

Cause of death

and premature mortality

IN CAPE TOWN, 2001 - 2006

Key findings



The report is a collaborative effort between the City of Cape Town, the Department of Health of the Western Cape Provincial Government, the MRC Burden of Disease Research Unit and UCT's Department of Public Health. The City of Cape Town routinely collects the detail of all deaths to identify the major health problems of the population living in the Cape Town Metro District. The Western Cape Burden of Disease Reduction Project aims to extend the mortality surveillance to all areas in the province and to provide essential information required to identify the health needs of communities, to monitor progress in the implementation of programmes and to track changes over time.

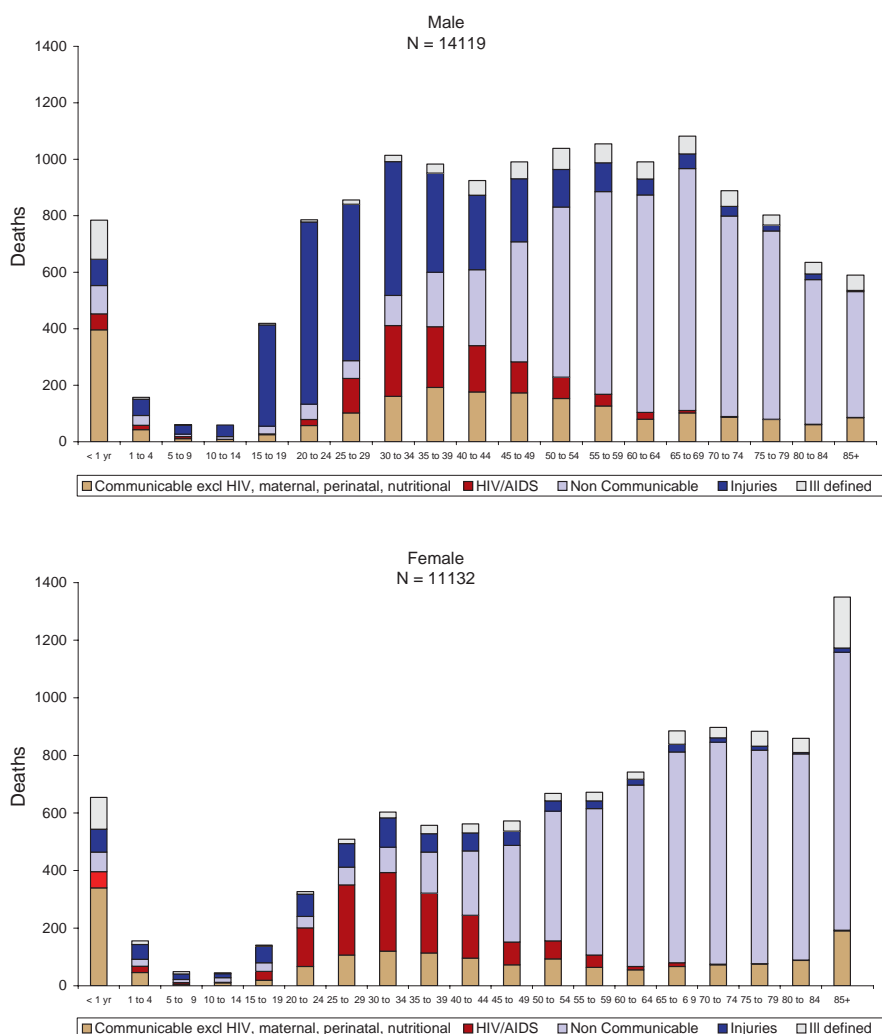
The City of Cape Town has an ongoing system of collecting cause of death statistics based on copies of death notifications collected from the local offices of the Department of Home Affairs and supplemented by information collected from the local mortuaries. The cause of death coding is done by trained clerks at the City of Cape Town who capture the data into a customized data base. Data for 2001-2006 have been analysed using the burden of disease classification.

This classification has three main groups: Group I, (pre-transitional causes) include communicable diseases, maternal causes, perinatal conditions, and nutritional deficiencies; Group II, (non-communicable causes) and Group III (injuries). Premature mortality (years of life lost) for the Cape Town Metro District and its eight health sub-districts are compared as well as age standardised death rates. Temporal trends are given for major cause groupings.

