



**A profile of fatal injuries in South Africa  
6<sup>th</sup> Annual Report of the  
NATIONAL INJURY MORTALITY SURVEILLANCE SYSTEM  
2004**



**Section 1. National Fatal Injury Profile**

**Background**

This short report, which covers the period 1 January to 31 December 2004, is the sixth annual report of the National Injury Mortality Surveillance System (NIMSS).

As a result of the continuing expansion of the system, we have taken steps to improve our data management and reporting mechanisms. This report has been generated by a software programme that interfaces with our database and produces a number of standard outputs. The Crime, Violence and Injury Lead Programme can provide more detailed analyses in the form of customised reports on request.

**Acknowledgements**

We wish to acknowledge the Department of Health and Department of Safety and Security for supporting this project. In particular, we would like to thank the forensic pathologists, data capture and police personnel at the various mortuaries and forensic chemistry laboratories, who made these data available to us.

<b>Table I: Participating mortuaries</b>		
<b>Province</b>	<b>Number of mortuaries</b>	<b>Case total</b>
<b>Eastern Cape</b>	<b>5</b>	<b>4890</b>
<b>Gauteng</b>	<b>7</b>	<b>12030</b>
<b>KwaZulu Natal</b>	<b>3</b>	<b>6129</b>
<b>Mpumulanga</b>	<b>14</b>	<b>1519</b>
<b>North West</b>	<b>2</b>	<b>864</b>
<b>Northern Cape</b>	<b>1</b>	<b>417</b>
<b>Western Cape</b>	<b>3</b>	<b>5597</b>
<b>Total</b>		<b>31446</b>

\* See Appendix 1 at the end of this section for a comprehensive list of participating mortuaries

This report is available online at: [www.sahealthinfo.org.za/violence/nimss.htm](http://www.sahealthinfo.org.za/violence/nimss.htm)

**Purpose and Scope**

The NIMSS produces and disseminates descriptive epidemiological information for deaths due to non-natural causes that, in terms of existing legislation, are subject to medico-legal investigation. The NIMSS provides information to:

- describe the incidence, causes and consequences of non-natural deaths;
- prioritise injury and violence prevention action directed at high risk groups and socio-economic risk factors;
- identify new injury trends and emerging problem areas;
- monitor seasonal and longitudinal changes in the profile of non-natural fatalities; and
- evaluate direct and indirect violence and injury.

Although the system captures data from rural mortuaries in Mpumalanga, the Northern Cape and the North-West Province, the bulk of the caseload occurs through investigations at urban mortuaries, hence the data set is currently more representative of the urban rather than the rural mortality injury profile. Results for four of South Africa's largest cities, Johannesburg, Durban, Cape Town and Tshwane/Pretoria are presented in sections 2-5.

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## RESULTS

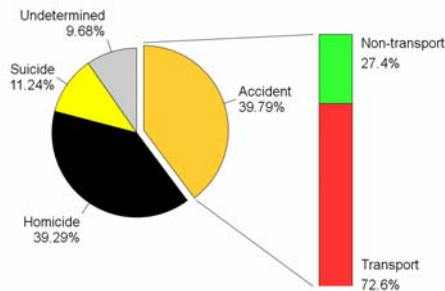
A total of 31 446 deaths were recorded at the 35 mortuaries that supplied data to the NIMSS in 2004, including 23938 non-natural deaths (76%), 6129 (20%) cases that were due to natural causes and another 1379 (4%) that were either viewed or stored at the mortuaries.

It is estimated that there were 60 000 non-natural deaths in South Africa in 2004 that accounted for approximately 12% of all mortality. The analysis that follows is restricted to the 23938 non-natural deaths recorded by the NIMSS in 2004, representing approximately 40% of the non-natural deaths that occur in the country annually.

### 1. Overall manner of death

The most common apparent manner of non-natural death in South Africa was accidental (or unintentional) injuries, which accounted for 39.8% of fatal injuries. Violence (or homicide) accounted for 39.3% of fatal injuries.

Figure 1. Overall manner of death (N = 23938)



### Manner of death by age

The average age of the deceased was 33.4 ( $\pm$  15.5 years). The leading manner(s) of death amongst the:

- 0-14 age group was transport (38.4%) followed by other unintentional injuries (31.5%);
- 15-24 age group was violence (51.7%);
- 25-34 age group was violence (47.7%);
- 35-44 age group was violence (40.2%) followed by transport (30.6%);
- 45-54 age group was transport (34.2%) followed by violence (33%);
- 55-64 age group was transport (35.3%); and
- 65+ age group was transport (31.2%).

