

# Western Cape Mortality Profile 2011

July 2014



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## Suggested citation

Groenewald P, Msemburi W, Morden E, Zinyakatira N, Neethling I, Daniels J, Evans J, Cornelius K, Berteler M, Martin LJ, Dempers J, Thompson V, Vismer M, Coetzee D, Bradshaw D. Western Cape Mortality Profile 2011. Cape Town: South African Medical Research Council, 2014. ISBN: 978-1-920618-23-0

## Acknowledgments

Data capturers from the City of Cape Town and the provincial health districts (Cape Metropole, Cape Winelands, Central Karoo, Eden, Overberg and West Coast) are thanked for their continued support with collecting and capturing the data. The regional offices of Home Affairs and Almien van der Berg are thanked for their cooperation. Professor Wadee and the Western Cape Forensic Pathology Services, the Division of Forensic Medicine & Toxicology, University of Cape Town and the Division of Forensic Medicine, Department of Pathology, University of Stellenbosch are thanked for their assistance with collection of injury data.

A copy of this report, as well as the data, is available on the Internet at:

<http://www.mrc.ac.za/bod/reports.htm>

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# Acronyms and abbreviations

<b>AIDS</b>	<b>A</b> cquired <b>I</b> mmune <b>D</b> eficiency <b>S</b> yndrome
<b>ASSA</b>	<b>A</b> ctuarial <b>S</b> ociety of <b>S</b> outh <b>A</b> frica
<b>CARe</b>	<b>C</b> entre for <b>A</b> ctuarial <b>R</b> esearch
<b>DNF</b>	<b>D</b> eath <b>N</b> otification <b>F</b> orm
<b>ICD-10</b>	<b>I</b> nternational <b>S</b> tatistical <b>C</b> lassification of <b>D</b> isease
<b>Group I</b>	Communicable diseases, maternal, perinatal and nutritional conditions
<b>Group II</b>	Non-communicable diseases
<b>Group III</b>	Injuries
<b>NBD</b>	<b>N</b> ational <b>B</b> urden of <b>D</b> iseases and Related Health Problems
<b>PGWC</b>	<b>P</b> rovincial <b>G</b> overnment of the <b>W</b> estern <b>C</b> ape
<b>PIMSS</b>	<b>P</b> rovincial <b>I</b> njury <b>M</b> ortality <b>S</b> urveillance <b>S</b> ystem
<b>Stats SA</b>	<b>S</b> tatistics <b>S</b> outh <b>A</b> frica
<b>YLLs</b>	<b>Y</b> ears of <b>L</b> ife <b>L</b> ost

## Glossary

**UNDERLYING CAUSE OF DEATH:** The disease or injury that initiated the train of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury (WHO).

**IMMEDIATE CAUSE OF DEATH:** Any disease or condition entered on line (a) in Part 1 of the death certificate directly leading to death and consequent to diseases entered on lower lines of Part 1. Also known as the terminal, direct or final cause of death.

**INTERMEDIATE CAUSE OF DEATH:** Any cause between the underlying cause and the immediate cause of death, or, if the certificate has not been filled out correctly, any condition that the certifier should have reported there. Also known as a complication of the underlying cause.

**GARBAGE CODE:** ICD -- 10 codes for causes of death that cannot or should not be considered underlying causes of death.

**MECHANISM OF DEATH:** The physiological disturbance in the body at the time of death, e.g. metabolic acidosis, hypokalaemia and acute cardiac failure.

**MANNER OF DEATH:** Manner of death helps to clarify the modality/intention surrounding the deceased. The most common options for the classification of this variable are natural, accident, intentional self-harm (including suicide), assault (homicide) and undetermined.

**RISK FACTORS:** A risk is an attribute or exposure that is causally associated with increased risk of a disease or injury. These may be physiological (eg. hypertension), or external (eg. air pollution).



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# 1 Western Cape mortality profile 2011

## 1.1 Introduction

Cause of death information is essential for planning and monitoring health programmes. The Western Cape Department of Health (WCDoH), the City of Cape Town and the South African Medical Research Council (MRC) Burden of Disease Research Unit have developed a mortality surveillance system that reports on mortality at district and sub-district levels in the province. It makes use of cause of death information provided on death notifications for deaths registered with the Department of Home Affairs. It groups causes into meaningful categories, makes adjustments for the ill-defined causes and makes use of population estimates for calculating age standardised mortality rates. This report presents the Western Cape mortality profile for 2011, by sub-district, and includes a more detailed analysis of the causes of death in children under 5 years than in previous reports.

## 1.2 Methods

### Data collection

The six district information offices of the WCDoH collected copies of death notification forms (DNFs) from the local Department of Home Affairs offices in their district. Socio-demographic and cause of death information were captured into a customised database at each district office (Local Mortality Surveillance System – LMSS). Information on the manner of death for those due to unnatural causes was collected by Forensic Pathology Services (FPS) (Provincial Injury Mortality Surveillance System – PIMSS). A concerted effort was made to collect missing data on the causes of child deaths from the mortuaries. A medical doctor from the MRC, in collaboration with forensic pathologists at the University of Cape Town and University of Stellenbosch, reviewed the mortuary records and post mortem findings for all child deaths in 2011 where the cause of death was ill-defined or unknown in the PIMSS dataset.

### Data cleaning

LMSS data were sent to the MRC for checking and cleaning of duplicates. Incorrect capture of serial and mortuary reference numbers, invalid ages, and missing sex and incomplete or incorrect LMSS data were returned to the respective offices for correction. The PIMSS data were sent electronically to the MRC for similar cleaning and queries were returned to FPS for checking.

### Data linking

Cases in the PIMSS data were linked with cases in the LMSS data using the unique DNF serial number and/or mortuary reference number. The linked data were further checked for duplicates, valid date of birth and date of death. Linked cases were verified as the same case by cross checking date of birth, date of death, sex, race and sub-district of residence. There were 43,076 death records in the surveillance dataset, of which 7,993 linked with the PIMSS data after careful checking. The PIMSS records that did not link with

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the LMSS data (1,405 cases) were added to the merged dataset on the assumption that these records were missing from the LMSS data. Where residence information was missing from the PIMSS records (N = 74 of which 40 (54.1%), were from Cape Metropole District), the place of injury was used to allocate the death to a district.

## Cause of death coding

The natural causes were coded to ICD-10<sup>1</sup> (4 digit) and the underlying cause was selected using the automated coding software, IRIS.<sup>2</sup> Rejects (spelling errors or errors in medical certification) were corrected and recoded using IRIS or manually if required. The unnatural deaths from PIMSS were coded directly to ICD-10 (3 digit), using a look-up table based on the apparent manner and external cause information. The ICD codes were aggregated into 215 National Burden of Disease (NBD) analysis codes<sup>3</sup> distinguishing causes in the NBD list, general garbage codes and specific garbage codes.

## Exclusions

There were 43,079 LMSS records for 2011 of which three were excluded as they were non-residents of WC. Of the 9,398 PIMSS records for 2011, 231 were excluded: 2010 deaths (8), non-residents of WC (132), and non-viable fetus/abortion (91). Stillbirths, defined as any record having ICD-10 code P95 as the underlying or multiple cause code, were excluded from the final merged LMSS and PIMSS data (1,473), leaving a total of 43,038 records for analysis.

## Data completeness

The completeness of our data was assessed against Stats SA 2011<sup>4</sup> data on total deaths per district and found to be 94.1% complete overall. This is a slight improvement from the overall completeness of 92.0% achieved in 2010. Cape Metropole District had the highest completeness (100.8%), followed by Eden (97.5%). Central Karoo (79.9%), West Coast (86.4%) and Cape Winelands (86.9%) had the lowest completeness (see Appendix Table A.1). Completeness for children under five years was high at 97.9% overall. Central Karoo (73.3%) had the lowest completeness for children.

Since Stats SA mortality data were not available by sub-district, completeness at sub-district level was assessed by comparing the deaths reported to the surveillance system with the deaths registered at the local Home Affairs offices, the assumption being that most deaths in the sub-districts would be registered at the nearest Home Affairs office. This comparison revealed that death notifications received from Oudtshoorn (82.5%) and Beaufort West (88.7%) were less than 90% of those registered, and at Caledon (Swellendam and Grabouw) (93.4%), Vredendal (91.5%), Paarl (97.3%), Somerset West (93.1%) and Nyanga (94.9%) were between 90% and 100% of the deaths registered. Completeness at all the

<sup>1</sup>World Health Organization. International classification of diseases and related health problems. Tenth Revision. Geneva: World Health Organization; 1992

<sup>2</sup>Johansson L, Pavillon G, Pelikan L, Weber S. Iris automated coding system for causes of death. User's reference manual (Iris version V4.1.3). IRIS Institute 2012.

<sup>3</sup>Pillay-Van Wyk V, Laubscher R, Msemburi W, Groenewald G, Dorrington R, Vos T, Bradshaw D & the SA NBD team. Second South African National Burden of Disease Study: Data cleaning, validation and SA NBD List. MRC Technical Report. Forthcoming.

<sup>4</sup>Statistics South Africa. Mortality and causes of death in South Africa, 2011. Findings from death notification. Statistical release P0305. Pretoria: Statistics South Africa, 2014.

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other Department of Home Affairs offices exceeded 100% as would be expected given that deaths in persons without identity numbers, which account for approximately 10% of total deaths, are not registered by the Department of Home Affairs.

## **Validity checks**

Validity checks were performed on causes that are age and sex specific, and corrections made when any anomalies were identified (Web Appendix).

## **Redistribution**

In order to provide a comprehensive profile of the causes of death, adjustments were made to account for ill-defined and garbage codes (non-specific causes) as well as cases with missing age and sex. There were 140 cases with unknown age and 88 cases with unknown sex (20 were unknown for both age and sex). The overall numbers of deaths were adjusted by proportionally redistributing deaths of unknown age and sex within each cause of death. Almost 6% of deaths were misclassified to ill-defined signs and symptoms (R00-R99) and a further 11.2% assigned to a range of other garbage codes (Appendix Tables A.2 and A.3), including intermediate causes of death (e.g. septicaemia), mechanisms of death (e.g. cardiac arrest), partially specified causes (e.g. cancer with unknown site) or risk factors (e.g. hypertension) and ill-defined injuries. Estimated numbers of deaths, according to the NBD list, were derived by proportionally redistributing the garbage codes to specified causes within each age and sex category in stages outlined in the Web Appendix.

## **Data aggregations**

Causes from the NBD list were grouped into the four broad groups to provide an overall profile of the causes of death. These include:

- HIV/AIDS and TB
- Other Group I - Communicable diseases (excluding HIV/AIDS and TB), maternal, perinatal and nutritional conditions (Comm/Mat/Peri/Nut)
- Group II - Non-communicable diseases
- Group III – Injuries

In order to reduce the problem of misclassification of causes, trends in cause-specific mortality were assessed for five groupings of major burden causes of death:

1. Major infectious diseases (AIDS, TB, diarrhoea and pneumonia combined)
2. Cardiovascular and metabolic diseases (including stroke and diabetes)
3. Cancers
4. Chronic respiratory diseases (asthma, COPD, other respiratory)
5. Injuries

## Analysis

Premature mortality was calculated as years of life lost (YLLs) by multiplying the observed number of deaths in each age category by an idealised life expectancy for that age based on a model life table, Coale and Demeny West level 26<sup>5</sup>, with life expectancy at birth of 82.5 years for females and 80 years for males. Age weighting was not applied but the YLLs were discounted at 3% in line with the South African NBD study<sup>6</sup>. The Centre for Actuarial Research at the University of Cape Town (CARE, UCT) produced an alternative set of mid-year estimates (AltMYE)<sup>7</sup> with an age distribution that is consistent with that of the 2011 Census. CARE state that there is mounting evidence that the age distribution of the 2011 Census is probably closer to the truth than that of the official mid-year estimates produced by Statistics South Africa, and is also largely consistent with the age distribution of the 2001 Census. Assuming that the CARE projected estimates for the Western Cape Province between 2001 and 2013 are correct by five-year age groups and sex, and assuming the Census 2001 and 2011 population estimates from the districts and sub-health districts by age and sex to be correct, the ratio method<sup>8</sup> of projecting geographic subdivisions was used to estimate the populations of the district municipalities and sub-health district stratified by sex and five-year age groups between 2001 and 2013. Age standardised mortality rates were calculated using these projected population estimates. The WHO age distribution for the world was used as the standard<sup>9</sup>.

## 1.3 Results

There were 43,038 deaths in the Western Cape with 62.0% of these occurring in the Cape Metropole District (Figure 1.1). Male deaths accounted for 55% of all deaths (Figure 1.2). Injuries accounted for a much higher proportion of male deaths compared to female deaths, peaking between 15 and 35 years of age.

District	Deaths	%	YLLs	%
Cape Winelands	5,778	13.4	100,216	13.6
Central Karoo	696	1.6	12,098	1.6
Cape Town	26,681	62.0	459,804	62.5
Eden	4,927	11.4	81,116	11.0
Overberg	2,106	4.9	34,661	4.7
West Coast	2,850	6.6	48,323	6.6
Western Cape	43,038	100.0	736,219	100.0

**Table 1.1: Western Cape districts deaths and YLLs, 2011**

<sup>5</sup>Coale AJ & Demeny P (1966). *Regional Model Life Tables and Stable Population*, Princeton University Press, Princeton, N.J. 1966.

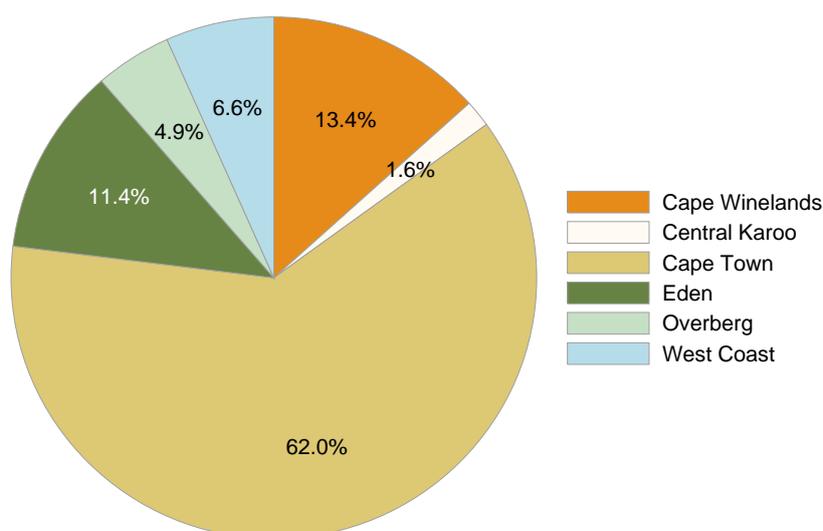
<sup>6</sup>Bradshaw D, Groenewald P, Laubscher R, Nannan N, Nojilana B, Norman R, et al. *Initial burden of disease estimates for South Africa, 2000*. Cape Town: South African Medical Research Council, 2003.

<sup>7</sup>Dorrington R.E. (2013) *Alternative South African mid-year estimates, 2013*. Centre for Actuarial Research Monograph 13, University of Cape Town.

<sup>8</sup>Shryock, H. S. and J. S. Siegel (1976). *The Methods and Materials of Demography (Condensed Edition)*. San Diego, Academic Press.

<sup>9</sup>Ahmad OB, Boschi-Pinto C, Lopez AD, Murray CJL, Lozano R, Inoue M. *Age standardisation of rates: A new WHO standard*. GPE Discussion Paper Series: No.31. EIP/GPE/EBD. World Health Organization 2001.

Western Cape Deaths 2011, N = 43,038

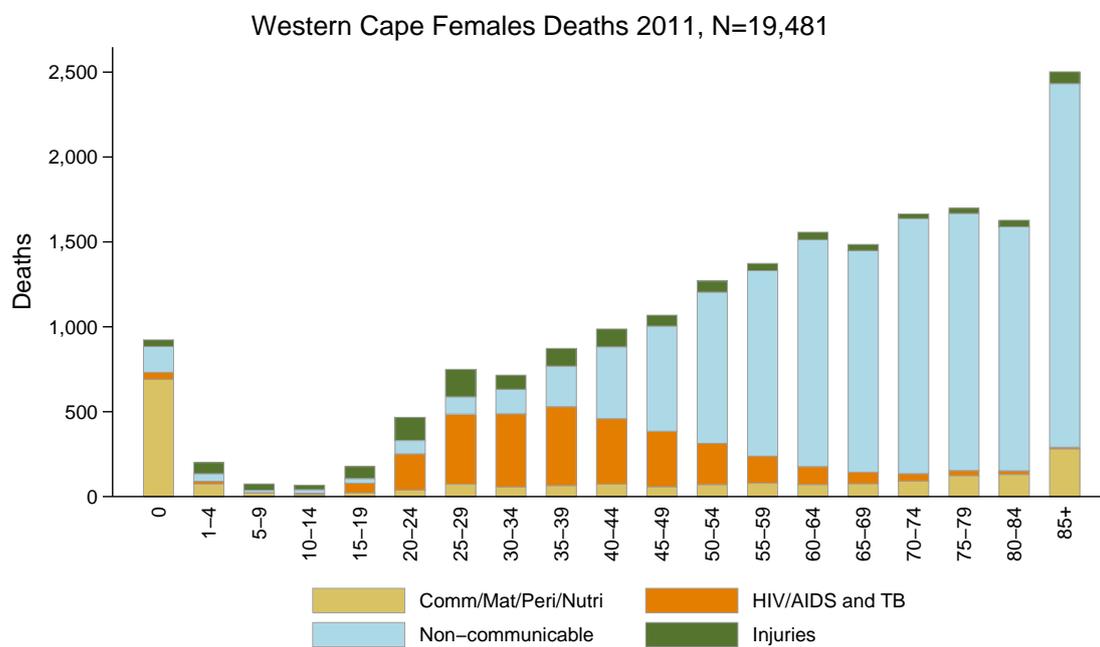
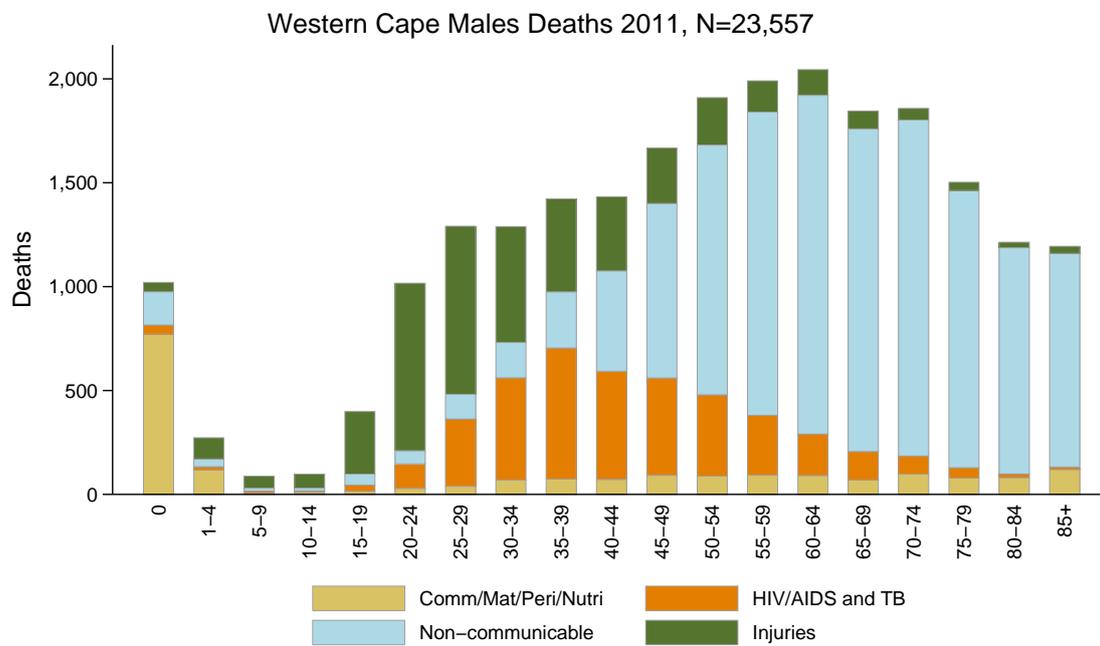


**Figure 1.1: District proportions of provincial deaths**

The proportions of deaths and YLLs by disease category are shown in Figure 1.3. Cardiovascular diseases accounted for the largest proportion of all deaths (21.2%), but the largest category of premature mortality was due to HIV/AIDS and TB (21.0%). The leading causes of death and YLLs are presented in Figures 1.4 to 1.6 for males, females and persons respectively. Interpersonal violence was the leading cause of premature mortality among males (Figure 1.4) and HIV/AIDS the leading cause amongst females (Figure 1.5). HIV/AIDS, tuberculosis, interpersonal violence and ischaemic heart disease were the leading single causes of premature mortality for all persons (Figure 1.6).

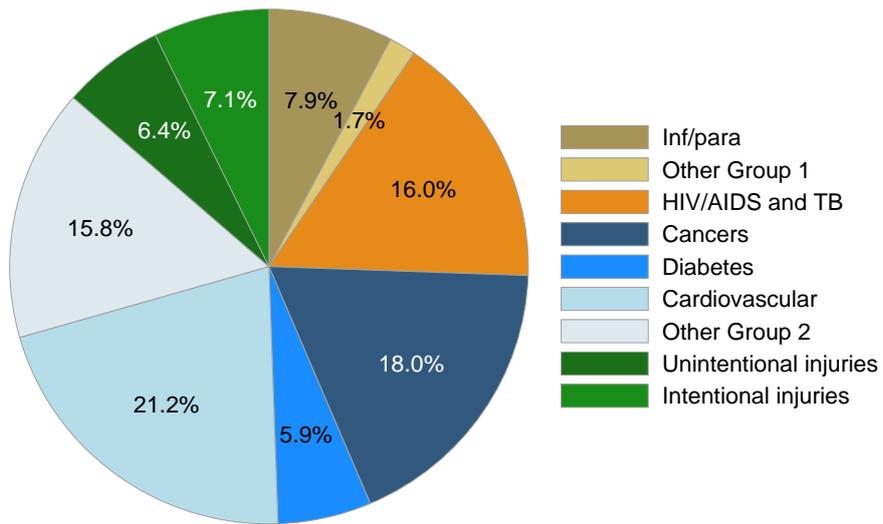
**Table 1.2: Deaths and YLLs by disease category for Persons, Western Cape 2011**

Cause	Deaths	%	YLLs	%
Inf/para	3,390	7.9	66,437	9.0
Other Group 1	730	1.7	21,714	2.9
HIV/AIDS and TB	6,886	16.0	154,611	21.0
Cancers	7,767	18.0	109,976	14.9
Diabetes	2,521	5.9	32,904	4.5
Cardiovascular	9,128	21.2	111,137	15.1
Other Group 2	6,799	15.8	100,893	13.7
Unintentional injuries	2,746	6.4	61,893	8.4
Intentional injuries	3,071	7.1	76,653	10.4
Total	43,038	100.0	736,219	100.0



**Figure 1.2: Age-specific deaths by broad cause and sex, Western Cape 2011**

Western Cape Deaths 2011, N = 43,038



Western Cape YLLs 2011, N = 736,219

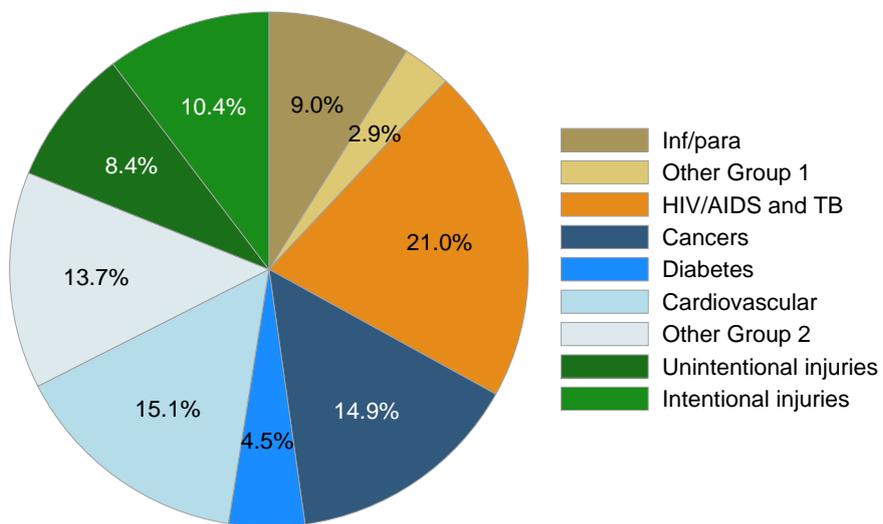
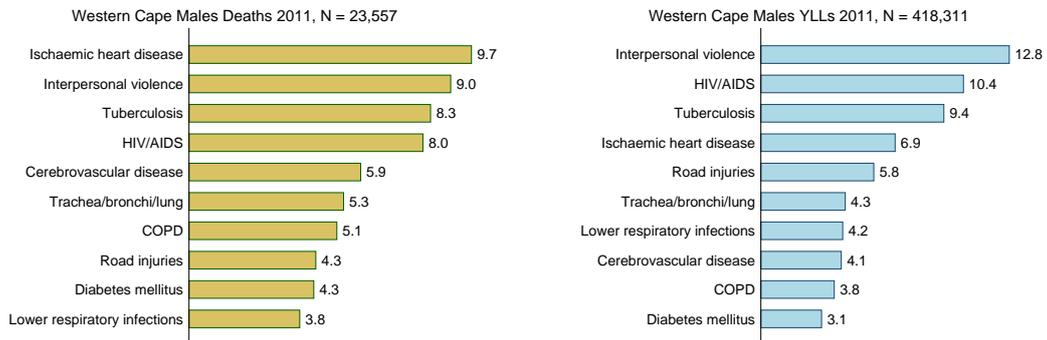


Figure 1.3: Cause of death and premature mortality profile, Western Cape 2011

### 1.3.1 Western Cape males

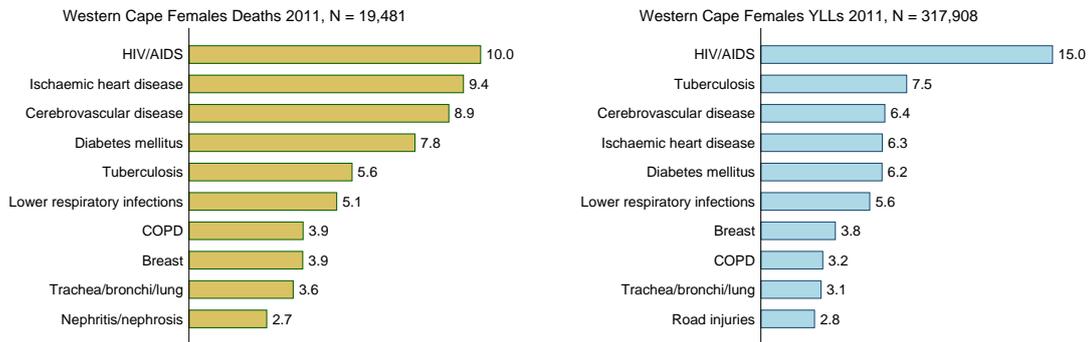


**Figure 1.4: Leading causes of death for males, Western Cape 2011**

Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	2,282	9.7	Interpersonal violence	53,448	12.8
Interpersonal violence	2,114	9.0	HIV/AIDS	43,586	10.4
Tuberculosis	1,951	8.3	Tuberculosis	39,369	9.4
HIV/AIDS	1,889	8.0	Ischaemic heart disease	28,886	6.9
Cerebrovascular disease	1,386	5.9	Road injuries	24,297	5.8
Trachea/bronchi/lung	1,248	5.3	Trachea/bronchi/lung	18,153	4.3
COPD	1,194	5.1	Lower respiratory infections	17,608	4.2
Road injuries	1,024	4.3	Cerebrovascular disease	17,298	4.1
Diabetes mellitus	1,008	4.3	COPD	15,785	3.8
Lower respiratory infections	895	3.8	Diabetes mellitus	13,056	3.1
Top 10 causes	14,992	63.6	Top 10 causes	271,488	64.9
Total	23,557	100.0	Total	418,311	100.0

**Table 1.3: Leading causes of death for Males, Western Cape 2011**

### 1.3.2 Western Cape females

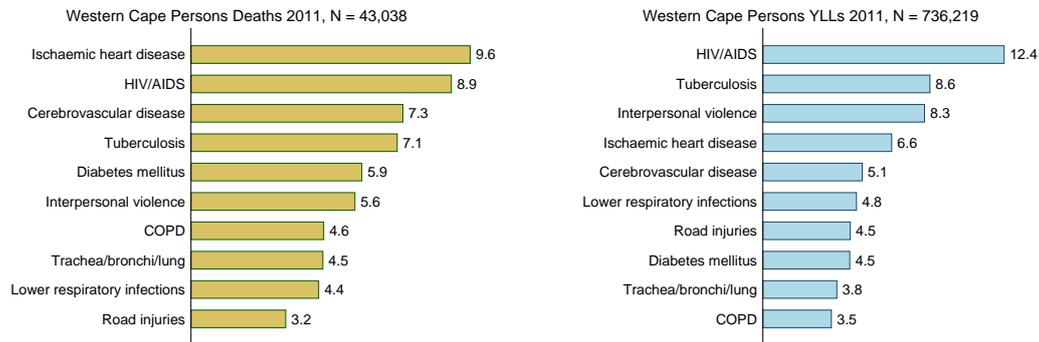


**Figure 1.5: Leading causes of death for females, Western Cape 2011**

Cause of death	Deaths	%	Cause of death	YLLs	%
HIV/AIDS	1,953	10.0	HIV/AIDS	47,770	15.0
Ischaemic heart disease	1,838	9.4	Tuberculosis	23,886	7.5
Cerebrovascular disease	1,740	8.9	Cerebrovascular disease	20,305	6.4
Diabetes mellitus	1,513	7.8	Ischaemic heart disease	19,884	6.3
Tuberculosis	1,092	5.6	Diabetes mellitus	19,848	6.2
Lower respiratory infections	989	5.1	Lower respiratory infections	17,831	5.6
COPD	764	3.9	Breast	12,199	3.8
Breast	762	3.9	COPD	10,143	3.2
Trachea/bronchi/lung	698	3.6	Trachea/bronchi/lung	9,853	3.1
Nephritis/nephrosis	521	2.7	Road injuries	8,787	2.8
Top 10 causes	11,870	60.9	Top 10 causes	188,799	59.4
Total	19,481	100.0	Total	317,908	100.0

**Table 1.4: Leading causes of death for Females, Western Cape 2011**

### 1.3.3 Western Cape persons



**Figure 1.6: Leading causes of death for persons, Western Cape 2011**

Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	4,120	9.6	HIV/AIDS	91,356	12.4
HIV/AIDS	3,842	8.9	Tuberculosis	63,256	8.6
Cerebrovascular disease	3,127	7.3	Interpersonal violence	61,198	8.3
Tuberculosis	3,043	7.1	Ischaemic heart disease	48,770	6.6
Diabetes mellitus	2,521	5.9	Cerebrovascular disease	37,603	5.1
Interpersonal violence	2,419	5.6	Lower respiratory infections	35,440	4.8
COPD	1,958	4.6	Road injuries	33,084	4.5
Trachea/bronchi/lung	1,946	4.5	Diabetes mellitus	32,904	4.5
Lower respiratory infections	1,884	4.4	Trachea/bronchi/lung	28,006	3.8
Road injuries	1,398	3.2	COPD	25,928	3.5
Top 10 causes	26,258	61.0	Top 10 causes	457,544	62.1
Total	43,038	100.0	Total	736,219	100.0

**Table 1.5: Leading causes of death for Persons, Western Cape 2011**

### 1.3.4 Leading causes of premature mortality, Western Cape districts 2011

A detailed profile for each district is provided in Appendix Section A.4. Figure 1.7 presents a summary of the leading 10 causes of premature mortality for each district. The leading cause of premature mortality in all districts except West Coast was HIV/AIDS. This was followed by TB in all districts with the exception of Cape Metropole District, where interpersonal violence ranked second and TB third, and West Coast where HIV/AIDS ranked second and ischaemic heart disease third (Figure 1.7). Interpersonal violence ranked amongst the top five causes of death, Ischaemic heart disease and cerebrovascular disease ranked amongst the top seven, lower respiratory infections amongst the top eight, and COPD, road injuries, diabetes and lung cancer amongst the top 10 causes in all districts.

