D89)	6	289	5,2
Other viral diseases (B25-B34)	7	603	4,7	Diabetes mellitus (E10-E14)	7	264	3,6	Human immunodeficiency virus [HIV] disease (B20-B24)	7	272	4,9
Chronic lower respiratory diseases (J40-J47)	8	358	2,8	Chronic lower respiratory diseases (J40-J47)	8	244	3,3	Diabetes mellitus (E10-E14)	8	206	3,7
Certain disorders involving the immune mechanism (D80-D89)	9	353	2,8	Other forms of heart disease (I30-I52)	9	223	3,1	Cerebrovascular diseases (I60-I69)	9	206	3,7
Intestinal infectious diseases (A00-A09)	10	321	2,5	Ischaemic heart diseases (I20-I25)	10	195	2,7	Chronic lower respiratory diseases (J40-J47)	10	135	2,4
Other natural causes		5 220	40,7	Other natural causes		3 243	44,4	Other natural causes		2 284	40,9
Non-natural causes		1 385	10,8	Non-natural causes		734	10,0	Non-natural causes		455	8,2
All causes		<b>12 835</b>	<b>100,0</b>	All causes		<b>7 306</b>	<b>100,0</b>	All causes		<b>5 582</b>	<b>100,0</b>
Ngaka Modiri Molema		No.	%								
Tuberculosis (A15-A19)	1	701	7,3								
Other forms of heart disease (I30-I52)	2	663	6,9								
Hypertensive diseases (I10-I15)	3	474	4,9								
Influenza and pneumonia (J09-J18)	4	470	4,9								
Other viral diseases (B25-B34)	5	435	4,5								
Cerebrovascular diseases (I60-I69)	6	405	4,2								
Diabetes mellitus (E10-E14)	7	399	4,1								
Certain disorders involving the immune mechanism (D80-D89)	8	335	3,5								
Intestinal infectious diseases (A00-A09)	9	227	2,4								
Chronic lower respiratory diseases (J40-J47)	10	209	2,2								
Other natural causes		4 535	47,1								
Non-natural causes		778	8,1								
All causes		<b>9 631</b>	<b>100,0</b>								

**Appendix P6: The ten leading underlying natural causes of death by district municipality of death occurrence, Gauteng, 2016\***

City of Johannesburg		No.	%	City of Tshwane		No.	%	Ekurhuleni		No.	%
Other forms of heart disease (I30-I52)	1	1 399	4,8	Other forms of heart disease (I30-I52)	1	1 467	6,8	Tuberculosis (A15-A19)	1	1 341	5,2
Influenza and pneumonia (J09-J18)	2	1 112	3,8	Diabetes mellitus (E10-E14)	2	1 280	5,9	Influenza and pneumonia (J09-J18)	2	1 240	4,8
Human immunodeficiency virus [HIV] disease (B20-B24)	3	1 099	3,7	Tuberculosis (A15-A19)	3	1 126	5,2	Other forms of heart disease (I30-I52)	3	1 215	4,7
Tuberculosis (A15-A19)	4	1 079	3,7	Hypertensive diseases (I10-I15)	4	1 090	5,0	Cerebrovascular diseases (I60-I69)	4	1 037	4,0
Cerebrovascular diseases (I60-I69)	5	1 025	3,5	Ischaemic heart diseases (I20-I25)	5	891	4,1	Other viral diseases (B25-B34)	5	1 035	4,0
Ischaemic heart diseases (I20-I25)	6	927	3,2	Cerebrovascular diseases (I60-I69)	6	885	4,1	Diabetes mellitus (E10-E14)	6	969	3,8
Diabetes mellitus (E10-E14)	7	921	3,1	Influenza and pneumonia (J09-J18)	7	868	4,0	Certain disorders involving the immune mechanism (D80-D89)	7	812	3,1
Malignant neoplasms of digestive organs (C15-C26)	8	762	2,6	Other viral diseases (B25-B34)	8	800	3,7	Hypertensive diseases (I10-I15)	8	769	3,0
Chronic lower respiratory diseases (J40-J47)	9	716	2,4	Human immunodeficiency virus [HIV] disease (B20-B24)	9	695	3,2	Ischaemic heart diseases (I20-I25)	9	768	3,0
Other viral diseases (B25-B34)	10	631	2,1	Malignant neoplasms of digestive organs (C15-C26)	10	660	3,1	Human immunodeficiency virus [HIV] disease (B20-B24)	10	690	2,7
Other-natural causes		15 934	54,3	Other natural causes		10 293	47,7	Other Natural causes		12 943	50,2
Non-natural causes		3 761	12,8	non-natural causes		1 546	7,2	Non-natural causes		2 968	11,5
<b>All causes</b>		<b>29 366</b>	<b>100,0</b>	<b>All causes</b>		<b>21 601</b>	<b>100,0</b>	<b>All causes</b>		<b>25 787</b>	<b>100,0</b>
Sedibeng		No.	%	West Rand		No.	%				
Influenza and pneumonia (J09-J18)	1	797	7,6	Other forms of heart disease (I30-I52)	1	573	5,9				
Other forms of heart disease (I30-I52)	2	794	7,6	Influenza and pneumonia (J09-J18)	2	523	5,3				
Tuberculosis (A15-A19)	3	688	6,6	Tuberculosis (A15-A19)	3	440	4,5				
Hypertensive diseases (I10-I15)	4	597	5,7	Certain disorders involving the immune mechanism (D80-D89)	4	397	4,1				
Diabetes mellitus (E10-E14)	5	481	4,6	Cerebrovascular diseases (I60-I69)	5	392	4,0				
Cerebrovascular diseases (I60-I69)	6	460	4,4	Diabetes mellitus (E10-E14)	6	380	3,9				
Certain disorders involving the immune mechanism (D80-D89)	7	321	3,1	Ischaemic heart diseases (I20-I25)	7	322	3,3				
Ischaemic heart diseases (I20-I25)	8	309	3,0	Hypertensive diseases (I10-I15)	8	308	3,1				
Chronic lower respiratory diseases (J40-J47)	9	304	2,9	Human immunodeficiency virus [HIV] disease (B20-B24)	9	301	3,1				
Renal failure (N17-N19)	10	240	2,3	Chronic lower respiratory diseases (J40-J47)	10	264	2,7				
Other natural causes		4 224	40,4	Other natural causes		4 724	48,3				
Non-natural causes		1 240	11,9	Non-natural causes		1 166	11,9				
<b>All causes</b>		<b>10 455</b>	<b>100,0</b>	<b>All causes</b>		<b>9 790</b>	<b>100,0</b>				