Figure 2.1. Fatal violence by age (n = 8575)



Figure 2.2. Suicide by age (n = 2462)

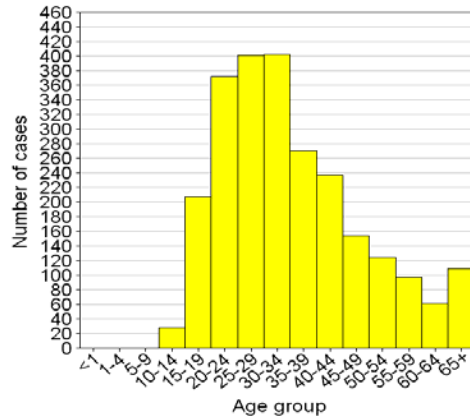
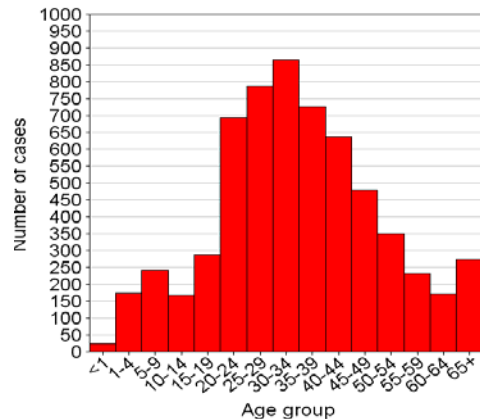
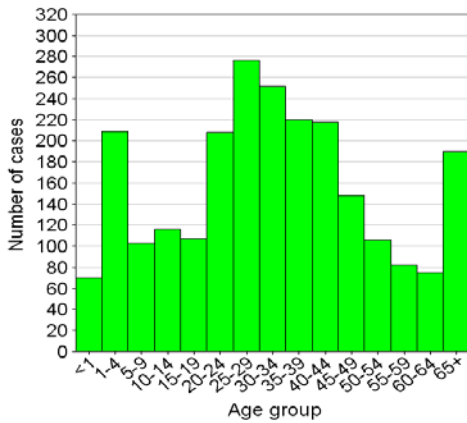


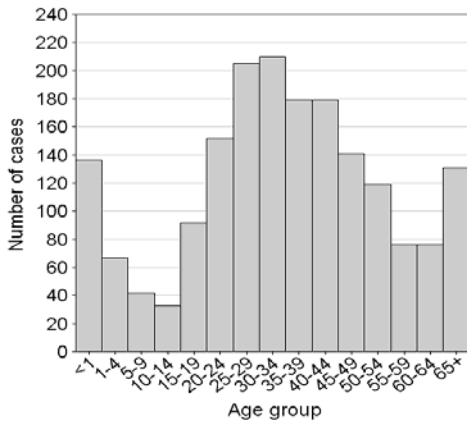
Figure 2.3. Transport deaths by age (n = 6106)



**Figure 2.4. Other unintentional injury deaths (non-transport) by age (n = 2380)**



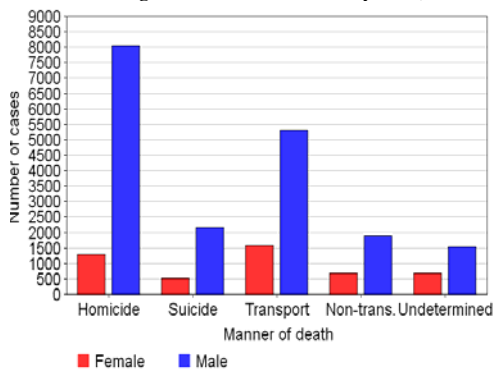
**Figure 2.5. Undetermined deaths by age (n = 1838)**



**Manner of death by sex**

Of the deaths where sex was recorded, 18958 (79.9%) were male and 4769 (20.1%) were female. The leading cause of death amongst males was violence (42.5%). The leading cause of death amongst females was transport (33.1%).

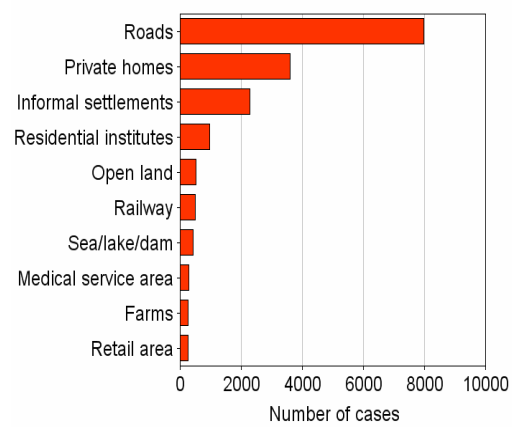
**Figure 3. Manner of death by sex (n = 23727)**



**2. Scene of injury**

The scene of injury was known in 17903 (74.8%) cases. The scene that accounted for the majority of deaths was roads (44.5%).

