

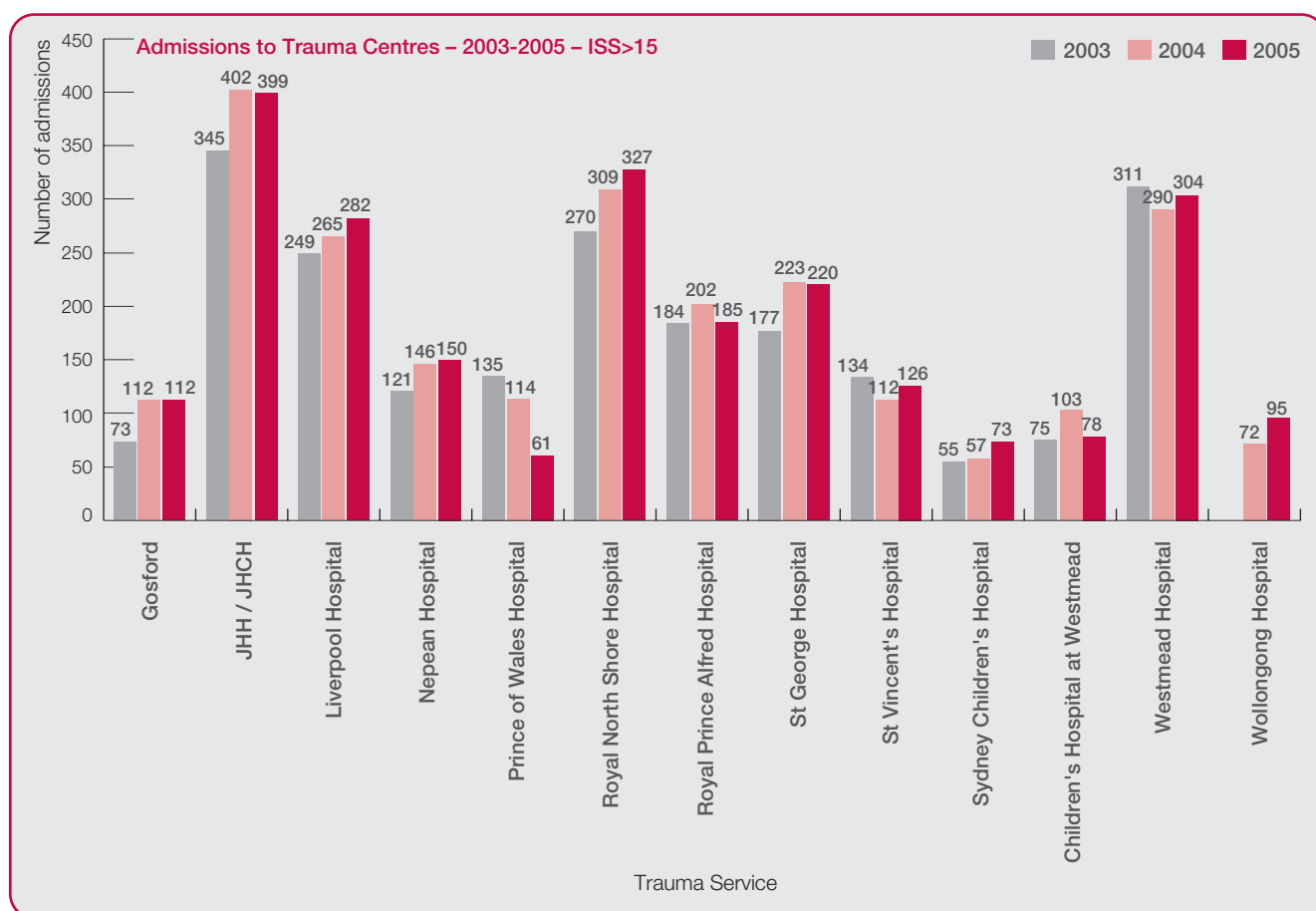
# trauma service statistics

## General profile

### Trauma centre admissions

The following charts present summary data about admissions of injured people with an ISS >15 to all trauma centres in NSW, regardless of whether the patient was later transferred to another Trauma Centre for definitive care. Consequently admission figures in the following charts may include a count of the same person one or more times.

Figure 1. Total trauma admissions to Trauma Centres with ISS >15

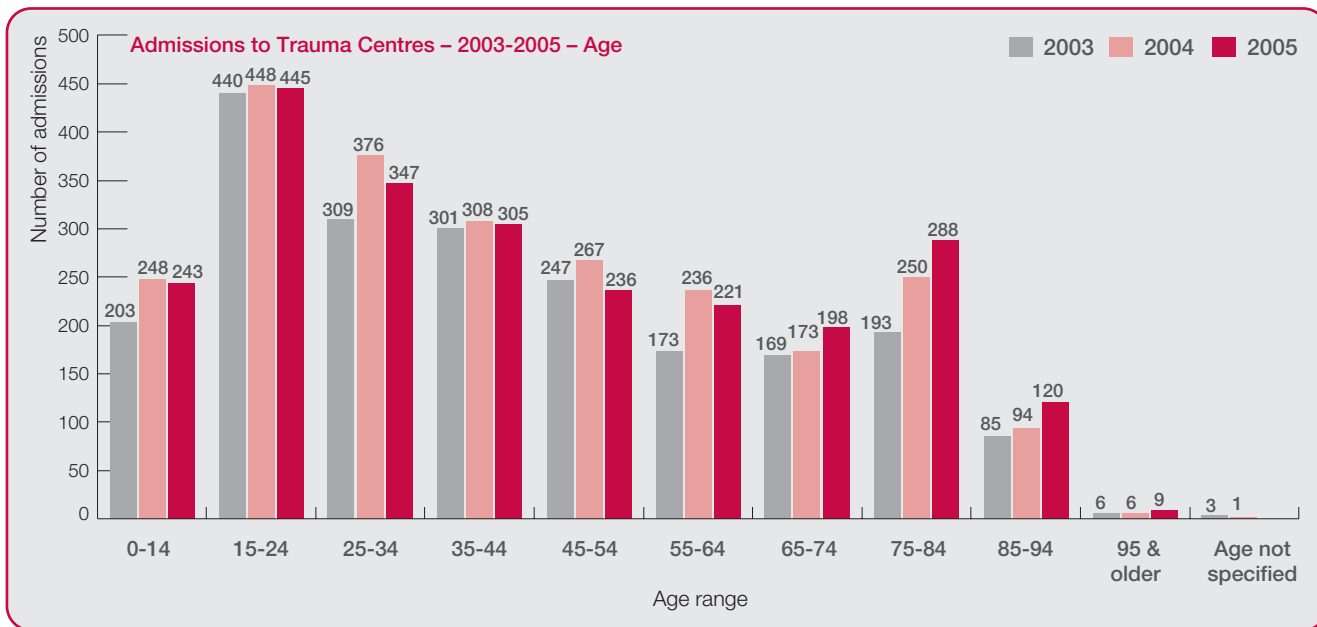


### Age distribution

There was a **rise in the numbers of people aged 65 years and older** with an ISS >15 admitted to Trauma Centres in 2005, from 523 admissions in 2004 to 615 admissions in 2005 (an increase of 17.6%).

There has also been a **small decrease** in the number of people aged between **25 and 64 years** admitted to Trauma Centres, from 1,187 admissions in 2004 to 1,109 admissions in 2005 (a drop of 6.6%).

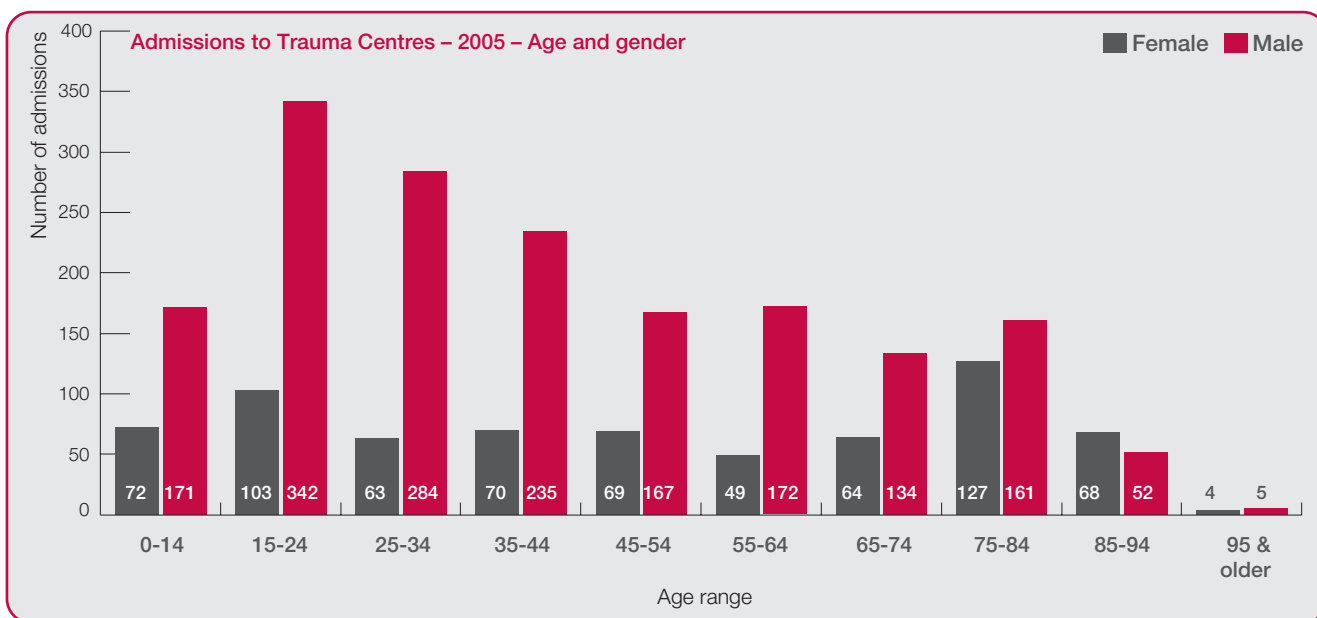
Figure 2. Trauma admissions to all Trauma Centres by age



### Gender distribution

**Young males** continue to **dominate admission** figures in 2005, with **861** admissions of **males** aged between **15 and 44 years**, or 35.7% of all admissions in the data set for 2005.

