

The NSW Trauma Registry Profile of Serious to Critical Injuries

2005



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executive summary



Overview

The *NSW Trauma Registry Profile of Serious to Critical Injuries: 2005* is the fourth report to be published using collated data from the established Trauma Registries in the Greater Metropolitan Sydney Region.¹

The report illustrates the spectrum of trauma for patients from rural and urban areas who have injuries which are classified serious to critical, and were admitted to Trauma Centres in the calendar year of 2005. Data from the Trauma Registries at Gosford Hospital, John Hunter/John Hunter Children's Hospital, Liverpool Hospital, Nepean Hospital, Prince of Wales Hospital, Royal North Shore Hospital, Royal Prince Alfred Hospital, St George Hospital, St Vincent's Hospital, Sydney Children's Hospital, Westmead Hospital, The Children's Hospital at Westmead and Wollongong Hospital is included in this report.

The patients described in this report represent a small proportion of the people admitted to hospitals in NSW as a result of injury, and an even smaller proportion of all people who attended Emergency Departments as a result of injury. However, the patients in this report drew heavily on the resources of the NSW Health system, from pre-hospital and emergency services, to hospital Emergency Departments, surgical services and intensive care units. In addition, these patients frequently required extensive rehabilitation, and community services following discharge from hospital.

More detail of individual hospital data has been added to the 2005 report. This includes a profile of comparative injury severity scores across the 2003-2005 period together with an expanded mechanism, age range and outcome section.

The NSW Trauma System

The aim of the NSW State Trauma System is to facilitate the treatment of 'the right patient at the right hospital'. The system is comprised of the following clinical structure:

■ Out of hospital

The management of serious to critical trauma in NSW is guided by the Ambulance Service of NSW (ASNSW) Protocol 4 early notification and bypass system. This system has been designed to facilitate the delivery of patients to a hospital where meaningful interventions can be undertaken in the shortest possible time. In the metropolitan areas this involves bypassing non-trauma designated hospitals. In rural areas it involves the early notification through ambulance operations centres and the NSW Aeromedical and Medical Retrieval Service (AMRS) to allow planning of retrieval and support services to a place of intervention.²

■ Hospitals

A three tiered level of care exists within the greater metropolitan area and the rural areas of the state, provided by Major Trauma Services, Regional Trauma Services and Urban Trauma Services, Rural Referral Trauma Services and Rural Designated Protocol 4 and Non-designated Protocol 4 Trauma Services.

■ State-wide Specialist Services

Spinal Cord Injury & Severe Burn Injury Service.³

■ Rehabilitation Services.

1 Previous reports in this series were published annually with the title: *NSW Institute of Trauma and Injury Management (ITIM) Trauma Minimum Data Set Annual Report*

2 In 2002 the revised document 'Early Notification of Severe Trauma in Rural New South Wales' was released with the aim to improve the management and the outcomes for patients severely injured in rural NSW. All rural hospitals must have in place written protocols for the recognition, notification and response to severe trauma in rural areas. (See: NSW Health Circular 2002/105).

3 See also *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).

An injured patient may be delivered to the Trauma System in two ways:

- 1 Non-ambulance arrival occurs when the patient arrives at a hospital outside of the ambulance / emergency services arrangements. For example a patient may arrive at hospital by private vehicle.
- 2 Ambulance / helicopter arrival occurs after the patient has been subjected to a Trauma Triage process whereby a decision is reached which determines which hospital is the most appropriate for the patient.

Upon arrival at a hospital, by whichever mode of transport, patients undergo a systematic assessment of their injuries. Injury diagnosis, treatment and progress through the hospital are planned and monitored.

If deemed necessary a patient may require transfer to a more appropriate level of service within the trauma system. Injured patients progress to recovery, rehabilitation and discharge in a timely fashion with appropriate referral to post acute care as required.