**Figure 4. Top 10 scenes of injury (n = 17030)**

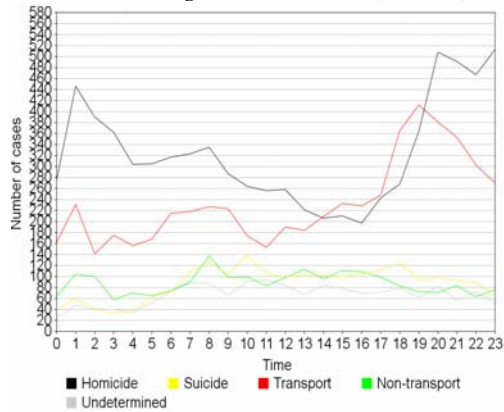


**3. Time of death**

The peak hour(s) of death for:

- **violence** was 20h00 - 00h00 (25.4%) followed by 01h00 - 03h00 (10.7%);
- **suicide** was 10h00 - 12h00 (11.5%), followed by 17h00 - 19h00 (11.2%), followed by 07h00 - 09h00 (11.1%);
- **transport** related deaths was 18h00 - 23h00 (32.3%); and
- **other unintentional injury** related deaths was 15h00 - 17h00 (10.4%), followed by 08h00 - 09h00 (6.5%), followed by 13h00 - 14h00 (5.3%).

**Figure 5. Time of death (n = 19257)**

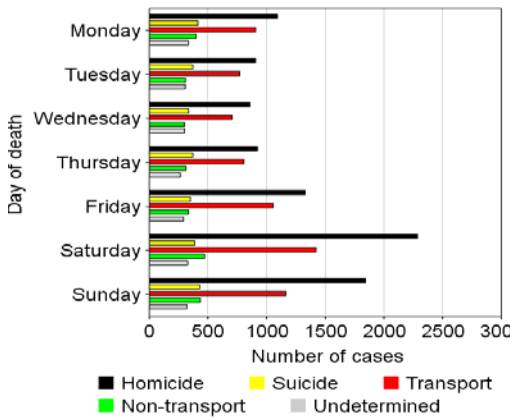


#### 4. Day of death

The peak days of death for:

- **violence** were Saturday (24.7%), followed by Sunday (19.9%), followed by Friday (14.4%);
- **suicide** were Sunday (16.1%), followed by Monday (15.6%), followed by Saturday (14.5%);
- **transport** related deaths were Saturday (20.8%), followed by Sunday (17.1%), followed by Friday (15.4%); and
- **other unintentional injuries** (non-transport) were Saturday (18.5%), followed by Sunday (16.9%), followed by Monday (15.6%).

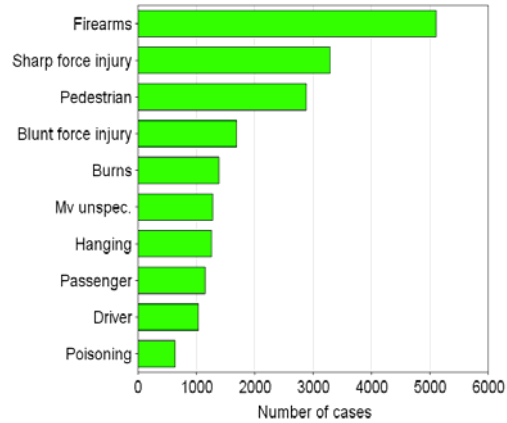
Figure 6. Day of death (n = 23431)



#### 6. External cause of death

The cause of death was unknown in 6.2% of the cases. The leading external cause of death was firearms (22.7%), followed by sharp force injury (14.7%), followed by pedestrian injuries (12.8%).