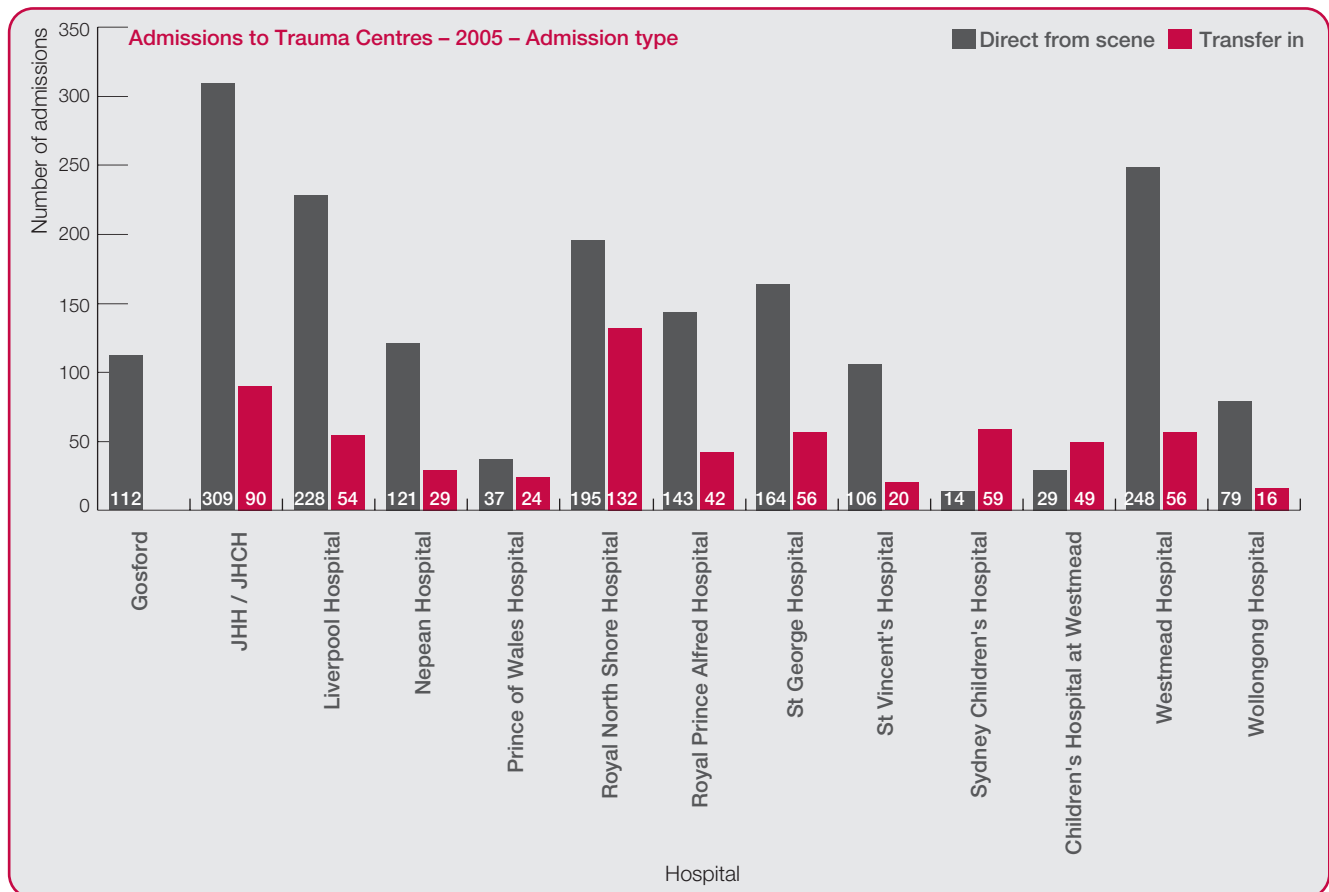
Figure 3. Trauma admissions to all Trauma Centres by age and gender



### Admission type

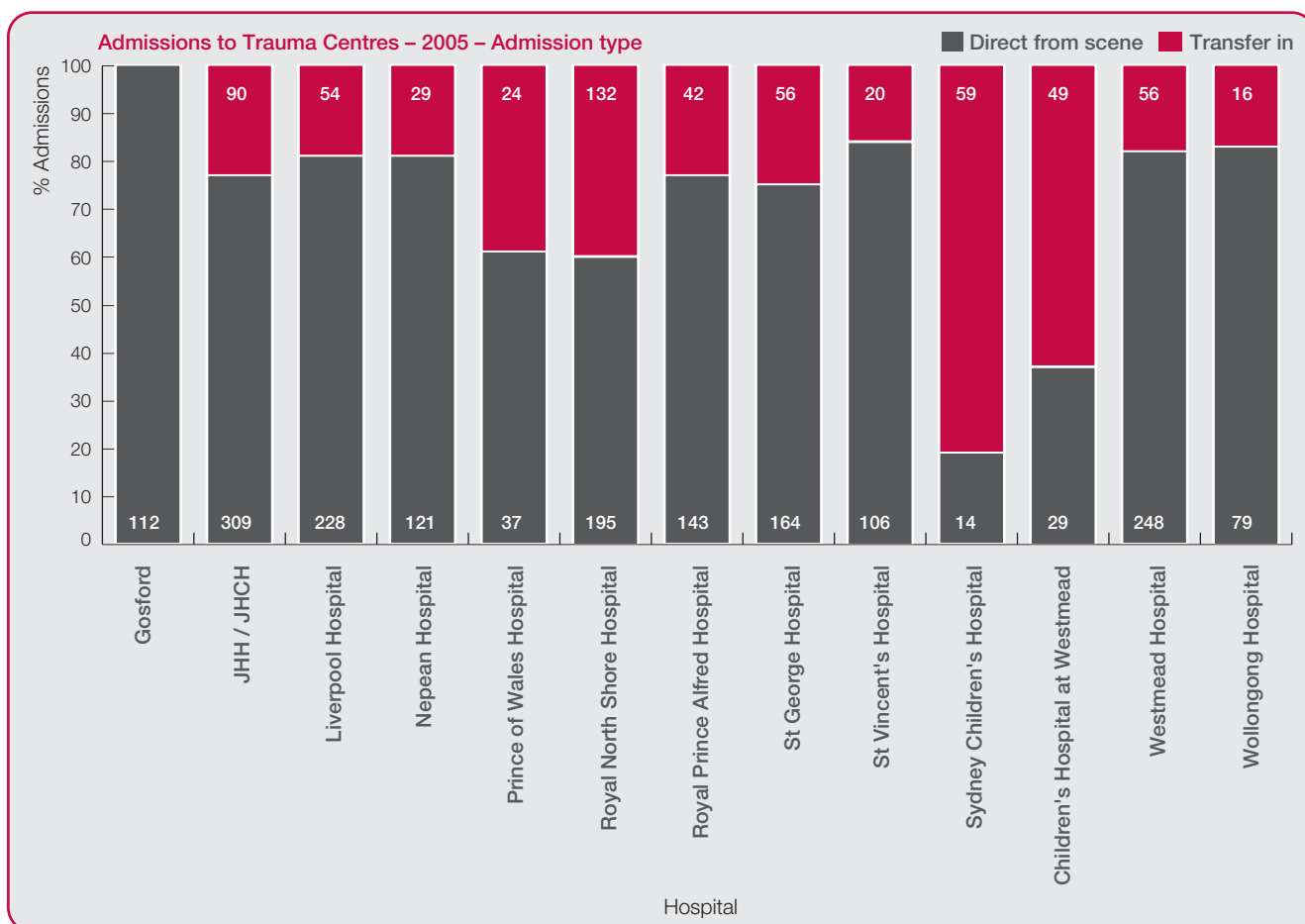
The type of admission of a patient to a Trauma Centre may be either directly from the scene of injury, or following a transfer from another Trauma Centre or a non-trauma hospital. The following charts may reflect the effectiveness of the Ambulance Service of NSW (ASNSW) Protocol 4 early notification and bypass system, and may also reflect tertiary referral networks<sup>20</sup> in NSW.

**Figure 4. Trauma admissions to each Trauma Centre by admission type**  
(ie direct from scene or transfer into the Trauma Centre from another hospital)



<sup>20</sup> See NSW Health Policy Directive – Critical Care Adult Tertiary Referral Networks 2006 (Doc No. PD2006\_046), which defines links between Area Health Services and tertiary referral hospitals. The policy also defines clinical super-specialty referral networks including the NSW Severe Burn Injury Service (Adult), NSW Acute Spinal Cord Injury Referrals (Adult), and NSW Major Trauma Referrals (Adult).

Figure 5. Percentage of admission types for all trauma admissions to each Trauma Centre direct from scene or transferred from another hospital to a Trauma Centre



### Mechanism of injury

Mechanisms of injury in the *Trauma Minimum Data Set* are causes of injury or events resulting in injury. The list of mechanisms recorded in the *Trauma Minimum Data set* is grouped in the following tables, so that:

- assault includes blunt assault, shooting, and stabbing
- motorbike accidents (MBA) includes injuries to motorcycle riders and pillion
- motor vehicle accidents (MVA) includes injuries to motor vehicle drivers and passengers in all locations in a vehicle
- the category of 'All other injuries' includes burns, horse related accidents, industrial accidents, accidents due to recreational and sporting activities, train related accidents, injuries due to unknown causes, and any other mechanism not listed.

**Low / medium falls** remained the **single most common mechanism** of injury in 2005, associated with 740 admissions of patients with an ISS >15, or 30.7% of all admissions for the year.

Death rates for mechanisms of injury range from 4% for pedal cycle related injuries, to 23.8% for shooting related injuries.

Figure 6. Trauma admissions to all Trauma Centres by mechanism of injury

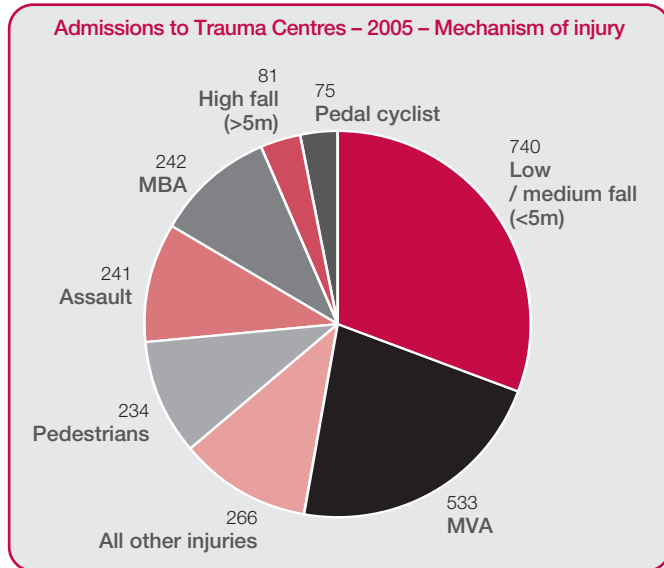


Figure 7. Trauma admissions to all Trauma Centres by mechanism of injury

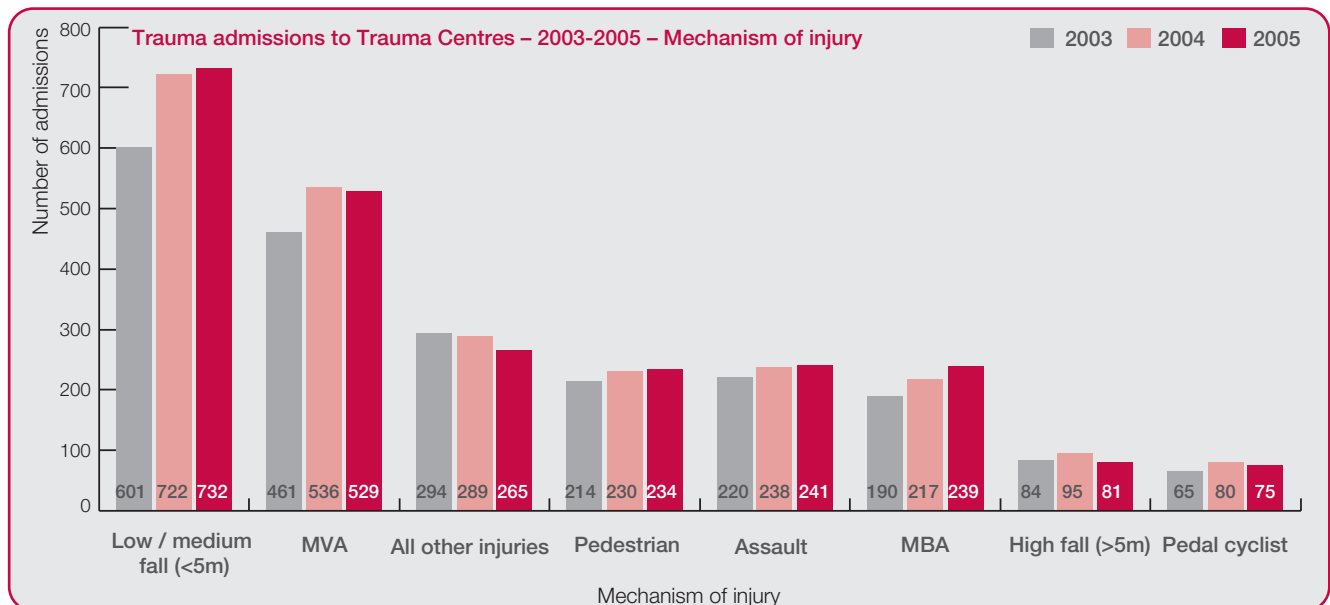
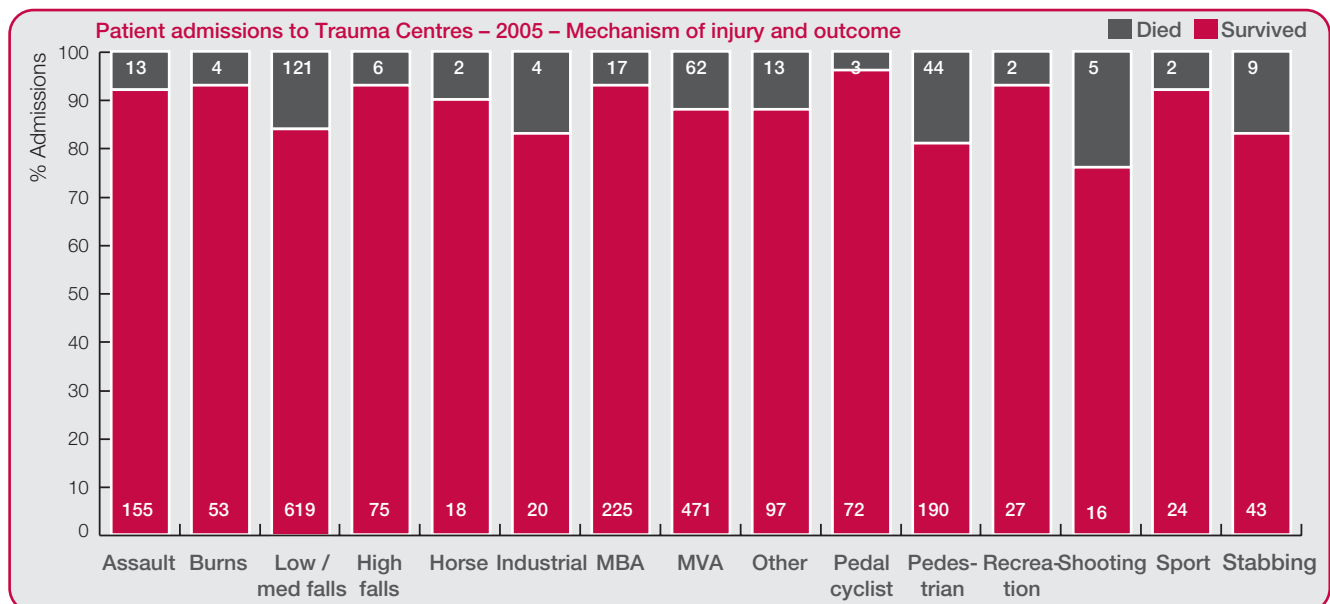


