# A profile of fatal injuries in South Africa
# Fourth Annual Report of the
# NATIONAL INJURY MORTALITY SURVEILLANCE SYSTEM
# 2002

## Background

This short report, which covers the period 1 January to 31 December 2002, is the fourth 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.

**Table I: Participating mortuaries**

| Province | Number of mortuaries | Case total |
|---|---|---|
| Eastern Cape | 6 | 5022 |
| Gauteng | 7 | 12946 |
| KwaZulu Natal | 3 | 6194 |
| Mpumulanga | 17 | 1722 |
| Northern Cape | 1 | 408 |
| Western Cape | 3 | 6598 |
| Total | | 32890 |

* See Appendix 1 for a comprehensive list of participating mortuaries


## 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.


## Purpose and Scope

The NIMSS produces and disseminates descriptive epidemiological information for deaths due to non-natural causes (i.e. the *who*, *what*, *when* and *where* of fatal injury) that, in terms of existing legislation, are subject to medico-legal investigation. The goal is to establish a permanent system that will, at a local, regional and national level, provide information to:

- describe the incidence, causes and consequences of non-natural deaths;
- prioritise injury and violence prevention action;
- identify new injury trends and emerging problem areas;
- monitor longitudinal changes in the profile of non-natural fatalities; and
- evaluate direct and indirect violence and injury.


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## RESULTS

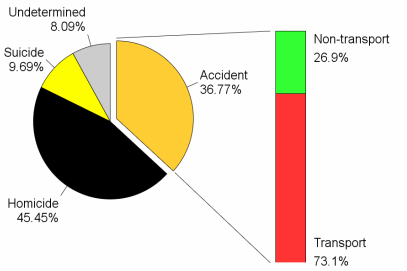
Estimates for the total number of non-natural fatalities in South Africa range from between 70 000 and 80 000 annually, which accounts for between 12% and 15% of all mortality, including natural causes. The 34 mortuaries that contributed data to the NIMSS in 2002 represented between 35% and 40% of all non-natural fatalities. Although the system captures data from rural mortuaries in Mpumalanga 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.

A total of 32890 fatal injuries presented to the 34 mortuaries in the NIMSS database from January 2002 to December 2002, including 6733 (20.5%) deaths due to natural causes, and another 663 that were either viewed or stored at the mortuaries. The rest of the analysis is restricted to the remaining 25494 **non-natural** deaths, i.e. homicides, suicides, transport or other unintentional injury fatalities.

## 1. Overall manner of death

The most common apparent manner of non-natural death in South Africa was homicide, which accounted for 45.4% of all fatal injuries.

**Figure 1. Overall manner of death (N = 25494)**




### Manner of death by age

The average age of the victims was 32.9 (± 15.1 years). The leading manner of death(s) amongst the:

- **0-14** age group was transport (38.9%) followed by non-transport (30.8%);
- **15-24** age group was homicide (56.3%);
- **25-34** age group was homicide (56.3%);
- **35-44** age group was homicide (46.4%);
- **45-54** age group was homicide (38.1%) followed by transport (30.8%);
- **55-65** age group was transport (32.9%); and
- **65+** age group was transport (29.3%), followed by homicide (24.5%), followed by other unintentional injury / non-transport fatalities (20.1%).