Rank	Cape Winelands	Central Karoo	Cape Town	Eden	Overberg	West Coast	Western Cape
1	HIV/AIDS (12.1%)	HIV/AIDS (14.9%)	HIV/AIDS (13.0%)	HIV/AIDS (12.3%)	HIV/AIDS (9.3%)	Tuberculosis (11.7%)	HIV/AIDS (12.4%)
2	Tuberculosis (9.8%)	Tuberculosis (11.4%)	Interpersonal violence (9.7%)	Tuberculosis (10.1%)	Tuberculosis (8.5%)	HIV/AIDS (8.7%)	Tuberculosis (8.6%)
3	Interpersonal violence (6.6%)	COPD (7.5%)	Tuberculosis (7.7%)	Ischaemic heart disease (7.0%)	Ischaemic heart disease (8.0%)	Ischaemic heart disease (8.3%)	Interpersonal violence (8.3%)
4	Cerebrovascular disease (6.0%)	Interpersonal violence (5.5%)	Ischaemic heart disease (6.7%)	Cerebrovascular disease (6.7%)	Interpersonal violence (6.5%)	Cerebrovascular disease (6.4%)	Ischaemic heart disease (6.6%)
5	COPD (5.6%)	Lower respiratory infections (5.3%)	Lower respiratory infections (4.7%)	Interpersonal violence (5.3%)	Cerebrovascular disease (6.1%)	Interpersonal violence (5.6%)	Cerebrovascular disease (5.1%)
6	Road injuries (5.3%)	Ischaemic heart disease (5.1%)	Diabetes mellitus (4.7%)	Diabetes mellitus (4.8%)	Trachea/bronchi/lung (5.6%)	COPD (5.4%)	Lower respiratory infections (4.8%)
7	Ischaemic heart disease (5.1%)	Cerebrovascular disease (5.1%)	Cerebrovascular disease (4.4%)	Lower respiratory infections (4.7%)	Lower respiratory infections (5.1%)	Lower respiratory infections (5.4%)	Road injuries (4.5%)
8	Lower respiratory infections (4.9%)	Trachea/bronchi/lung (4.7%)	Road injuries (4.4%)	COPD (3.9%)	Road injuries (4.8%)	Road injuries (5.2%)	Diabetes mellitus (4.5%)
9	Trachea/bronchi/lung (4.2%)	Road injuries (3.6%)	Trachea/bronchi/lung (3.5%)	Trachea/bronchi/lung (3.8%)	COPD (4.7%)	Trachea/bronchi/lung (4.2%)	Trachea/bronchi/lung (3.8%)
10	Diabetes mellitus (4.0%)	Diabetes mellitus (2.7%)	COPD (2.6%)	Road injuries (3.6%)	Diabetes mellitus (3.8%)	Diabetes mellitus (3.9%)	COPD (3.5%)

Figure 1.7: League table of leading causes of premature mortality, Western Cape Districts 2011

## 2 Child mortality

### 2.1 Child deaths

There were 2,416 deaths reported in children under 5 years of age in 2011. The majority of these deaths (91.7%; N = 2,213) were collected through the routine local mortality surveillance system (LMSS) on a death notification form. A total of 1,232 child deaths were reported by the provincial injury mortality surveillance system (PIMSS). It was possible to link 1,029 of the PIMSS child deaths with LMSS child deaths. The remaining 203 PIMSS child deaths were added to the 2,213 LMSS child deaths bringing the total to 2,416 child deaths.

The 1,232 PIMSS child deaths (51.0% of total) were certified at forensic mortuaries (mortuary certified), whilst the remaining 1,184 child deaths were certified outside forensic mortuaries (non-mortuary certified). The place of death differed markedly by place of certification, (Table 2.2). The majority of non-mortuary certified cases died in hospital (73.2%) whilst the majority of mortuary certified cases died at home (61.1%) or at place unknown (23.4%). Out of the 2,416 Western Cape child deaths only 919 (38%) occurred in hospital, in 2011. The majority (59.2%) of pneumonia cases, and nearly half (42.9%) of the diarrhoea cases died at home (data not shown).

It is interesting that despite only 10.9% of all child deaths being due to external causes, 51.0% of child deaths in the province were investigated at mortuaries. Of the 1,232 mortuary certified cases, only 257 (20.9%) were confirmed injury deaths, with 975 (79.9%) being due to natural causes. Almost half of the natural deaths (975/2,153; 45.3%) were certified at forensic mortuaries, Table 2.2.

**Table 2.1: Place of death by mortuary and non-mortuary certification, Western Cape 2011**

Place of death	Mortuary certified	%	Non-mortuary certified	%	Total	%
DOA hospital	27	2.2	46	3.9	73	3.0
ER/Outpatient hospital	13	1.1	41	3.5	54	2.2
Home	750	60.9	80	6.8	830	34.4
Inpatient hospital	46	3.7	873	73.7	919	38.0
Nursing home	4	0.3	5	0.4	9	0.4
Other	104	8.4	11	0.9	115	4.8
Unknown	288	23.4	128	10.8	416	17.2
<b>Total</b>	<b>1,232</b>	<b>100</b>	<b>1,184</b>	<b>100</b>	<b>2,416</b>	<b>100</b>

**Table 2.2: Classification of cause of death by mortuary and non-mortuary certification, Western Cape 2011**

Place of certification	Natural	%	Unnatural	%	Total
Mortuary	975	45.3	257	54.7	1,232
Non-mortuary	1178	54.7	6	2.3	1,184
<b>Total</b>	<b>2,153</b>	<b>100</b>	<b>1,184</b>	<b>100</b>	<b>2,416</b>

## 2.2 Child mortality rates

Sources of information on live births and child deaths in the Western Cape include Statistics SA<sup>1,2</sup> birth and death registration data, WCDoH and City of Cape Town data (LMSS; live births occurring in facilities from SINJANI). These provide different estimates of child mortality rates, particularly at district and sub-district level (see Table 2.3). Due to this uncertainty, it was decided to present a range of infant and child mortality rates from these different sources of data. In addition, estimates of infant mortality rates (IMR) and child mortality rates (U5MR) were made using an abridged lifetable (deaths LMSS and population estimates Centre for Actuarial Research (CARE)). These estimates suggest that the infant mortality rate (IMR) for the Western Cape ranges between 18.2 and 19.1 deaths per 1,000 live births, and that Overberg and Central Karoo districts have the highest child mortality rates, (Table 2.3). Variations between estimates were greatest for Central Karoo.

**Table 2.3: Estimates of IMR and U5MR, Western Cape districts 2011**

Districts	IMR per 1,000 live births			U5MR per 1,000 live births		
	SINJANI	Stats SA	Lifetable	SINJANI	Stats SA	Lifetable
Cape Winelands	18.5	20.7	19.8	23.3	26.2	24.2
Central Karoo	25.0	34.4	26.5	27.5	40.8	28.3
City of Cape Town	*17.2	17.1	17.5	*21.5	21.6	21.6
Eden	17.4	19.7	17.9	21.4	23.8	21.4
Overberg	32.2	30.4	36.8	37.7	38.4	40.3
West Coast	23.1	22.3	21.9	28.2	28.2	25.5
<b>Western Cape</b>	<b>18.2</b>	<b>19.1</b>	<b>18.7</b>	<b>22.6</b>	<b>24.1</b>	<b>22.7</b>

\*City of Cape Town live births

Trends in IMR and U5MR between 2008 and 2011 are shown in Table 2.4 using Stats SA vital registration data (Appendix Table A.4), as these data were available for the period. Child mortality rates dropped markedly in 2011 in Western Cape and City of Cape Town. Variations in the other districts are difficult to interpret.

**Table 2.4: Trends in IMR and U5MR in Western Cape districts, 2008–2011 Stats SA**

Districts	IMR per 1,000 live births* (Stats SA)				U5MR per 1,000 live births* (Stats SA)			
	2008	2009	2010	2011	2008	2009	2010	2011
Cape Winelands	22.7	25.1	25.1	20.7	29.9	31.0	31.3	26.0
Central Karoo	44.0	40.5	33.4	34.4	58.4	51.5	43.6	41.0
City of Cape Town	21.0	21.7	22.2	17.1	25.9	26.2	27.4	21.6
Eden	23.2	23.6	18.9	19.7	29.1	28.2	23.5	23.8
Overberg	27.9	28.5	32.4	30.4	34.9	33.5	45.5	38.4
West Coast	28.2	23.2	29.9	22.3	33.8	26.6	35.1	28.2
<b>Western Cape</b>	<b>22.3</b>	<b>22.7</b>	<b>23.1</b>	<b>19.1</b>	<b>27.7</b>	<b>27.5</b>	<b>28.6</b>	<b>24.1</b>

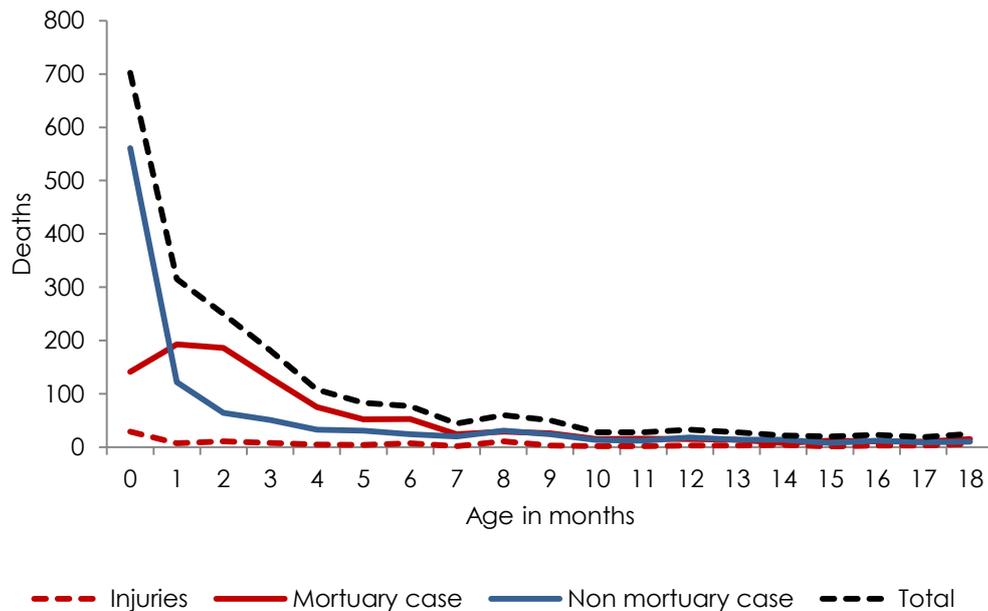
\*Rates recalculated yearly to include late registrations of births

<sup>1</sup>Statistics South Africa. Mortality and causes of death in South Africa, 2011. Findings from death notification. Statistical release P0305. Pretoria: Statistics South Africa, 2014.

<sup>2</sup>Statistics South Africa. Recorded live births, 2011. P0305, Pretoria: Statistics South Africa, 2012

## 2.3 Causes of child deaths

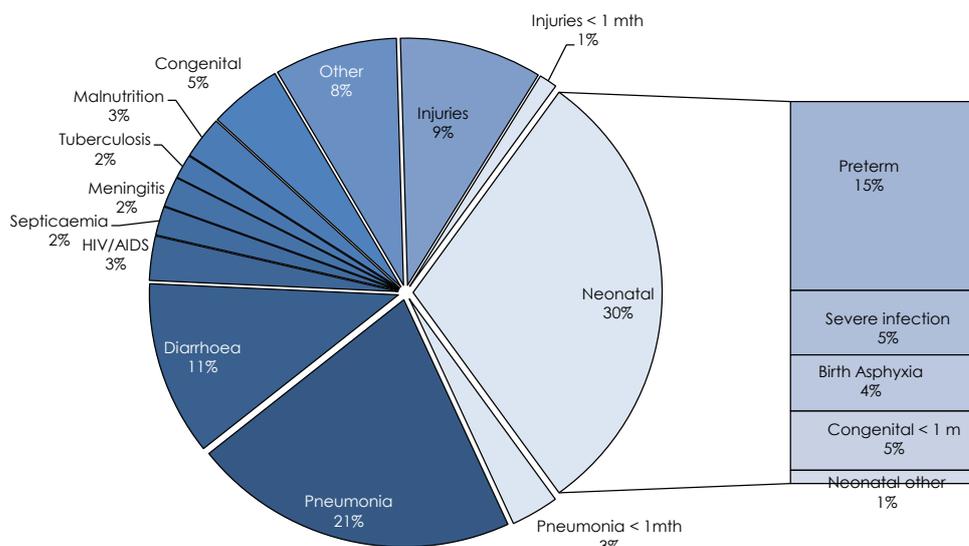
In 2011, the review of mortuary records resulted in a marked reduction in the ill-defined causes of death in children compared to 2010 (12.9% vs 23.8% in neonates, 21.1% vs 37.8% in 1 -- 11 months and 14.1% vs 22.1% in 1 -- 4 years). It was also observed that the age distribution of the mortuary certified cases differed from the non-mortuary certified cases with a higher proportion being in the 1 -- 6 month age group (Figure 2.1).



**Figure 2.1: Age distribution of deaths 0 -- 18 months by place of death certification, Western Cape 2011**

The mortality profile for children under 5 years of age, after redistribution of the ill-defined causes of death, is shown in Figure 2.2. Neonatal causes of death, which are classified to P-codes in ICD-10, accounted for 30% of all deaths under 5 years, with deaths in neonates accounting for 34% of deaths under 5 years. Pneumonia was the leading cause of death accounting for 24% of deaths followed by prematurity (15%) and diarrhoea (11%). It should be noted that HIV is likely to be underreported as a cause of death in these data with probable misattribution of HIV-related deaths to pneumonia and diarrhoea. Injuries accounted for 10.8% of child deaths with 12.5% of injury deaths due to homicide.

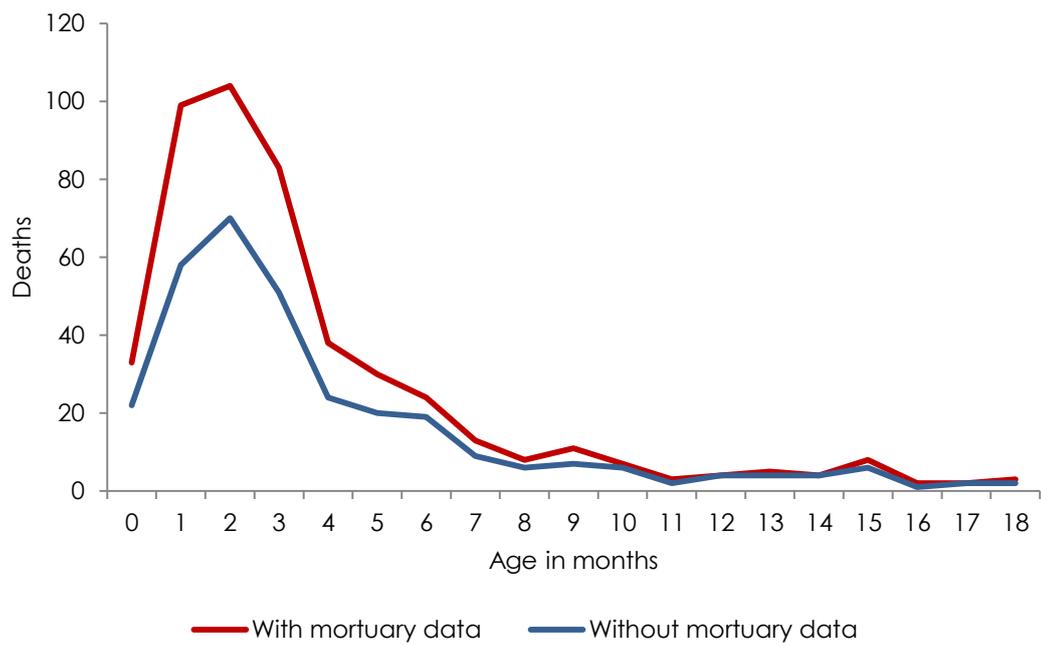
Western Cape child mortality 2011 (N= 2416)



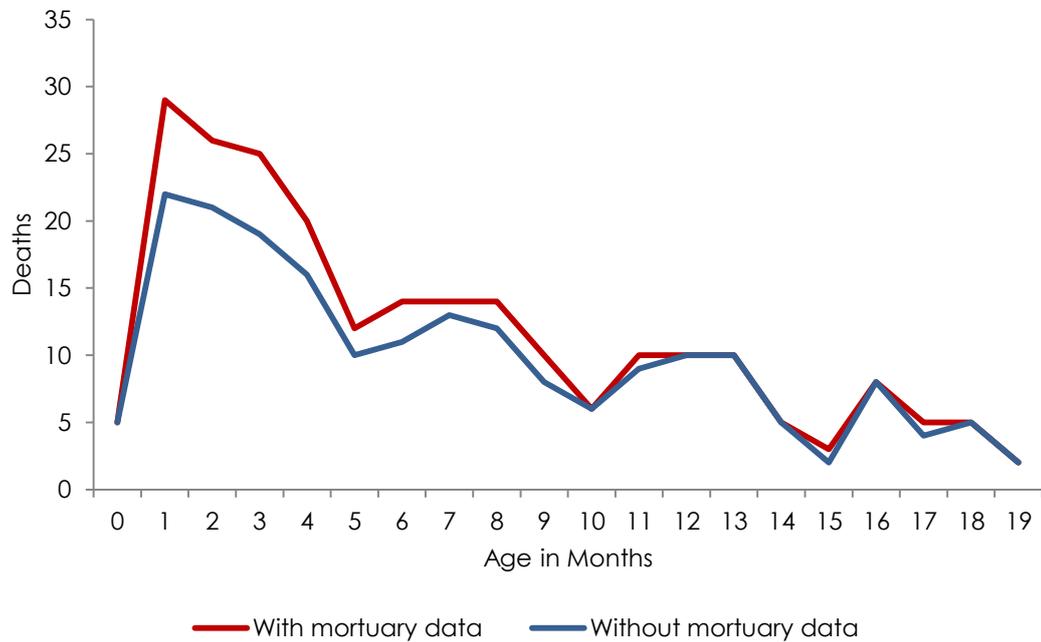
**Figure 2.2: Causes of death in children under 5 years, Western Cape 2011**

The majority of the 506 pneumonia deaths (85.3%) were mortuary certified cases with only 74 certified outside mortuaries (before redistribution of ill-defined). The age distribution of total pneumonia deaths (including mortuary-certified) and the non-mortuary certified pneumonia deaths indicates a peak between 1 and 3 months (Figure 2.3). Previous studies suggest that this early peak in infant mortality could be due to HIV/AIDS.<sup>3</sup> Unfortunately, in most cases, the HIV status was not reported on the death certificate or in the mortuary report. The majority of these deaths occurred at home. More than half of the 235 diarrhoea deaths (55.4%) were mortuary-certified and occurred in babies under 9 months of age (Figure 2.4). A graph of the diarrhoea and pneumonia deaths by month of death shows a seasonal effect with diarrhoea deaths peaking in March and pneumonia deaths peaking in June (Figure 2.5).

<sup>3</sup>Bourne DE1, Thompson M, Brody LL, Colton M, Draper B, Laubscher R, Abdullah MF, Myers JE. Emergence of a peak in early infant mortality due to HIV/AIDS in South Africa. AIDS 2009 Jan 2;23(1):101-6.

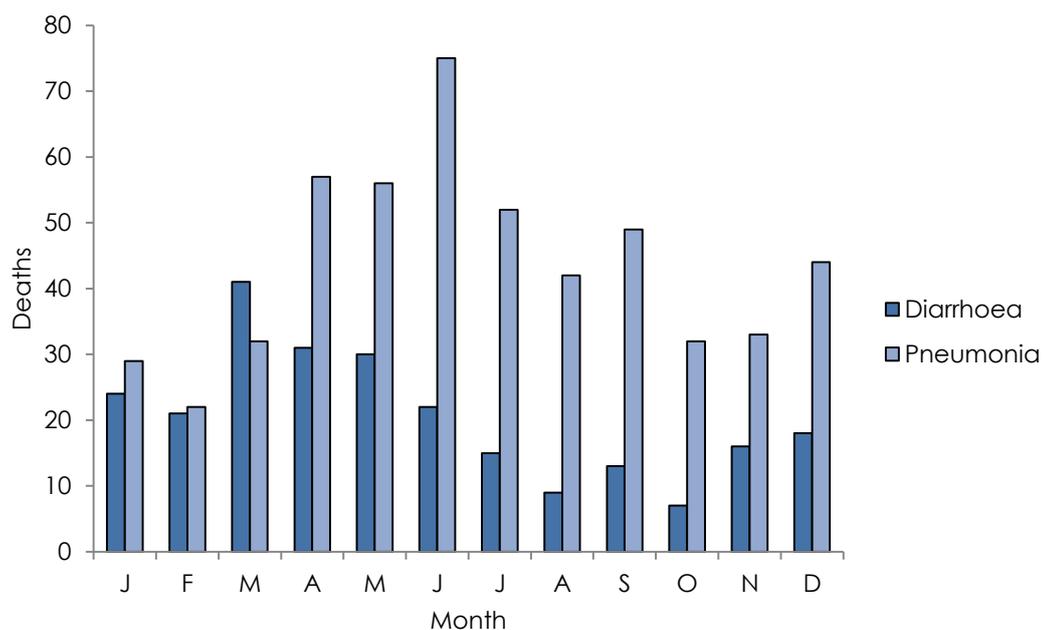


**Figure 2.3: Age distribution of pneumonia deaths 0 -- 18 months with and without mortuary data, Western Cape 2011**



**Figure 2.4: Age distribution of diarrhoea deaths 0 -- 18 months with and without mortuary data, Western Cape 2011**

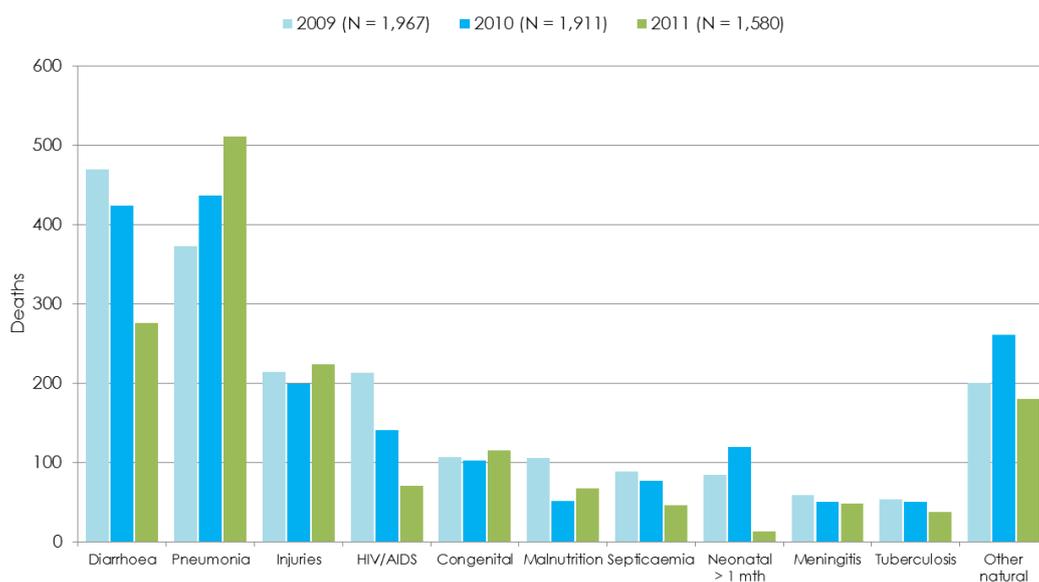
The change in causes of death between 2009 and 2011 in neonates and children from 1 to 59 months are shown in Figure 2.6 and Figure 2.7 respectively. It must be noted that



**Figure 2.5: Diarrhoea and pneumonia deaths in children under 5 years by month of death, Western Cape 2011**

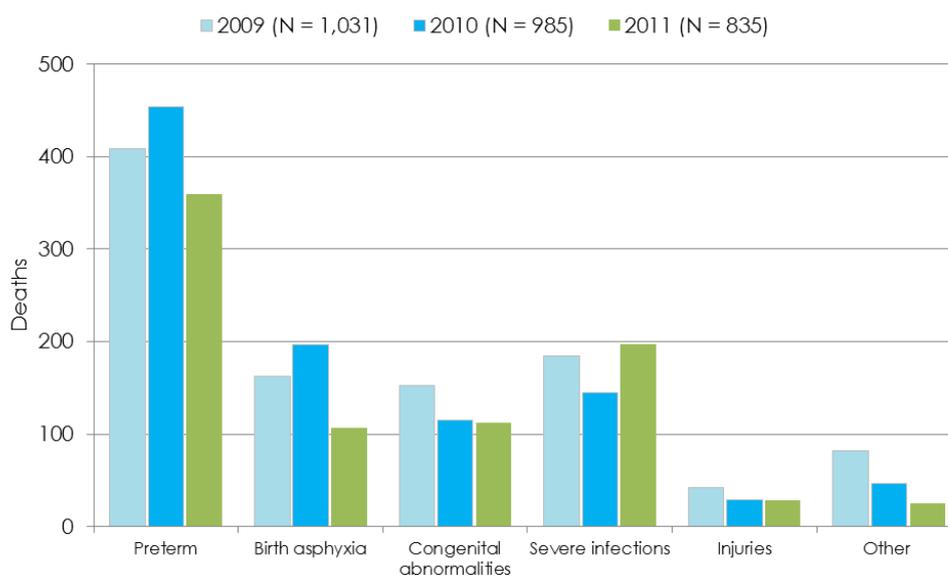
the 2009 child deaths were adjusted to the 2009 Stats SA deaths but neither the 2010 child deaths (97% of the Stats SA 2010 deaths) nor the 2011 child deaths (98% of the Stats SA 2011 deaths) were adjusted. Increased case finding from mortuary records may partly explain the marked increase in pneumonia deaths between 2009 and 2011, as previously many of these deaths would have fallen into an ill-defined category. This may explain the increase in deaths due to severe infections in neonates as well.

### Children 1– 59 mths, Western Cape



**Figure 2.6: Change in child causes of death, Western Cape 2009 to 2011**

### Neonatal deaths, Western Cape



**Figure 2.7: Change in neonatal causes of death, Western Cape 2009 to 2011**

### 3 Deaths from vaccine-preventable and notifiable diseases

Vaccine-preventable and notifiable diseases accounted for 56 deaths in Western Cape in 2011 (Table 3.1). These were mainly due to meningococcal infections (14), hepatitis B (14) and influenza (15) (Table 3.2). Measles accounted for 6 deaths, of which 4 were associated with HIV and 1 with cancer. There were 7 deaths due to malaria.

**Table 3.1: Vaccine-preventable and notifiable deaths by age group, Western Cape 2011**

Age	Hepatitis B (B16)	Meningo-coccal infection (A39)	Malaria (B50 -- B54)	Measles (B05)	Influenza (H1N1) (J09, J11)	Total vaccine preventable
<1 yr	0	1	0	0	2	3
1–4 yr	0	5	0	0	1	6
5–14 yr	0	1	0	0	0	1
15–49 yr	10	7	5	5	4(1)	31
50–69 yr	3	0	2	1	3(1)	9
70+ yr	1	0	0	0	5	6
Total	14	14	7	6	15 (3)	56

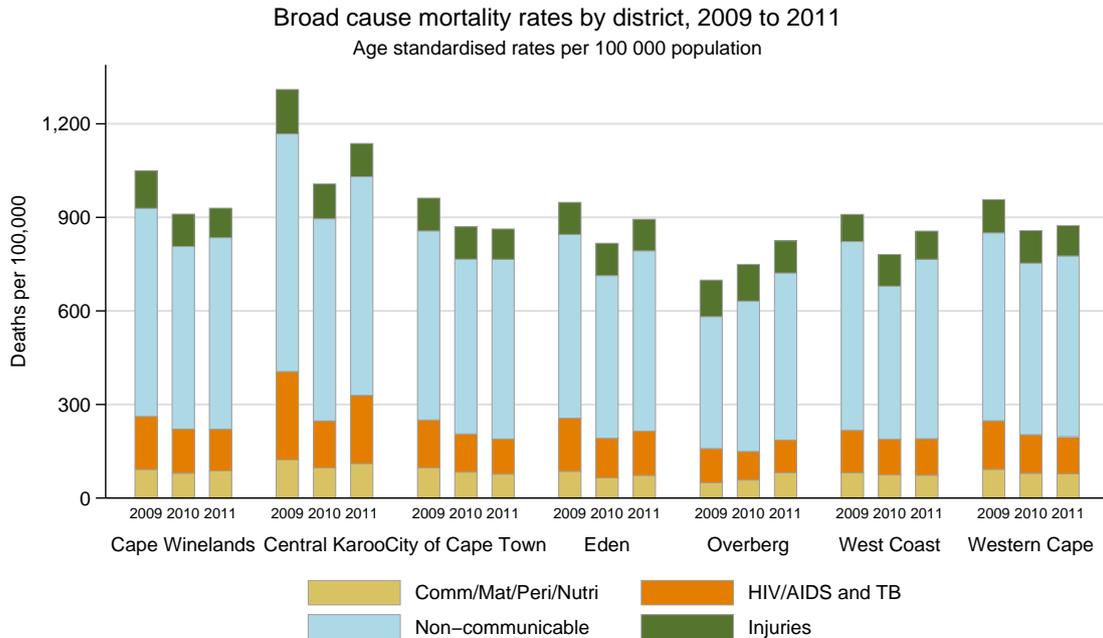
**Table 3.2: Vaccine-preventable and notifiable deaths by cause and district, Western Cape 2011**

District	Hepatitis B (B16)	Meningo-coccal infection (A39)	Measles (B05)	Malaria (B50 -- B54)	Influenza (H1N1) (J09, J11)	Total vaccine preventable
Cape Wine	0	0	0	1	1	2
Central Karoo	0	0	0	0	1	1
City of Cape Town	10	10	6	5	9(2)	34
Eden	3	3	0	0	3(1)	5
Overberg	0	0	0	1	1	2
West Coast	1	1	0	0	0	2
Western Cape	14	14	6	7	15 (3)	56

## 4 Cause-specific mortality rates

### 4.1 Broad causes

#### Districts



**Figure 4.1: Age-standardised rates (per 100,000) by broad cause and year, Western Cape districts**

Age-standardised mortality rates (ASR) are shown by broad cause groups for 2009 to 2011 for each district in Figure 4.1, and the values are provided in Table 4.1. There was a decrease in the all-cause mortality rates in all districts in the province, with the exception of Overberg. However, when interpreting the changes between 2009 and 2010, it is important to note that the deaths for 2009 were adjusted to the numbers reported by Stats SA in 2009, while no adjustment was made for the 2010 or 2011 deaths. With the exception of the Cape Metropole District, it must therefore be assumed that some of the decrease can be ascribed to the lack of completeness of the deaths in 2010, particularly in Central Karoo, West Coast, Eden and Cape Winelands. Non-communicable diseases, HIV and TB, and Comm/Mat/Peri/Nutr ASRs, in the Cape Metropole District declined each year but injury ASR remained the same between 2009 and 2010, and declined slightly in 2011. There was a decrease in the ASR for all broad causes between 2009 and 2011 in all districts except Overberg, which had a small decrease in injuries and to a lesser extent HIV/AIDS and TB.

