

**Cause of death and premature mortality in
Cape Winelands and Overberg Districts
2004-2006**

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Introduction

Timeous and accurate cause of death statistics are essential for planning and monitoring health services and responding to the health needs of the population. Such information is required for the process of prioritisation of not only health services, programmes and research, but also for guiding the priorities in other sectors. In particular, sub-population data are needed to identify and monitor inequalities in health status. While policy is directed from a national perspective, provincial and local government need to respond to the specific needs of their communities.

National vital statistics data have been reported up to the year 2004.¹ However, these are not available at geographical areas lower than provincial level, making it difficult for local health authorities to plan health services and identify major health problems. The Boland Overberg Region therefore implemented a system for collecting mortality information from the Department of Home Affairs and local mortuaries in January 2004, using a system similar to that used in Cape Town. After a review of the quality of the cause of death coding in Cape Town in the year 2000, a shortlist meeting the public health needs was implemented to improve the standardisation of coding between the municipalities.² The key findings from the analysis of the cause of death statistics for Cape Town in 2001 are presented in a previous report,³ which can be downloaded from www.mrc.ac.za/bod/bod.htm. A mortality report for the Boland Overberg Region for 2004 was produced in 2005⁴, and for 2004 – 2005⁵ in 2006. These reports are available online from www.mrc.ac.za/bod/bod.htm. This data, for the first time, provided a profile of the causes of death experienced in the health sub-districts of the Boland Overberg health region. Similar to national experience,⁶ a substantial impact of HIV/AIDS was observed as well as a combination of infectious diseases, child mortality and degenerative chronic diseases. A marked injury burden was also observed in these districts.

Data collected for 2004 until 2006 are presented in this report. As part of the Western Cape provincial project to reduce the burden of disease, efforts are made to make the information more useful for monitoring programmes in the area as well as identifying new priorities. The report can be downloaded from www.mrc.ac.za/bod/bod.htm.

Methods and data quality

The Boland Overberg region implemented a system for routinely compiling death statistics in January 2004. Local health personnel collect copies of death certificates from the Department of Home Affairs. The underlying cause of death is coded using a shortlist based on ICD-10², captured and processed by the local municipalities. The shortlist is adapted from the Cape Town list which is based upon the most prevalent diseases in the area as well as those of public health importance. The list includes selected combinations of diseases such as HIV and TB, which are difficult to attribute to a single cause. The aim of the shortlist is to simplify the task of coding as well as to enable more detailed analysis of such data.

The mortality data for 2004 – 2006 were obtained electronically from the Information management section of the Cape Winelands and Overberg Regional Health office in Worcester. The data were cleaned and analysed using Microsoft Excel and Stata. Stillbirths were excluded prior to any analysis. There were 4 deaths due to exposure to fire (burning shacks) where gender was unknown. These 4 deaths were arbitrarily divided equally amongst males and females. There were no duplicates and no invalid cause of death for age. There were 51 deaths where the age of the deceased was unknown – these were mainly for cases of unnatural death amongst males. The data are presented for the Cape Winelands and Overberg districts. Data for Drakenstein and Stellenbosch are were collected for the first time and are only available for 2006.

After cleaning the data, the shortlist cause of death codes were aggregated according to the burden of disease classification.⁷ These are categorized into three broad groups:

Group I are the pre-transitional causes: communicable diseases, maternal causes, perinatal conditions, and nutritional deficiencies. (HIV/AIDS is part of Group I but is kept separate in the South African National Burden of Disease analysis due to the size of the burden that it contributes in South Africa.)

Group II are the non-communicable causes such as stroke and chronic obstructive pulmonary disease.

Group III are the injuries including both intentional and unintentional.

Since the ill-defined categories of death do not provide information into the underlying causes of death, they have been reallocated to the specified causes, in line with the burden of disease methodology for estimation. The deaths with unknown ages were redistributed proportionally by age and sex for each cause of death. The ill-defined cardiovascular deaths (heart failure) were redistributed proportionately by age and sex across rheumatic heart disease, ischaemic heart diseases, hypertensive heart diseases, pulmonary heart diseases and other cardiovascular diseases. The ill-defined respiratory deaths (respiratory failure) were redistributed proportionally by age and sex across chronic obstructive pulmonary disease, asthma and other respiratory diseases. The deaths coded to ill-defined natural causes were redistributed proportionally by age and sex across all pre-transitional and non-communicable causes. The undetermined injury deaths were redistributed proportionally by age and sex across all intentional and unintentional causes.

All cause and cause specific age standardized mortality and premature mortality rates were calculated for the region as a whole and by sub-district. Population estimates for the Cape Winelands and Overberg districts and sub-districts were obtained from the District Health Information Software (DHIS). National Department of Health (NDoH), with assistance from the Health Information Systems Programme (HISP), worked closely with StatsSA in 2005 and 2006 to establish a revised set of mid-year estimates for 1995-2009. It had by then become clear that the previous estimates, developed for the Department by HISP and based on Census 2001 and StatsSAs 2003 mid-year estimates, had significant problems – in particular related to under-estimation of children less than 5 years.

StatsSA provided the social cluster with *provincial* estimates for 2001-2009 in April-2005 and *district/metropolitan municipality* mid-year estimates for 2001-2009, broken down on age (5-year cohorts) in February 2006. These mid-year estimates were used by NDoH, in combination with the “Small Area Layer” of the Census 2001⁸, to derive mid-year estimates for 2001-2009 by sub-district, age and gender. Final but minor adjustments to the 2006 estimates specifically were made in September 2006, to ensure alignment with the 2006 mid-year estimates published by StatsSA in August 2006. The 2001-2009 estimates were furthermore also “extrapolated” backwards in

time to 1995, with the growth curve adjusted to make a reasonable fit with the available Census 1996 estimates.

It should be noted that these estimates are lower than the Western Cape provincial population estimates used in the previous mortality reports. Thus mortality rates are higher in this report than in the two previous reports.

The WHO world standard population was used for direct age standardization.⁹ Confidence intervals for age standardised mortality rates were calculated using a Poisson approximation method described by Boyle and Parkin.¹⁰

No adjustments have been made for under-registration of deaths. While most of the deaths are considered to be registered, there are some concerns about the completeness of the data particularly for Overstrand in 2004 and Theewaterskloof in 2005 and 2006. When compared with data from the population register, it was noted that in Overstrand many of the death certificates for unnatural deaths were missed by the routine surveillance system operating through Home Affairs. We subsequently compared the mortuary register with the surveillance database and collected any missing deaths from the register. We have no further information on the completeness of natural deaths. In 2005 and early 2006 there was a problem getting death certificates photocopied at the Caledon Home Affairs office and a number of death certificates were lost before another system was implemented. This appears to have affected Theewaterskloof particularly, see Table 1 below. In 2006 data collection was instituted in Stellenbosch and Drakenstein. The total number of deaths excluding these sub-districts was 4401 compared with 4303 in 2005.

Table 1: Number of deaths by sub-district, Cape Winelands and Overberg 2004 - 2006

Sub-district	2004	2005	2006
Breede River winelands	675	744	665
Breede Valley	1253	1292	1368
Witzenberg	713	803	784
Cape Agulhas	215	238	242
Overstrand	370	426	484
Swellendam	225	243	237
Theewaterskloof	780	557	621
Stellenbosch			929
Drakenstein			1630
Total	4231	4303	6960

When compared with the registered Home Affairs deaths at the Worcester and Caledon offices the completeness is in excess of 100% as shown in Appendix 2. However, it is important to bear in mind that Home Affairs only registered deaths for people with identity numbers, whereas the mortality surveillance system records all deaths.

Overview of mortality in Cape Winelands and Overberg

There were 6960 deaths in 2006 that were analysed. The majority of deaths (49.4%) are due to non-communicable diseases, with pre-transitional diseases accounting for 22.3% and injuries for 16.1%. deaths due to ill-defined causes account for 12.2%. The proportion of ill-defined causes of death varies from sub-district to sub-district with Breede River Winelands having the largest proportion (20%) and Drakenstein and Stellenbosch having the smallest proportion (9%), see Appendix 10. The proportion of ill-defined deaths in Witzenberg increased from about 7% in 2004 and 2005 to 17% in 2006.

The age pattern of deaths for the Cape Winelands and Overberg for 2006 is shown in Figure 1. There are large differences between males and females with young adult males experiencing much larger numbers of deaths than females, mainly die to

injuries. HIV/AIDS accounts for a large proportion of deaths in young women. Deaths at older ages are mainly due to non-communicable diseases.

The age standardised rates by broad cause group for males and females for 2004 until 2006 are set out in Table 3. Age standardization is a technique which eliminates differences in observed mortality rates caused by differences in the age structure of the population in different areas, rather than by differences in the force of the underlying mortality. Overall the rates have remained fairly constant over this period. There has been a marked decrease in death rates due to injuries between 2004 and 2005 with a small increase in 2006. This reflects an absolute decrease in the numbers of deaths due to injuries particularly homicide between 2004 and 2005 in the Cape Winelands East and Overberg Region.

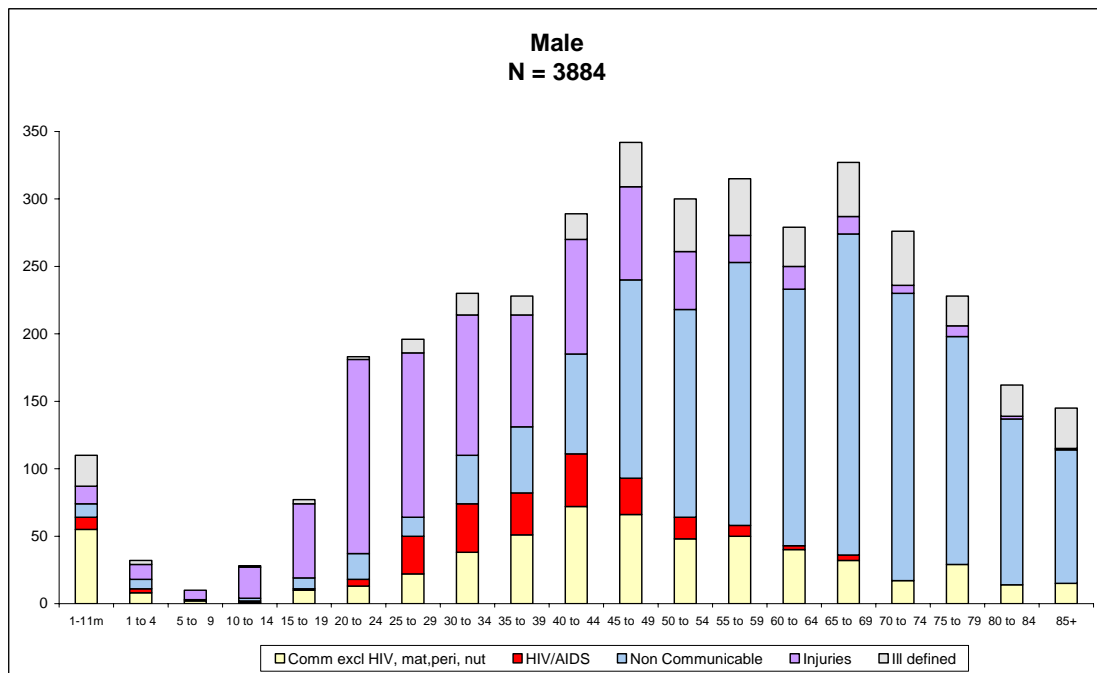
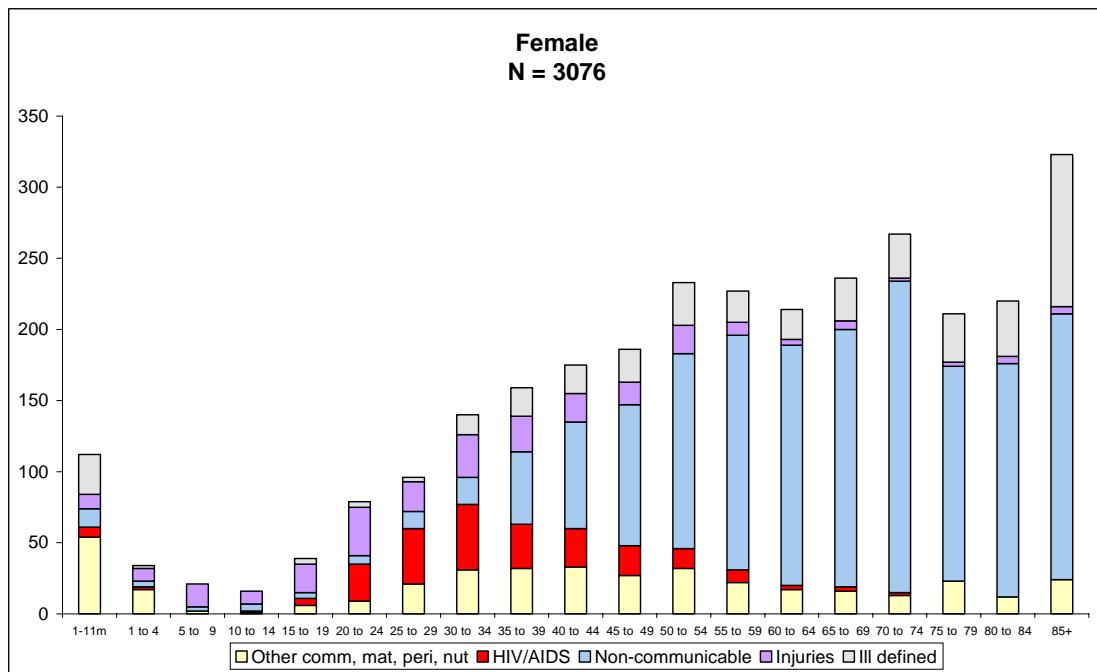


Figure 1: Age distribution of deaths by cause group and gender, Cape Winelands and Overberg 2006

Table 2: Age standardised mortality rate (per 100 000) by broad cause group by sex for Cape Winelands and Overberg, 2004-2006

Broad cause group	Male			Female			Persons		
	2004	2005	2006*	2004	2005	2006*	2004	2005	2006*
Comm excl HIV, mat, peri, nut	251	264	215	159	167	139	204	214	175
HIV	57	60	61	57	53	65	57	56	63
Non communicable	715	721	689	566	557	620	638	635	654
Injuries	232	195	204	75	62	67	153	129	139
All causes	1255	1240	1168	856	838	891	1051	1035	1027

* 2006 data includes Drakenstein and Stellenbosch

The leading causes of premature mortality are shown in Figure 2. Please note that the 2006 data includes Drakenstein and Stellenbosch. The top four causes of death have remained the same between 2004 and 2006 but the ranking has changed. HIV/AIDS has become the leading cause of premature mortality in 2006 after ranking third to homicide in 2004. Homicide now ranks third after tuberculosis with road traffic accidents ranking fourth. If one excludes the Drakenstein and Stellenbosch data the top four causes are exactly the same as in 2005 namely; tuberculosis, HIV/AIDS, homicide and road traffic. These top four conditions account for 40% of the premature mortality in the region. Premature mortality has been estimated using the standard Global Burden of Disease (GBD) approach to calculate years of life lost (YLLs). Age weighting, time discounting of 3% per annum and standard life expectancies based on the West model levels 25 and 26 (considered to a maximum life expectancy) have been used. The younger the age of death the greater the years of life lost⁷.