**Appendix P7: The ten leading underlying natural causes of death by district municipality of death occurrence, Mpumalanga 2016\***

Ehlanzeni		No.	%	Gert Sibande		No.	%	Nkangala		No.	%
Tuberculosis (A15-A19)	1	1 364	9,9	Tuberculosis (A15-A19)	1	624	6,9	Hypertensive diseases (I10-I15)	1	731	7,1
Cerebrovascular diseases (I60-I69)	2	964	7,0	Human immunodeficiency virus [HIV] disease (B20-B24)	2	616	6,9	Tuberculosis (A15-A19)	2	664	6,4
Human immunodeficiency virus [HIV] disease (B20-B24)	3	742	5,4	Other viral diseases (B25-B34)	3	507	5,6	Influenza and pneumonia (J09-J18)	3	627	6,1
Diabetes mellitus (E10-E14)	4	712	5,2	Diabetes mellitus (E10-E14)	4	473	5,3	Diabetes mellitus (E10-E14)	4	556	5,4
Other viral diseases (B25-B34)	5	682	5,0	Certain disorders involving the immune mechanism (D80-D89)	5	472	5,3	Other viral diseases (B25-B34)	5	540	5,2
Other forms of heart disease (I30-I52)	6	645	4,7	Influenza and pneumonia (J09-J18)	6	415	4,6	Cerebrovascular diseases (I60-I69)	6	456	4,4
Influenza and pneumonia (J09-J18)	7	629	4,6	Cerebrovascular diseases (I60-I69)	7	379	4,2	Other forms of heart disease (I30-I52)	7	415	4,0
Hypertensive diseases (I10-I15)	8	557	4,0	Hypertensive diseases (I10-I15)	8	377	4,2	Chronic lower respiratory diseases (J40-J47)	8	276	2,7
Ischaemic heart diseases (I20-I25)	9	525	3,8	Other forms of heart disease (I30-I52)	9	282	3,1	Human immunodeficiency virus [HIV] disease (B20-B24)	9	273	2,6
Certain disorders involving the immune mechanism (D80-D89)	10	381	2,8	Intestinal infectious diseases (A00-A09)	10	227	2,5	Ischaemic heart diseases (I20-I25)	10	256	2,5
Other natural causes		5 192	37,7	Other natural causes		3 568	39,7	Other natural causes		4 184	40,4
Non-natural causes		1 375	10,0	Non-natural causes		1 043	11,6	Non-natural causes		1 385	13,4
<b>All causes</b>		<b>13 768</b>	100,0	<b>All causes</b>		<b>8 983</b>	100,0	<b>All causes</b>		<b>10 363</b>	100,0

**Appendix P8: The ten leading underlying natural causes of death by district municipality of death occurrence, Limpopo 2016\***