**Table 4.1: Age-standardised rates (per 100,000) by broad cause and year, Western Cape districts**

	Cape Winelands	Central Karoo	Cape Metro	Eden	Over-berg	West Coast	Western Cape
<b>Comm/Mat/Peri/Nutr</b>							
2009	91.2	122.5	96.6	85.4	48.6	80.8	91.5
2010	79.5	97.1	83.0	64.9	57.7	74.0	79.0
2011	87.1	110.1	76.6	72.5	81.0	73.0	77.8
<b>HIV/AIDS and TB</b>							
2009	170.5	283.1	154.0	170.6	110.2	136.3	156.3
2010	141.8	150.3	122.9	126.8	91.7	114.6	124.2
2011	133.8	219.3	112.8	141.9	104.8	117.2	119.4
<b>Non-communicable</b>							
2009	667.0	762.1	605.9	589.1	422.8	605.1	602.5
2010	585.2	648.1	559.8	521.4	482.0	490.9	549.8
2011	614.0	700.8	575.9	578.3	535.7	575.4	579.0
<b>Injuries</b>							
2009	120.3	142.6	105.4	102.9	117.3	87.3	106.7
2010	104.0	111.9	104.3	103.8	117.7	101.7	104.7
2011	94.7	106.7	97.5	101.2	103.2	90.5	97.5
<b>All causes</b>							
2009	1 049.1	1 310.2	961.8	948.1	698.8	909.5	957.0
2010	910.5	1 007.4	870.0	817.0	749.1	781.1	857.7
2011	929.5	1 136.9	862.9	894.0	824.7	856.1	873.6

## Subdistricts

Figures 4.2–4.5 show the rankings of sub-districts according to ASRs for each of the four broad causes, and Figure 4.6 shows the ranking based on the all-cause ASR. These need to be interpreted cautiously as the differences in death rates may be influenced by variations in the completeness in the data, as well as uncertainties in the estimates of the population age distribution. In summary:

- Comm/Mat/Peri/Nutr ASR (Figure 4.2) was highest in Beaufort West followed by Breede Valley, Hessequa and Khayelitsha. The lowest ASRs were in Bitou, Prince Albert and Swartland.
- HIV and TB ASRs were highest in Khayelitsha followed by Beaufort West and Matzikama. Swellendam, Southern and Swartland had the lowest HIV and TB ASR (Figure 4.3).
- Non-communicable disease ASR was highest in Prince Albert followed by Oudtshoorn and Kannaland. Bitou, Northern and Knysna had the lowest ASR for non-communicable diseases (Figure 4.4).
- Injury deaths were considered to be complete because they were obtained from mortuaries. Thus, injury ASRs were considered to provide an accurate reflection of the situation. Khayelitsha had the highest injury ASR followed by Cederberg and Matzikama. Bergrivier, Southern and Saldanha Bay had the lowest injury ASRs (Figure 4.5).
- Beaufort West had the highest all-cause ASR followed by Oudtshoorn, Central Karoo, Breede Valley and Khayelitsha, with Bitou, Southern and Northern having the lowest. (Figure 4.6).

Comm/Mat/Peri/Nutr ASR, 2011

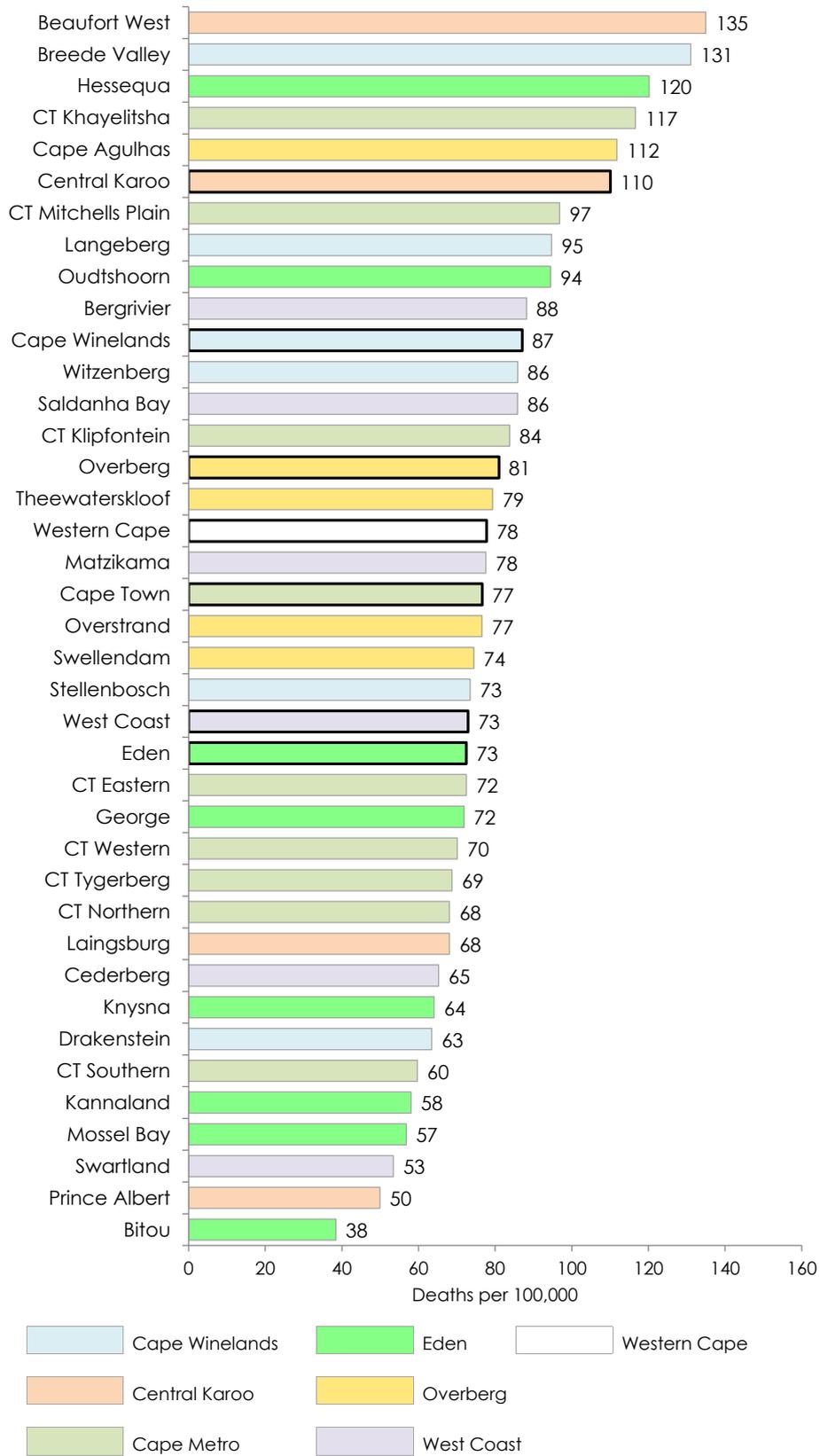
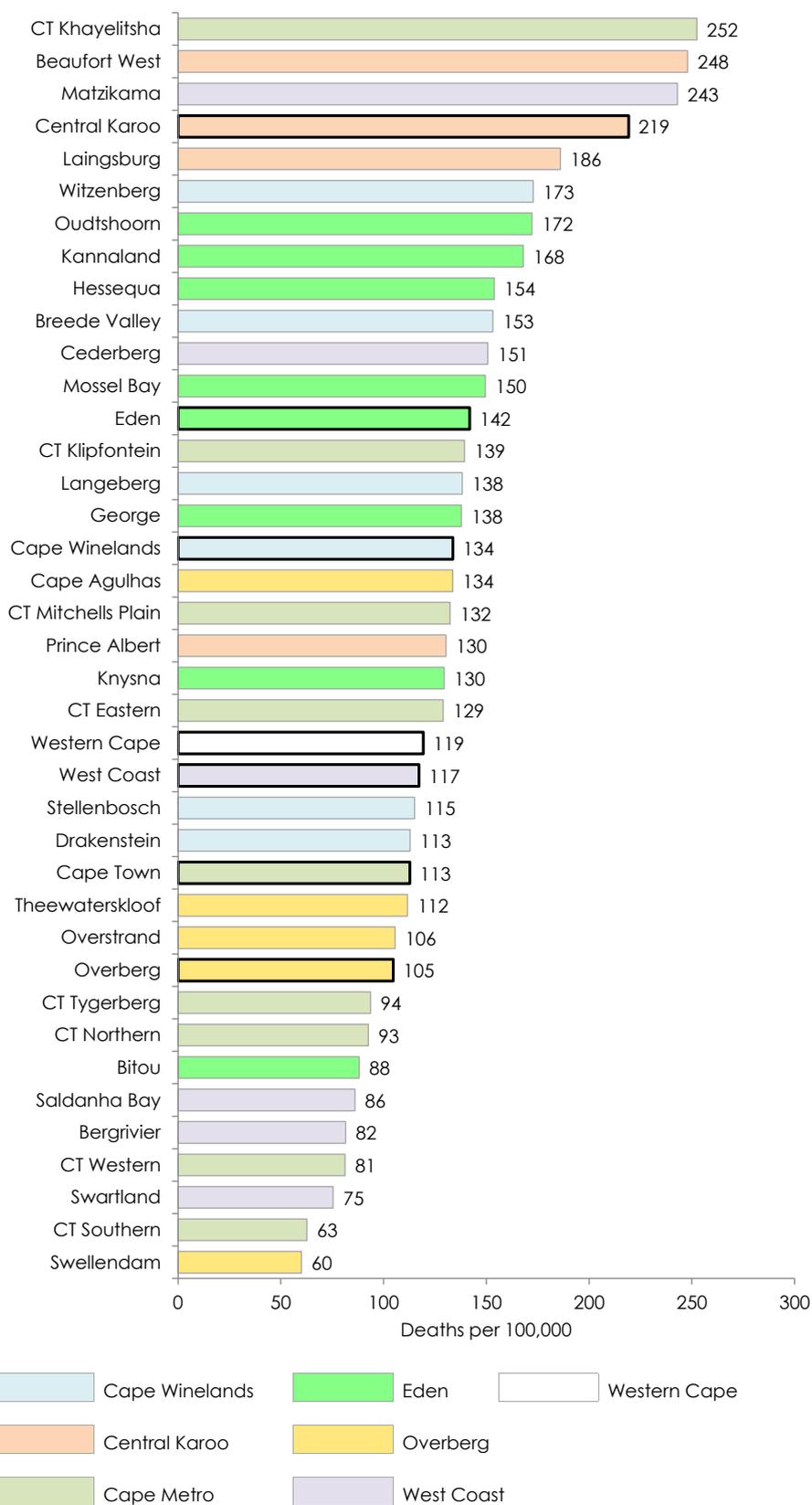


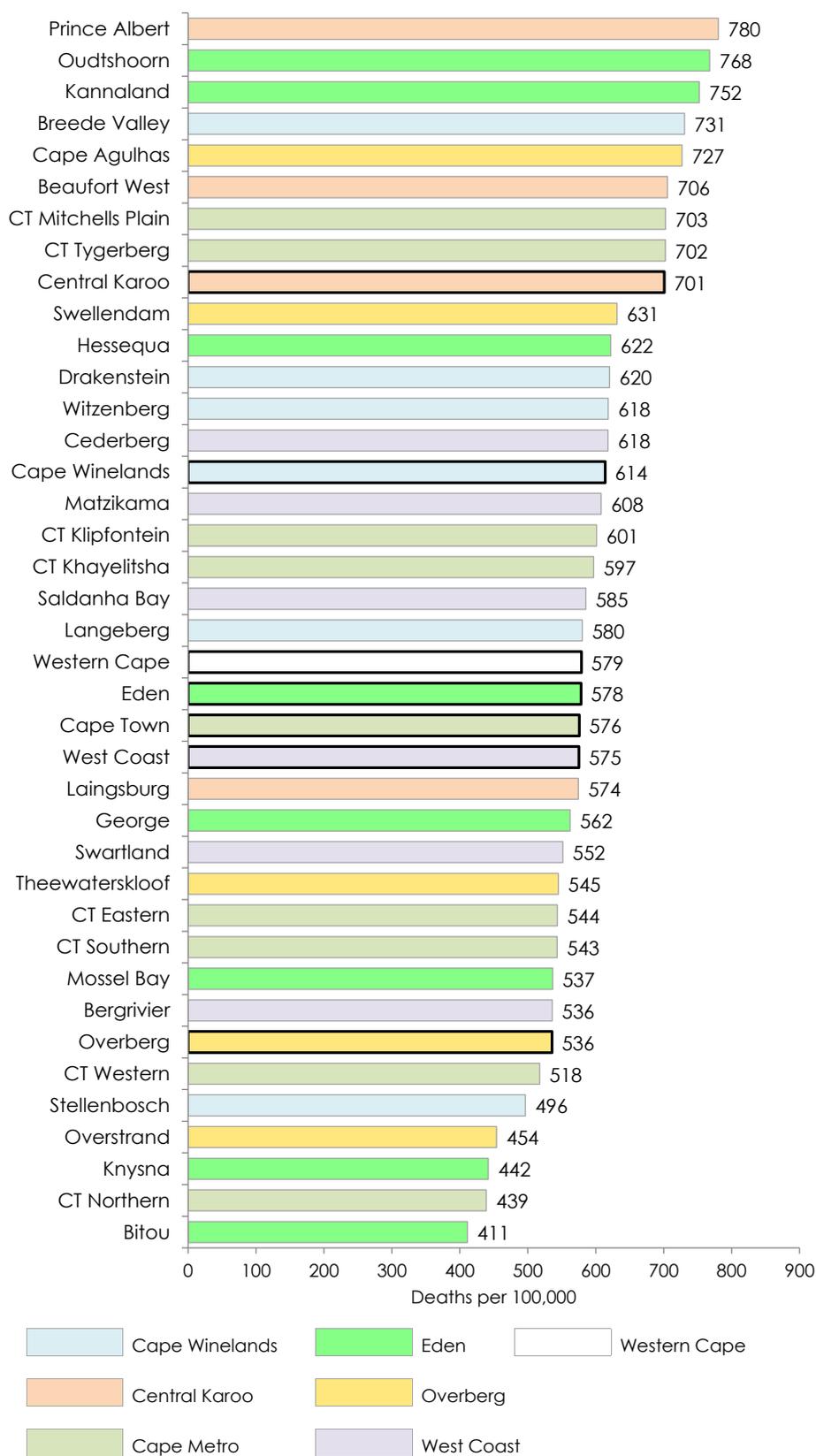
Figure 4.2: Age-standardised death rates for Comm/Mat/Peri/Nutri, Western Cape sub-districts 2011

### HIV/AIDS and TB ASR, 2011



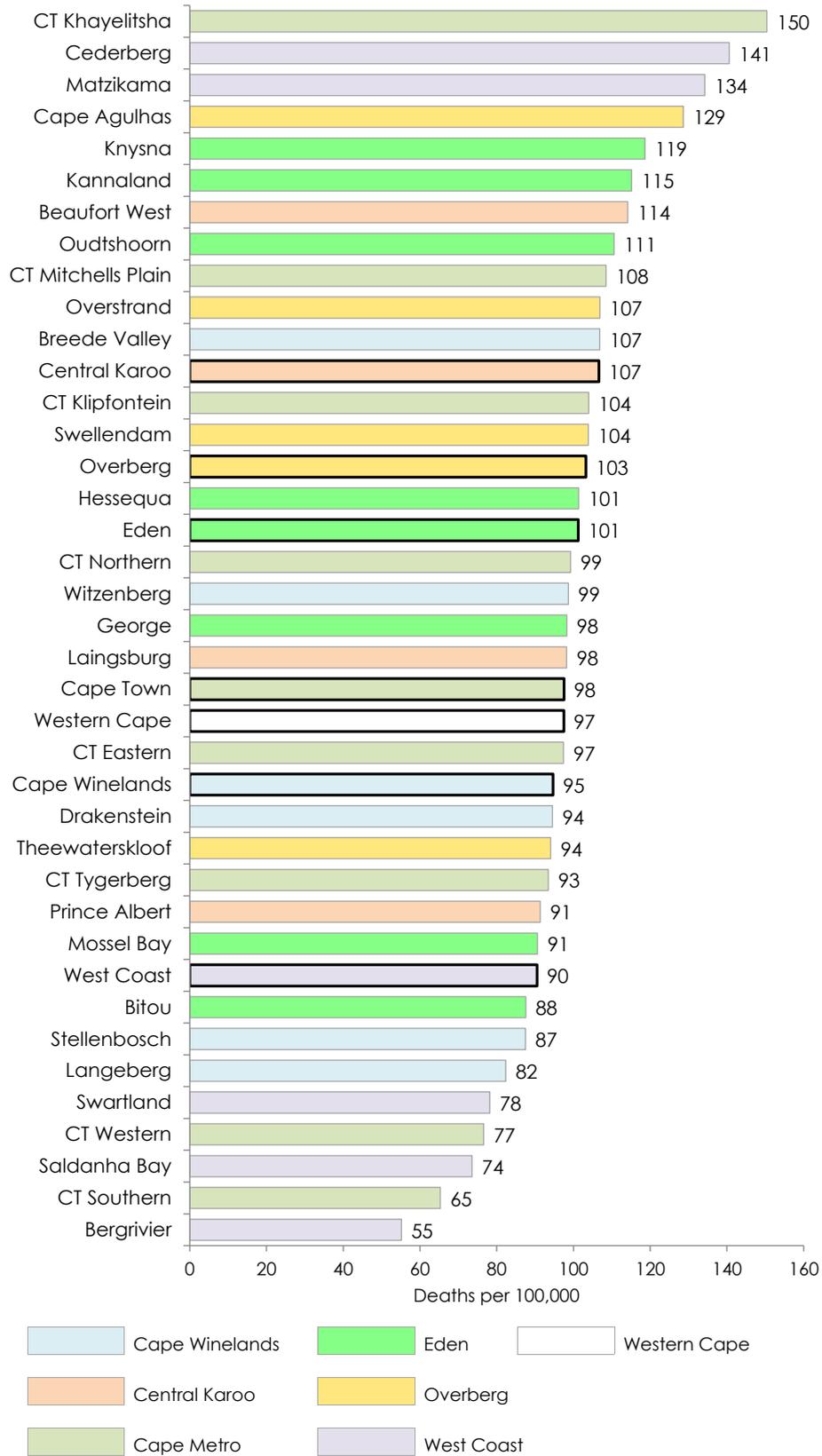
**Figure 4.3: Age-standardised death rates for HIV/AIDS and TB, Western Cape sub-districts 2011**

### Non-communicable ASR, 2011



**Figure 4.4: Age-standardised death rates for non-communicable diseases, Western Cape sub-districts 2011**

### Injuries ASR, 2011



**Figure 4.5: Age-standardised death rates for injuries, Western Cape sub-districts 2011**

All causes ASR, 2011

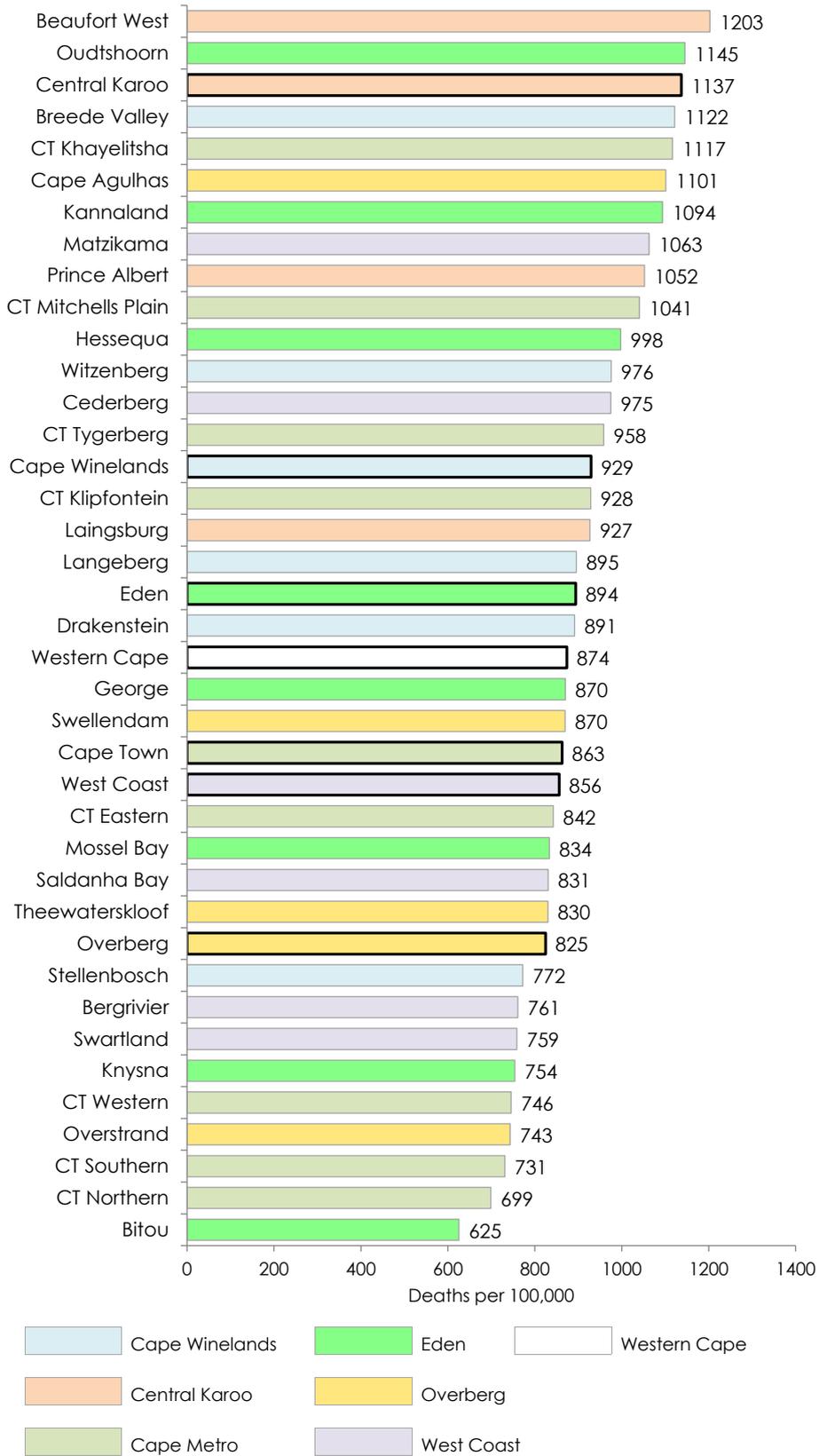
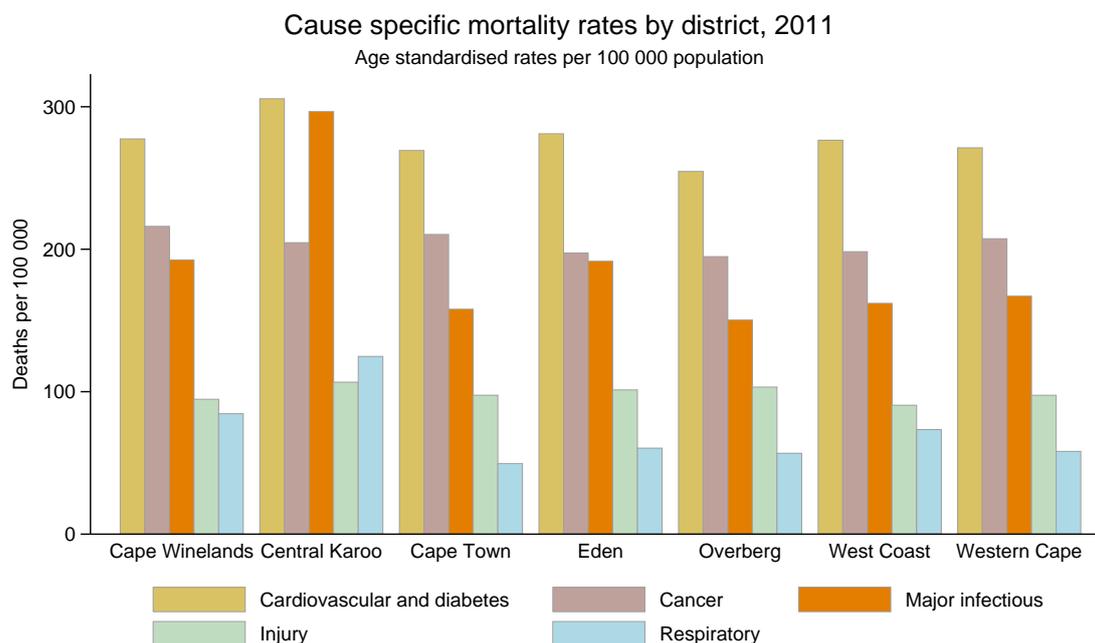


Figure 4.6: Age-standardised death rates for all causes, Western Cape sub-districts 2011

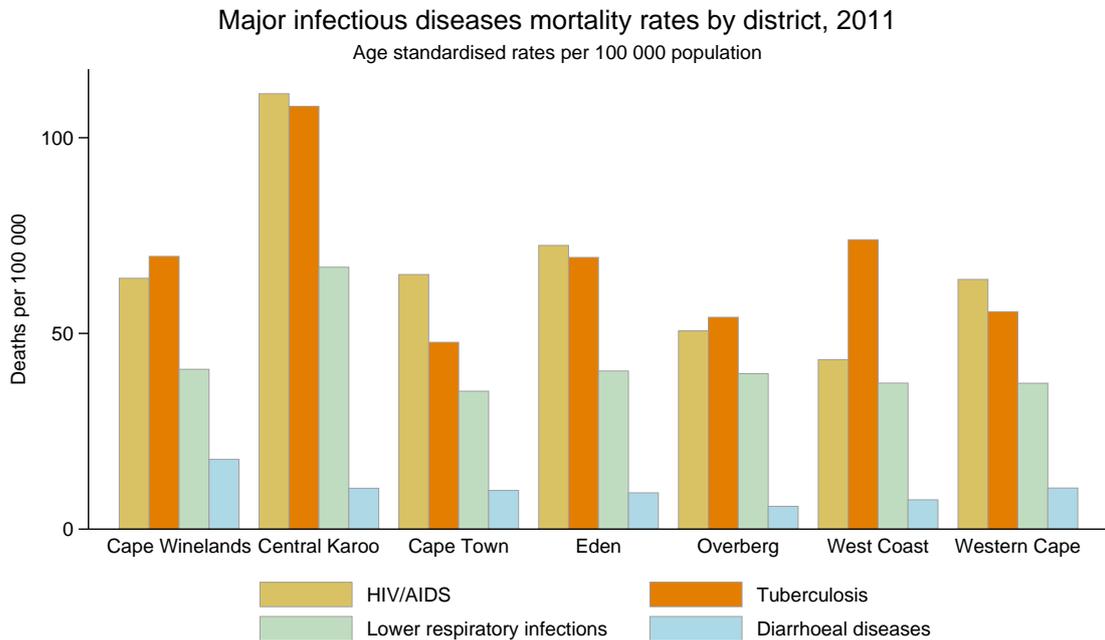
## 4.2 Major causes



**Figure 4.7: Major disease mortality rates by district, Western Cape 2011**

Cause-specific mortality rates for selected groupings of major burden causes are presented to overcome the problem of misclassification of causes of death (Figure 4.7). Cardiovascular and diabetes rates, and major infectious diseases show marked variation across districts, whilst injury mortality rates are more consistent. Cardiovascular and diabetes mortality rates were highest in Central Karoo and Eden, and lowest in Overberg. Cancer mortality rates were highest in Cape Winelands, and lowest in Overberg and Eden. Major infectious death rates were highest in Central Karoo and Cape Winelands, and lowest in Overberg.

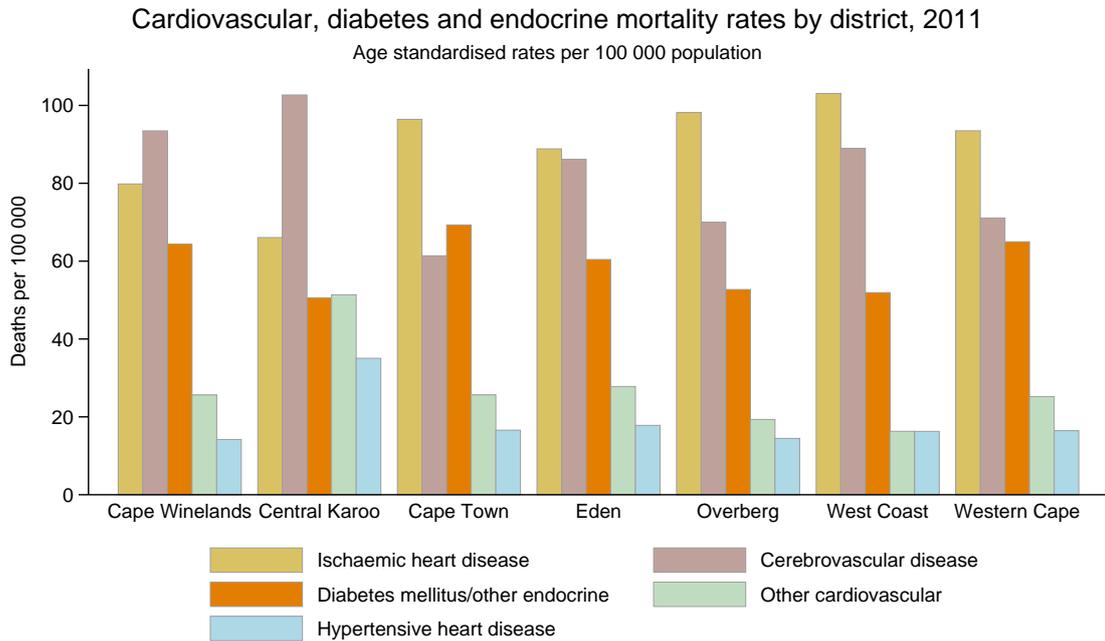
### 4.3 Major infectious diseases



**Figure 4.8: Major infectious disease mortality rates by district, Western Cape 2011**

HIV mortality rates were highest in Central Karoo followed by Eden and Cape Winelands. TB death rates were highest in Central Karoo followed by West Coast and Cape Winelands. Lower respiratory infection rates were highest in Central Karoo followed by Cape Winelands, and lowest in Cape Town. Diarrhoeal death rates were highest in Cape Winelands, and lowest in Overberg and Cape Town.