**Figure 2.1. Homicide by age (n = 10308)**

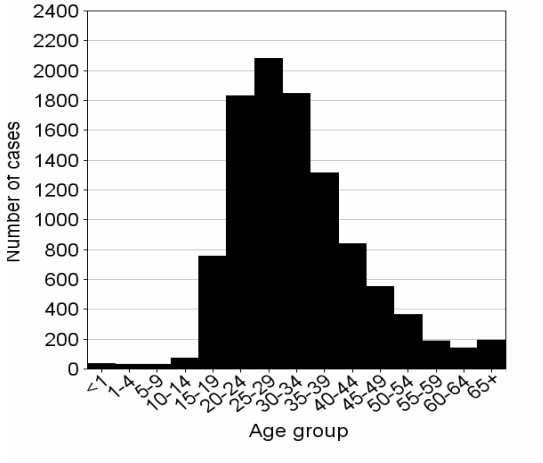



**Figure 2.2. Suicide by age (n = 2211)**

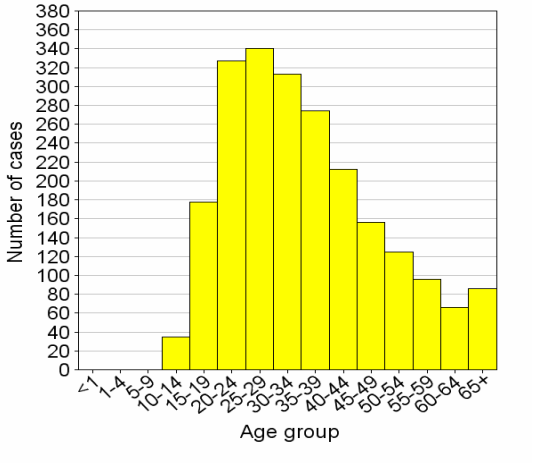



**Figure 2.3. Transport deaths by age (n = 5869)**

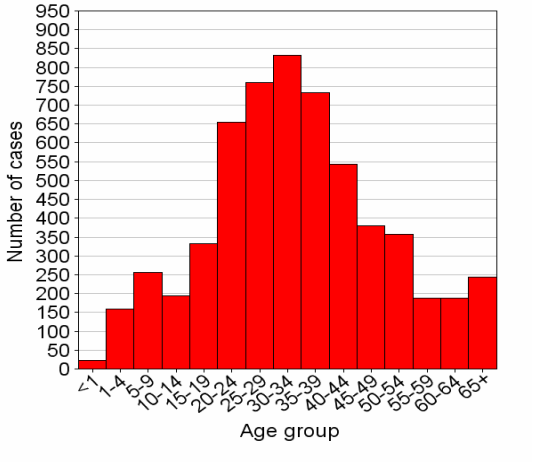


**Figure 2.4. Non-transport deaths by age (n = 2219)**

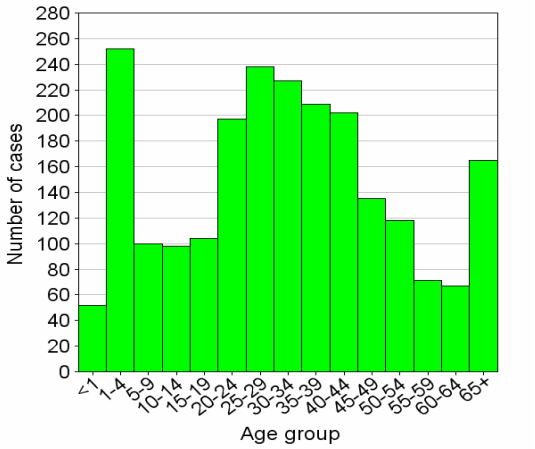
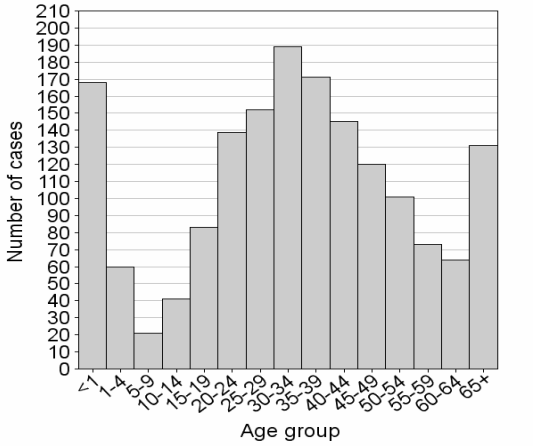


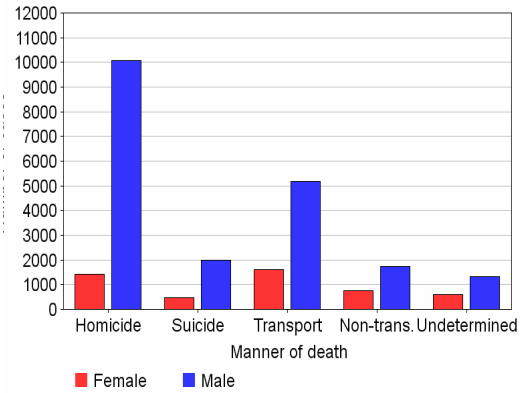

**Figure 2.5. Undetermined deaths by age (n = 1661)**




## Manner of death by gender

Of the cases recorded in the South Africa catchment area, 20306 (80.6%) were male and 4872 (19.4%) were female. The leading cause of death amongst males was homicide (49%). The leading cause of death amongst females was transport (31.9%).

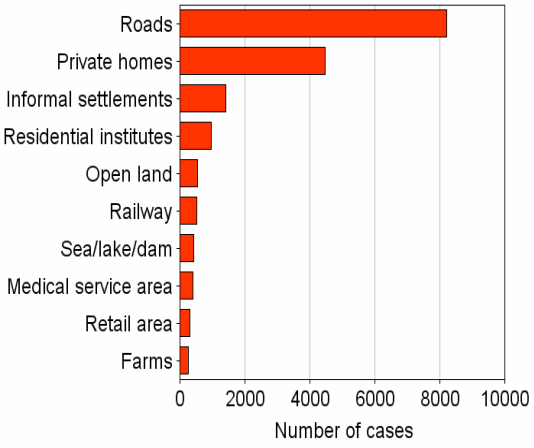
**Figure 3. Manner of death by gender (n = 25178)**




## 2. Scene of injury

The scene of injury was known in 18503 (72.6%) cases. Roads were the most common scene of injury and accounted for 44.4% of deaths.