The NSW Trauma Minimum Data Set

In partnership with Area Health Services and relevant clinical groups, NSW ITIM is responsible for managing the collection of the *NSW Trauma Minimum Data Set* (Trauma MDS), held in the NSW Trauma Registry. This data collection now contains over 11,000 records of trauma in NSW. The data collection tool from which this data is derived is included in Appendix 1 on p.137.

Data in the NSW Trauma Registry is submitted regularly from the Trauma Registries at the hospitals listed above. The data describes patients admitted to a Trauma Centre, whose injuries are classified from serious to critical according to an Injury Severity Score calculated by accredited Trauma Centre staff. More information about Injury Severity Scores is provided below.

Data in the NSW Trauma Registry includes simple non-identifiable information about each injured person, the nature and location of the incident resulting in injury, the main injuries sustained, and details of pre-hospital and in-hospital treatments and services provided to each person. In addition, some data about other (earlier) hospital admissions is collected for patients transferred to one of the above hospitals for trauma services.

For the most part, the data represents residents of NSW who were injured in NSW and consequently admitted to a Trauma Centre in NSW. The data may however include patients who were injured outside NSW or are normally resident outside NSW, who were admitted to a Trauma Centre in NSW.

Unfortunately no data is currently available to NSW ITIM regarding injured people who are not admitted to the above hospitals. As a result the data presented in this report may not fully represent all people injured or admitted to hospitals in NSW with serious to critical injuries, or people who may have been injured in NSW and admitted or transferred to a hospital outside NSW.

Injury Severity Scores

The criteria for inclusion in this report include all patients admitted to the above hospitals who have a physical injury with an Injury Severity Score⁴ (ISS) >15.

The Injury Severity Score (ISS) is an anatomical scoring system that provides an overall score for patients with multiple injuries.

The ISS is based on an anatomical injury severity classification, the AIS or Abbreviated Injury Scale.⁵ The AIS classifies individual injuries by body region on a 6 point severity scale as follows:

- **AIS 1** – Minor.
- **AIS 2** – Moderate.
- **AIS 3** – Serious.
- **AIS 4** – Severe.
- **AIS 5** – Critical.
- **AIS 6** – Maximum (currently untreatable injury).

The Injury Severity Score (ISS) is the sum of the squares of the highest AIS code in each of the three most severely injured ISS body regions. These body regions are:

- Head or neck.
- Face.
- Chest.
- Abdominal or pelvic contents.
- Extremities or pelvic girdle.
- External.

Injury Severity Scores range from 1 to 75. If an injury is assigned an AIS (Abbreviated Injury Score) of 6 (currently untreatable injury), the ISS score is automatically assigned 75.

The ISS score is an internationally recognised anatomical scoring system which correlates linearly with mortality, morbidity and other measures of severity. ISS is best reported in ranges – for this report: 16-24 (serious injury), 25-40 (severe injury) and 41-75 (critical injury).

Definitive trauma care

Definitive care is a key factor determining optimal patient outcome. The hospital of definitive care is considered to be the hospital where a patient is provided with all treatment and care required for their injuries. Although a patient may be admitted to a hospital for treatment of an injury, specialist treatment or facilities may require transfer to a Trauma Service for definitive care, for example a child may be transferred to a children's hospital for specialised definitive care.

The hospital of definitive care is referred in this report as the definitive trauma hospital.

Injured people and admitted patients

This report frequently distinguishes numbers of people injured from numbers of patients admitted to hospital. The term 'people injured' refers to distinct people, whereas numbers of 'patients admitted to hospital' may include a count of the same person one or more times, if that person is admitted to or transferred to additional Trauma Centres.

Generally, numbers of injured people are used in this report to describe people, their injuries and how they sustained them, while numbers of admissions are used to describe pre-hospital and in-hospital treatments and services.

4 Baker SP, O'Neill B, Haddon W, The Injury Severity Score: A method for describing patients with multiple injuries and evaluating emergency care, *J Trauma* 14:187-196, 1974.

5 *Abbreviated Injury Scale: Association for the Advancement of Automotive Medicine*, 1990 Update, '98 Revision.