Males and females have different cause of death profiles, see Figure 3. Homicide, tuberculosis, HIV/AIDS and road traffic accidents are the leading causes of premature mortality amongst men. HIV/AIDS is the leading cause amongst women followed by tuberculosis, stroke and homicide. If the Drakenstein and Stellenbosch data are excluded the top four causes for males are the same as for 2005 but with homicide the leading cause followed by tuberculosis. For females the top four are identical as in 2005.

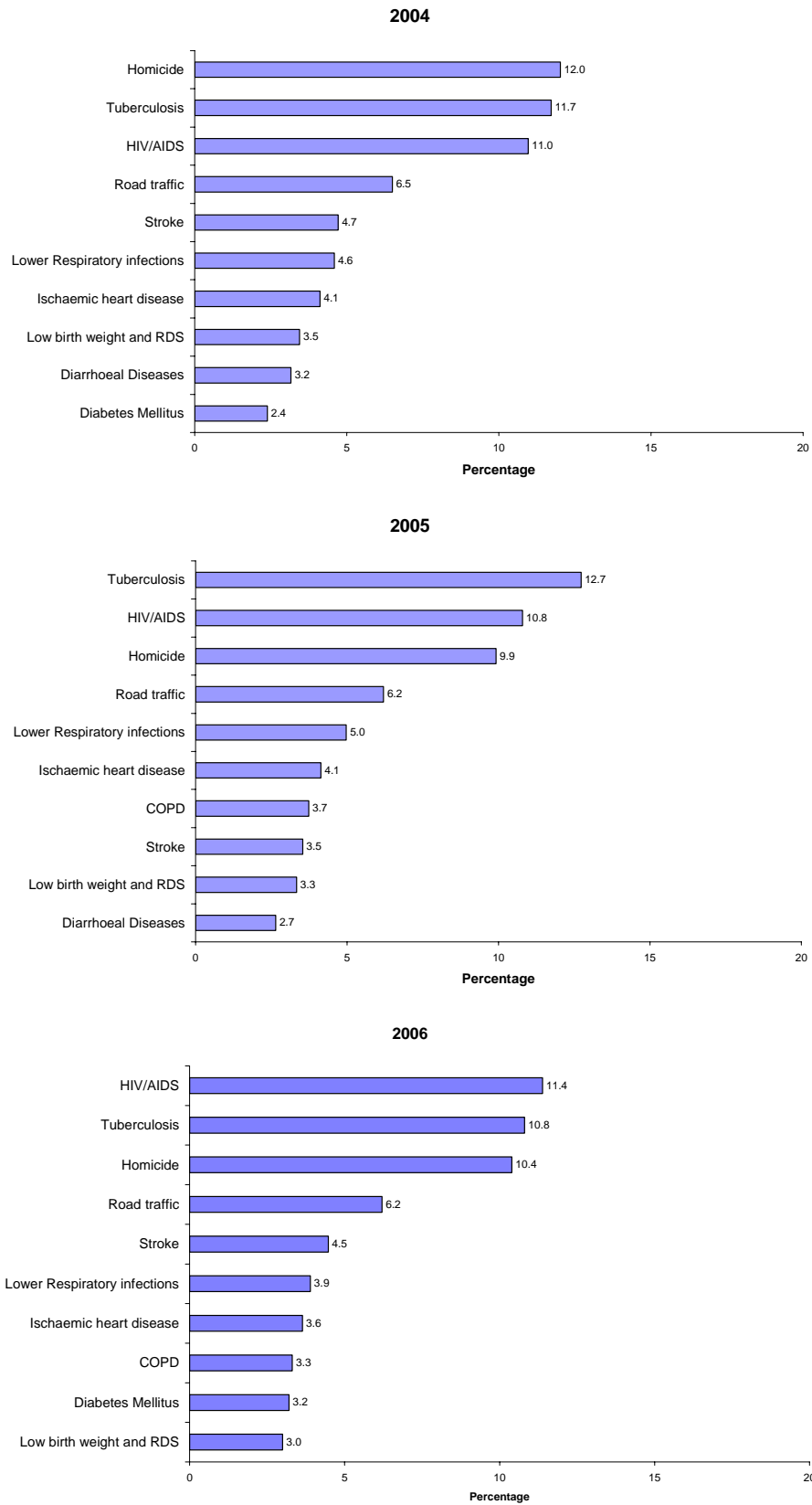


Figure 2: Top 10 causes of premature mortality (YLLs) for Cape Winelands and Overberg, 2004, 2005 and 2006

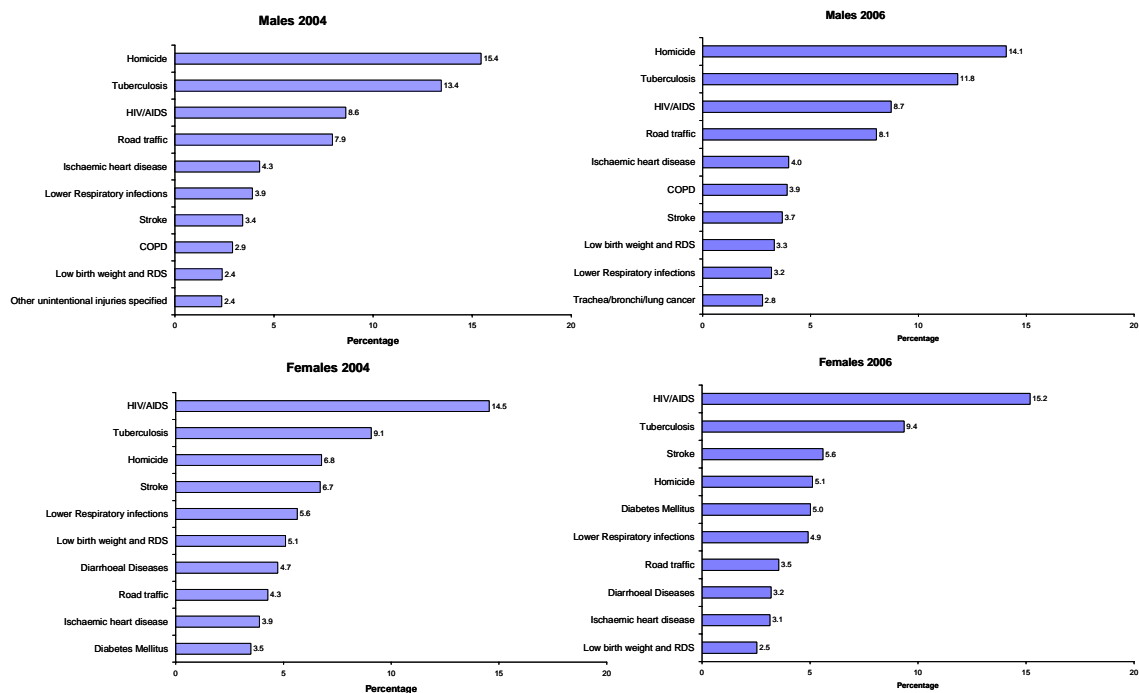


Figure 3: Top 10 causes of premature mortality (YLLs) by sex for Cape Winelands and Overberg, 2004 and 2006

The top ten causes of premature mortality for each sub-district are shown in Table 4. HIV/AIDS is the leading cause of death in the Cape Winelands and homicide is the leading cause in Overberg. Tuberculosis is the leading cause of death in Breede River, Witzenberg and Cape Agulhas, whilst homicide is the leading cause in Swellendam and Theewaterskloof. HIV/AIDS is the leading cause in the remaining sub-districts.

The age standardized premature mortality rate by cause group and HIV/AIDS are shown in Figure 4 by sub-district, for the years 2004 until 2006. Premature mortality is highest in Witzenberg, Breede Valley and Breede River. The rapid increase in premature mortality rates in Witzenberg between 2004 and 2005 mainly due to increased mortality due to HIV/AIDS and TB appears to have stabilized in 2006. The increase in premature mortality in Overstrand and the drop in Theewaterskloof in 2005 is probably due to incomplete data rather than a real change in mortality.

Table 3: Top 10 causes of premature mortality (YLLs) for Cape Winelands and Overberg and sub-districts for persons, 2006

Rank	CAPE WINELANDS	Breede River	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	OVERBERG	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof	BOLAND OVERBERG
1	HIV/AIDS (11.6%)	Tuberculosis (12.32%)	HIV/AIDS (12.4%)	HIV/AIDS (11.6%)	HIV/AIDS (13.5%)	Tuberculosis (14.9%)	Homicide (12.9%)	Tuberculosis (14.0%)	HIV/AIDSs (13.3%)	Homicide (12.7%)	Homicide (13.5%)	HIV/AIDS (11.4%)
2	Tuberculosis (10.9%)	Homicide (10.2%)	Tuberculosis (11.9%)	Homicide (11.2%)	Homicide (11.1%)	HIV/AIDS (11.5%)	HIV/AIDS (10.7%)	Homicide (11.6%)	Homicide (12.6%)	Tuberculosis (10.6%)	HIV/AIDS (11.5%)	Tuberculosis (10.8%)
3	Homicide (9.7%)	Road Traffic (7.1%)	Homicide (7.2%)	Tuberculosis (9.8%)	Road Traffic (9.3%)	Homicide (9.1%)	Tuberculosis (10.4%)	HIV/AIDS (5.9%)	Tuberculosis (7.3%)	Road Traffic (8.4%)	Tuberculosis (11.0%)	Homicide (10.4%)
4	Road traffic (6.3%)	Stroke (5.8%)	Road traffic (6.1%)	Road traffic (5.5%)	Tuberculosis (7.3%)	Stroke (4.6%)	Road traffic (5.8%)	Fires (5.9%)	Fires (4.9%)	HIV/AIDS (7.2%)	Road traffic (6.5%)	Road traffic (6.2%)
5	Stroke (4.7%)	Pneumonia (5.5%)	Pneumonia (4.0%)	Stroke (4.9%)	Stroke (4.7%)	Pneumonia (4.6%)	Ischaemic heart disease (4.3%)	Stroke (4.5%)	Pneumonia (4.5%)	Ischaemic heart disease (6.0%)	Drowning (4.2%)	Stroke (4.5%)
6	Pneumonia (4.1%)	HIV/AIDS (5.4%)	COPD (4.0%)	COPD (4.7%)	Pneumonia (3.9%)	Low birth weight & RDS (4.4%)	Fires (3.8%)	Asthma (4.1%)	Ischaemic heart disease (4.3%)	Low birth weight & RDS (5.2%)	Stroke (4.1%)	Pneumonia (3.9%)
7	COPD (3.8%)	Ischaemic heart disease (4.24%)	Stroke (3.9%)	Diabetes mellitus (4.0%)	Diarrhoea (3.8%)	Road Traffic (4.3%)	Stroke (3.7%)	Suicide (3.5%)	Road Traffic (4.2%)	Pneumonia (5.0%)	Ischaemic heart disease (3.7%)	Ischaemic heart disease (3.6%)
8	Ischaemic heart disease (3.4%)	Diarrhoea (3.6%)	Low birth weight (3.9%)	Ischaemic heart disease (4.0%)	Ischaemic heart disease (3.8%)	COPD (3.6%)	Pneumonia (3.2%)	Road Traffic (3.8%)	Suicide (3.1%)	Stroke (3.8%)	Fires (3.2%)	COPD (3.3%)
9	Diabetes mellitus (3.4%)	Lung cancer (3.1%)	Diabetes mellitus (3.5%)	Pneumonia (3.9%)	Diabetes mellitus (3.4%)	Diarrhoea (3.0%)	Drowning (3.2%)	Pneumonia (3.2%)	Pulmonary heart disease (2.9%)	Suicide (3.3%)	Pneumonia (2.8%)	Diabetes Mellitus (3.2%)
10	Low birth weight & RDS (3.2%)	Diabetes mellitus (3.0%)	Ischaemic heart disease (2.7%)	Lung cancer (3.0%)	Drowning (3.2%)	Asthma (2.6%)	Suicide (2.9%)	Ischaemic heart disease (3.2%)	Cot death (2.9%)	Pulmonary heart disease (3.0%)	Asthma (2.8%)	Low birth weight & RDS (3.0%)