In 2006, there were 25251 deaths, of which 56% were male and 44% female. The majority of the deaths were due to non-communicable diseases (52%), with injuries and pre-transitional causes accounting for 17% and 25%, respectively. Deaths due to ill-defined natural causes accounted for 6%. This arises when a doctor does not have access to the full medical record of the deceased or scope to conduct an autopsy. Ideally, this proportion should be less than 5%.

Figure 1:
Age distribution of deaths by broad cause group and sex, Cape Town 2006

The age pattern of the deaths is shown in Figure 1. There were large differences between males and females with young adult males experiencing much larger numbers of deaths than females, mainly due to injuries. HIV/AIDS accounted for a large proportion of deaths in young women. The older age deaths were mostly due to non-communicable causes.



CAUSES OF PREMATURE MORTALITY, 2001-2006

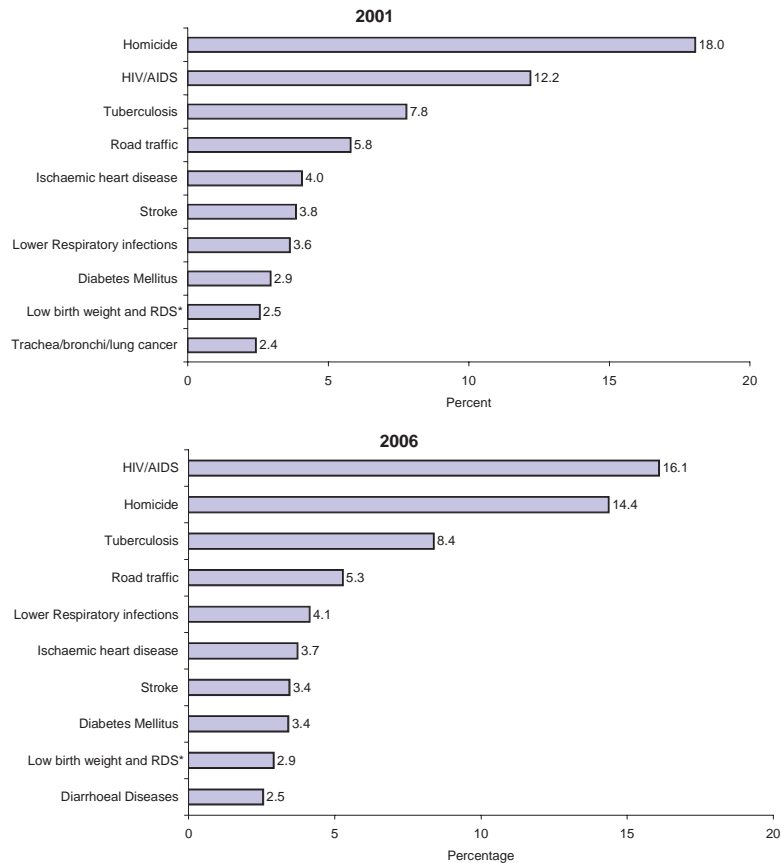


Figure 2:

Top 10 causes of premature mortality (YLLs) for persons in Cape Town, 2001 and 2006

** RDS - Respiratory distress syndrome*

Homicide was the leading cause of premature mortality in 2001, but has been overtaken by HIV/AIDS by 2006. Tuberculosis and road traffic injuries have remained the 3rd and 4th leading causes of premature mortality in the Cape Town Metro District in 2006. The range of conditions in the leading causes of premature mortality indicates a quadruple burden of disease: infectious diseases comprising TB, lower respiratory infections and diarrhoea; injuries, especially among young adults; non-communicable diseases such as stroke, ischaemic heart disease and diabetes; and the growing HIV/AIDS epidemic.