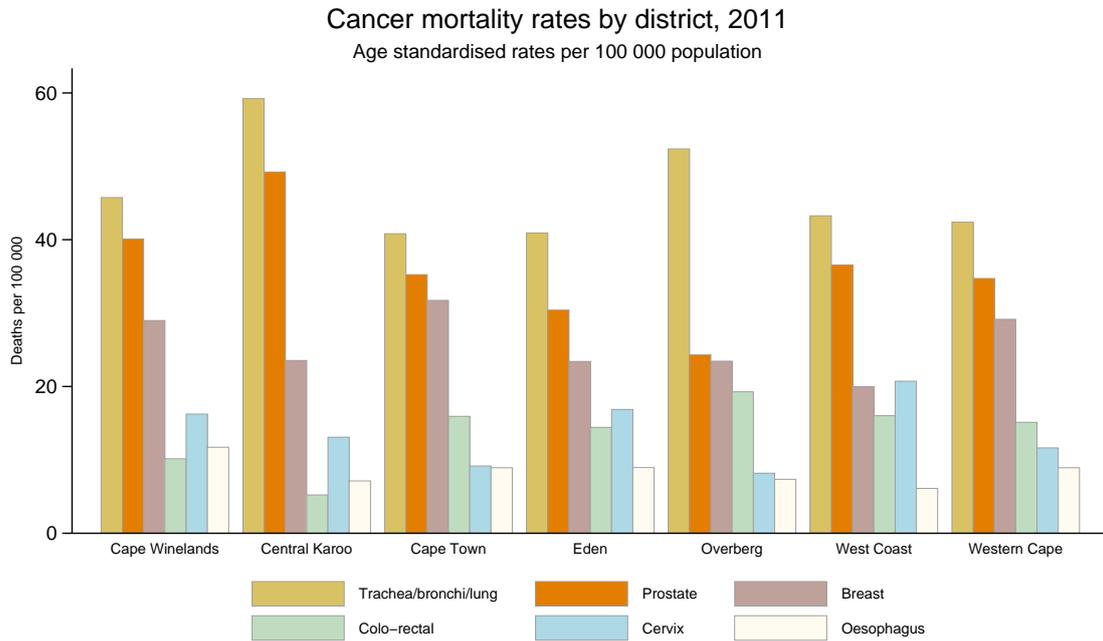
## 4.4 Cardiovascular and diabetes



**Figure 4.9: Cardiovascular, diabetes and endocrine mortality rates by district, Western Cape 2011**

Ischaemic heart disease death rates were highest in West Coast and lowest in Central Karoo, whilst death rates due to cerebrovascular disease were highest in Central Karoo and Cape Winelands, and lowest in the Cape Metro. Diabetes and endocrine mortality rates were highest in Cape Metro and lowest in Central Karoo. Hypertensive heart disease death rates were highest in Central Karoo and lowest in Overberg districts.

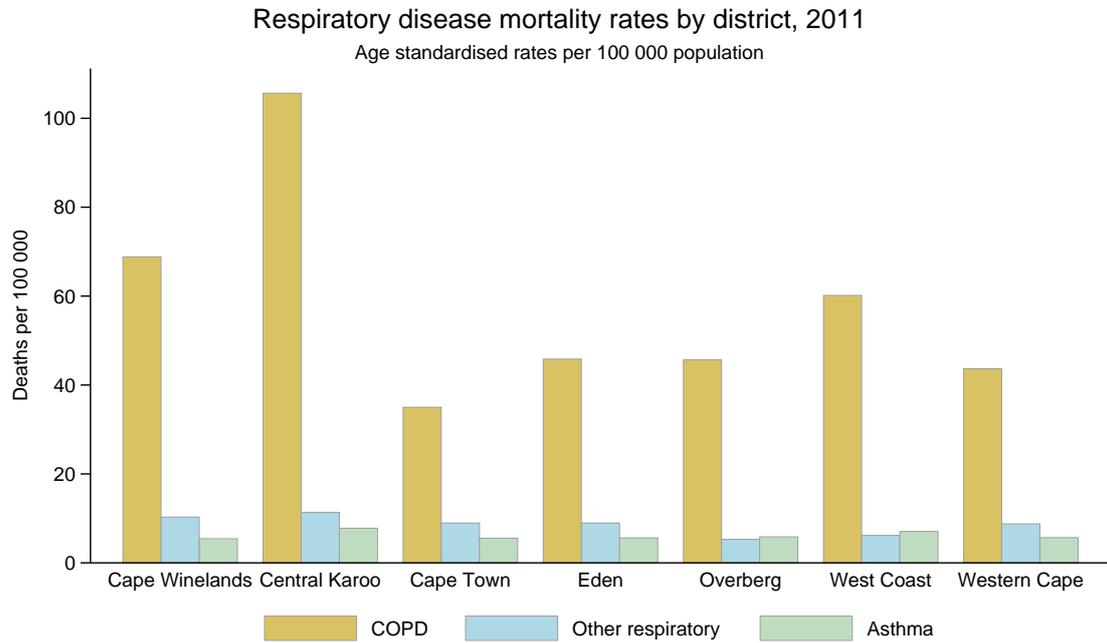
## 4.5 Cancers



**Figure 4.10: Cancer mortality rates by district, Western Cape 2011**

Lung cancer mortality rates were highest in Central Karoo and Overberg with the other districts showing less variation. Prostate cancer mortality rates were highest in Central Karoo and Cape Winelands, and lowest in Overberg. Breast cancer death rates were highest in Cape Metro followed by Cape Winelands, and lowest in West Coast. Death rates due to cervix cancer were highest in West Coast and lowest in Overberg. Colo-rectal cancer death rates were highest in Overberg and West Coast, and lowest in Central Karoo. Death rates due to oesophageal cancer were highest in Cape Winelands and lowest in West Coast.

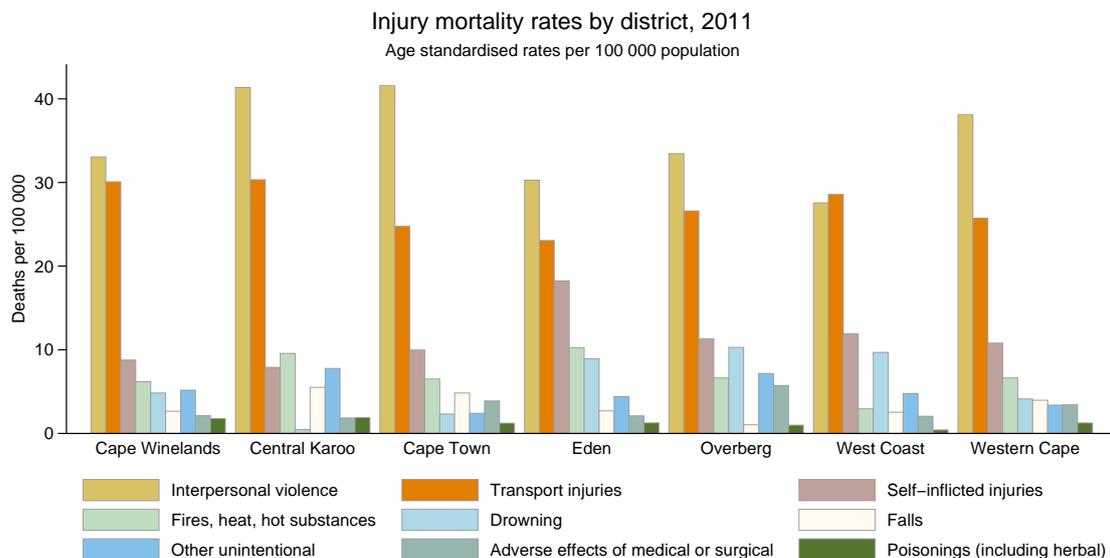
## 4.6 Respiratory diseases



**Figure 4.11: Respiratory disease mortality rates by district, Western Cape 2011**

Chronic obstructive pulmonary disease (COPD) death rates were highest in Central Karoo and Cape Winelands, and lowest in Cape Town. Death rates due to asthma were highest in Central Karoo with little variation between the other districts.

## 4.7 Injuries



**Figure 4.12: Injury mortality rates by district, Western Cape 2011**

Injury mortality information is assumed to be accurate for both rates and cause of mortality. Injury fatality data were obtained directly from the mortuaries, and was thus considered to be complete. Only 3% of all injury deaths had ill-defined causes. Mortality rates due to interpersonal violence were highest in Cape Metro (41.6 per 100,000) and Central Karoo (41.4 per 100,000), and ranged from 27.6 to 33.5 deaths per 100,000 across other districts.

Transport injury mortality rates were highest in Central Karoo (29.4 per 100,000), Cape Winelands (30.0 per 100,000) and West Coast (28.5 per 100,000), and lowest in Eden (23.0 per 100,000). Self-inflicted injuries (suicides) were highest in Eden (18.2 per 100,000) and Overberg (11.3 per 100,000), and lowest in Central Karoo (7.9 per 100,000). Death rates due to accidental drowning were highest in Overberg (10.3 per 100,000) and West Coast (9.7 per 100,000), and lowest in Cape Metro (2.3 per 100,000) and Central Karoo (0.5 per 100,000).

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## 5 Discussion

Whilst there are limitations in these data, completeness has improved markedly since 2009, particularly for children under 5 years. In addition, the proportion of ill-defined causes of death, particularly amongst children, has declined, providing a more accurate child mortality profile for the province and the health districts. The report provides robust information about the leading causes of premature mortality, which can assist districts to identify priorities for interventions, and highlights the high-burden causes of mortality.

Mortality due to HIV/AIDS has stabilised and started to decline, however, it is still the leading cause of premature mortality across all districts in Western Cape. This highlights the need to strengthen intersectoral prevention strategies and continue to strengthen the health service response, particularly with regard to providing chronic care at primary health facilities. Tuberculosis remains one of the leading causes of premature mortality, despite reported improvements in cure rates, suggesting that improved case and control finding is required. Opportunities to identify suspected TB cases and speed up the process of diagnosing TB at primary health-care facilities should be sought. Injury-related mortality, particularly due to interpersonal violence and road traffic injuries, remains extremely high especially amongst young adult males (170 per 100,000 in age group 20 – 24 yrs). Intersectoral interventions aimed at reducing alcohol-related violence have shown potential, and these efforts should be strengthened and expanded. Non-communicable diseases, particularly cardiovascular disease and diabetes mellitus, account for a large proportion of premature mortality, especially amongst women. This emerging epidemic needs to be addressed through the strengthening of primary care management, promoting healthy lifestyles and addressing upstream risk factors. Smoking related causes of death such as COPD and lung cancer, are high, particularly amongst men. Smoking prevalence rates are very high amongst the coloured population, both men and women. Whilst public tobacco control interventions in South Africa are very advanced, more could be done at primary health-care level to promote smoking cessation at the individual level<sup>1</sup>.

The data show differentials in health between districts, with age-standardised death rates ranging from 825 per 100,000 (Overberg) and 1,137 per 100,000 (Central Karoo). Whilst some of these differences may be accounted for by different levels of completeness of death reporting, this may indicate inequalities in health care between districts or inaccurate population figures. Currently, unresolved differences between official midyear population estimates and Census 2011 populations for Western Cape districts are a major challenge in estimating mortality rates and trends in mortality by district.

Efforts to strengthen the quality of the data have enabled a more accurate profile of child mortality. It is hoped that cause of death information from FPS for natural child deaths will be shared with the surveillance system sooner, so that appropriate health interventions can be planned and evaluated. For example, the web-based mortality surveillance system with automated coding has the potential to provide up-to-date mortality information for monitoring deaths due to vaccine-preventable and notifiable diseases. It is already being used to identify and investigate diarrhoea related deaths in the Cape Metropole.

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<sup>1</sup>Sitas F, Eggers S, Bradshaw *et al.* Differences among the coloured, white, black, and other South African populations in smoking-attributed mortality at ages 35–74 years: a case-control study of 481 640 deaths. *Lancet* 2013; 382:685-93.

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## **6 Recommendations for improving the surveillance system**

Improving data quality will require that doctors receive adequate training in medical certification and that data capturers are trained in medical terminology. A programme of training in medical certification of death was implemented in Western Cape and has been implemented at both medical schools in the province and needs to be maintained.

IRIS automated coding software makes it possible to standardise coding across districts for routine cases. However, experienced coders are required to do the manual coding of the rejected cases. To this end, the Health Impact Assessment Unit of the Provincial Department of Health has recruited a health professional who will be trained in ICD-10 morbidity and mortality coding. To ensure good quality data, quality assurance measures such as standard operating procedures and quality assurance monitoring procedures for data collection and capture, are being built into the system.

Whilst one of the specific challenges to the sustainability of the system, namely securing the appropriate resources, has been addressed, other important challenges remain. These include:

- a. integrating and institutionalising the system into a fragmented health system managed by both provincial and local authorities
- b. formulating policies regarding the sharing of patient cause of death data between institutions
- c. ensuring cooperation between government departments to enable cause of death data to be used for surveillance as well as statistical purposes at local as well as national level (Local Municipal Health Department, Provincial Health Department, National Home Affairs Department and Statistics South Africa)

Despite these challenges, the results of this collaborative effort between the government departments mentioned above, as well as the South African Medical Research Council and the universities of Cape Town and Stellenbosch, serve as an example of what can be achieved.

Demonstrating the utility and encouraging the use of the information provided by this system at district and sub-district level will hopefully convince health managers and health workers of the importance of this information, and provide incentives to ensure that the data quality is improved at all levels within the system.

## A APPENDICES

### A.1 Completeness by district and age

Table A.1: Estimates of completeness of all deaths compared with Stats SA deaths, 2011

District	Completeness (%)			N		
	< 5 yr	> 5 yr	All	< 5 yr	> 5 yr	All*
Cape Winelands	97.4	86.1	86.9	337	5,430	5,778
Central Karoo	73.3	80.1	79.9	33	662	696
Cape Metro	102.5	100.3	100.8	1552	25,018	26,681
Eden	93.8	97.7	97.5	210	4,715	4,927
Overberg	116.0	93.9	95.2	123	1,978	2,850
West Coast	96.3	85.9	86.4	156	2,684	2,565
Western Cape	97.9	93.5	94.1	2,411	40,487	43,038

\*Includes 140 deaths with unknown age

### A.2 Proportion ill-defined

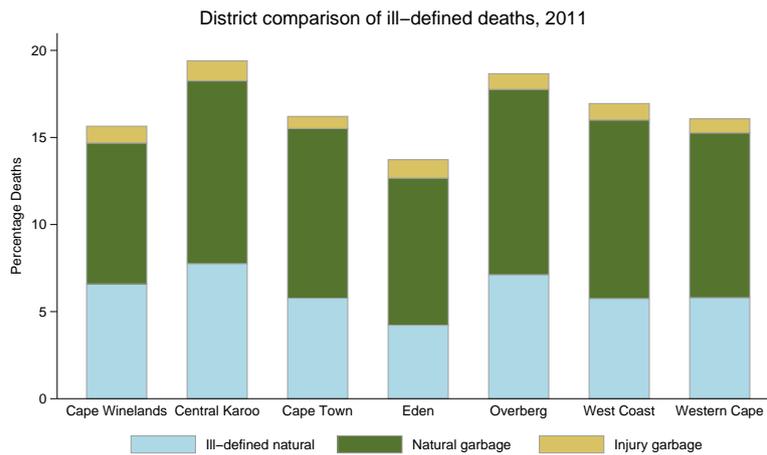


Figure A.1: District comparison of ill-defined causes

Table A.2: District comparison of garbage coded causes, 2011

District	Deaths	Ill-def %	Garb (nat) %	Garb (inj) %	All Garb %
Cape Winelands	5,778	6.6	8.1	1.0	15.6
Central Karoo	696	7.8	10.5	1.1	19.4
Cape Town	26,681	5.8	9.7	0.7	16.2
Eden	4,927	4.2	8.4	1.1	13.7
Overberg	2,106	7.1	10.6	0.9	18.7
West Coast	2,850	5.8	10.2	0.9	16.9
Western Cape	43,038	5.8	9.5	0.8	16.1

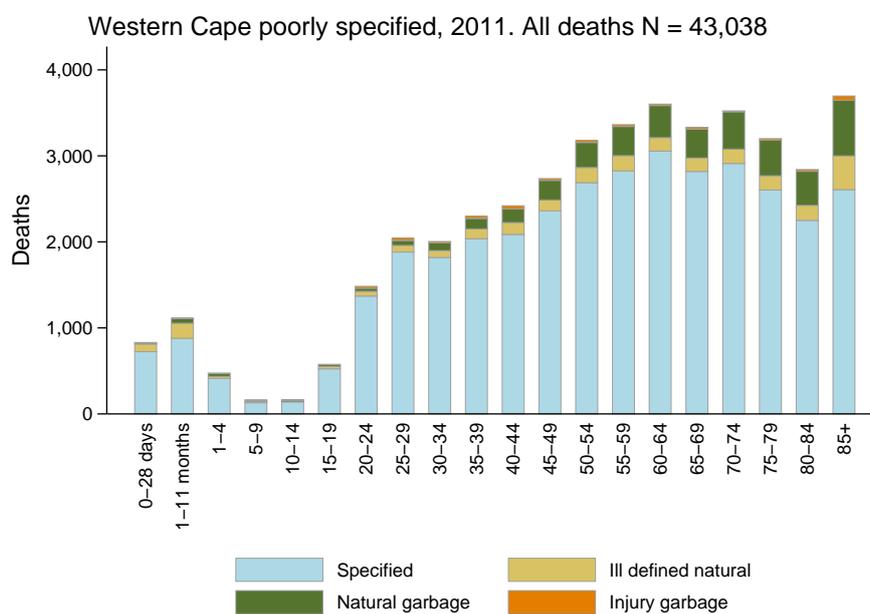


Figure A.2: Western Cape poorly specified, 2011

Table A.3: Western Cape quality of reporting, 2011

Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	830	10.7	1.6	0.6	12.9
1-11 months	1,113	15.7	5.0	0.3	21.0
1-4	474	4.9	7.2	0.9	12.9
5-9	163	8.7	8.0	3.2	19.8
10-14	165	4.3	7.9	3.4	15.6
15-19	576	4.7	3.6	0.7	9.1
20-24	1,483	3.7	2.4	1.5	7.6
25-29	2,040	3.8	2.8	1.2	7.7
30-34	2,004	4.0	4.6	0.7	9.3
35-39	2,295	5.0	5.2	1.0	11.3
40-44	2,420	5.7	6.5	1.5	13.8
45-49	2,736	4.7	8.3	0.8	13.7
50-54	3,179	5.5	9.2	0.7	15.4
55-59	3,363	5.3	10.1	0.6	16.0
60-64	3,602	4.4	10.4	0.5	15.2
65-69	3,331	4.7	10.1	0.6	15.4
70-74	3,523	4.8	12.3	0.3	17.4
75-79	3,201	5.2	13.0	0.5	18.7
80-84	2,842	6.1	13.9	0.7	20.8
85+	3,696	10.6	17.5	1.3	29.5
All	43,038	5.8	9.5	0.8	16.1

### A.3 Live births and deaths, Stats SA Western Cape

**Table A.4: Live births and deaths in children under 5 years, Stats SA**

Districts	DEATHS (Stats SA)								LIVE BIRTHS <sup>1</sup> (Stats SA)			
	2008 <sup>2</sup>		2009 <sup>3</sup>		2010 <sup>4</sup>		2011 <sup>5</sup>		2008	2009	2010	2011
	0	1-4	0	1-4	0	1-4	0	1-4				
Cape Wine	308	99	336	79	334	82	274	72	13,593	13,384	13,303	13,208
Cent Karoo	55	18	48	13	36	11	38	7	1,250	1,184	1,078	1,104
Cape Metro	1,617	373	1,591	331	1,590	373	1,198	316	76,867	73,470	71,582	70,058
Eden	245	62	235	46	182	44	185	39	10,540	9,965	9,608	9,402
Overberg	83	21	79	14	92	37	84	22	2,980	2,773	2,837	2,763
West Coast	173	34	139	20	170	30	128	34	6,132	5,983	5,694	5,735
<b>West Cape</b>	<b>2,481</b>	<b>607</b>	<b>2,428</b>	<b>503</b>	<b>2,404</b>	<b>577</b>	<b>1,958*</b>	<b>504*</b>	<b>111,362</b>	<b>106,759</b>	<b>104,102</b>	<b>102,270</b>

\*Excluding unspecified districts

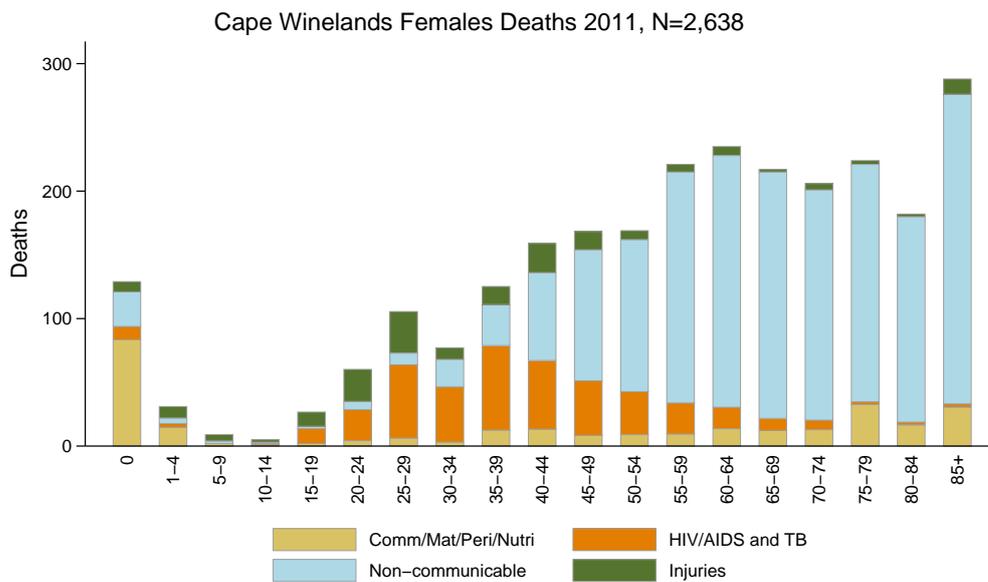
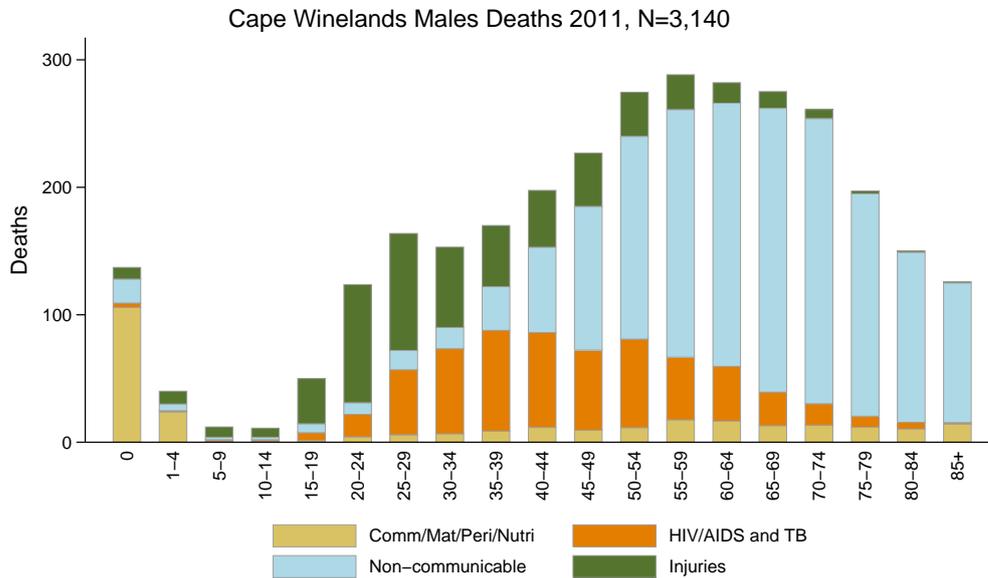
Sources:

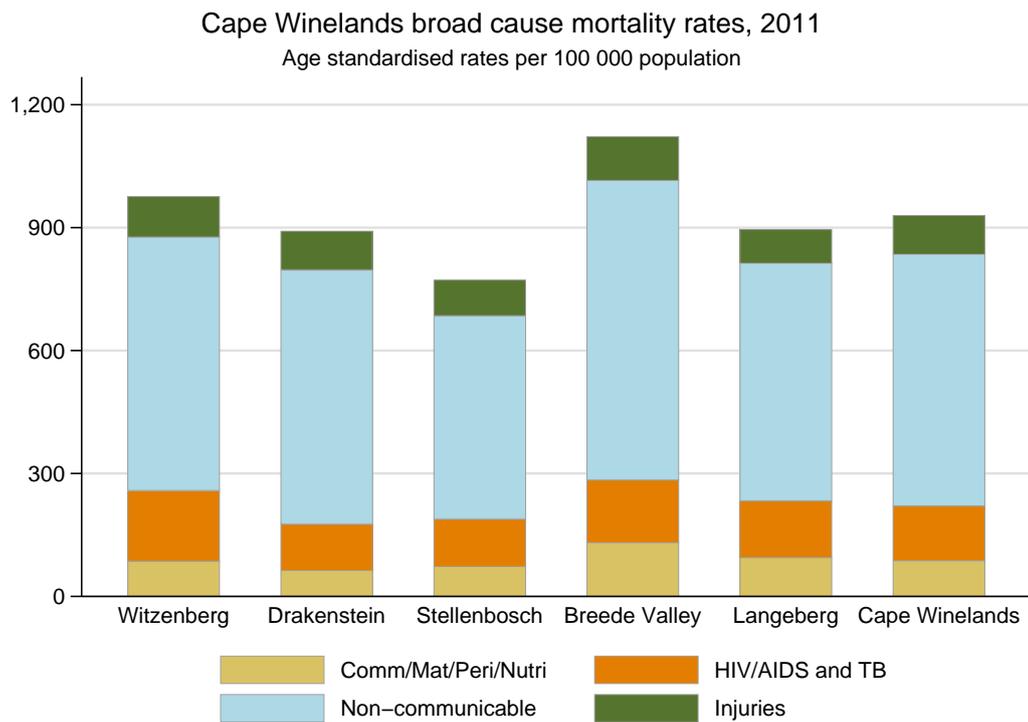
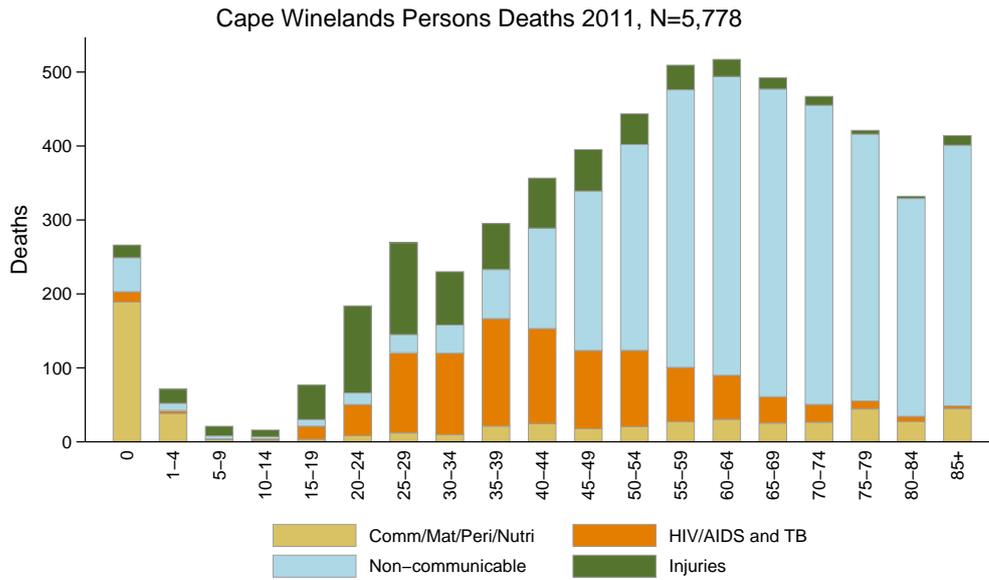
1. StatsSA. Recorded Live Births, 2012. Statistical Release P0305. Pretoria: Statistics South Africa, 2013.
2. Stats SA. Mortality and causes of death in South Africa, 2008. Statistical Release P0309.3. Pretoria: Statistics South Africa, 2010.
3. Stats SA. Mortality and causes of death in South Africa, 2009. Statistical Release P0309.3. Pretoria: Statistics South Africa, 2011.
4. Stats SA. Mortality and causes of death in South Africa, 2010. Statistical Release P0309.3. Pretoria: Statistics South Africa, 2013.
5. Stats SA. Mortality and causes of death in South Africa, 2011. Statistical Release P0309.3. Pretoria: Statistics South Africa, 2014.