Figure 8. Trauma admissions to all Trauma Centres showing outcome percentages by mechanism of injury

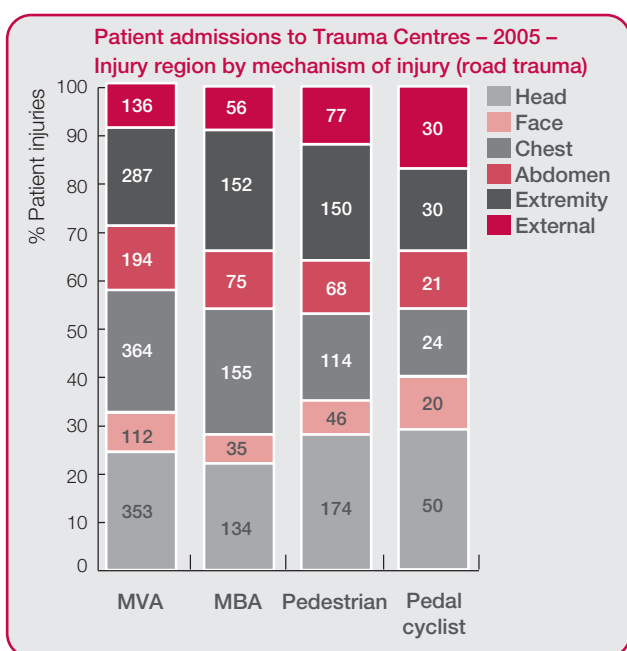


### ISS body regions

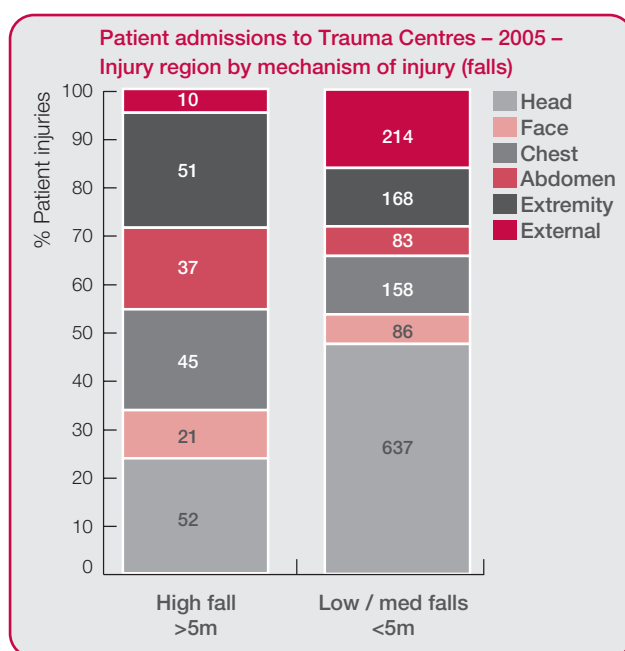
The following tables describe ISS body regions injured for the major mechanism groupings of road trauma, falls and assaults. The term 'body region' here refers to the three most severely injured ISS body regions required for the calculation of the Injury Severity Score for each patient. The ISS can include between one and three different body regions for the purpose of calculation. This means that the total numbers of body regions recorded in the *Trauma Minimum Data Set* exceeds the total number of people injured.

**Injuries to the head or neck body region feature strongly** in most mechanisms in the charts below. It should be noted that injuries to the head or neck ISS body region include injury to the brain or cervical spine, skull or cervical spine fractures. In the *Trauma Minimum Data Set* cervical spine injuries in this body region have been found to be a small subset only of injuries in this ISS body region.

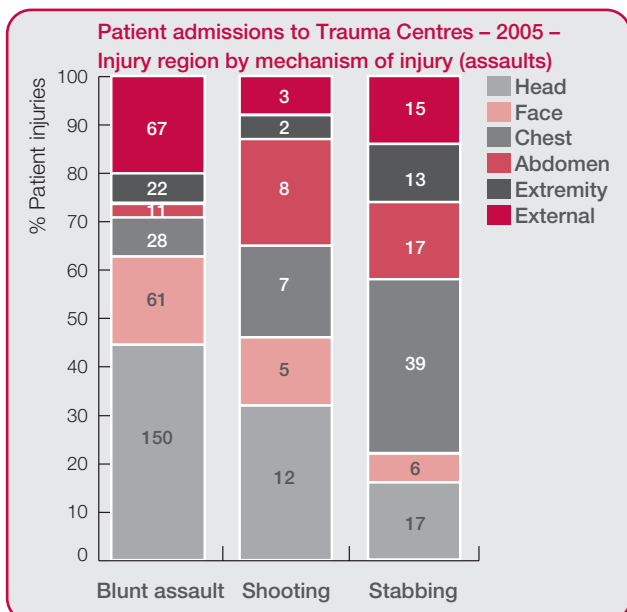
**Figure 9. Trauma admissions to all Trauma Centres showing injury region percentages by mechanism of injury for road trauma**



**Figure 10. Trauma admissions to all Trauma Centres showing injury region percentages by mechanism of injury for falls**



**Figure 11. Trauma admissions to all Trauma Centres showing injury region percentages by mechanism of injury for assaults**



# motor vehicle accidents (MVA)

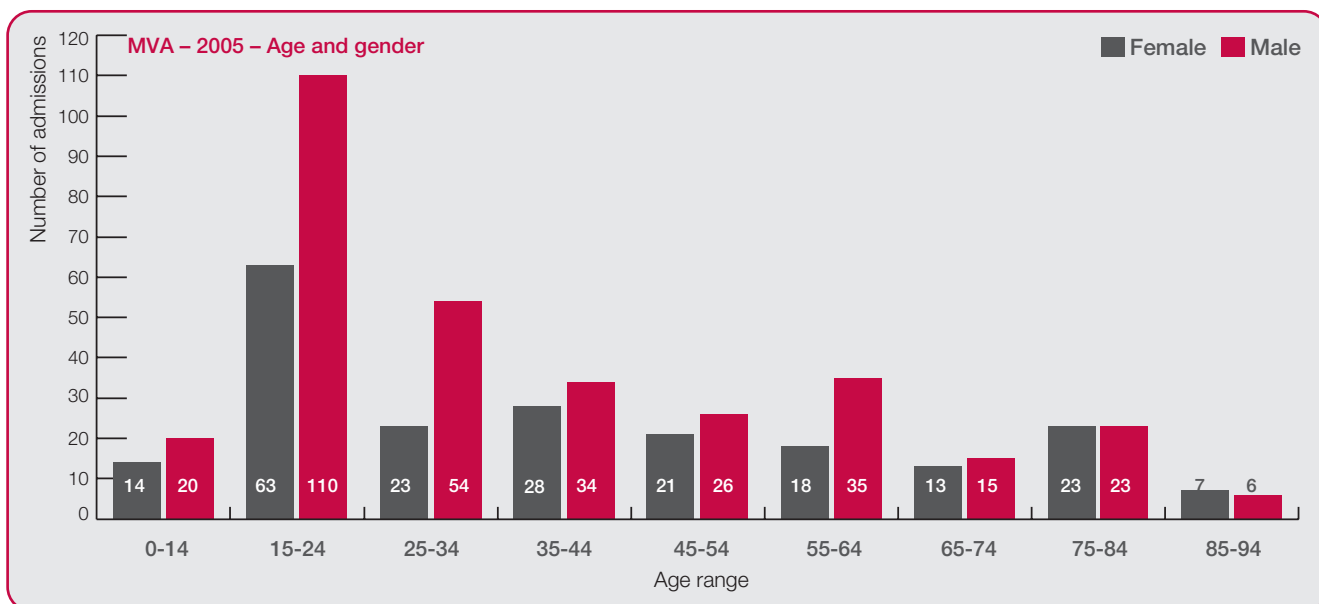
## General

'Motor vehicle accidents' (MVA) include accidents relating to motor vehicle drivers and passengers (front, back, or in unspecified positions). Motor vehicle accidents may include accidents involving cars, buses, trucks, vans, and other heavy road transport vehicles. It may also include three-wheeled motor vehicles.

In 2005 there were **533 admissions** of people to Trauma Centres with an **MVA related injury** with an ISS >15, representing **just over 22% of all trauma admissions** recorded in the 2005 data set.