TRENDS IN MORTALITY RATES, 2001-2006

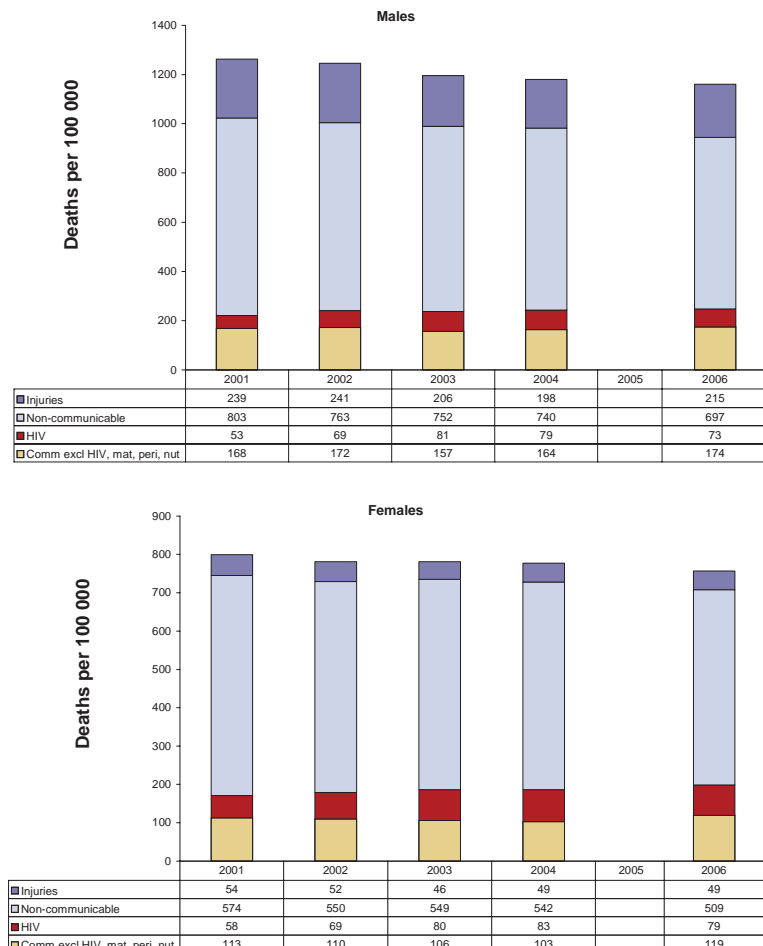


Figure 3:

Age-standardised mortality rate by broad cause group by sex for Cape Town, 2001-2006 (2005 excluded due to incomplete data)

Figure 3 shows the trend in the overall age-standardised mortality rate for males and females between 2001 and 2006. Data for 2005 were incomplete and have been excluded. Overall mortality declined slightly for both males and females over this period. Deaths due to non-communicable diseases have declined in both sexes. HIV/AIDS deaths increased and then stabilised. Injury deaths in males increased until 2002 and then decreased until 2004 but increased again in 2006.

