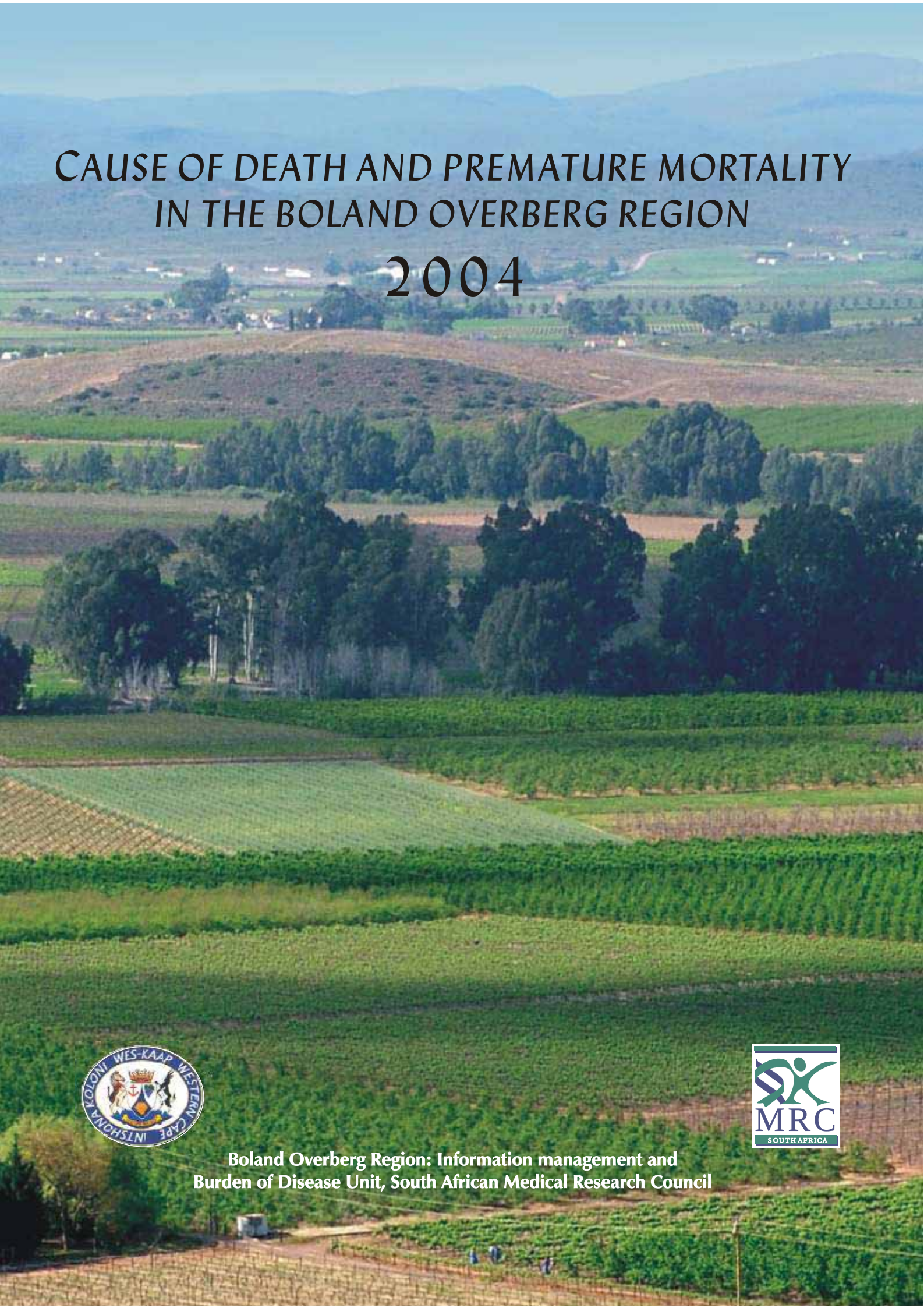
CAUSE OF DEATH AND PREMATURE MORTALITY IN THE BOLAND OVERBERG REGION

2004



Boland Overberg Region: Information management and
Burden of Disease Unit, South African Medical Research Council