**Figure 4. Top 10 scenes of injury (n = 17505)**

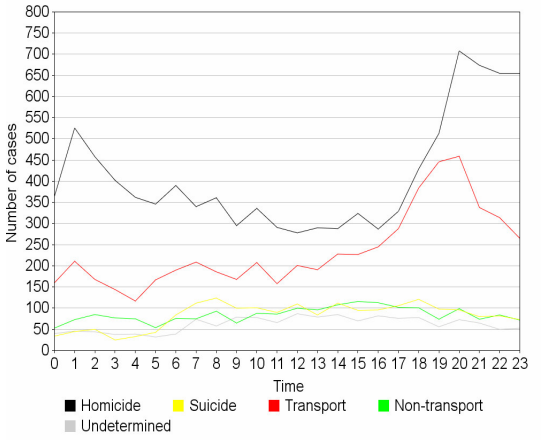


## 3. Time of death

The peak hours of death for:

- **homicide** was 20h00 - 23h00 (27.2%);
- **suicide** was 07h00 - 08h00 (11.8%) and 17h00 - 18h00 (11.4%);
- **transport** related deaths was 18h00 - 20h00 (22.7%); and
- **non-transport** related deaths was 14h00 – 17h00 (21.4%).

**Figure 5. Time of death (n = 21093)**

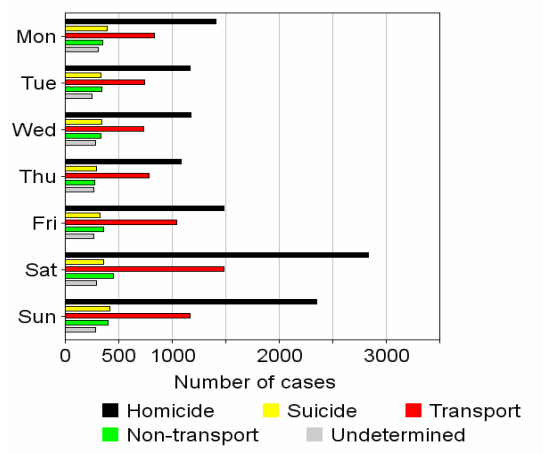



## 4. Day of death

The peak days of death for:

- **homicide** were Saturday (24.6%), followed by Sunday (20.4%), followed by Friday (12.9%);
- **suicide** were Sunday (16.9%), followed by Monday (16.1%), followed by Saturday (14.5%);
- **transport** related deaths were Saturday (21.8%), followed by Sunday (17.2%), followed by Friday (15.4%); and
- **non-transport** were Saturday (17.9%), followed by Sunday (16.2%), followed by Friday (14.4%).

**Figure 6. Day of death (n = 25196)**

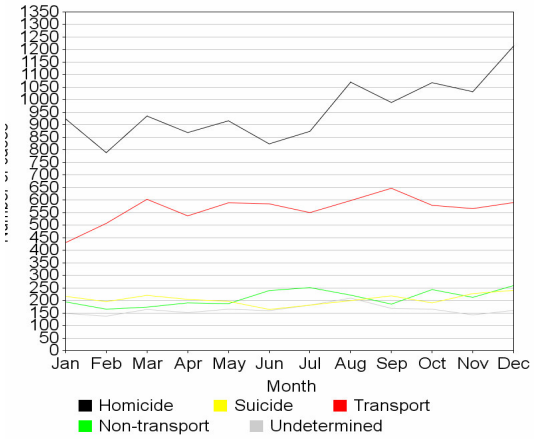



## 5. Seasonal variation

The peak month for:

- **homicide** was December (10.6%), followed by August (9.3%), followed by October (9.3%);
- **suicide** was December (9.8%), followed by November (9.3%), followed by March (9.0%);
- **transport** related deaths was September (9.5%), followed by March (8.9%), followed by August (8.8%); and
- **non-transport** related deaths was December (10.4%), followed by July (10.0%), followed by October (9.7%).

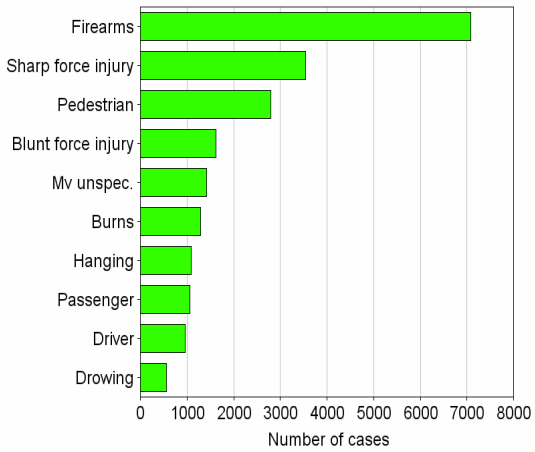
**Figure 7. Seasonal variation (n = 25203)**




## 6. External cause of death

The cause of death was unknown in 4.3% of the cases. The leading external cause of death was firearms (29%), followed by sharp force injuries (14.5%), followed by motor vehicle pedestrian fatalities (11.5%).