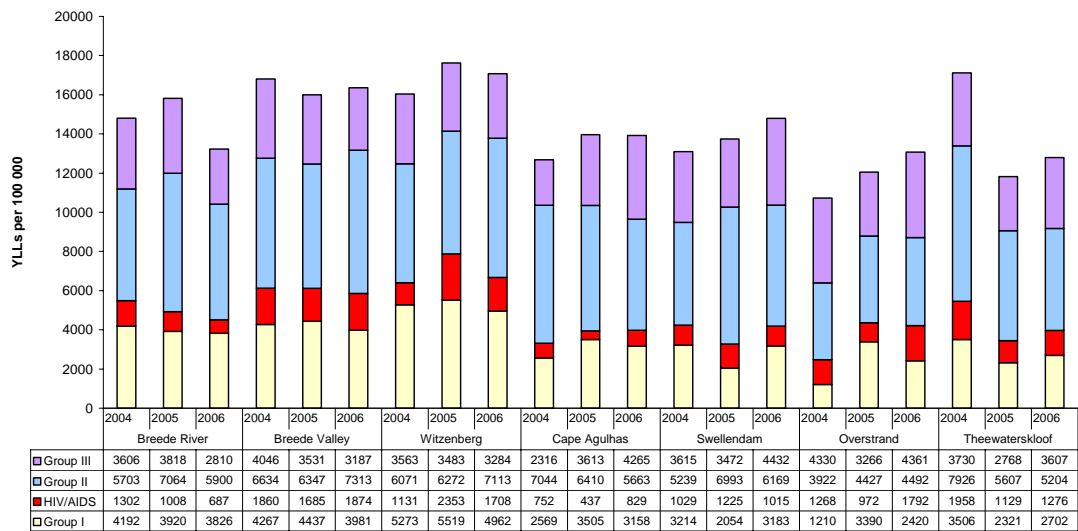
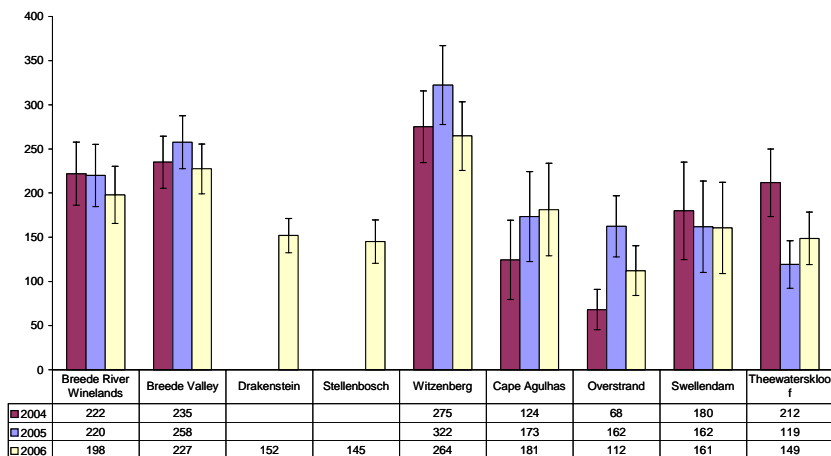


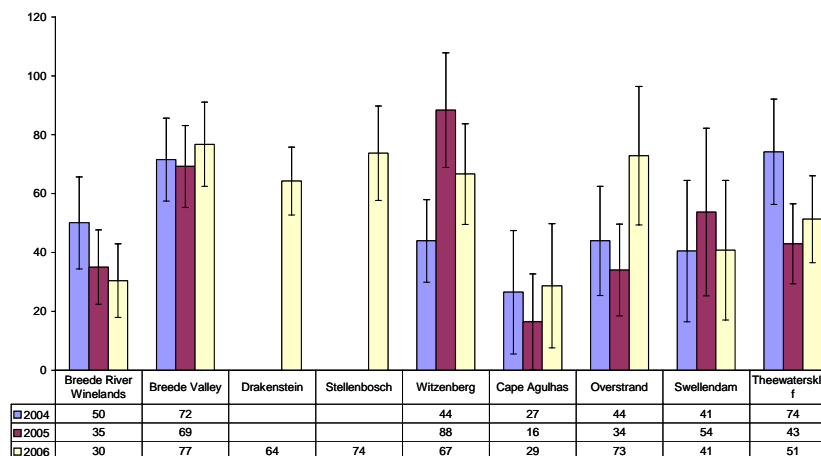
Figure 4: YLLs per 100 000 by cause group and HIV/AIDS for Cape Winelands and Overberg and sub-districts, 2004 until 2006

Age standardised death rates by sub-district for the three broad cause groups and HIV, for 2004 until 2006, are shown in Figure 5. In contrast to all other sub-districts, there is a significant rise in mortality due to HIV between 2004 and 2005 in Witzenberg which is likely to be a real increase. This rise did not continue into 2006. The significant drop in death rates noted for all causes, except injuries, in Theewaterskloof in 2005, however, are likely to be due to missing data. This appears to be a problem in 2006 as well. Data collection at mortuaries was close to complete for both years so, unless unnatural deaths from Theewaterskloof were sent to mortuaries other than Worcester and Hermanus, this is likely to be a real decrease.

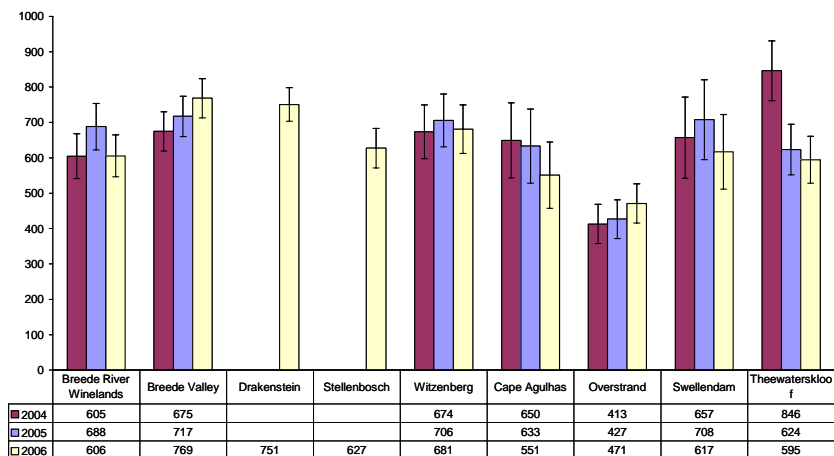
Communicable excl HIV, mat, peri, nut



HIV



Non-communicable Diseases



Injuries

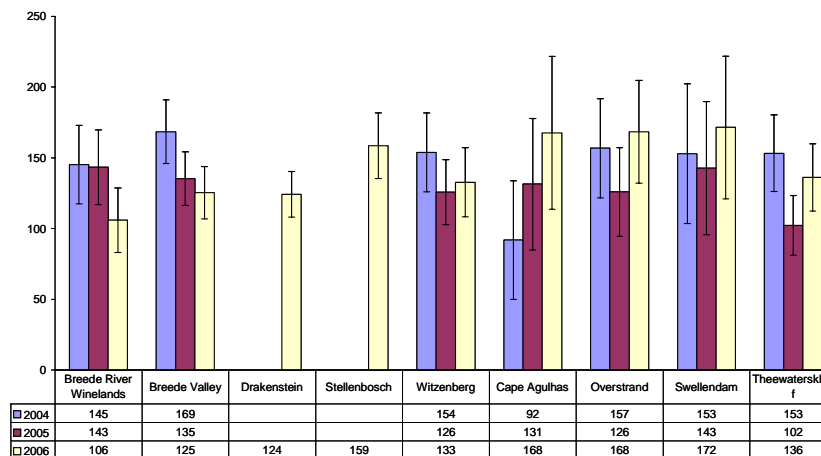


Figure 5: Age standardized death rates for the broad cause groups by sub-district, Cape Winelands and Overberg 2004 - 2006

Important conditions

HIV and TB

Tuberculosis is the leading cause of death in the Cape Winelands East and Overberg whilst HIV/AIDS is the leading cause for the Cape Winelands and Overberg including Drakenstein and Stellenbosch. Because of the increased susceptibility of HIV positive persons to tuberculosis disease and mortality it is even more important that the HIV/AIDS epidemic is controlled in this area which has very high tuberculosis incidence rates. Tuberculosis cure rates are lowest in Witzenberg (70%), where HIV/AIDS prevalence has reached levels similar to those in the Eastern Cape in some populations. This is probably an important reason for the high levels of tuberculosis and HIV/AIDS premature mortality experienced in this sub-district, see Figure 6. There was a significant increase in age standardized mortality rates due to HIV/AIDS in Witzenberg between 2004 and 2005 from 44 per 100 000 (95% CI: 30; 58) to 88 per 100 000 (95% CI: 69; 107) but decreased to 67 per 100 000 in 2006, Figure 5. The mortality rate due to tuberculosis in Witzenberg increased from 110 per 100 000 in 2004 to 157 per 100 000 in 2005, but this difference was not significant. In 2006 it decreased to 144 per 100 000. It is possible that the TB and HIV premature mortality rates for Theewaterskloof in 2005 and 2006 are falsely low, in view of the missing data mentioned above. In accordance with ICD 10 guidelines¹¹, HIV/AIDS was selected as the underlying causes when both tuberculosis and HIV/AIDS appeared on the death certificate.

The age specific HIV and TB deaths rates for males and females are shown in Figure 7 below. The data for Drakenstein and Stellenbosch was excluded to enable comparison over the whole period. Whilst the HIV peak for women decreased between 2004 and 2005 it has increased again in 2006. In males the peak increased between 2004 and 2005 and has remained constant in 2006.

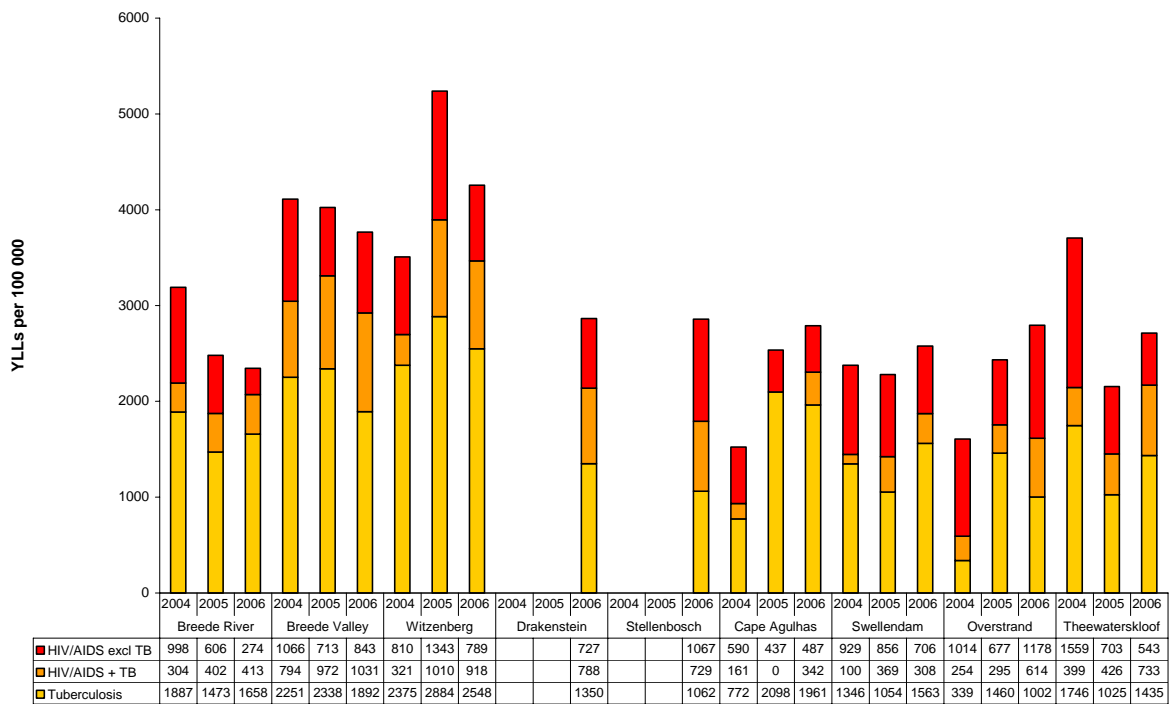


Figure 6: Age standardised premature mortality (YLL) rate for TB, HIV+TB and HIV for persons by district, Cape Winelands and Overberg, 2004 - 2006

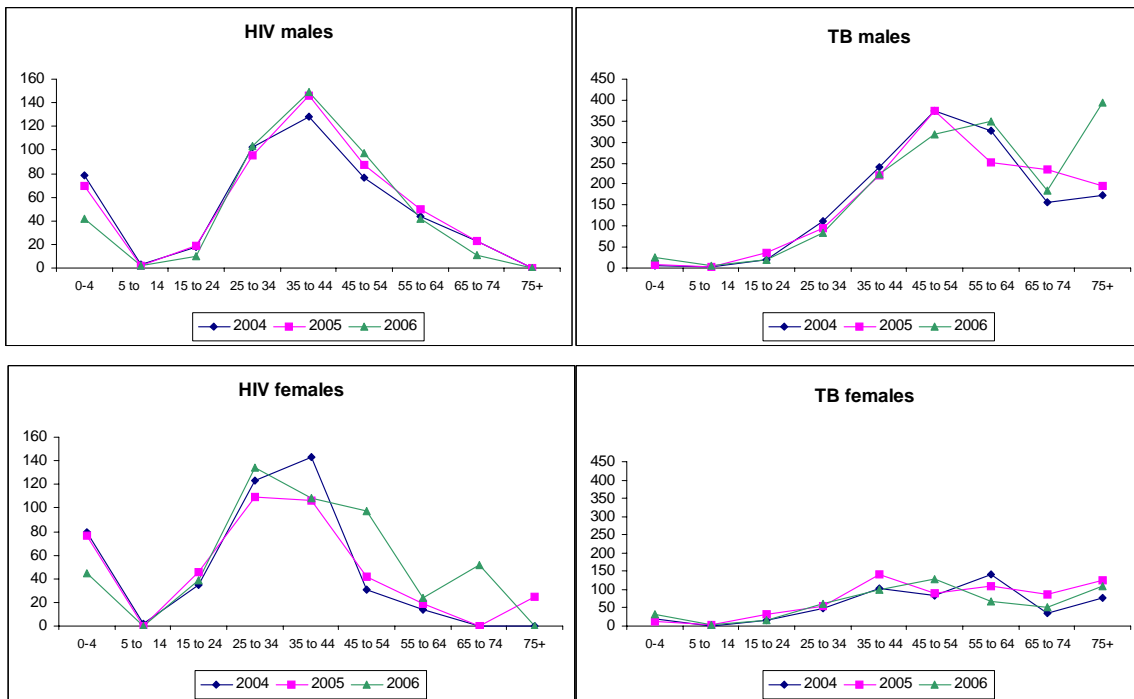


Figure 7: Age specific death rates for HIV and TB by gender, Cape Winelands East and Overberg 2004 until 2006 (excluding Drakenstein and Stellenbosch)

Injuries

Injuries account for about 15 % of deaths in the Cape Winelands and Overberg with homicide and road traffic injuries ranking amongst the top four leading causes of death. Overall, injury age standardized mortality rates decreased from 152.5 per 100 000 (95% CI: 141.2 – 163.7) to 128.5 per 100 000 (95% CI:118.7 – 138.3) in the Cape Winelands East and Overberg between 2004 and 2005 but increased slightly in 2006 to 134.5 per 100 000 (95% CI: 124.5 – 144.5). There are slight variations in the age standardized death rates for injuries between sub-districts, with Breede River having the highest rates and Theewaterskloof the lowest, see Figure 8. However, these differences are not significant. However, these are based upon small numbers so should be interpreted with caution, particularly for Cape Agulhas and Swellendam.