How data in this report is used

Data from the *Trauma Minimum Data Set* is used to provide advice and feedback to clinicians and other stakeholders, and enables research into patterns of service demand and staffing. This data also supports benchmarking and performance improvement activities. In addition it is used in the following important areas of practice:

- Provides information to NSW Health, Area Health Services, Injury Prevention Groups, Motor Accidents Authority, Road Traffic Authority and other appropriate organisations.
- Supports current and future Trauma Service planning in NSW.
- Identifies specific areas of need for Education programs to be used by pre hospital providers, clinicians, administrators and consumers.
- Illustrates the Rural – Metropolitan trauma transfer patterns.
- Is a resource for the development of identified Clinical Practice Guidelines.
- Assists in the evaluation of inter rater reliability Scoring Systems across the trauma environment.
- Recommends topics for potential research projects.
- Contributes to the National Trauma Registry Consortium.

Key points!

The **total number of people injured in 2005** with an ISS >15 was **2,291** (almost no change from the 2004 figure of 2,262).

The **death rate⁶ was 13%** across the collated data, slightly higher than the 2004 rate of 11%. This compares favourably with the Australasian death rate for this population of 15%.⁷

Proportionally **more females were injured in 2005 than in 2004**, up to 29% of all people injured in 2005 from 26% in 2004.

There was an **increase in the number of people aged 65 years and older** by over 17% (from 524 to 625 people injured in 2005 with an ISS >15).

The number of **injured pedestrians aged 65 years and older more than doubled from 2004 to 2005** (from 33 to 74 people injured in 2005 with an ISS >15). There was also an increase in the death rate for this age group of pedestrians, from 30% in 2004 to 35% in 2005.

There was an **increase in the number of patients transported directly to a Trauma Centre from the scene of their accident** (from 72% in 2004 to 74% in 2005), and a corresponding fall in the number of patients transferred to a Trauma Centre from another hospital in 2005.

There was an **increase of 11.5%** in the number of people injured due to **motorbike accidents**.

The number of **paediatric admissions was 216 in 2005, down by 6%** from the 2004 figure.

Deaths in the 0-14 years age group also fell from 15 patients in 2004 to only 8 patients in 2005

For people **injured in a metropolitan area**, the **time taken to arrival at the definitive trauma hospital⁸** was an **average 58 minutes for 87%** of those who were transported directly to a Trauma Centre from the scene of their injury.

Almost **90% of people transported directly to a definitive trauma hospital** from the scene of their motor vehicle accident in 2005 **arrived within 2 hours of the time of injury**, in an average one hour and seven minutes.

6 Death rates in this report are case fatality rates, calculated as follows: Case fatality rate = number of deaths divided by the number of patients in this data collection X 100.

7 The National Trauma Registry Consortium (Australia and New Zealand), *The National Trauma Registry (Australia and New Zealand) Report: 2003, 2005*, Herston.

8 The time taken to arrival at the definitive trauma hospital (or time to definitive care) is a value calculated from the date and time of injury to the date and time of admission to the Trauma Centre where definitive care is provided to the patient, ie the Trauma Centre where a patient is provided with all treatment and care required for their injuries. As time to definitive care calculations require an actual time of injury, these figures exclude records where time of injury is unknown.

data summary⁹

Total injured people and admissions

The **total number of people injured** in 2005 with an ISS >15 who were admitted to a Trauma Centre in NSW was **2,291**, almost identical to the 2004 figure of 2,262. The total number of admissions to Trauma Centres of patients with an ISS >15 for 2005 was 2,412. The number of admissions is higher due to the transfer of some patients between Trauma Centres.

The **death rate** in this population¹⁰ was **13%**, slightly **higher** than the **2004** rate of **11%**. This rate compares favourably with the Australasian death rate for this population of 15%.¹¹

As in previous years, substantially **more males** than females are represented in the data, although the **proportion of females injured in 2005 rose to 29%** from 26% in 2004.

