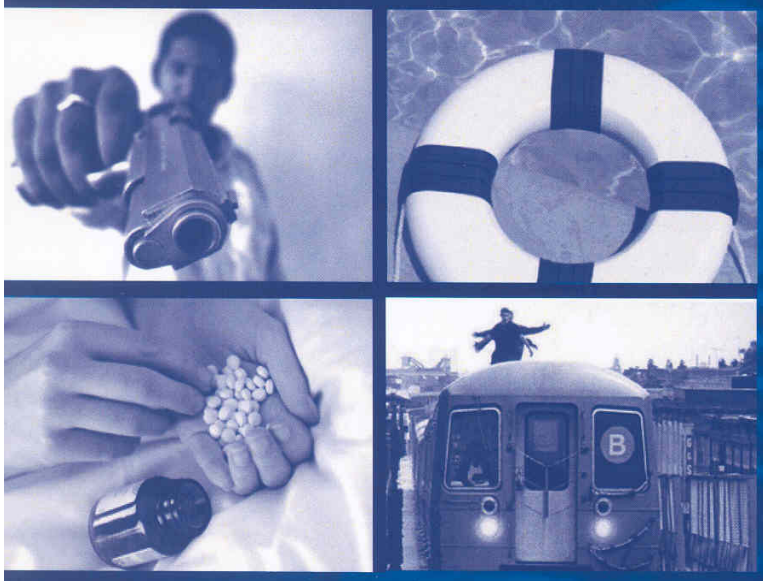

A PROFILE OF FATAL INJURIES IN SOUTH AFRICA

2007

EDITOR
Hilton Donson

MRC/UNISA Crime, Violence and Injury Lead Programme

SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

UNISA

Crime, Violence and Injury Lead Programme

(CVI)

CONTACT DETAILS

JOHANNESBURG

Director (Acting)	:	Prof. Kopano Ratele
Address	:	UNISA ISHS PO Box 1087 Lenasia 1820
Telephone	:	(011) 857 1142
Fax	:	(011) 857 1770
For more information	:	Lyndsey Lourie lourilc@unisa.ac.za
CAPE TOWN	:	Dr Ashley Van Niekerk
Address	:	Medical Research Council PO Box 19070 Tygerberg 7505
Telephone	:	(021) 938 0399
Fax		(021) 938 0381
For more information	:	Annelise Krige annelise.krige@mrc.ac.za
Websites	:	http://www.sahealthinfo.org http://www.mrc.ac.za/ http://www.unisa.ac.za/dept/ishs/index.html
Editor	:	Hilton Donson
Project team	:	Yaseen Ally, Madeleine Breda, Annelise Krige, Hawabibi Laher, Ursula Lau, Royal Lekoba, Lyndsey Lourie, Babsy Mathebula, Jeminah Mtshali, Ian Neethling, Megan Prinsloo, Keith Ross, Lu-Anne Swart
Reviewers	:	Prof. S. Naidoo, Prof. S. Wadee
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Glossary

The following terminology is used in this report and is briefly explained and contextualised below:

SURVEILLANCE is a process that involves the ongoing and systematic collection, analysis and interpretation of data relating to the occurrence of a health event and the timely dissemination of this information to those who need to know and those who need to apply it. In the NIMSS the health events that are described are attributable to injuries and are described as non-natural deaths.

An INJURY can be defined as damage to a person caused by an acute transfer of energy (mechanical/kinetic, thermal, chemical, electrical, radiation) or by a sudden absence of heat (hypothermia) or oxygen (asphyxiation, drowning) (Berger & Mohan, 1996).

NON-NATURAL deaths include all deaths that were not due to, or may not have been due to, natural causes and that in terms of the Inquests Act are subject to medico-legal investigation. We have grouped these non-natural deaths by external cause of death and apparent manner of death.

The EXTERNAL CAUSE of death refers to the mechanism, circumstance or event that preceded the death. Examples of the external cause of death include firearms, stabbing, motor vehicle collisions, drowning, burns and poisonings, all of which may result in injury and eventually death.

APPARENT MANNER of death describes the intention prior to the injury that resulted in the death. The apparent manner of death is divided into five different categories: violence, suicide, transport death, unintentional injury death and undetermined death. *Note that this is the apparent manner of death according to the forensic pathologists who perform the autopsies, and the final manner of death is only determined after court proceedings, which can take between 2 and 5 years to complete.*

The NIMSS definition of VIOLENCE refers to *intentional* injuries inflicted by another person (perpetrator). This definition excludes deaths due to culpable homicide since the NIMSS data are geared towards prevention initiatives, and intentional and unintentional injuries require different types of intervention.

SUICIDE refers to fatal self-inflicted *intentional* injuries.

UNINTENTIONAL INJURY deaths include all other *unintentional* non-transport injuries such as those due to burns, falls, poisoning and drowning.

TRANSPORT are normally also *unintentional* injury deaths, but may include deaths due to culpable homicide. Again, since the NIMSS data are geared towards prevention initiatives, all transport deaths have been grouped together to facilitate international comparison, and the development and evaluation of prevention programmes.

UNDETERMINED deaths are those where the medical examiner is unable to determine whether the manner of death was due to violence, suicide, transport or unintentional injuries, or due to natural causes.

This report uses SEX rather than GENDER to distinguish between male and female deaths. In general, the term sex is used to describe distinctive physiological features related to being male or female. In contrast, the term gender comprises different occupational, social and psychological attributes that are variously attributed to being male or female. The latter concept depends on societal norms and is not internationally comparative.

This report uses the term 'POPULATION GROUP' and associated terms such as 'African', 'Coloured', 'Asian' and 'White' are used. We recognise that 'population group' is a social construction that serves particular political purposes. The use of these terms in this report does not imply any acceptance of the racist assumptions on which these labels are based. We do not suggest that genetically distinct 'population groups' exist, with inherent biological differences or that

'population groups' exist in essential groupings. Instead, the terms are used to reflect the differential manner in which apartheid impacted (and still does) on the lives and health of South Africans. The 'population groups' are gross proxy measure of social groupings in South Africa and give no indication of inter-group diversity. The use of 'African', 'Asian', 'Coloured' and 'White' dissolved the sharp stratification within these groups, but the labels still serve as the primary research and scientific indicators of social grouping (Matzopoulos(ed), 2004).

Executive Summary

This is the 9th Annual Report of the National Injury Mortality Surveillance System (NIMSS). The NIMSS was constituted with the intention of it becoming a national mortuary-based system. The system currently captures 21 information items describing the "who, what, when, where and how" of fatal injuries. Despite its importance, such information has been missing from the national vital statistics on causes of death since 1991 (Matzopolous (ed), 2004).

The first NIMSS report covered 1 January to 31 December 1999 and described 14 897 injuries that were registered at ten mortuaries in five provinces. This report covers 1 January to 31 December 2007, during which 33 513 fatal injuries were registered at 39 mortuaries in seven provinces. Although the data were largely biased towards urban areas before, this matter is addressed by the inclusion of all Mpumalanga mortuaries - serving mainly rural areas - and the full coverage of NIMSS in Gauteng.

In the absence of accurate and reliable routinely collected data, current estimates for the injury mortality burden in South Africa, calculated to be between 60 000 and 70 000 fatalities per annum, represents 11.53% to 13.4% of the estimated 520 000 deaths registered in South Africa each year ((Bradshaw, Norman & Schneider, 2007; Peden & Butchart 1999). Therefore, the data collected by NIMSS in 2007 accounted for between 47.9% and 55.8% of all non-natural mortality. The NIMSS aims to progressively expand its geographical and case coverage until all injury deaths are included in what is intended to be an ongoing system for the epidemiological surveillance of fatal injuries.

Sex, age and population group. Of the 33 513 non-natural deaths, 80% were male and 20% female. Africans constituted 76% of all cases, Whites 10%, Coloureds 9%, and Asians 3%. The majority of deaths were young adults, with 36% of all cases aged 15 to 29, and 32% aged 30-44. Five percent of the deaths were at younger than 5 years, another 4% were aged 5 to 14 years, 15% were aged 45 to 59 years, and 7% were 60 years and older.

Manner of death. Violence was the major cause of death, accounting for 36% (N = 11 994) of all deaths. Transport-related deaths accounted for 32% (N =10 713), other unintentional injuries (13% or 4 391 deaths) and suicide (10% or 3 457 deaths) and for 9% (N = 2 958) the manner of death was undetermined. The leading manner of non-natural death for males was violence (39%) and for females, transport-related death (36%).

External causes of death. Motor vehicle crashes (MVCs) overshadowed all other external causes, and accounted for 30% of all cases. For children aged 0-4 years and for 85+ years, burns was the major cause of death. For children aged 5 to 14 years and for the 45-84 years group, pedestrian injuries ranked first. For the age range 15-29 years, sharp-object injuries ranked first, with firearms second. For the 30-44 year olds, firearms ranked first.

Violence. Nearly 40% of the 11 994 violence-related deaths were inflicted by sharp objects and just more than one-third by firearms. The number of cases rose sharply in the 15-19 year age group and peaked in the 25-29 age category. There were 6.5 male deaths for every female death. Of the males, 40% were killed with sharp objects and just of one-third with firearms, while firearms followed by sharp objects accounted for 31% and 28% respectively of female deaths. Sharp objects were the major external cause of violent death between the ages 15-29, 35-39 and 45-49 years. Firearm violence-related death was the largest single external cause of violence for the age groups 30-34, 40-44, 50-59, 65-69 and 80-84 years. Blunt objects were the major external cause of violence for those aged 0-4, 10-14, 60-64, 70-79 and 85+ years. Most violence-related deaths occurred in and around private homes.

Suicide. Hanging accounted for 58%, poisoning for 17% and firearms for 15% of the 3 457 suicides. Nearly two-thirds of all suicide victims were aged between 20 and 39 years. There were 4.6 male suicides for every female suicide. The major external causes of suicide among males were hanging (62%) and firearms (15%), while among females it was poisoning (38%) and hanging (36%). Most suicides occurred in private homes.

Transport-related deaths. Of the 10 713 transport-related deaths, pedestrians accounted for 39%, passengers 22%, drivers 18%, 4% involved cyclists and 3% were railway-related. A further 14% of transport-related deaths were due to motor vehicle collisions (MVC); however the user category was unknown. There were 3.6 males per female transport-related death. Pedestrian deaths ranked as the top external cause of death for children among all age categories, except infants younger than one year. Most MVC-related deaths occurred between 16h00 and 19h00 and on the weekends.

Burns, falls, drowning and other unintentional injury deaths. Of the 4 391 deaths due to non-transport unintentional injuries, 39% were due to burns, 16% drowning, 10% falls and 35% were due to other unintentional injuries. Burns were the major external cause of death for children aged 4 years and younger, and the second major cause for children aged 5-9 years. Most burn and fall deaths occurred in private homes, and drowning deaths in the sea, lakes and rivers, although a large percentage of drowning also happened at private homes (e.g. in swimming pools).

Manner of death undetermined. For 2 958 cases the manner of death was undetermined. A large percentage of deaths due to poisonings were categorised as undetermined. Unlike the other categories, undetermined deaths peaked among infants and the 25-34 age category.

Chapter 1

Introduction: The National Injury Mortality Surveillance System

Injury is one of the major causes of death in South Africa. Despite its magnitude and constant media coverage, the situation remains a cause for concern. External causes of death is vital for monitoring demographic, seasonal and socio-economically related trends in these major causes of death and disability. Since 1991 and since Act No. 52 of 1992, which precluded entry of the external cause of death in the death register for injury cases, such information has been missing from the national vital statistics on causes of death. Police data systems only record information for violence, and the national transport information system records information for an uncertain subgroup of motor vehicle collision deaths. Death due to suicide and other unintentional causes, where the manner of death is undetermined, are not tracked by any agency.

The National Injury Mortality Surveillance System (NIMSS) was established in 1999 to fill this gap by providing more comprehensive information about deaths due to external causes. The information is collated from existing investigative procedures at mortuaries, state forensic chemistry laboratories. All deaths due to external causes are included, allowing an overview of how the different categories of external cause (e.g. gunshots, drowning) contribute to the profile of non-natural mortality in men, women, and children.

At the time of this report, there is one provincial system and one international system being piloted in mortuaries in Gauteng and the Western Cape that collect information about fatal injuries. However, there are still no alternative sources for the information about fatal injuries that the NIMSS analyses and disseminates. The ultimate goal of the NIMSS is to establish a permanent system that will register all such deaths that occur annually in South Africa, and develop partnerships to inform initiatives for the prevention of non-natural fatality.

1.1 Goals of the NIMSS

The goals of the NIMSS are:

- To provide ongoing and systematic information about the incidence, causes and consequences of all non-natural deaths at local, regional and national levels.
- To enable the early identification of new injury trends and emerging problem areas so that adequate interventions can be timeously established.
- To determine priorities for injury and violence prevention action, both for high-risk groups and socio-environmental risk factors.
- To help evaluate direct and indirect violence and injury prevention and control measures.
- To monitor seasonal and longitudinal changes in the non-natural death profile.

The utility of the information collected by the NIMSS lies in the pointers it provides for improving the prevention and control of injuries in South Africa, and in evaluating the impact of direct (e.g. gun law enforcement) and indirect (e.g. socio-economic development) interventions that are expected to reduce some of the major causes of fatal injury. Although limited in coverage, these reports provide a baseline profile for future monitoring and an information platform to reinforce the ongoing extension and improvement of the system. In achieving its goals, the NIMSS is intended to meet the information requirements of three main stakeholder groups, namely the forensic medico-legal services; the national crime prevention strategy; and violence and injury prevention agencies at local, provincial and national level.

For forensic medico-legal services, the NIMSS will provide important information for the allocation of resources, auditing of costs and rationalisation of services. The current absence of information prevents proper assessment of costs, inhibits evaluation and impedes proper planning.

For the National Crime Prevention Strategy, the NIMSS will provide crucial baseline data for all deaths due to violence and other injuries, including information on the covariance between violence and unintentional injury deaths, demographic and geographic variations in the magnitude and patterning of violent deaths, and information on particularly sensitive indicators such as the use of firearms, alcohol and other substance involvement.

Injury prevention agencies include national and local government, the South African Police Services, non-governmental organisations, business and parastatals. The NIMSS will provide descriptive information needed for the design and implementation of preventive interventions at municipal, metropolitan, provincial and national levels.

1.2 Aims of the NIMSS

The NIMSS uses existing medico-forensic investigative procedures. It collates onto a single data form and into a single computer database items spread between four points in the investigative procedure, namely postmortem reports, SAP 180 forms, chemical pathology laboratory results, and criminal justice system reports.

For 1999 to 2000 the NIMSS was piloted with funding from the Department of Arts, Culture, Science and Technology's Innovation Fund on Crime Prevention. For 2000, 15 mortuaries in five provinces contributed data to the NIMSS. For 2007, 39 mortuaries in 7 provinces contributed their data, including all cases from Mpumalanga and Gauteng, giving the NIMSS a rural representivity. Extension to other mortuaries will continue as long as funding permits it.

1.3 NIMSS methodology

The NIMSS records 21 items of information for every deceased that enters the forensic medico- legal system in the participating facilities. To meet the system's goals and enable international comparisons, the NIMSS classifies the primary medical cause of death using the International Classification of Disease version 9 (ICD 9) and assigns a probable manner of death code to each case. Spatial and temporal data are recorded, as is the presence of alcohol in the deceased through information from forensic laboratory reports. The final manner of death is only available after court findings, which are often only available up to 4 years after the death. The data are collected by the police and forensic pathologists at each site, and captured into a computerised database by clerks and secretarial staff at the mortuaries. The data are then sent to the Crime, Violence and Injury Lead Programme offices in Cape Town, where they are combined with other mortuaries' data and data from the forensic chemistry laboratories, cleaned, and finally analysed by researchers. Quarterly and yearly reports are produced for the South African Police and forensic pathologist at each facility.

1.4 NIMSS annual report

The NIMSS annual report summarises the data from all mortuaries that participated during the reporting year. We assume that the main utility of the report will be in providing information for use in presentations and research projects aimed at violence and injury prevention and control. We also hope that the report will stimulate further research about the underlying causes and risk factors that drive the patterns of fatal violence and injury among the different age, sex and population groups for which the data have been analysed. If these questions can stimulate research to answer them, then the possibilities for prevention of violence and injury will be greater than ever before.

Perhaps most importantly, it is emphasised that the annual report provides an overview of the data only, and does not fully reflect the rich amount of information in the surveillance database. This additional information includes, in particular, suburb-level indicators of where injuries occurred and, of course, many cross-tabular analyses that could not be accommodated in this summary report. Agencies wishing to access this more detailed level of information are invited to send their requests for customised reports to the CVI Lead Programme (Matzopolous(ed),2004).

Chapter 2

Participating Facilities and Data Representivity

For 1999 a total of 14 897 fatal injuries were registered in the NIMSS. For 2000 the caseload increased to 18 876. Fifteen mortuaries in five provinces collected data for the period 1 January to 31 December 2000. In the absence of accurate and reliable routinely collected data, current estimates for the national number of deaths that occur due to non-natural causes range from 68 930 to 70 000 per annum. This accounts for between 12% and 15% of the more than half a million deaths that occur annually from all causes of death (ASSA, 2003). Therefore, the data collected by NIMSS in 2000 accounted for between 24% and 29% of all non-natural mortality. The deaths were mainly recorded from urban mortuaries and citywide coverage was limited to Port Elizabeth, Cape Town and Pretoria.

For 2007 the caseload increased to 33 513. Thirty-nine mortuaries in seven provinces collected data for the period 1 January to 31 December 2007, including all Mpumalanga mortuaries, mainly in rural areas, and all deaths in Gauteng province. The data collected by NIMSS in 2007 accounted for between 47.9% and 55.8% of all non-natural mortality. For 2007 NIMSS coverage included four cities, namely Cape Town, Durban, Johannesburg and Pretoria.

Table I: Participating mortuaries (N= 40 737)

Province	Number of mortuaries	Case total
Eastern Cape	**5**	**6442**
Gauteng	**7**	**15633**
KwaZulu Natal	**3**	**5552**
Mpumalanga	**18**	**5083**
North West	**2**	**1227**
Northern Cape	**1**	**764**
Western Cape	**3**	**6544**
Total		**40737**

Not all cases had information for every item, and therefore totals in the following graphs and tables vary. Owing to the relatively few cases where date and time of injury were available, date and time of death have been reported instead. While death would have occurred at the time of injury for a majority of cases, some victims will have died hours or days after the injury itself, and this bias must be kept in mind when reading the relevant tables and charts.

Chapter 3

The National Injury Mortality Profile for South Africa

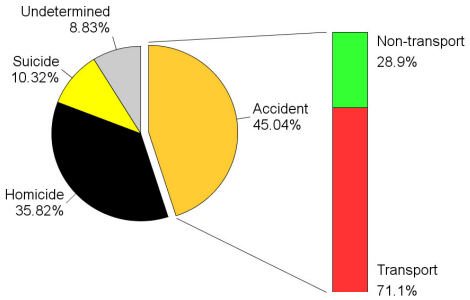
A total of 40 737 cases were recorded in South Africa for 1 January 2007 to 31 December 2007, including 7224 (18%) cases that were due to natural causes.

The analysis is restricted to the 33 513 non-natural deaths recorded by the NIMSS in 2007.

3.1. Overall manner of death

The leading cause of death in the South Africa catchment area was violence (or homicide) accounting for 35.8% of fatal injuries.

Figure 1. Overall manner of death (N = 33513)



3.1.1. Manner of death by age

The average age of the victims was 33.2 (± 16.3 years). The leading manner of death(s) amongst the:

- **0-14** age group was other unintentional (36%) followed by transport (33.8%);
- **15-24** age group was violence (48.3%);
- **25-34** age group was violence (43.6%) followed by transport (30.7%);
- **35-44** age group was violence (36.4%) followed by transport (35.3%);
- **45-54** age group was transport (36.2%);
- **55-64** age group was transport (37.4%); and
- **65+** age group was transport (33%).

Figure 2.1. Violence by age (n = 11314)

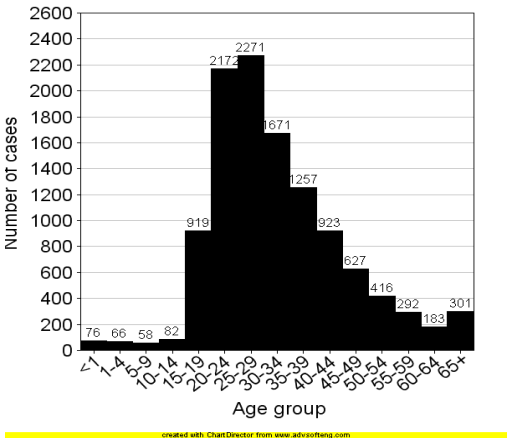


Figure 2.2. Suicide by age (n = 3258)

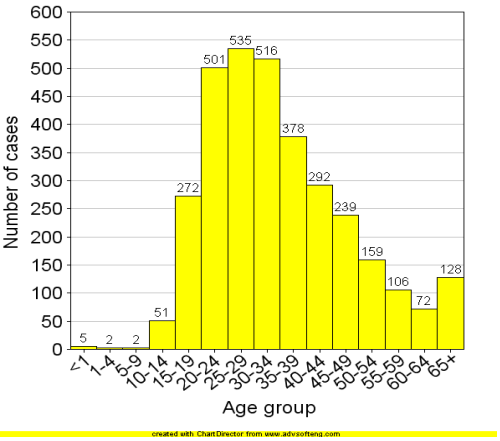


Figure 2.3.Transport deaths by age (n = 9915)

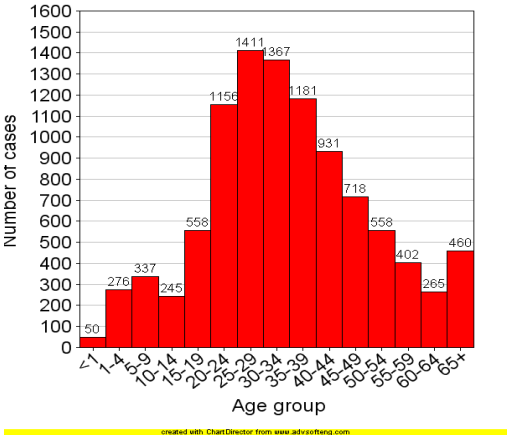


Figure 2.4. Other unintentional (non-transport) deaths by age (n = 4050)

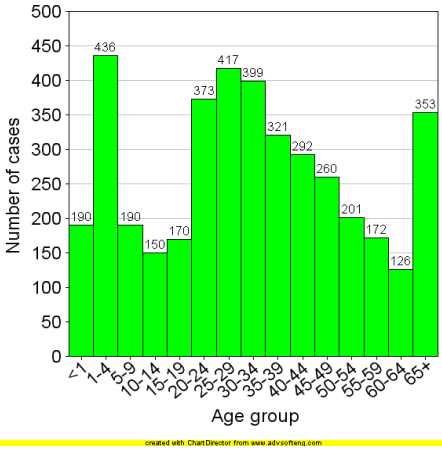
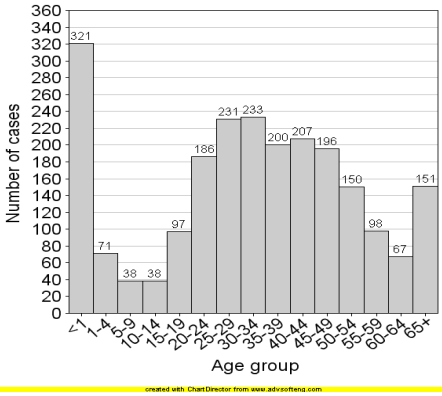


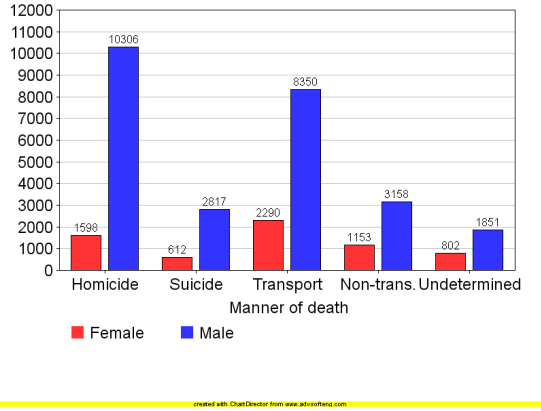
Figure 2.5. Undetermined deaths by age (n = 2284)



3.1.2. Manner of death by sex

Of the cases recorded in South Africa, 26482 (80.4%) were male and 6455 (19.6%) were female. The leading cause of death amongst males was violence (38.9%), followed by transport (31.5%). The leading cause of death amongst females was transport (35.5%).