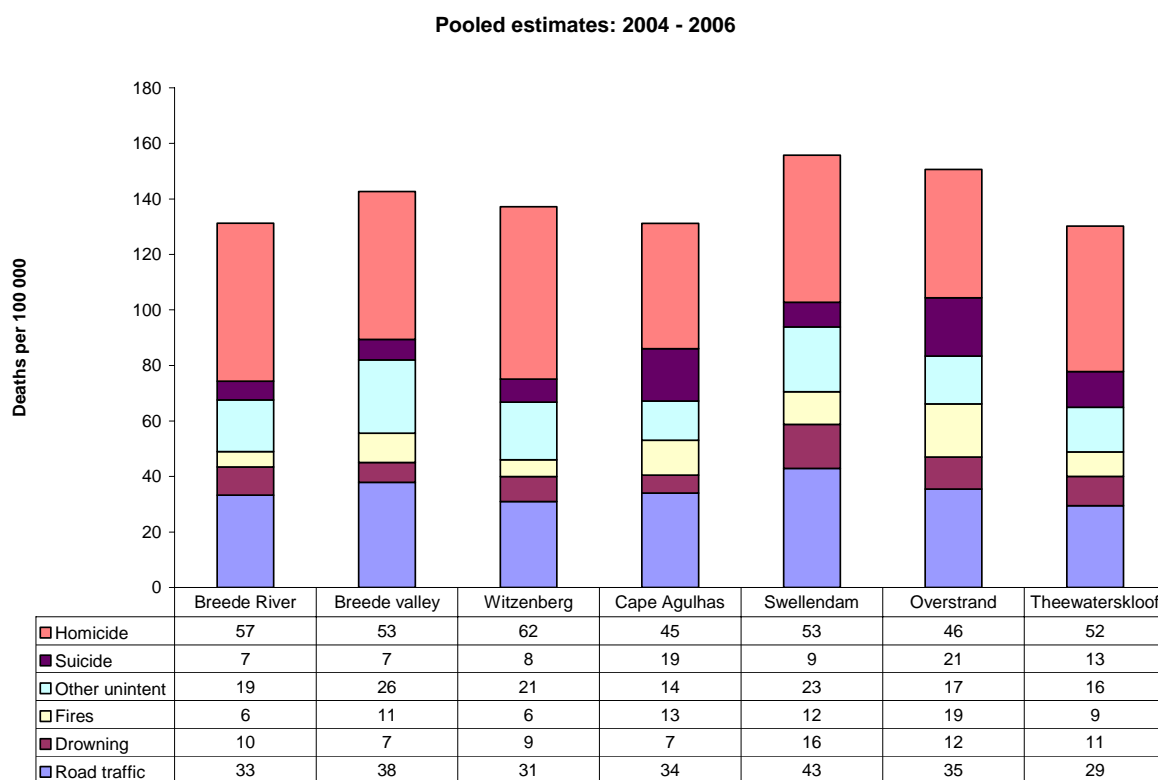


Figure 8: Age standardized death rates due to injuries by district, Cape Winelands East and Overberg

The age standardized rates for homicide dropped from 63 per 100 000 to 49 per 100 000 between 2004 and 2005, mainly due to a large drop in homicide rates amongst males (99 – 77

per 100 000). The rates for females fell slightly from 28 per 100 000 to 22 per 100 000. In 2006 the rate for persons increased slightly to 51 per 100 000 reflecting an increase to 81 per 100 000 for males and a decrease to 20 per 100 000 amongst females. Age standardized homicide rates are highest in Swellendam, Cape Agulhas, Overstrand and Witzenberg and lowest in Breede Valley, see Figure 9. A low proportion of homicides in the Cape Winelands and Overberg involve the use of a firearm which is in sharp contrast with Cape Town, where about 40% of homicides involve the use of a firearm.

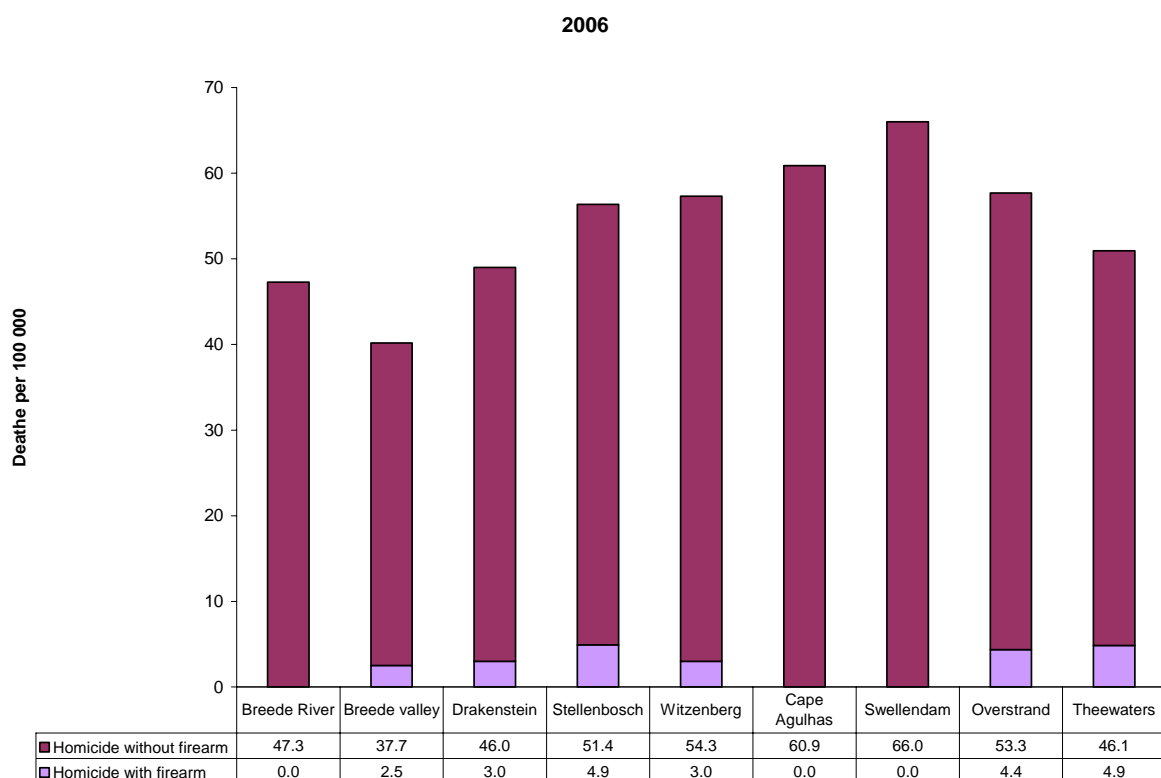


Figure 9: Age standardized death rates due to homicide by district, Cape Winelands and Overberg 2006

Homicide dropped in the ranking from first to third leading cause of death in the Cape Winelands East and Overberg region during this period. The age specific death rates for homicide by gender, between 2004 and 2006 are shown in Figure 10 below. Data from Drakenstein and Stellenbosch are excluded to enable comparison. There is a marked gender differential with males having rates three times as high as females. There has been a marked

decrease in the homicide rates in males between 15 and 24 years and between 45 and 64 years. In females, the decrease is noted in the 35 to 44 year age group.

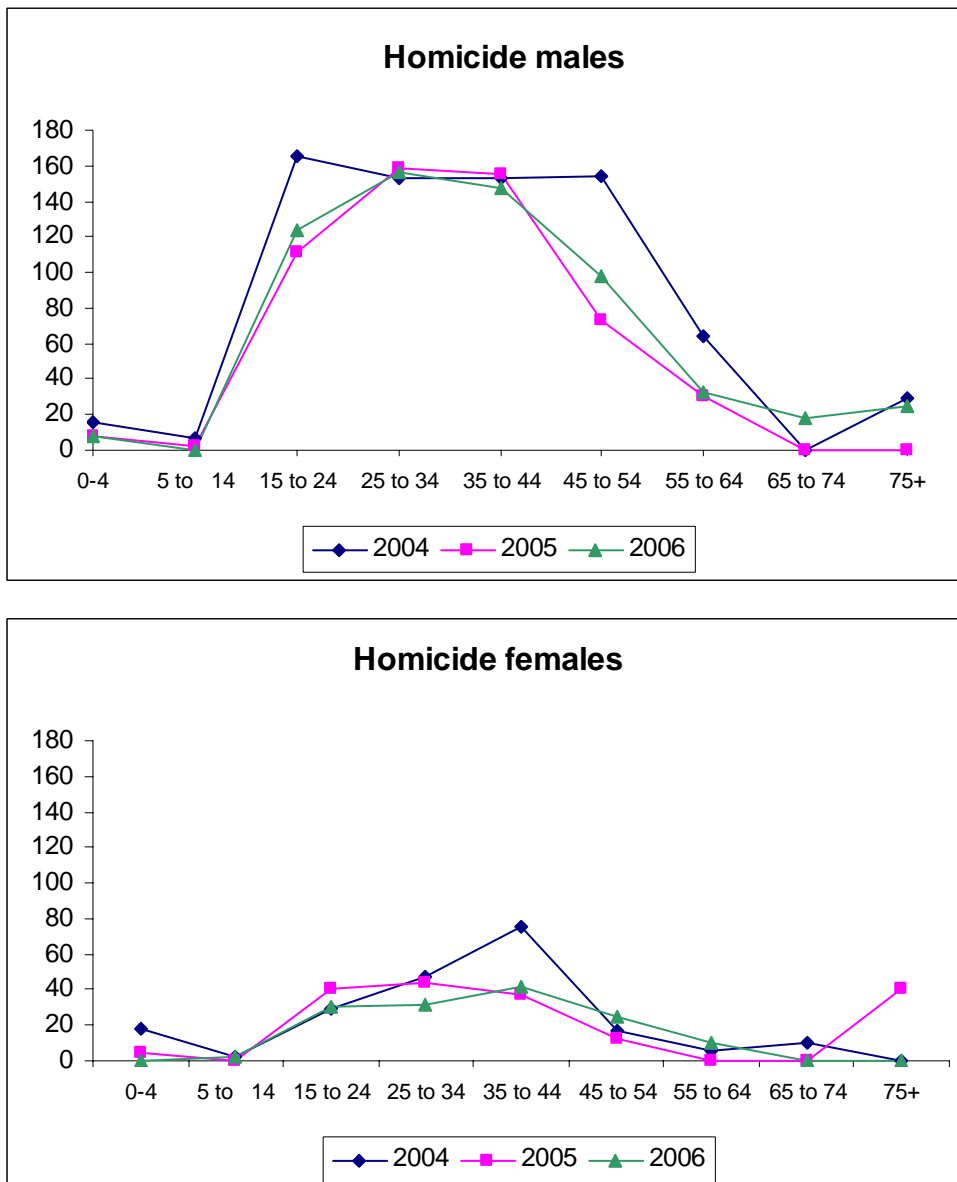


Figure 10: Age specific homicide death rates by gender, Cape Winelands East and Overberg 2004 – 2006

The age standardized death rates due to road traffic accidents decreased slightly from 36.9 to 34.1 per 100 000, in the Cape Winelands and Overberg between 2004 and 2005, and again to

31.7 per 100 000 in 2006. There are slight variations in age standardized death rates due to road traffic accidents between sub-districts with the highest rates in Swellendam and Stellenbosch, see Figure 11. However, these rates are based upon small numbers and should be treated with caution. Road traffic accidents rank fourth in the leading causes of death.