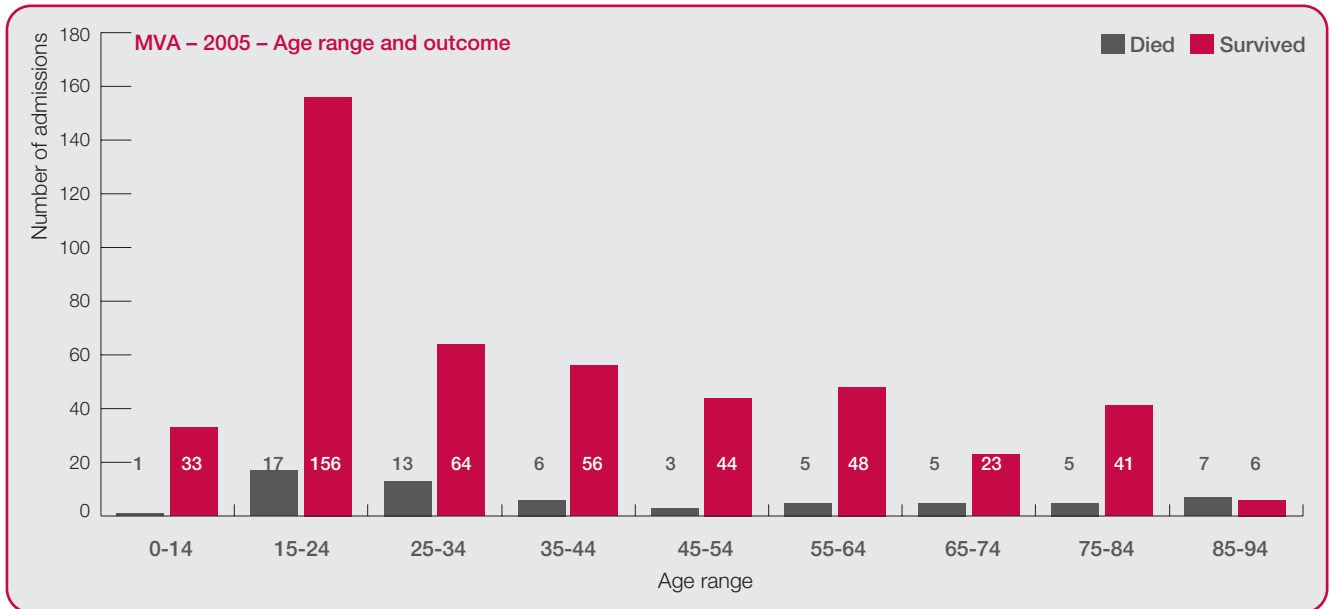
**Young people dominate MVA figures in the 2005 data**, as the chart below demonstrates. 58.5% of all MVA related admissions in 2005 were of injured people aged 15-44 years, and **males accounted for 63.5%** of this group. Males account for 60.6% of MVA related admissions across all age groups.

**Figure 12. Motor vehicle accident related trauma patient admissions to all Trauma Services by gender and age group**



**Death rates for MVA related injuries in 2005 were high in the over 75 years age group**, where 20.3% of people admitted to Trauma Centres died. The death rate for the 85-94 years age group was the highest at 53.89% (where more people died than survived), however numbers in this age group were small.

Figure 13. Motor vehicle accident related trauma patient admissions to all Trauma Services by age range and outcome



### Admission type

In 2005 79% of patients with MVA related injuries were transported directly to a Trauma Centre from the scene of their injury. The remaining 21% of patients were transferred to a Trauma Centre from another hospital. The 2005 rate of 'direct from scene' admissions for MVA related trauma was higher than the 2004 rate of 76%.

Figure 14. Motor vehicle accident related admissions to all Trauma Centres by admission type (ie direct from scene or transferred in from another hospital)

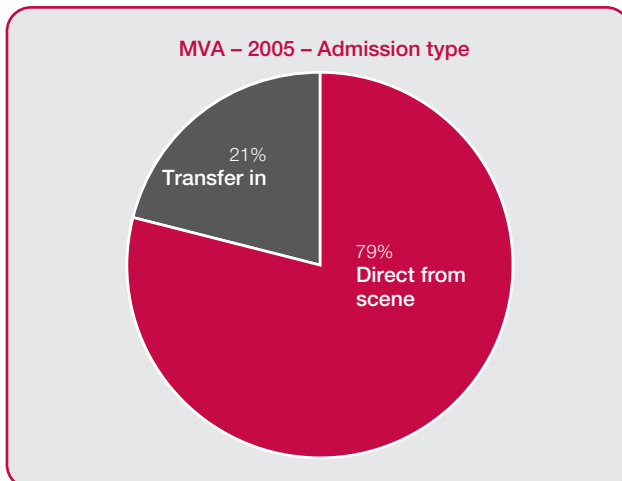
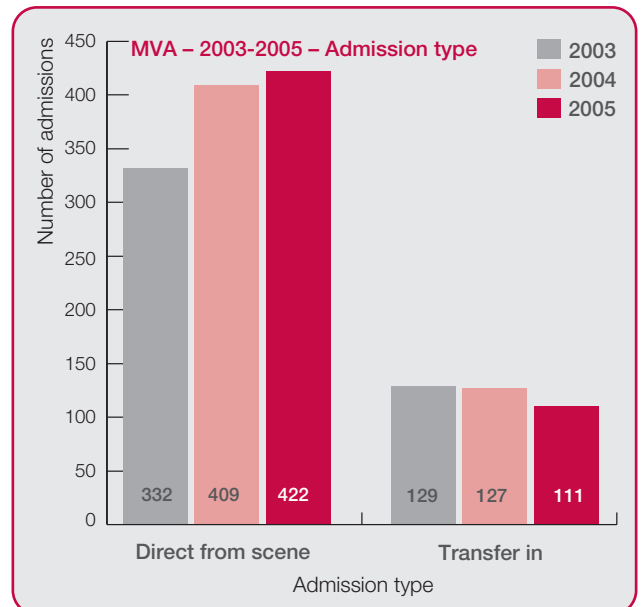


Figure 15. Motor vehicle accident related admissions to all Trauma Centres by admission type (ie direct from scene or transferred in from another hospital)

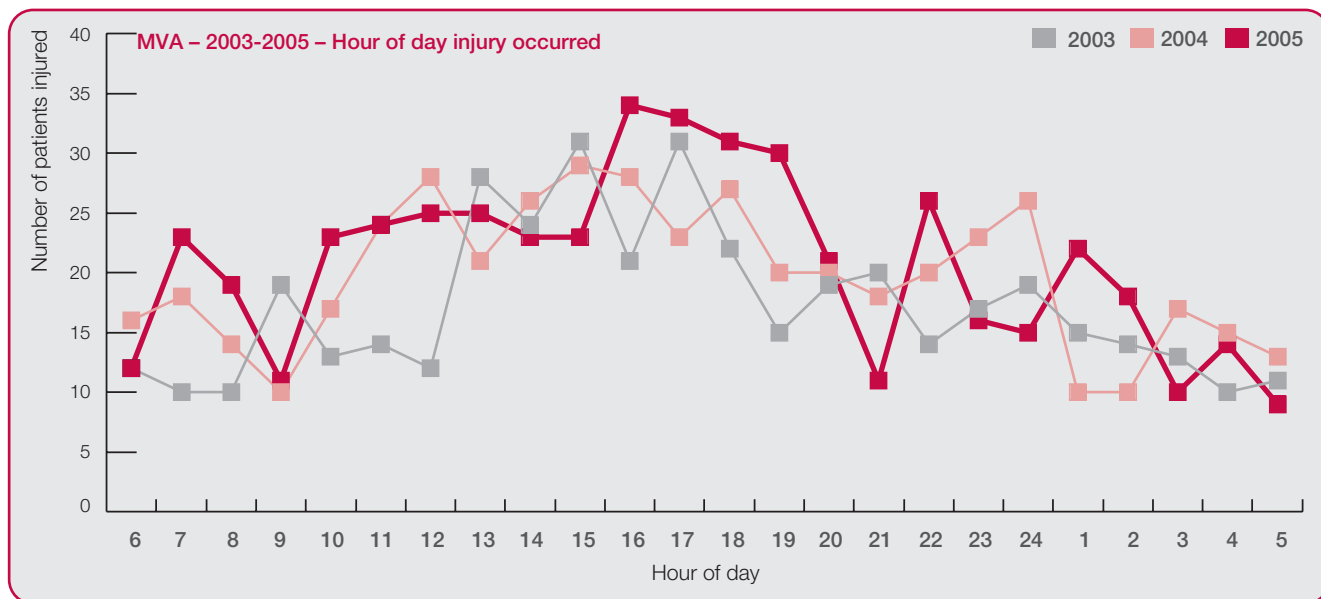


**motor vehicle accidents (MVA)**

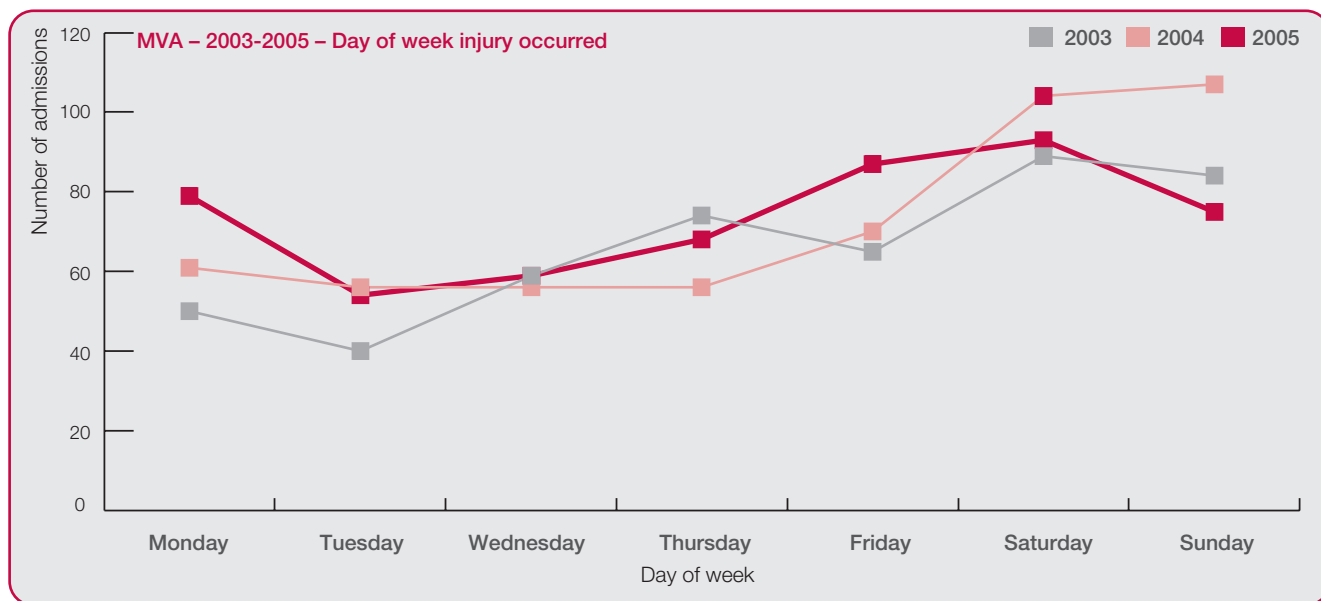
### Time of day and day of week

In 2005, MVA related injuries occurred most frequently **between 4pm and 8pm**, and on **Fridays and Saturdays** during the year. This differed from the previous two years' figures, where Saturdays and Sundays were the most common days for MVA related injuries to occur.

**Figure 16. Motor vehicle accident related trauma patient admissions to all Trauma Centres by hour of day that injury occurred**



**Figure 17. Motor vehicle accident related trauma patient admissions to all Trauma Centres by day of week that injury occurred**



## Injury severity

In 2005, MVA related injuries recorded proportionately **more injuries** in the **ISS 41-75** range (critical injuries) than in the overall figures across all mechanisms of injury. **Sixteen per cent** of MVA related injuries had an ISS of 41-75, compared to 8.2% of all trauma generally for 2005. The 2005 figure for MVA related trauma in the ISS 41-75 range is also higher than the 2004 figure of 11.8%.