Capricorn		No.	%	Mopani		No.	%	Sekhukhune		No.	%
Influenza and pneumonia (J09-J18)	1	906	7,1	Influenza and pneumonia (J09-J18)	1	715	7,8	Influenza and pneumonia (J09-J18)	1	1 145	11,9
Diabetes mellitus (E10-E14)	2	840	6,6	Diabetes mellitus (E10-E14)	2	672	7,3	Cerebrovascular diseases (I60-I69)	2	967	10,0
Hypertensive diseases (I10-I15)	3	815	6,4	Tuberculosis (A15-A19)	3	602	6,5	Other viral diseases (B25-B34)	3	743	7,7
General symptoms and signs (R50-R69)	4	724	5,7	Other viral diseases (B25-B34)	4	531	5,8	Hypertensive diseases (I10-I15)	4	662	6,9
Human immunodeficiency virus [HIV] disease (B20-B24)	5	718	5,6	Cerebrovascular diseases (I60-I69)	5	445	4,8	Diabetes mellitus (E10-E14)	5	544	5,6
Cerebrovascular diseases (I60-I69)	6	626	4,9	Hypertensive diseases (I10-I15)	6	418	4,5	Tuberculosis (A15-A19)	6	527	5,5
Tuberculosis (A15-A19)	7	602	4,7	Other forms of heart disease (I30-I52)	7	286	3,1	Other forms of heart disease (I30-I52)	7	373	3,9
Other viral diseases (B25-B34)	8	498	3,9	Intestinal infectious diseases (A00-A09)	8	266	2,9	Intestinal infectious diseases (A00-A09)	8	365	3,8
Other forms of heart disease (I30-I52)	9	406	3,2	Human immunodeficiency virus [HIV] disease (B20-B24)	9	219	2,4	General symptoms and signs (R50-R69)	9	219	2,3
Intestinal infectious diseases (A00-A09)	10	378	3,0	Certain disorders involving the immune mechanism (D80-D89)	10	214	2,3	Certain disorders involving the immune mechanism (D80-D89)	10	196	2,0
Other natural causes		5 078	39,9	Other natural causes		4 073	44,3	Other natural causes,		3 078	31,9
Non-natural causes		1 140	9,0	Non-natural causes		762	8,3	non-natural causes		835	8,6
<b>All causes</b>		<b>12 731</b>	<b>100,0</b>	<b>All causes</b>		<b>9 203</b>	<b>100,0</b>	<b>All causes</b>		<b>9 654</b>	<b>100,0</b>
Vhembe		No.	%	Waterberg		No.	%				
Diabetes mellitus (E10-E14)	1	503	5,7	Tuberculosis (A15-A19)	1	392	8,0				
Tuberculosis (A15-A19)	2	375	4,3	Hypertensive diseases (I10-I15)	2	330	6,7				
Cerebrovascular diseases (I60-I69)	3	373	4,3	Influenza and pneumonia (J09-J18)	3	325	6,6				
Influenza and pneumonia (J09-J18)	4	333	3,8	Diabetes mellitus (E10-E14)	4	284	5,8				
Other viral diseases (B25-B34)	5	328	3,7	Human immunodeficiency virus [HIV] disease (B20-B24)	5	262	5,3				
Renal failure (N17-N19)	6	272	3,1	Other viral diseases (B25-B34)	6	249	5,1				
Certain disorders involving the immune mechanism (D80-D89)	7	223	2,5	Other forms of heart disease (I30-I52)	7	229	4,7				
Hypertensive diseases (I10-I15)	8	201	2,3	Cerebrovascular diseases (I60-I69)	8	226	4,6				
Other forms of heart disease (I30-I52)	9	192	2,2	Intestinal infectious diseases (A00-A09)	9	177	3,6				
Human immunodeficiency virus [HIV] disease (B20-B24)	10	173	2,0	Certain disorders involving the immune mechanism (D80-D89)	10	117	2,4				
Other natural causes		5 041	57,5	Other natural causes		1 673	34,1				
Non-natural causes		753	8,6	Non-natural causes		635	13,0				
<b>All causes</b>		<b>8 767</b>	<b>100,0</b>	<b>All causes</b>		<b>4 899</b>	<b>100,0</b>				

## Appendix Q: Population group differences

Due to the high proportion of deaths with unknown or unspecified population group (12,0%), the analysis of causes of death by population group was moved to the appendices. Appendix Q (see page 135) shows the ten leading natural causes of death by population group for 2016. The proportions of deaths due to non-natural causes are also presented in the same appendix although not in greater detail.