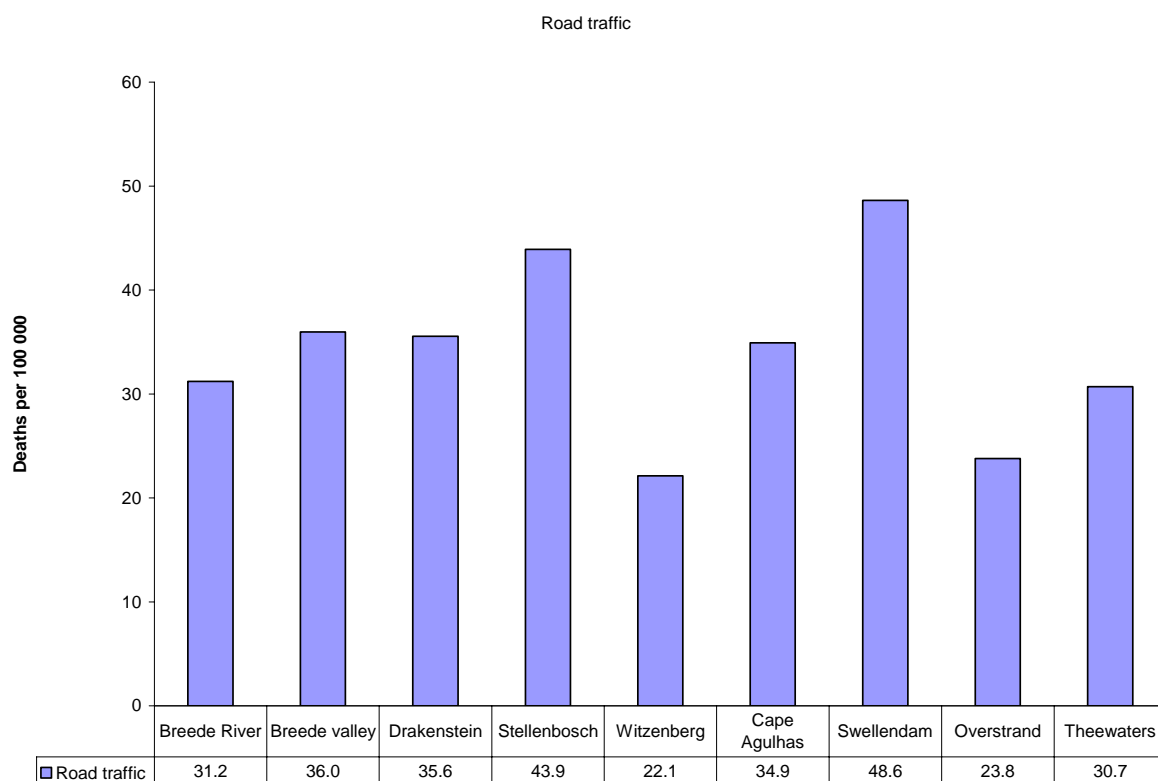
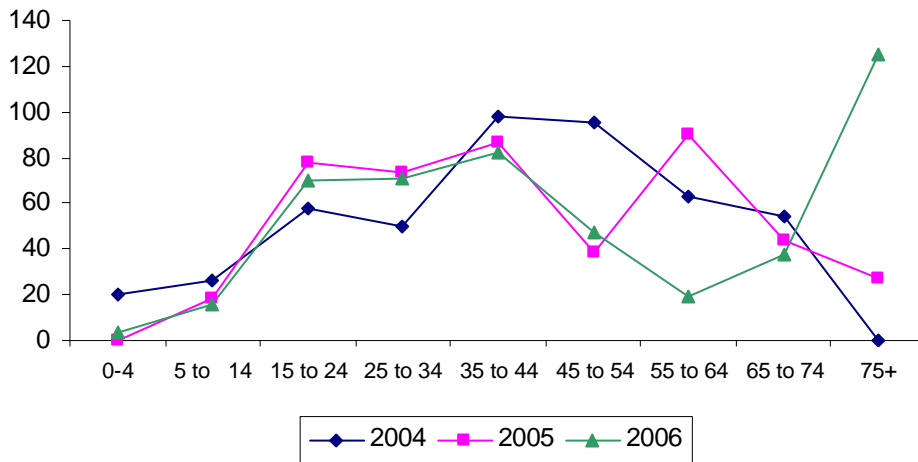


Figure 11: Age standardized death rates due to road traffic accidents by sub-district, Cape Winelands and Overberg 2006

The age specific road traffic death rates by gender are set out in Figure 12. Again the rates for males are more than double those for females.

Road traffic males



Road traffic females

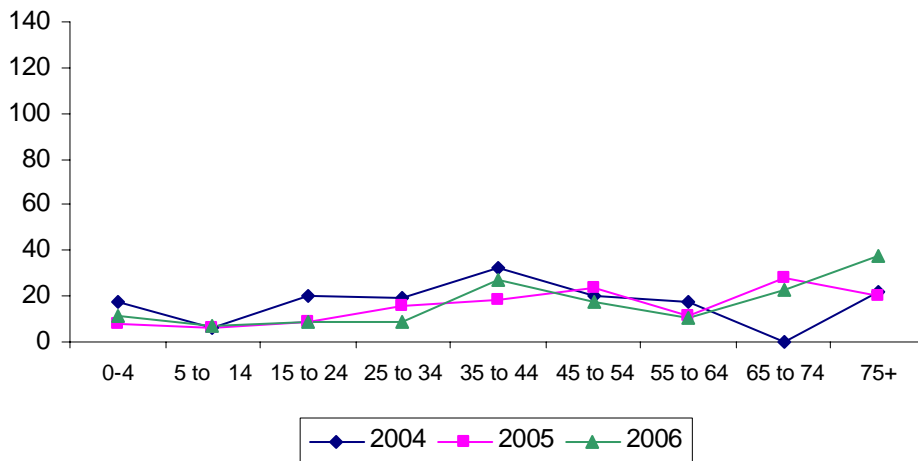


Figure 12: Age specific road traffic accident death rates by gender, Cape Winelands East and Overberg 2004 – 2006

Non communicable diseases

Non- communicable diseases account for a large proportion (55%) of deaths in the Cape Winelands and Overberg districts with cardiovascular conditions accounting for the majority of these. The age standardized death rates for non communicable diseases by sub-district for 2006, are shown in Figure 13. However, these are based upon small numbers and should be interpreted with caution. It is not clear why the rates for Overstrand are so much lower than the other sub-districts. This may partly be due to the racial composition of the sub-district which has the highest proportion of whites (35.6%) of all the sub-districts. Witzenberg has the lowest proportion of whites (9%). In general, whites in South Africa have higher socio-economic status and better access to specialist health care than other population groups. However, it must be pointed out that Overstrand also has the highest proportion of Africans, the population group with historically the lowest socio-economic status and access to health care. We suspect that data is missing for Theewaterskloof so these rates should be interpreted with caution. Overall the rates for non communicable diseases are similar to those found in Cape Town. However, whilst cardiovascular and cancer mortality rates are similar, diabetes mortality rates are lower than in Cape Town and mortality due to respiratory conditions is higher.

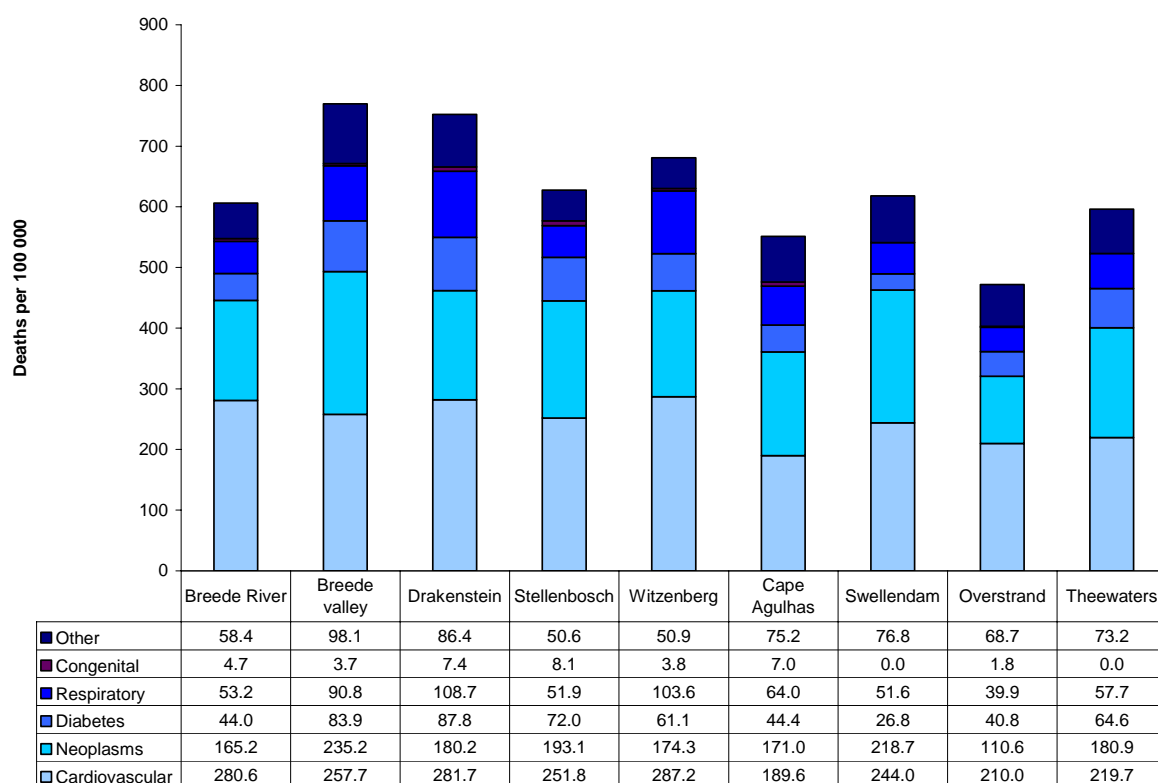


Figure 13: Age standardized cause of death rates for non communicable diseases by district, Cape Winelands and Overberg 2006

Women’s health

Non communicable diseases account for about half of the premature mortality in adult women (15+ years) with stroke (7%), IHD (4%) and diabetes (6%) accounting for about 17%, Figure 14. HIV is the largest single cause of premature mortality amongst adult women accounting for 17% of deaths in this group followed by tuberculosis which accounts for 10%. Injuries account for 14% of premature mortality in this group.

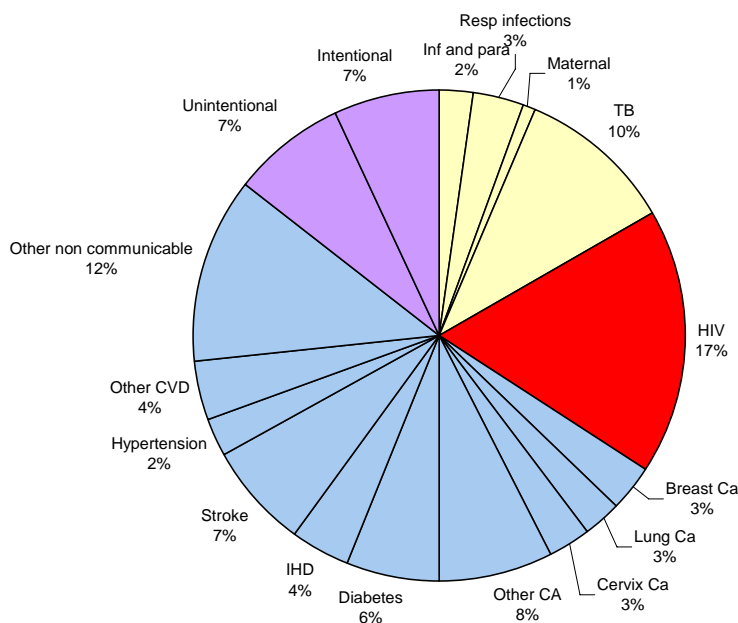


Figure14: Premature mortality cause profile for women 15+ years, Cape Winelands and Overberg 2006

Men's health

Premature mortality in men is 1.5x that of women and is dominated by injuries, see Figure 15. Homicide is the single largest cause of premature mortality in this group accounting for 16% of YLLs and road traffic 8%. Tuberculosis is the second largest cause of premature mortality in this group accounting for 13% of YLLS. COPD and IHD each account for 5% of premature mortality in this group.

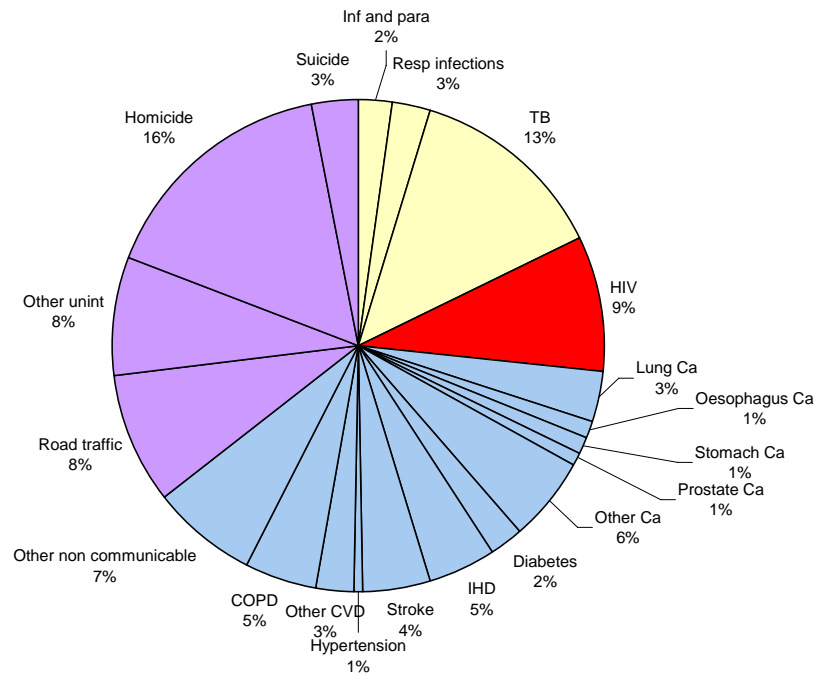


Figure 15: Premature mortality cause profile for men 15+ years, Cape Winelands and Overberg 2006

Child health

Infant mortality in the Cape Winelands and Overberg districts has remained fairly constant at around 30 infant deaths per 1000 live births since 1997, with the possibility of a slight downward trend (Figure 16). The infant and child mortality rates do, however, vary by sub-district with the highest rates found in Witzenberg in 2005 and 2006, see Figure 17. Please note that the Drakenstein and Stellenbosch data are not included in the infant and child mortality rates.