**Figure 8. Top 10 external causes of death (n = 21438)**



## External cause of homicide by age

Age was unknown in 1295 of the 11587 cases. Of the remaining cases, the average age of the victims was 31 (± 11.8 yrs). The leading external cause of death for homicide in the:

- **0-14** age group was firearms (38.5%);
- **15-24** age group was firearms (54.9%) followed by sharp force injury (33.5%);
- **25-34** age group was firearms (57.1%) followed by sharp force injury (30.3%);
- **35-44** age group was firearms (51.5%) followed by sharp force injury (31.8%);
- **45-54** age group was firearms (52.9%);
- **55-64** age group was firearms (52.3%); and
- **65+** age group was firearms (35.6%).

**Figure 9.1. Firearm homicide by age (n = 5572)**

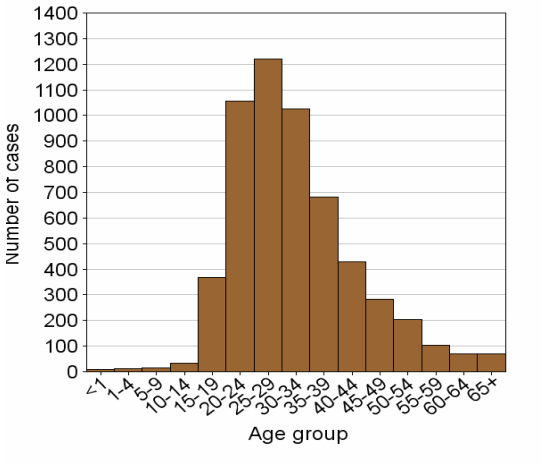



**Figure 9.2. Sharp force injury homicide by age (n = 3151)**

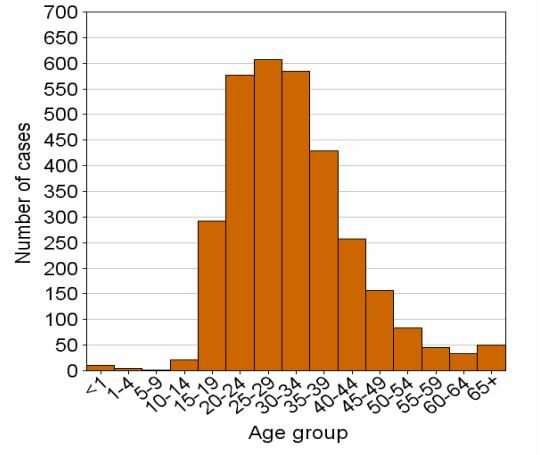



**Figure 9.3. Blunt force injury homicide by age (n = 1246)**

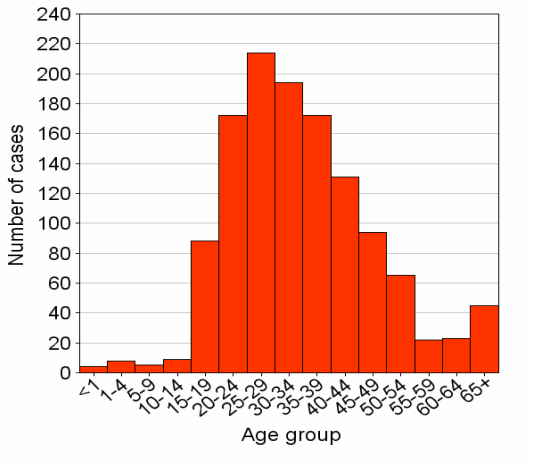



**Figure 9.4. Strangulation, suffocation or asphyxia homicide by age (n = 153)**

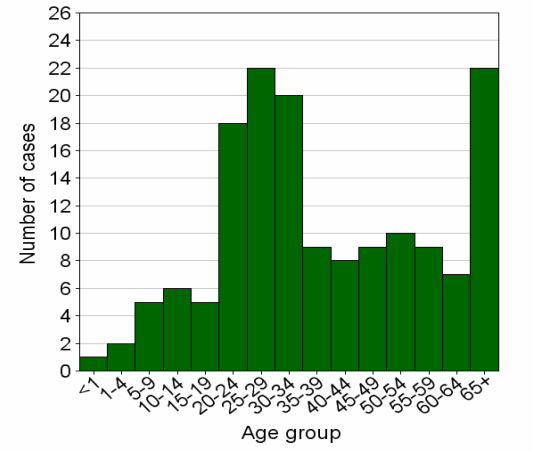
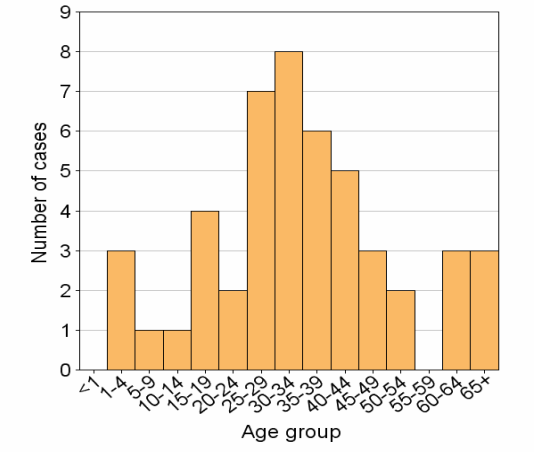