Figure 8. Ten most common external causes of death (n = 19706)

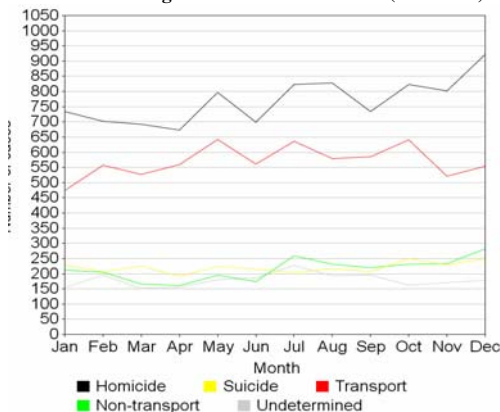


#### 5. Seasonal variation

The peak month for:

- **violence** was December (10.0%), followed by August (9.0%), followed by July (8.9%);
- **suicide** was October (9.4%), followed by December (9.4%), followed by January (8.7%);
- **transport** related deaths was May (9.4%), followed by October (9.4%), followed by July (9.3%); and
- **other unintentional injury** related deaths (non-transport) was December (11.0%), followed by July (10.1%), followed by November (9.1%).

Figure 7. Seasonal variation (n = 23431)



### External cause of violence by age

Age was unknown in 830 of the 9405 cases. Of the remaining cases, the average age of the deceased was 32 ( $\pm$  12.3 yrs). The leading external cause of death for violence in the:

- **0-14** age group was firearms (28.8%), followed by blunt force injury (18.2%);
- **15-24** age group was firearms (45.3%) followed by sharp force injury (39.2%);
- **25-34** age group was firearms (50.6%) followed by sharp force injury (34.4%);
- **35-44** age group was firearms (44%) followed by sharp force injury (35.3%);
- **45-54** age group was firearms (43.4%) followed by sharp force injury (34.4%);
- **55-64** age group was firearms (44%); and
- **65+** age group was firearms (29.9%), followed by blunt force injury (28.8%), followed by sharp force injury (21.5%).

Figure 9.1. Firearm violence by age (n = 3953)

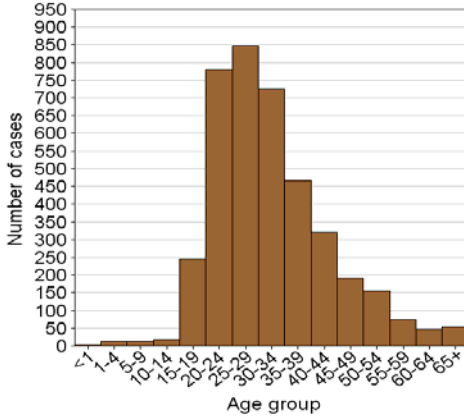


Figure 9.2. Sharp force violence by age (n = 2992)

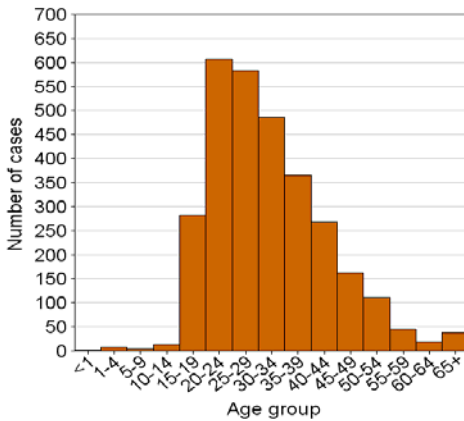


Figure 9.3. Blunt force violence by age (n = 1310)

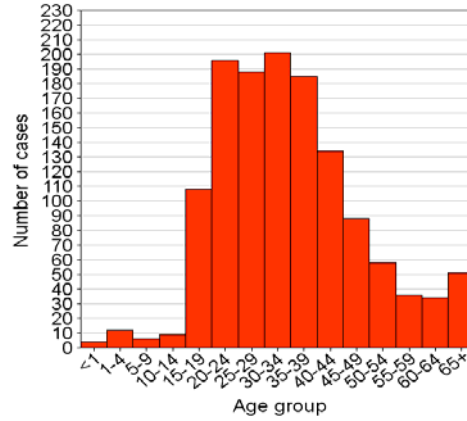


Figure 9.4. Strangulation by age (n = 157)

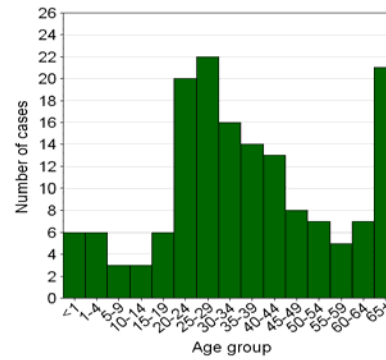
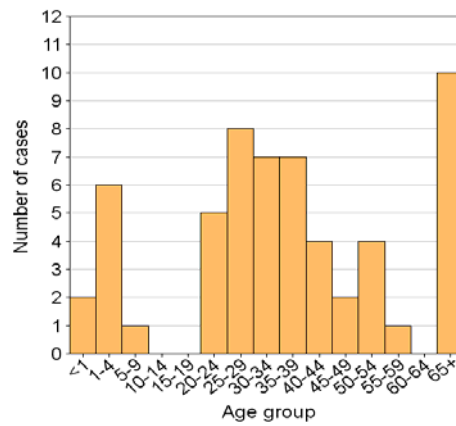