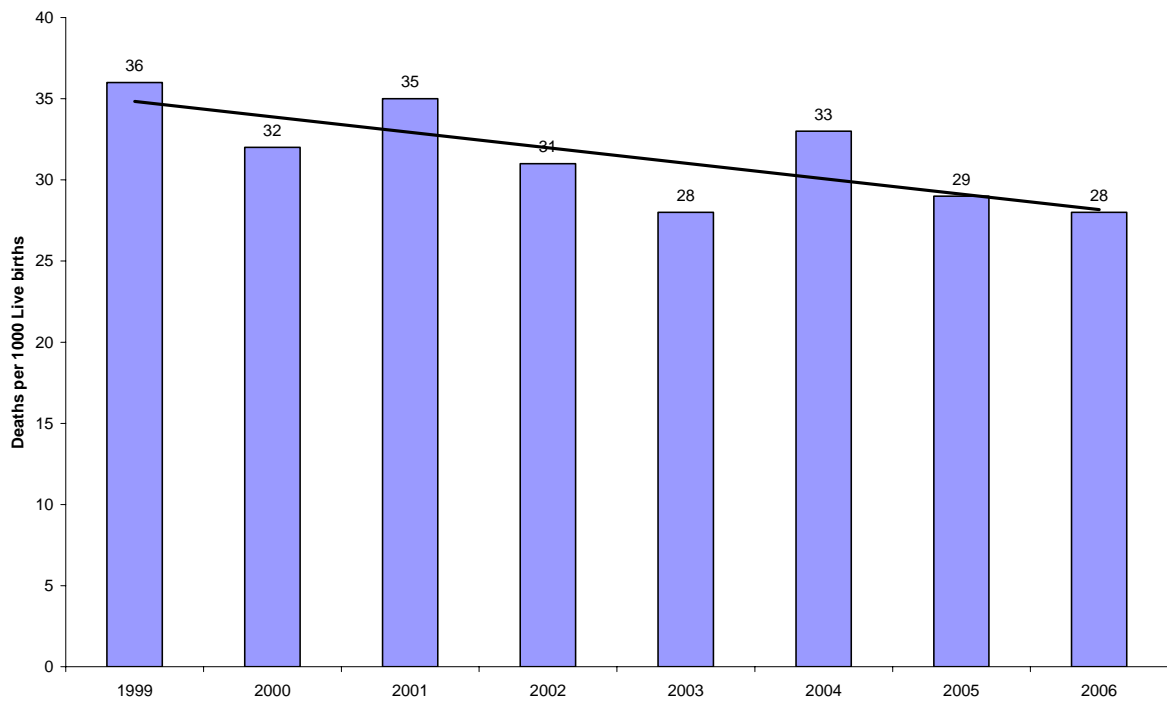


Figure 16: Infant mortality rate per 1000 live births, Cape Winelands East and Overberg 1999 until 2006

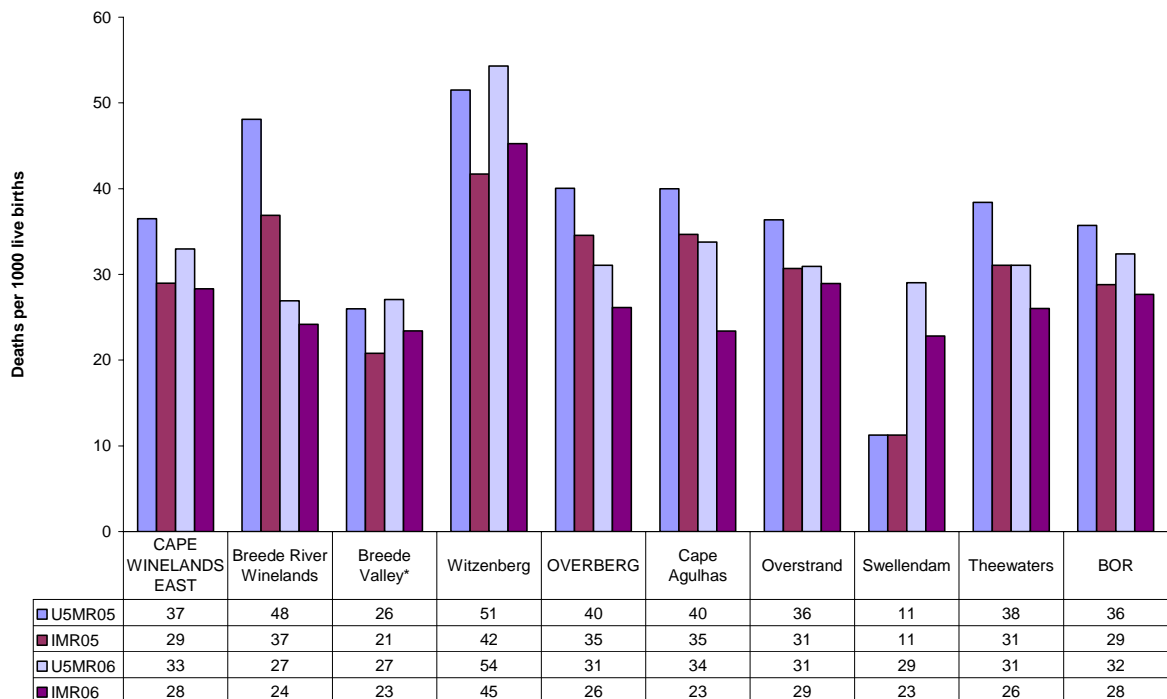


Figure 17: IMR and Under 5 mortality rate per 1000 live births by sub-district, Cape Winelands East and Overberg 2006 (excluding Stellenbosch and Drakenstein)

We are reporting on the leading causes of death in the age groups set out in Table 4 for the Cape Winelands and Overberg from 2004 until 2006 (including Drakenstein and Stellenbosch for 2006). There were 1636 deaths in under 19 year olds with the majority of these deaths occurring in post neonatal infants (1 – 11 months).

Table 4: Age distribution of deaths under 19 years, Cape Winelands and Overberg 2004 - 2006

Age group	Number of deaths	% of child deaths
Early neonatal (0 – 7 days)	291	17.8
Late neonatal (8 – 30 days)	135	8.3
Post neonatal infant (1 – 11 months)	590	36.1
1 – 4 years	222	13.6
5 – 9 years	86	5.3
10 – 14 years	93	5.7
15 – 19 years	219	13.4

The leading cause of early neonatal deaths is prematurity accounting for 46.4% of deaths in babies aged 0 to 7 days, see Figure 18. Other perinatal conditions account for 19.9% of deaths, followed by ill defined deaths which accounted for 8.4%. Deaths due to congenital abnormalities account for 7.9 % of deaths in this group.

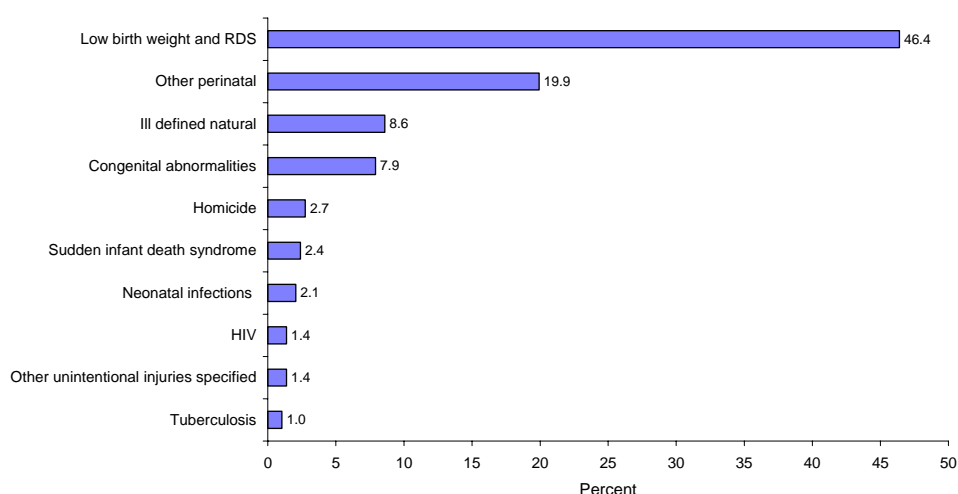


Figure 18: Leading causes of early neonatal deaths, Cape Winelands and Overberg 2004 - 2006

Prematurity and low birthweight are the leading causes of death in the late neonatal age group (8 - 30 days) accounting for 33.3% of deaths, see Figure 19. This is followed by ill defined natural deaths (11.9%), congenital abnormalities (7.4%) and other unintentional injuries specified (7.4%) and SIDS (6.7%).

In the post neonatal infants (1 – 11 months) diarrhoea is the leading cause of death accounting for 19.7% of deaths, see Figure 20. This is followed by ill defined natural (18.6%), lower respiratory infections (13.6%) and HIV/AIDS (9.7%).

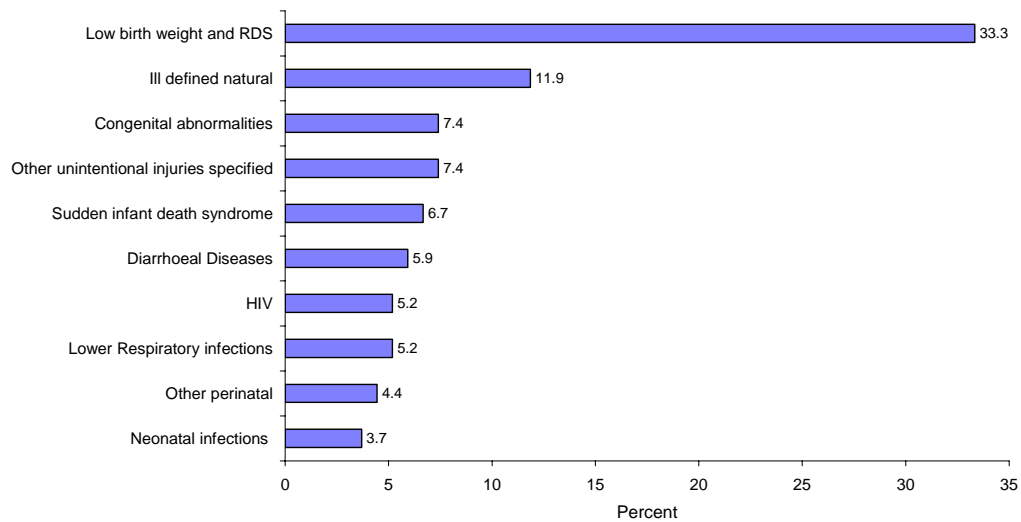


Figure 19: Leading causes of late neonatal deaths, Cape Winelands and Overberg 2004 - 2006

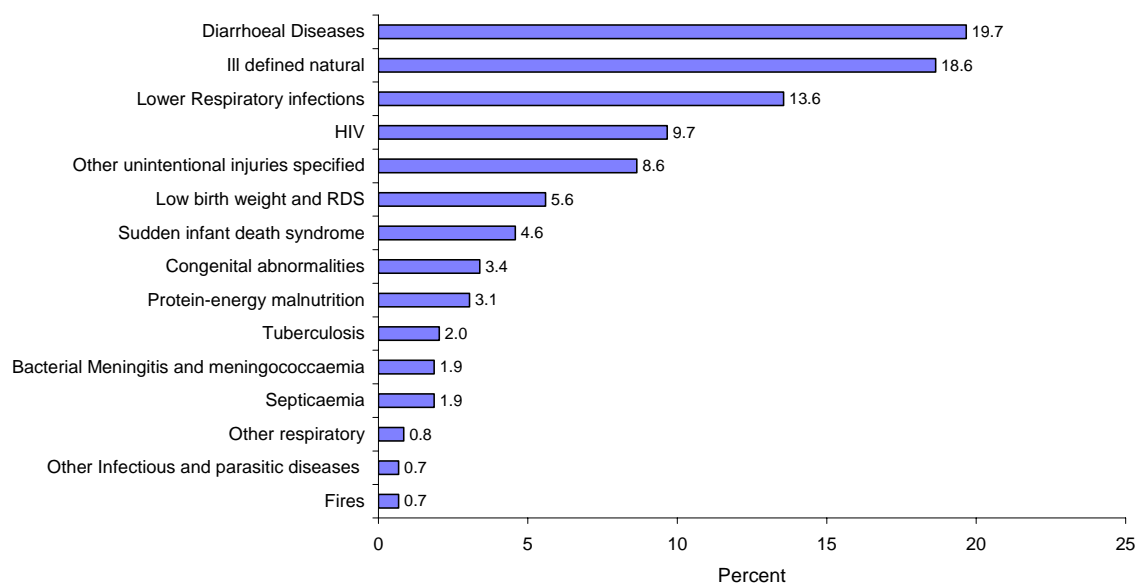


Figure 20: Leading causes of post neonatal infants, Cape Winelands and Overberg 2004 - 2006

HIV/AIDS was the leading cause of death amongst 1 – 4 year olds (13.1%), followed by drowning (11.7%), diarrhoea (11.3%), lower respiratory infections (9.9%), protein energy malnutrition (8.6%), ill defined natural (6.8%) and road traffic (6.3%), see Figure 21. Drowning is more prominent amongst boys than girls. Road traffic injuries rank 7th in this age group.

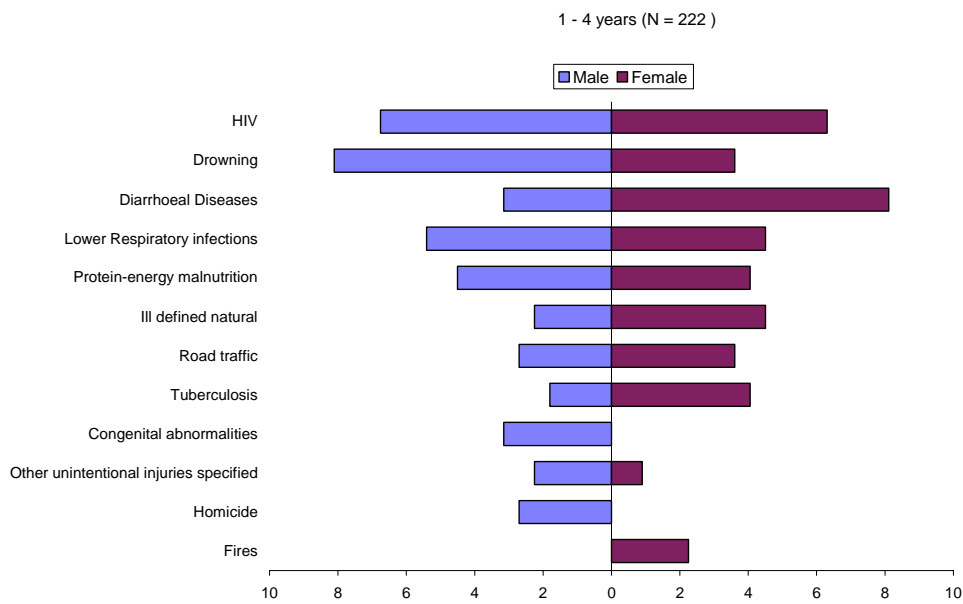


Figure 21: Leading causes of deaths in children 1 – 4 years, Cape Winelands and Overberg 2004 -2006

Road traffic injuries are the leading cause of death amongst 5 – 9 year olds accounting for 29.1% of deaths, followed by drowning (26.7%), tuberculosis (4.7%), fires (4.3%), other unintentional injuries specified (4.3%) and HIV/AIDS (3.5%), see Figure 22. Ill defined deaths account for 3.5% of deaths. Homicide accounts for 2.3% of deaths in this age group. Deaths amongst males predominate. A similar pattern is seen in the 10 – 14 year age group with road traffic accidents (24.7%) the leading cause of death followed by drowning (17.2%) and fires and homicide (6.5%), see Figure 23. Ill defined natural deaths account for only 2.2% of deaths in this group.