DIFFERENCES BETWEEN SUB-DISTRICTS

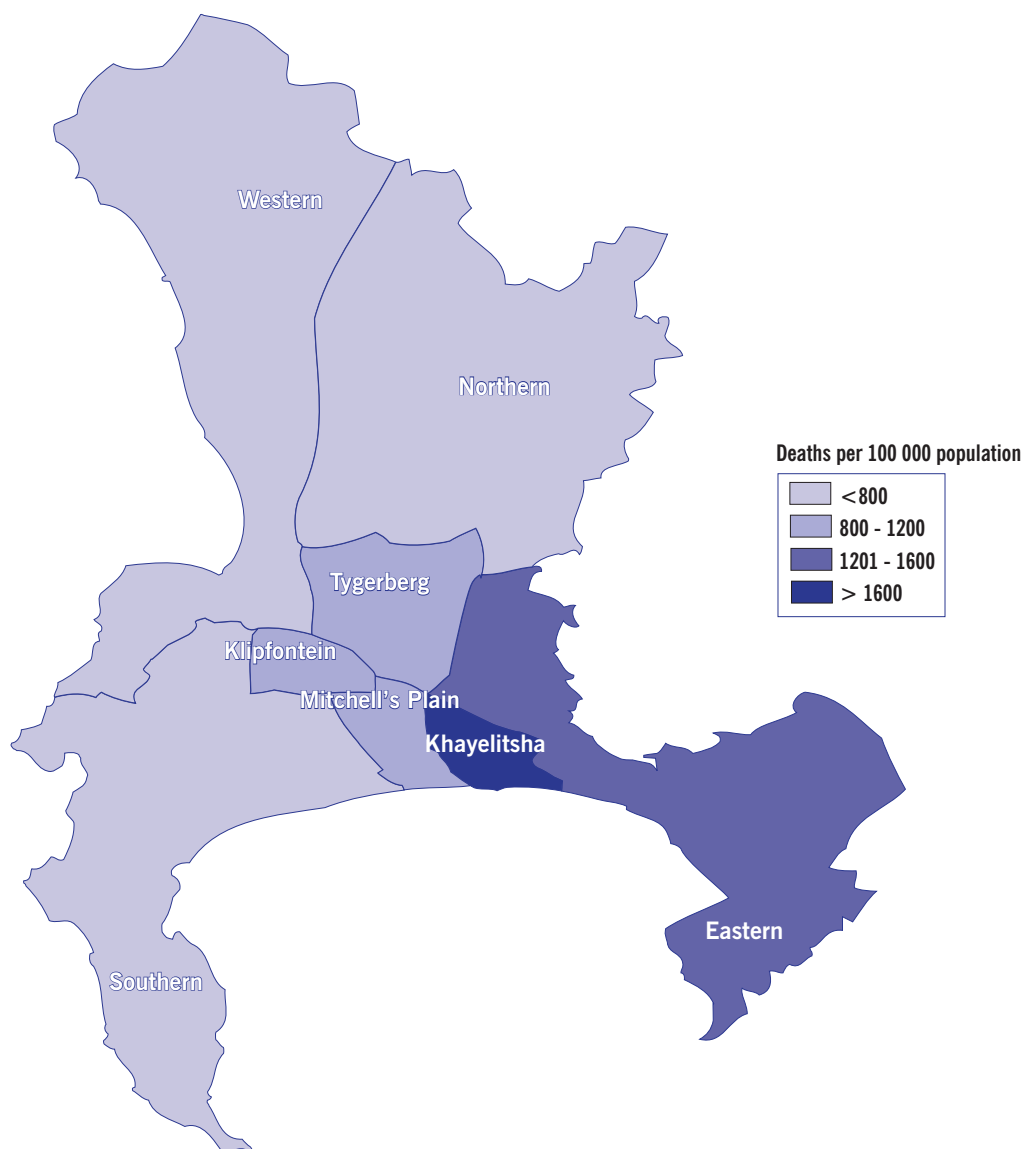


Figure 4:
Age-standardised mortality rate for broad cause groups by sub-district, 2006

Figure 4 shows the age-standardised mortality rate by sub-district, and it can be seen that the quadruple burden is experienced by all sub-districts. The rate was lowest in Southern and highest in Khayelitsha by a factor of nearly 2.5. The rates for Khayelitsha were highest for all broad cause groups.

The league table shows that HIV/AIDS, homicide, TB and road traffic injuries are leading causes of premature mortality across all sub-districts except for Southern, where IHD is the 2nd leading cause, see Table 1.