Figure 9.5. Burn violence by age (n = 57)



### External cause of suicide by age

Age was unknown in 228 of the 2690 cases. Of the remaining cases, the average age of the deceased was 35 ( $\pm 14.1$  yrs). The leading external cause of death for suicide in the:

- 0-14 age group was hanging (64.3%);
- 15-24 age group was hanging (57.9%);
- 25-34 age group was hanging (48.4%);
- 35-44 age group was hanging (45.6%);
- 45-54 age group was hanging (34.2%);
- 55-64 age group was firearms (32.3%) followed by hanging (30.4%); and
- 65+ age group was firearms (45.9%).

Figure 10.1. Hanging suicide by age (n = 1146)

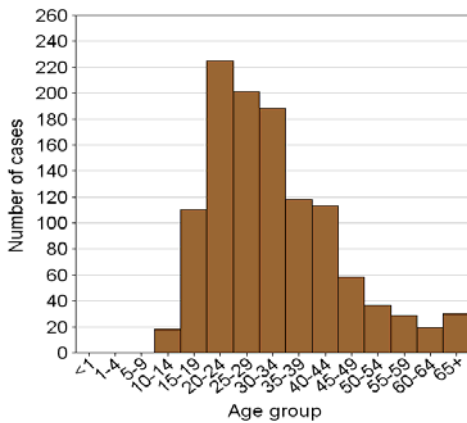


Figure 10.2. Firearm suicide by age (n = 617)

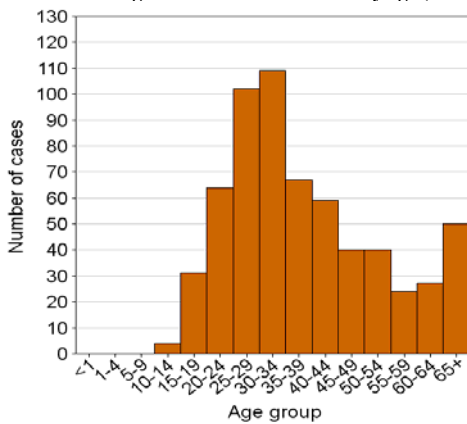


Figure 10.3. Poisoning suicide by age (n = 343)

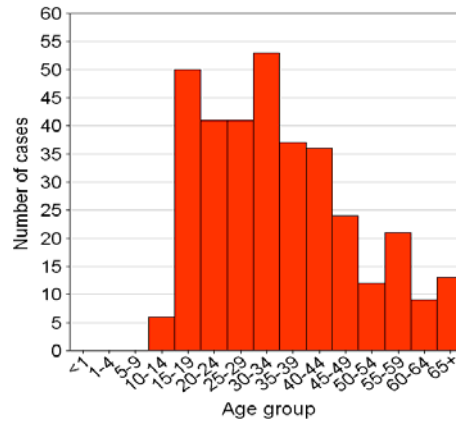


Figure 10.4. Gassing suicide by age (n = 157)

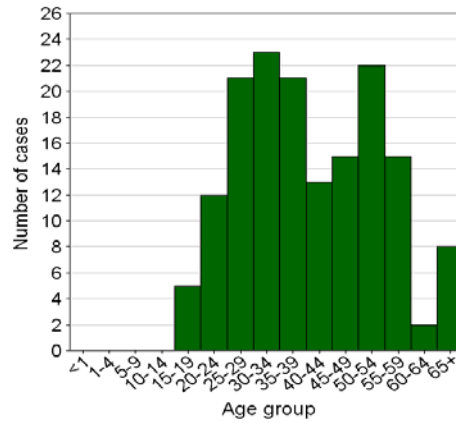
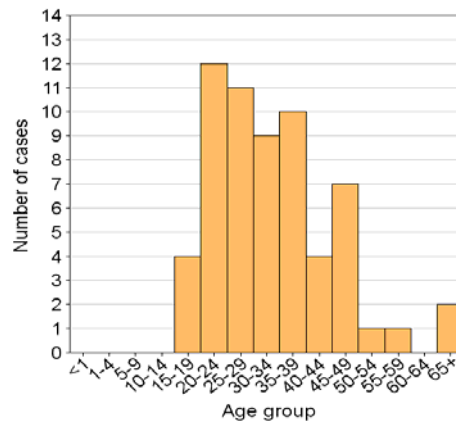