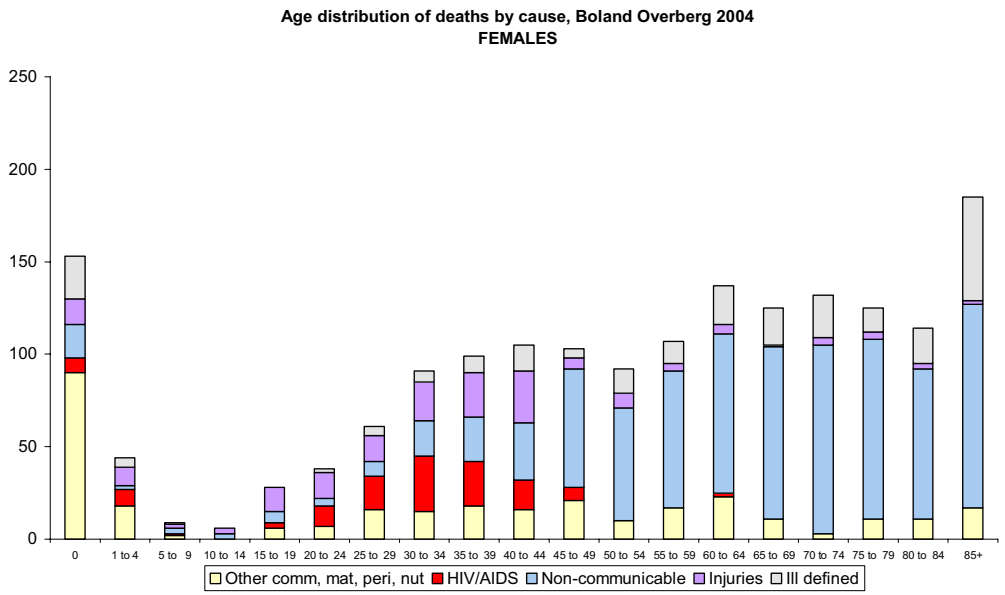
Cause of death information is essential for planning health services and identifying major health problems. The Boland Overberg region implemented a system for collecting such information from the Department of Home Affairs and local mortuaries in January 2004, using a similar system that is used in Cape Town. The key findings from the analysis of the cause of death statistics for 2004 are presented in this report.

The 2004 data have been analysed using the burden of disease classification[1] which includes three main groups: Group I (pre-transitional or poverty related causes) include communicable diseases including HIV, maternal causes, perinatal conditions and nutritional deficiencies; Group II (non-communicable causes such as heart disease and cancers) and Group III (injuries). Since HIV accounts for a large burden in South Africa this has been grouped separately. The premature mortality (years of life lost) and age standardized death rates for the Boland Overberg Region and it's 7 constituent municipalities are compared.

The findings show that the majority of deaths (46%) are due to non-communicable diseases, with pre-transitional causes accounting for 24% and injuries for 18%. Deaths due to ill-defined causes account for 13%. This may arise when a doctor does not have access to the full medical records or scope to conduct an autopsy or for other reasons. Ideally this proportion should be less than 5%. In order to assist the interpretation of the cause of death profile, the ill-defined deaths have been proportionately allocated to the specified natural causes in each age and sex category.

Boland has a larger proportion of deaths due to pre-transitional causes (17%) than Overberg (12%) and a lower proportion due to non-communicable diseases (42% vs 52%). This can be explained largely by the difference in age structure between the districts. Boland has a young population typical of a developing country which is more likely to be affected by the pre-transitional causes of death than Overberg with its ageing population, which is more likely to be affected by diseases related to lifestyle.

The age pattern of the deaths for the Boland Overberg 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 due to injuries. HIV/AIDS accounts for a large proportion of deaths in young women. The older age deaths are mostly due to non-communicable causes.