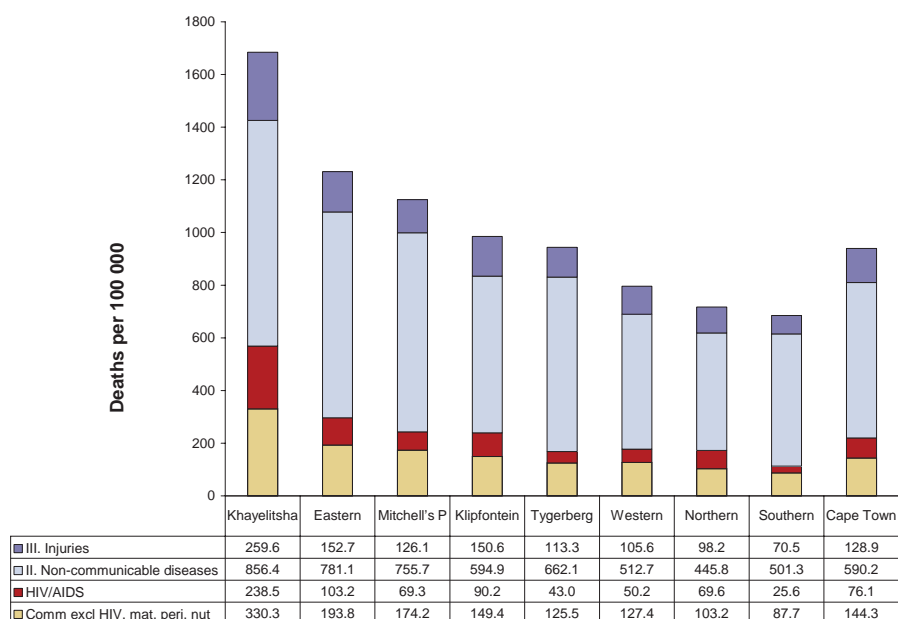


Table 1. Top ten causes of years of life lost by sub-district, 2006

Rank	Eastern	Khayelitsha	Klipfontein	Mitchell's Plain	Southern	Western	Tygerberg	Northern	Cape Town
1	HIV/AIDS (17.5%)	HIV/AIDS (25.7%)	Homicide (17.4%)	Homicide (17.7%)	HIV/AIDS (8.5%)	HIV/AIDS (13.1%)	Homicide (11.1%)	Homicide (17.0%)	HIV/AIDS (16.1%)
2	Homicide (11.8%)	Homicide (20.1%)	HIV/AIDS (15.7%)	HIV/AIDS (14.5%)	Ischaemic heart disease (7.6%)	Homicide (12.5%)	HIV/AIDS (9.7%)	HIV/AIDS (14.59%)	Homicide (14.4%)
3	Tuberculosis (9.73%)	Tuberculosis (9.8%)	Tuberculosis (8.0%)	Tuberculosis (8.7%)	Homicide (7.2%)	Tuberculosis (8.3%)	Tuberculosis (7.6%)	Tuberculosis (8.6%)	Tuberculosis (8.4%)
4	Road traffic (5.1%)	Road traffic (6.3%)	Lower respiratory infection (5.0%)	Road traffic (5.9%)	Tuberculosis (6.2%)	Road traffic (5.4%)	Road traffic (6.1%)	Road traffic (6.0%)	Road traffic (5.3%)
5	Ischaemic heart disease (3.9%)	Lower respiratory infection (4.7%)	Road traffic (4.2%)	Lower respiratory infections (4.6%)	Stroke (5.3%)	Ischaemic heart disease (4.8%)	Diabetes mellitus (5.4%)	Ischaemic heart disease (5.5%)	Lower respiratory infections (4.1%)
6	Diarrhoeal diseases (3.6%)	Diarrhoeal diseases (3.5%)	Diabetes mellitus (3.8%)	Diabetes mellitus (3.9%)	Diabetes mellitus (4.2%)	Stroke (4.1%)	Ischaemic heart disease (4.9%)	Suicide (5.5%)	Ischaemic heart diseases (3.7%)
7	Lower respiratory infections (3.6%)	Low birth weight and RDS (2.5%)	Ischaemic heart disease (3.8%)	Low birth weight and RDS (3.6%)	Lower respiratory infection (4.2%)	Lower Respiratory infections (3.7%)	Stroke (4.8%)	Lung cancer (2.7%)	Stroke (3.4%)
8	Low birth weight and RDS (3.4%)	Fires (2.4%)	Stroke (3.4%)	Diarrhoeal diseases (3.4%)	Lung cancer (3.9%)	Low birth weight and RDS (3.7%)	Lung cancer (3.9%)	Stroke (2.6%)	Diabetes mellitus (3.4%)
9	Stroke (3.4%)	Stroke (1.8%)	Low birth weight and RDS (2.8%)	Ischaemic heart disease (2.8%)	Road traffic (3.6%)	Diabetes mellitus (3.2%)	Lower respiratory infection (3.5%)	Diabetes mellitus (2.6%)	Low birth weight and RDS (2.9%)
10	Diabetes mellitus (2.9%)	Diabetes mellitus (.5%)	Lung cancer (.2%)	Stroke (2.5%)	Suicide (2.9%)	Lung cancer (2.6%)	COPD (3.4%)	Diarrhoeal diseases (2.4%)	Diarrhoeal diseases (2.5)

CHILD MORTALITY

On average there were 2470 deaths of children under the age of 20 per year, with more than half among infants (< 1 year of age). In South Africa a child is defined as any person younger than 18 years, but since our mortality analyses were conducted using five year age groups, we have included persons aged 19 years in this group.