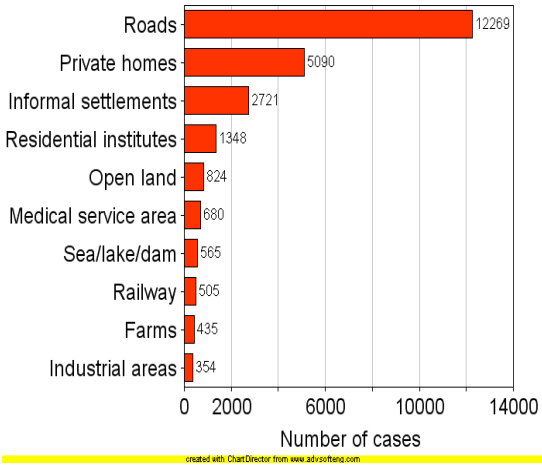
Figure 3. Manner of death by sex (n = 32937)



3.2. Scene of injury

The scene of injury was known in 25859 (77.2%) cases. The scene that accounted for the majority of deaths was roads (47.4%).

Figure 4. Top 10 scenes of injury (n = 24791)

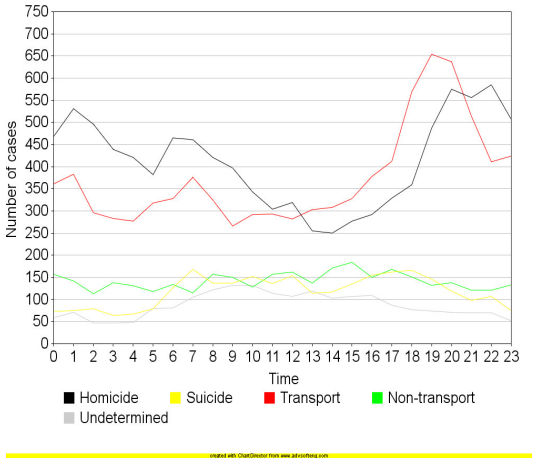


3.3. Time of death

The peak period(s) of death for:

- **violence** was 20h00 - 00h00 (22.4%) followed by 01h00 - 03h00 (10.3%);
- **suicide** was 16h00 - 20h00 (22.1%);
- **transport** related deaths was 18h00 - 22h00 (26.3%); and
- **other unintentional (non-transport)** related deaths was 14h00 - 16h00 (10.4%).

Figure 5. Time of death (n = 27271)



3.4. Day of death

The peak days of death for:

- **violence** were Saturday (25.3%), followed by Sunday (23.1%), followed by Friday (12.6%);
- **suicide** were Monday (16.4%), followed by Saturday (14.6%), followed by Sunday (14.5%);
- **transport** related deaths were Saturday (22.6%), followed by Sunday (19.4%), followed by Friday (15.1%); and
- **other unintentional (non-transport)** were Saturday (17.9%), followed by Sunday (17.3%), followed by Monday (15.4%).

Figure 6. Day of death (n = 33004)

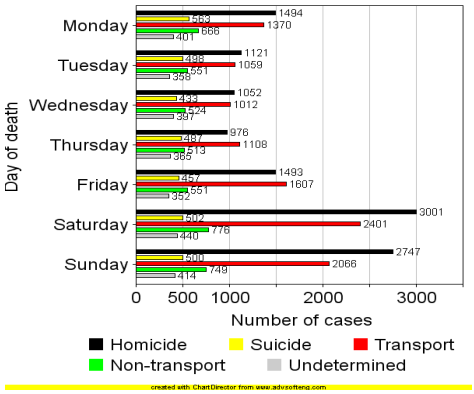


Figure 7. Day of violence deaths by sex (n = 11789)

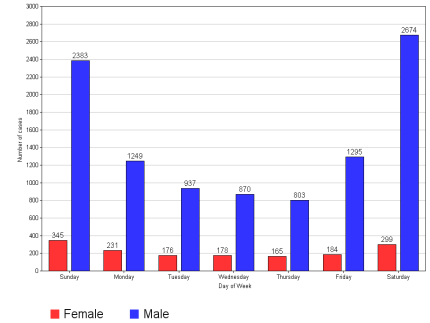


Figure 8. Day of suicide deaths by sex (n = 3413)

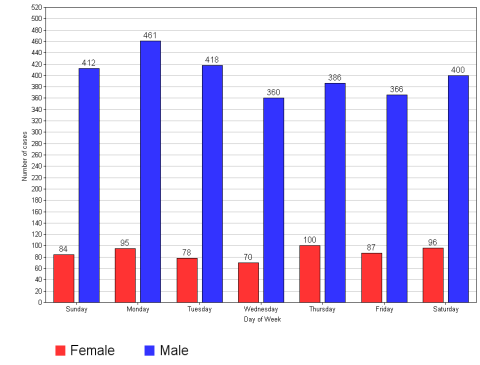
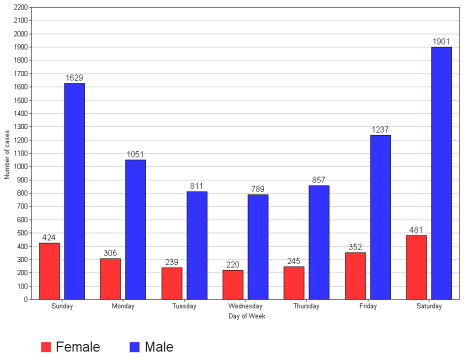


Figure 9. Day of transport deaths by sex (n = 10542)

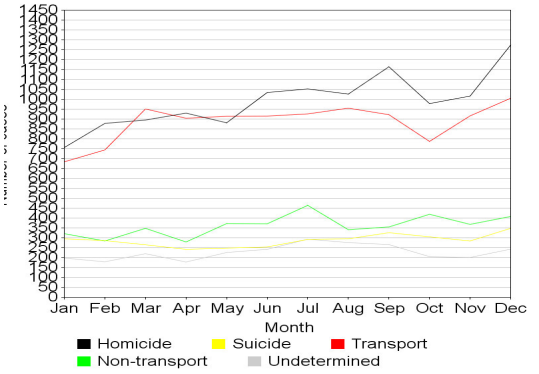


3.5. Seasonal variation

The peak month for:

- **violence** was December (10.7%), followed by September (9.8%), followed by July (8.9%);
- **suicide** was December (10.1%), followed by September (9.5%), followed by October (8.9%);
- **transport** related deaths was December (9.5%), followed by August (9.0%), followed by March (9.0%); and
- **other unintentional (non-transport)** related deaths was July (10.7%), followed by October (9.7%), followed by December (9.4%).

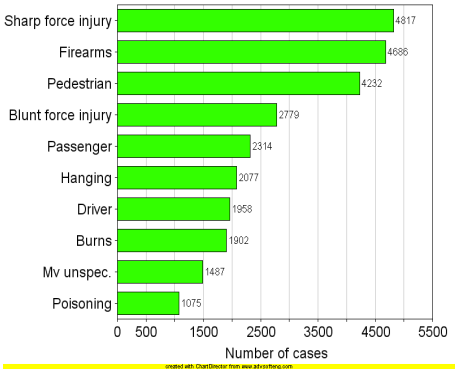
Figure 10. Seasonal variation (n = 33004)



3.6. External cause of death

The cause of death was unknown in 5.9% of the cases. The leading external cause of death was sharp force injury (15.3%), followed by firearms (14.9%), and followed by motor vehicle pedestrian (13.4%).

Figure 11. Top 10 external causes of death (n = 27327)



3.6.1. External cause of violence by age

Age was unknown in 690 of the 11 994 cases. Of the remaining cases, the average age of the victims was 32 (± 13.2 yrs). The leading external cause of death for violence in the:

- **0-14** age group was blunt force (30.0%);
- **15-24** age group was sharp force injury (46.6%) followed by firearms (31.6%);
- **25-34** age group was sharp force injury (40.4%) followed by firearms (38%);
- **35-44** age group was sharp force injury (37.2%) followed by firearms (36.9%);
- **45-54** age group was firearms (34.7%) followed by sharp force injury (32.5%);
- **55-64** age group was blunt force injury (32%) followed by firearms (31.8%); and
- **65+** age group was blunt force injury (33.6%).

Figure 12.1. Sharp force injury violence by age (n = 4408)

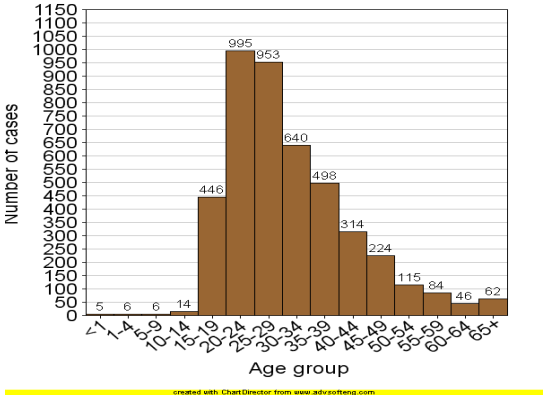


Figure 12.2. Firearm violence by age (n = 3929)

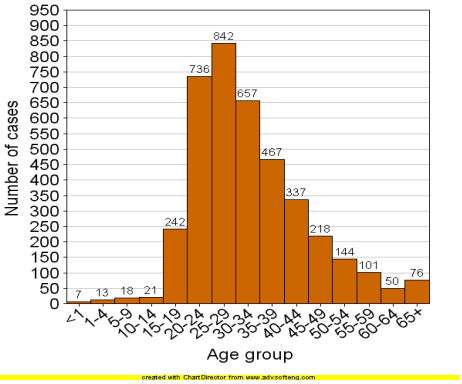


Figure 12.3. Blunt force injury violence by age (n = 2381)

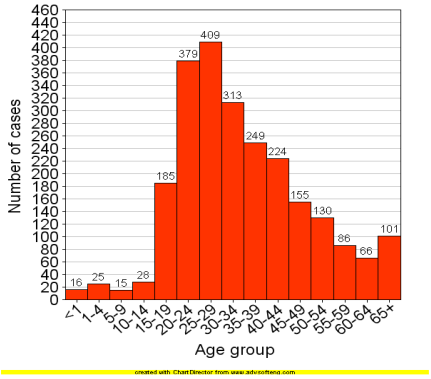


Figure 12.4. Strangulation, suffocation or asphyxia violence by age (n = 231)

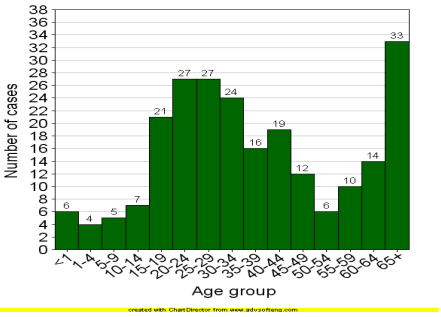
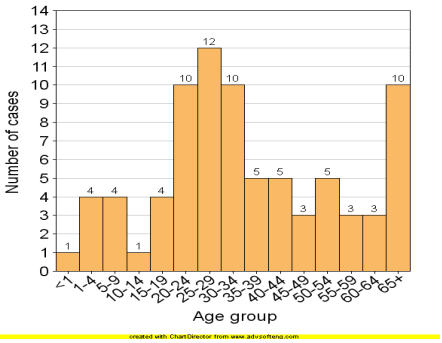


Figure 12.5. Burn violence by age (n = 80)



3.6.2. External cause of suicide by age

Age was unknown in 199 of the 3457 cases. Of the remaining cases, the average age of the victims was 34 (± 14 yrs). The leading external cause of death for suicide in the:

- **0-14** age group was hanging (70%);
- **15-24** age group was hanging (68.6%);
- **25-34** age group was hanging (59.4%);
- **35-44** age group was hanging (52.7%);
- **45-54** age group was hanging (49.2%);
- **55-64** age group was hanging (44.4%); and
- **65+** age group was hanging (43.8%) followed by firearms (33.6%).

Figure 13.1. Hanging suicide by age (n = 1880)

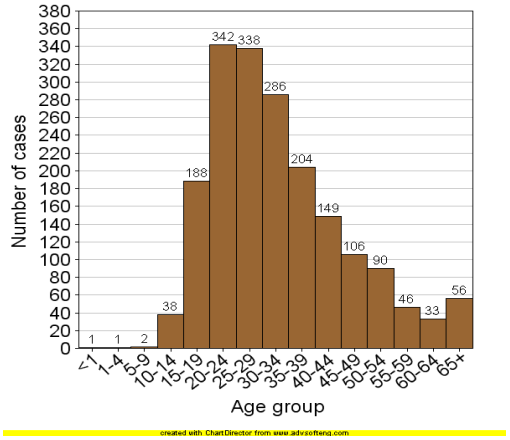


Figure 13.2. Poisoning suicide by age (n = 544)

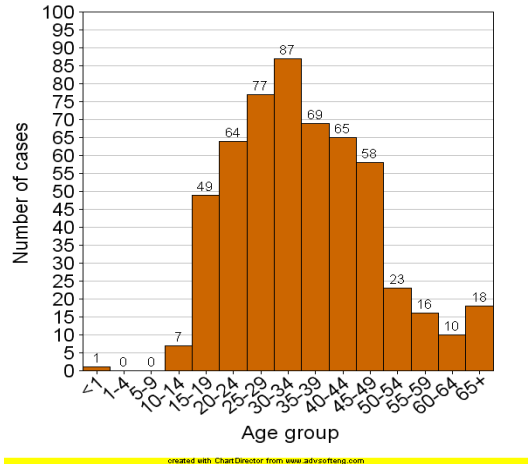


Figure 13.3. Firearm suicide by age (n = 473)

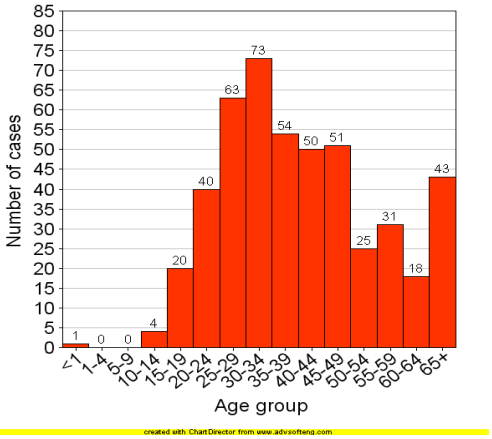


Figure 13.4. Gassing suicide by age (n = 115)

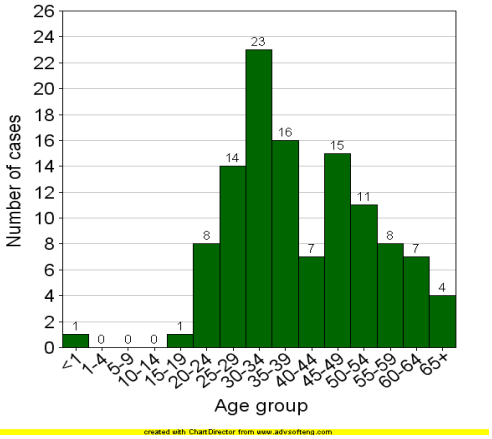
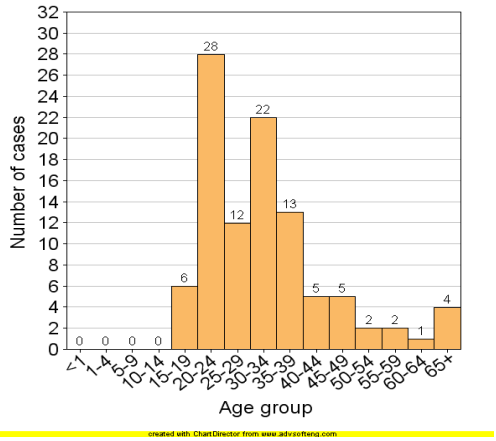


Figure 13.5. Fall/push/jump from height suicide by victim age (n = 100)



3.6.3. External cause of transport by age

Age was unknown in 812 of the 10713 cases. Of the remaining cases, the average age of the victims was 34 (± 16.2 yrs). The leading external cause of death for transport in the:

- **0-14** age group was motor vehicle pedestrian (62.2%);
- **15-24** age group was motor vehicle pedestrian (34.8%);
- **25-34** age group was motor vehicle pedestrian (34.6%);
- **35-44** age group was motor vehicle pedestrian (36.5%);
- **45-54** age group was motor vehicle pedestrian (40.9%);
- **55-64** age group was motor vehicle pedestrian (40.2%); and
- **65+** age group was motor vehicle pedestrian (42.4%).

Figure 14.1. Motor vehicle pedestrian deaths by age (n = 3879)

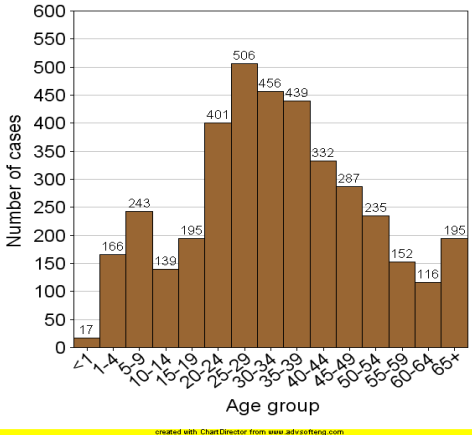


Figure 14.2. Motor vehicle passenger deaths by age (n = 2167)

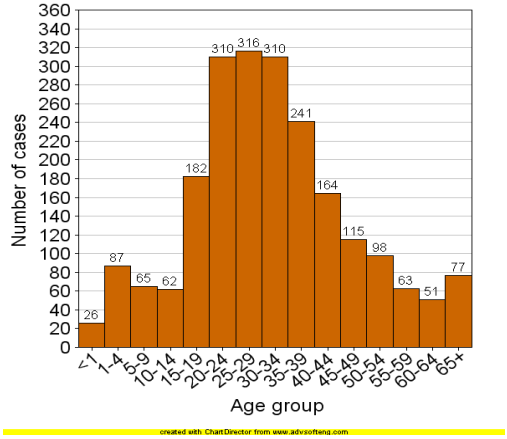


Figure 14.3. Motor vehicle driver deaths by age (n = 1860)

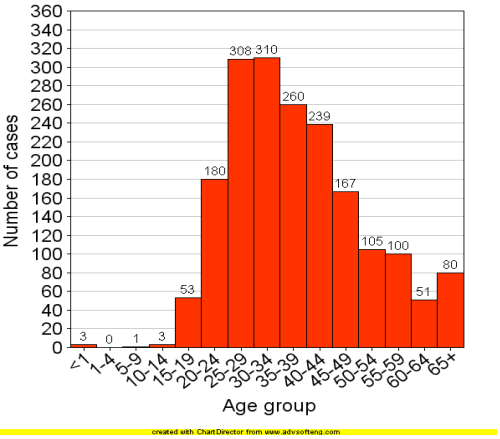


Figure 14.4. Motor vehicle unspecified deaths by age (n = 1322)

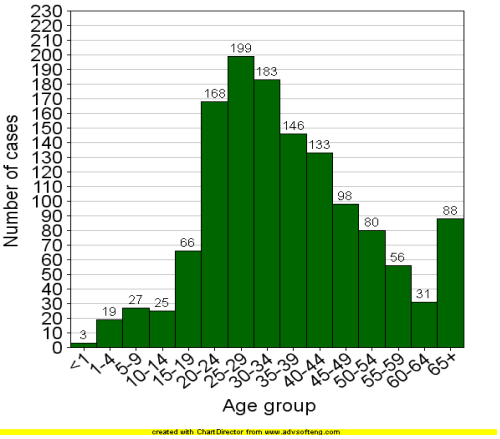
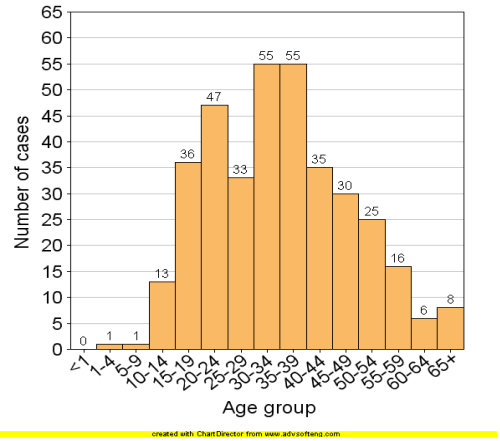


Figure 14.5. Cyclist deaths by age (n = 361)



3.6.4. External cause of other unintentional (non-transport) deaths by age

Age was unknown in 316 of the 4391 cases. Of the remaining cases, the average age of the victims was 32 (± 22 yrs). The leading cause for non-transported related deaths in the:

- **0-14** age group was drowning (32.9%);
- **15-24** age group was burns (37.9%) followed by drowning (15.7%);
- **25-34** age group was burns (48.5%);
- **35-44** age group was burns (42.6%);
- **45-54** age group was burns (39.7%);
- **55-64** age group was burns (34.2%); and
- **65+** age group was burns (36%).