Figure 18. Motor vehicle accident related trauma patient admissions to all Trauma Centres by ISS Range

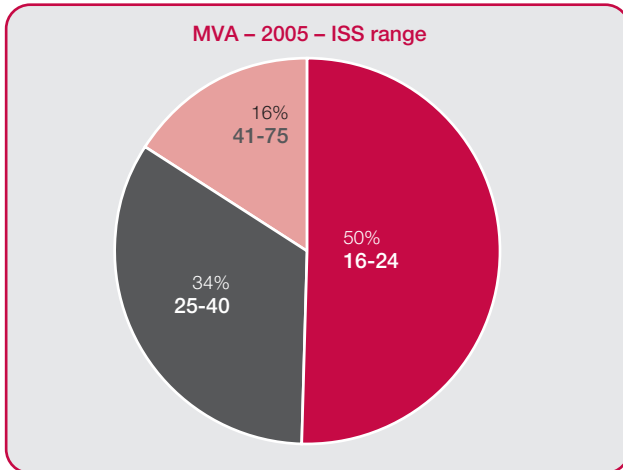
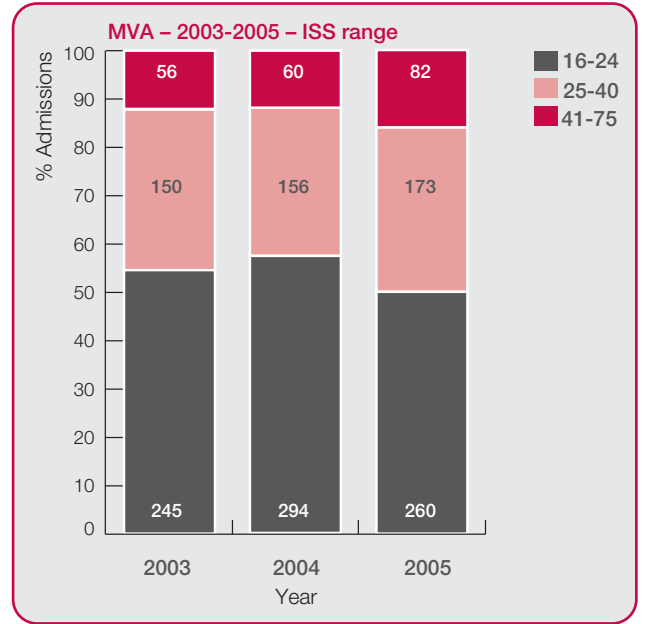


Figure 19. Motor vehicle accident related trauma patient admissions to all Trauma Services by ISS Range



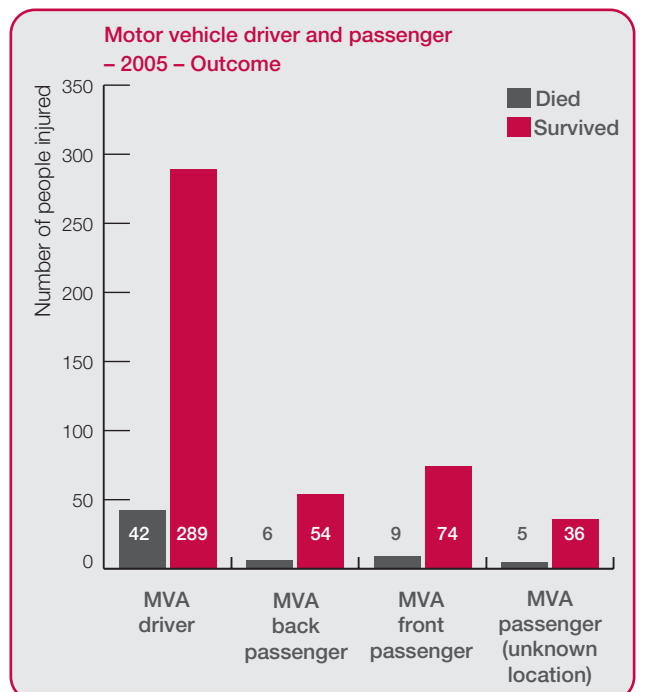
## Motor vehicle accident drivers and passengers

The *Trauma Minimum Data Set* includes several sub categories of motor vehicle accidents:

- Motor Vehicle Accident – Driver
- Motor Vehicle Accident – Front passenger
- Motor Vehicle Accident – Back passenger
- Motor Vehicle Accident – Passenger (unknown location in vehicle)

The death rate for **MVA drivers** in 2005 was **12.8%**, higher than the death rates for **front and back passengers** at 11.4% and 10% respectively.

Figure 20. Motor vehicle driver and passenger related trauma patients by outcome



## motor vehicle accidents (MVA)

MVA driver related injuries dominate all age groups in the 2005 data set except the 0-14 year groups. In the biggest age group for MVA related injuries, **15-24** year olds, **55.5%** of injuries were **MVA driver** related. In a number of other age groups the rate of MVA driver related injuries was higher:

- Age **25-34** years – **79.2%**
- Age **35-44** years – **79%**
- Age **45-54** years – **78.7%**
- Age **55-64** years – **73.6%**

Males dominate the MVA driver related injury figures for 2005, with **227 male drivers injured** compared to **104 females injured**. In MVA Passenger categories, more females than males were injured (102 females to 82 males).

Figure 21. Motor vehicle driver and passenger related trauma patients by age range

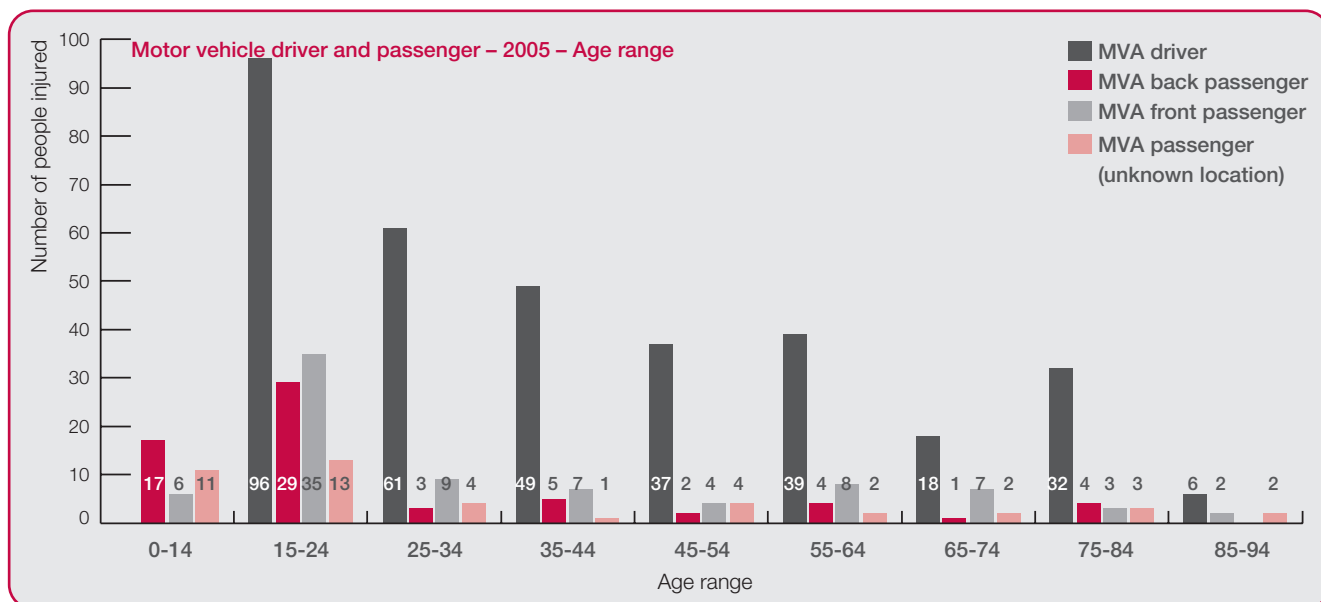
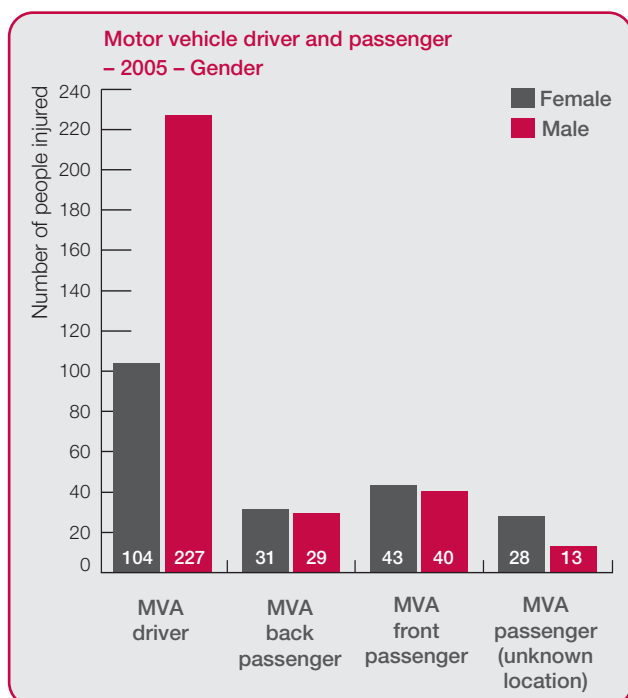
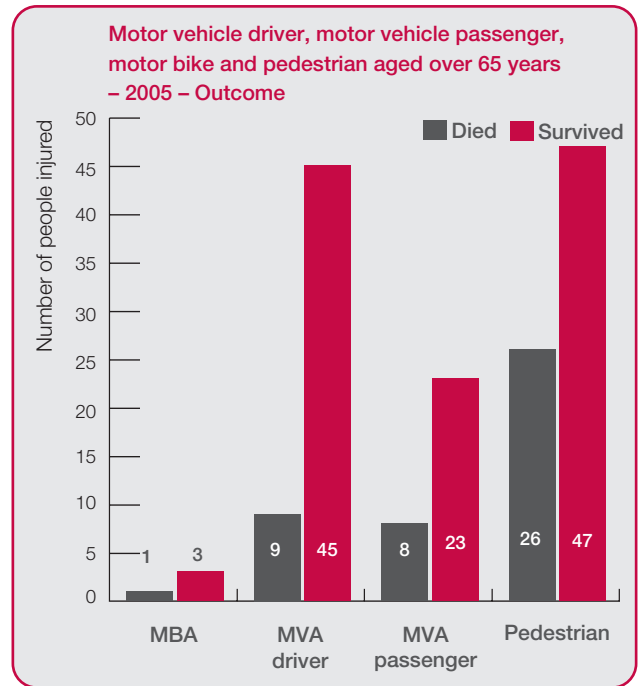


Figure 22. Motor vehicle driver and passenger related trauma patients by gender



In the **over 65 years age** group in 2005 there were **73 pedestrian related injuries**, compared to 54 MVA driver related injuries and 31 MVA Passenger related injuries.

**Figure 23. Motor vehicle driver, motor vehicle passenger, motor bike and pedestrian related trauma patients aged over 65 years by outcome**



## Time to definitive care

**Almost 90%** of people **transported directly** to a definitive trauma hospital from the scene of their motor vehicle accident in 2005 **arrived within two hours** of the time of injury, in an **average one hour and seven minutes**. Patients who were admitted greater than 24 hours after their injury directly from the scene typically arrived using private transport, or non-ambulance means.

**Table 22. Times to definitive trauma hospital for motor vehicle related trauma patients<sup>21</sup>**

| Time period                  | Direct from scene                        | Transfer in                                |
|------------------------------|--|--|
| <b>0-2 hours</b>             | 337 patients (89.4%)<br>1 hour 7 minutes | –  |
| <b>2-6 hours</b>             | 27 patients (7.2%)<br>2 hours 45 minutes | 15 patients (15.5%)<br>4 hour 12 minutes   |
| <b>6-12 hours</b>            | 2 patients (<1%)<br>6 hours 46 minutes   | 41 patients (42.39%)<br>8 hour 32 minutes  |
| <b>12-24 hours</b>           | 5 patients (1.3%)<br>14 hours 7 minutes  | 28 patients (28.9%)<br>17 hour 40 minutes  |
| <b>Greater than 24 hours</b> | 6 patients (1.6%)<br>78 hours 1 minute   | 13 patients (13.4%)<br>142 hour 33 minutes |

<sup>21</sup> Times to definitive trauma hospital are calculated only where times of injury are known.

# motor bike accidents (MBA)

## General

Motorbike Accidents (MBA) include injuries to motorcycle riders and motorcycle pillion passengers.

In 2005 there were **242 admissions** to Trauma Centres of people injured due to **motorbike** accidents. This was an **increase of 11.5%** from the 2004 figure.

Males far outnumbered females in admissions (**220 males** compared to **22 females**), and the majority of injured people were aged between the ages of 15 and 44 (76.8% of MBA related injuries).

The death rate for MBA related injuries in 2005 was 7.4%. The **majority of deaths** for MBA related injuries occurred in the **15-44 years age group**, where 12 people died.