The mortality rates in the different age groups are shown in Table 2. Mortality amongst boys was higher than for girls. Overall infant mortality rates (IMR) have remained fairly stable since 2001 and may have dropped slightly between 2004 and 2006. A marked decrease has been observed in Khayelitsha where the IMR declined from 42 per 1000 in

2003 to 32 per 1000 in 2006. Cause patterns have changed during this period with a decline in HIV/AIDS. HIV/AIDS has remained the leading cause of death among children 1-4 years of age. In the 15-19-year age group it is shocking to note that homicide ranks first and accounts for almost half of the deaths (48.6%).

Table 2: *Childhood mortality rates, Cape Town, pooled estimates (2003, 2004 and 2006)*

Mortality rates per 1000 live births	
Neonatal	9
Infant	23

Mortality rates per 100 000 population	Male	Female
1 - 4 years	144	126
5 - 14 years	51	38
15 - 19 years	293	100



HIV/AIDS AND TB

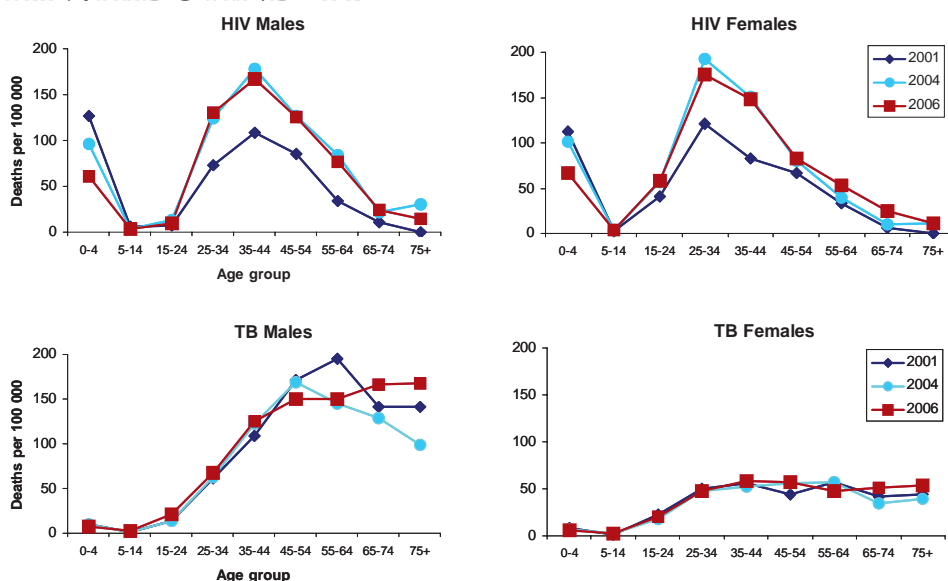


Figure 5: *Age-specific death rates for HIV and TB by gender, Cape Town, 2001, 2004 and 2006*

Trends of age-specific deaths due to HIV/AIDS revealed a notable increase in mortality for both males and females for the period 2001 to 2004, with a slight decrease in 2006 (Figure 5). The decrease was particularly marked for children but was absent in the

case of older females over 55 years, for whom there was a slight increase. The highest rates were observed in women aged 25-34 years of age and in men, a decade older, at 35-44 years of age. There are stark differences in TB mortality by gender: adult TB

mortality rates were higher for males than females. While there has been little change in the TB mortality rates for females, there was a decline in the rates in older ages for men to a low in 2004, which appears to have reversed by 2006.

HOMICIDE, ROAD TRAFFIC AND OTHER INJURIES

The overall injury mortality rates in the Cape Town Metro District were 215 per 100 000 for males and 49 per 100 000 for females, accounting for 37.9% of YLLs among males and 12.8% among females. In general, South African injury rates are approximately six times higher than the global average. Homicide is eight times higher than the global rate and road traffic injuries are double. The most common causes of injury-related fatality was homicide with a rate of 58 per 100 000, accounting for 14.4% of YLLs in the Cape Town Metro District. Road traffic injuries were the next most common cause of injury fatality with a death rate of 27 per 100 000, accounting for 5.3% of YLLs.