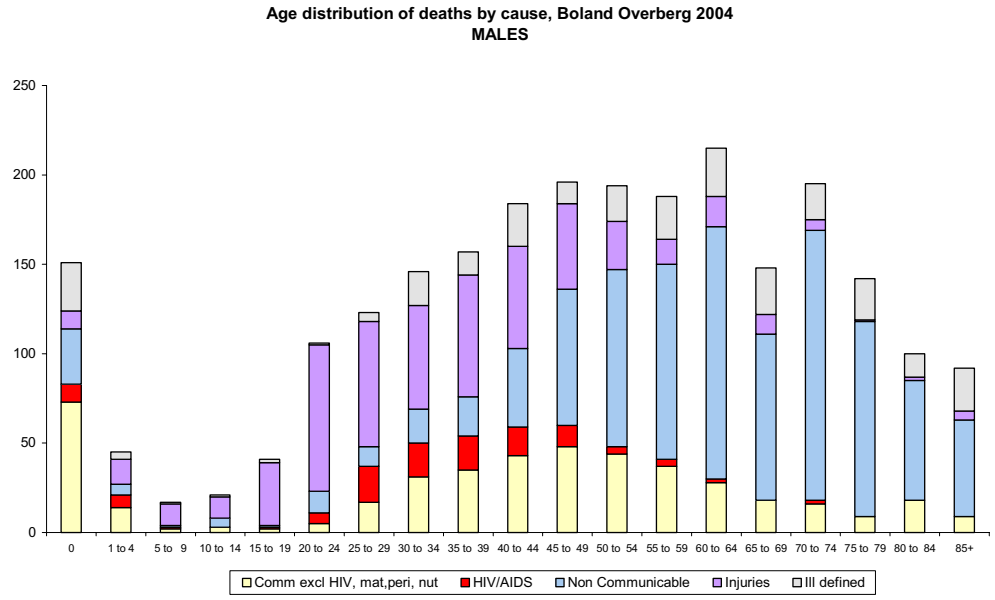
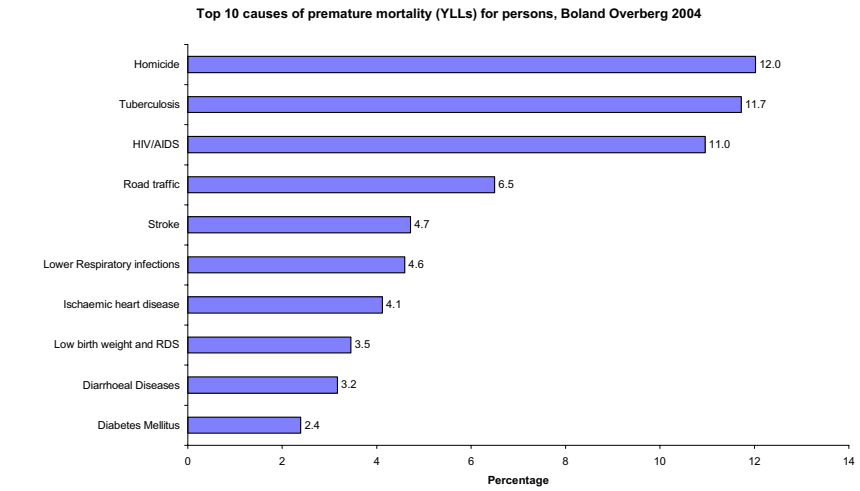
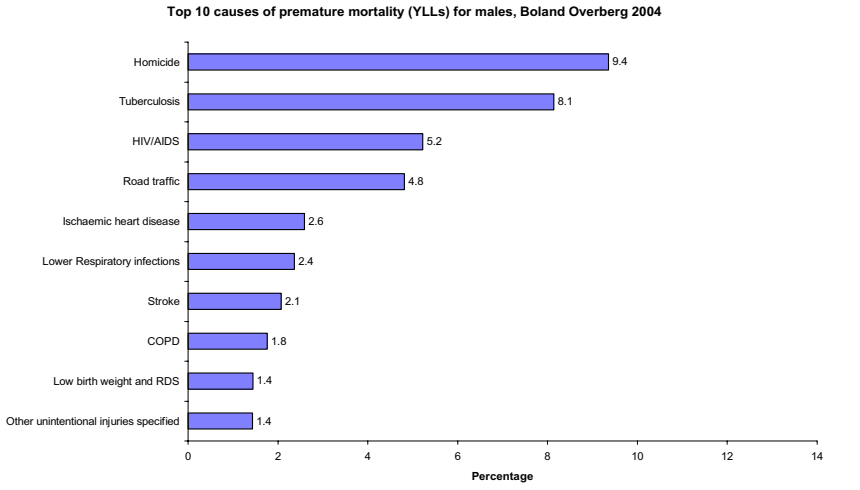


Figure 1: Age distribution of deaths by cause group and gender, Boland Overberg 2004

Figure 2 shows the top causes of premature mortality based upon the number of years of life lost. The top cause of premature mortality in the Boland Overberg is homicide followed by tuberculosis, HIV/AIDS, road traffic accidents and stroke. Males and females have different cause of death profiles. Homicide, tuberculosis, HIV/AIDS and road traffic accidents are the top causes of premature mortality amongst males. HIV/AIDS is the most common cause of premature mortality among women followed by tuberculosis, homicide and stroke.





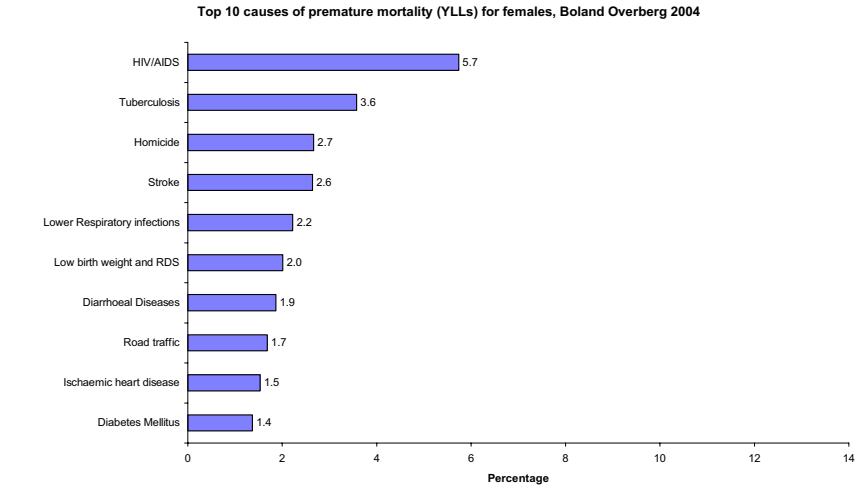


Figure 2: Top causes* of premature mortality (YLLs), Boland Overberg 2004
*** Ill-defined causes have been allocated proportionately to specified natural causes by age and sex**

There are marked differences in the age standardized premature mortality rates and cause of death profile across municipalities in the region. Breede Valley, Theewaterskloof and Witzenberg have the highest premature mortality rates and Overstrand the lowest, see Figure 3.

We suspect that some deaths, particularly natural deaths, are missing from Overstrand which may partly account for this, see conclusions and recommendations.