Figure 10.5. Burn suicide by age (n = 61)



### External cause of transport deaths by age

Age was unknown in 813 of the 6919 cases. Of the remaining cases, the average age of the deceased was 34 ( $\pm$  16.2 yrs). The leading external cause of death for transport in the:

- 0-14 age group was pedestrian injuries (62.7%);
- 15-24 age group was pedestrian injuries (31.5%);
- 25-34 age group was pedestrian injuries (37.6%);
- 35-44 age group was pedestrian injuries (39.3%);
- 45-54 age group was pedestrian injuries (39.7%);
- 55-64 age group was pedestrian injuries (41.3%); and
- 65+ age group was pedestrian injuries (46.5%).

Figure 11.1. Pedestrian deaths by age (n = 2468)

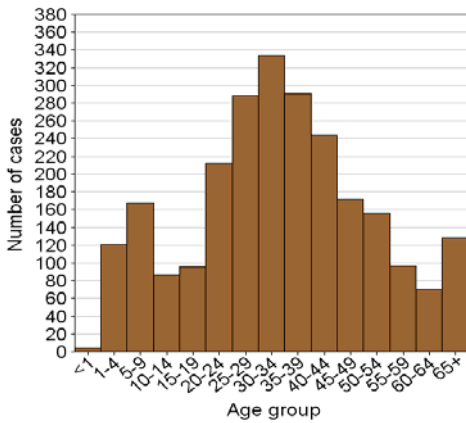


Figure 11.2. Unspecified motor vehicle deaths by age (n = 1151)

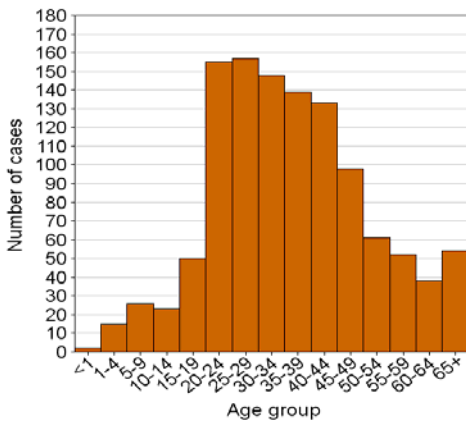


Figure 11.3. Passenger deaths by age (n = 1057)

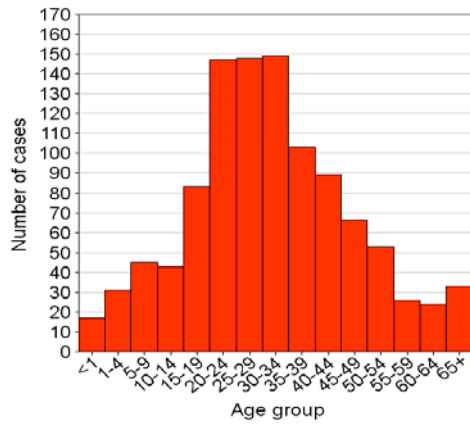


Figure 11.4. Driver deaths by age (n = 921)

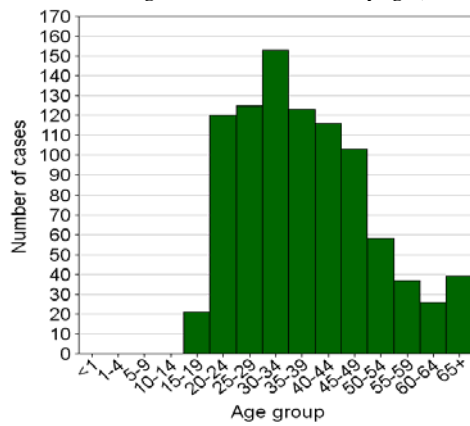
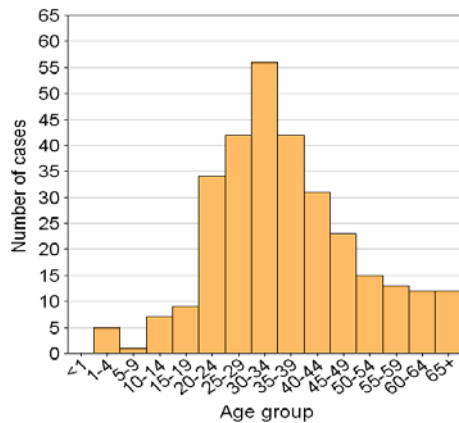