**Figure 9.5. Burn homicide by age (n = 48)**



## External cause of suicide by age

Age was unknown in 263 of the 2471 cases. Of the remaining cases, the average age of the deceased was 35 (± 14.2 yrs). The leading external cause of death for suicide in the:

- **0-14** age group was hanging (77.1%);
- **15-24** age group was hanging (49.5%);
- **25-34** age group was hanging (45.9%);
- **35-44** age group was hanging (37.4%);
- **45-54** age group was hanging (36.3%) followed by firearms (33.5%);
- **55-64** age group was firearms (36.4%) followed by hanging (32.7%); and
- **65+** age group was firearms (45.3%).

**Figure 10.1. Hanging suicide by age (n = 935)**

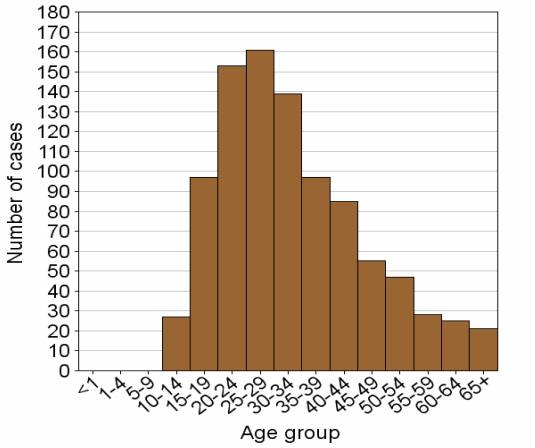



**Figure 10.2. Firearm suicide by age (n = 643)**

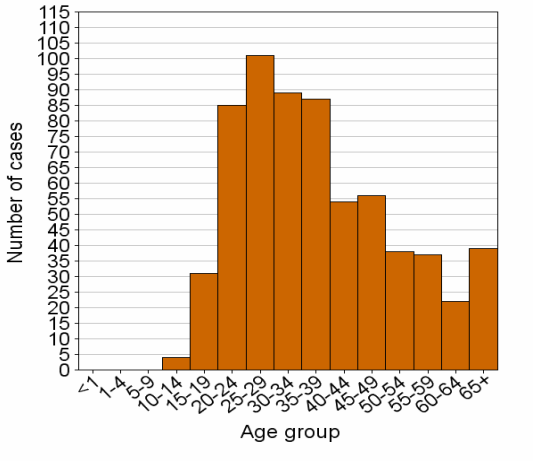



**Figure 10.3. Poisoning suicide by age (n = 279)**

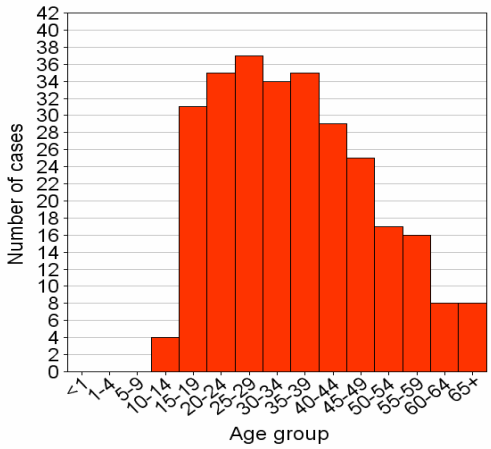
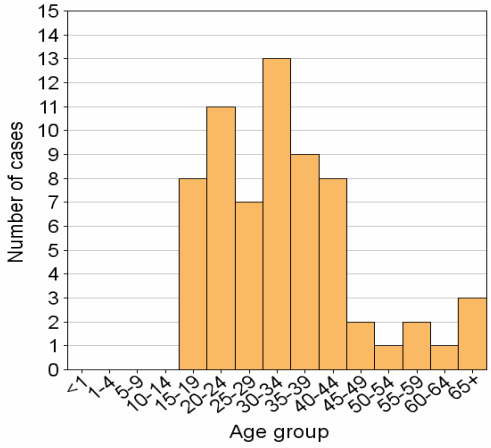



**Figure 10.4. Gassing suicide by age (n = 164)**


**Figure 10.5. Burn suicide by age (n = 65)**



## External cause of transport deaths by age

Age was unknown in 987 of the 6850 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 motor vehicle pedestrians (61.7%);
- **15-24** age group was motor vehicle pedestrians (31.6%);
- **25-34** age group was motor vehicle pedestrians (36.8%);
- **35-44** age group was motor vehicle pedestrians (39.7%);
- **45-54** age group was motor vehicle pedestrians (38.9%);
- **55-64** age group was motor vehicle pedestrians (44.9%); and
- **65+** age group was motor vehicle pedestrians (35.7%).