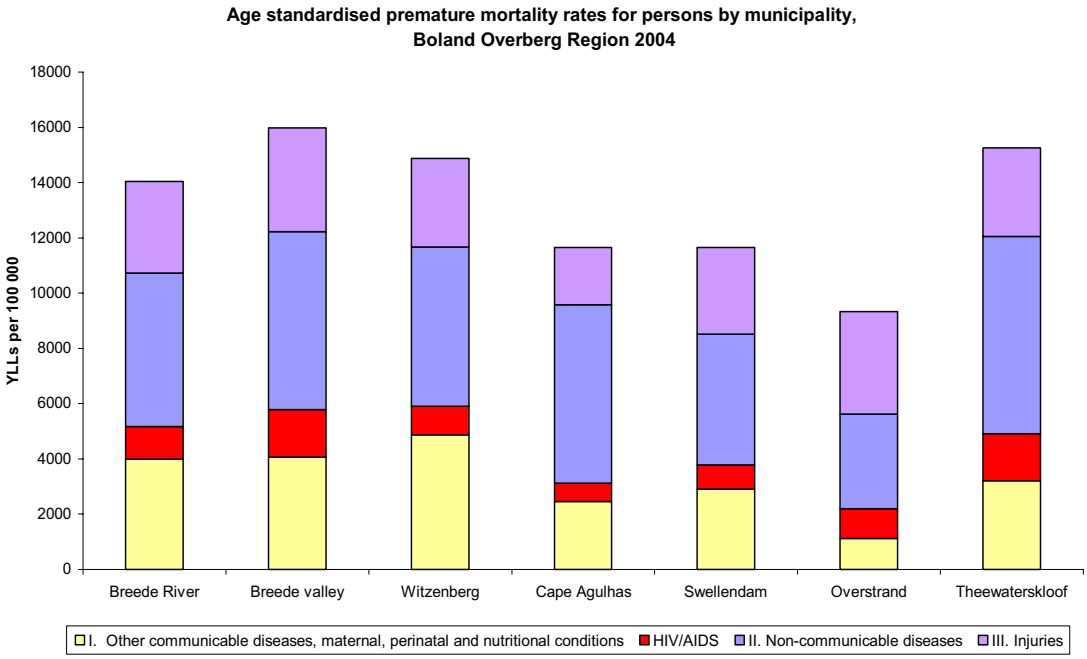


Figure 3. Age standardized premature mortality rates* (YLLs per 100 000) for persons by municipality, Boland Overberg 2004

*** Ill-defined causes have been allocated proportionately to specified natural causes by age and sex**

The age standardized death rates due to pre-transitional causes are highest in Witzenberg and Breede Valley followed by Breede River Winelands and Theewaterskloof (Figure 4). The top causes of premature mortality for each local municipality are shown in Table 1.

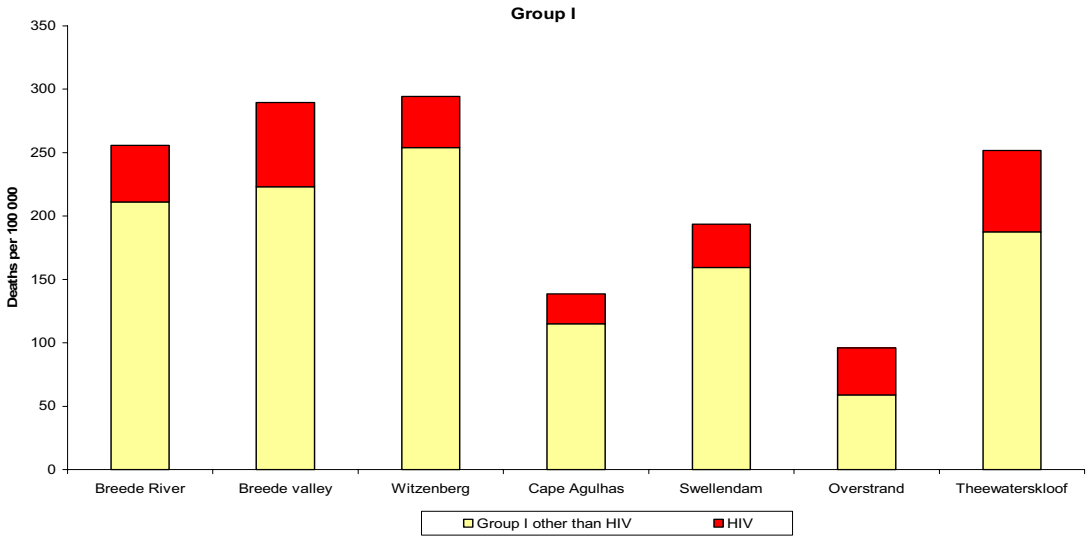


Figure 4: Age standardized death rates (per 100 000) for persons due to pre-transitional causes and HIV by municipality, Boland Overberg 2004

The death rates due to tuberculosis however are highest in Breede Valley followed by Witzenberg. The death rates due to HIV are highest in Breede Valley and Theewaterskloof (Figure 5).