Figure 24. Motor bike accident related trauma patient admissions to all Trauma Centres by age and gender

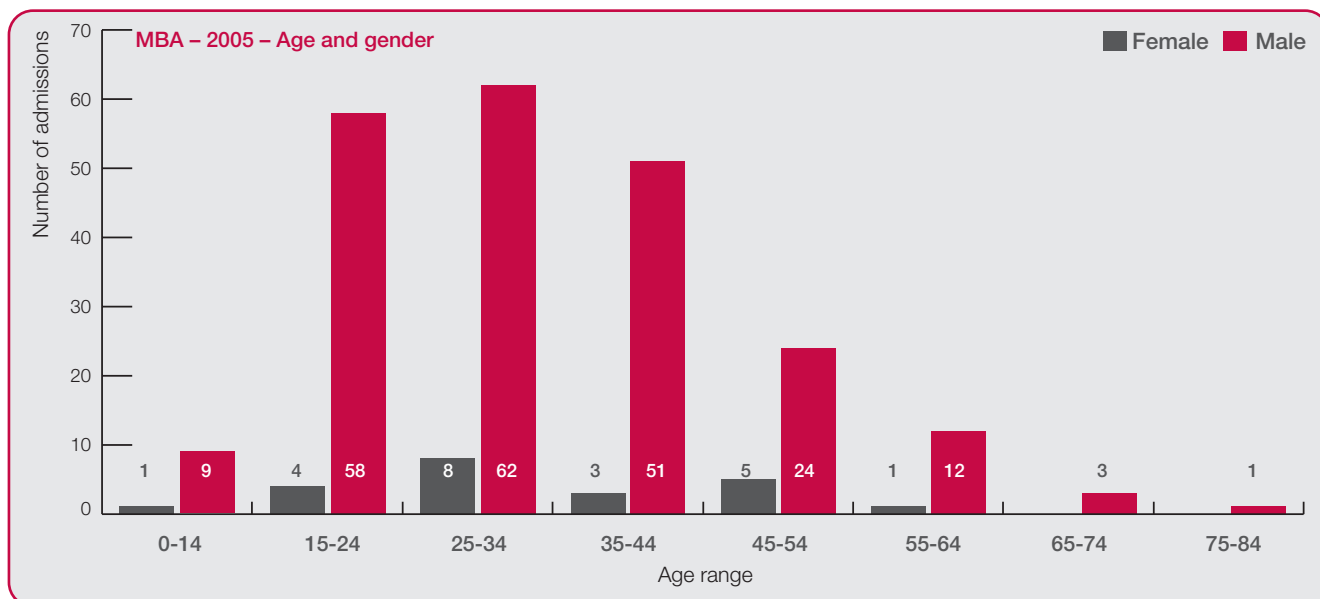
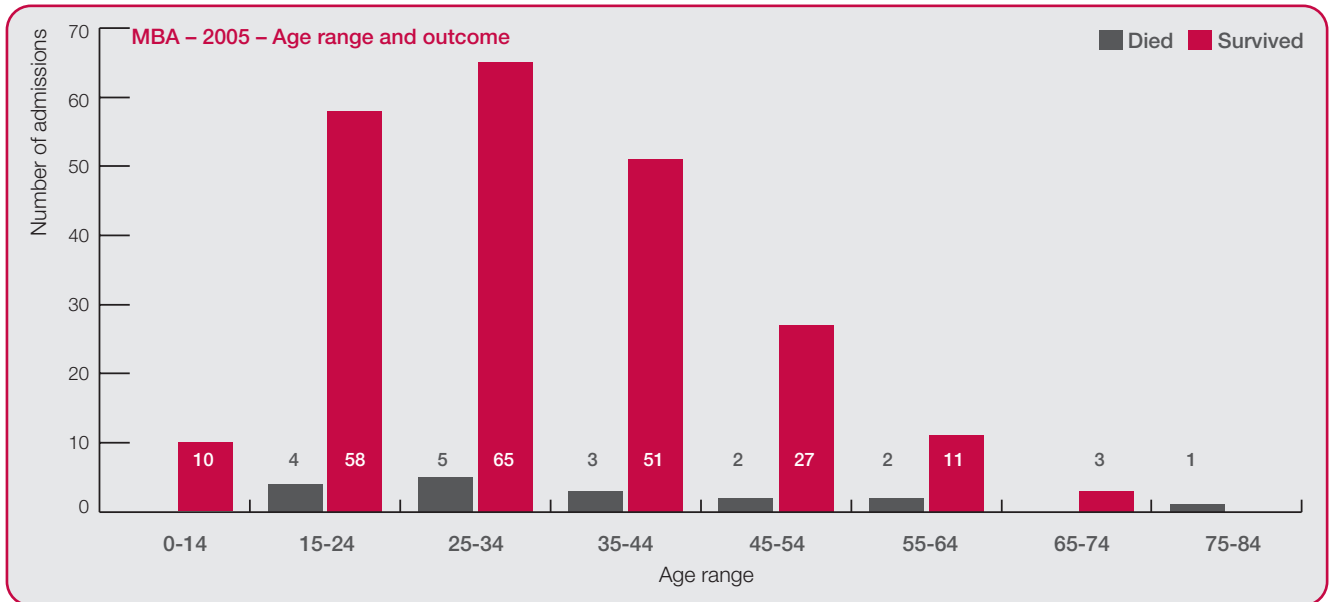


Figure 25. Motor bike accident related trauma patient admissions to all Trauma Centres by age and outcome



## Admission type

The **proportion of people transported directly from the scene** of their **motorbike** accident to a Trauma Centre has **increased** between 2003 and 2005. In 2005 76.4% of people were transported to a Trauma Centre directly from the scene, compared to 71% in 2003 and 74.6% in 2004.

Figure 26. MBA related admissions to Trauma Centres for 2005 by admission type

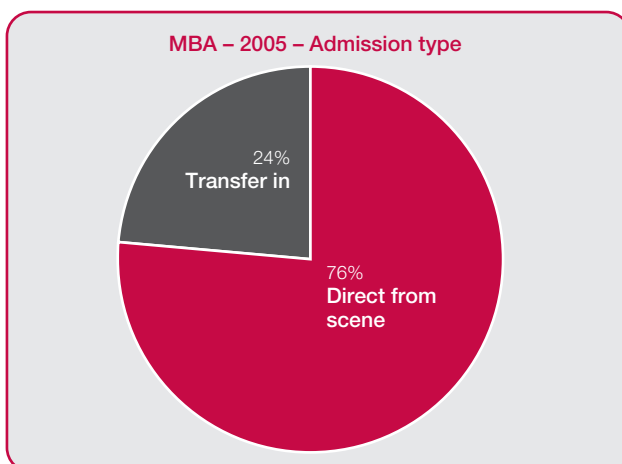
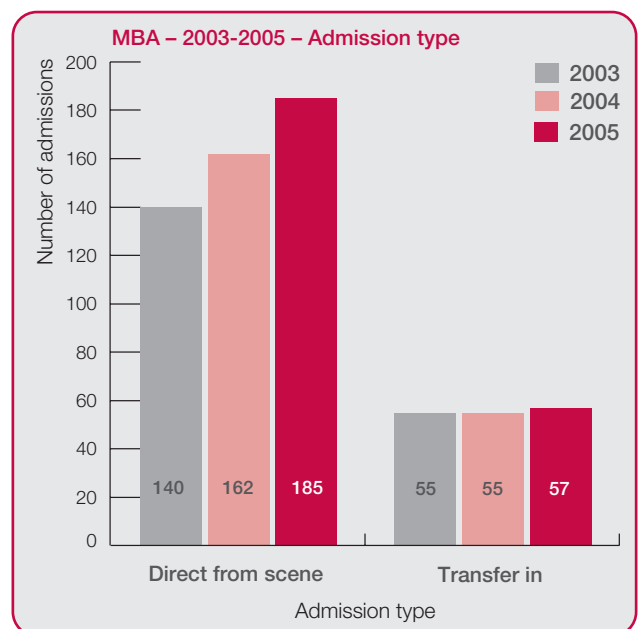


Figure 27. MBA related admissions to Trauma Centres for 2003-2005 by admission type



## Time of day and day of week

In 2005 **69.3%** of MBA related injuries occurred **between** the hours of **noon and 7pm**, while the hour from **3pm to 4pm** was the **busiest** with 27 motorbike accidents recorded. **Weekends** were the most **common days** of the week for motorbike accidents, with 60 MBA related injuries occurring on Sundays and 55 occurring on Saturdays.

Figure 28. Motor bike accident related trauma patient admissions to all Trauma Centres by hour of day that injury occurred

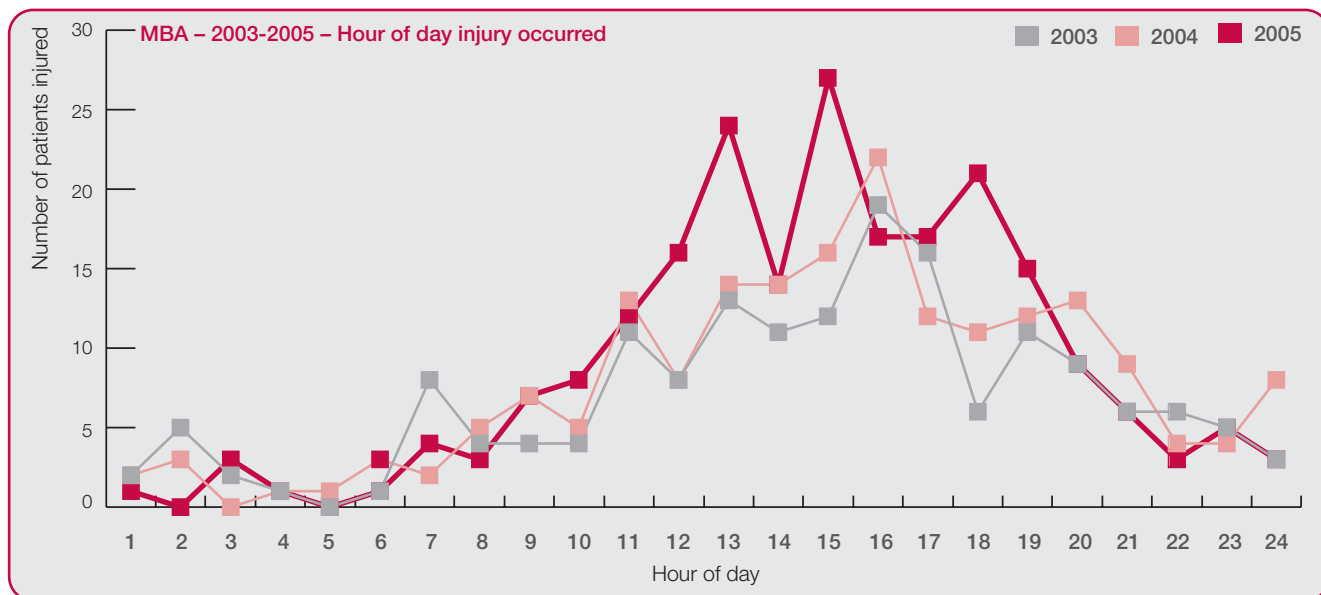
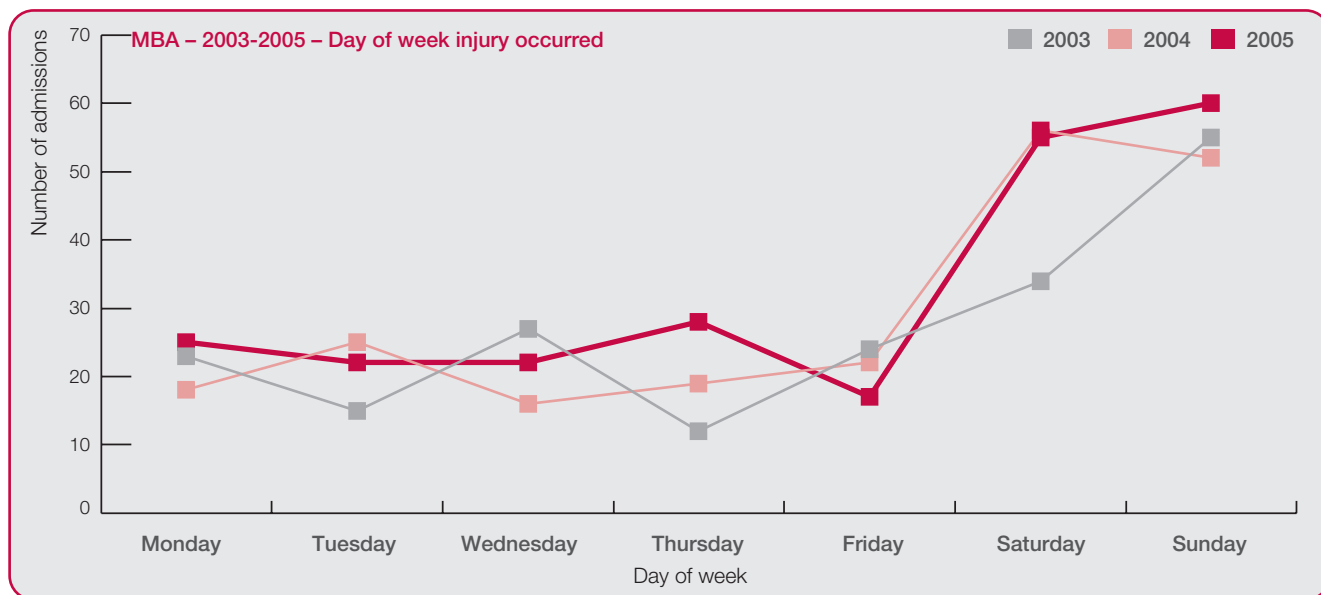