## A.4 District profiles

### A.4.1 Cape Winelands

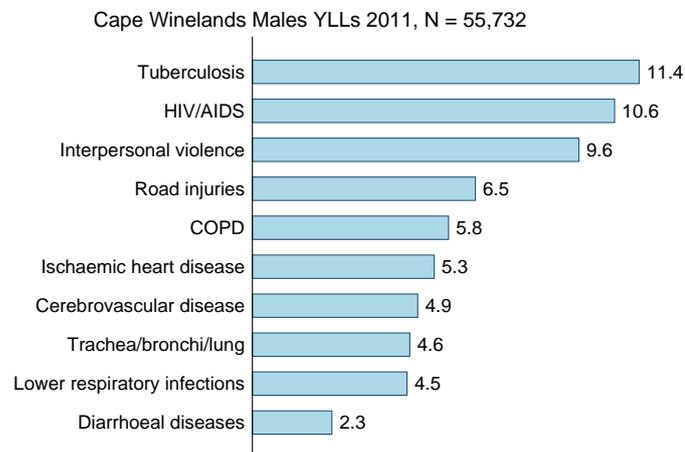
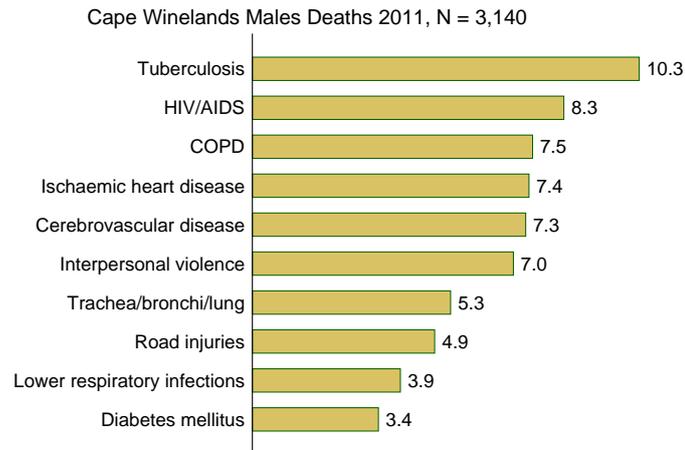
#### A.4.1.1 Broad causes





**Figure A.3: Cape Winelands age-standardised death rates per 100,000**

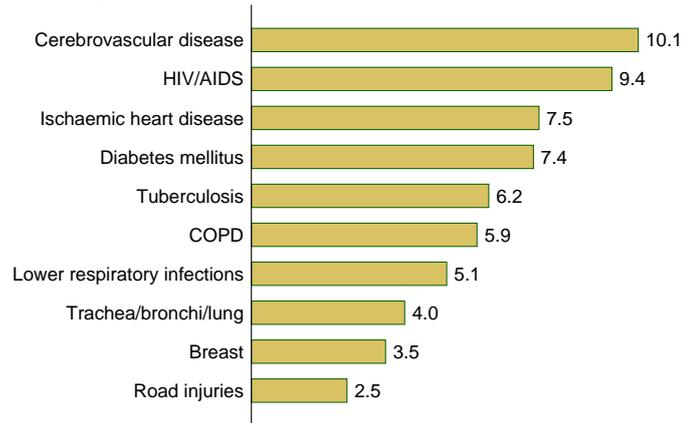
#### A.4.1.2 Leading causes of deaths and YLLs



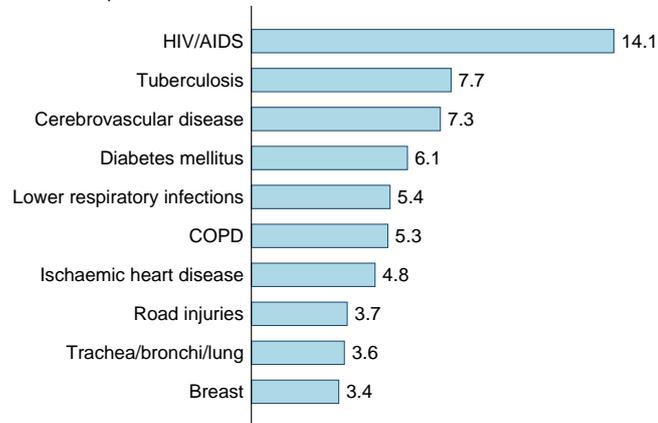
Cause of death	Deaths	%	Cause of death	YLLs	%
Tuberculosis	324	10.3	Tuberculosis	6,327	11.4
HIV/AIDS	261	8.3	HIV/AIDS	5,924	10.6
COPD	234	7.5	Interpersonal violence	5,342	9.6
Ischaemic heart disease	231	7.4	Road injuries	3,647	6.5
Cerebrovascular disease	229	7.3	COPD	3,208	5.8
Interpersonal violence	218	7.0	Ischaemic heart disease	2,973	5.3
Trachea/bronchi/lung	166	5.3	Cerebrovascular disease	2,704	4.9
Road injuries	153	4.9	Trachea/bronchi/lung	2,575	4.6
Lower respiratory infections	124	3.9	Lower respiratory infections	2,530	4.5
Diabetes mellitus	105	3.4	Diarrhoeal diseases	1,301	2.3
Top 10 causes	2,045	65.1	Top 10 causes	36,516	65.5
Total	3,140	100.0	Total	55,732	100.0

**Table A.5: Leading causes of death for Males, Cape Winelands 2011**

Cape Winelands Females Deaths 2011, N = 2,638



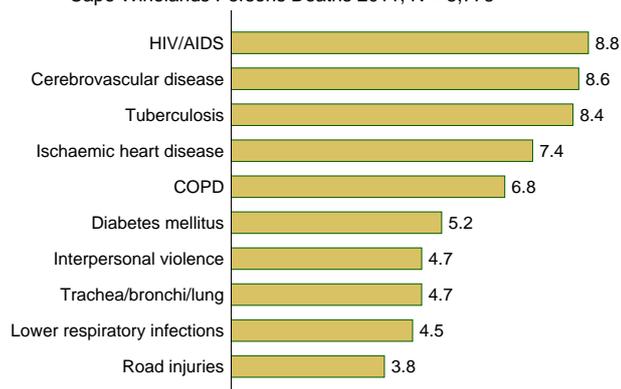
Cape Winelands Females YLLs 2011, N = 44,484



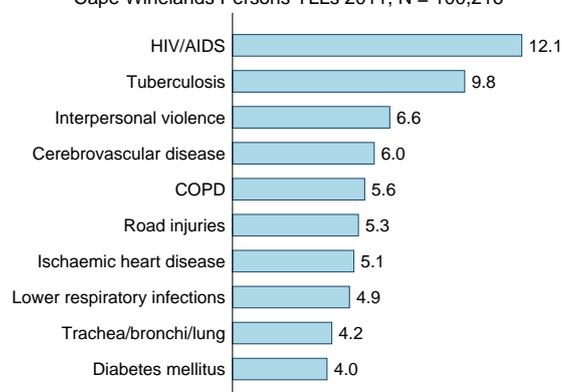
Cause of death	Deaths	%	Cause of death	YLLs	%
Cerebrovascular disease	267	10.1	HIV/AIDS	6,252	14.1
HIV/AIDS	249	9.4	Tuberculosis	3,445	7.7
Ischaemic heart disease	199	7.5	Cerebrovascular disease	3,260	7.3
Diabetes mellitus	195	7.4	Diabetes mellitus	2,692	6.1
Tuberculosis	164	6.2	Lower respiratory infections	2,392	5.4
COPD	156	5.9	COPD	2,354	5.3
Lower respiratory infections	135	5.1	Ischaemic heart disease	2,134	4.8
Trachea/bronchi/lung	106	4.0	Road injuries	1,653	3.7
Breast	93	3.5	Trachea/bronchi/lung	1,604	3.6
Road injuries	66	2.5	Breast	1,507	3.4
Top 10 causes	1,629	61.8	Top 10 causes	27,293	61.4
Total	2,638	100.0	Total	44,484	100.0

**Table A.6: Leading causes of death for Females, Cape Winelands 2011**

Cape Winelands Persons Deaths 2011, N = 5,778



Cape Winelands Persons YLLs 2011, N = 100,216



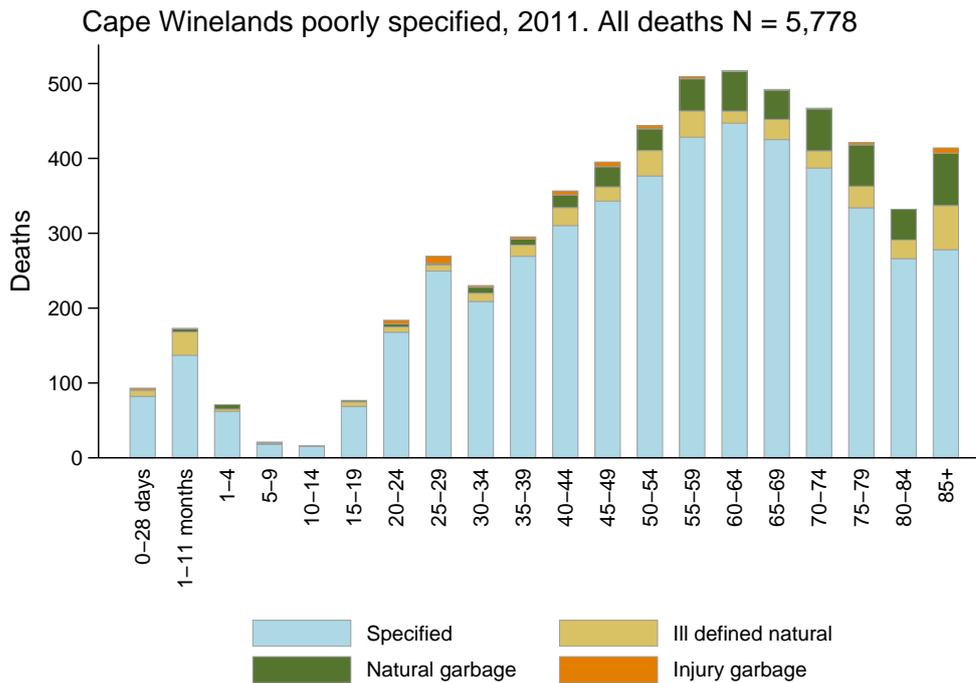
Cause of death	Deaths	%	Cause of death	YLLs	%
HIV/AIDS	510	8.8	HIV/AIDS	12,176	12.1
Cerebrovascular disease	496	8.6	Tuberculosis	9,772	9.8
Tuberculosis	488	8.4	Interpersonal violence	6,618	6.6
Ischaemic heart disease	430	7.4	Cerebrovascular disease	5,965	6.0
COPD	390	6.8	COPD	5,562	5.6
Diabetes mellitus	300	5.2	Road injuries	5,300	5.3
Interpersonal violence	272	4.7	Ischaemic heart disease	5,107	5.1
Trachea/bronchi/lung	272	4.7	Lower respiratory infections	4,922	4.9
Lower respiratory infections	259	4.5	Trachea/bronchi/lung	4,178	4.2
Road injuries	219	3.8	Diabetes mellitus	3,978	4.0
Top 10 causes	3,634	62.9	Top 10 causes	63,577	63.4
Total	5,778	100.0	Total	100,216	100.0

**Table A.7: Leading causes of death for Persons, Cape Winelands 2011**

Rank	Witzenberg	Drakenstein	Stellenbosch	Breede Valley	Langeberg	Cape Winelands
1	HIV/AIDS (14.5%)	HIV/AIDS (10.9%)	HIV/AIDS (13.4%)	HIV/AIDS (12.2%)	HIV/AIDS (10.9%)	HIV/AIDS (12.1%)
2	Tuberculosis (13.2%)	Tuberculosis (8.8%)	Tuberculosis (10.3%)	Tuberculosis (8.2%)	Tuberculosis (10.8%)	Tuberculosis (9.8%)
3	COPD (7.2%)	Ischaemic heart disease (6.6%)	Interpersonal violence (8.0%)	Lower respiratory infections (7.2%)	Ischaemic heart disease (7.4%)	Interpersonal violence (6.6%)
4	Interpersonal violence (6.8%)	COPD (6.6%)	Cerebrovascular disease (5.5%)	Interpersonal violence (6.7%)	COPD (5.6%)	Cerebrovascular disease (6.0%)
5	Cerebrovascular disease (6.4%)	Interpersonal violence (6.6%)	Road injuries (5.4%)	Cerebrovascular disease (5.7%)	Cerebrovascular disease (5.3%)	COPD (5.6%)
6	Road injuries (4.9%)	Cerebrovascular disease (6.5%)	Diabetes mellitus (4.7%)	Trachea/bronchi/lung (5.2%)	Lower respiratory infections (4.9%)	Road injuries (5.3%)
7	Trachea/bronchi/lung (3.4%)	Road injuries (6.4%)	Lower respiratory infections (4.4%)	Road injuries (4.7%)	Trachea/bronchi/lung (4.7%)	Ischaemic heart disease (5.1%)
8	Lower respiratory infections (2.9%)	Diabetes mellitus (4.8%)	Ischaemic heart disease (4.2%)	COPD (4.5%)	Diabetes mellitus (4.7%)	Lower respiratory infections (4.9%)
9	Diabetes mellitus (2.7%)	Lower respiratory infections (4.1%)	COPD (3.9%)	Ischaemic heart disease (4.2%)	Interpersonal violence (4.6%)	Trachea/bronchi/lung (4.2%)
10	Ischaemic heart disease (2.6%)	Trachea/bronchi/lung (3.6%)	Trachea/bronchi/lung (3.9%)	Diarrhoeal diseases (3.2%)	Road injuries (4.2%)	Diabetes mellitus (4.0%)

**Figure A.4: League table of leading causes of premature mortality, Cape Winelands 2011**

### A.4.1.3 Proportion ill-defined



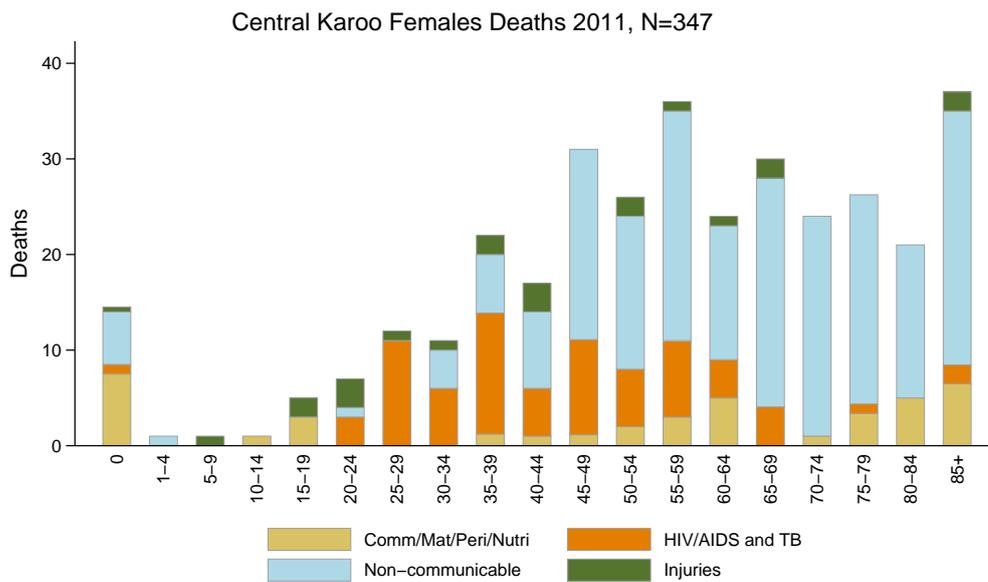
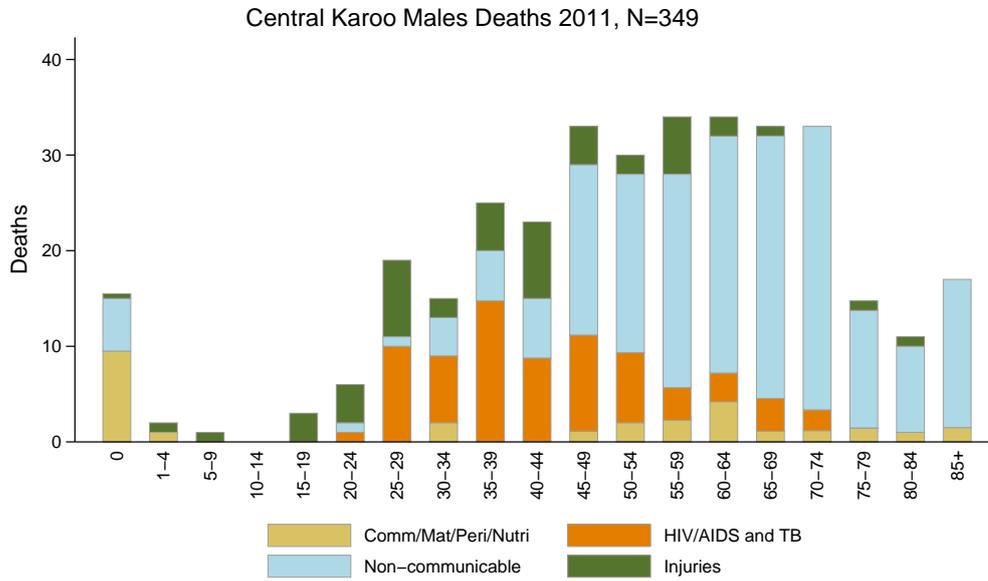
**Table A.8: Cape Winelands quality of reporting, 2011**

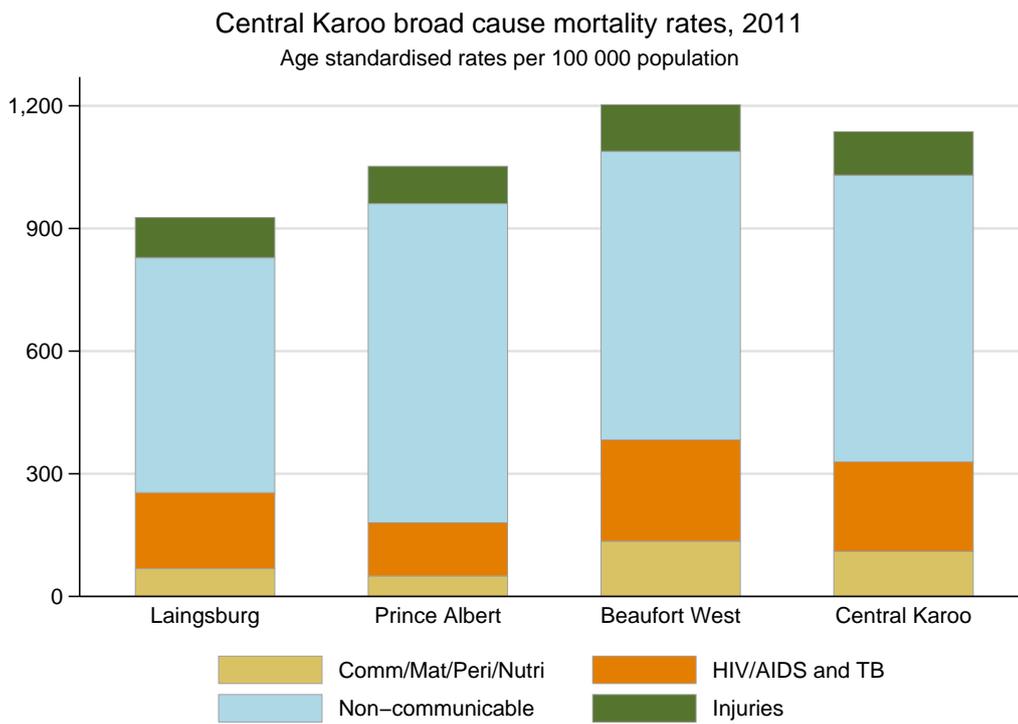
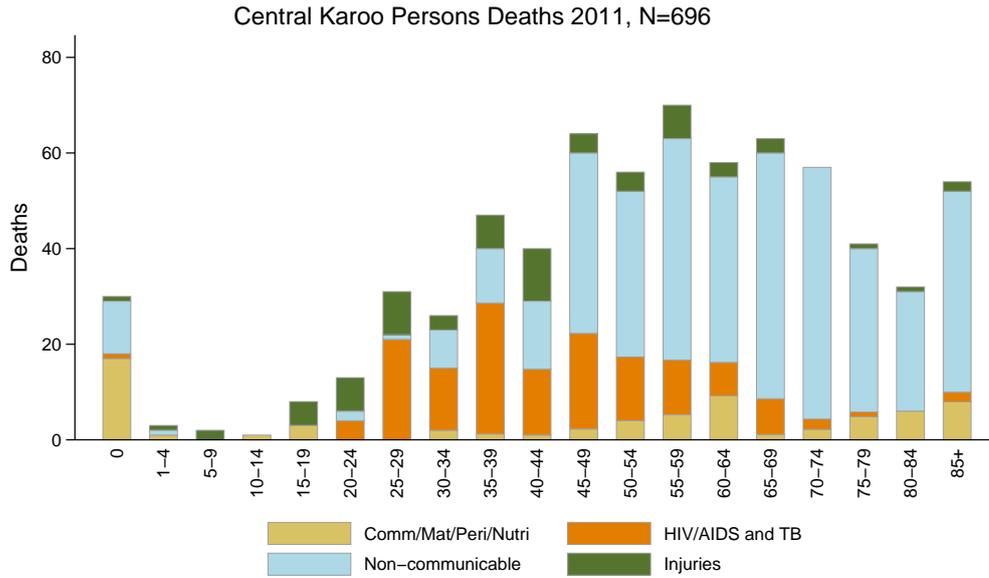
Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	93	8.6	1.1	2.1	11.8
1-11 months	173	17.9	2.3	0.6	20.8
1-4	71	4.2	8.4	0.0	12.7
5-9	21	4.8	4.8	4.8	14.3
10-14	16	0.0	6.2	0.0	6.2
15-19	77	7.8	2.6	0.0	10.4
20-24	184	3.8	2.2	2.8	8.8
25-29	269	3.0	0.7	3.7	7.4
30-34	230	4.8	3.5	1.0	9.2
35-39	295	5.1	2.7	1.0	8.8
40-44	357	6.7	4.8	1.5	13.0
45-49	395	4.8	6.8	1.6	13.2
50-54	444	7.7	6.5	0.9	15.1
55-59	509	6.9	8.4	0.6	15.9
60-64	517	3.1	10.2	0.2	13.5
65-69	492	5.5	7.9	0.2	13.6
70-74	467	4.9	12.0	0.2	17.1
75-79	421	6.9	13.1	0.7	20.7
80-84	332	7.5	12.3	0.0	19.9
85+	414	14.2	16.9	1.7	32.8
All	5,778	6.6	8.1	1.0	15.6

## A.4.2 Central Karoo

### A.4.2.1 Broad causes

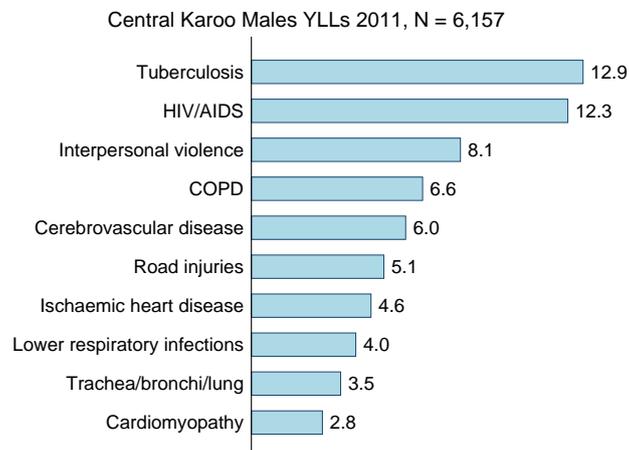
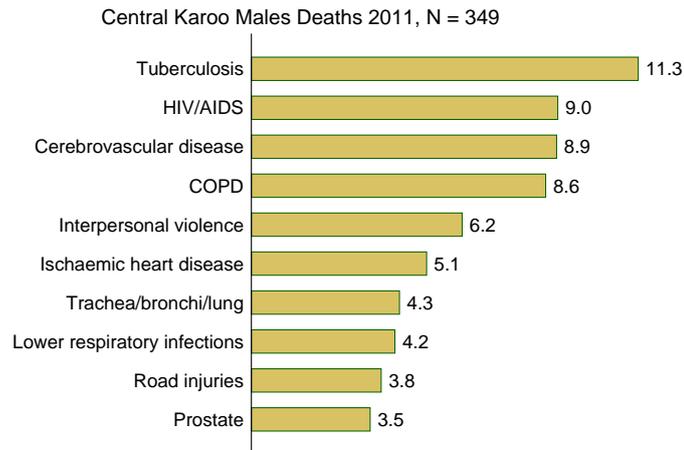
Interpret these results with caution as they are based on a small number of deaths.





**Figure A.5: Central Karoo age-standardised rates per 100,000**

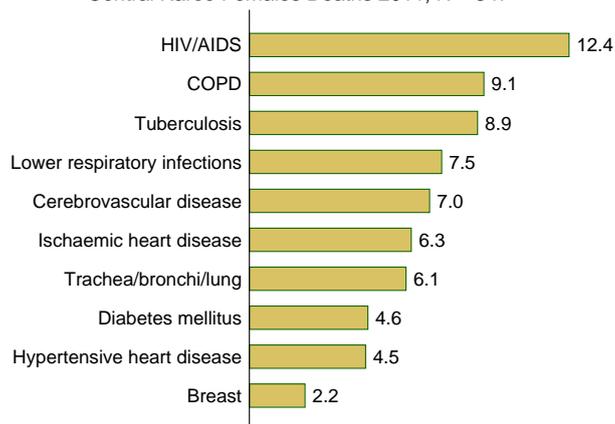
#### A.4.2.2 Leading causes of deaths and YLLs



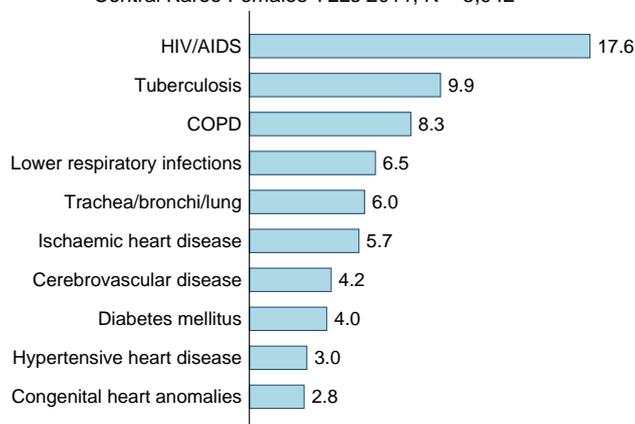
Cause of death	Deaths	%	Cause of death	YLLs	%
Tuberculosis	40	11.3	Tuberculosis	792	12.9
HIV/AIDS	31	9.0	HIV/AIDS	756	12.3
Cerebrovascular disease	31	8.9	Interpersonal violence	499	8.1
COPD	30	8.6	COPD	409	6.6
Interpersonal violence	22	6.2	Cerebrovascular disease	368	6.0
Ischaemic heart disease	18	5.1	Road injuries	316	5.1
Trachea/bronchi/lung	15	4.3	Ischaemic heart disease	286	4.6
Lower respiratory infections	15	4.2	Lower respiratory infections	249	4.0
Road injuries	13	3.8	Trachea/bronchi/lung	213	3.5
Prostate	12	3.5	Cardiomyopathy	170	2.8
Top 10 causes	227	65.0	Top 10 causes	4,033	65.5
Total	349	100.0	Total	6,157	100.0

**Table A.9: Leading causes of death for Males, Central Karoo 2011**

Central Karoo Females Deaths 2011, N = 347



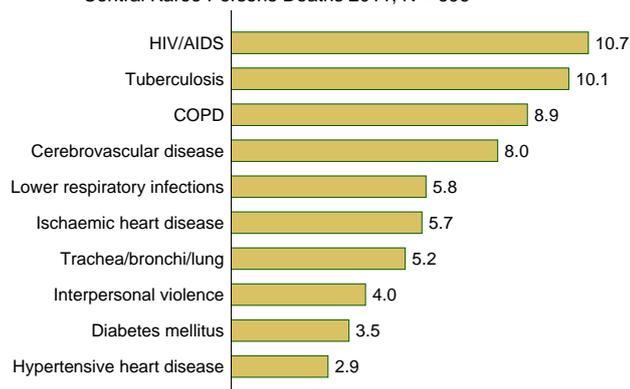
Central Karoo Females YLLs 2011, N = 5,942



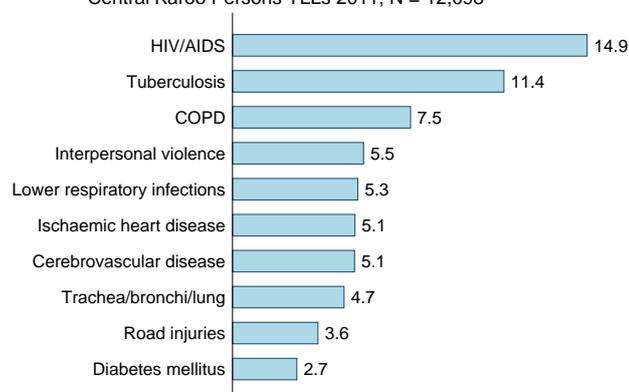
Cause of death	Deaths	%	Cause of death	YLLs	%
HIV/AIDS	43	12.4	HIV/AIDS	1,046	17.6
COPD	32	9.1	Tuberculosis	587	9.9
Tuberculosis	31	8.9	COPD	496	8.3
Lower respiratory infections	26	7.5	Lower respiratory infections	387	6.5
Cerebrovascular disease	24	7.0	Trachea/bronchi/lung	354	6.0
Ischaemic heart disease	22	6.3	Ischaemic heart disease	337	5.7
Trachea/bronchi/lung	21	6.1	Cerebrovascular disease	251	4.2
Diabetes mellitus	16	4.6	Diabetes mellitus	238	4.0
Hypertensive heart disease	16	4.5	Hypertensive heart disease	177	3.0
Breast	7	2.2	Congenital heart anomalies	168	2.8
Top 10 causes	237	68.4	Top 10 causes	3,985	67.1
Total	347	100.0	Total	5,942	100.0

Table A.10: Leading causes of death for Females, Central Karoo 2011

Central Karoo Persons Deaths 2011, N = 696



Central Karoo Persons YLLs 2011, N = 12,098



Cause of death	Deaths	%	Cause of death	YLLs	%
HIV/AIDS	74	10.7	HIV/AIDS	1,802	14.9
Tuberculosis	70	10.1	Tuberculosis	1,379	11.4
COPD	62	8.9	COPD	905	7.5
Cerebrovascular disease	55	8.0	Interpersonal violence	666	5.5
Lower respiratory infections	41	5.8	Lower respiratory infections	636	5.3
Ischaemic heart disease	40	5.7	Ischaemic heart disease	622	5.1
Trachea/bronchi/lung	36	5.2	Cerebrovascular disease	620	5.1
Interpersonal violence	28	4.0	Trachea/bronchi/lung	567	4.7
Diabetes mellitus	25	3.5	Road injuries	434	3.6
Hypertensive heart disease	20	2.9	Diabetes mellitus	327	2.7
Top 10 causes	451	64.8	Top 10 causes	7,772	64.2
Total	696	100.0	Total	12,098	100.0

**Table A.11: Leading causes of death for Persons, Central Karoo 2011**

Rank	Laingsburg	Prince Albert	Beaufort West	Central Karoo
1	Tuberculosis (21.7%)	Tuberculosis (13.9%)	HIV/AIDS (19.0%)	HIV/AIDS (14.9%)
2	Ischaemic heart disease (7.4%)	COPD (9.2%)	Tuberculosis (9.6%)	Tuberculosis (11.4%)
3	Interpersonal violence (7.4%)	Cerebrovascular disease (8.2%)	COPD (7.4%)	COPD (7.5%)
4	Lower respiratory infections (5.9%)	Ischaemic heart disease (6.6%)	Interpersonal violence (5.5%)	Interpersonal violence (5.5%)
5	Trachea/bronchi/lung (5.6%)	Congenital heart anomalies (4.8%)	Lower respiratory infections (5.3%)	Lower respiratory infections (5.3%)
6	COPD (5.3%)	Lower respiratory infections (4.8%)	Trachea/bronchi/lung (5.0%)	Ischaemic heart disease (5.1%)
7	Hypertensive heart disease (4.7%)	Road injuries (4.7%)	Cerebrovascular disease (4.6%)	Cerebrovascular disease (5.1%)
8	Cerebrovascular disease (4.3%)	Interpersonal violence (4.2%)	Ischaemic heart disease (4.6%)	Trachea/bronchi/lung (4.7%)
9	Diabetes mellitus (3.8%)	HIV/AIDS (3.9%)	Road injuries (3.5%)	Road injuries (3.6%)
10	Pericarditis, endocarditis and myocarditis (3.6%)	Epilepsy (3.2%)	Diabetes mellitus (2.8%)	Diabetes mellitus (2.7%)