**Figure 11.1. Motor vehicle pedestrian deaths by age (n = 2343)**

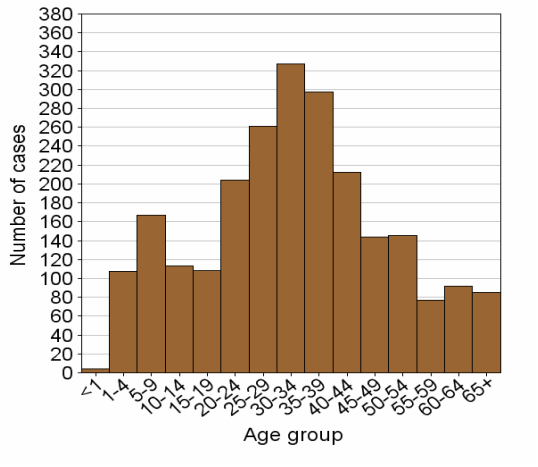



**Figure 11.2. Motor vehicle unspecified deaths by age (n = 1217)**

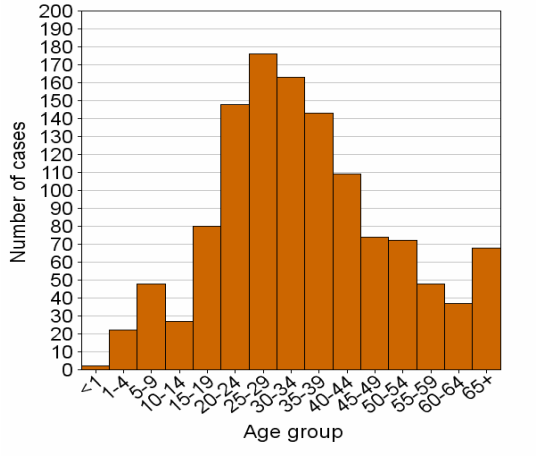



**Figure 11.3. Motor vehicle passenger deaths by age (n = 914)**

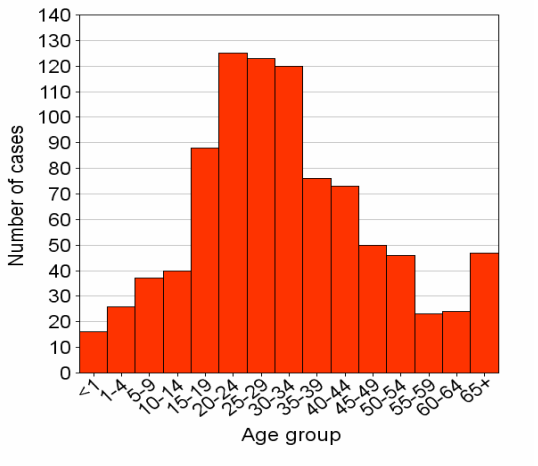



**Figure 11.4. Motor vehicle driver deaths by age (n = 847)**

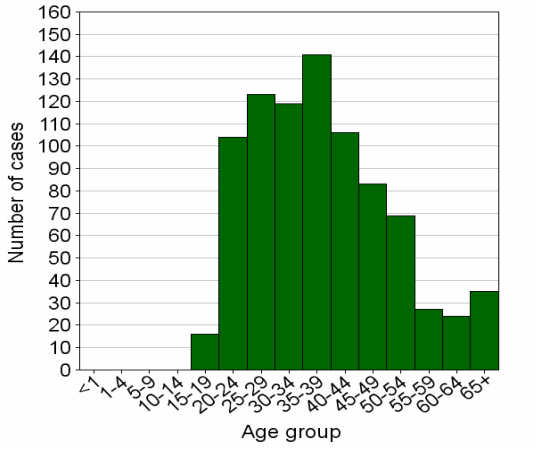
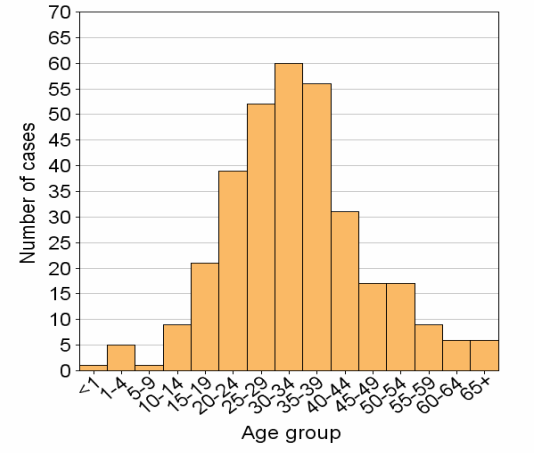



**Figure 11.5. Railway passengers or pedestrians deaths by age (n = 330)**



## External cause of non-transport deaths by age

Age was unknown in 307 of the 2524 cases. Of the remaining cases, the average age of the deceased was 31 (± 20.7 yrs). The leading cause for non-transport related deaths in the:

- **0-14** age group was drowning (36.1%) followed by burns (31.5%);
- **15-24** age group was burns (38.2%) followed by other (31.2%);
- **25-34** age group was burns (45%) followed by other (32.5%);
- **35-44** age group was burns (45.3%) followed by other (30%);
- **45-54** age group was burns (36.7%) followed by other (33.1%);
- **55-64** age group was burns (41.6%); and
- **65+** age group was burns (36.4%).