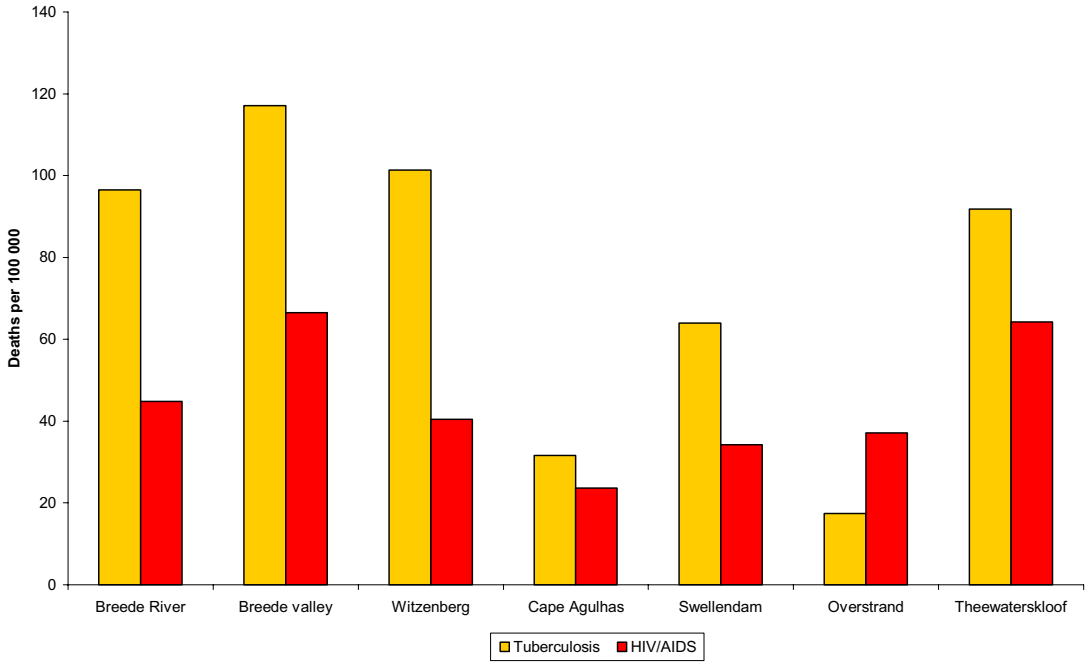


Figure 5: Age standardized death rates (per 100 000) for persons due to TB and HIV/AIDS by municipality in the Boland Overberg 2004

The death rates due to non-communicable diseases are highest in Theewaterskloof and mainly due to cardiovascular diseases and neoplasms, see Figure 6. Injury death rates are highest in Breede Valley and comprise mainly homicide and road traffic accidents, Figure 7. The death rate due to injuries in Overstrand is consistent with the other municipalities. Homicide affects males more than women. Men aged 15 to 54 years are particularly vulnerable, Figure 8. The majority of homicides involved blunt or sharp objects with a very small proportion involving firearms.

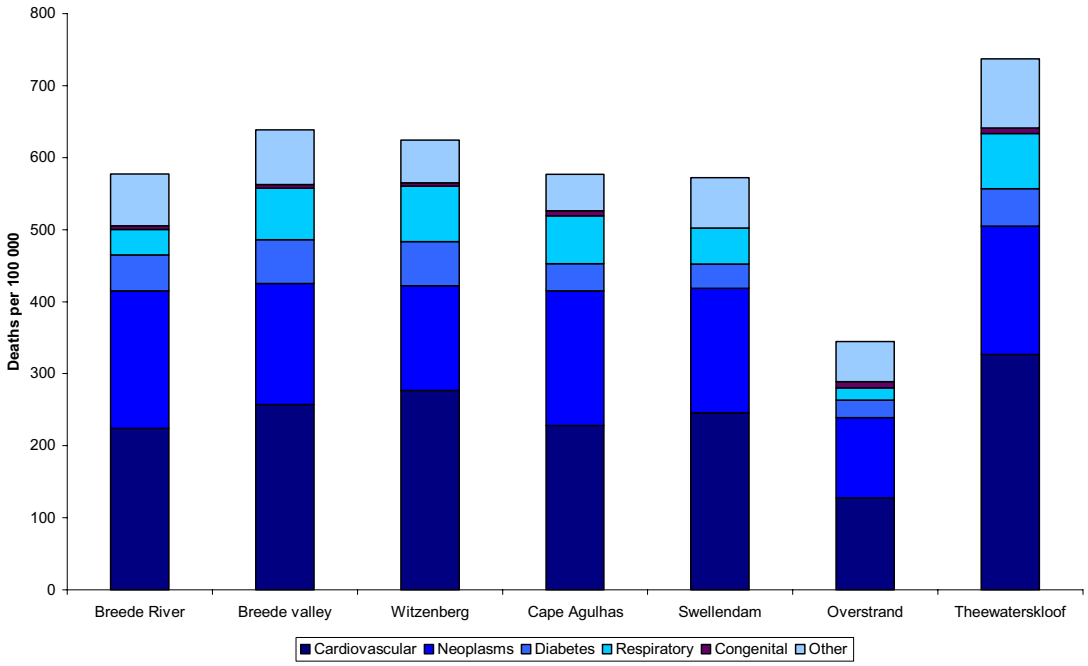


Figure 6: Age standardized death rates (per 100 000) due to non-communicable diseases in the local municipalities of the Boland Overberg, 2004