Figure 15.1. Burn deaths by age (n = 1559)

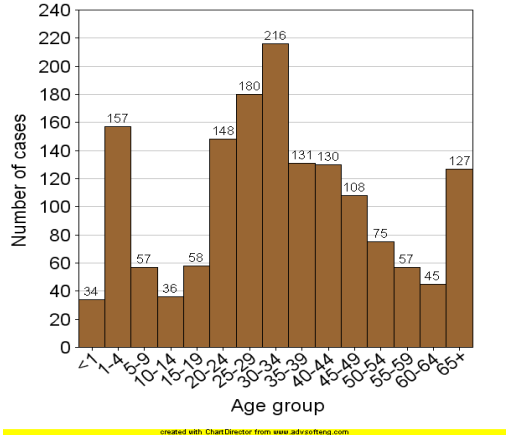


Figure 15.2. Drowning deaths by age (n = 652)

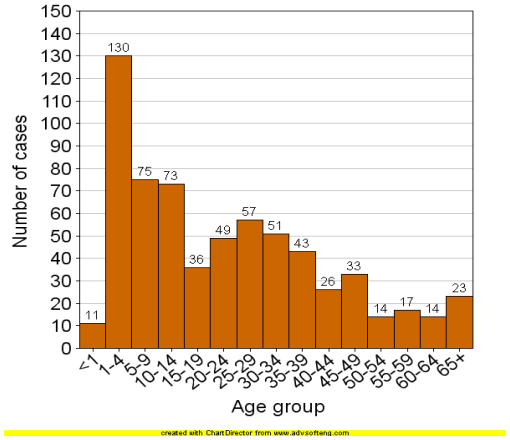


Figure 15.3. Fall/push/jump from height deaths by age (n = 366)

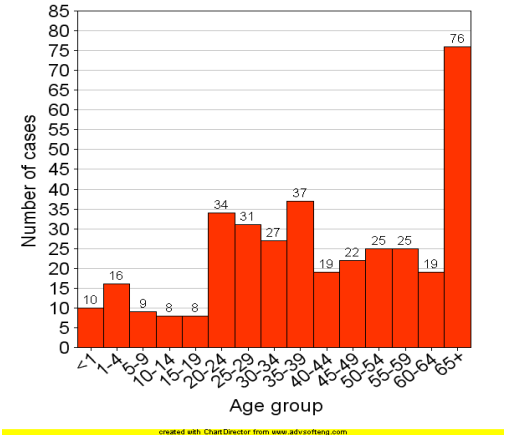


Figure 15.4. Medical procedure deaths by age (n = 212)

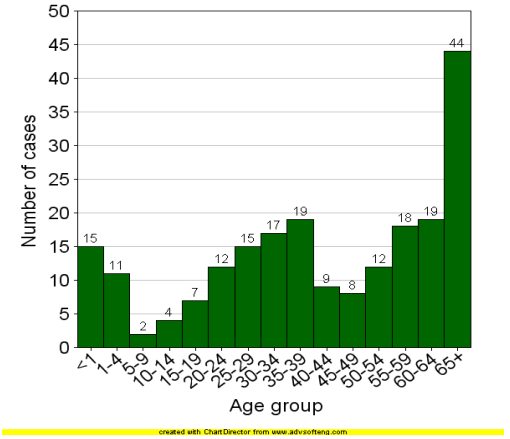
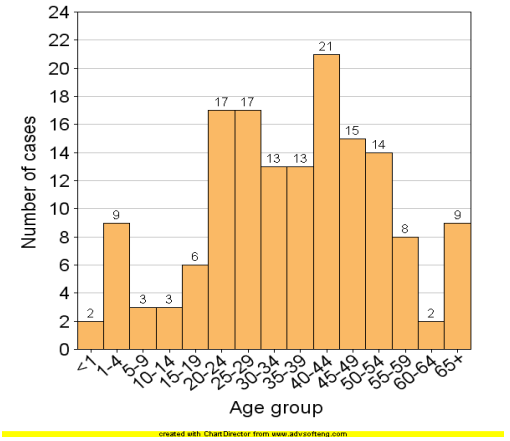


Figure 15.5. Blunt force injury deaths by age (n = 152)



Chapter 4

Cape Town Injury Mortality Profile

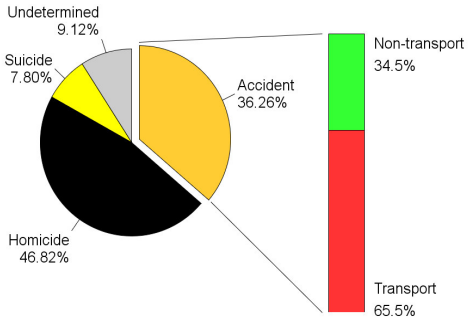
A total of 6207 cases were recorded in Cape Town, for January 2007 to December 2007, including 1461 (23.5%) cases that were due to natural causes.

The rest of the analysis is restricted to the 4746 non-natural deaths that occurred in the catchment area.

4.1. Overall manner of death

The leading cause of death was violence/homicide (46.8%).

Figure 1. Overall manner of death (N = 4746)



4.1.1. Manner of death by age

The average age of the deceased was 31.4 (± 16.1 years). The leading manner of death(s) amongst the:

- **0-14** age group was transport (25.5%);
- **15-24** age group was violence (68%);
- **25-34** age group was violence (58.2%);
- **35-44** age group was violence (45.5%) followed by transport (30.9%);
- **45-54** age group was violence (33.1%);
- **55-64** age group was transport (38.3%); and
- **65+** age group was other unintentional (non-transport) (40.8%).

Figure 2.1. Violence/Homicide by age (n = 2195)

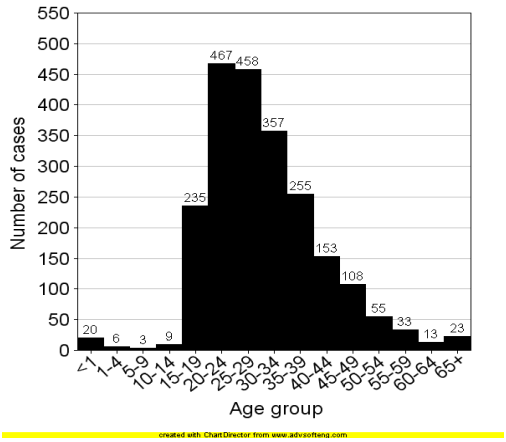


Figure 2.2. Suicide by age (n = 365)

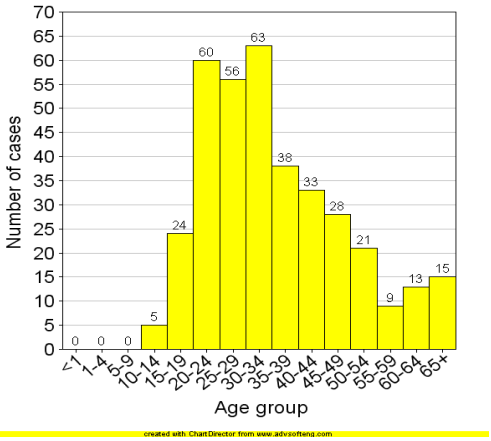


Figure 2.3. Transport deaths by age (n = 1111)

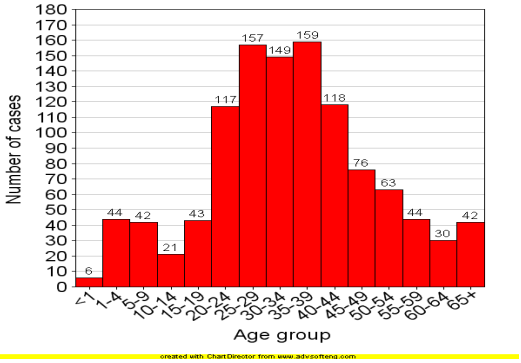


Figure 2.4. Other unintentional (non-transport) deaths by age (n = 575)

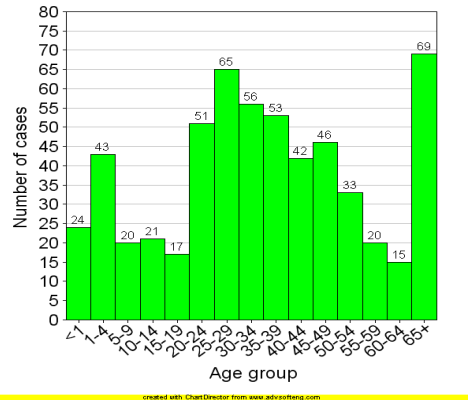
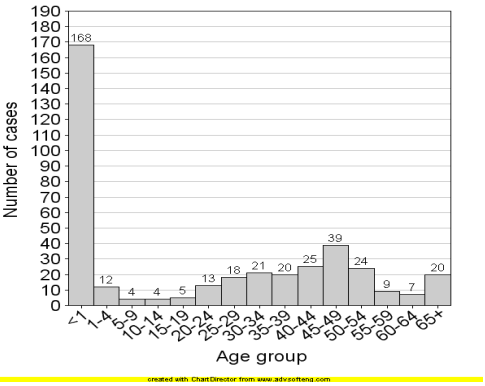


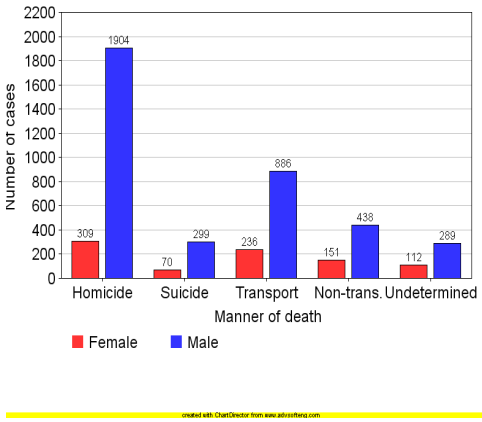
Figure 2.5. Undetermined deaths by age (n = 389)



4.1.2. Manner of death by sex

Of the cases recorded in Cape Town were 3816 (81.3%) male and 878 (18.7%) were female. The leading cause of death amongst males was violence (49.9%). The leading cause of death amongst females was also violence (35.2%).

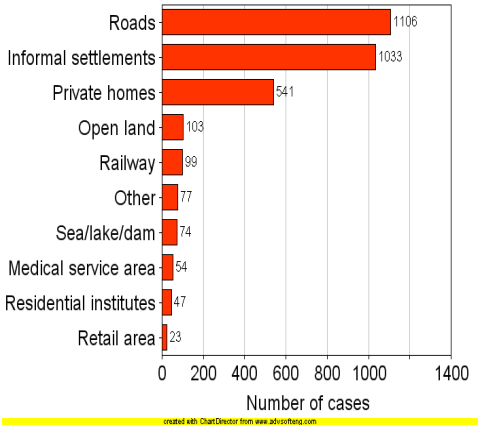
Figure 3. Manner of death by sex (n = 4694)



4.2. Scene of injury

The scene of injury was known in 3208 (67.6%) cases. The scene that accounted for the majority of deaths was roads (34.5%), followed by informal settlements (32.2%).

Figure 4. Top 10 scenes of injury (n = 3157)

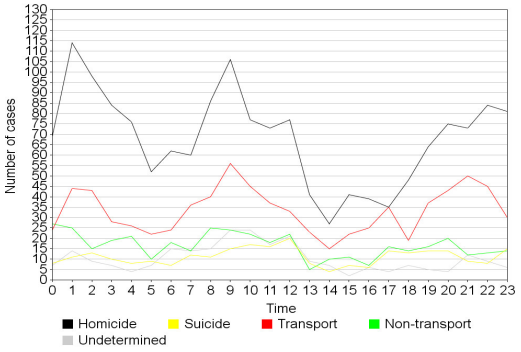


4.3. Time of death

The peak period(s) of death for:

- **violence** was 01h00 - 04h00 (18%), followed by 08h00 - 10h00 (11.7%), followed by 22h00 - 23h00 (5.1%);
- **suicide** was 09h00 - 13h00 (25.2%), followed by 19h00 - 21h00 (10.4%), followed by 23h00 - 00h00 (5.6%), followed by 17h00 - 18h00 (5.2%);
- **transport** related deaths was 08h00 - 11h00 (17.6%), followed by 20h00 - 23h00 (17.2%), followed by 01h00 - 03h00 (10.9%); and
- **other unintentional (non-transport)** related deaths was 08h00 - 11h00 (17.8%), followed by 00h00 - 02h00 (13.1%), followed by 12h00 - 13h00 (5.5%), followed by 04h00 - 05h00 (5.3%), followed by 20h00 - 21h00 (5%).

Figure 5. Time of death (n = 3360)



4.4. Day of death

The peak days of death for:

• **violence** were Sunday (27.1%), followed by Saturday (26.1%), followed by Monday (13.3%);

• **suicide** were Tuesday (17.3%), followed by Monday (15.1%), followed by Thursday (14.9%);

• **transport** related deaths were Saturday (23.4%), followed by Sunday (18.9%), followed by Friday (13.7%); and

• **other unintentional injury deaths (non-transport)** were Saturday (20.6%), followed by Sunday (18.9%), followed by Monday (15.7%).

Figure 6. Day of death (n = 4717)

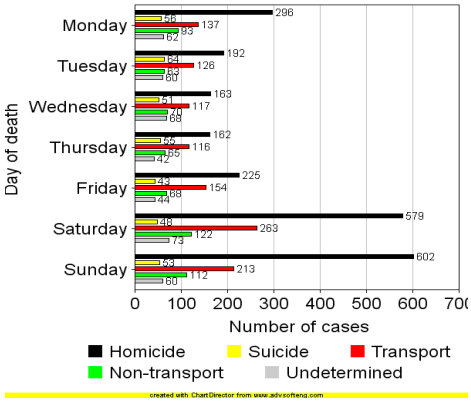


Figure 7. Day of violence deaths by sex (n = 2210)

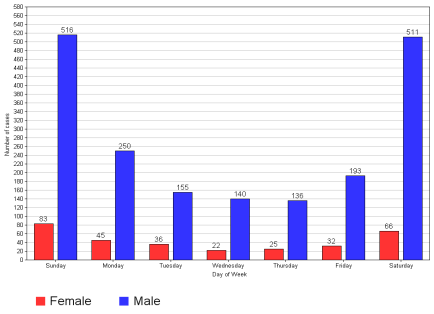


Figure 8. Day of suicide deaths by sex (n = 369)

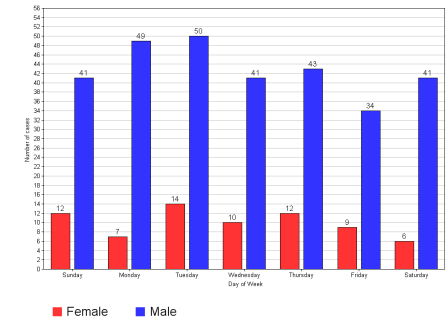
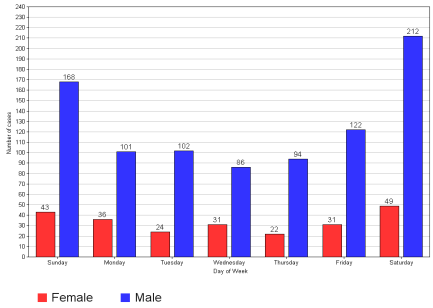


Figure 9. Day of transport deaths by sex (n = 1121)



4.5. Seasonal variation

The peak month for:

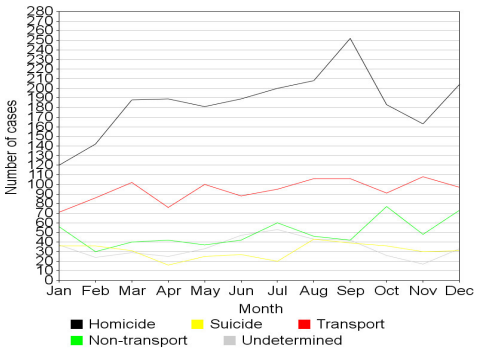
• **violence** was September (11.4%), followed by August (9.4%), followed by December (9.2%);

• **suicide** was August (11.6%), followed by September (10.5%), followed by January (9.7%);

• **transport** related deaths was November (9.6%), followed by August (9.4%), followed by September (9.4%); and

• **other unintentional (non-transport)** related deaths was October (13.0%), followed by December (12.3%), followed by July (10.1%).

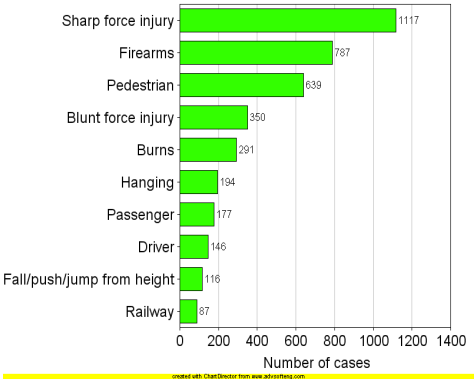
Figure 10. Seasonal variation (n = 4717)



4.6. External cause of death

The cause of death was unknown in 7.9% of the cases. The leading external cause of death was sharp force injury (25.6%), followed by firearms (18%), followed by pedestrian injuries (14.6%).

Figure 11. Top 10 external causes of death (n = 3904)



4.6.1. External cause of violence by age

Age was unknown in 27 of the 2222 cases. Of the remaining cases, the average age of the deceased was 30 (± 11.1 yrs). The leading external cause of death for violence in the:

- **0-14** age group was firearms (39.5%);
- **15-24** age group was sharp force injury (51%)
- **25-34** age group was sharp force injury (50.6%) followed by firearms (34.2%);
- **35-44** age group was sharp force injury (54.2%);
- **45-54** age group was sharp force injury (42.9%) followed by firearms (33.1%);
- **55-64** age group was sharp force injury (41.3%); and
- **65+** age group was blunt force injury (39.1%)

Figure 12.1. Sharp force injury violence by age (n = 1095)

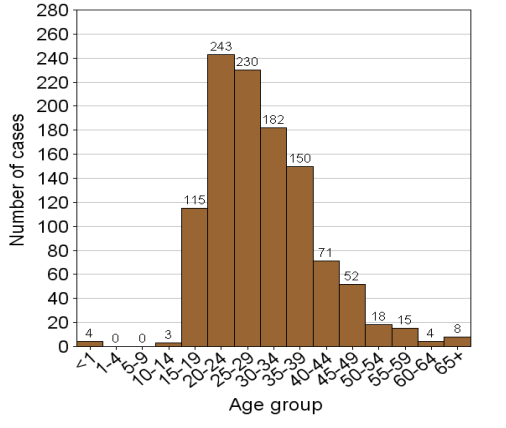


Figure 12.2. Firearm violence by age (n = 722)

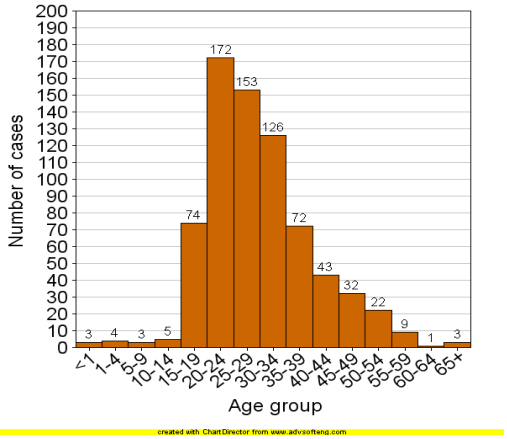


Figure 12.3. Blunt force injury violence by age (n = 317)

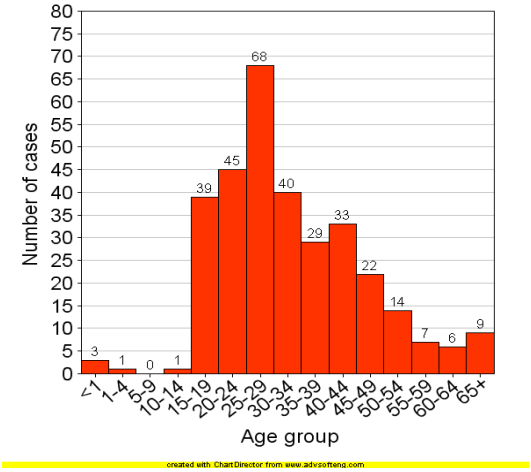
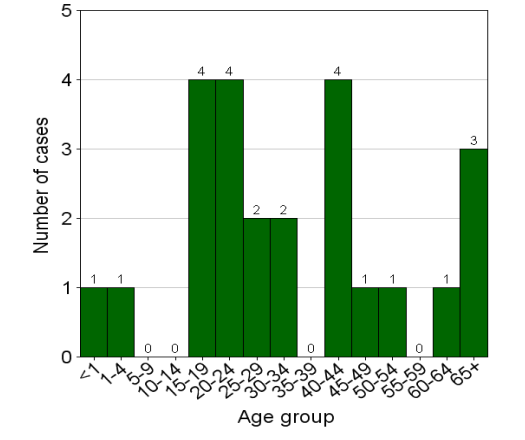


Figure 12.4. Strangulation by age (n = 24)



4.6.2. External cause of suicide by age

Age was unknown in 5 of the 370 cases. Of the remaining cases, the average age of the deceased was 35 (± 14.4 yrs). The leading external cause of death for suicide in the:

- **0-14** age group was hanging (80%);
- **15-24** age group was hanging (72.6%);
- **25-34** age group was hanging (54.6%);
- **35-44** age group was hanging (54.9%);
- **45-54** age group was hanging (36.7%)

followed by firearms (30.6%);

- **55-64** age group was firearms (40.9%); and
- **65+** age group was firearms (46.7%).