**Figure 12.1. Burn deaths by age (n = 871)**

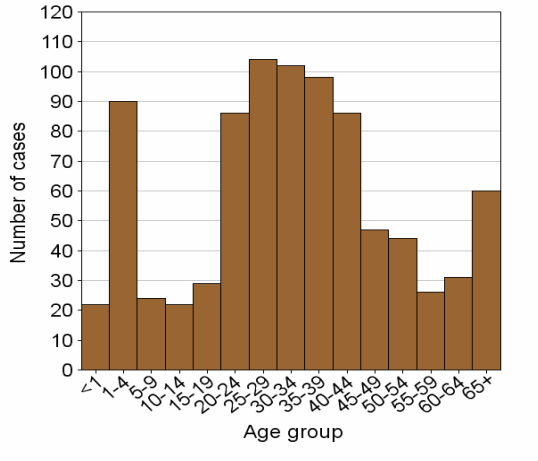



**Figure 12.2. Drowning deaths by age (n = 408)**

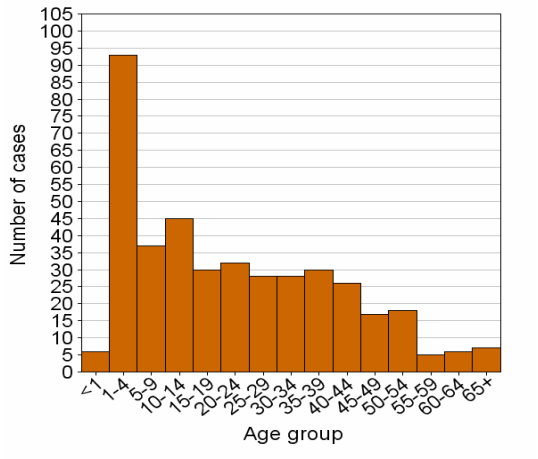



**Figure 12.3. Fall/push/jump from height deaths by age (n = 180)**

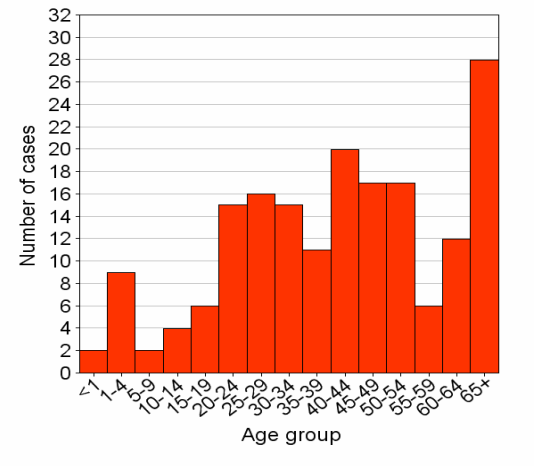



**Figure 12.4. Falling, jumping or being pushed from a height deaths by age (n = 94)**

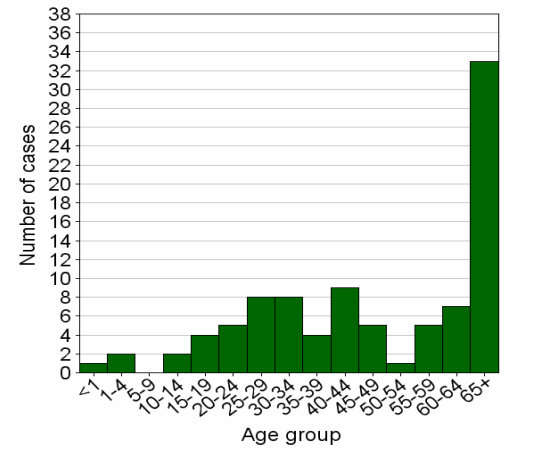
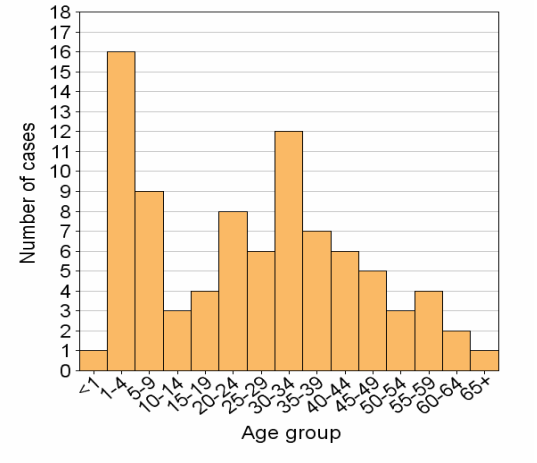