Figure 29. Motor bike accident related trauma patient admissions to all Trauma Centres by day of week injury occurred



## Injury severity

10% MBA related injuries in 2005 were in the ISS 41-75 range, slightly higher than the overall figure of 8.2% for this ISS range across all mechanism of injury for 2005.

Figure 30. MBA related admissions to Trauma Centres for 2005 by ISS range

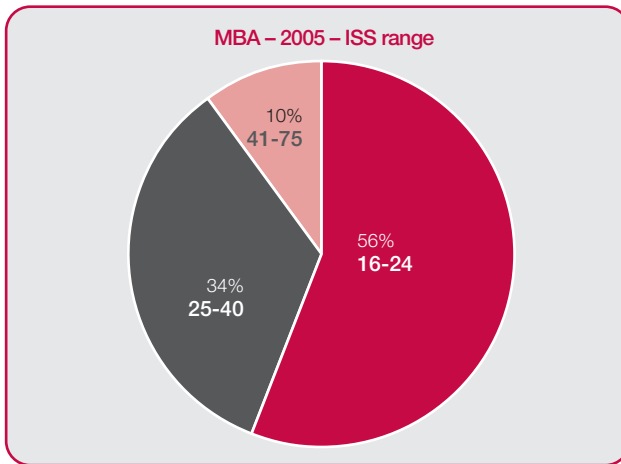
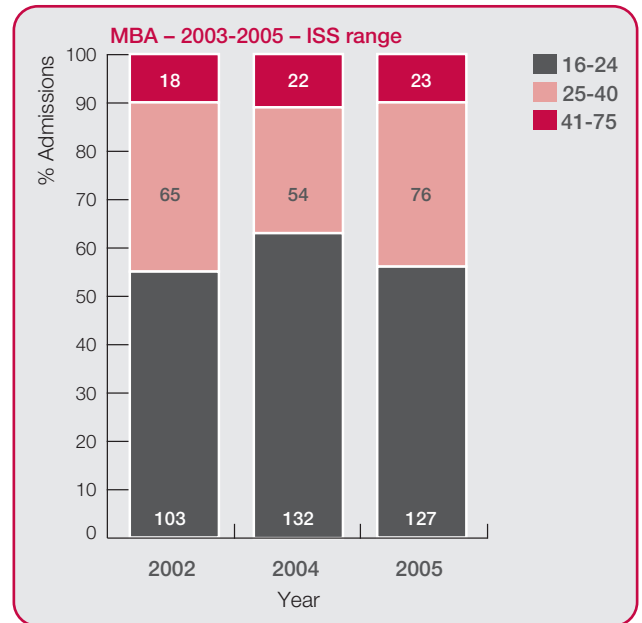


Figure 31. Motor bike accident related trauma patient admissions to all Trauma Centres for 2003-2005 by ISS Range



## Time to definitive care

85.5% of people transported directly to a definitive trauma hospital from the scene of their motorbike accident in 2005 arrived within two hours of the time of injury, in an average one hour and six minutes.

Table 23. Times to definitive trauma hospital for motor bike related trauma patients<sup>22</sup>

| Time period                         | Direct from scene                         | Transfer in                               |
|-------------------------------------|---|---|
| 0-2 hours                           | 130 patients (85.5%)<br>1 hour 6 minutes  | –   |
| 2-6 hours                           | 17 patients (11.2%)<br>2 hours 40 minutes | 16 patients (30.8%)<br>4 hour 5 minutes   |
| 6-12 hours                          | 1 patient (<1%)<br>10 hours 35 minutes    | 15 patients (28.8%)<br>8 hour 43 minutes  |
| 12-24 hours                         | 3 patients (2%)<br>19 hour 43 minutes     | 10 patients (19.2%)<br>17 hour 5 minutes  |
| Greater than 24 hours <sup>23</sup> | 1 patient (<1%)<br>237 hour 34 minutes    | 11 patients (21.2%)<br>54 hour 20 minutes |

<sup>22</sup> Times to definitive trauma hospital are calculated only where times of injury are known.

<sup>23</sup> Patients who were admitted greater than 24 hours after their injury directly from the scene typically arrived using private transport, or non-ambulance means.

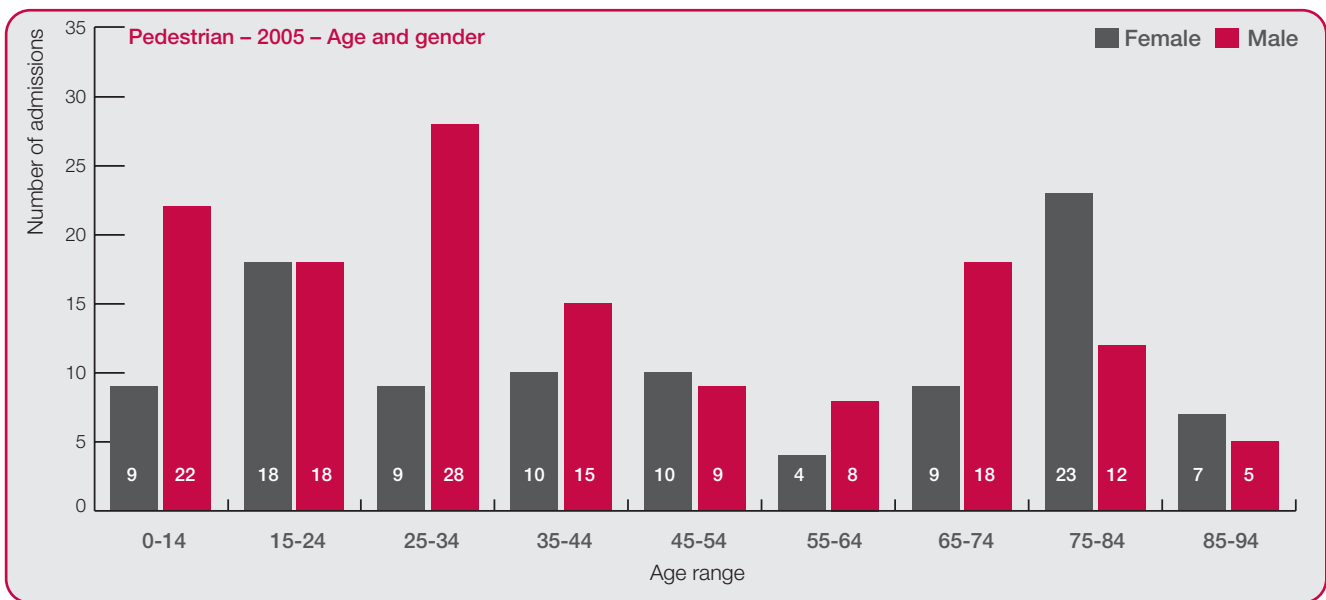
# pedestrians

## General

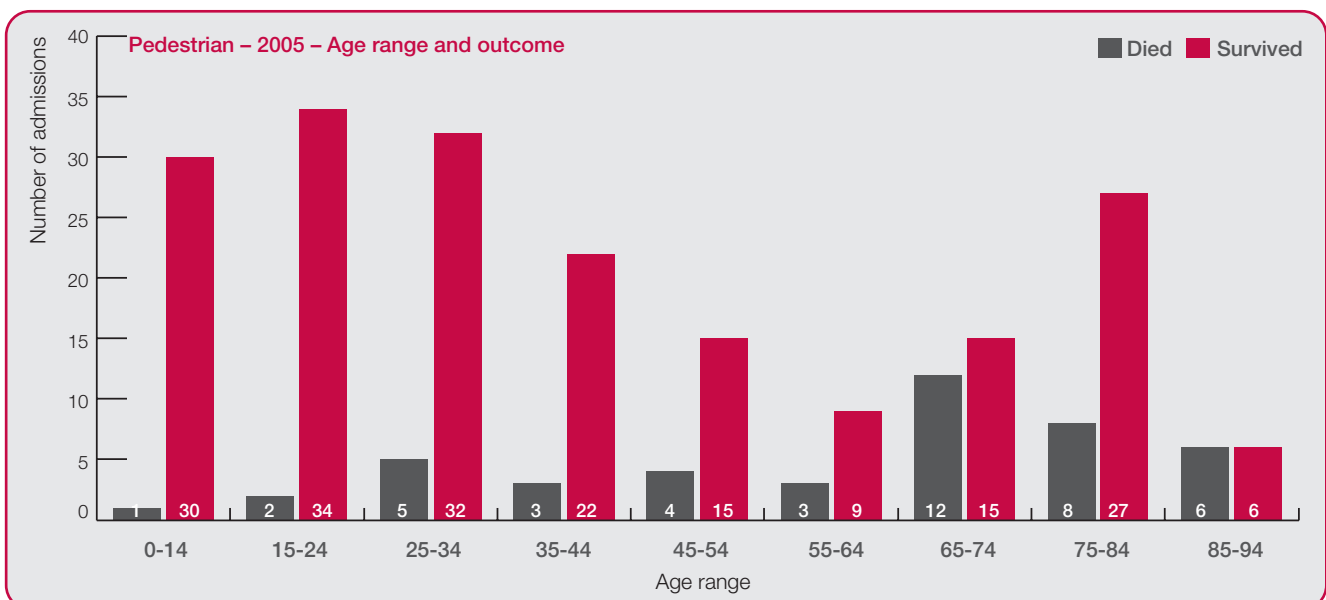
In 2005 there were **234 admissions** to Trauma Centres of **pedestrians** injured with an ISS >15. This figure was almost identical to the 2004 count of 230 admissions.

The death rate for pedestrian related injuries for 2005 was 20.3% (44 people). **Most deaths occurred in older age groups**, aged over 65 years, where 59% of deaths for this mechanism of injury were recorded.