Figure 13.1. Hanging suicide by age (n = 193)

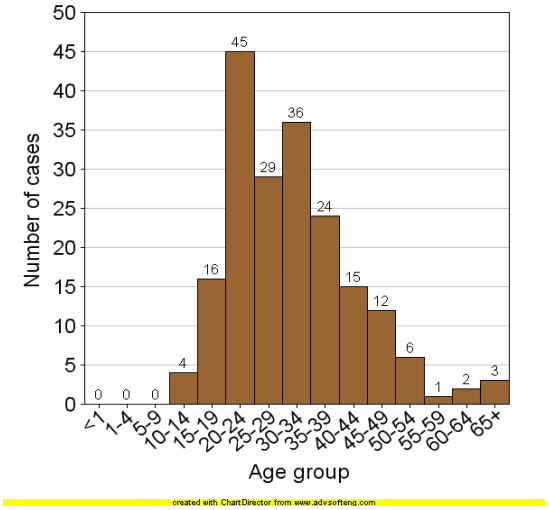


Figure 13.2. Firearm suicide by age (n = 63)

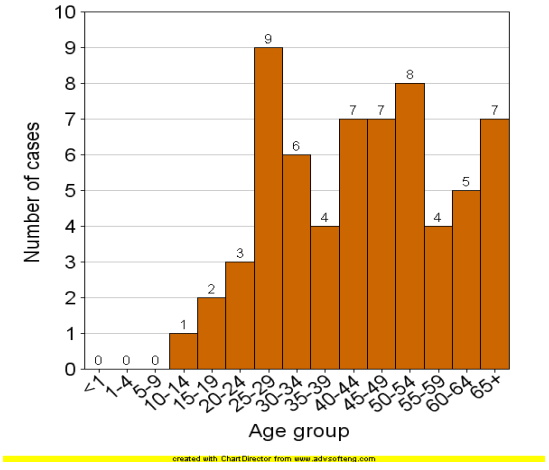


Figure 13.3. Poisoning suicide by age (n = 61)

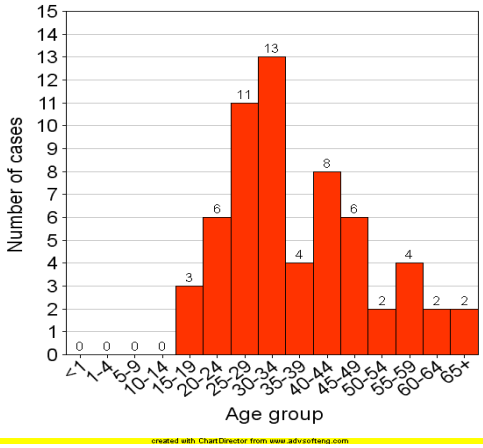


Figure 13.4. Gassing suicide by age (n = 15)

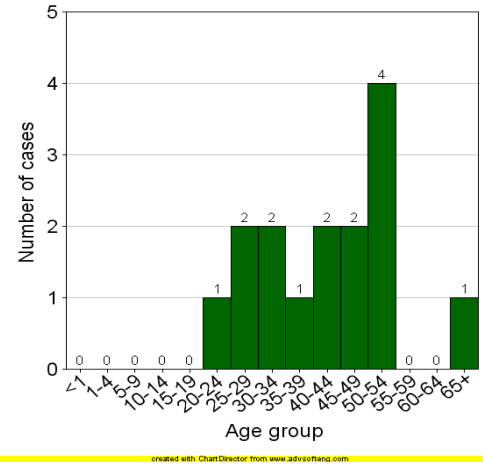
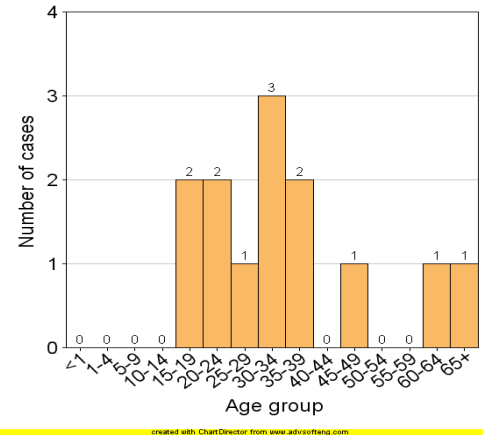


Figure 13.5. Jump from height suicide by age (n = 13)



4.6.3. External cause of transport by age

Age was unknown in 16 of the 1127 cases. Of the remaining cases, the average age of the deceased was 33 (± 16 yrs). The leading external cause of death for transport in the:

- **0-14** age group was pedestrian injuries (79.6%);
- **15-24** age group was pedestrian injuries (43.1%);
- **25-34** age group was pedestrian injuries (57.2%);
- **35-44** age group was pedestrian injuries(54.9%);
- **45-54** age group was pedestrian injuries (61.2%);
- **55-64** age group was pedestrian injuries (56.8%); and
- **65+** age group was pedestrian injuries (42.9%).

Figure 14.1. Pedestrian deaths by age (n = 631)

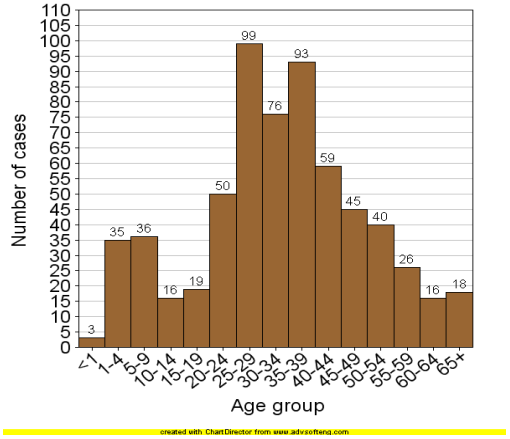


Figure 14.2. Passenger deaths by age (n = 173)

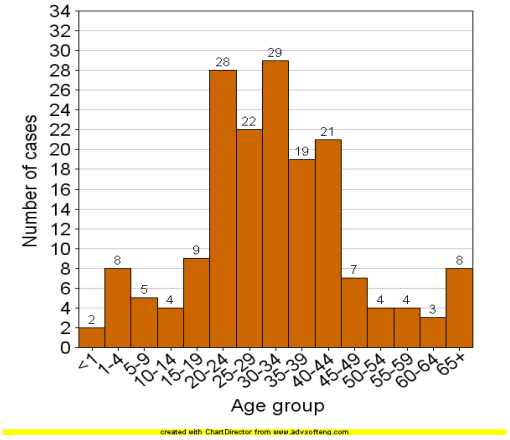


Figure 14.3. Driver deaths by age (n = 144)

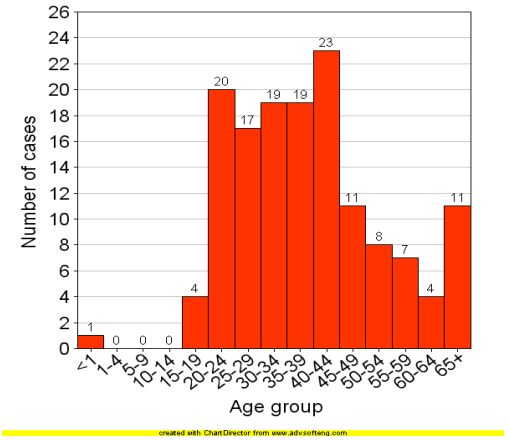


Figure 14.4. Railway deaths by age (n = 79)

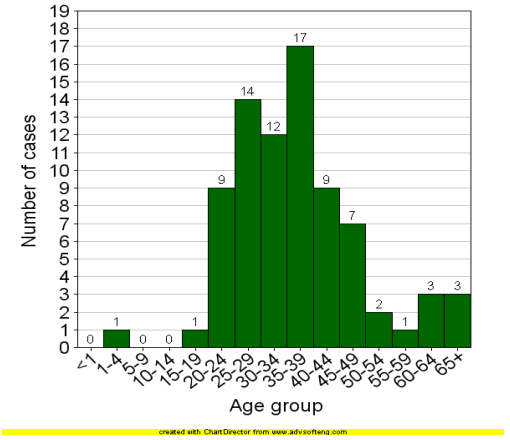
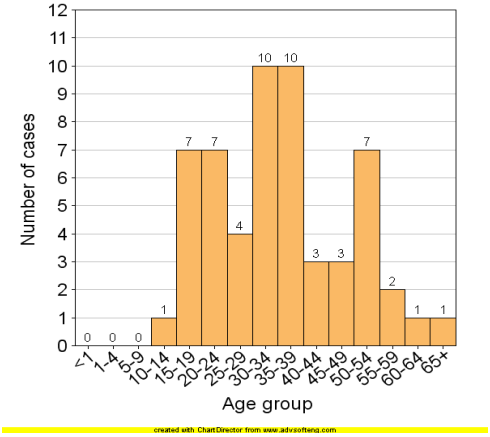


Figure 14.5. Cyclist deaths by age (n = 56)



4.6.4. External cause of other unintentional injury deaths (non-transport) deaths by age

Age was unknown in 19 of the 594 cases. Of the remaining cases, the average age of the deceased was 35 (± 22.5 yrs). The leading cause for unintentional injury deaths (non-transport) in the:

- **0-14** age group was burns (40.7%);
- **15-24** age group was burns (63.2%);
- **25-34** age group was burns (64.5%);
- **35-44** age group was burns (52.6%);
- **45-54** age group was burns (43%);
- **55-64** age group was burns (31.4%); and
- **65+** age group was fall/push/jump from height (56.5%).

Figure 15.1. Burn deaths by age (n = 272)

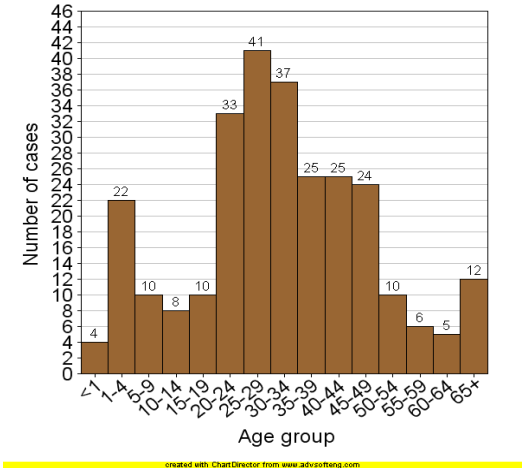


Figure 15.2. Fall from height deaths by age (n = 101)

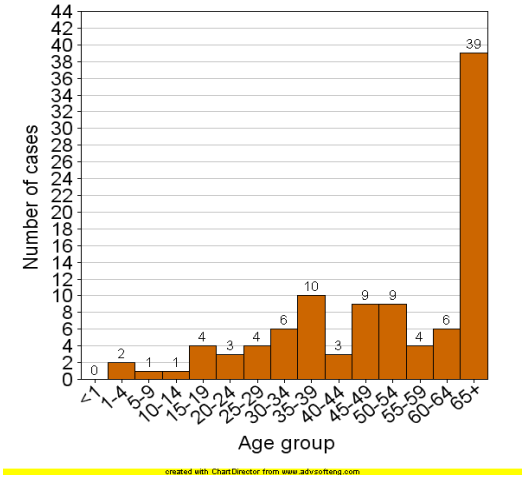


Figure 15.3. Drowning deaths by age (n = 72)

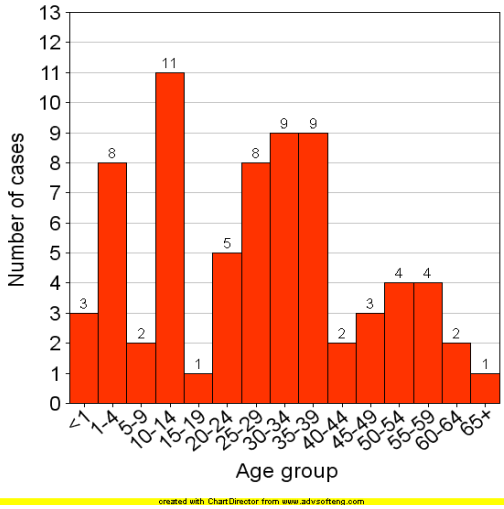


Figure 15.4. Blunt force injury deaths by age (n = 29)

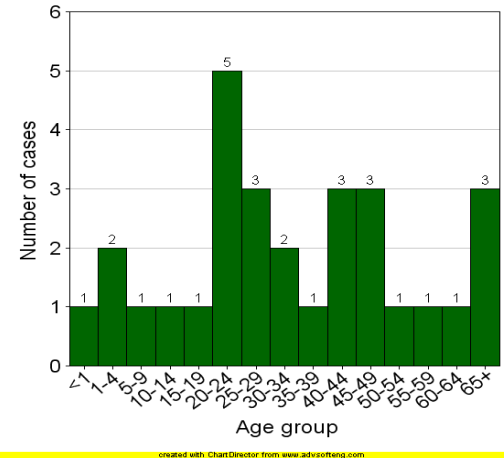
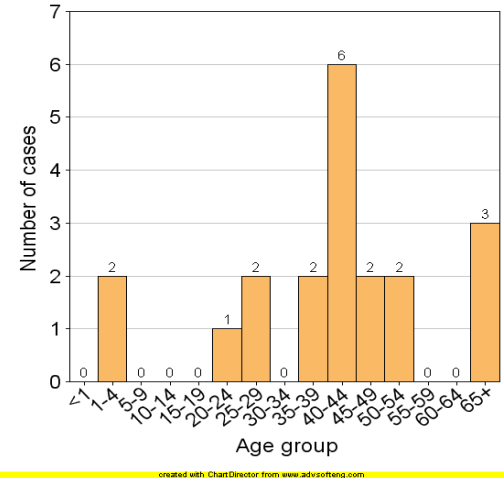


Figure 15.5. Poisoning deaths by age (n = 20)



Chapter 5

eThekwini (Durban) Injury Mortality Profile

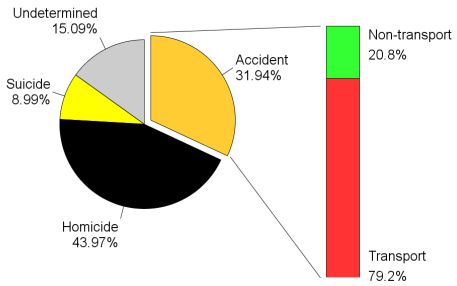
A total of 5399 cases were recorded in eThekwini Metropolitan area (Durban) for January 2007 to December 2007, including 894 (17%) cases that were due to natural causes.

The rest of the analysis is restricted to the 4505 non-natural deaths that occurred in the catchment area.

5.1. Overall manner of death

The leading cause of death was violence (44.0%).

Figure 1. Overall manner of death (N = 4505)



5.1.1. Manner of death by age

The average age of the deceased was 32.0 (± 15.8 years). The leading manner of death(s) amongst the:

- **0-14** age group was transport (30.7%);
- **15-24** age group was violence (56.2%);
- **25-34** age group was violence (54.7%);
- **35-44** age group was violence (42.6%);
- **45-54** age group was violence (35.2%) followed by transport (32.3%);
- **55-64** age group was transport (33.8%) followed by violence (31.3%); and
- **65+** age group was violence (28.6%), followed by transport (26.2%), followed by undetermined (20.2%).

Figure 2.1. Homicide/Violence by age (n = 1926)

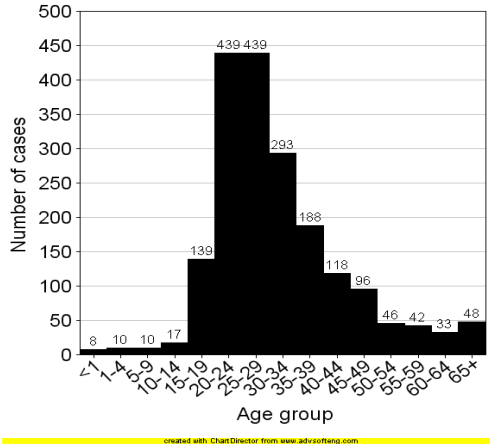


Figure 2.2. Suicide by age (n = 400)

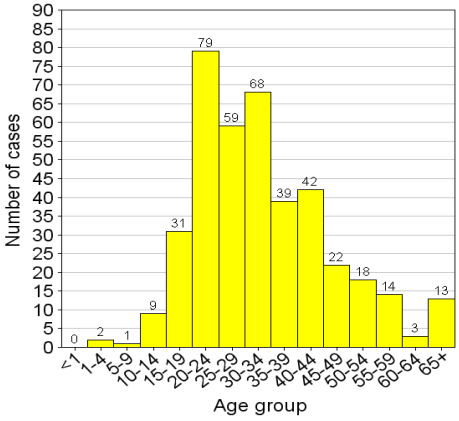


Figure 2.3. Transport deaths by age (n = 1087)

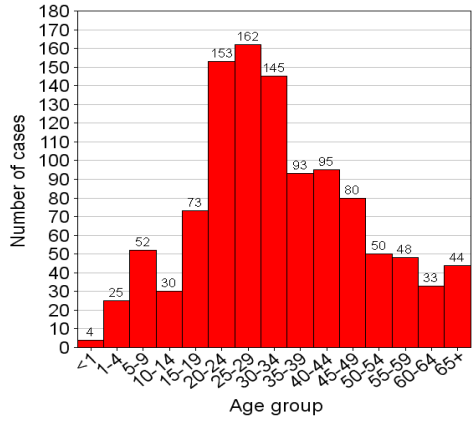


Figure 2.4. Other unintentional injury deaths (non-transport) by age (n = 293)

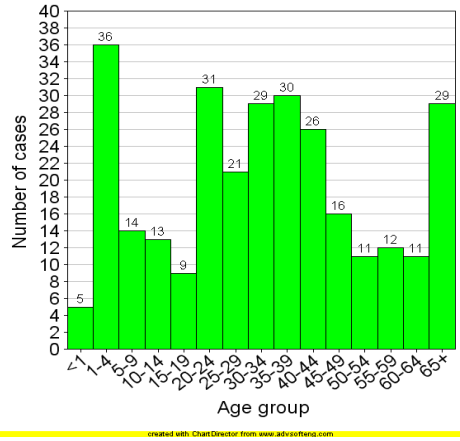
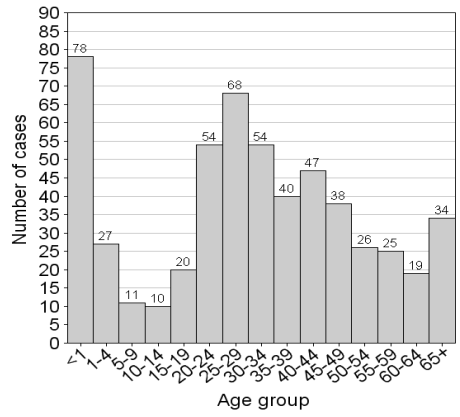


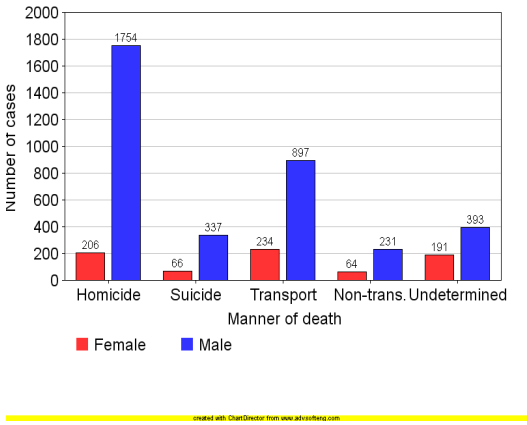
Figure 2.5. Undetermined deaths by age (n = 551)



5.1.2. Manner of death by sex

Of the cases recorded in Durban were 3612 (82.6%) male and 761 (17.4%) were female. The leading cause of death amongst males was violence (48.6%). The leading cause of death amongst females was transport (30.7%).

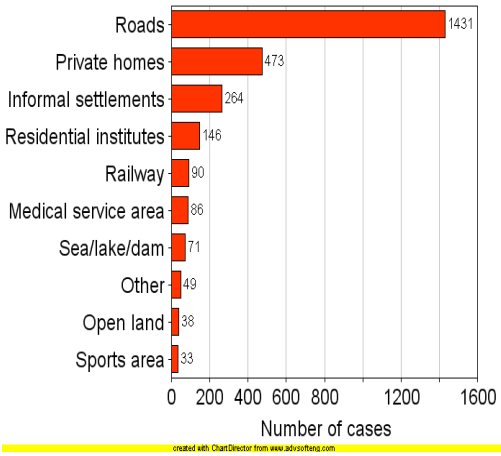
Figure 3. Manner of death by sex (n = 4373)



5.2. Scene of injury

The scene of injury was known in 2804 (62.2%) cases. The scene that accounted for the majority of deaths was roads (51%).

Figure 4. Top 10 scenes of injury (n = 2681)

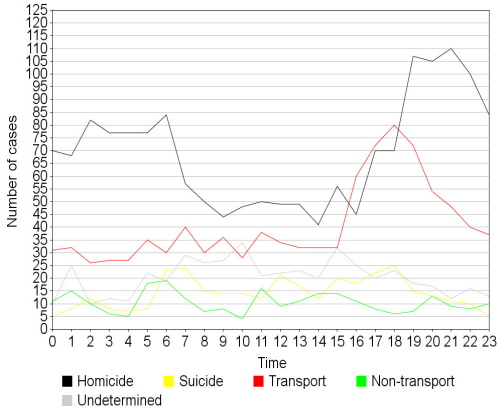


5.3. Time of death

The peak period(s) of death for:

- **violence** was 19h00 - 00h00 (30.2%) followed by 06h00 - 07h00 (5%);
- **suicide** was 15h00 - 19h00 (25.1%), followed by 06h00 - 08h00 (13.9%), followed by 12h00 - 14h00 (11.2%);
- **transport** related deaths was 16h00 - 21h00 (34.6%); and
- **other unintentional (non-transport)** related deaths was 05h00 - 07h00 (14.8%), followed by 14h00 - 16h00 (11.2%), followed by 11h00 - 12h00 (6.4%), followed by 01h00 - 02h00 (6%), followed by 20h00 - 21h00 (5.2%).

Figure 5. Time of death (n = 3720)



5.4. Day of death

The peak days of death for:

- **violence** were Saturday (25.2%), followed by Sunday (21.3%), followed by Friday (13.9%);
- **suicide** were Sunday (16.4%), followed by Friday (15.1%), followed by Tuesday (14.9%);
- **transport** related deaths were Saturday (22.6%), followed by Sunday (17.9%), followed by Friday (17%); and
- **other unintentional injury deaths (non-transport)** were Saturday (18%), followed by Monday (17.3%), followed by Sunday (15.5%).

Figure 6. Day of death (n = 4271)

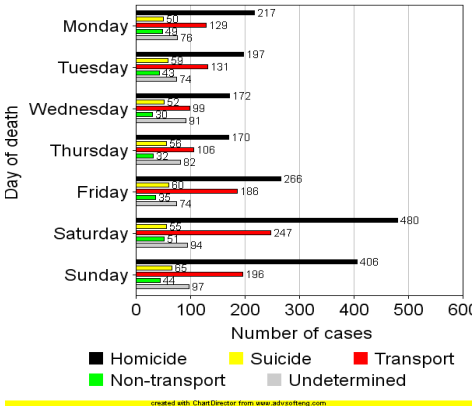


Figure 7. Day of violence deaths by sex (n = 1888)

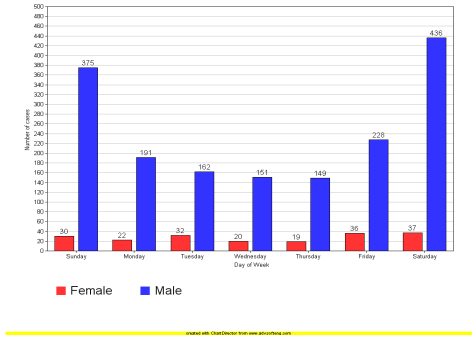


Figure 8. Day of suicide deaths by sex (n = 396)

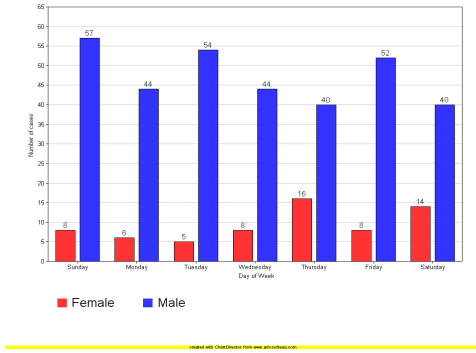
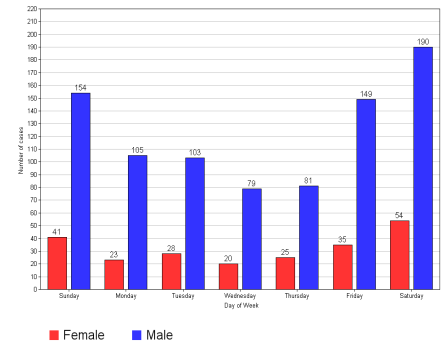


Figure 9. Day of transport deaths by sex (n = 1087)

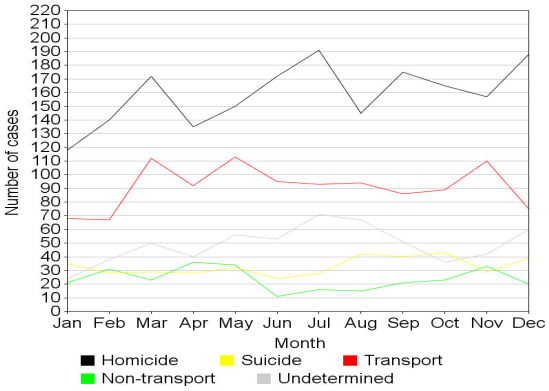


5.5. Seasonal variation

The peak month for:

- **violence** was July (10.0%), followed by December (9.9%), followed by September (9.2%);
- **suicide** was October (10.8%), followed by August (10.6%), followed by September (10.1%);
- **transport** related deaths was May (10.3%), followed by March (10.2%), followed by November (10.1%); and
- **other unintentional injury deaths (non-transport)** was April (12.7%), followed by May (12.0%), followed by November (11.6%).