**Figure 12.5. Poisoning deaths by age (n = 87)**



## 7. Blood alcohol levels

Blood alcohol concentration (BAC) levels were obtained in 11927 of the 25494 cases. The average BAC for those who tested positive was 0.18 ± 0.1 g/100ml

**Figure 16. Blood Alcohol Levels (n = 11960)**

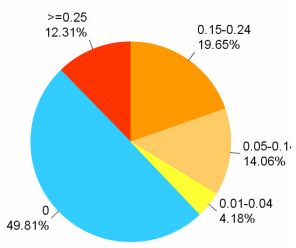



**Table II: Blood alcohol levels by apparent manner of death**

| Apparent manner | BAC's done n(%) | BAC positive n(%) | Mean BAC | Std. Dev. |
|---|---|---|---|---|
| Homicide (11587) | 6407 (55.29) | 3371 (52.61) | 0.17 | 0.09 |
| Suicide (2471) | 1251 (50.63) | 475 (37.97) | 0.16 | 0.13 |
| Transport (6850) | 2992 (43.67) | 1565 (52.30) | 0.19 | 0.11 |
| Non-transport (2524) | 770 (30.50) | 370 (48.05) | 0.19 | 0.1 |
| Undetermined (2062) | 507 (24.59) | 207 (40.8) | 0.16 | 0.11 |
| Total (25454) | 11927 | 5988 | 0.17 | 0.11 |

## Blood alcohol level by transport user

Of the 6850 who were fatally injured in transport collisions, blood alcohol concentration were available in 2992 (43.7%) 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 (966) | 499 (51.66) | 276 (55.31) | 0.17 | 0.09 |
| Passenger (1054) | 358 (33.97) | 146 (40.78) | 0.15 | 0.09 |
| Pedestrian (2800) | 1365 (48.75) | 811 (59.41) | 0.22 | 0.11 |
| Unspecified (1417) | 447 (31.54) | 212 (47.4) | 0.17 | 0.1 |
| Railway case (380) | 220 (57.89) | 81 (36.82) | 0.2 | 0.1 |
| Cyclist (213) | 103 (48.36) | 38 (36.89) | 0.17 | 0.09 |
| Total (6830) | 2992 | 1564 | 0.18 | 0.1 |

| Appendix 1: Participating mortuaries | | | |
|---|---|---|---|
| **Province** | **City** | **Mortuary** | **Total** |
| Eastern Cape | East London | Mdantsane | 901 |
| Eastern Cape | East London | Woodbrook | 1515 |
| Eastern Cape | Port Elizabeth | Gelvandale | 812 |
| Eastern Cape | Port Elizabeth | Mount Road | 667 |
| Eastern Cape | Port Elizabeth | New Brighton | 1127 |
| Gauteng | Johannesburg | Diepkloof | 1789 |
| Gauteng | Johannesburg | Germiston | 3067 |
| Gauteng | Johannesburg | Johannesburg | 3473 |
| Gauteng | Johannesburg | Roodepoort | 1368 |
| Gauteng | Pretoria | Bronkhorstspruit | 199 |
| Gauteng | Pretoria | Medunsa | 658 |
| Gauteng | Pretoria | Pretoria | 2392 |
| KwaZulu Natal | Durban | Chatsworth | 1091 |
| KwaZulu Natal | Durban | Gale Street | 2954 |
| KwaZulu Natal | Durban | Phoenix | 2149 |
| Mpumulanga | Balfour | Balfour | 58 |
| Mpumulanga | Belfast | Belfast | 5 |
| Mpumulanga | Bethal | Bethal | 163 |
| Mpumulanga | Carolina | Carolina | 62 |
| Mpumulanga | Delmas | Delmas | 121 |
| Mpumulanga | Ermelo | Ermelo | 5 |
| Mpumulanga | Groblersdal | Groblersdal | 180 |
| Mpumulanga | Hazyview | Hazyview | 177 |
| Mpumulanga | Komatipoort | Komatipoort | 149 |
| Mpumulanga | Kwamhlanga | Kwamhlanga | 113 |
| Mpumulanga | Lydenburg | Lydenburg | 51 |
| Mpumulanga | Nelspruit | Nelspruit | 185 |
| Mpumulanga | Sabie | Sabie | 25 |
| Mpumulanga | Volksrust | Volksrust | 102 |
| Mpumulanga | Witbank | Witbank | 326 |
| Northern Cape | Kimberley | Kimberley | 408 |
| Western Cape | Cape Town | Salt River | 3237 |
| Western Cape | Cape Town | Tygerberg | 2887 |
| Western Cape | Stellenbosch | Stellenbosch | 474 |
| **Total** | | | 32890 |