Figure 11.5. Railway deaths by age (n = 302)



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

Age was unknown in 226 of the 2606 cases. Of the remaining cases, the average age of the deceased was 32 ( $\pm$  20.5 yrs). The leading cause for other unintentional injury deaths in the:

- 0-14 age group was drowning (39.8%);
- 15-24 age group was burns (40.6%);
- 25-34 age group was burns (47.3%);
- 35-44 age group was burns (43.4%);
- 45-54 age group was burns (40.6%);
- 55-64 age group was burns (36.3%); and
- 65+ age group was burns (44.2%).

Figure 12.1. Burn deaths by age (n = 957)

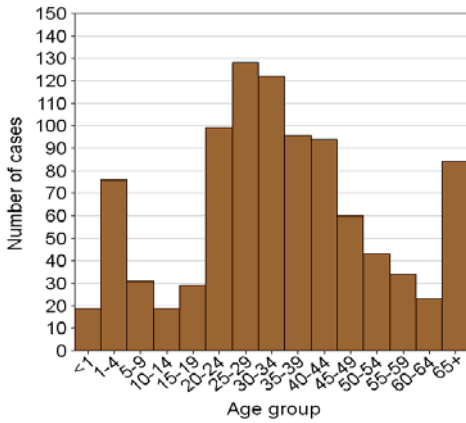


Figure 12.2. Drowning deaths by age (n = 430)

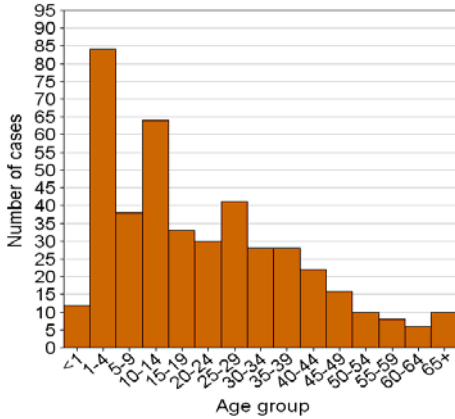


Figure 12.3. Fall/push/jump from height deaths by age (n = 213)

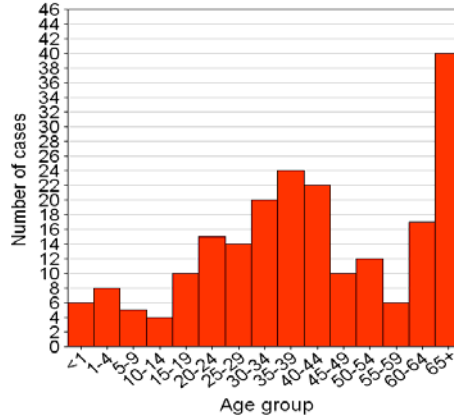


Figure 12.4. Unknown deaths by age (n = 145)

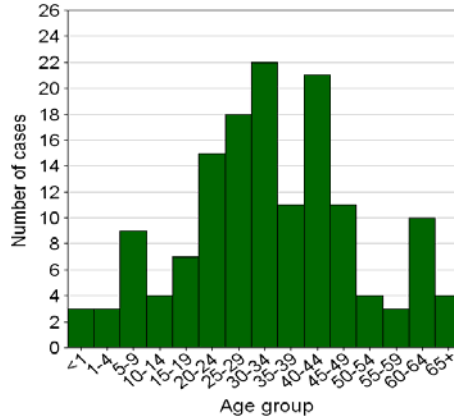
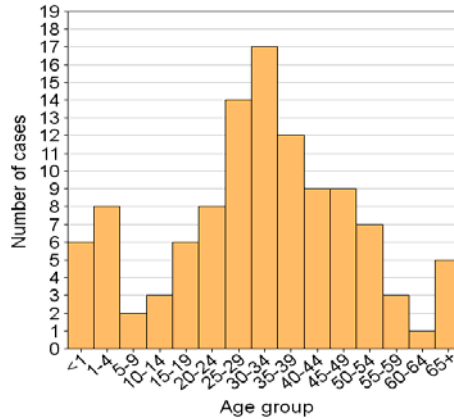


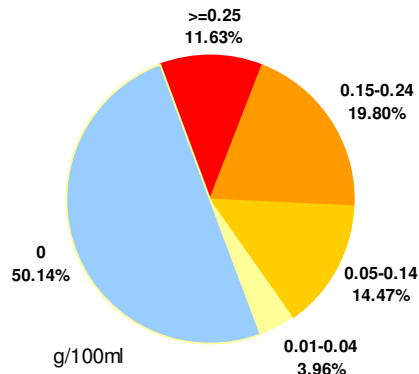
Figure 12.5. Blunt force injury deaths by age (n = 110)



## 7. Blood alcohol levels

Blood alcohol concentration (BAC) levels were obtained in 10617 of the 23938 cases. The average BAC for those who tested positive was  $0.17 \pm 0.09$  g/100ml.