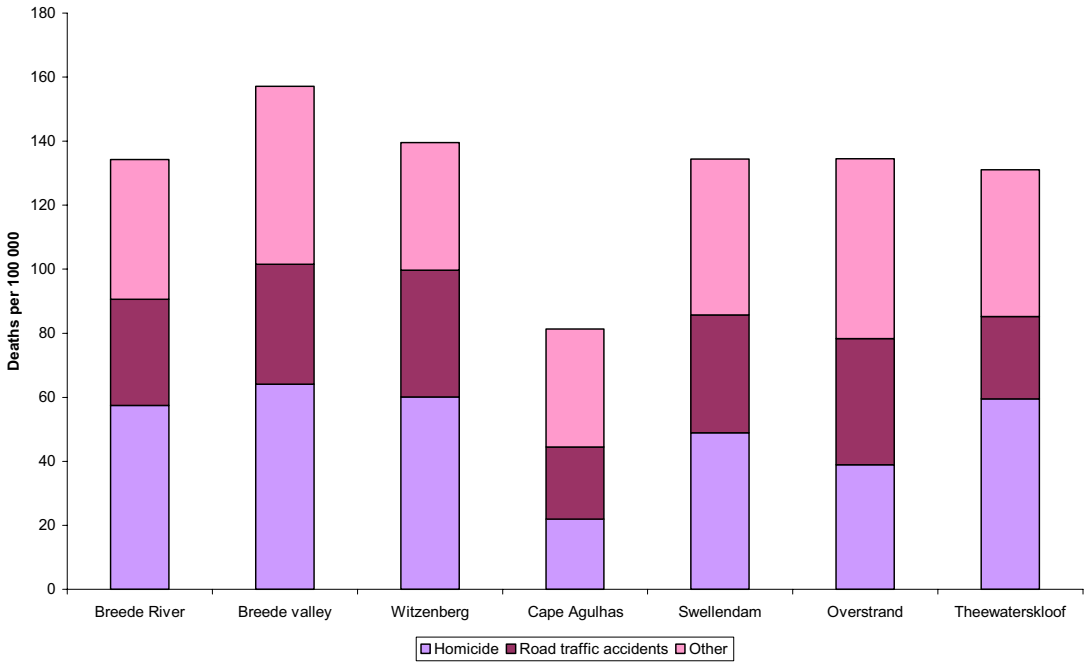


Figure 7: Age standardized death rates (per 100 000) due to injuries for persons in the municipalities of the Boland Overberg 2004

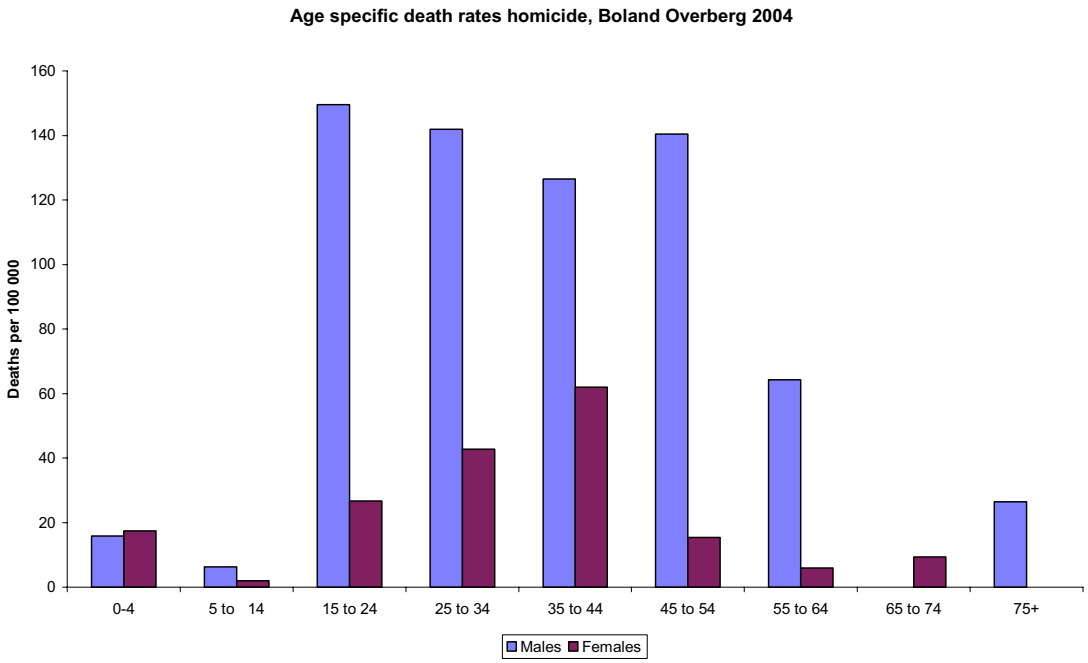


Figure 8: Age specific death rates (per 100 000) due to homicide for males and females in the municipalities of the Boland Overberg 2004

Table 1: Top 10 causes of premature mortality*(YLLs) for Boland Overberg and local municipalities for persons , 2004