Analysis of the data by sub-district indicates considerable disparities in the rates of fatal injuries across all categories (Figure 6). Most striking is the comparison of homicide rates - from

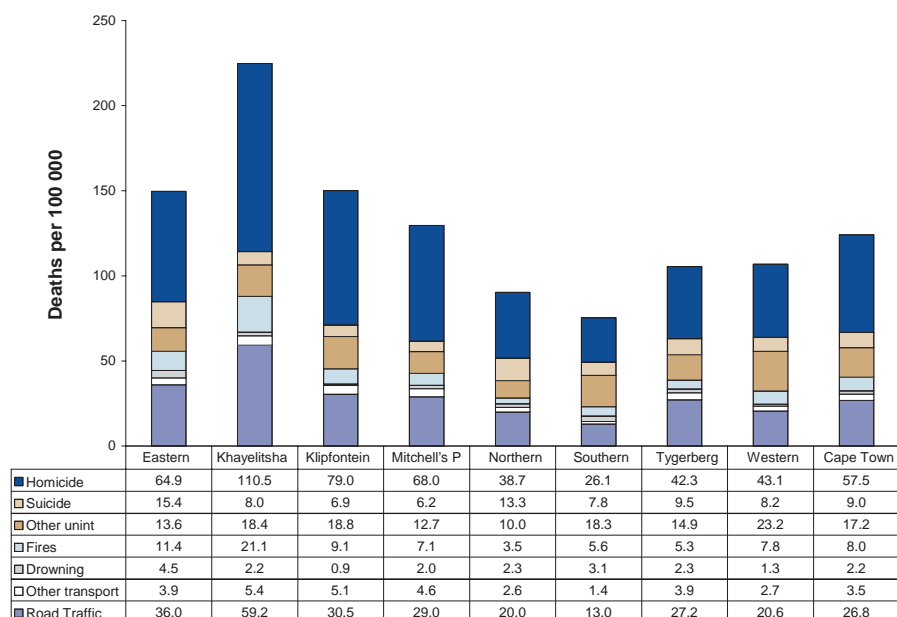


Figure 6: Age-standardised death rates (pooled estimates) due to injuries by sub-district, Cape Town, 2003, 2004 and 2006

the relatively low levels of under 26.1 per 100 000 population in Southern

These areas also correspond in terms of the lowest and highest rates of road traffic fatalities.

NON-COMMUNICABLE DISEASES

Non-communicable disease mortality mainly comprises cardiovascular diseases, cancers (neoplasms), respiratory diseases and diabetes, as shown in the age-standardised rates across the sub-districts in Figure 7. Non-communicable disease occurs across all districts with somewhat lower rates in the Northern sub-district. The causes of non-communicable disease mortality differ across the sub-districts, suggesting that they are in different stages of the health transition.

IHD mortality was very high in Eastern and Tygerberg but low in Khayelitsha. Stroke was particularly high in Mitchell's Plain and Khayelitsha. These areas also had high diabetes mellitus death rates with a marked excess in female mortality from these causes. Mortality from respiratory disease was higher for men than women. COPD was high in Mitchell's Plain, Tygerberg and Eastern. Mitchell's Plain, Tygerberg and Klipfontein also displayed high rates for lung cancer. In terms of other cancers, Khayelitsha stood out as having high oesophageal cancer mortality for both males and females. In