**Figure A.6: League table of leading causes of premature mortality, Central Karoo 2011**

### A.4.2.3 Proportion ill-defined

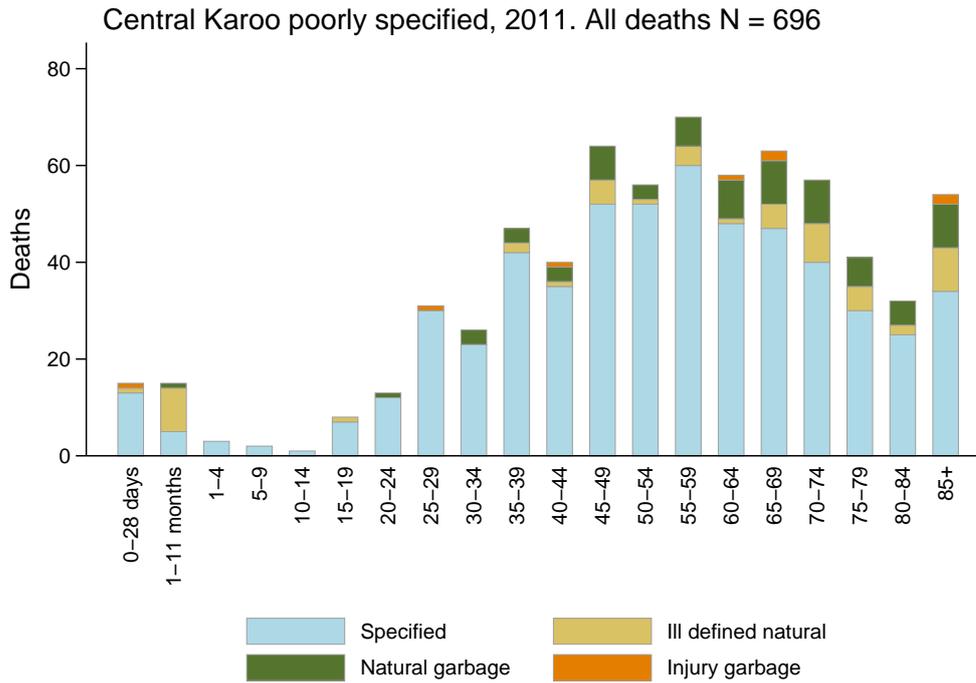
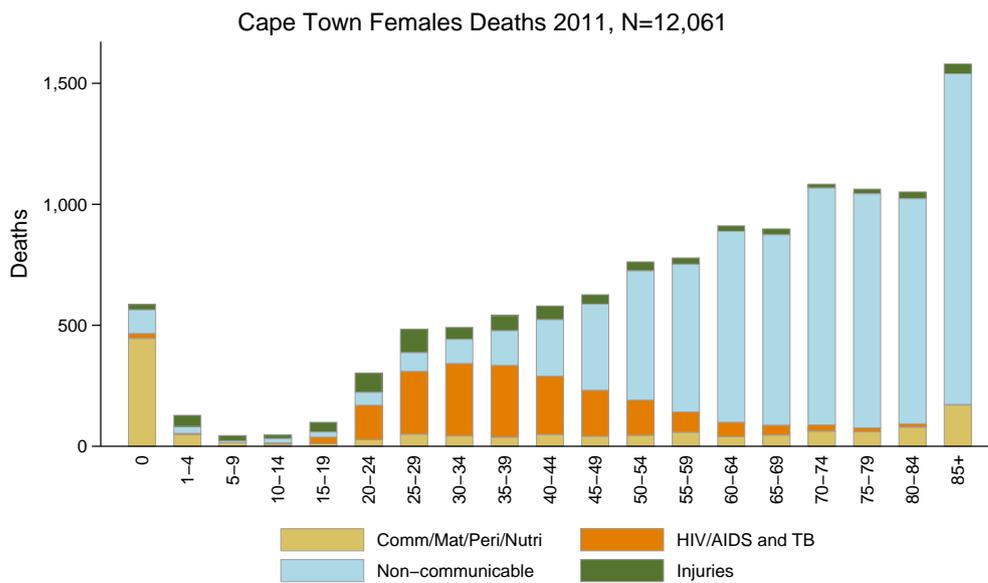
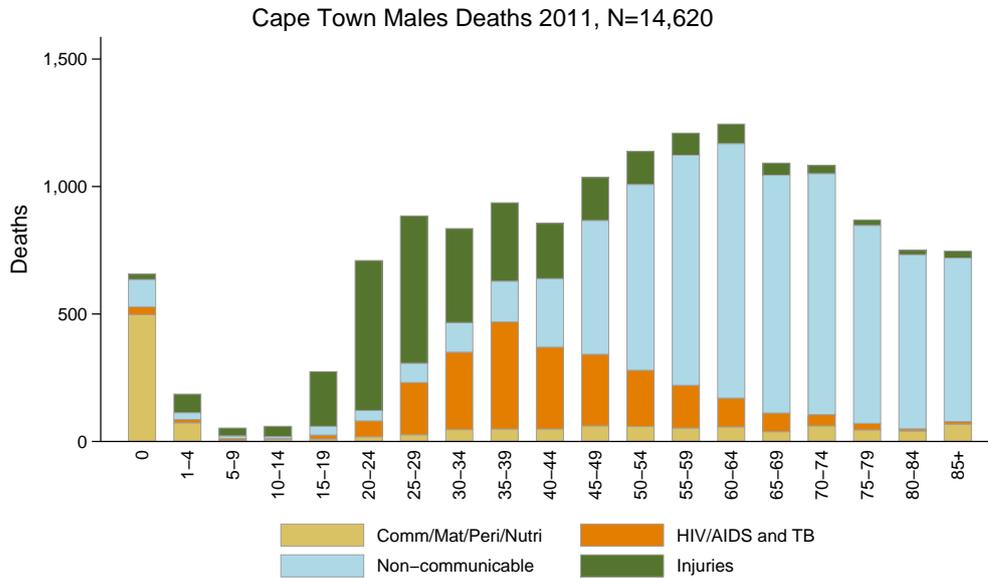


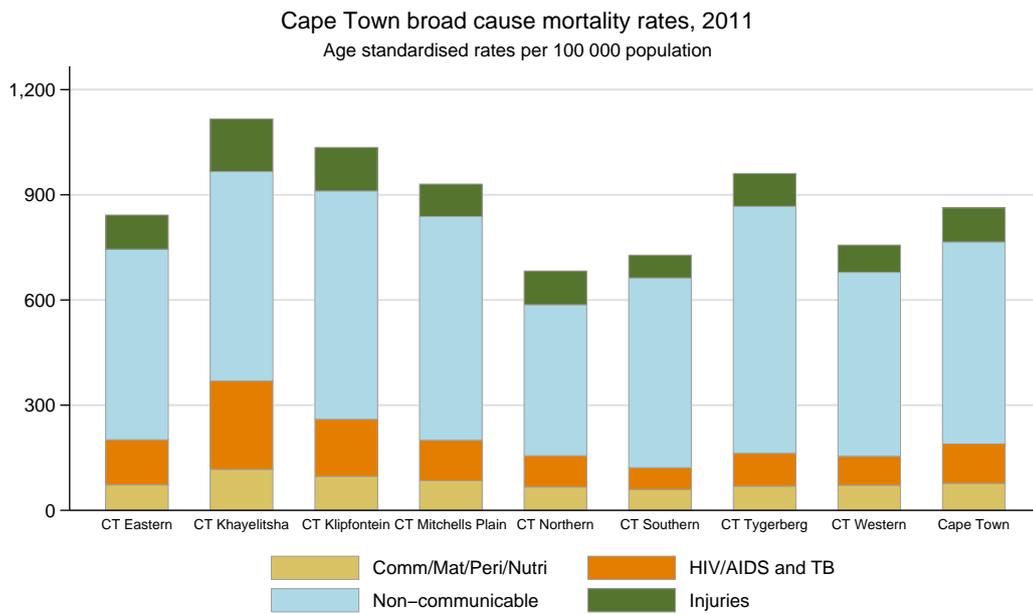
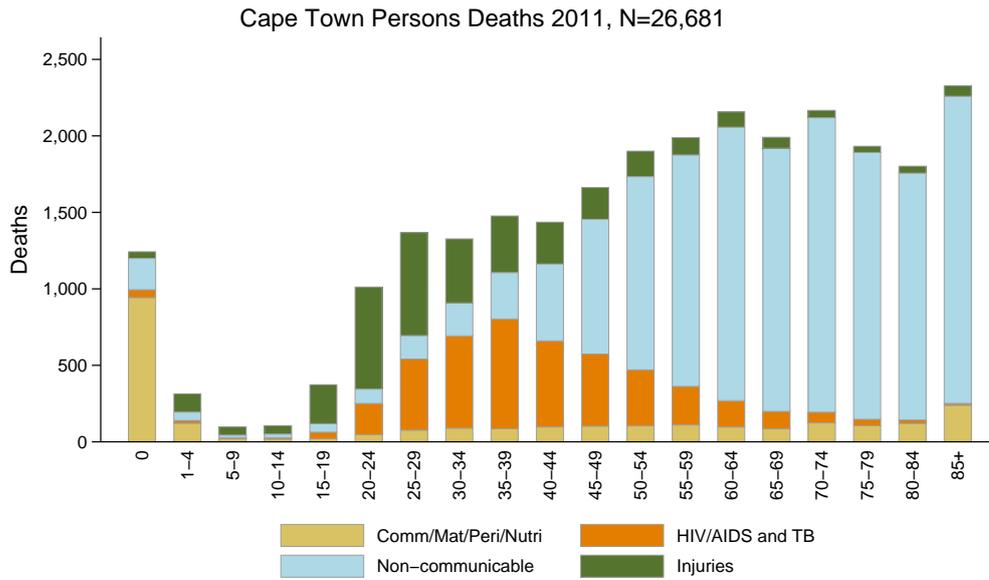
Table A.12: Central Karoo quality of reporting, 2011

Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	15	6.7	0.0	6.7	13.3
1-11 months	15	60.0	6.7	0.0	66.7
1-4	3	0.0	0.0	0.0	0.0
5-9	2	0.0	0.0	0.0	0.0
10-14	1	0.0	0.0	0.0	0.0
15-19	8	12.5	0.0	0.0	12.5
20-24	13	0.0	7.7	0.0	7.7
25-29	31	0.0	0.0	3.2	3.2
30-34	26	0.0	11.5	0.0	11.5
35-39	47	4.3	6.4	0.0	10.6
40-44	40	2.5	7.5	2.5	12.5
45-49	64	7.8	10.9	0.0	18.8
50-54	56	1.8	5.4	0.0	7.1
55-59	70	5.7	8.6	0.0	14.3
60-64	58	1.7	13.8	1.7	17.2
65-69	63	7.9	14.3	3.2	25.4
70-74	57	14.0	15.8	0.0	29.8
75-79	41	12.2	14.6	0.0	26.8
80-84	32	6.3	15.6	0.0	21.9
85+	54	16.7	16.7	3.7	37.0
All	696	7.8	10.5	1.1	19.4

## A.4.3 Cape Metropole

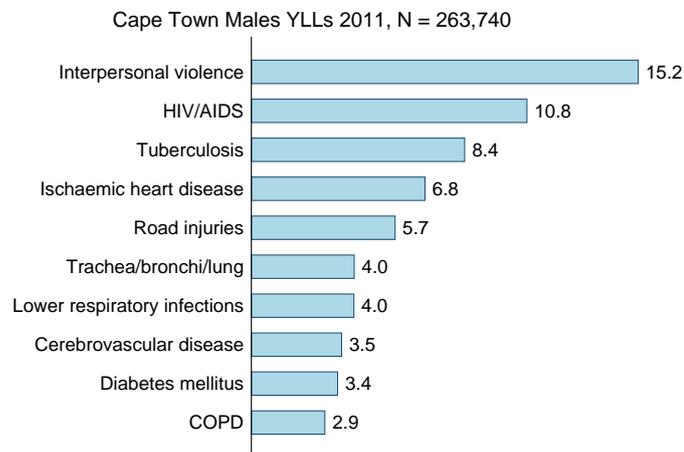
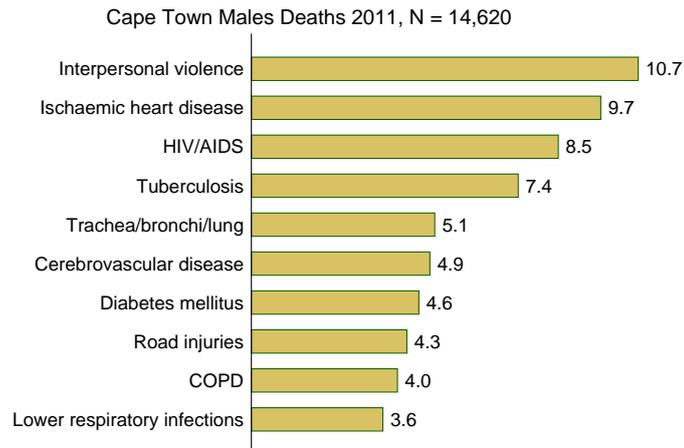
### A.4.3.1 Broad causes





**Figure A.7: Cape Metropole age-standardised rates per 100,000**

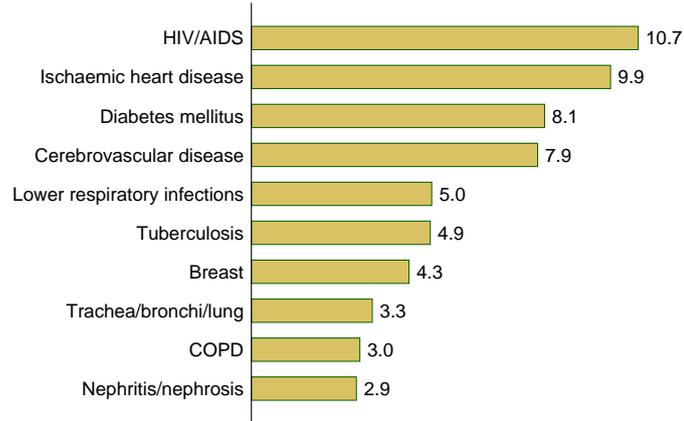
### A.4.3.2 Leading causes of deaths and YLLs



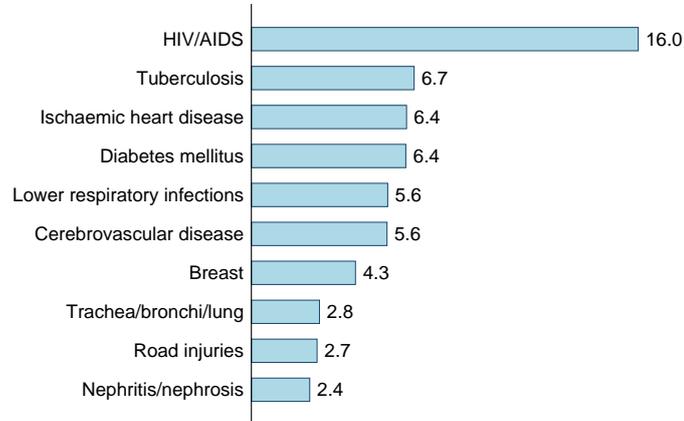
Cause of death	Deaths	%	Cause of death	YLLs	%
Interpersonal violence	1,567	10.7	Interpersonal violence	40,145	15.2
Ischaemic heart disease	1,415	9.7	HIV/AIDS	28,601	10.8
HIV/AIDS	1,244	8.5	Tuberculosis	22,130	8.4
Tuberculosis	1,081	7.4	Ischaemic heart disease	18,013	6.8
Trachea/bronchi/lung	743	5.1	Road injuries	14,916	5.7
Cerebrovascular disease	723	4.9	Trachea/bronchi/lung	10,671	4.0
Diabetes mellitus	678	4.6	Lower respiratory infections	10,639	4.0
Road injuries	630	4.3	Cerebrovascular disease	9,362	3.5
COPD	592	4.0	Diabetes mellitus	8,946	3.4
Lower respiratory infections	533	3.6	COPD	7,625	2.9
Top 10 causes	9,207	63.0	Top 10 causes	171,050	64.9
Total	14,620	100.0	Total	263,740	100.0

**Table A.13: Leading causes of death for Males, Cape Town 2011**

Cape Town Females Deaths 2011, N = 12,061



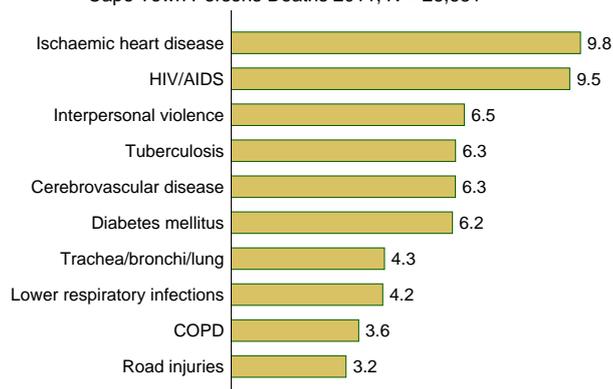
Cape Town Females YLLs 2011, N = 196,064



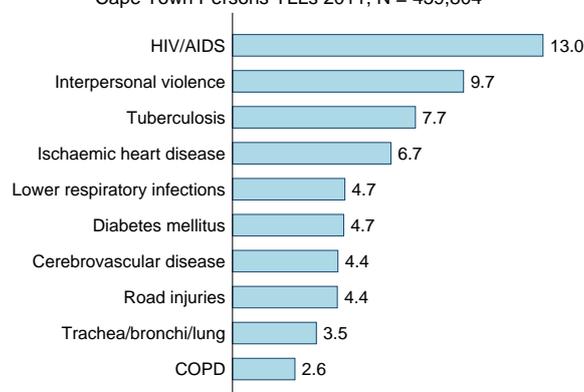
Cause of death	Deaths	%	Cause of death	YLLs	%
HIV/AIDS	1,285	10.7	HIV/AIDS	31,362	16.0
Ischaemic heart disease	1,194	9.9	Tuberculosis	13,195	6.7
Diabetes mellitus	974	8.1	Ischaemic heart disease	12,582	6.4
Cerebrovascular disease	951	7.9	Diabetes mellitus	12,519	6.4
Lower respiratory infections	599	5.0	Lower respiratory infections	11,054	5.6
Tuberculosis	595	4.9	Cerebrovascular disease	10,997	5.6
Breast	524	4.3	Breast	8,439	4.3
Trachea/bronchi/lung	402	3.3	Trachea/bronchi/lung	5,520	2.8
COPD	361	3.0	Road injuries	5,327	2.7
Nephritis/nephrosis	349	2.9	Nephritis/nephrosis	4,732	2.4
Top 10 causes	7,234	60.0	Top 10 causes	114,833	58.6
Total	12,061	100.0	Total	196,064	100.0

**Table A.14: Leading causes of death for Females, Cape Town 2011**

Cape Town Persons Deaths 2011, N = 26,681



Cape Town Persons YLLs 2011, N = 459,804



Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	2,609	9.8	HIV/AIDS	59,963	13.0
HIV/AIDS	2,529	9.5	Interpersonal violence	44,617	9.7
Interpersonal violence	1,741	6.5	Tuberculosis	35,325	7.7
Tuberculosis	1,676	6.3	Ischaemic heart disease	30,596	6.7
Cerebrovascular disease	1,675	6.3	Lower respiratory infections	21,693	4.7
Diabetes mellitus	1,653	6.2	Diabetes mellitus	21,466	4.7
Trachea/bronchi/lung	1,145	4.3	Cerebrovascular disease	20,359	4.4
Lower respiratory infections	1,132	4.2	Road injuries	20,242	4.4
COPD	952	3.6	Trachea/bronchi/lung	16,192	3.5
Road injuries	858	3.2	COPD	12,057	2.6
Top 10 causes	15,969	59.9	Top 10 causes	282,511	61.4
Total	26,681	100.0	Total	459,804	100.0

Table A.15: Leading causes of death for Persons, Cape Town 2011

Rank	CT Eastern	CT Khayelitsha	CT Klipfontein	CT Mitchells Plain	CT Northern	CT Southern	CT Tygerberg	CT Western	Cape Town
1	HIV/AIDS (15.5%)	HIV/AIDS (22.6%)	HIV/AIDS (12.9%)	HIV/AIDS (12.4%)	HIV/AIDS (14.5%)	Ischaemic heart disease (9.8%)	HIV/AIDS (8.9%)	HIV/AIDS (11.1%)	HIV/AIDS (13.0%)
2	Tuberculosis (9.0%)	Interpersonal violence (16.9%)	Interpersonal violence (11.6%)	Interpersonal violence (12.0%)	Interpersonal violence (7.6%)	HIV/AIDS (7.8%)	Interpersonal violence (8.2%)	Ischaemic heart disease (8.5%)	Interpersonal violence (9.7%)
3	Interpersonal violence (7.6%)	Tuberculosis (8.4%)	Tuberculosis (9.2%)	Tuberculosis (8.3%)	Ischaemic heart disease (6.5%)	Interpersonal violence (6.1%)	Ischaemic heart disease (7.8%)	Interpersonal violence (7.3%)	Tuberculosis (7.7%)
4	Ischaemic heart disease (5.9%)	Lower respiratory infections (5.4%)	Ischaemic heart disease (6.3%)	Lower respiratory infections (6.6%)	Tuberculosis (6.3%)	Tuberculosis (5.6%)	Tuberculosis (7.2%)	Tuberculosis (6.7%)	Ischaemic heart disease (6.7%)
5	Road injuries (5.0%)	Road injuries (5.2%)	Diabetes mellitus (5.7%)	Ischaemic heart disease (6.4%)	Road injuries (6.1%)	Diabetes mellitus (5.5%)	Diabetes mellitus (6.2%)	Cerebrovascular disease (5.5%)	Lower respiratory infections (4.7%)
6	Cerebrovascular disease (4.5%)	Diabetes mellitus (2.6%)	Lower respiratory infections (5.2%)	Diabetes mellitus (5.1%)	Lower respiratory infections (4.1%)	Trachea/bronchi/lung (5.4%)	Cerebrovascular disease (5.5%)	Road injuries (5.4%)	Diabetes mellitus (4.7%)
7	Diabetes mellitus (4.2%)	Preterm birth complications (2.5%)	Cerebrovascular disease (4.1%)	Road injuries (4.1%)	Cerebrovascular disease (3.6%)	Cerebrovascular disease (5.2%)	Trachea/bronchi/lung (4.8%)	Lower respiratory infections (5.0%)	Cerebrovascular disease (4.4%)
8	Lower respiratory infections (3.7%)	Diarrhoeal diseases (2.5%)	Road injuries (3.6%)	Cerebrovascular disease (4.0%)	Diabetes mellitus (3.6%)	Lower respiratory infections (4.2%)	COPD (3.9%)	Trachea/bronchi/lung (3.6%)	Road injuries (4.4%)
9	Trachea/bronchi/lung (2.7%)	Cerebrovascular disease (2.4%)	Trachea/bronchi/lung (3.2%)	Trachea/bronchi/lung (3.7%)	Trachea/bronchi/lung (3.6%)	COPD (3.6%)	Lower respiratory infections (3.7%)	Diabetes mellitus (3.5%)	Trachea/bronchi/lung (3.5%)
10	Self-inflicted injuries (2.4%)	Fires, hot substances (2.3%)	COPD (2.3%)	COPD (2.4%)	COPD (3.2%)	Road injuries (3.3%)	Road injuries (3.5%)	Self-inflicted injuries (2.6%)	COPD (2.6%)

**Figure A.8: League table of leading causes of premature mortality, Cape Metropole 2011**

### A.4.3.3 Proportion ill-defined

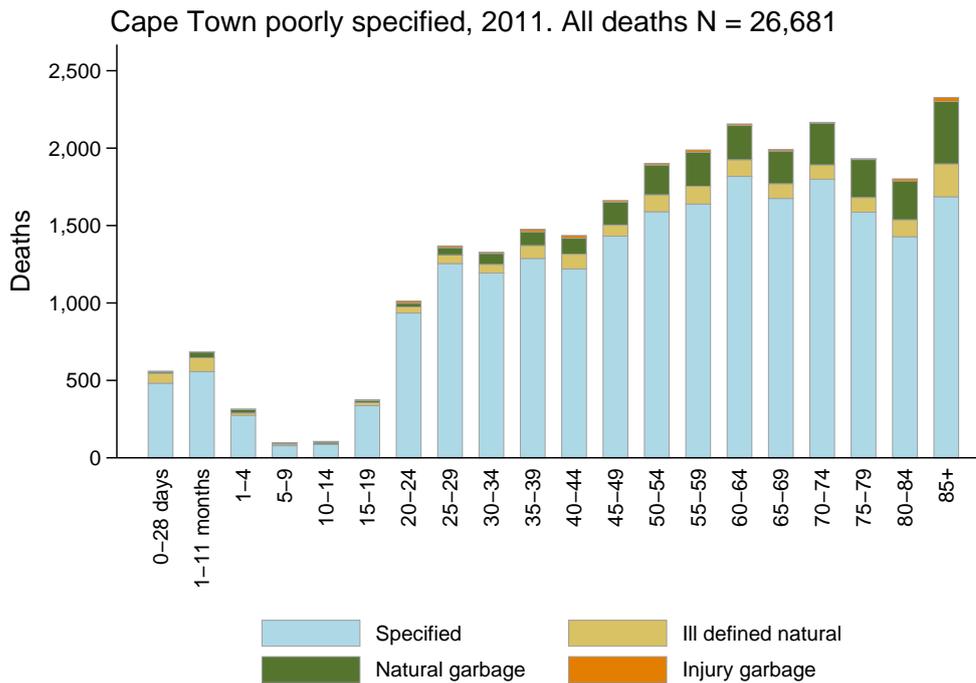
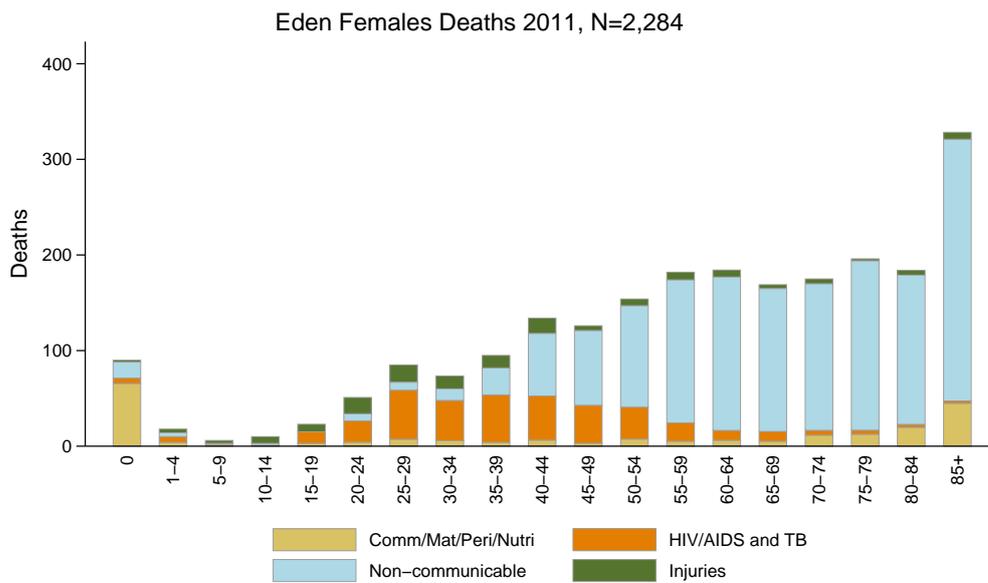
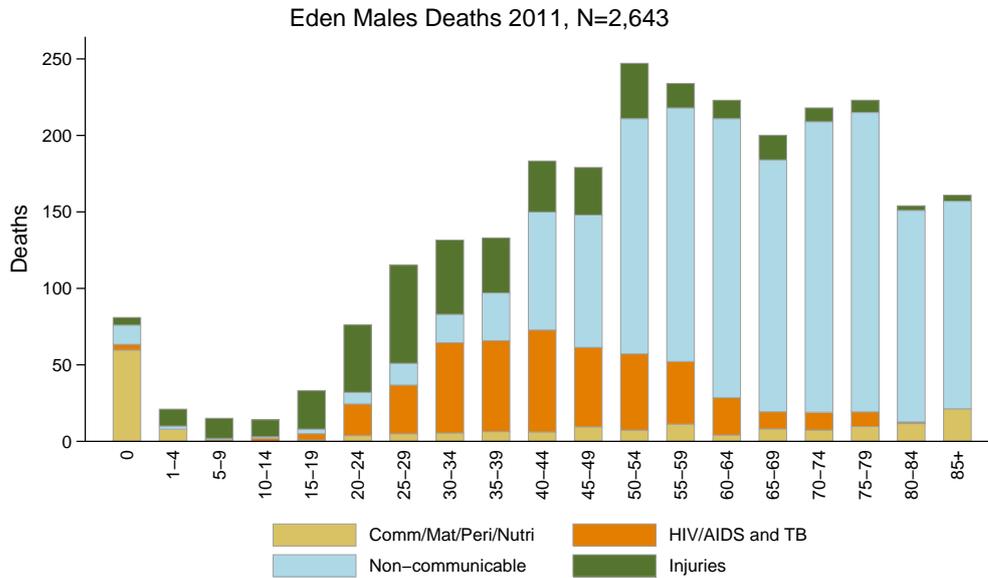