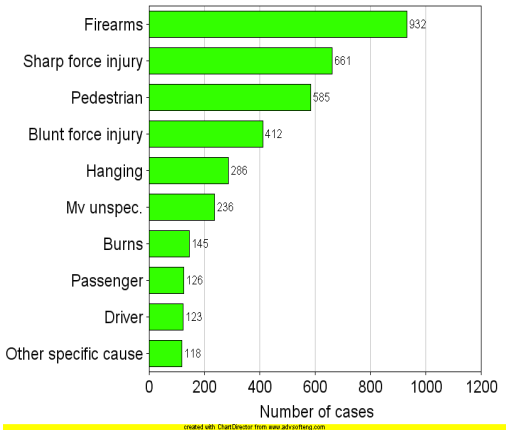
Figure 10. Seasonal variation (n = 4271)



5.6. External cause of death

The cause of death was unknown in 7.5% of the cases. The leading external cause of death was firearms (22.4%), followed by sharp force injury (15.9%), followed by pedestrian injuries (14.1%).

Figure 11. Top 10 external causes of death (n = 3624)



5.6.1. External cause of violence by age

Age was unknown in 55 of the 1980 cases. Of the remaining cases, the average age of the deceased was 31 (± 12.7 yrs). The leading external cause of death for violence in the:

- **0-14** age group was blunt force injury (35.6%);
- **15-24** age group was firearms (42.7%) followed by sharp force injury (38.6%);
- **25-34** age group was firearms (45.6%) followed by sharp force injury (35.7%);
- **35-44** age group was firearms (50.7%);
- **45-54** age group was firearms (45.1%);
- **55-64** age group was firearms (44%); and
- **65+** age group was blunt force injury (39.6%) followed by firearms (31.2%).

Figure 12.1. Firearm violence by age (n = 859)

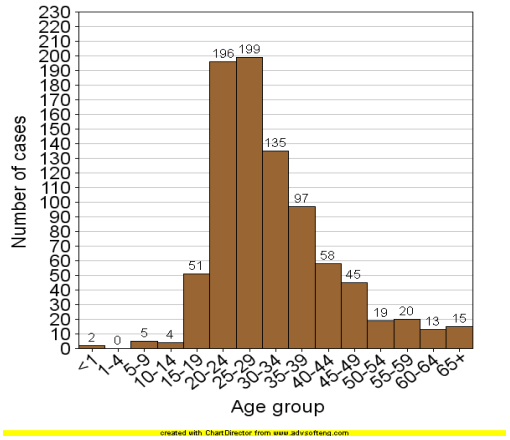


Figure 12.2. Sharp force injury violence by age (n = 640)

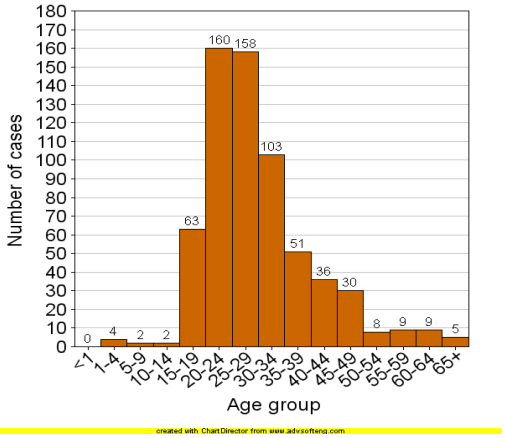


Figure 12.3. Blunt force injury violence by age (n = 351)

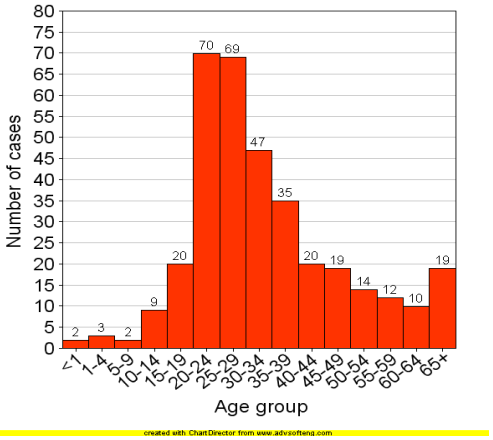
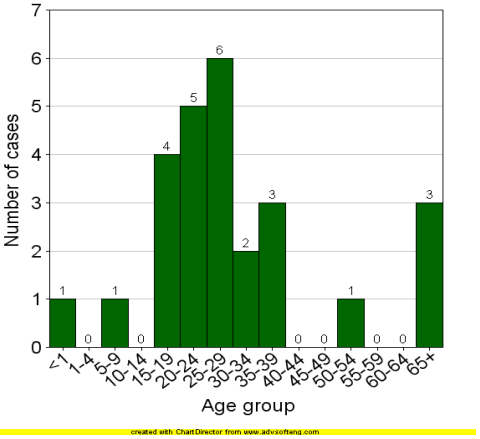


Figure 12.4. Strangulation by age (n = 26)



5.6.2. External cause of suicide by age

Age was unknown in 5 of the 405 cases. Of the remaining cases, the average age of the deceased was 32 (± 13.4 yrs). The leading external cause of death for suicide in the:

- **0-14** age group was hanging (75%);
- **15-24** age group was hanging (72.7%);
- **25-34** age group was hanging (73.2%);
- **35-44** age group was hanging (65.4%);
- **45-54** age group was hanging (60%);
- **55-64** age group was hanging (58.8%); and
- **65+** age group was firearms (38.5%)

followed by hanging (30.8%).

Figure 13.1. Hanging suicide by age (n = 273)

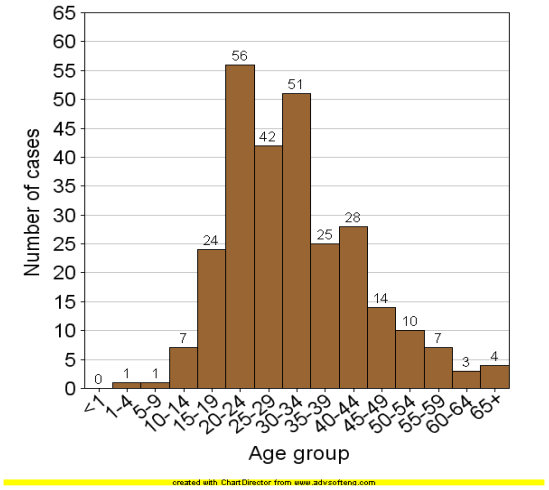


Figure 13.2. Poisoning suicide by age (n = 44)

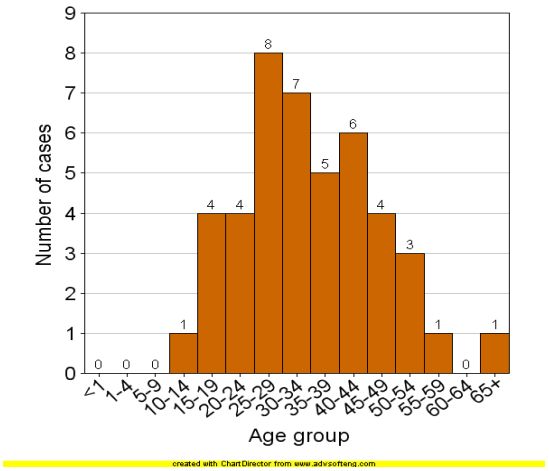


Figure 13.3. Firearm suicide by age (n = 38)

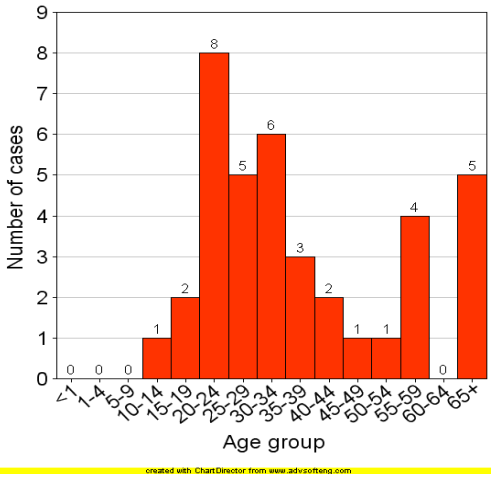


Figure 13.4. Jump from height suicide by age (n = 20)

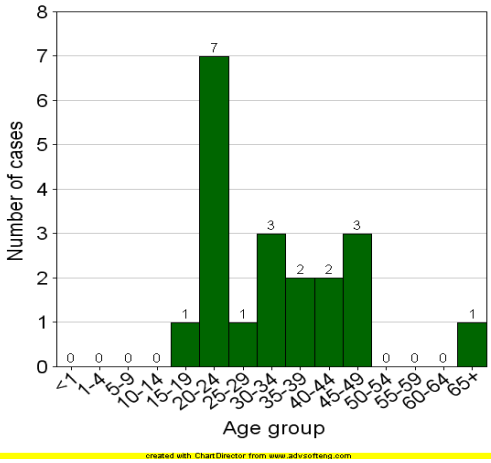
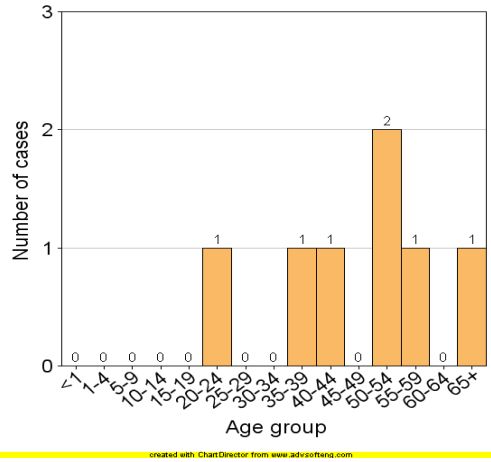


Figure 13.5. Gassing suicide by age (n = 7)



5.6.3. External cause of transport by age

Age was unknown in 53 of the 1140 cases. Of the remaining cases, the average age of the deceased was 33 (± 16.2 yrs). The leading external cause of death for transport in the:

- **0-14** age group was pedestrian injuries (65.8%);
- **15-24** age group was pedestrian injuries (49.1%);
- **25-34** age group was pedestrian injuries (47.6%);
- **35-44** age group was pedestrian injuries (48.4%);
- **45-54** age group was pedestrian injuries (56.9%);
- **55-64** age group was pedestrian injuries (54.3%); and
- **65+** age group was pedestrian injuries (50%).

Figure 14.1. Pedestrian deaths by age (n = 561)

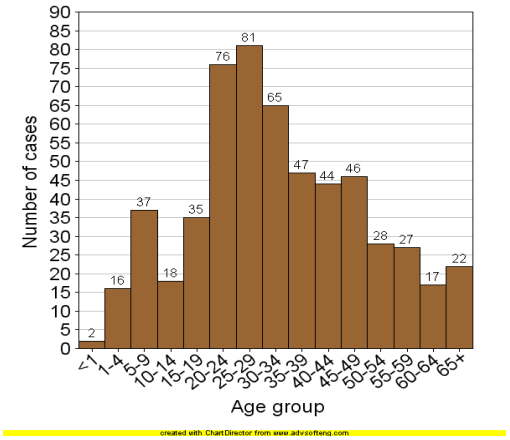


Figure 14.2. Motor vehicle unspecified deaths by age (n = 213)

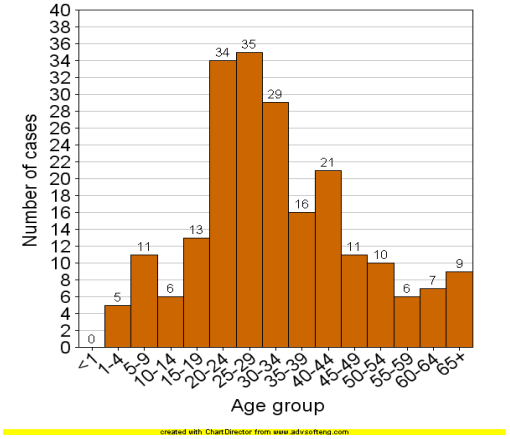


Figure 14.3. Passenger deaths by age (n = 124)

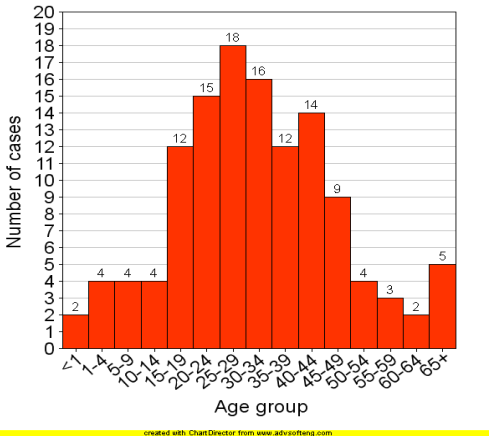


Figure 14.4. Driver deaths by age (n = 122)

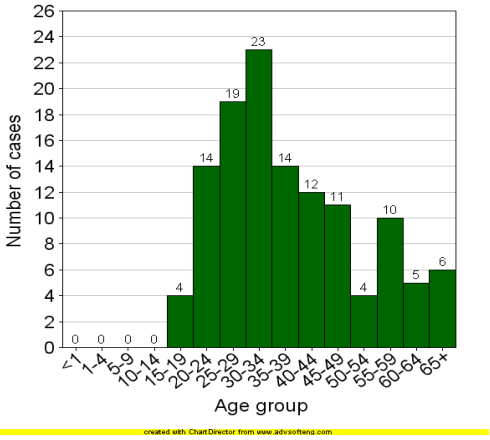
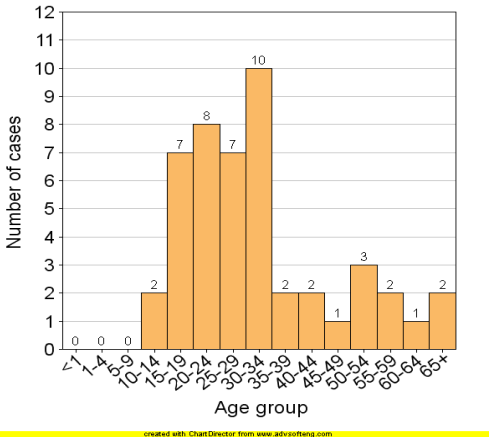


Figure 14.5. Railway deaths by age (n = 47)



5.6.4. External cause of other unintentional injury deaths (non-transport) deaths by age

Age was unknown in 6 of the 299 cases. Of the remaining cases, the average age of the deceased was 33 (± 22.6 yrs). The leading cause for other unintentional injury deaths (non-transport) in the:

- **0-14** age group was drowning (26.5%);
- **15-24** age group was burns (26.1%);
- **25-34** age group was burns (28%), followed by drowning (20%);
- **35-44** age group was burns (33.9%);
- **45-54** age group was blunt force injury (29.6%), followed by fall/push/jump from height (22.2%);
- **55-64** age group was fall/push/jump from height (34.8%) and
- **65+** age group was fall/push/jump from height (37.9%).

Figure 15.1. Burn deaths by age (n = 75)

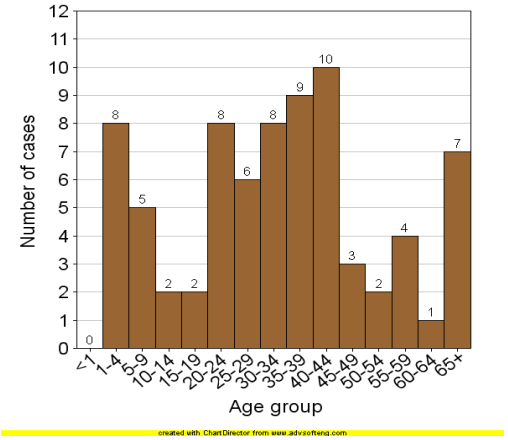


Figure 15.2. Fall/from height deaths by age (n = 53)

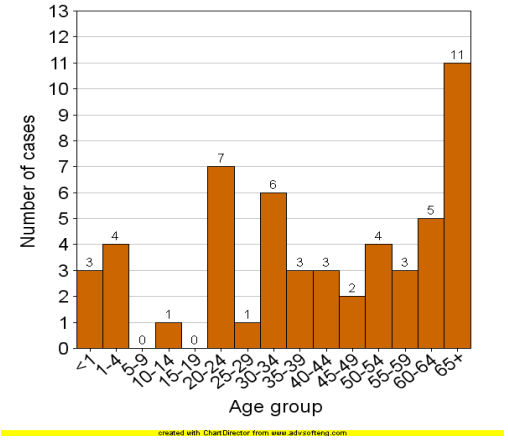


Figure 15.3. Drowning deaths by age (n = 49)

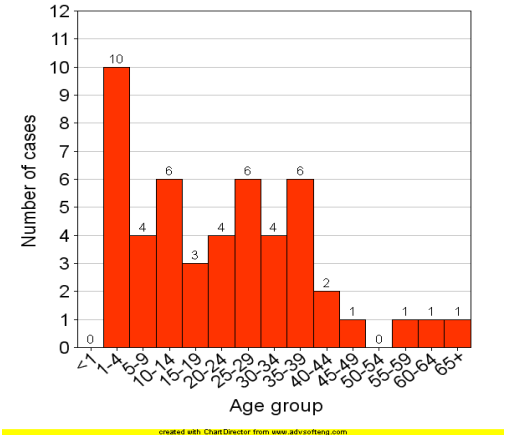


Figure 15.4. Blunt force injury deaths by age (n = 33)

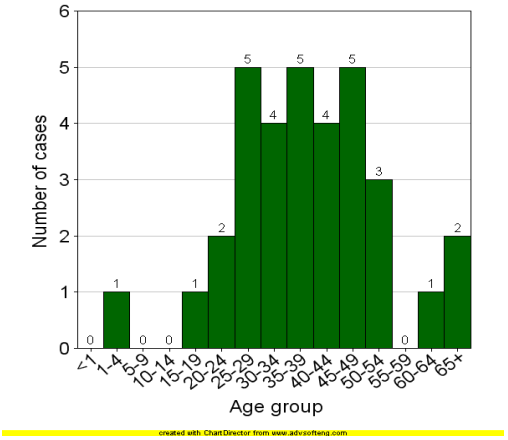
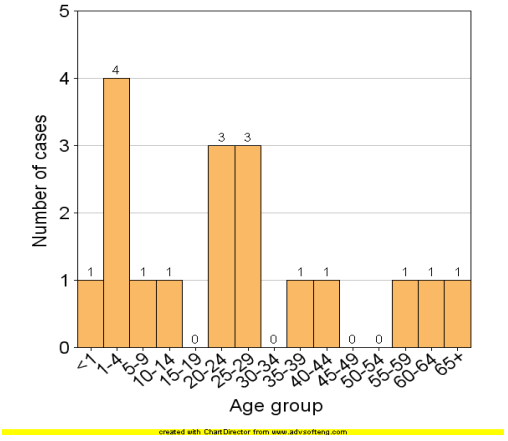


Figure 15.5. Electrocution deaths by age (n = 18)



Chapter 6

Johannesburg Injury Mortality Profile

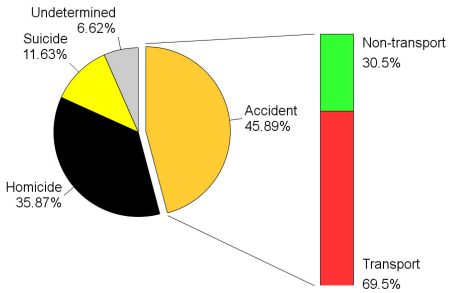
A total of 5531 cases were recorded in the Johannesburg catchment area for 1 January 2007 to 31December 2007, including 800 (14.5%) cases that were due to natural causes.

The rest of the analysis is restricted to the 4731 non-natural deaths that occurred in the catchment area.

6.1. Overall manner of death

The leading cause of death in the Johannesburg catchment area was violence (35.9%).

Figure 1. Overall manner of death (N = 4731)



6.1.1. Manner of death by victim age

The average age of the victims was 33.6 (± 15.8 years). The leading manner of death(s) amongst the:

- **0-14** age group was non-transport (49.6%) followed by transport (31.3%);
- **15-24** age group was violence (40.6%) followed by transport (32.1%);
- **25-34** age group was violence (43.5%);
- **35-44** age group was violence (40.1%) followed by transport (33.2%);
- **45-54** age group was transport (37.9%);
- **55-64** age group was transport (30.7%); and
- **65+** age group was transport (37.6%) followed by non-transport (30.2%).