Like Cape Town, mortality in 15 – 19 year olds in the Cape Winelands and Overberg is dominated by homicide (31.5%) and road traffic injuries (16.9%), Figure 24. There is a marked gender differential with males accounting for almost 70% of the deaths in this age group.

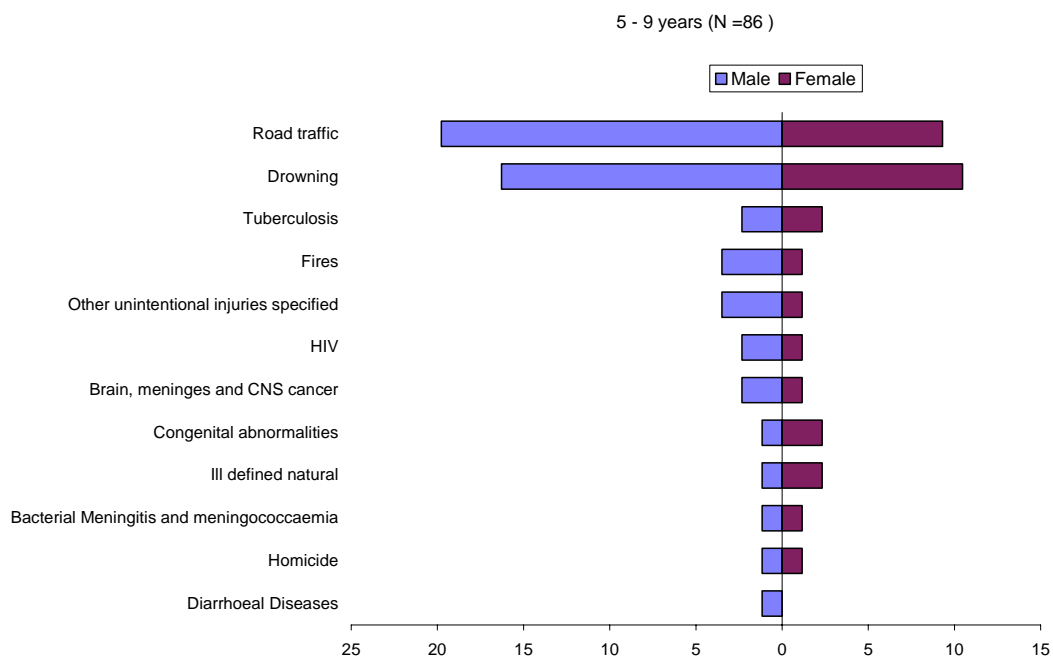


Figure 22: Leading causes of deaths in children 5-9 years, Cape Winelands and Overberg 2004 - 2006

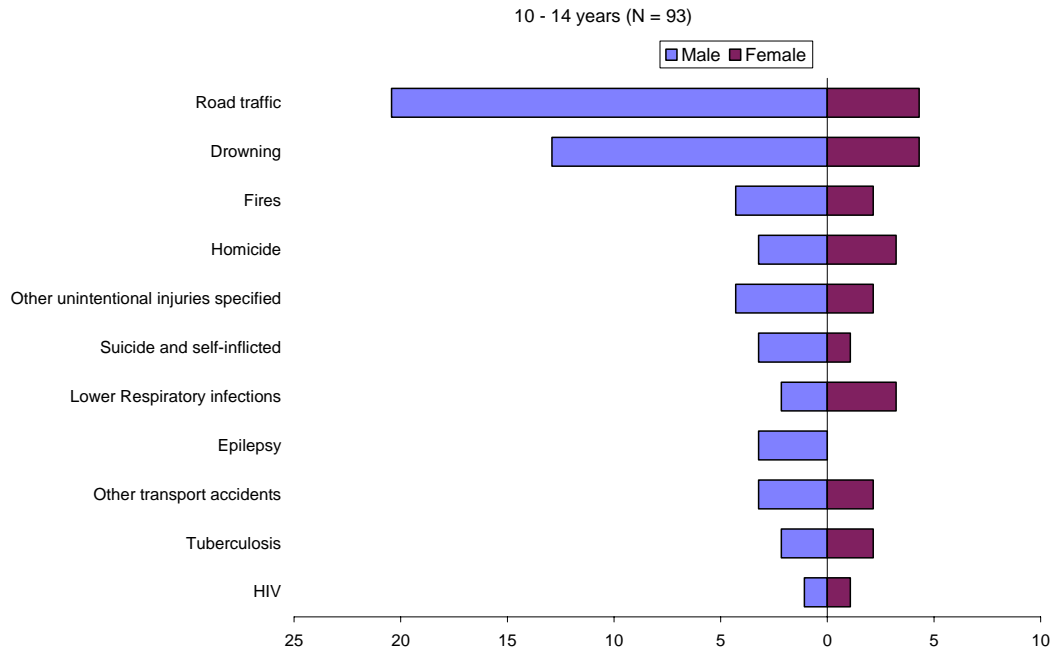


Figure 23: Leading causes of deaths in children 10-14 years, Cape Winelands and Overberg 2004 - 2006

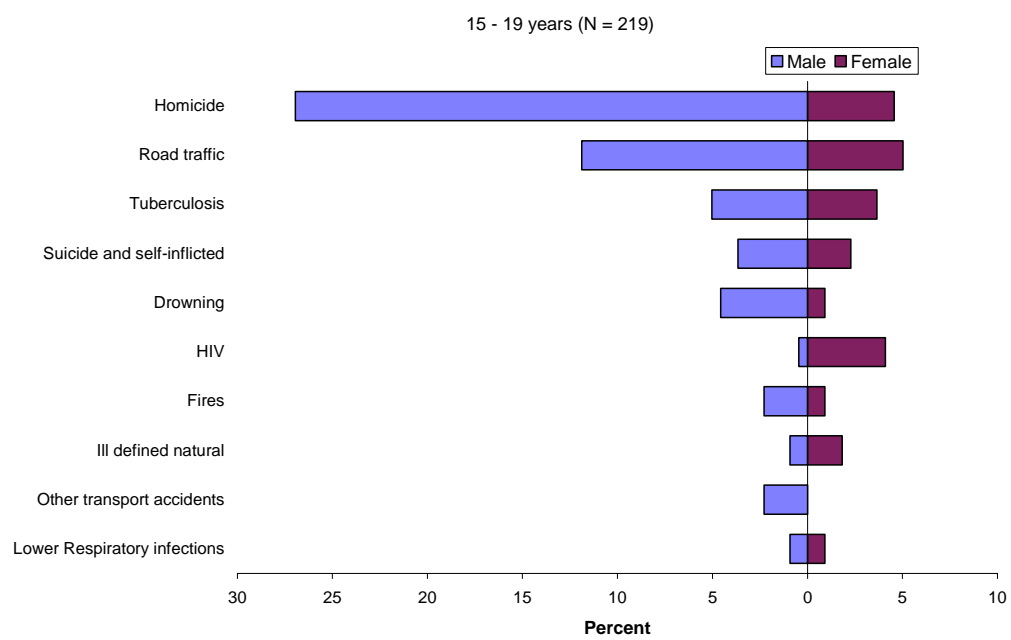


Figure 24: Leading causes of deaths in children 15 - 19 years, Cape Winelands and Overberg 2004 until 2006

Discussion

The mortality surveillance system in Cape Winelands and Overberg has been maintained and extended to include Drakenstein and Stellenbosch and continues to provide statistics that can be used to guide public health programmes in the region. The year on year variations in mortality in the region need to be interpreted cautiously, especially at sub-district level, where numbers of deaths are often small. However, the Cape Winelands and Overberg death data from 2006 confirms the patterns seen in 2004 and 2005.

- HIV/AIDS is the leading cause of mortality in the region when Drakenstein and Stellenbosch data are included. However the mortality rates appear to be stabilising,
- Tuberculosis is the leading cause of mortality in the region when Drakenstein and Stellenbosch data are excluded and ranks second when Drakenstein and Stellenbosch data are included. This highlights the tuberculosis problem in the Cape Winelands East area..
- Homicide mortality rates decreased markedly between 2004 and 2005, particularly amongst males, but unfortunately there has been a slight increase in 2006. The profile of homicide is quite different from that found in Cape Town: the use of firearms is very limited in the Cape Winelands and Overberg and homicide rates amongst females are almost double those experienced in Cape Town.
- Infant mortality has remained fairly constant in the Cape Winelands and Overberg since 1997 with the suggestion of a downward trend. However, there is marked variation between sub-districts with Witzenberg having the highest rates. Prematurity and low birth weight are the leading cause of neonatal deaths. Ill-defined deaths rank second and account for a high proportion of deaths in late neonatal and post-neonatal infants.
- Diarrhoea deaths are more prominent among young children in the Cape Winelands and Overberg than in Cape Town.
- Injuries are prominent in older children. Of great concern is the large proportion of preventable deaths due to homicide and road traffic injuries amongst 15 – 19 year olds, particularly males.

As with any routine surveillance system it is important to assess the completeness and quality of the data before drawing any conclusions from the data. We have identified certain limitations of this data, eg. incomplete data collection in the Overberg, and drawn attention to these where appropriate in the report. The proportion of causes of death that are ill-defined has remained at about 12% overall. However, there are large variations between sub-districts with Breede River Winelands (20%) and Witzenberg (17%) having the highest proportion of ill-defined deaths indicating where training in death certification should be focused. No attempt has been made to validate the accuracy of the certified cause of death. When comparing this data with national data it is important to know that coding practices differ and this may give rise to slightly different results.

Recommendations

The local mortality surveillance system is providing mortality information for the region. However, in order to ensure the sustainability, improve the quality of the data collected and ensure that the results are optimally utilised, integration with other systems such as Home Affairs, the mortuaries, South African Police Services, the Departments of Transport and Education must be improved. Interventions must be planned, implemented, monitored and evaluated multi sectorally. Demographic estimates for the region need to be revised and updated if needed. Indications from the recent Community Survey conducted by Stats SA in 2007 suggest that the population estimates for all health regions in the Western Cape may be understated. There is an urgent need for government to develop a consistent series of population estimates that can be used for monitoring public health at district level.

Approximately 40% of all premature mortality is due to homicide, tuberculosis, HIV/AIDS and road traffic accidents, all of which are preventable through a comprehensive primary health care approach which emphasizes promotive and preventative strategies, uses intersectoral collaboration effectively and seeks to promote equity.

- Tuberculosis control must be prioritized within the regional Health Department, particularly in Witzenberg. Since effective tuberculosis control requires intersectoral interventions aimed at reducing poverty and improving living conditions, the housing

department, department of agriculture and the department of social security and poverty alleviation have an important role to play.

- The HIV/AIDS programme needs to be strengthened simultaneously, particularly in Witzenberg.
- Intersectoral strategies are urgently required to prevent violence and homicide and road traffic accidents. As one of the leading causes of premature mortality in the Cape Winelands and Overberg districts, homicide should be prioritized as a health need. The pattern of the distribution of homicides should inform the allocation of resources to crime prevention programmes. The underlying socio-economic instability of the high incidence areas can only be addressed by a committed intersectoral approach. The problem of homicide highlights the need for a range of provincial and local authority departments including Safety and Security, Sports and Recreation, Education and Housing to work together in committed partnerships. Another suggestion is for the health department to take the initiative and notify all cases of assault presenting at medical facilities to a social worker or police officer who could discuss follow up and counsel the perpetrators and their victims and families , with a view to providing training in non-violent conflict resolution strategies.
- Primary care for the management of non-communicable diseases should be strengthened and healthy lifestyles must be promoted in order to reduce the substantial burden of non-communicable diseases.
- Antenatal and perinatal care need to be strengthened.

Appendix 1: Population estimates for persons in the Cape Winelands and Overberg Districts, 2004

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	1656	2854	3383	1845	1716	475	943	562	1828
01-04	7063	12173	14426	7869	7318	1894	3753	2237	7279
05-09	8672	14813	18778	10378	8731	2517	4023	2797	8492
10-14	7890	13835	18208	9741	8190	2438	3546	2507	7552
15-19	6707	13799	18709	12006	7507	2044	3608	2112	7233
20-24	6568	13181	18265	16253	8209	1683	4794	2027	8201
25-29	6742	12621	17003	10705	8662	1739	4666	2200	8559
30-34	6708	11911	16553	9429	7933	2038	4190	2199	8295
35-39	5392	9842	13548	7392	6127	1719	3115	1842	6462
40-44	4872	9065	11999	6652	5306	1720	2781	1665	5649
45-49	4092	7753	10122	5960	4477	1447	2549	1412	4598
50-54	3311	6034	7846	4871	3529	1161	2363	1132	3555
55-59	2795	4679	6326	4048	2715	1101	2599	954	2665
60-64	2574	3897	5347	3431	2213	1093	2764	851	2228
65-69	1942	2946	3885	2422	1554	875	2316	711	1584
70-74	1349	1931	2448	1508	1069	598	1599	512	975
75-79	848	1030	1420	845	572	327	914	268	567
80-84	294	429	527	342	229	140	328	110	222
85+	294	429	527	342	229	140	328	110	222
Total	79768	143222	189320	116038	86286	25148	51179	26208	86166

Appendix 2: Population estimates for males in the Cape Winelands and Overberg Districts, 2004