Rank	BOLAND	Breede River	Breede Valley	Witzenberg	OVERBERG	Cape Agulhas	Overstrand	Swellendam	Theewaterskloof	BOLAND OVERBERG
1	Tuberculosis (13.8%)	Tuberculosis (12.5%)	Tuberculosis (13.4%)	Tuberculosis (15.4%)	Homicide (11.7%)	Homicide (6.1%)	Homicide (12%)	Homicide (10.6%)	HIV/AIDS (13.7%)	Homicide (12.0%)
2	Homicide (12.1%)	Homicide (10.9%)	Homicide (13%)	Homicide (12.2%)	HIV/AIDS (11.6%)	Road traffic (5.9%)	HIV/AIDS (11.7%)	Tuberculosis (10.3%)	Homicide (13.1%)	Tuberculosis (11.7%)
3	HIV/AIDS (10.5%)	HIV/AIDS (9.4%)	HIV/AIDS (12.5%)	HIV/AIDS (8.4%)	Tuberculosis (8.2%)	Tuberculosis (5.8%)	Road traffic (11.3%)	Road traffic (9.5%)	Tuberculosis (10.1%)	HIV/AIDS (11.0%)
4	Road traffic (6.4%)	Low birth weight (6.7%)	Road traffic (6.3%)	Pneumonia (7.7%)	Road traffic (6.7%)	HIV/AIDS (5.7%)	Ischaemic heart disease (7.0%)	HIV/AIDS (8.4%)	Ischaemic heart disease (5.9%)	Road traffic (6.5%)
5	Stroke (4.8%)	Road traffic (6.7%)	Stroke (4.8%)	Road traffic (6.6%)	Ischaemic heart disease (5.8%)	COPD (5.5%)	Suicide (4.7%)	Pneumonia (7.9%)	Stroke (5.5%)	Pneumonia (4.6%)
6	Pneumonia (4.8%)	Stroke (5.9%)	Diarrhoea (4.5%)	Stroke (4.3%)	Stroke (4.3%)	Stroke (5.1%)	Fires (4.6%)	Ischaemic heart disease (4.8%)	Road traffic (4.3%)	Stroke (4.6%)
7	Diarrhoea (3.9%)	Pneumonia (4.3%)	Ischaemic heart disease (3.5%)	Low birth weight (3.7%)	Pneumonia (4.3%)	Low birth weight (4.9%)	Pneumonia (3.9%)	COPD (4.7%)	Pneumonia (4.1%)	Ischaemic heart disease (4.1%)
8	Low birth weight (3.6%)	Ischaemic heart disease (3.3%)	Pneumonia (3.2%)	Diarrhoea (3.6%)	Low birth weight (3.2%)	Ischaemic heart disease (4.6%)	Tuberculosis (3%)	Stroke (4.6%)	Low birth weight (3.6%)	Low birth weight (3.5%)
9	Ischaemic heart disease (3.2%)	Diarrhoea (3.2%)	COPD (3.0%)	Ischaemic heart disease (2.6%)	Diabetes Mellitus (2.8%)	Lung cancer (4.5%)	Drowning (2.9%)	Low birth weight (3.1%)	Cot death (3.2%)	Diarrhoea (3.2%)
10	COPD (2.2%)	Lung cancer (2.9%)	Diabetes mellitus (2..3%)	Malnutrition (2.3%)	Suicide (2.7%)	Diabetes mellitus (4.2%)	Diabetes mellitus (2.5%)	Stomach cancer (2.2%)	Suicide (2.7%)	Diabetes mellitus (2.4%)

*** Ill-defined causes have been allocated proportionately to specified natural causes by age and sex**

Discussion

The Boland Overberg has established a system for compiling death statistics in order to provide information for public health management in the region. This is a major step in identifying the priority areas that need to addressed by the health sector in the region.

Data quality issues need to be addressed:

- While the completeness of the data appears reasonable for the Boland, we suspect that the data for the Overberg is less complete. Thirty percent of the deaths from the mortuary register at Hermanus mortuary were not picked up by the surveillance system utilizing the Department of Home Affairs. It is not clear whether this was due to these deaths not being registered at Home Affairs or a failure of our surveillance system. This suggests that deaths due to natural causes in this area may be under-represented in these statistics. This situation needs further investigation with the South Africa police services and Department of Home Affairs.
- In addition, the proportion of deaths where the cause was stated as 'natural causes', with no further information provided, is high. Discussions around this issue with the local doctors highlighted their concerns with regard to
    - maintaining the confidentiality of cause of death information, particularly with regard to HIV/AIDS, en route to the Department of Home Affairs. Strategies to maintain the confidentiality of the cause of death information on the death certificate need to be developed and tested in conjunction with the Department of Home Affairs and implemented in the region, to enable an improvement in the quality of death certification.
    - certification of a death where no medical records are available to the certifying doctor and there is poor access to diagnostic autopsies in the region. The region needs to consider strategies for improving access to diagnostic autopsies.
- Currently, there is no routine system for validating the certified cause of death for adults. However, a validation system using verbal autopsies and medical record reviews is being implemented for a sample of child deaths in the Boland, by the South African Tuberculosis Vaccine Initiative. This will provide valuable information on the quality of death certification for children in the area. The feasibility of validating deaths certified as due to tuberculosis with the electronic tuberculosis register is being investigated, although in many of these cases HIV/AIDS could be the underlying cause.