The first leading underlying cause of death amongst black Africans was *tuberculosis* (responsible for 7,8% of deaths in the black African population group), followed by *HIV disease* (responsible for 5,9% deaths). For the white population group, *ischaemic heart diseases* were the leading cause of death, accounting for 11,5% deaths in this population group, followed by *other forms of heart diseases*, accounting for 6,9% deaths. For both the coloured and the Indian/Asian population groups, *diabetes mellitus* was the first leading cause of death (responsible for 15,2% deaths amongst the Indian/Asian population group and 7,9% amongst the coloured population group). The second leading cause of death amongst the coloured population was *tuberculosis* (responsible for 6,5% deaths), while for the Indian/Asian population group, *ischaemic heart diseases* was the second leading cause of death, accounting for 12,9% of the deaths.

*Certain disorders involving the immune mechanism* were the leading causes of death only for the black African population. *Tuberculosis* and *HIV disease* were in the top ten leading underlying causes of death for only the coloured and the black African population group, while *renal failure* was the leading causes of death only for the white and the Indian/Asian population groups. The only population group where *influenza and pneumonia* was not part of the ten leading causes of death was the coloured population. *Ischaemic heart diseases*, *malignant neoplasms of the digestive organs*, and *malignant neoplasms of respiratory and intrathoracic organs* were amongst the ten leading causes of death for all population groups but black Africans.

Diseases which were common amongst all population groups was *cerebrovascular diseases*, *diabetes mellitus*, *other forms of heart disease*, *chronic lower respiratory diseases* and *hypertensive diseases*, but their contribution in causing deaths differed greatly by population group. Though these diseases were common in the mentioned population groups, their ranking differed greatly by population group. For example, *other forms of heart diseases* were the second leading cause of death amongst the white population group (6,9%), it was the tenth leading cause of death amongst the coloured population group (3,2%).

The proportions of deaths due to non-natural causes of death were slightly higher in both the black African and the coloured population groups as compared to the other population groups. A proportion of 11,8% deaths were due to non-natural causes for the black African population group followed closely by the coloured population group at 11,7%.

**Appendix Q: The ten leading underlying natural causes of death by population group, 2016**

Causes of death (based on ICD Version 2010)	Black African			White			Indian/Asian			Coloured			Other/Unknown/Unspecified		
	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%	Rank	No.	%
Tuberculosis (A15-A19)*	1	24 886	7,8	...	...	...	...	...	...	2	2 126	6,5	1	2 198	4,0
Human immunodeficiency virus [HIV] disease (B20-B24)	2	18 907	5,9	...	...	...	...	...	...	8	1 441	4,4	8	1 284	2,3
Diabetes mellitus (E10-E14)	3	17 563	5,5	6	1 812	4,4	1	1 284	15,2	1	2 574	7,9	3	1 951	3,6
Other forms of heart disease (I30-I52)	4	16 966	5,3	2	2 861	6,9	3	662	7,8	10	1 051	3,2	2	1 975	3,6
Cerebrovascular diseases (I60-I69)	5	16 627	5,2	5	2 258	5,5	4	449	5,3	4	1 924	5,9	4	1 879	3,4
Hypertensive diseases (I10-I15)	6	15 577	4,9	9	1 229	3,0	7	287	3,4	6	1 508	4,6	6	1 494	2,7
Influenza and pneumonia (J09-J18)	7	15 394	4,8	7	1 646	4,0	9	189	2,2				5	1 694	3,1
Other viral diseases (B25-B34)	8	15 218	4,8	...	...	...	...	...	...	...	...	...	10	872	1,6
Certain disorders involving the immune mechanism (D80-D89)	9	8 719	2,7	...	...	...	...	...	...	...	...	...	...	...	...
Chronic lower respiratory diseases (J40-J47)	10	6 496	2,0	3	2 379	5,8	6	290	3,4	3	2 058	6,3	7	1 436	2,6
Ischaemic heart diseases (I20-I25)	...	...	...	1	4 739	11,5	2	1 094	12,9	5	1 678	5,2	9	1 234	2,3
Malignant neoplasms of digestive organs (C15-C26)	...	...	...	4	2 345	5,7	5	314	3,7	9	1 290	4,0	...	...	...
Malignant neoplasms of respiratory and intrathoracic organs (C30-C39)	...	...	...	8	1 489	3,6	10	188	2,2	7	1 501	4,6	...	...	...
Renal failure (N17-N19)	...	...	...	10	911	2,2	8	249	2,9	...	...	...	...	...	...
Other Natural		125 564	39,3		16 469	39,9		2 653	31,3		11 523	35,5		32 965	60,2
Non-natural		37 736	11,8		3 108	7,5		804	9,5		3 788	11,7		5 806	10,6
<b>All causes</b>		<b>319 653</b>	<b>100,0</b>		<b>41 246</b>	<b>100,0</b>		<b>8 463</b>	<b>100,0</b>		<b>32 462</b>	<b>100,0</b>		<b>54 788</b>	<b>100,0</b>

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