**Figure 32. Pedestrian trauma patient admissions to all Trauma Centres by age and gender**



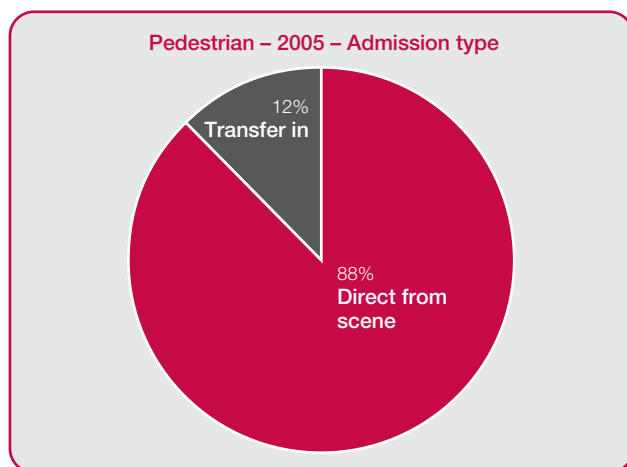
**Figure 33. Pedestrian trauma patient admissions to all Trauma Centres by age and outcome**



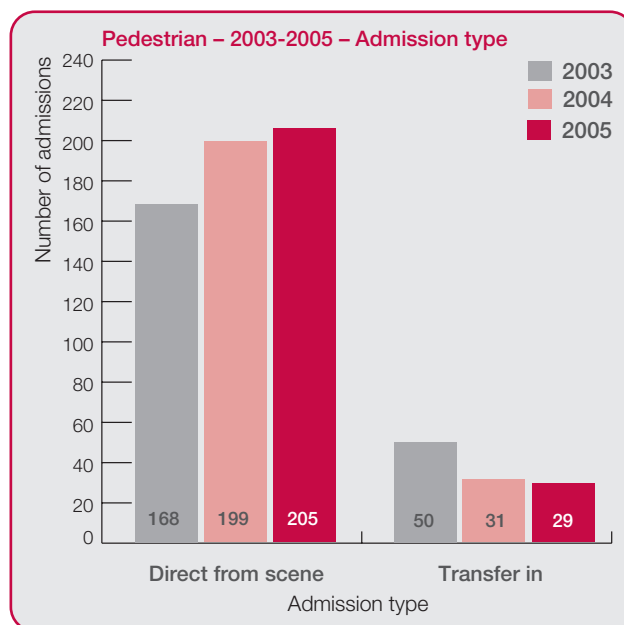
## Admission type

The **proportion of people transported directly from the scene** of pedestrian accidents to a Trauma Centre **increased** between 2003 and 2005. In 2005 87.6% of people were transported to a Trauma Centre directly from the scene, compared to 77% in 2003 and 86.5% in 2004.

**Figure 34. Pedestrian related admissions to Trauma Centres for 2005 by admission type**



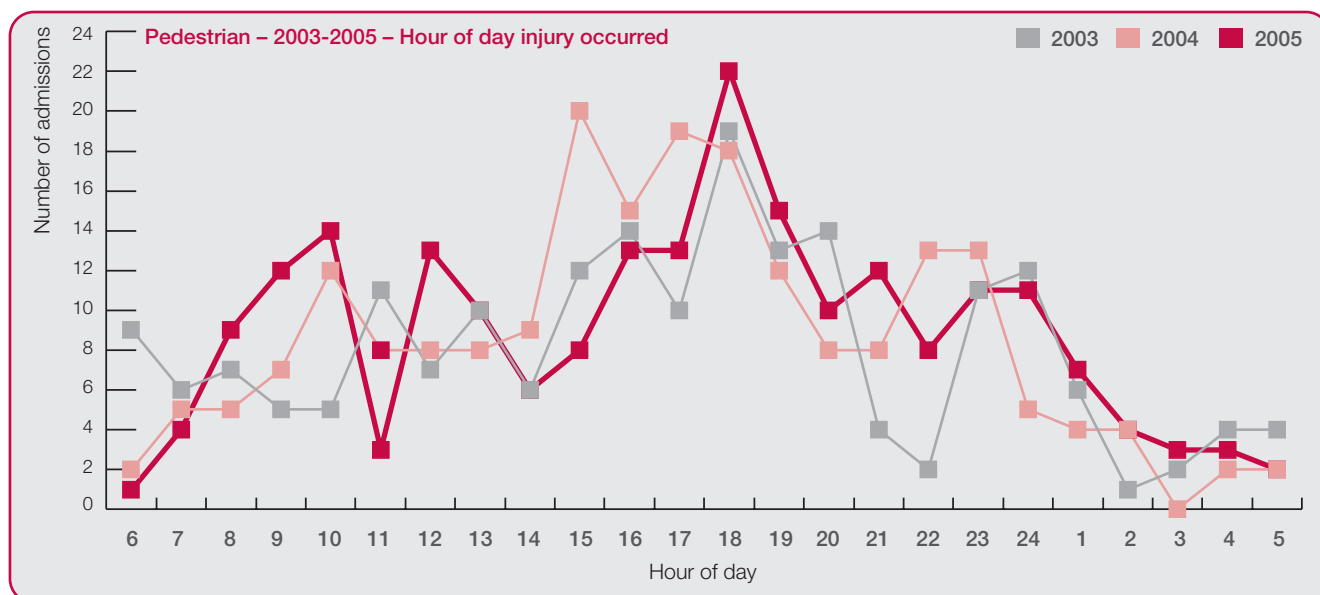
**Figure 35. Pedestrian related admissions to Trauma Centres for 2003-2005 by admission type**



## Time of day and day of week

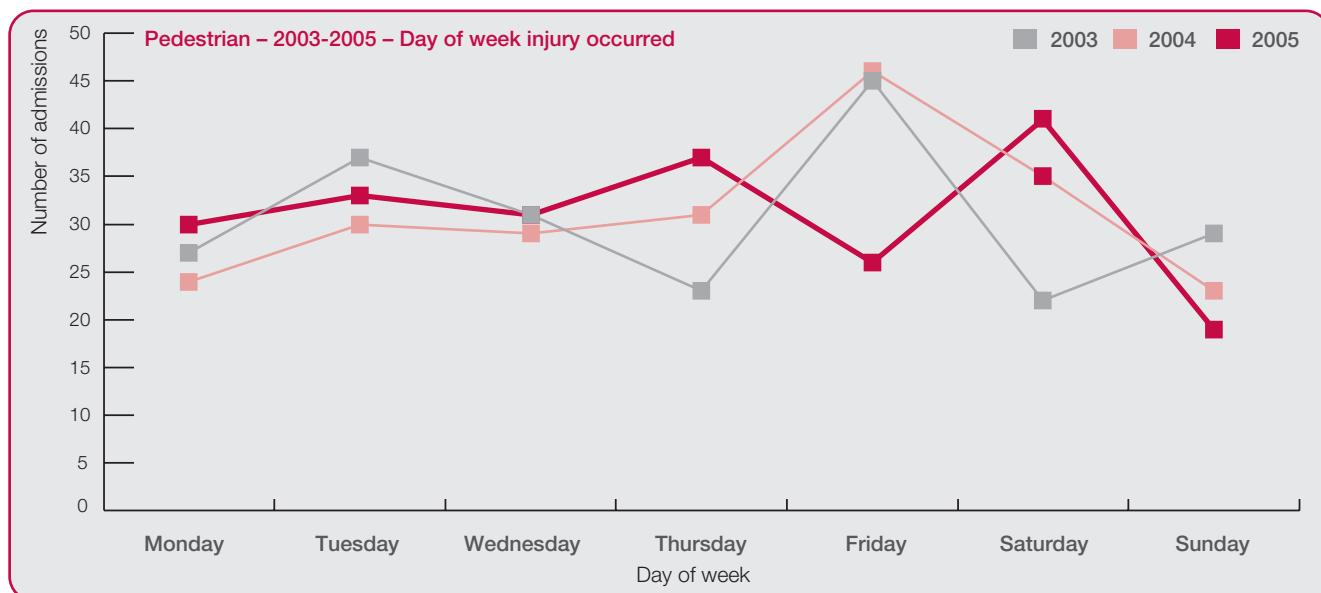
The **busiest period of the day** in 2005 for pedestrian related trauma was **between 6pm and 8pm** with 37 injured people. The most **common day** of the week for pedestrian related injuries was **Saturday** (41 injured people), contrasting with figures for 2003 and 2004 where Friday was the most common day for pedestrian related trauma.

**Figure 36. Pedestrian trauma patient admissions to all Trauma Centres by hour of day that injury occurred**



## pedestrians

Figure 37. Pedestrian trauma patient admissions to all Trauma Services by day of week that injury occurred



## Injury severity

Fifteen per cent of pedestrian related injuries in 2005 were in the ISS 41-75 range, significantly higher than the overall figure of 8.2% for this ISS range across all mechanism of injury for 2005.

Figure 38. Pedestrian related admissions to Trauma Centres for 2005 by ISS range

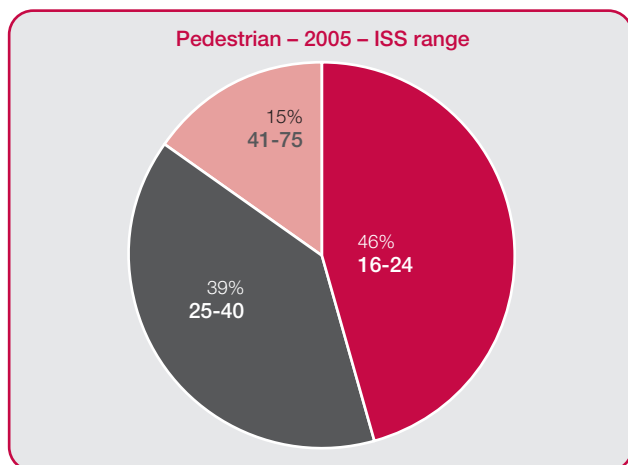
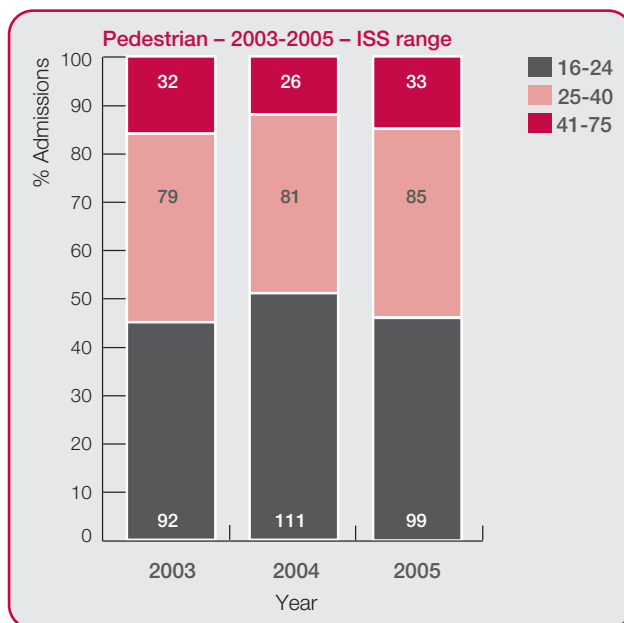


Figure 39. Pedestrian related admissions to Trauma Centres for 2003-2005 by ISS range



## Time to definitive care

**Ninety-six per cent** of people **transported directly** to a definitive trauma hospital from the scene of their pedestrian accident in 2005 **arrived within two hours** of the time of injury, in an **average 46 minutes**.

**Table 24. Times to definitive trauma hospital for pedestrian trauma patients<sup>24</sup>**

| Time period                  | Direct from scene                        | Transfer in                               |
|------------------------------|--|---|
| <b>0-2 hours</b>             | 170 patients (96%)<br>46 minutes         | 3 patients (10.7%)<br>1 hour 17 minutes   |
| <b>2-6 hours</b>             | 2 patients (1.1%)<br>3 hours 23 minutes  | 12 patients (42.9%)<br>4 hours 40 minutes |
| <b>6-12 hours</b>            | 3 patients (1.7%)<br>9 hours 52 minutes  | 8 patients (28.6%)<br>8 hours 21 minutes  |
| <b>12-24 hours</b>           | –  | 1 patient (3.6%)<br>13 hours 45 minutes   |
| <b>Greater than 24 hours</b> | 2 patients (1.1%)<br>72 hours 56 minutes | 4 patients (14.3%)<br>51 hours 52 minutes |

<sup>24</sup> Times to definitive trauma hospital are calculated only where times of injury are known.