It is probably reasonable to assume that deaths due to HIV/AIDS are underestimated as many doctors would rather certify a death as being due to the immediate cause of death e.g. tuberculosis rather than HIV/AIDS for the reasons mentioned above. Deaths due to injuries (particularly in the Overberg) are likely to be overestimated in this data as the surveillance system ensures that the majority of unnatural deaths are captured and we are less sure about the completeness of deaths due to natural causes. Despite the limitations with regard to the Boland Overberg death data in terms of completeness and quality, this is the first report which serves to inform programme managers and decision makers on

the major causes of premature mortality experienced in the region. This is important to guide efforts to reduce premature mortality.

The data shows that the Boland Overberg is experiencing a quadruple burden of disease with variation between local municipalities. Tuberculosis death rates are extremely high, particularly in the Breede Valley (117 per 100 000). It is however likely, that the underlying cause in some of the tuberculosis deaths may be due to HIV. Homicide rates are high, particularly in the Boland (61 per 100 000) although not as high as was found in Cape Town in 2001 (70 per 100 000) [2].

When compared with Cape Town 2003, the Western Cape 2000 and South Africa 2000 the age standardized all cause death rate for the Boland Overberg 2004 (959 deaths per 100 000) is slightly higher than for Cape Town 2003 (903 per 100 000) (unpublished data), but lower than for the Western Cape and South Africa see Figure 9. Estimates of the age standardized death rates for the Western Cape[3] and South Africa[4] for 2000 have been adjusted for incomplete death registration whereas those for Cape Town and Boland Overberg have not. It is clear that the age standardized death rates for the poverty related conditions (with the exception of HIV/AIDS) and injuries are higher in the Boland Overberg than in Cape Town whilst the death rates due to non communicable diseases and HIV/AIDS are higher in Cape Town.

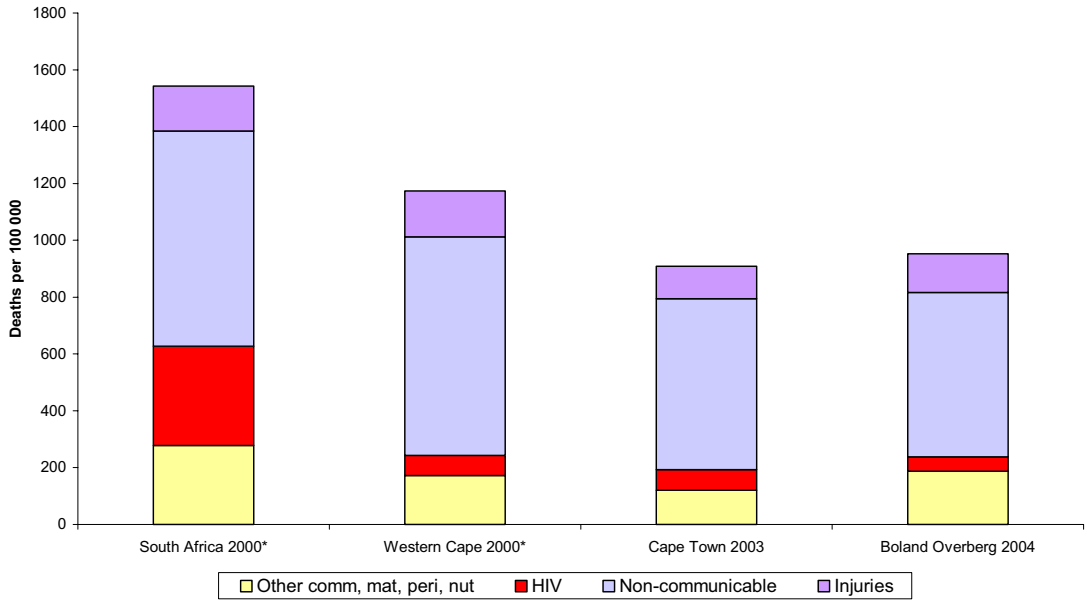


Figure 9: Age standardized death rates* by cause group for Boland Overberg 2004, Cape Town Metropole 2003, Western Cape 2000 and South Africa 2000.

* Death rates for Western Cape and South Africa have been adjusted for under-registration of deaths

The top four causes of premature mortality are, however, the same for Cape Town 2001 and the Boland Overberg, although there are slight differences in the rankings. Homicide ranks top for both but tuberculosis is ranked second in the Boland Overberg and HIV/AIDS is ranked second in Cape Town in 2001[2]. Road traffic accidents are fourth in both regions

Conclusions and recommendations

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. 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.
- Intersectoral strategies are urgently required to prevent violence and homicide and road traffic accidents. As the leading cause of premature mortality in the Boland Overberg region, 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.
- 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.

Acknowledgments
Department of Home Affairs
Department of Safety and Security
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Overberg District Municipality
Boland District Municipality
South African Tuberculosis Vaccine Initiative

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