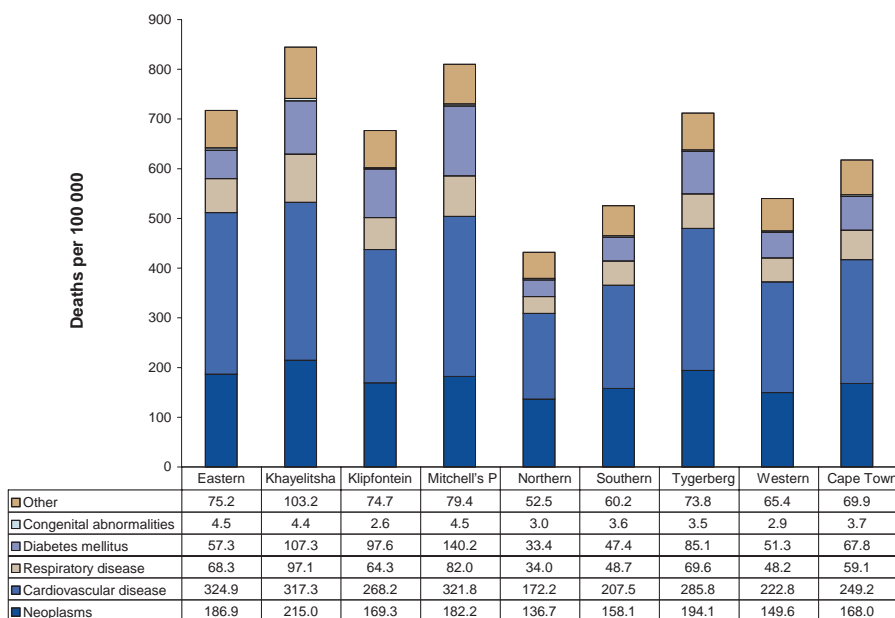


Figure 7: Age-standardised cause of death rates for non-communicable diseases by sub-district, for persons, Cape Town, (pooled estimates 2003, 2004 and 2006)

contrast, colon cancer mortality was particularly low in this sub-district. Breast cancer mortality was higher

than cervical cancer mortality in all sub-districts, with the exception of Khayelitsha.

KEY FINDINGS AND RECOMMENDATIONS

- HIV/AIDS mortality has increased dramatically since 2001; however, it appears to have stabilised since 2004, possibly demonstrating the impact of the prevention of mother-to-child transmission (PMTCT), and antiretroviral (ARV) programmes. It remains a leading cause of premature mortality across sub-districts, highlighting the need to strengthen intersectoral prevention strategies, and to continue to strengthen the health service response. HIV/AIDS is particularly high in the sub-district of Khayelitsha and is accompanied by very high TB mortality.
- Injury-related mortality remains extremely high. Although there was evidence of a declining trend until 2004, there was an increase until 2006. Furthermore, injury mortality rates - particularly homicide and road traffic injuries - are still among the highest in the world, particularly for men. Of particular concern are the high homicide and road traffic injury fatality rates among the male youth. Urgent attention needs to be given to identifying and implementing strategies to prevent injuries. Interventions to address the high burden of violence and homicide must be planned, implemented, monitored and evaluated multi-sectorally. National Injury Mortality Surveillance System (NIMSS) data for Cape Town confirm a strong association between alcohol and fatal injuries. Other substances of abuse, such as tik, are also likely to be important contributors, but routine data are not collected.
- Mortality rates due to non-communicable diseases are high, with variations along the lines of the epidemiological transition. Non-communicable diseases account for a high proportion of premature mortality, particularly among adult women. Smoking rates are particularly high in the coloured population, especially among females. The emerging epidemic of non-communicable diseases must be tackled through strengthening primary care management, promoting healthy lifestyles and addressing upstream risk factors, the "cause of causes".
- Infant and child mortality appears to have remained constant over this period, with a slight decline between 2004 and 2006. There is a suggestion that child mortality due to HIV/AIDS has started decreasing (however, this study period covers only the beginning of the full-scale PMTCT roll-out).
- During this period the mortality differentials between sub-districts remained fairly static. Given the current sub-district boundaries, Khayelitsha stands out as having the highest rates of premature mortality. Trends indicate that although child mortality has improved and HIV/AIDS mortality may have decreased, mortality from interpersonal violence has increased. However, it is likely that some other suburbs, such as Nyanga and Gugulethu, experience similarly high mortality as evidenced by results from mortality analyses using previous sub-district boundaries where Nyanga constituted a separate sub-district. Equity must be prioritised in resource allocation between the sub-districts to address the greatest needs.
- The continued success and improvement of this mortality surveillance system depends on departments from the various spheres of government collaborating to ensure the availability of quality information that can influence decision making.

REFERENCE

Groenewald P, Bradshaw D, Daniels J, Matzopoulos R, Bourne D, Blease D, Zinyakatira N, Naledi NT. Cause of death and premature mortality in Cape Town, 2001-2006. Cape Town: South African Medical Research Council, 2008.

Copies of the above report can be downloaded from www.mrc.ac.za/bod/bod.htm,
www.capecity.gov.za/health and www.capetown.gov.za/health