Figure 2.1. Violence/Homicide by victim age (n = 1661)

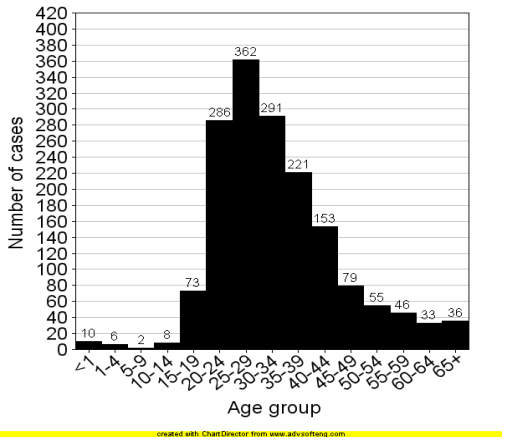


Figure 2.2. Suicide by victim age (n = 541)

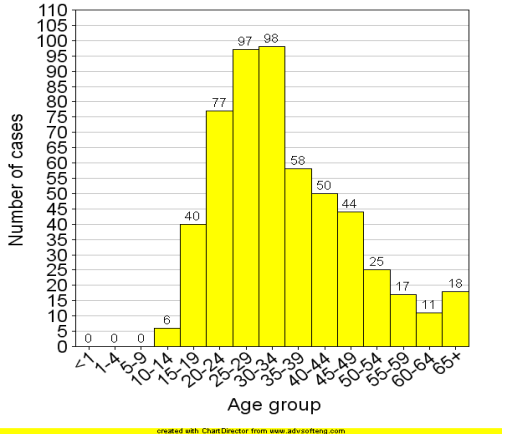


Figure 2.3. Transport deaths by victim age (n = 1483)

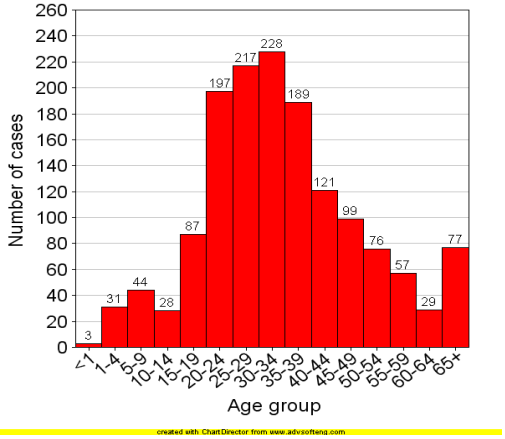


Figure 2.4. Non-transport deaths by victim age (n = 649)

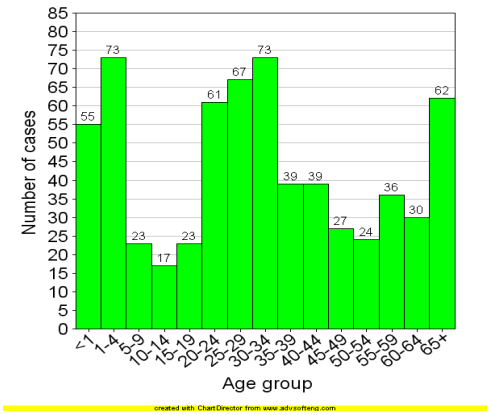
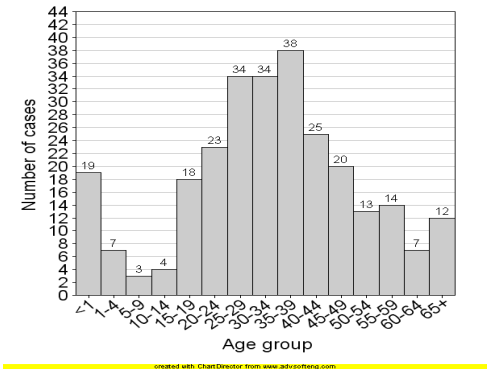


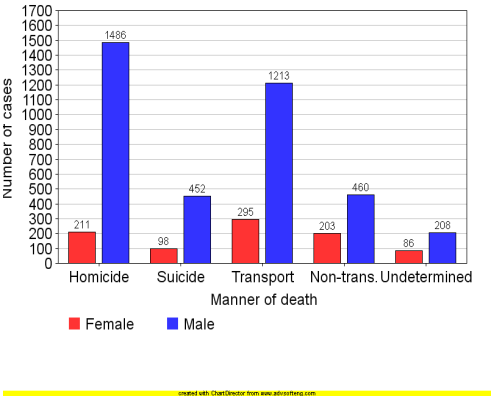
Figure 2.5. Undetermined deaths by victim age (n = 271)



6.1.2. Manner of death by victim gender

Of the cases recorded in the Johannesburg catchment area, 3819 (81.0%) were male and 893 (19.0%) were female. The leading cause of death amongst males was violence (38.9%), followed by transport (31.8%). The leading cause of death amongst females was transport (33%).

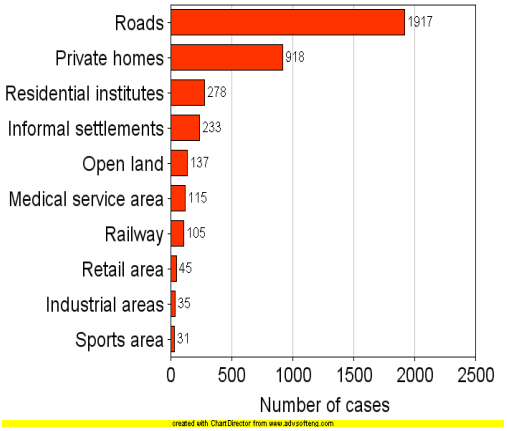
Figure 3. Manner of death by victim gender (n = 4712)



6.2. Scene of injury

The scene of injury was known in 3932 (83.1%) cases. The scene that accounted for the majority of deaths was roads (48.8%).

Figure 4. Top 10 scenes of injury (n = 3814)

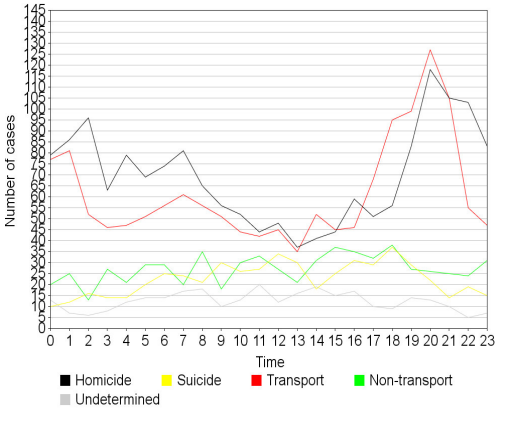


6.3. Time of death

The peak period(s) of death for:

- **violence** was 19h00 - 00h00 (29.6%) followed by 01h00 - 03h00 (10.8%);
- **suicide** was 16h00 - 20h00 (23.3%), followed by 11h00 - 14h00 (16.8%), followed by 09h00 - 10h00 (5.5%);
- **transport** related deaths was 18h00 - 22h00 (28.8%) followed by 00h00 - 02h00 (10.7%); and
- **non-transport** related deaths was 15h00 - 17h00 (11.1%), followed by 18h00 - 19h00 (5.8%), followed by 08h00 - 09h00 (5.4%), followed by 11h00 - 12h00 (5%).

Figure 5. Time of death (n = 4650)



6.4. Day of death

The peak days of death for:

• **violence** were Saturday (23.3%), followed by Sunday (21%), followed by Monday (14.4%);
• **suicide** were Monday (19.5%), followed by Thursday (16%), followed by Saturday (14.5%);
• **transport** related deaths were Saturday (23.3%), followed by Sunday (20%), followed by Monday (13%); and
• **non-transport** were Saturday (16%), followed by Sunday (15.8%), followed by Tuesday (15.7%).

Figure 6. Day of death (n = 4722)

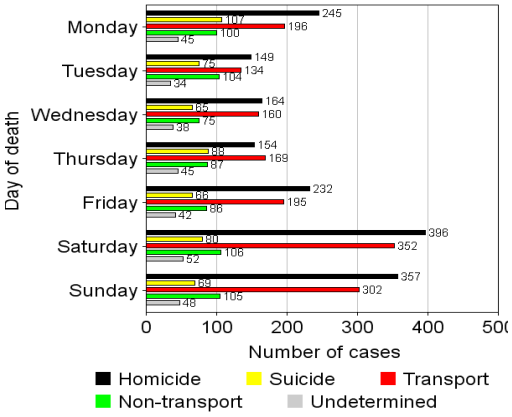


Figure 7. Day of homicide deaths by sex (n = 1697)

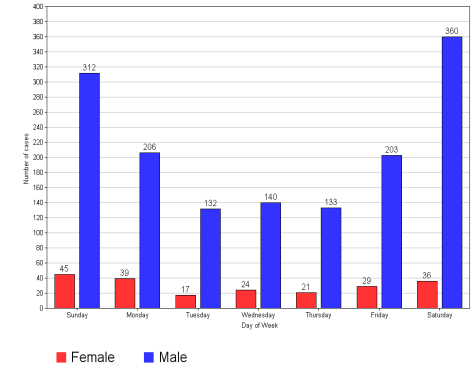


Figure 8. Day of suicide deaths by sex (n = 550)

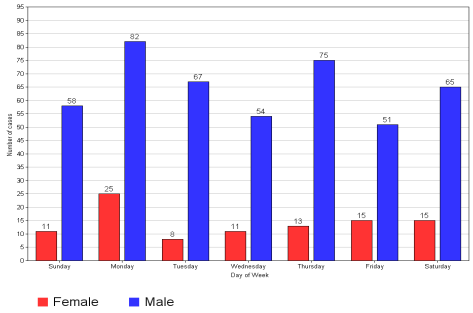
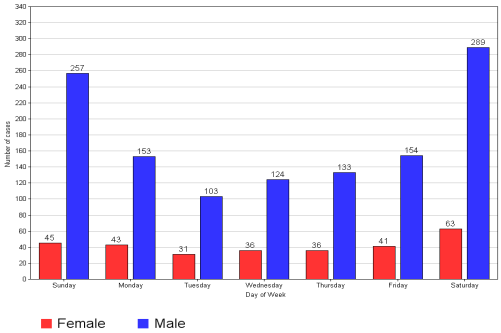


Figure 9. Day of transport deaths by sex (n = 1508)

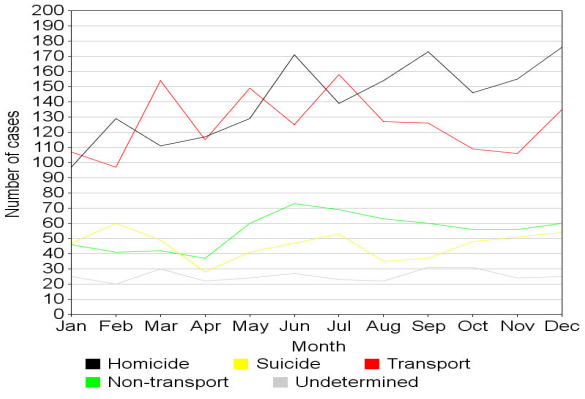


6.5. Seasonal variation

The peak month for:

• **violence** was December (10.4%), followed by September (10.2%), followed by June (10.1%);
• **suicide** was February (10.9%), followed by December (9.8%), followed by July (9.6%);
• **transport** related deaths was July (10.5%), followed by March (10.2%), followed by May (9.9%); and
• **non-transport** related deaths was June (11.0%), followed by July (10.4%), followed by August (9.5%).

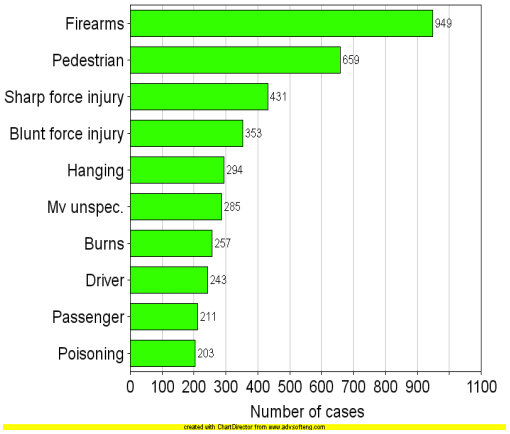
Figure 10. Seasonal variation (n = 4722)



6.6. External cause of death

The cause of death was unknown in 3.7% of the cases. The leading external cause of death was firearms (20.8%), followed by motor vehicle pedestrian (14.5%), followed by sharp force injury (9.5%).

Figure 11. Top 10 external causes of death (n = 3885)



6.6.1. External cause of violence by age

Age was unknown in 36 of the 1697 cases. Of the remaining cases, the average age of the victims was 33 (± 12.2 yrs). The leading external cause of death for violence in the:

- **0-14** age group was firearms and blunt objects each (19.2%);
- **15-24** age group was firearms (47.6%);
- **25-34** age group was firearms (54.2%);
- **35-44** age group was firearms (52.1%);
- **45-54** age group was firearms (52.2%);
- **55-64** age group was firearms (48.1%); and
- **65+** age group was blunt force injury (44.4%) followed by firearms (36.1%).

Figure 12.1. Firearm violence by victim age (n = 846)

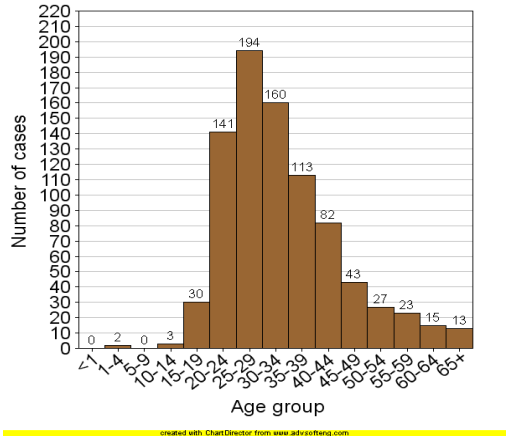


Figure 12.2. Sharp force injury violence by victim age (n = 413)

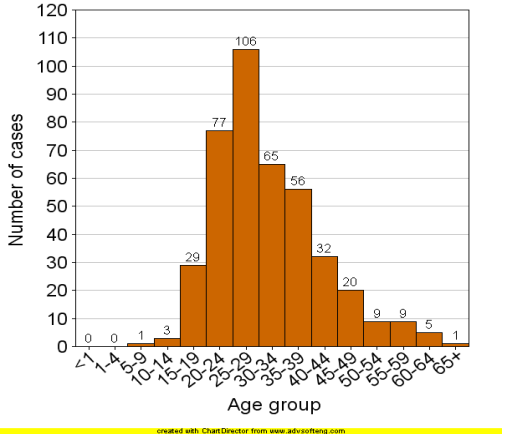


Figure 12.3. Blunt force injury violence by victim age (n = 329)

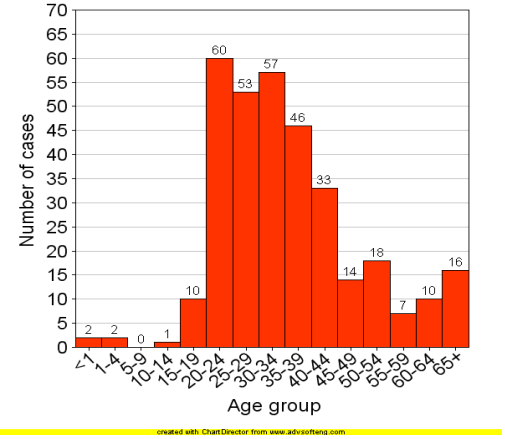
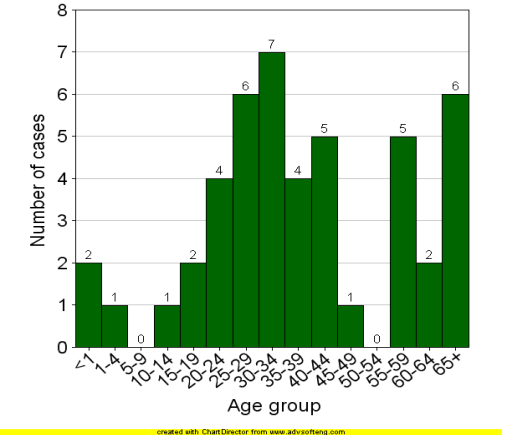


Figure 12.4. Strangulation, suffocation or asphyxia violence by victim age (n = 46)



6.6.2. External cause of suicide by age

Age was unknown in 9 of the 550 cases. Of the remaining cases, the average age of the victims was 34 (± 13.1 yrs). The leading external cause of death for suicide in the:

- **0-14** age group was hanging (60.1%);
- **15-24** age group was hanging (58.1%);
- **25-34** age group was hanging (52.8%);
- **35-44** age group was hanging (42.6%);
- **45-54** age group was hanging (46.4%);
- **55-64** age group was hanging (50%); and
- **65+** age group was firearms (38.9%).

Figure 13.1. Hanging suicide by victim age (n = 273)

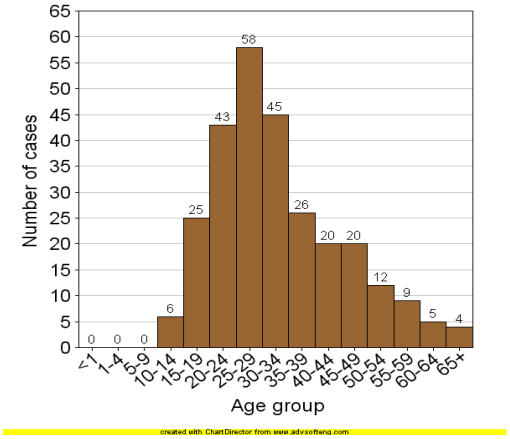


Figure 13.2. Poisoning suicide by victim age (n = 95)

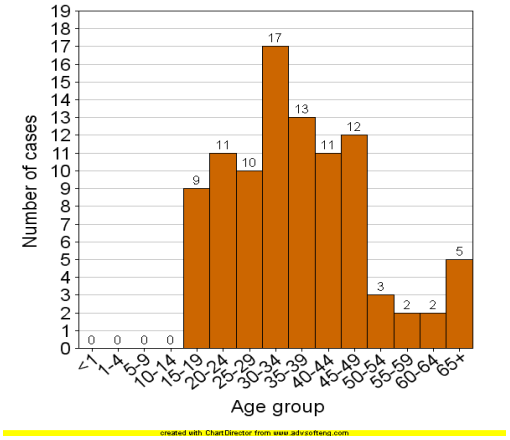


Figure 13.3. Firearm suicide by victim age (n = 88)

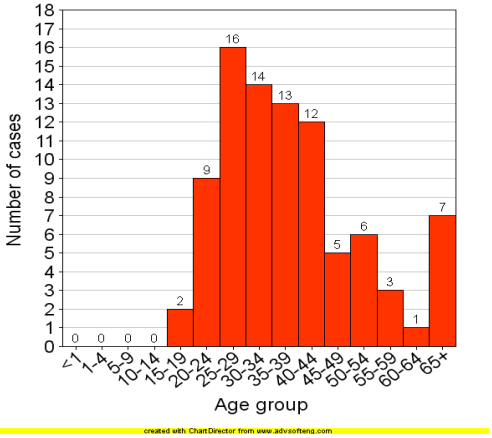
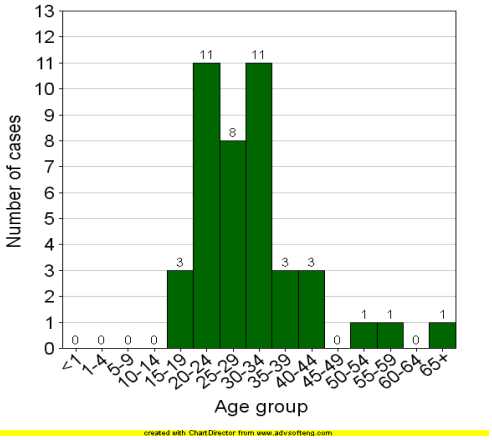


Figure 13.4. Fall/push/jump from height suicide by victim age (n = 42)



6.6.3. External cause of transport by age

Age was unknown in 25 of the 1508 cases. Of the remaining cases, the average age of the victims was 34 (± 15.7 yrs). The leading external cause of death for transport in the:

- **0-14** age group was motor vehicle pedestrian (78.3%);
- **15-24** age group was motor vehicle pedestrian (33.1%);
- **25-34** age group was motor vehicle pedestrian (35.5%);
- **35-44** age group was motor vehicle pedestrian (43.2%);
- **45-54** age group was motor vehicle pedestrian (51.4%);
- **55-64** age group was motor vehicle pedestrian (52.3%); and
- **65+** age group was motor vehicle pedestrian (48.1%).

Figure 14.1. Motor vehicle pedestrian deaths by victim age (n = 641)

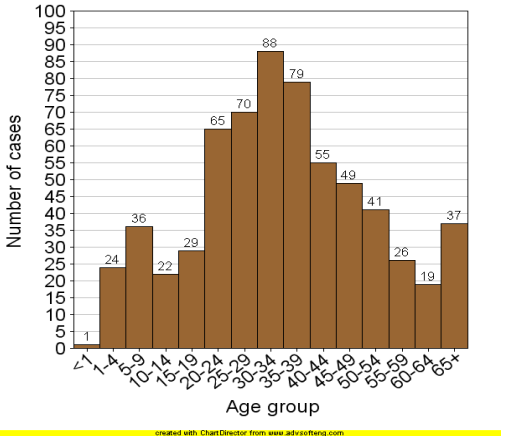


Figure 14.2. Motor vehicle unspecified deaths by victim age (n = 280)

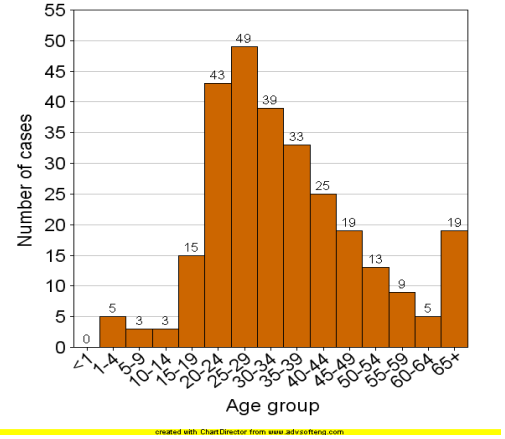


Figure 14.3. Motor vehicle driver deaths by victim age (n = 242)

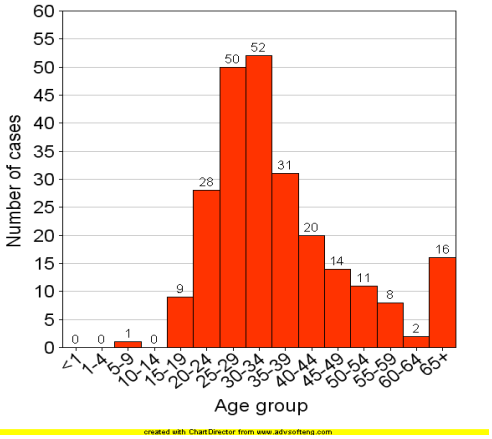


Figure 14.4. Motor vehicle passenger deaths by victim age (n = 210)

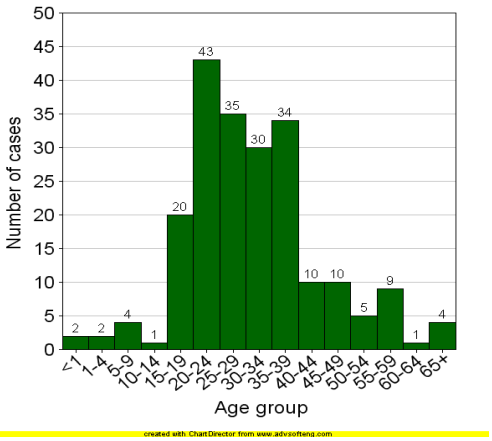
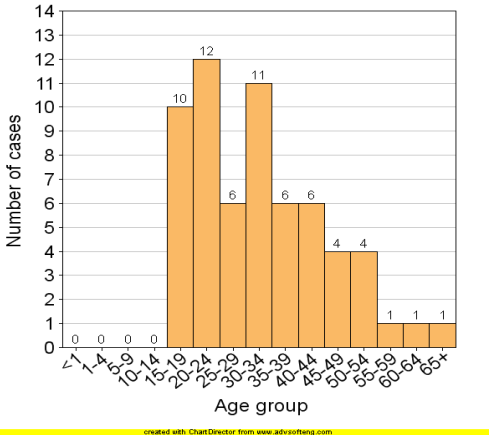


Figure 14.5. Railway deaths by victim age (n = 62)



6.6.4. External cause of non-transport deaths by age

Age was unknown in 14 of the 663 cases. Of the remaining cases, the average age of the victims was 31 (± 23.4 yrs). The leading cause for non-transported related deaths in the:

- **0-14** age group was burns (36.9%);
- **15-24** age group was burns (33.3%);
- **25-34** age group was burns (43.6%);
- **35-44** age group was burns (50%);
- **45-54** age group was burns (43.1%);
- **55-64** age group was burns (30.3%); and
- **65+** age group was poisoning (27.7%).