Figure 13. Blood Alcohol Levels (n = 10617)



## Blood alcohol level by apparent manner

Of the 23938 who were fatally injured, blood alcohol concentration were available in 10617 (44.4%) of the cases.

Table II: Blood alcohol levels by apparent manner

Apparent manner	BAC's done n(%)	BAC positive n(%)	Mean BAC	Std. Dev.
Violence (9405)	4964 (52.78)	2687 (54.13)	0.17	0.09
Suicide (2690)	1367 (50.82)	500 (36.58)	0.15	0.1
Transport (6919)	2957 (42.74)	1548 (52.35)	0.19	0.1
Other unintentional (2606)	739 (28.36)	343 (46.41)	0.18	0.1
Undetermined (2318)	590 (25.45)	215 (36.44)	0.16	0.11
Total	10617	5293	0.17	0.1

## Blood alcohol level by transport user

Of the 6919 who were fatally injured in transport collisions, blood alcohol concentration were available in 2957 (42.7%) of the cases.

Table III: Blood alcohol levels by transport user

Transport user	BAC's done n(%)	BAC positive n(%)	Mean BAC	Std. Dev.
Driver (1037)	570 (54.97)	290 (50.88)	0.17	0.08
Passenger (1148)	342 (29.79)	137 (40.06)	0.15	0.09
Pedestrian (2874)	1306 (45.44)	780 (59.72)	0.21	0.1
Railway (365)	217 (59.45)	93 (42.86)	0.2	0.1
Cyclist (213)	119 (55.87)	46 (38.66)	0.15	0.08
Unspecified (1275)	399 (31.29)	201 (50.38)	0.18	0.09
Total	2953	1547	0.21	0.11

**Appendix 1: Participating mortuaries**

<b>Province</b>	<b>City</b>	<b>Mortuary</b>	<b>Total</b>
Eastern Cape	East London	Mdantsane	704
Eastern Cape	East London	Woodbrook	1458
Eastern Cape	Port Elizabeth	Gelvandale	878
Eastern Cape	Port Elizabeth	Mount Road	773
Eastern Cape	Port Elizabeth	New Brighton	1077
Gauteng	Bronkhorstspuit	Bronkhorstspuit	196
Gauteng	Johannesburg	Diepkloof	1630
Gauteng	Johannesburg	Germiston	2912
Gauteng	Johannesburg	Johannesburg	2833
Gauteng	Johannesburg	Roodepoort	1389
Gauteng	Pretoria	Medunsa	734
Gauteng	Pretoria	Pretoria	2336
KwaZulu Natal	Durban	Chatsworth	1164
KwaZulu Natal	Durban	Gale Street	2753
KwaZulu Natal	Durban	Phoenix	2212
Mpumulanga	Balfour	Balfour	55
Mpumulanga	Barbeton	Barbeton	70
Mpumulanga	Delmas	Delmas	40
Mpumulanga	Ermelo	Ermelo	299
Mpumulanga	Groblersdal	Groblersdal	161
Mpumulanga	Hazyview	Hazyview	32
Mpumulanga	Heidelberg	Heidelberg	84
Mpumulanga	Komatipoort	Komatipoort	205
Mpumulanga	Lydenburg	Lydenburg	3
Mpumulanga	Nelspruit	Nelspruit	197
Mpumulanga	Piet Retief	Piet Retief	125
Mpumulanga	Sabie	Sabie	145
Mpumulanga	Standerton	Standerton	13
Mpumulanga	Volksrust	Volksrust	90
North West	Klerksdorp	Klerksdorp	487
North West	Potchefstroom	Potchefstroom	377
Northern Cape	Kimberley	Kimberley	417
Western Cape	Cape Town	Salt River	2603
Western Cape	Cape Town	Tygerberg	2542
Western Cape	Stellenbosch	Stellenbosch	452
<b>Total</b>			<b>31446</b>