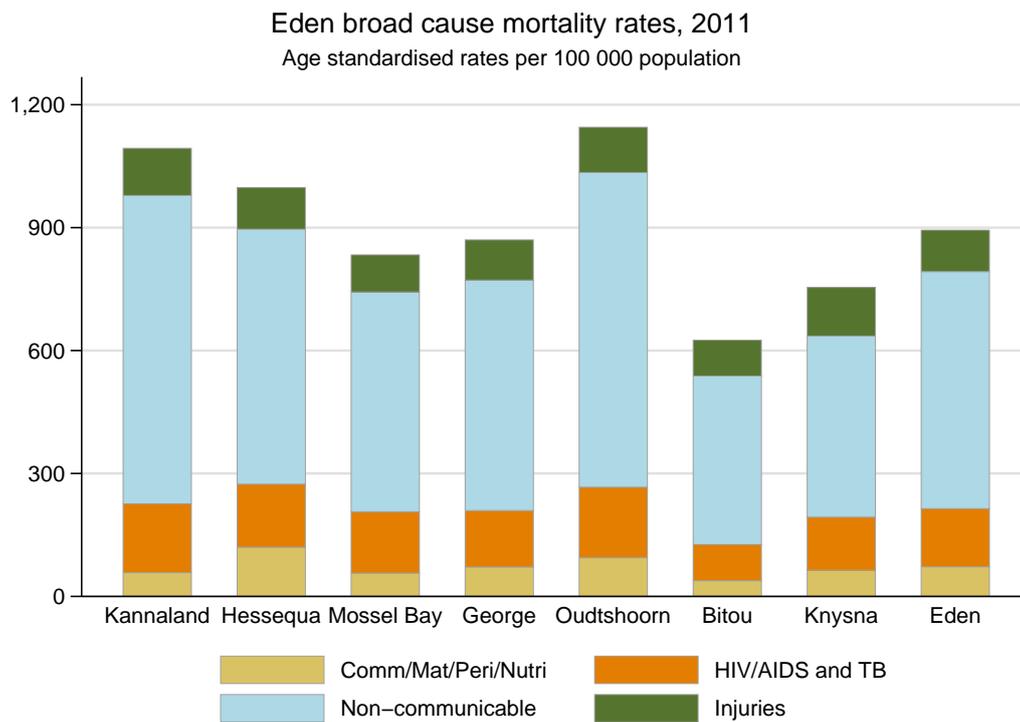
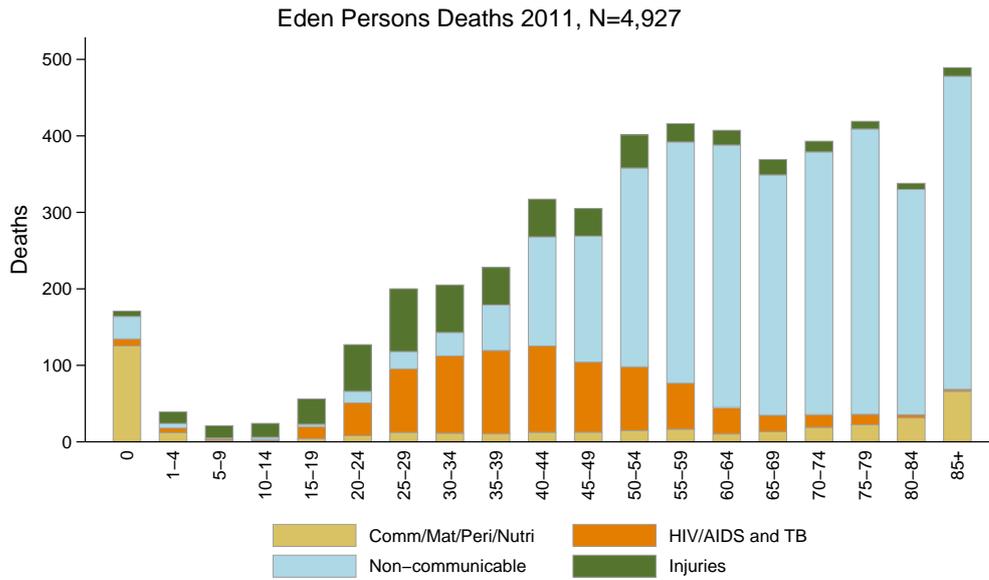
Table A.16: City of Cape Town quality of reporting, 2011

Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	558	11.6	2.0	0.2	13.8
1-11 months	685	13.0	5.4	0.3	18.7
1-4	314	4.8	7.3	0.6	12.8
5-9	97	10.4	8.2	1.0	19.6
10-14	106	3.8	11.3	4.2	19.4
15-19	374	5.1	3.7	0.8	9.7
20-24	1,012	3.9	2.4	1.3	7.6
25-29	1,369	4.1	3.4	0.8	8.3
30-34	1,327	4.2	5.4	0.5	10.1
35-39	1,477	5.6	6.0	1.1	12.8
40-44	1,436	6.6	7.2	1.2	15.0
45-49	1,662	4.3	8.9	0.7	13.9
50-54	1,900	5.8	10.1	0.5	16.4
55-59	1,988	5.8	11.0	0.8	17.6
60-64	2,156	5.0	10.3	0.5	15.7
65-69	1,991	4.8	10.6	0.5	15.9
70-74	2,167	4.3	12.5	0.2	17.0
75-79	1,932	4.9	12.7	0.3	17.9
80-84	1,802	6.1	13.9	0.7	20.7
85+	2,327	9.1	17.3	1.1	27.6
All	26,681	5.8	9.7	0.7	16.2

## A.4.4 Eden

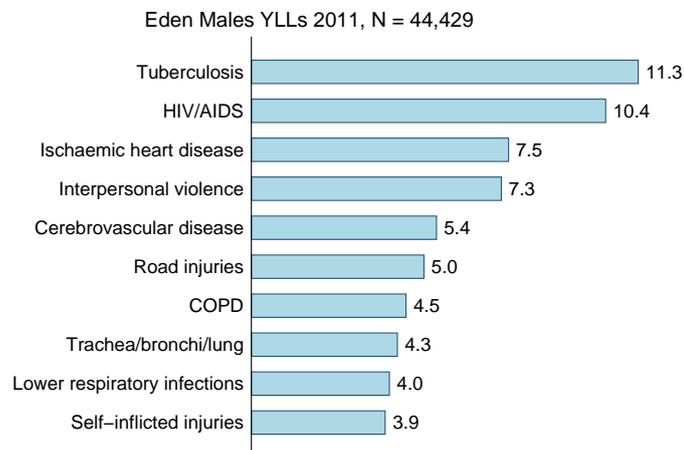
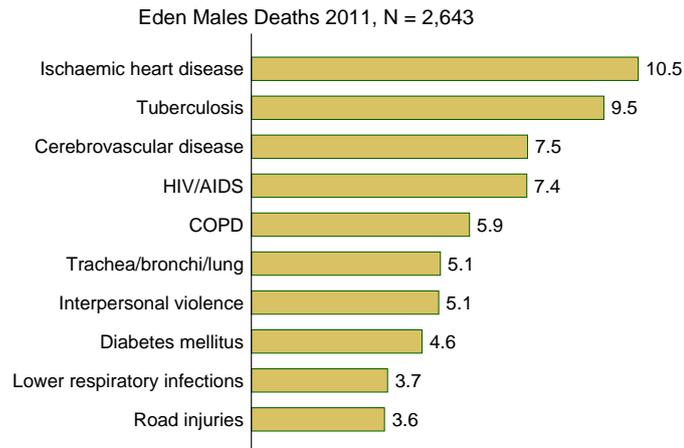
### A.4.4.1 Broad causes





**Figure A.9: Eden age-standardised rates per 100,000**

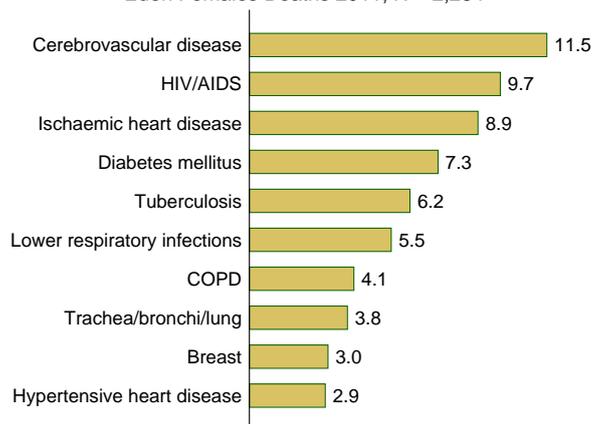
#### A.4.4.2 Leading causes of deaths and YLLs



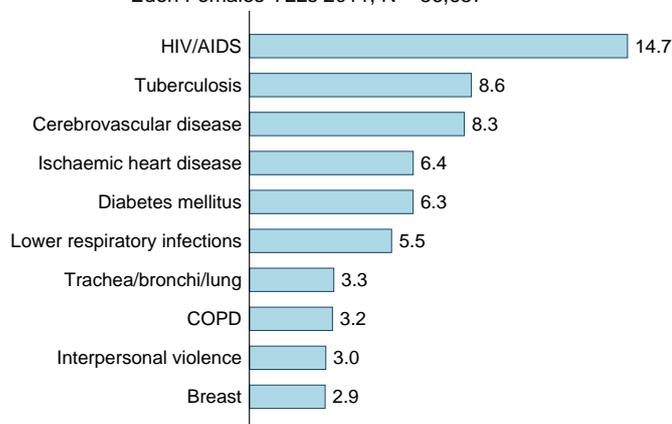
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	276	10.5	Tuberculosis	5,022	11.3
Tuberculosis	252	9.5	HIV/AIDS	4,600	10.4
Cerebrovascular disease	197	7.5	Ischaemic heart disease	3,340	7.5
HIV/AIDS	197	7.4	Interpersonal violence	3,245	7.3
COPD	156	5.9	Cerebrovascular disease	2,404	5.4
Trachea/bronchi/lung	135	5.1	Road injuries	2,240	5.0
Interpersonal violence	134	5.1	COPD	2,007	4.5
Diabetes mellitus	122	4.6	Trachea/bronchi/lung	1,896	4.3
Lower respiratory infections	97	3.7	Lower respiratory infections	1,792	4.0
Road injuries	95	3.6	Self-inflicted injuries	1,737	3.9
Top 10 causes	1,661	62.8	Top 10 causes	28,146	63.3
Total	2,643	100.0	Total	44,429	100.0

**Table A.17: Leading causes of death for Males, Eden 2011**

Eden Females Deaths 2011, N = 2,284



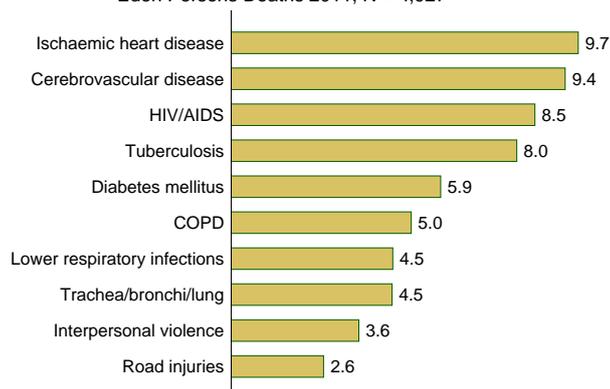
Eden Females YLLs 2011, N = 36,687



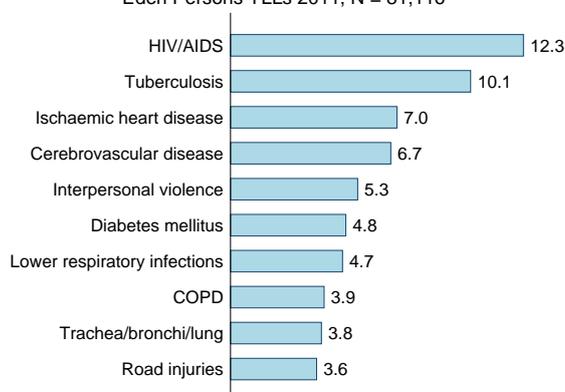
Cause of death	Deaths	%	Cause of death	YLLs	%
Cerebrovascular disease	263	11.5	HIV/AIDS	5,379	14.7
HIV/AIDS	222	9.7	Tuberculosis	3,158	8.6
Ischaemic heart disease	202	8.9	Cerebrovascular disease	3,057	8.3
Diabetes mellitus	167	7.3	Ischaemic heart disease	2,331	6.4
Tuberculosis	142	6.2	Diabetes mellitus	2,329	6.3
Lower respiratory infections	126	5.5	Lower respiratory infections	2,023	5.5
COPD	93	4.1	Trachea/bronchi/lung	1,201	3.3
Trachea/bronchi/lung	87	3.8	COPD	1,182	3.2
Breast	70	3.0	Interpersonal violence	1,087	3.0
Hypertensive heart disease	67	2.9	Breast	1,078	2.9
Top 10 causes	1,440	63.0	Top 10 causes	22,426	61.1
Total	2,284	100.0	Total	36,687	100.0

Table A.18: Leading causes of death for Females, Eden 2011

Eden Persons Deaths 2011, N = 4,927



Eden Persons YLLs 2011, N = 81,116



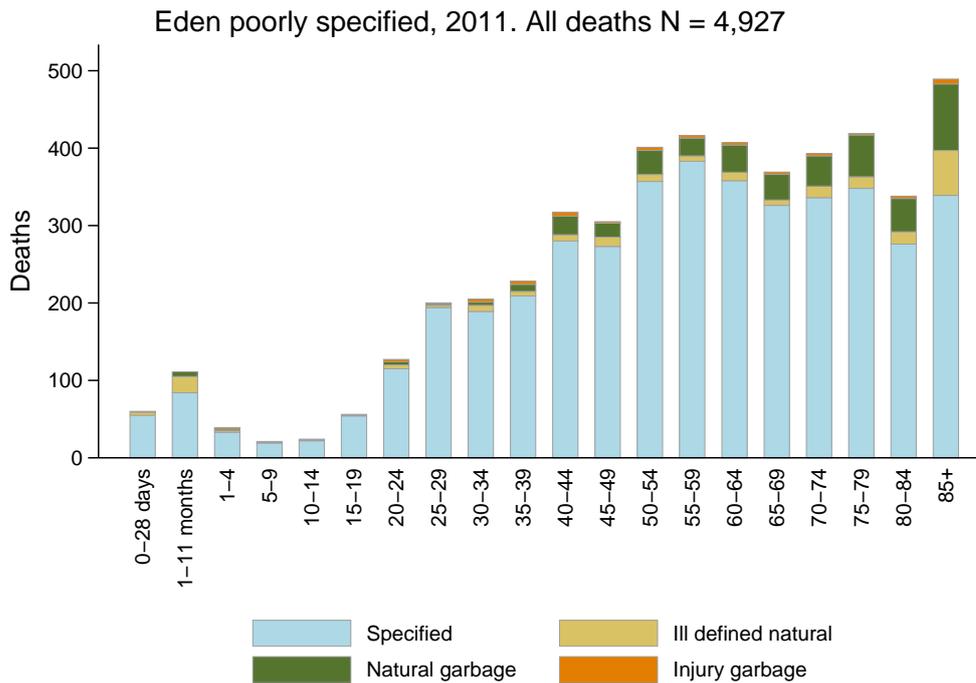
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	479	9.7	HIV/AIDS	9,979	12.3
Cerebrovascular disease	461	9.4	Tuberculosis	8,180	10.1
HIV/AIDS	419	8.5	Ischaemic heart disease	5,671	7.0
Tuberculosis	394	8.0	Cerebrovascular disease	5,460	6.7
Diabetes mellitus	289	5.9	Interpersonal violence	4,332	5.3
COPD	248	5.0	Diabetes mellitus	3,928	4.8
Lower respiratory infections	223	4.5	Lower respiratory infections	3,816	4.7
Trachea/bronchi/lung	222	4.5	COPD	3,189	3.9
Interpersonal violence	176	3.6	Trachea/bronchi/lung	3,097	3.8
Road injuries	127	2.6	Road injuries	2,933	3.6
Top 10 causes	3,038	61.7	Top 10 causes	50,585	62.4
Total	4,927	100.0	Total	81,116	100.0

Table A.19: Leading causes of death for Persons, Eden 2011

Rank	Kannaland	Hessequa	Mossel Bay	George	Oudtshoorn	Bitou	Knysna	Eden
1	Tuberculosis (13.6%)	HIV/AIDS (11.9%)	HIV/AIDS (15.3%)	Tuberculosis (11.7%)	Tuberculosis (12.1%)	HIV/AIDS (14.7%)	HIV/AIDS (18.5%)	HIV/AIDS (12.3%)
2	Cerebrovascular disease (10.6%)	Ischaemic heart disease (10.0%)	Tuberculosis (9.5%)	HIV/AIDS (11.5%)	Cerebrovascular disease (9.2%)	Interpersonal violence (7.2%)	Cerebrovascular disease (6.3%)	Tuberculosis (10.1%)
3	Ischaemic heart disease (9.4%)	Tuberculosis (7.4%)	Cerebrovascular disease (7.7%)	Ischaemic heart disease (6.8%)	HIV/AIDS (9.1%)	Ischaemic heart disease (6.6%)	Tuberculosis (5.9%)	Ischaemic heart disease (7.0%)
4	Interpersonal violence (6.1%)	Cerebrovascular disease (5.4%)	Ischaemic heart disease (7.0%)	Interpersonal violence (5.7%)	Diabetes mellitus (6.2%)	Self-inflicted injuries (6.5%)	Drowning (5.7%)	Cerebrovascular disease (6.7%)
5	HIV/AIDS (6.0%)	Trachea/bronchi/lung (4.5%)	Diabetes mellitus (6.2%)	Cerebrovascular disease (5.2%)	Ischaemic heart disease (5.8%)	Lower respiratory infections (5.4%)	Interpersonal violence (5.7%)	Interpersonal violence (5.3%)
6	Diabetes mellitus (6.0%)	Diabetes mellitus (4.3%)	Interpersonal violence (5.4%)	Lower respiratory infections (5.0%)	COPD (5.4%)	Tuberculosis (5.4%)	Ischaemic heart disease (5.6%)	Diabetes mellitus (4.8%)
7	COPD (5.9%)	Lower respiratory infections (4.2%)	Lower respiratory infections (4.7%)	Road injuries (4.5%)	Interpersonal violence (4.7%)	Diabetes mellitus (5.1%)	Self-inflicted injuries (5.3%)	Lower respiratory infections (4.7%)
8	Trachea/bronchi/lung (4.1%)	Interpersonal violence (3.7%)	Trachea/bronchi/lung (3.8%)	COPD (4.1%)	Lower respiratory infections (4.5%)	Cerebrovascular disease (4.1%)	Lower respiratory infections (5.3%)	COPD (3.9%)
9	Self-inflicted injuries (3.1%)	Preterm birth complications (3.3%)	Self-inflicted injuries (3.3%)	Diabetes mellitus (3.8%)	Trachea/bronchi/lung (4.0%)	Road injuries (3.6%)	Trachea/bronchi/lung (4.3%)	Trachea/bronchi/lung (3.8%)
10	Oesophagus (2.9%)	COPD (3.1%)	Road injuries (3.2%)	Trachea/bronchi/lung (3.5%)	Road injuries (3.2%)	Breast (3.4%)	Road injuries (3.7%)	Road injuries (3.6%)

**Figure A.10: League table of leading causes of premature mortality, Eden 2011**

### A.4.4.3 Proportion ill-defined

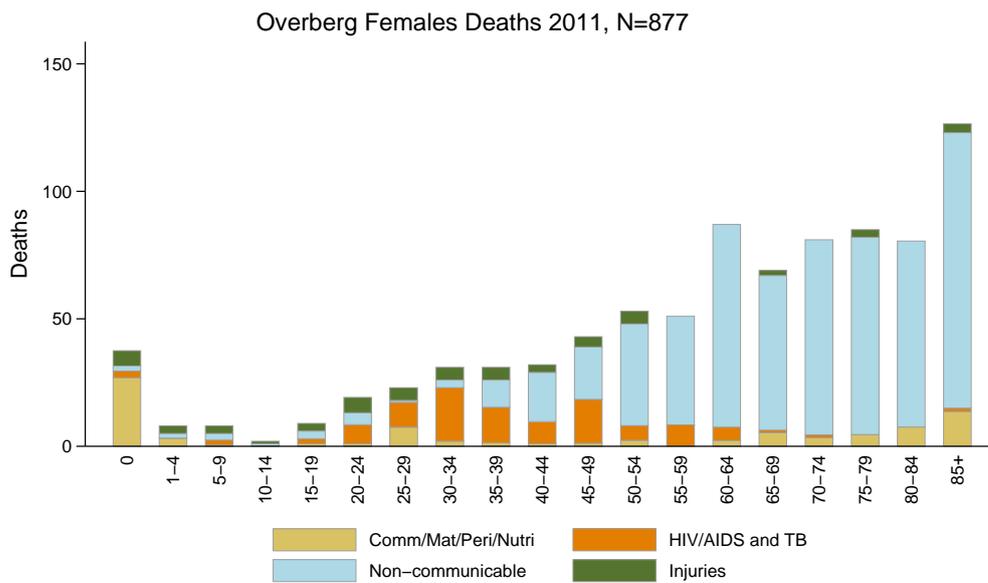
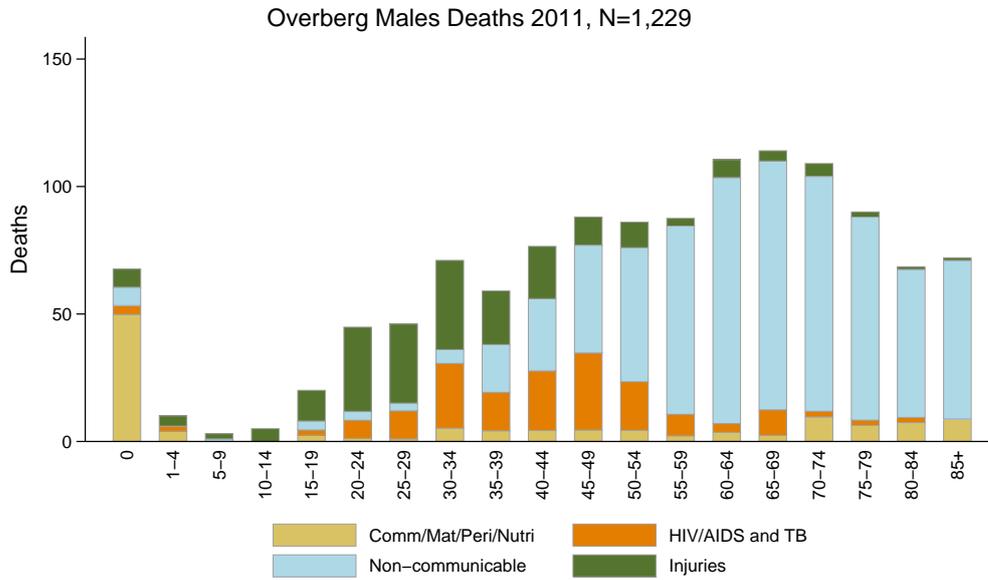


**Table A.20: Eden quality of reporting, 2011**

Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	60	6.7	1.7	0.0	8.3
1-11 months	111	18.9	5.4	0.0	24.3
1-4	39	5.1	5.1	5.1	15.4
5-9	21	0.0	4.7	4.7	9.5
10-14	24	4.2	0.0	4.4	8.5
15-19	56	0.0	1.8	1.8	3.6
20-24	127	3.9	3.1	2.4	9.5
25-29	200	1.5	1.0	0.5	3.0
30-34	205	3.9	2.0	2.0	7.8
35-39	228	2.6	3.9	1.8	8.3
40-44	317	2.5	7.6	1.6	11.7
45-49	305	3.9	5.9	0.7	10.5
50-54	401	2.2	7.7	1.0	11.0
55-59	416	1.7	5.5	0.7	7.9
60-64	407	2.7	8.6	0.8	12.1
65-69	369	1.9	8.9	0.8	11.7
70-74	393	3.8	9.9	0.8	14.5
75-79	419	3.6	12.9	0.5	16.9
80-84	338	4.7	12.7	0.9	18.3
85+	489	11.9	17.6	1.3	30.7
All	4,927	4.2	8.4	1.1	13.7

## A.4.5 Overberg

### A.4.5.1 Broad causes



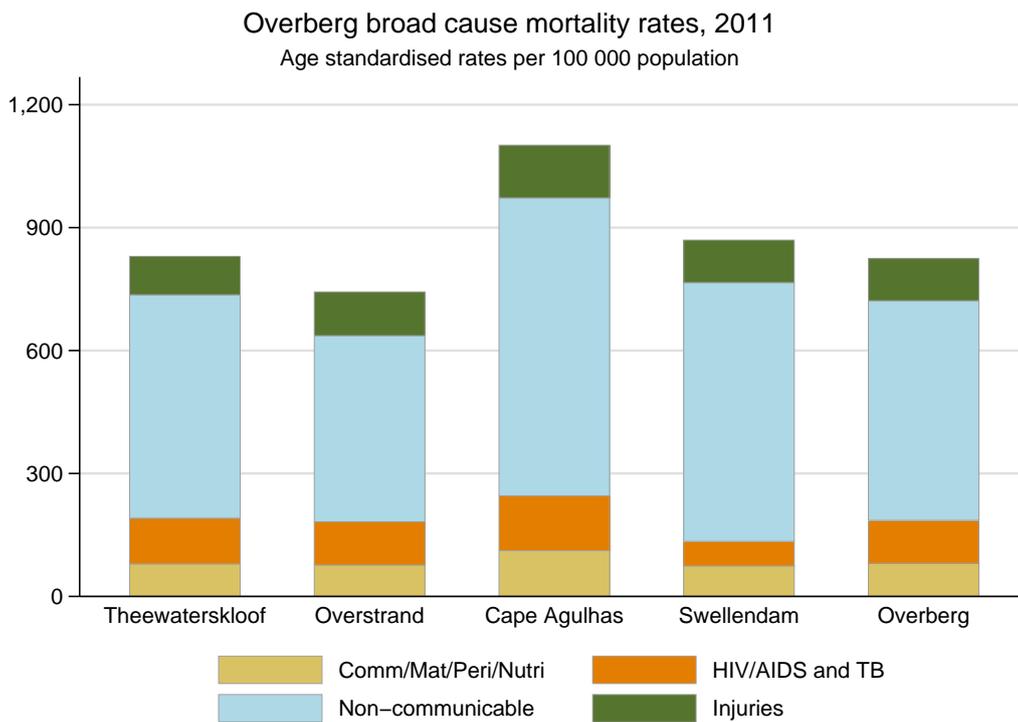
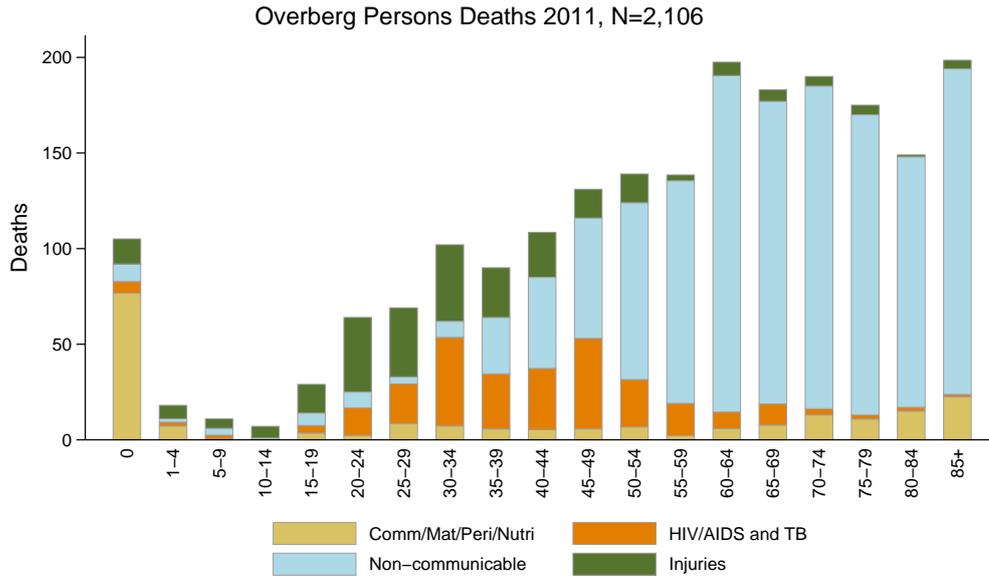
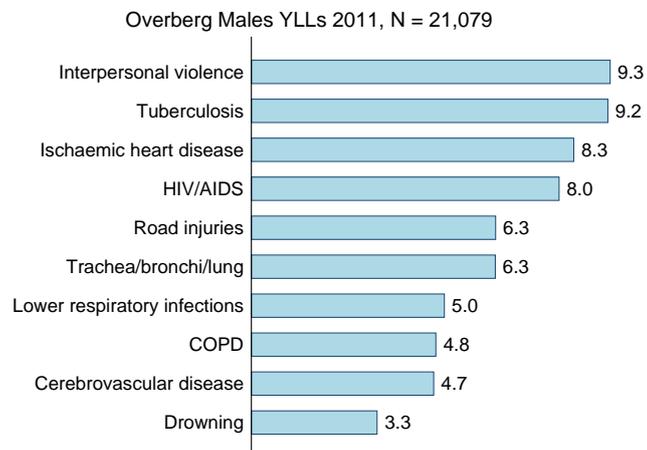
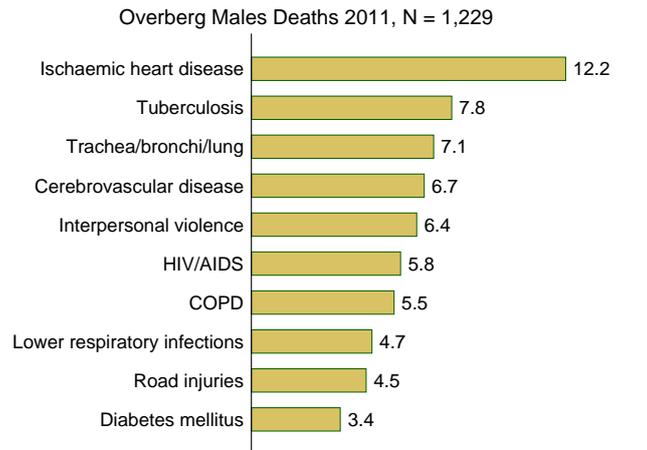


Figure A.11: Overberg age-standardised rates per 100,000

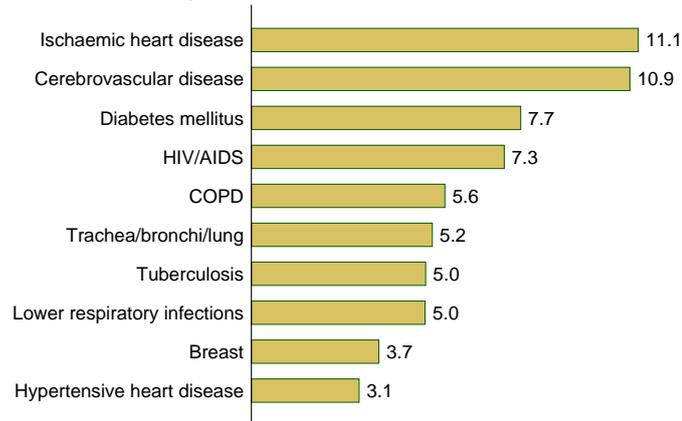
#### A.4.5.2 Leading causes of deaths and YLLs



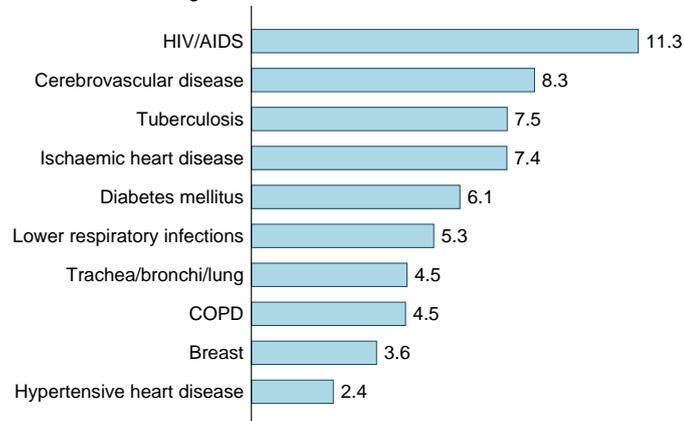
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	150	12.2	Interpersonal violence	1,955	9.3
Tuberculosis	96	7.8	Tuberculosis	1,942	9.2
Trachea/bronchi/lung	87	7.1	Ischaemic heart disease	1,757	8.3
Cerebrovascular disease	82	6.7	HIV/AIDS	1,677	8.0
Interpersonal violence	79	6.4	Road injuries	1,331	6.3
HIV/AIDS	71	5.8	Trachea/bronchi/lung	1,329	6.3
COPD	68	5.5	Lower respiratory infections	1,052	5.0
Lower respiratory infections	57	4.7	COPD	1,005	4.8
Road injuries	55	4.5	Cerebrovascular disease	994	4.7
Diabetes mellitus	42	3.4	Drowning	685	3.3
Top 10 causes	787	64.0	Top 10 causes	13,547	64.3
Total	1,229	100.0	Total	21,079	100.0