Figure 15.1. Burn deaths by victim age (n = 232)

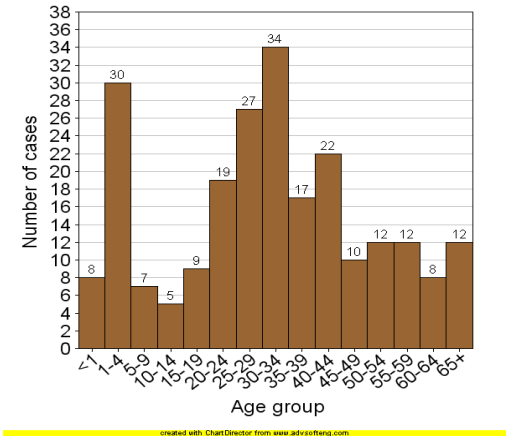


Figure 15.2. Drowning deaths by victim age (n = 84)

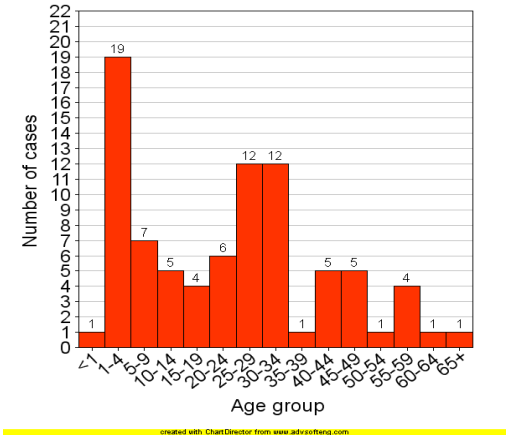


Figure 15.3. Fall/push/jump from height deaths by victim age (n = 78)

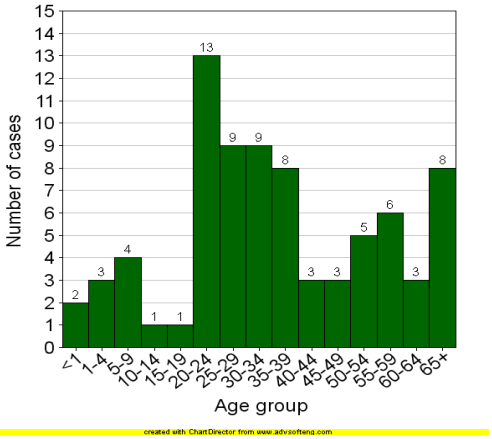
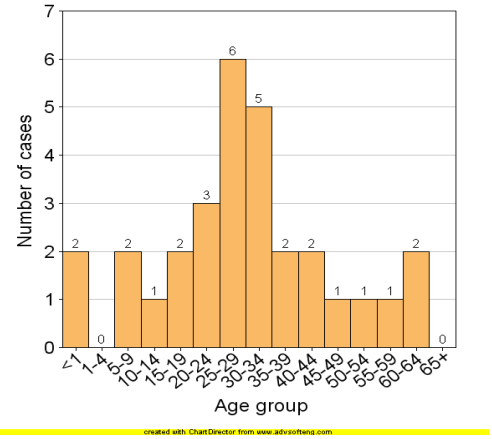


Figure 15.4 Electrocution deaths by victim age (n = 30)



Chapter 7

Tshwane (Pretoria) Injury Mortality Profile

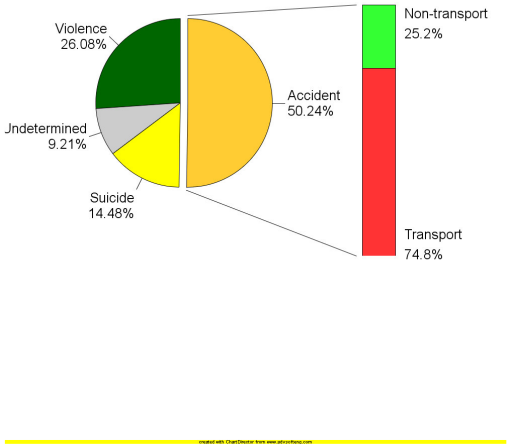
A total of 3141 cases were recorded in a total of 3229 cases were recorded in Tshwane/Pretoria for January 2007 to December 2007, including 420 (13.0%) cases that were due to natural causes.

The rest of the analysis is restricted to the 2715 non-natural deaths that occurred in the catchment area.

7.1. Overall manner of death

The leading cause of death was transport –related (37.6%).

Figure1. Overall manner of death (N = 2715)



7.1.2. Manner of death by age

The average age of the deceased was 33.9 (± 16.4 years). The leading manner of death(s) amongst the:

- **0-14** age group was non-transport (47.3%) followed by transport (34.8%);
- **15-24** age group was transport (39.1%) followed by violence (31.3%);
- **25-34** age group was transport (39%) followed by violence (31.7%);
- **35-44** age group was transport (39.5%);
- **45-54** age group was transport (37.8%);
- **55-64** age group was transport (43.6%); and
- **65+** age group was transport (34.7%).

Figure 2.1. Violence/Homicide by age (n = 577)

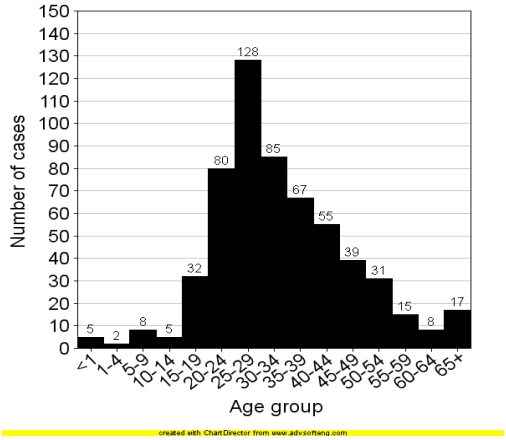


Figure 2.2. Suicide by age (n = 328)

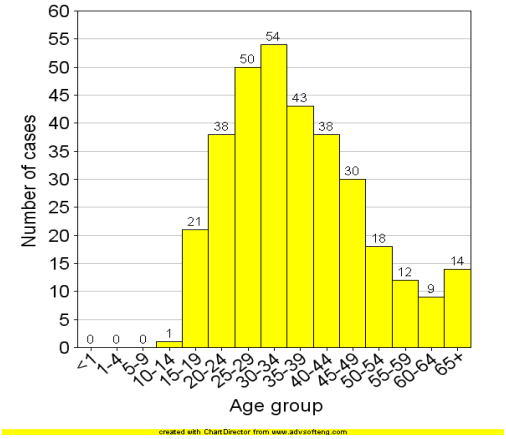


Figure 2.3. Transport deaths by age (n = 866)

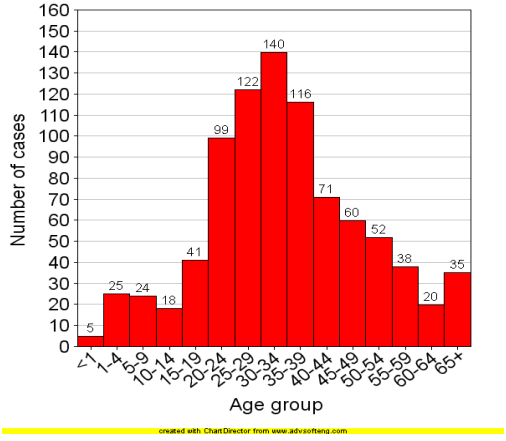


Figure 2.4. Other unintentional injury deaths (non-transport) by age (n = 293)

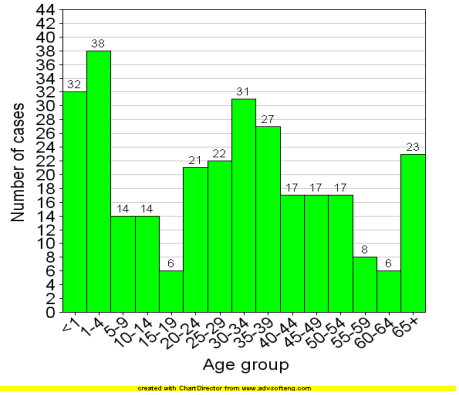
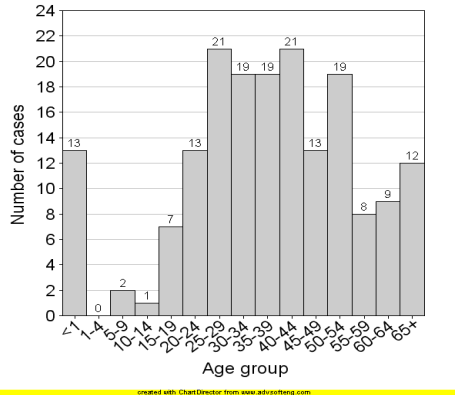


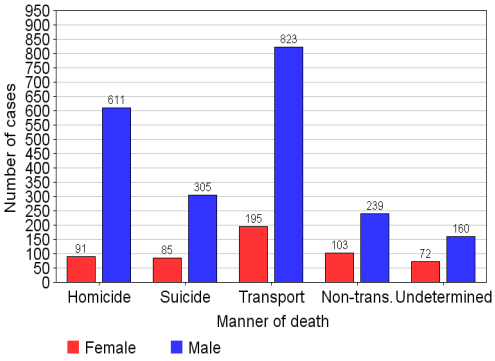
Figure 2.5. Undetermined deaths by age (n = 177)



7.1.3. Manner of death by gender

Of the cases recorded in Tshwane/ Pretoria, 2138 (79.7%) were male and 546 (20.3%) were female. The leading cause of death amongst males was transport (38.5%) as well as for females was transport (35.7%).

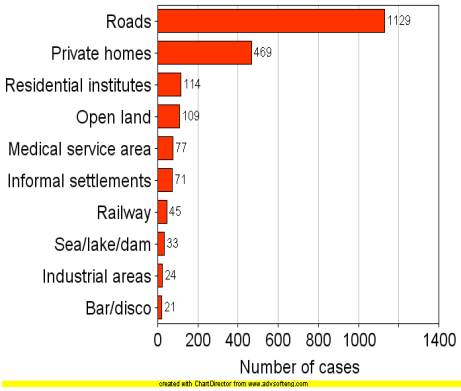
Figure 3. Manner of death by gender (n = 2684)



7.2. Scene of injury

The scene of injury was known in 2171 (80.0%) cases. The scene that accounted for the majority of deaths was roads (52%).

Figure 4. Top 10 scenes of injury (n = 2092)

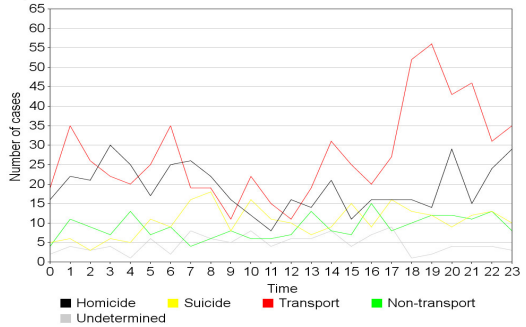


7.3. Time of death

The peak period(s) of death for:

- **violence** was 03h00 - 05h00 (11.9%), followed by 22h00 - 00h00 (11.5%),
- **suicide** was 07h00 - 09h00 (13.6%), followed by 17h00 - 19h00 (11.6%), followed by 10h00 - 11h00 (6.4%),
- **transport** related deaths was 18h00 - 22h00 (29.6%), followed by 01h00 - 02h00 (5.3%),
- **other unintentional injury deaths (non-transport)** was 19h00 - 23h00

Figure 5. Time of death (n = 1699)



7.4. Day of death

The peak days of death for:

- **violence** were Saturday (24.2%), followed by Sunday (20.3%), followed by Friday (13.2%);
- **suicide** were Friday (17.1%), followed by Monday (16.6%), followed by Sunday (14.1%);
- **transport** related deaths were Saturday (21.1%), followed by Sunday (21.1%), followed by Friday (14%); and
- **other unintentional injury deaths (non-transport)** were Wednesday (18.4%), followed by Monday (15.5%), followed by Saturday (14.6%).

Figure 6. Day of death (n = 2668)

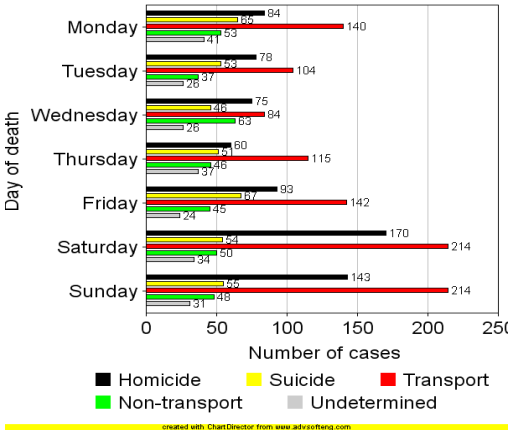


Figure 7. Day of violence deaths by gender (n = 697)

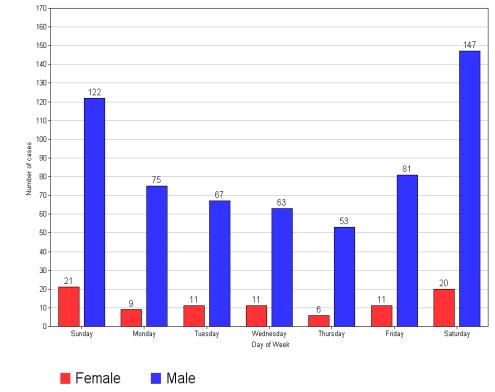


Figure 8. Day of suicide deaths by gender (n = 388)

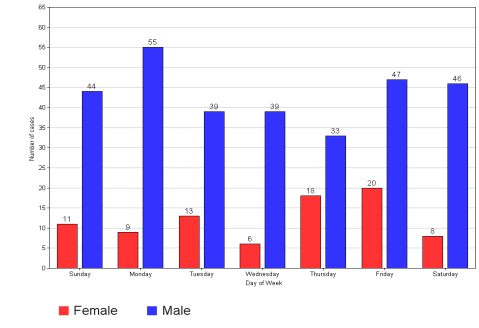
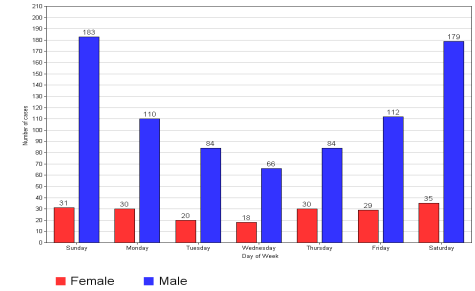


Figure 9. Day of transport deaths by gender (n = 1011)

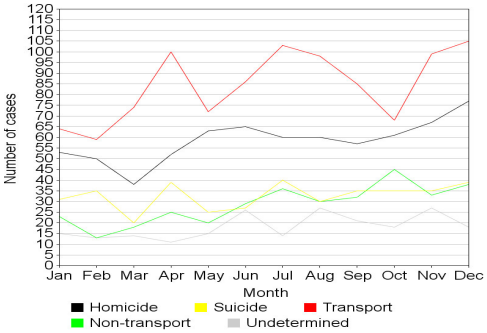


7.5. Seasonal variation

The peak month for:

- **violence** was December (11.0%), followed by November (9.5%), followed by June (9.2%);
- **suicide** was July (10.2%), followed by April (10.0%), followed by December (10.0%);
- **transport** related deaths was December (10.4%), followed by July (10.2%), followed by April (9.9%); and
- **other unintentional injury deaths non-transport** related deaths was October (13.2%), followed by December (11.1%), followed by July (10.5%).

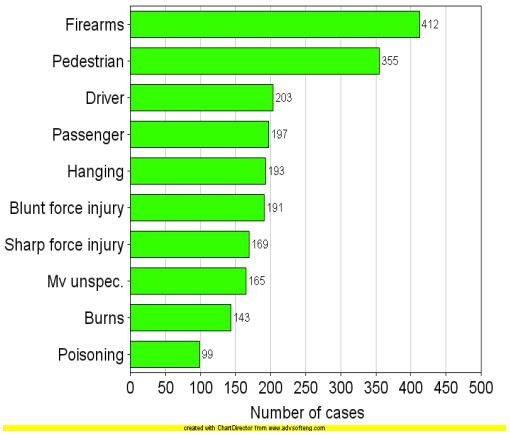
Figure 10. Seasonal variation (n = 2668)



7.6. External cause of death

The cause of death was unknown in 7.7% of the cases. The leading external cause of death was firearms (16.4%), followed by motor vehicle pedestrian (14.2%), and followed by motor vehicle driver (8.1%).

Figure 11. Top 10 external causes of death (n = 2127)



7.6.1. External cause of violence by age

Age was unknown in 131 of the 708 cases. Of the remaining cases, the average age of the s was 33 (± 13.3 yrs). The leading external cause of death for violence in the:

- **0-14** age group was blunt objects (25%);
- **15-24** age group was sharp force injury (33%) followed by firearms (33%);
- **25-34** age group was firearms (46.5%);
- **35-44** age group was firearms (53.3%);
- **45-54** age group was firearms (47.1%);
- **55-64** age group was firearms (52.2%); and
- **65+** age group was firearms (41.2%).

Figure 12.1. Firearm violence by age (n = 257)

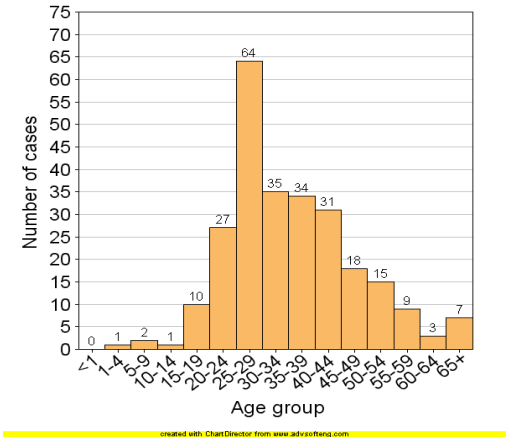


Figure 12.2. Blunt force injury violence by age (n = 141)

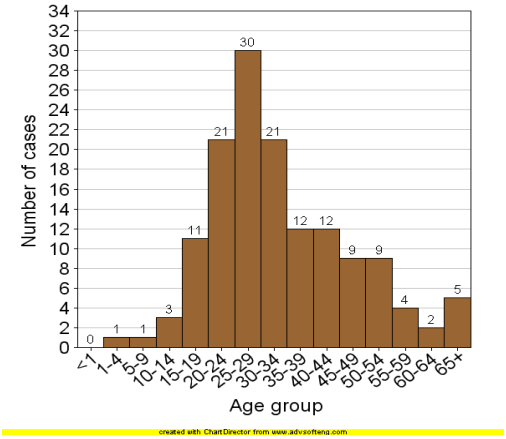


Figure 12.3. Sharp force injury violence by age (n = 135)

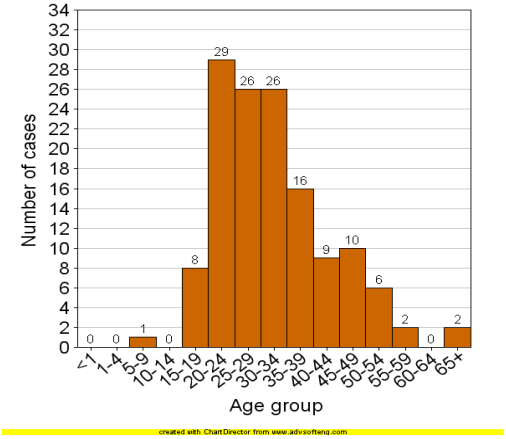
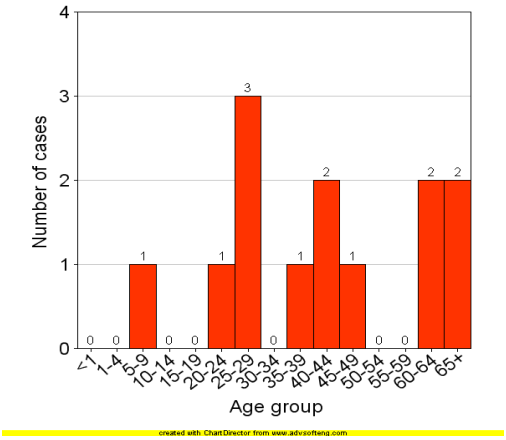


Figure 12.4. Strangulation or suffocation by age (n = 13)



7.6.2. External cause of suicide by age

Age was unknown in 65 of the 393 cases. Of the remaining cases, the average age of the s was 36 (± 13.6 yrs). The leading external cause of death for suicide in the:

- **0-14** age group was poisoning (100%);
- **15-24** age group was hanging (55.9%);
- **25-34** age group was hanging (54.8%);
- **35-44** age group was hanging (38.3%);
- **45-54** age group was hanging (39.6%) followed by firearms (31.2%);
- **55-64** age group was firearms (38.1%) followed by hanging (33.3%); and
- **65+** age group was hanging (35.7%) followed by firearms (35.7%).