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	838	1424	1718	931	880	242	474	284	925
01-04	3573	6073	7322	3970	3752	965	1887	1131	3681
05-09	4323	7465	9482	5234	4443	1281	1979	1447	4283
10-14	3952	6884	9112	4931	4096	1198	1785	1250	3800
15-19	3229	7038	9402	5675	3688	1011	1777	1061	3566
20-24	3154	6672	9313	7883	4219	796	2323	1007	4227
25-29	3335	6495	8702	5433	4541	827	2358	1067	4527
30-34	3360	6138	8413	4749	4091	962	2034	1056	4464
35-39	2696	4948	6767	3701	3159	770	1523	903	3410
40-44	2353	4470	5881	3253	2686	781	1354	781	2897
45-49	2006	3725	4856	2879	2223	702	1201	678	2264
50-54	1591	2833	3733	2429	1786	546	1097	536	1791
55-59	1314	2226	2949	1900	1330	519	1099	459	1382
60-64	1287	1859	2512	1709	1139	512	1312	410	1144
65-69	945	1367	1930	1254	828	406	1151	357	808
70-74	686	941	1172	748	514	309	780	264	449
75-79	413	422	652	392	263	140	440	114	249
80-84	123	171	191	123	89	45	128	43	91
85+	123	171	191	123	89	45	128	43	91
Total	39300	71321	94298	57317	43816	12057	24829	12891	44048

Appendix 3: Population estimates for females in the Cape Winelands and Overberg Districts, 2004

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	818	1430	1665	914	836	233	469	278	903
01-04	3490	6100	7104	3899	3566	929	1866	1106	3598
05-09	4349	7348	9296	5144	4288	1236	2044	1350	4209
10-14	3938	6951	9096	4810	4094	1240	1761	1257	3752
15-19	3478	6761	9307	6331	3819	1033	1831	1051	3667
20-24	3414	6509	8952	8370	3990	887	2471	1020	3974
25-29	3407	6126	8301	5272	4121	912	2308	1133	4032
30-34	3348	5773	8140	4680	3842	1076	2156	1143	3831
35-39	2696	4894	6781	3691	2968	949	1592	939	3052
40-44	2519	4595	6118	3399	2620	939	1427	884	2752
45-49	2086	4028	5266	3081	2254	745	1348	734	2334
50-54	1720	3201	4113	2442	1743	615	1266	596	1764
55-59	1481	2453	3377	2148	1385	582	1500	495	1283
60-64	1287	2038	2835	1722	1074	581	1452	441	1084
65-69	997	1579	1955	1168	726	469	1165	354	776
70-74	663	990	1276	760	555	289	819	248	526
75-79	435	608	768	453	309	187	474	154	318
80-84	171	259	336	219	140	95	201	67	132
85+	171	259	336	219	140	95	201	67	132
Total	40468	71901	95022	58721	42470	13091	26350	13317	42118

Appendix4: Population estimates for persons in the Cape Winelands and Overberg District, 2005

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	1629	2809	3328	1816	1688	488	969	577	1877
01-04	7076	12197	14454	7884	7331	1948	3861	2302	7489
05-09	8807	15044	19070	10539	8867	2599	4152	2888	8767
10-14	8044	14103	18559	9931	8349	2525	3672	2598	7821
15-19	6894	14185	19233	12341	7717	2117	3735	2186	7488
20-24	6682	13410	18583	16537	8351	1722	4905	2075	8391
25-29	6786	12707	17118	10778	8721	1749	4696	2213	8615
30-34	6781	12043	16734	9531	8021	2097	4314	2264	8545
35-39	5578	10182	14013	7646	6338	1786	3238	1916	6716
40-44	4931	9175	12144	6732	5370	1755	2837	1699	5765
45-49	4216	7989	10428	6140	4612	1508	2654	1469	4787
50-54	3425	6242	8115	5038	3650	1196	2435	1166	3660
55-59	2893	4840	6546	4188	2809	1130	2669	980	2735
60-64	2718	4118	5651	3624	2336	1143	2888	889	2325
65-69	2039	3095	4080	2543	1631	911	2409	739	1647
70-74	1460	2088	2648	1631	1156	647	1732	554	1056
75-79	903	1095	1513	901	609	348	972	285	603
80-84	322	470	578	374	251	153	359	121	244
85+	322	470	578	374	251	153	359	121	244
Total	81506	146262	193373	118548	88058	25974	52856	27041	88774

Appendix 5: Population estimates for males in the Cape Winelands and Overberg Districts, 2005

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	822	1398	1685	914	863	248	486	291	947
01-04	3580	6085	7337	3978	3759	993	1941	1164	3788
05-09	4397	7593	9644	5323	4519	1325	2046	1496	4428
10-14	4033	7022	9294	5030	4178	1241	1850	1296	3938
15-19	3325	7246	9681	5842	3798	1049	1842	1100	3697
20-24	3202	6775	9457	8005	4284	813	2372	1029	4317
25-29	3362	6549	8774	5478	4578	833	2376	1075	4563
30-34	3415	6238	8550	4826	4158	995	2106	1093	4621
35-39	2791	5123	7005	3831	3270	801	1584	940	3547
40-44	2387	4535	5967	3300	2725	799	1384	799	2963
45-49	2054	3814	4970	2947	2276	727	1242	701	2342
50-54	1640	2921	3848	2504	1842	560	1127	550	1838
55-59	1354	2293	3038	1957	1370	530	1123	470	1413
60-64	1343	1940	2622	1784	1189	529	1354	423	1180
65-69	986	1427	2015	1309	864	420	1190	369	835
70-74	742	1018	1268	809	556	334	845	286	486
75-79	446	456	706	424	284	152	475	123	269
80-84	136	188	211	136	98	50	141	48	100
85+	136	188	211	136	98	50	141	48	100
Total	40150	72809	96283	58533	44709	12448	25624	13300	45372

Appendix 6: Population estimates for females in the Cape Winelands and Overberg Districts, 2005

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	807	1411	1643	902	825	240	483	286	930
01-04	3496	6112	7117	3906	3572	955	1920	1138	3701
05-09	4410	7451	9426	5216	4348	1274	2106	1392	4339
10-14	4011	7081	9265	4901	4171	1284	1822	1302	3883
15-19	3569	6939	9552	6499	3919	1068	1893	1086	3791
20-24	3480	6635	9126	8532	4067	909	2533	1046	4074
25-29	3424	6158	8344	5300	4143	916	2320	1138	4052
30-34	3366	5805	8184	4705	3863	1102	2208	1171	3924
35-39	2787	5059	7008	3815	3068	985	1654	976	3169
40-44	2544	4640	6177	3432	2645	956	1453	900	2802
45-49	2162	4175	5458	3193	2336	781	1412	768	2445
50-54	1785	3321	4267	2534	1808	636	1308	616	1822
55-59	1539	2547	3508	2231	1439	600	1546	510	1322
60-64	1375	2178	3029	1840	1147	614	1534	466	1145
65-69	1053	1668	2065	1234	767	491	1219	370	812
70-74	718	1070	1380	822	600	313	887	268	570
75-79	457	639	807	477	325	196	497	162	334
80-84	187	282	367	238	153	103	219	73	144
85+	187	282	367	238	153	103	219	73	144
Total	41356	73453	97090	60015	43349	13526	27232	13741	43402

Appendix 7: Population estimates for persons in the Cape Winelands and Overberg Districts, 2006

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	1596	2750	3259	1777	1653	501	992	591	1924
01-04	7123	12275	14546	7934	7380	2014	3992	2378	7739
05-09	9020	15408	19532	10794	9082	2705	4324	3007	9127
10-14	8236	14440	19001	10166	8548	2627	3819	2702	8136
15-19	7088	14589	19778	12690	7935	2192	3868	2262	7757
20-24	6871	13788	19105	17003	8586	1782	5074	2145	8678
25-29	6861	12848	17308	10896	8817	1767	4744	2236	8703
30-34	6711	11921	16564	9434	7940	2112	4347	2281	8617
35-39	5707	10417	14337	7822	6484	1835	3327	1968	6901
40-44	4802	8935	11827	6557	5231	1721	2785	1666	5659
45-49	4271	8094	10567	6222	4672	1544	2719	1506	4904
50-54	3552	6474	8417	5224	3784	1235	2515	1205	3780
55-59	2988	4999	6761	4326	2901	1158	2736	1004	2802
60-64	2860	4335	5950	3813	2457	1190	3009	926	2420
65-69	2136	3242	4273	2663	1708	946	2500	767	1710
70-74	1583	2266	2872	1770	1255	703	1882	603	1147
75-79	970	1172	1622	965	653	372	1042	304	645
80-84	358	522	642	415	279	169	398	134	270
85+	358	522	642	415	279	169	398	134	270
Total	83090	148996	197002	120886	89643	26741	54470	27818	91188

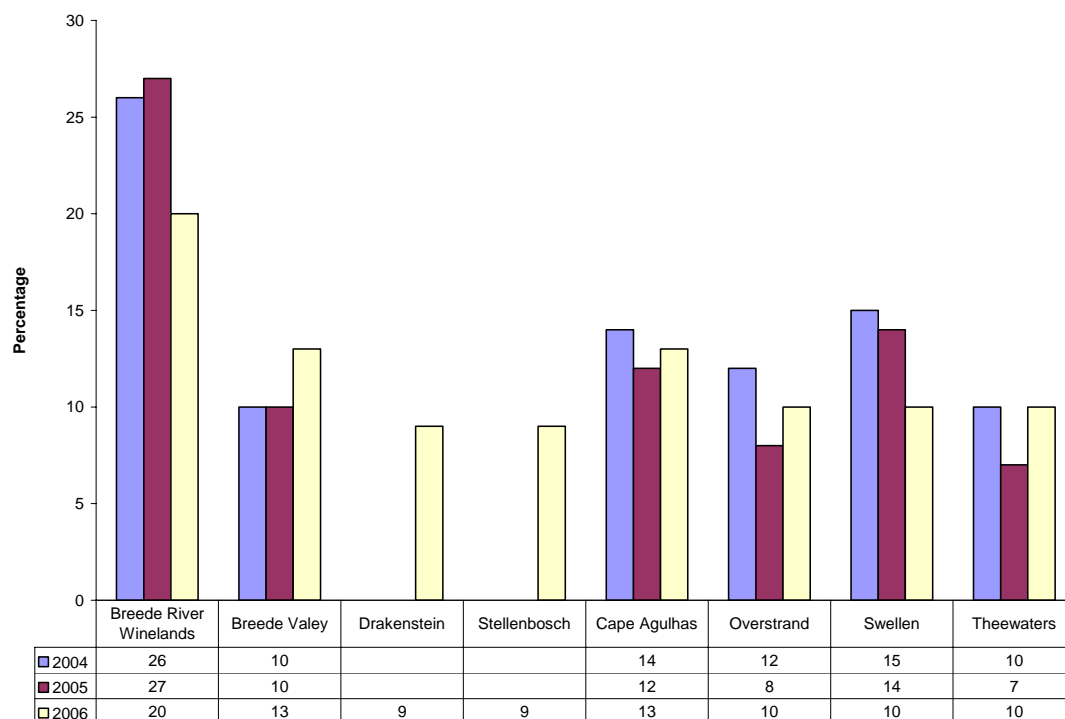
Appendix 8: Population estimates for males in the Cape Winelands and Overberg Districts, 2006

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	803	1365	1646	892	843	254	496	297	968
01-04	3603	6124	7384	4003	3784	1027	2007	1202	3914
05-09	4510	7788	9892	5460	4635	1381	2134	1560	4617
10-14	4132	7194	9521	5153	4281	1293	1925	1349	4100
15-19	3422	7459	9965	6013	3909	1086	1910	1140	3833
20-24	3288	6956	9709	8218	4398	840	2450	1062	4458
25-29	3401	6625	8876	5541	4631	842	2402	1087	4612
30-34	3404	6218	8523	4811	4145	1010	2138	1109	4691
35-39	2858	5246	7173	3923	3348	824	1629	966	3648
40-44	2332	4430	5829	3224	2662	786	1363	786	2917
45-49	2068	3839	5004	2967	2291	740	1264	714	2384
50-54	1693	3015	3973	2585	1901	576	1158	566	1890
55-59	1392	2357	3123	2012	1409	541	1145	479	1441
60-64	1395	2015	2723	1853	1235	543	1392	435	1213
65-69	1027	1486	2098	1364	900	433	1228	381	862
70-74	805	1105	1376	878	604	363	918	311	528
75-79	486	496	768	461	309	165	516	133	292
80-84	152	210	236	152	110	55	157	53	112
85+	152	210	236	152	110	55	157	53	112
Total	40922	74138	98055	59662	45504	12814	26388	13683	46591

Appendix 9: Population estimates for females in the Cape Winelands and Overberg Districts, 2006

Age group	Breede River/Winelands	Breede Valley	Drakenstein	Stellenbosch	Witzenberg	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof
<1	793	1385	1613	885	810	247	496	294	956
01-04	3520	6151	7162	3931	3596	987	1985	1176	3825
05-09	4510	7620	9640	5334	4447	1324	2190	1447	4510
10-14	4104	7246	9480	5013	4267	1334	1894	1353	4036
15-19	3666	7130	9813	6677	4026	1106	1958	1122	3924
20-24	3583	6832	9396	8785	4188	942	2624	1083	4220
25-29	3460	6223	8432	5355	4186	925	2342	1149	4091
30-34	3307	5703	8041	4623	3795	1102	2209	1172	3926
35-39	2849	5171	7164	3899	3136	1011	1698	1002	3253
40-44	2470	4505	5998	3333	2569	935	1422	880	2742
45-49	2203	4255	5563	3255	2381	804	1455	792	2520
50-54	1859	3459	4444	2639	1883	659	1357	639	1890
55-59	1596	2642	3638	2314	1492	617	1591	525	1361
60-64	1465	2320	3227	1960	1222	647	1617	491	1207
65-69	1109	1756	2175	1299	808	513	1272	386	848
70-74	778	1161	1496	892	651	340	964	292	619
75-79	484	676	854	504	344	207	526	171	353
80-84	206	312	406	263	169	114	241	81	158
85+	206	312	406	263	169	114	241	81	158
Total	42168	74858	98947	61224	44139	13927	28082	14135	44597

Appendix 10: Proportion of deaths due to ill-defined causes by sub-district, Cape Winelands and Overberg 2004 until 2006.



Appendix 11: Comparison of the numbers of deaths in the Cape Winelands and Overberg Districts with different sources

Year	Registered by Home Affairs	CW and OVB death surveillance	% of Home Affairs
2004	4162	4231	101.9%
2005	4176	4303	103.0%
2006*			

* Unable to estimate this as deaths from Paarl Home Affairs include deaths from the Cape Town metropole and the Boland and these cannot be separated in the Home Affairs data.

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