**Table A.21: Leading causes of death for Males, Overberg 2011**

Overberg Females Deaths 2011, N = 877



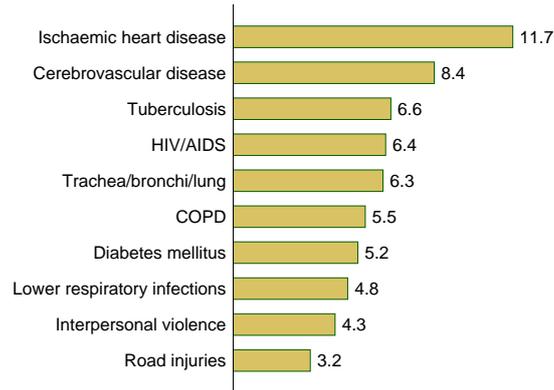
Overberg Females YLLs 2011, N = 13,582



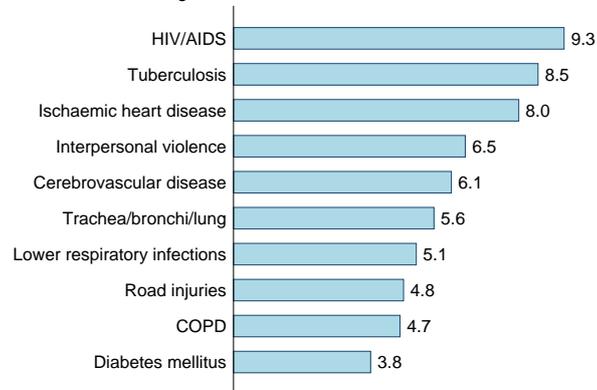
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	97	11.1	HIV/AIDS	1,532	11.3
Cerebrovascular disease	95	10.9	Cerebrovascular disease	1,121	8.3
Diabetes mellitus	68	7.7	Tuberculosis	1,013	7.5
HIV/AIDS	64	7.3	Ischaemic heart disease	1,012	7.4
COPD	49	5.6	Diabetes mellitus	826	6.1
Trachea/bronchi/lung	46	5.2	Lower respiratory infections	722	5.3
Tuberculosis	44	5.0	Trachea/bronchi/lung	616	4.5
Lower respiratory infections	44	5.0	COPD	610	4.5
Breast	32	3.7	Breast	496	3.6
Hypertensive heart disease	27	3.1	Hypertensive heart disease	324	2.4
Top 10 causes	566	64.5	Top 10 causes	8,272	60.9
Total	877	100.0	Total	13,582	100.0

Table A.22: Leading causes of death for Females, Overberg 2011

Overberg Persons Deaths 2011, N = 2,106



Overberg Persons YLLs 2011, N = 34,661



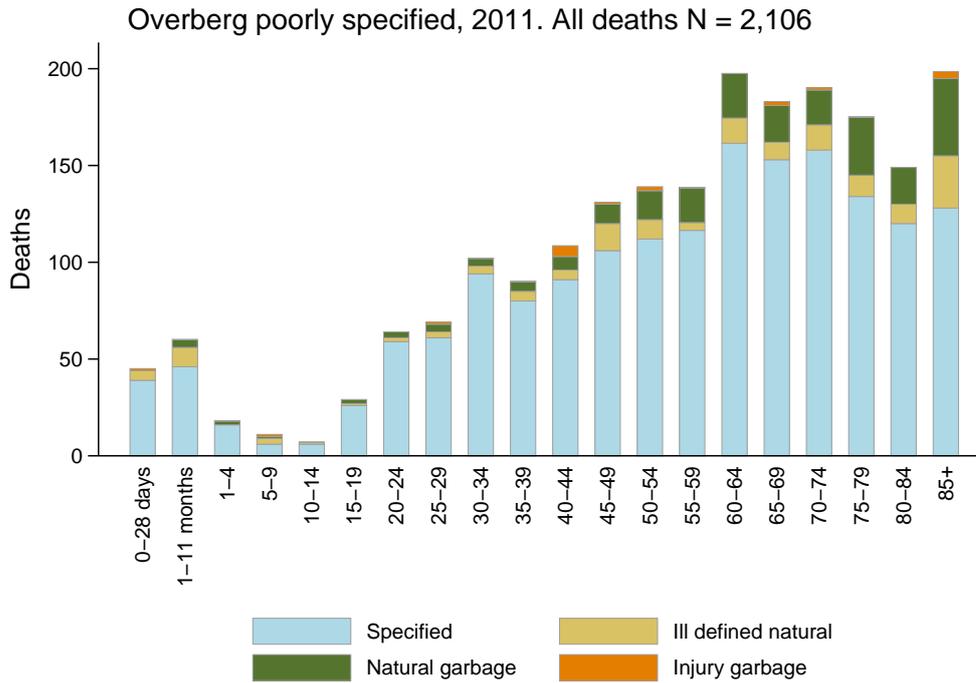
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	247	11.7	HIV/AIDS	3,208	9.3
Cerebrovascular disease	178	8.4	Tuberculosis	2,955	8.5
Tuberculosis	139	6.6	Ischaemic heart disease	2,768	8.0
HIV/AIDS	135	6.4	Interpersonal violence	2,249	6.5
Trachea/bronchi/lung	133	6.3	Cerebrovascular disease	2,115	6.1
COPD	117	5.5	Trachea/bronchi/lung	1,945	5.6
Diabetes mellitus	110	5.2	Lower respiratory infections	1,774	5.1
Lower respiratory infections	101	4.8	Road injuries	1,650	4.8
Interpersonal violence	90	4.3	COPD	1,616	4.7
Road injuries	68	3.2	Diabetes mellitus	1,331	3.8
Top 10 causes	1,318	62.6	Top 10 causes	21,611	62.4
Total	2,106	100.0	Total	34,661	100.0

**Table A.23: Leading causes of death for Persons, Overberg 2011**

Rank	Theewaterskloof	Overstrand	Cape Agulhas	Swellendam	Overberg
1	HIV/AIDS (11.2%)	Ischaemic heart disease (10.2%)	Tuberculosis (8.8%)	COPD (7.7%)	HIV/AIDS (9.3%)
2	Tuberculosis (10.6%)	HIV/AIDS (10.2%)	Trachea/bronchi/lung (8.5%)	Trachea/bronchi/lung (7.4%)	Tuberculosis (8.5%)
3	Interpersonal violence (7.9%)	Tuberculosis (7.2%)	COPD (7.3%)	Road injuries (7.3%)	Ischaemic heart disease (8.0%)
4	Ischaemic heart disease (6.7%)	Interpersonal violence (6.2%)	Ischaemic heart disease (7.3%)	Ischaemic heart disease (7.1%)	Interpersonal violence (6.5%)
5	Cerebrovascular disease (6.3%)	Cerebrovascular disease (5.6%)	HIV/AIDS (6.7%)	Cerebrovascular disease (6.5%)	Cerebrovascular disease (6.1%)
6	Lower respiratory infections (5.9%)	Trachea/bronchi/lung (5.3%)	Cerebrovascular disease (6.2%)	Tuberculosis (5.6%)	Trachea/bronchi/lung (5.6%)
7	Road injuries (4.9%)	Lower respiratory infections (5.0%)	Diabetes mellitus (5.9%)	HIV/AIDS (5.0%)	Lower respiratory infections (5.1%)
8	Trachea/bronchi/lung (4.0%)	Road injuries (3.7%)	Interpersonal violence (5.3%)	Interpersonal violence (4.8%)	Road injuries (4.8%)
9	Diabetes mellitus (3.6%)	COPD (3.5%)	Road injuries (4.3%)	Lower respiratory infections (4.4%)	COPD (4.7%)
10	COPD (3.4%)	Diabetes mellitus (3.1%)	Lower respiratory infections (4.3%)	Diabetes mellitus (3.6%)	Diabetes mellitus (3.8%)

**Figure A.12: League table of leading causes of premature mortality, Overberg 2011**

### A.4.5.3 Proportion ill-defined

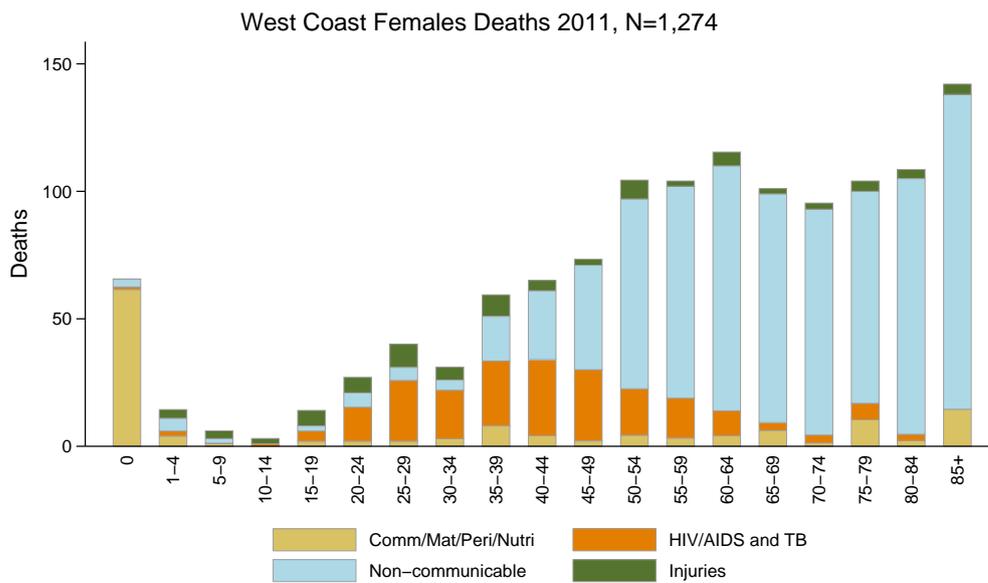
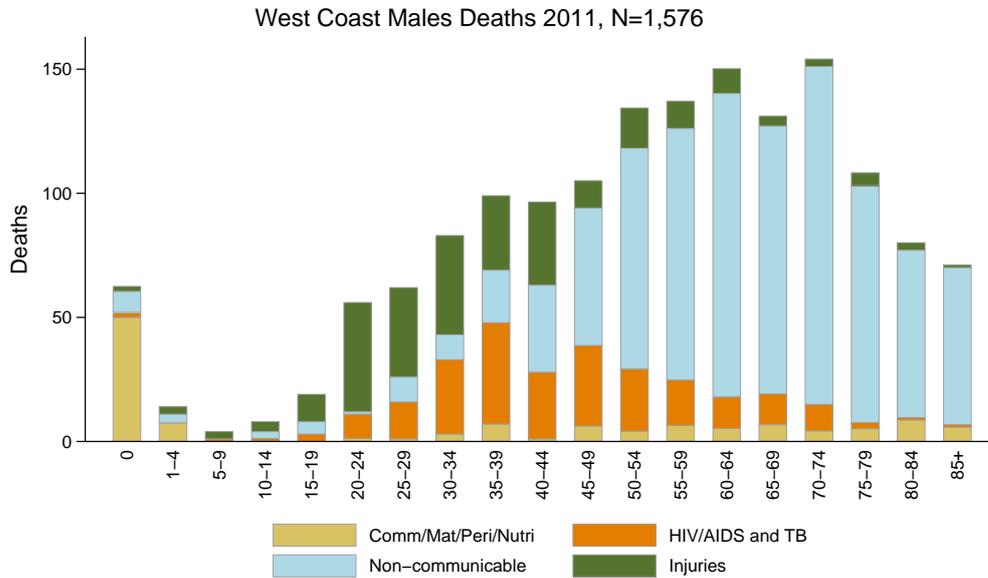


**Table A.24: Overberg quality of reporting, 2011**

Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	45	11.1	0.0	2.3	13.4
1-11 months	60	16.7	6.7	0.1	23.4
1-4	18	0.0	11.1	0.3	11.4
5-9	11	27.1	9.0	9.5	45.7
10-14	7	14.2	0.0	0.7	14.9
15-19	29	3.4	6.9	0.2	10.5
20-24	64	3.1	4.7	0.1	7.9
25-29	69	4.3	5.8	1.5	11.7
30-34	102	3.9	3.9	0.0	7.9
35-39	90	5.6	5.6	0.1	11.2
40-44	109	4.6	6.4	5.1	16.2
45-49	131	10.7	7.6	0.8	19.1
50-54	139	7.2	10.8	1.5	19.5
55-59	139	2.9	13.0	0.0	15.9
60-64	198	6.6	11.6	0.0	18.2
65-69	183	4.9	10.4	1.1	16.4
70-74	190	6.8	9.5	0.6	16.9
75-79	175	6.3	17.1	0.0	23.5
80-84	149	6.7	12.7	0.0	19.5
85+	199	13.6	20.1	1.8	35.5
All	2,106	7.1	10.6	0.9	18.7

## A.4.6 West Coast

### A.4.6.1 Broad causes



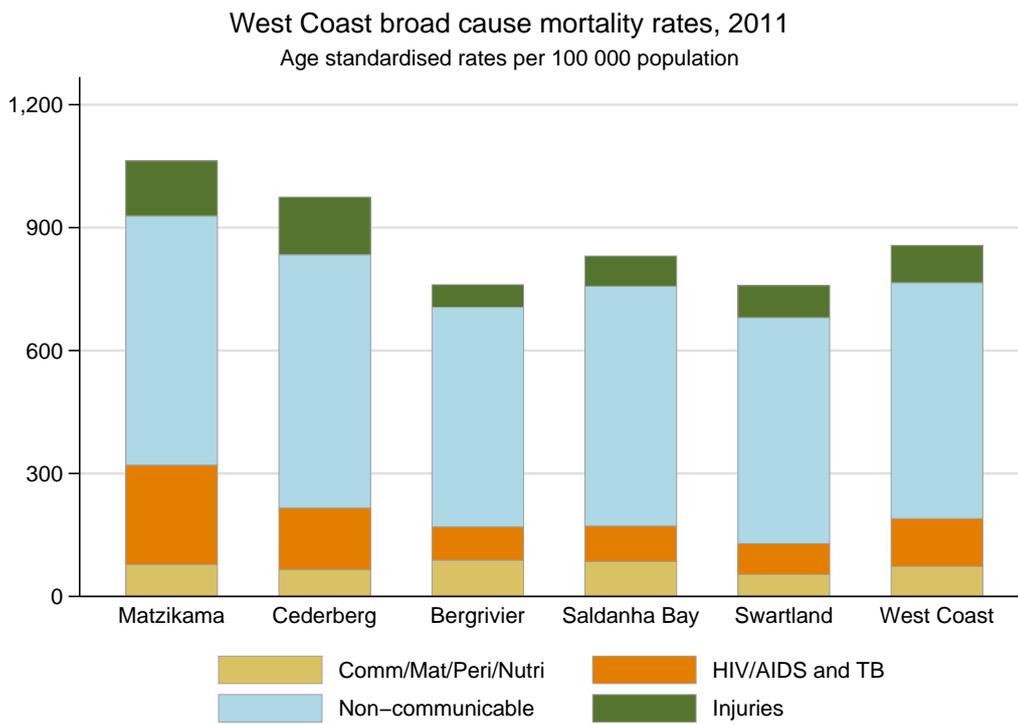
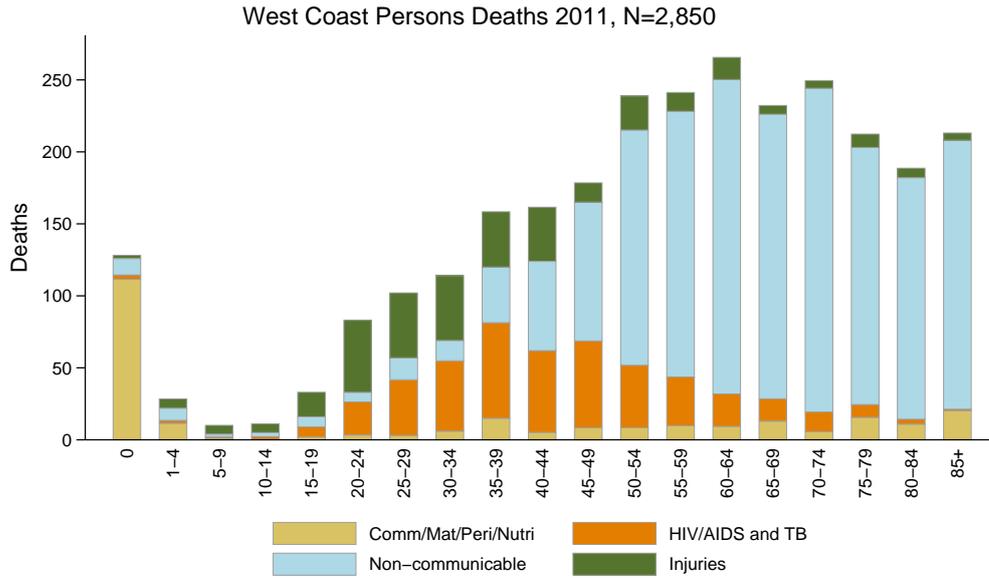
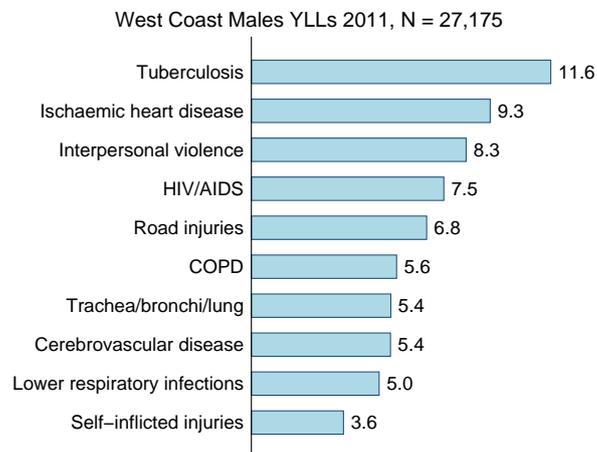
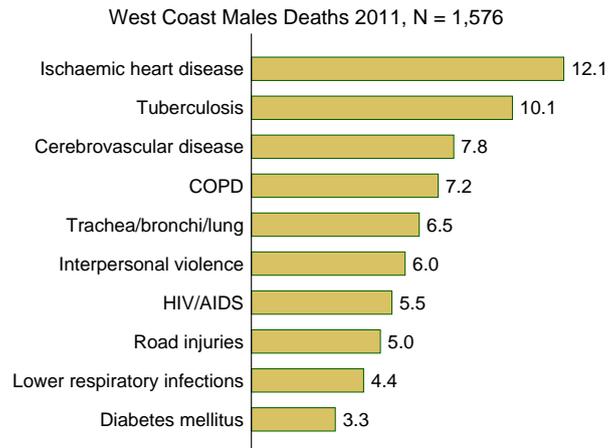


Figure A.13: West Coast age-standardised rates per 100,000

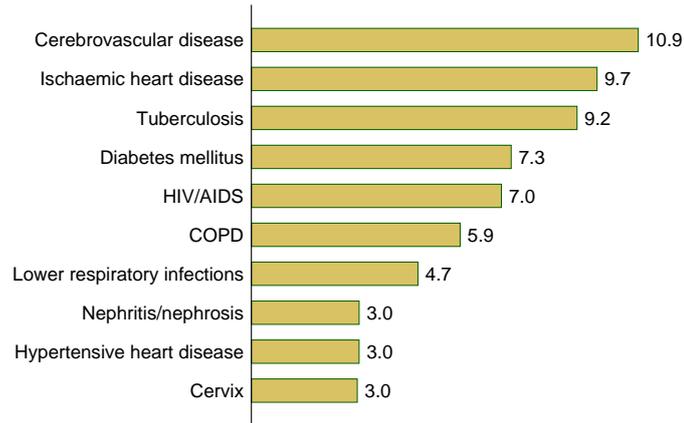
#### A.4.6.2 Leading causes of deaths and YLLs



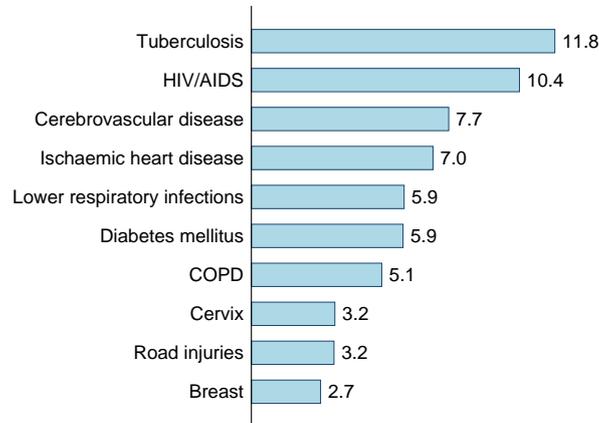
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	191	12.1	Tuberculosis	3,155	11.6
Tuberculosis	159	10.1	Ischaemic heart disease	2,517	9.3
Cerebrovascular disease	124	7.8	Interpersonal violence	2,263	8.3
COPD	114	7.2	HIV/AIDS	2,028	7.5
Trachea/bronchi/lung	103	6.5	Road injuries	1,847	6.8
Interpersonal violence	94	6.0	COPD	1,530	5.6
HIV/AIDS	86	5.5	Trachea/bronchi/lung	1,469	5.4
Road injuries	79	5.0	Cerebrovascular disease	1,466	5.4
Lower respiratory infections	69	4.4	Lower respiratory infections	1,346	5.0
Diabetes mellitus	51	3.3	Self-inflicted injuries	970	3.6
Top 10 causes	1,069	67.9	Top 10 causes	18,253	67.2
Total	1,576	100.0	Total	27,175	100.0

**Table A.25: Leading causes of death for Males, West Coast 2011**

West Coast Females Deaths 2011, N = 1,275



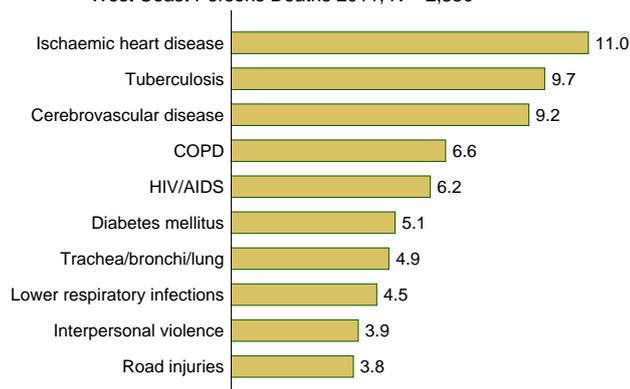
West Coast Females YLLs 2011, N = 21,149



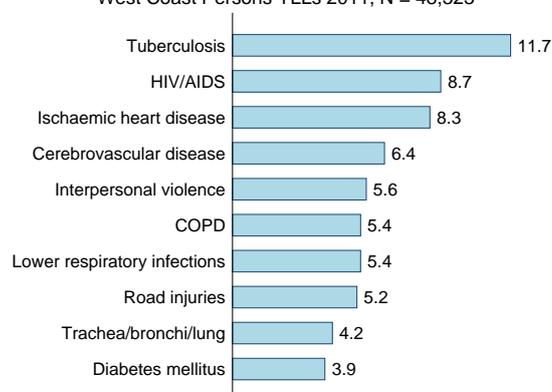
Cause of death	Deaths	%	Cause of death	YLLs	%
Cerebrovascular disease	139	10.9	Tuberculosis	2,489	11.8
Ischaemic heart disease	124	9.7	HIV/AIDS	2,199	10.4
Tuberculosis	117	9.2	Cerebrovascular disease	1,619	7.7
Diabetes mellitus	93	7.3	Ischaemic heart disease	1,489	7.0
HIV/AIDS	90	7.0	Lower respiratory infections	1,253	5.9
COPD	75	5.9	Diabetes mellitus	1,244	5.9
Lower respiratory infections	60	4.7	COPD	1,069	5.1
Nephritis/nephrosis	39	3.0	Cervix	685	3.2
Hypertensive heart disease	39	3.0	Road injuries	678	3.2
Cervix	38	3.0	Breast	568	2.7
Top 10 causes	811	63.7	Top 10 causes	12,938	61.2
Total	1,275	100.0	Total	21,149	100.0

**Table A.26: Leading causes of death for Females, West Coast 2011**

West Coast Persons Deaths 2011, N = 2,850



West Coast Persons YLLs 2011, N = 48,323



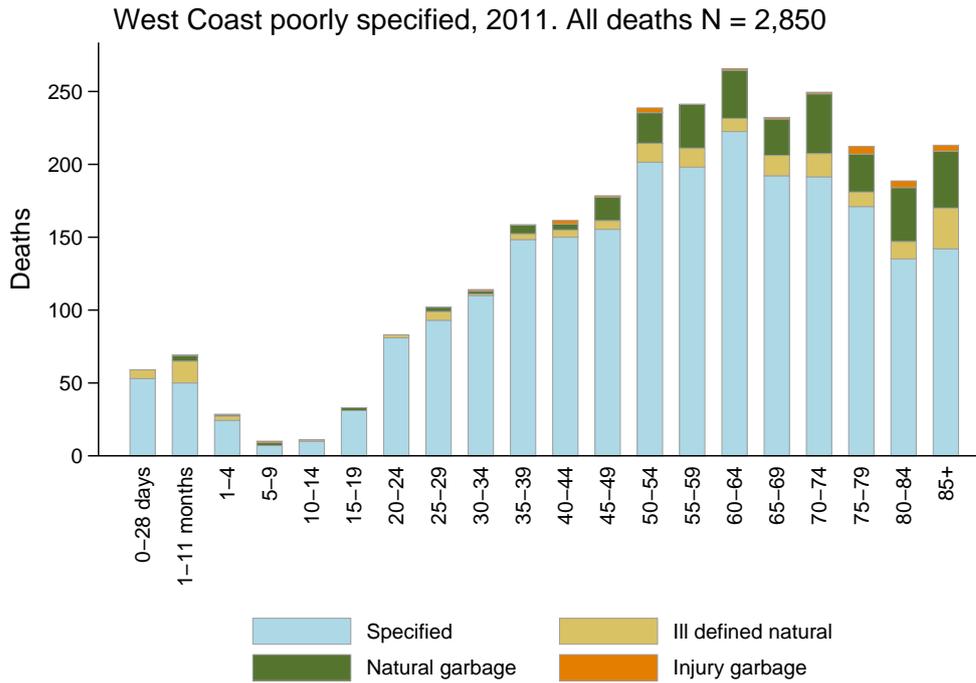
Cause of death	Deaths	%	Cause of death	YLLs	%
Ischaemic heart disease	315	11.0	Tuberculosis	5,644	11.7
Tuberculosis	276	9.7	HIV/AIDS	4,227	8.7
Cerebrovascular disease	262	9.2	Ischaemic heart disease	4,006	8.3
COPD	189	6.6	Cerebrovascular disease	3,085	6.4
HIV/AIDS	175	6.2	Interpersonal violence	2,716	5.6
Diabetes mellitus	144	5.1	COPD	2,599	5.4
Trachea/bronchi/lung	139	4.9	Lower respiratory infections	2,599	5.4
Lower respiratory infections	128	4.5	Road injuries	2,525	5.2
Interpersonal violence	112	3.9	Trachea/bronchi/lung	2,027	4.2
Road injuries	108	3.8	Diabetes mellitus	1,875	3.9
Top 10 causes	1,849	64.9	Top 10 causes	31,302	64.8
Total	2,850	100.0	Total	48,323	100.0

Table A.27: Leading causes of death for Persons, West Coast 2011

Rank	Matzikama	Cederberg	Bergrivier	Saldanha Bay	Swartland	West Coast
1	Tuberculosis (19.0%)	Tuberculosis (13.6%)	Ischaemic heart disease (11.1%)	HIV/AIDS (9.2%)	Ischaemic heart disease (9.9%)	Tuberculosis (11.7%)
2	HIV/AIDS (11.3%)	HIV/AIDS (8.5%)	Tuberculosis (10.4%)	Ischaemic heart disease (9.1%)	HIV/AIDS (8.1%)	HIV/AIDS (8.7%)
3	Interpersonal violence (7.4%)	Road injuries (8.2%)	Cerebrovascular disease (7.0%)	Tuberculosis (8.5%)	Tuberculosis (7.5%)	Ischaemic heart disease (8.3%)
4	Cerebrovascular disease (6.4%)	Cerebrovascular disease (7.7%)	Lower respiratory infections (6.6%)	COPD (6.5%)	Cerebrovascular disease (6.3%)	Cerebrovascular disease (6.4%)
5	Ischaemic heart disease (5.6%)	Interpersonal violence (7.4%)	COPD (6.6%)	Lower respiratory infections (5.7%)	COPD (6.3%)	Interpersonal violence (5.6%)
6	Lower respiratory infections (4.8%)	Ischaemic heart disease (5.8%)	Trachea/bronchi/lung (6.0%)	Cerebrovascular disease (5.2%)	Interpersonal violence (5.9%)	COPD (5.4%)
7	Trachea/bronchi/lung (4.2%)	Lower respiratory infections (4.8%)	Road injuries (5.4%)	Interpersonal violence (4.8%)	Road injuries (5.8%)	Lower respiratory infections (5.4%)
8	Road injuries (3.8%)	COPD (4.4%)	HIV/AIDS (5.3%)	Road injuries (4.0%)	Diabetes mellitus (5.5%)	Road injuries (5.2%)
9	COPD (3.2%)	Trachea/bronchi/lung (3.2%)	Diabetes mellitus (3.2%)	Diabetes mellitus (4.0%)	Lower respiratory infections (5.2%)	Trachea/bronchi/lung (4.2%)
10	Drowning (3.1%)	Diabetes mellitus (3.1%)	Colo-rectal (2.5%)	Trachea/bronchi/lung (3.3%)	Trachea/bronchi/lung (4.6%)	Diabetes mellitus (3.9%)

Figure A.14: League table of leading causes of premature mortality, West Coast 2011

### A.4.6.3 Proportion ill-defined



**Table A.28: West Coast quality of reporting, 2011**

Age	Deaths	Ill def %	Garb (nat) %	Garb (inj) %	All Garb %
0-28 days	59	10.2	0.0	0.1	10.3
1-11 months	69	21.7	5.8	0.1	27.6
1-4	28	10.6	3.5	0.3	14.3
5-9	10	0.0	19.9	10.7	30.5
10-14	11	9.0	0.0	0.7	9.7
15-19	33	0.0	6.0	0.2	6.3
20-24	83	2.4	0.0	0.1	2.5
25-29	102	5.9	2.9	0.1	8.9
30-34	114	0.9	1.8	0.9	3.6
35-39	158	2.5	3.8	0.0	6.4
40-44	162	3.1	2.5	1.6	7.2
45-49	178	3.4	9.0	0.6	12.9
50-54	239	5.4	8.8	1.4	15.6
55-59	241	5.4	12.4	0.0	17.9
60-64	266	3.4	12.4	0.4	16.2
65-69	232	6.0	10.8	0.5	17.3
70-74	249	6.4	16.4	0.4	23.3
75-79	212	4.7	12.2	2.5	19.5
80-84	189	6.4	19.6	2.4	28.4
85+	213	13.1	18.3	1.9	33.3
All	2,850	5.8	10.2	0.9	16.9