Figure 13.1. Hanging suicide by age (n = 152)

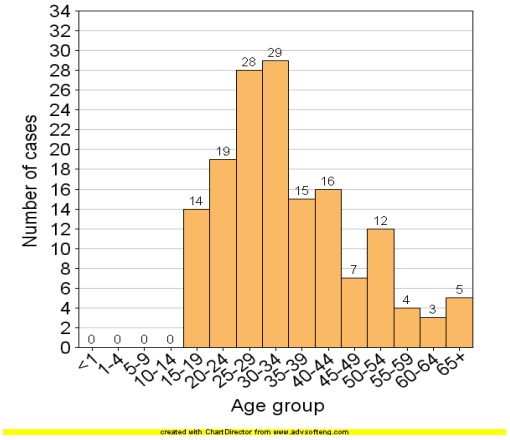


Figure 13.2. Firearm suicide by age (n = 78)

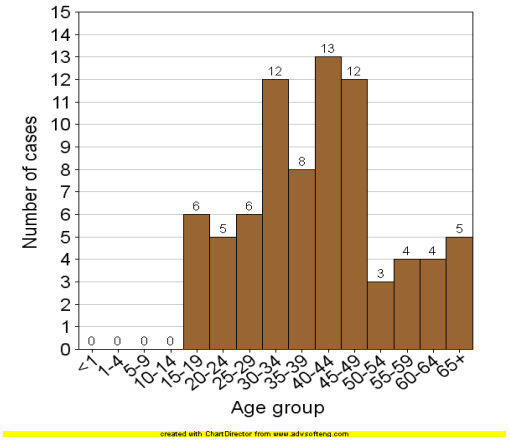


Figure 13.3. Poisoning suicide by age (n = 47)

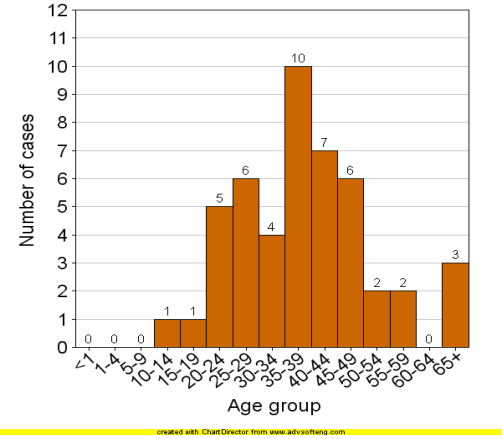


Figure 13.4. Gassing suicide by age (n = 14)

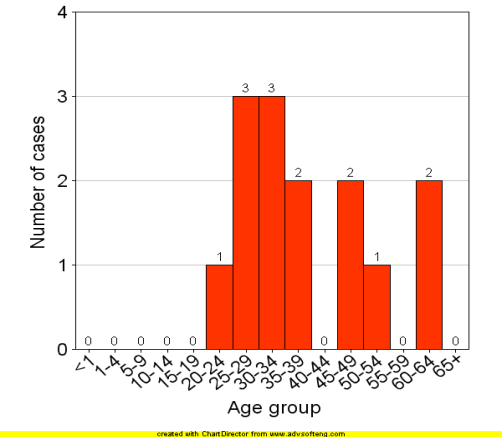
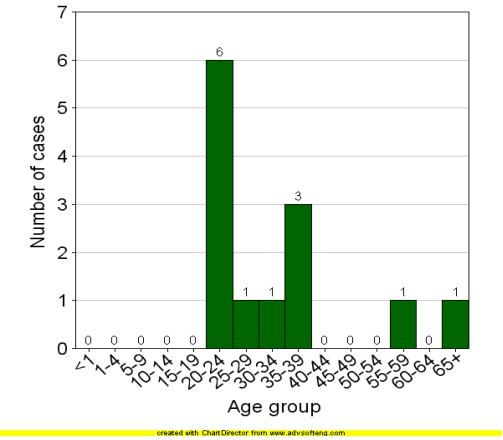


Figure 13.5. Jump from height suicide by age (n = 13)



7.6.3. External cause of transport by age

Age was unknown in 154 of the 1020 cases. Of the remaining cases, the average age of the s was 34 (± 16 yrs). The leading external cause of death for transport in the:

- **0-14** age group was motor vehicle pedestrian (52.8%) followed by motor vehicle passenger (34.7%);
- **15-24** age group was motor vehicle pedestrian (32.9%);
- **25-34** age group was motor vehicle pedestrian (28.6%), followed by motor vehicle driver (24%), followed by motor vehicle passenger (20.2%);
- **35-44** age group was motor vehicle pedestrian (32.1%);
- **45-54** age group was motor vehicle pedestrian (34.8%);
- **55-64** age group was motor vehicle pedestrian (32.8%); and
- **65+** age group was motor vehicle pedestrian (40%).

Figure 14.1. Motor vehicle pedestrian deaths by age (n = 291)

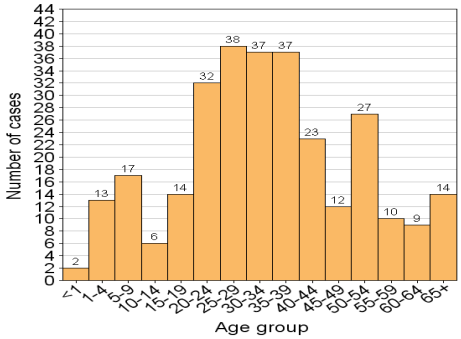


Figure 14.2. Passenger deaths by age (n = 175)

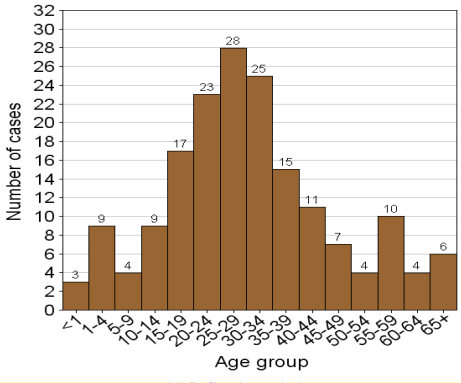


Figure 14.3. Driver deaths by age (n = 171)

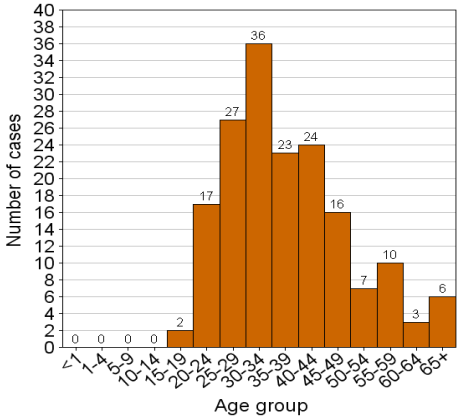


Figure 14.4. Motor vehicle unspecified deaths by age (n = 145)

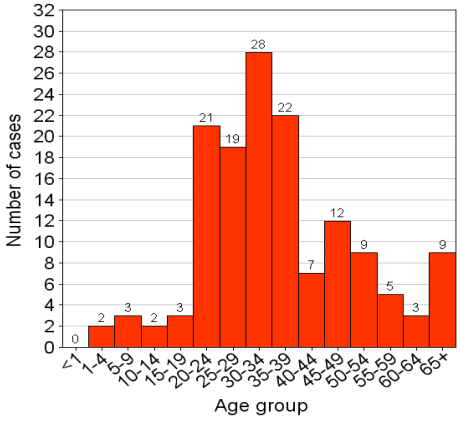
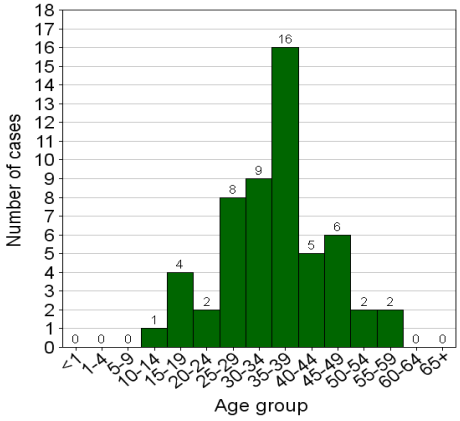


Figure 14.5. Cyclist deaths by age (n = 55)



7.6.4. External cause of non-transport deaths by age

Age was unknown in 51 of the 344 cases. Of the remaining cases, the average age of the s was 28 (± 22.5 yrs). The leading cause for non-transport related deaths in the:

- **0-14** age group was burns (22.4%) followed by drowning (20.4%);
- **15-24** age group was burns (37%);
- **25-34** age group was burns (41.5%);
- **35-44** age group was burns (40.9%);
- **45-54** age group was other (38.2%) followed by burns (35.3%);
- **55-64** age group was burns (50%); and
- **65+** age group was burns (43.5%).

Figure 15.1. Burn deaths by age (n = 101)

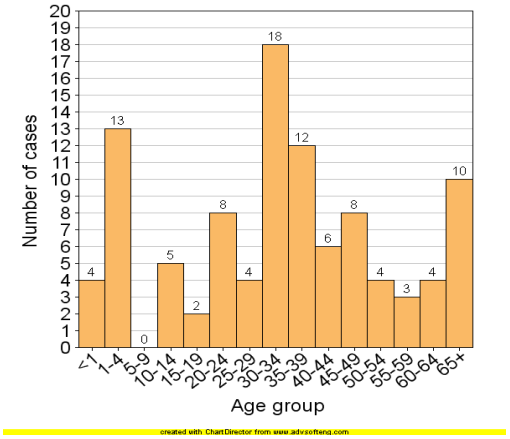


Figure 15.2. Drowning deaths by age (n = 36)

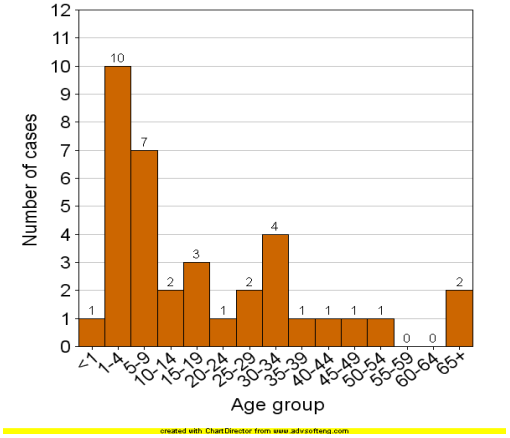


Figure 15.3. Jump from height deaths by age (n = 29)

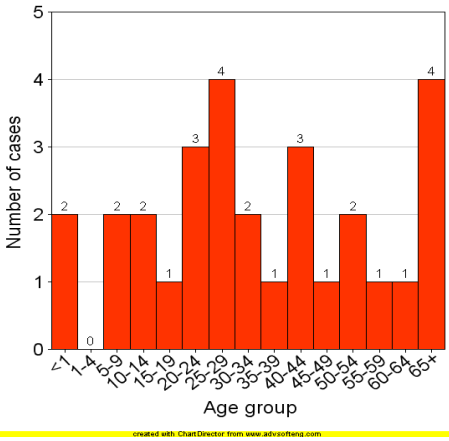
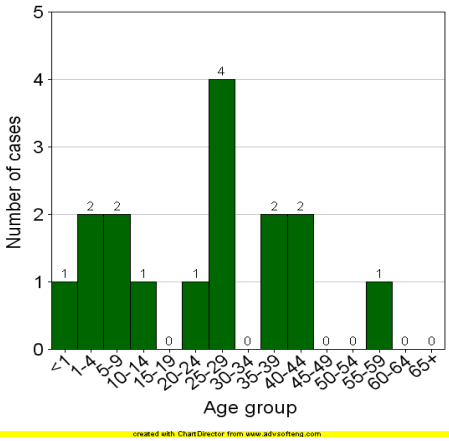


Figure 15.4. Electrocution deaths by age (n = 16)



Chapter 8

Mortality Rates for Cities

Mortality rates were calculated for the four cities where the NIMSS provided full coverage:

- Cape Town (Salt River, Tygerberg and Stellenbosch mortuaries)
- eThekwini (Durban) (Gale Street, Phoenix and Pinetown mortuaries)
- Johannesburg (Diepkloof, Johannesburg, Roodepoort and Sebokeng mortuaries)
- Tshwane (Pretoria) (Ga-Rankuwa* and Pretoria mortuaries).

City-specific growth rates were unavailable and hence we used provincial growth estimates calculated using 2007 projected figures[#] from the Actuarial Society of South Africa (ASSA) (ASSA, 2003).

Table II: Age-adjusted City mortality rates, 1 January to 31 December 2007

Year	**CT**		**eThekwini (Dbn)**		**Jhb**		**Tshwane***	
Population[#]	*3 156 774*		*3 287 528*		*3 478 769*		*2 141 717*	
	Total deaths [$]	*Rate/ 100,000 pop.*	*Total deaths*	*Rate/ 100,000 pop.*	*Total deaths*	*Rate/ 100,000 pop.*	*Total deaths*	*Rate/ 100,000 pop.*
Violence	2 222	63.5	1981	55.9	1697	43.0	708	30.7
- firearm	725	20.4	878	24.5	857	21.3	314	13.5
Suicide	370	11.5	405	11.9	550	14.4	328	17.4
- firearm	63	2.3	39	1.3	91	2.4	88	4.1
- hanging	193	5.6	275	7.8	280	7.3	185	8.1
Transport	1127	35.5	1140	35.0	1508	41.0	1020	45.4
- road traffic	1047	33.0	1083	33.3	1443	39.3	989	44.0
pedestrian	639	20.1	581	18.0	659	18.5	355	16.1
driver	146	4.7	123	3.9	243	6.3	203	8.7
- railway	80	2.5	55	1.6	62	1.7	30	1.3
Unintentional	594	20.1	299	10.1	663	21.1	344	16.6
- burns	284	8.9	78	2.6	238	6.8	117	5.6
- drowning	77	2.4	50	1.5	88	2.5	47	2.2
ALL INJURIES	4746	144.9	4505	134.8	4731	127.1	2715	121.8

The non-natural mortality rate estimates for the four cities are shown in tables above. Cape Town had the highest injury mortality rate of 144.9 deaths per 100 000 population, as well as the highest violence rate. eThekwini (Durban) had the second highest overall injury mortality and violence rates, but the highest firearm violence rate of all four cities.

Suicide rates were highest in Tshwane (17.4/100 000 population), followed by Johannesburg (14.2/100 000 population), and eThekwini (Durban) (11.9/100 000 population). Hanging was the preferred method of suicide in all four cities.

Tshwane (Pretoria) did not only have the highest transport mortality rate (45.4/100 000 population), but also recorded the highest rate for driver deaths. The highest pedestrian mortality rate was recorded in Cape Town (20.1/100000). Johannesburg had the highest rates for unintentional injuries (21.1/100 000 population), followed by Cape Town (20.1/100 000 population), largely due to the large number of deaths due to burns in these two cities.

Tshwane (Pretoria) was the city that recorded the lowest injury rates for all injuries and overall categories of violence and traffic injuries, except for firearm suicides (ranked first), driver deaths (ranked first) and burn deaths (ranked third).

*(*Ga-Rankuwa was not part of city of Tshwane reports in previous years. This mortuary now includes cases from the previous Medunsa mortuary - thus there is an increase in caseload for the city of Tshwane in 2007compared to previous year. The same applies for Sebokeng in Johannesburg)*

Chapter 9

Conclusion

The 9th Annual Report of the NIMSS has identified fatal injuries, especially as a consequence of motor vehicle collisions and violence as top South African public health priorities. The majority of the annual injury deaths occurred among African and Coloured males in the economically active age range of 15-44 years. The leading manner of non-natural death for males was sharp-object-related violence, and for females, pedestrian injury. Just about two in five of all violence-related deaths were inflicted by sharp-objects and a further third by firearms. Most of these deaths occurred in and around the home.

Most prominent external causes of death among the other age groups include burns for infants and children younger than 5 years, pedestrian injuries to children between 5 and 14 years of age, and then firearm injuries from 15 years onwards.

The NIMSS data can be used in the formulation of injury prevention policy and interventions. The data assist in the identification of potential victim groups, hazardous locations, times and instruments, and selected high-risk behaviours such as alcohol consumption.

May the report stimulate more questions than answers about the underlying causes and risk factors that drive the patterns of fatal violence and injury among the different age, sex and population groups by which the report have been analysed. For, if these questions can stimulate a research mandate to provide answers, then the possibility of violence and injury prevention initiatives will be greater than ever before.

The Crime, Violence and Injury Lead Programme, which is co-directed by the MRC and UNISA, is committed to facilitating the use of NIMSS data by a wide range of stakeholder groups, but especially the forensic medico-legal services; the National Crime Prevention Strategy; and violence and injury prevention agencies at local, provincial and national level.

The NIMSS could provide additional information, including for example suburb-level indicators of where injuries occurred and, of course, many cross-tabular analyses that could not be accommodated in this report.

Agencies wishing to access this more detailed level of information are invited to send their requests for customised reports to the CVI programme.

Chapter 10

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Appendix I: Participating mortuaries (N=40 737)

Province	City	Mortuary
Eastern Cape	East London	Mdantsane
Eastern Cape	East London	Woodbrook
Eastern Cape	East London	King Williams Town (served by Woodbrook)
Eastern Cape	Butterworth	Butterworth
Eastern Cape	Queenstown	Queenstown
Eastern Cape	Nelson Mandela Bay(Port Elizabeth)	Gelvandale
Eastern Cape	Nelson Mandela Bay(Port Elizabeth)	Mount Road
Eastern Cape	Nelson Mandela Bay(Port Elizabeth)	New Brighton
Gauteng	Bronkhorstspruit	Bronkhorstspruit
Gauteng	Johannesburg	Diepkloof
Gauteng	Johannesburg	Germiston
Gauteng	Johannesburg	Johannesburg
Gauteng	Johannesburg	Roodepoort
Gauteng	Johannesburg	Sebokeng
Gauteng	Tshwane(Pretoria)	Tshwane(Pretoria)
Gauteng	Ga-Rankuwa	Ga-Rankuwa
KwaZulu Natal	eThekwini(Durban)	Gale Street
KwaZulu Natal	eThekwini(Durban)	Phoenix
KwaZulu Natal	eThekwini(Durban)	Pinetown
Mpumalanga	Balfour	Balfour
Mpumalanga	Belfast	Belfast
Mpumalanga	Bethal	Bethal
Mpumalanga	Delmas	Delmas
Mpumalanga	Ermelo	Ermelo
Mpumalanga	Ebhuleni	Ebhuleni
Mpumalanga	Kwamhlanga	Kwamhlanga
Mpumalanga	Lydenburg	Lydenburg
Mpumalanga	Mapulaneng	Mapulaneng
Mpumalanga	Middelburg	Middelburg
Mpumalanga	Nelspruit	Nelspruit
Mpumalanga	Piet Retief	Piet Retief
Mpumalanga	Sabie	Sabie
Mpumalanga	Secunda	Secunda
Mpumalanga	Standerton	Standerton
Mpumalanga	Tonga	Tonga
Mpumalanga	Volksrust	Volksrust
Mpumalanga	Witbank	Witbank
North West	Klerksdorp	Klerksdorp
North West	Potchefstroom	Potchefstroom
Northern Cape	Kimberley	Kimberley
Western Cape	Cape Town	Salt River
Western Cape	Cape Town	Tygerberg
Western Cape	Stellenbosch	Stellenbosch

Appendix II: NIMSS Data Collection Form

NIMSS DATA COLLECTION FORM

Mortuary _____ **Police No.** _____ **Officer collecting body** (Surname) _____

PM no. _____ **PM Date** d d m m y y y y **Pathologist** (Surname) _____

Date & Time of Injury d d m m y y y y h h **Race** A B C W U **Sex** M F U

Date & Time of Death d d m m y y y y h h **Age** Years _____ Months _____

Medical treatment of injury prior to death (check only ONE) 1 None 2 Emergency care at scene 3 Hospital care

Province of injury (may differ to province of death)

1	Gauteng
2	W. Cape
3	K.Z. Natal
4	E. Cape
5	N. Cape
6	Free State
7	Mpumalanga
8	Northern Province
9	North West
10	Unknown
11	Other (specify) _____

Town of injury _____

Suburb or district _____

Closest police station to injury scene _____

Scene of injury (may differ to scene of death)

1	Private house & yard (inc. pool)
2	Residential institute
18	Informal settlement/squatter camp
3	Bar, shebeen, N'Club, disco
4	Amusement park, sports area
5	Road/street/highway
6	Railway track, station
7	Shop, bank, retail area
8	School, educational area
9	Medical service area
10	Industrial & construction area, mine
11	Farm, primary production area
12	Sea, lake, river, dam
13	Open land, beach
14	Countryside
15	In custody, prison
16	Place unknown
17	Other (specify) _____

External Cause or Circumstance of Injury

1	Firearm Discharge	9	Fall/push/jump from height	17	Motor vehicle Driver	24	Abandoned baby
2	Sharp Object	10	Other fall/push/jump	18	Motor vehicle Unspecified	25	Electrocution
3	Blunt Object	11	Crushing	19	Railway casualty	26	Explosive blast
4	Strangulation, suffocation, asphyxia	12	Choking, aspiration	20	Bicycle, motor cycle	27	Natural cause
5	Hanging	13	Drowning, immersion	30	Aviation casualty	28	Unknown
6	Poisoning, ingestion	14	Lightning	21	Medical Procedure	29	Other Specific Cause
7	Poisoning, gassing	15	Motor vehicle Pedestrian	22	Sudden Infant Death		_____
8	Burn	16	Motor vehicle Passenger	23	Abortion, still birth		_____

Apparent Manner of Death

1 Homicide 2 Suicide 3 Accident 4 Natural 5 Undetermined

Samples Taken (check all)

1 None 2 Blood 3 Tissue 4 Other fluid

Alcohol and Other Substances (for completion by surveillance consortium staff)

Blood Alcohol Level _____ Eye Fluid Alcohol _____ Other Substances (Specify) _____

For completion following court investigation: homicides and suicides only

Type of Intentional Violence

1	Interpersonal
2	Self Directed
3	Legal Intervention
4	Gang, Syndicate
5	War/civil Insurrection
6	Rape, Sexual
7	Child Abuse
9	Unknown
8	Other (specify) _____

Perpetrator – Victim Relationship

1	Spouse, Partner	5	Friend	9	Unknown
2	Parent	6	Official/Legal Authority	10	Other Specified Person(s)
3	Other relative	7	Stranger		_____
4	Unrelated Caregiver	8	Acquaintance		_____

Context of Violent Attack (Code from court record) _____

Appendix III: Data Request Form

The MRC-UNISA Crime, Violence & Injury Lead Programme (S.A)

Request Form

1. Title		2. First Name/s		3. Surname	
4. Organisation				5. E-mail	
6. Telephone (day)		7. Cell		8. Fax	

8. Specify your request e.g. data (raw, customised), report (customised, published, unpublished), data collection form, consultancy etc.

9. Provide relevant information that will assist in processing your request (use separate page if necessary)

10. Describe your use/purpose for this request (use separate page if necessary)

11. Is your request related to (please tick)

Individual research		Contract research		Institutional research	
Masters project		PhD project		Other (specify)	

12. Name of research project and affiliation (if applicable) – submit copy of research proposal.

13. Has ethical approval been obtained for this study?		If yes, please provide details (reference, place etc.)

15. What are the anticipated outputs/outcomes of your project?

16. How and to what extent does this request relate to the scope and objectives of the CVI Lead Programme - if relevant, see http://www.mrc.ac.za/crime/crime.htm or http://www.unisa.ac.za/dept/ishs/programme.html)

17. Additional comments:

20. **Please note the following conditions:**

- The MRC-UNISA Crime, Violence & Injury Lead Programme (CVILP) should be acknowledged in all instances.
- A copy of the final research output should be submitted to the CVILP.
- All customised reports will remain the intellectual property of the CVILP.
- The Lead Programme will as far as possible assist the applicant, however, requests may be declined or certain costs may be payable.

18. Signature		19. Date	

For office use:

Received:	Date		Signature	
Authorised:	Date		Signature	
Researcher assigned:				
Comments:				