Table 1. Trauma service (TS) admissions and deaths

Total admissions / people injured ¹²	2,412 admissions (2,291 people injured)	
Survived	1,984 people	87% of all people injured
Died	307 people	13% of all people injured
Monthly average	201 admissions	
Minimum monthly average	172	(February)
Maximum monthly average	222	(March, August)

Table 2. Admissions by gender

Female	663 people (689 admissions)	29% of people and admissions
Male	1,628 people (1,723 admissions)	71% of people and admissions

Table 3. Outcome by gender

Gender	Outcome – Survived	Outcome – Died
Female	553 people (84% of females)	105 people (16% of females)
Male	1,415 people (88% of males)	202 people (12% of males)

⁹ All data is for calendar year 2005 (ie 01/01/2005 to 31/12/2005).

¹⁰ Death rates in this report are case fatality rates, calculated as follows: Case fatality rate = number of deaths divided by the number of patients in this data collection X 100.

¹¹ The National Trauma Registry Consortium (Australia and New Zealand), *The National Trauma Registry (Australia and New Zealand) Report: 2003. 2005*, Herston.

¹² The term 'people injured' refers to distinct people, whereas numbers of 'patients admitted to hospital' may include a count of the same person one or more times, if that person is admitted to or transferred to additional Trauma Centres.

Age distribution

The age distribution of injured people in the 2005 data is similar to previous years. The age groups from **15 to 44 years** were again the **most represented** in the data, accounting for **45%** of all people injured. This was slightly **less than the 2004** figure of 48% for the same age groups.

Table 4. Age – Top three age ranges

Age range	Count	% of people injured
15-24	421 people	18%
25-34	335 people	14%
35-44	296 people	13%

Mechanisms of injury

Road trauma, falls, and assaults were the **major mechanisms of injury** for people injured with an ISS >15 in 2005, and proportions of all road trauma, falls and assaults in the data remained unchanged from 2004. **Road trauma** was the **leading major mechanism of injury**, associated with **45%** of all trauma during the year, as in 2004. There was however an increase of 10% in the number of people injured due to motorbike accidents.

The **death rate for road trauma rose** from 9.8% in 2004 to **12.3%** in 2005, while the **death rate for falls fell** slightly from 16.9% in 2004 to **16.8%** in 2005. The **death rate for all assaults also rose**, from 7.8% to **11.6%**.

Within **mechanism sub-categories, shooting** related deaths had the **highest rate at 23.8%**, although overall numbers of people injured as a result of shooting were relatively small. The death rate for **pedestrian** related trauma was also high at **20.3% (up from 14.7% in 2004)**, followed by **low / medium falls (<5m)** where the **death rate was 17.6%** (up slightly from the 2004 figure of 17.2%). The **death rate for motor vehicle accidents** (including drivers and passengers) **increased** from 8.8% in 2004 to **12%** 2005.

Table 5. Mechanism of injury – Road trauma

Road trauma	Count	% of total	Deaths (% of mechanism)
MVA	515 people	22%	62 people (12%)
MBA	229 people	10%	17 people (7.4%)
Pedestrian	217 people	9%	44 people (20.3%)
Pedal cyclist	67 people	3%	3 people (4.5%)
Total road trauma	1,028 people	45%	126 people (12.3%)

Table 6. Mechanism of injury – Falls

Fall	Count	% of total	Deaths (% of mechanism)
Low / medium fall (<5m)	708 people	31%	125 people (17.6%)
High fall (>5m)	79 people	3%	6 people (7.6%)
Total all falls	787 people	34%	131 people (16.6%)

Table 7. Mechanism of injury – Assaults

Assault	Count	% of total	Deaths (% of mechanism)
Blunt assault	161 people	7%	13 people (8.1%)
Shooting	21 people	<1%	5 people (23.8%)
Stabbing	51 people	2%	9 people (17.6%)
Total all assaults	233 people	10%	27 people (11.6%)

Admission type

Seventy-four per cent of admissions to a Trauma Centre in 2005 of patients with an ISS >15 were '**direct from scene**', ie the patient was transported directly from the scene where injury was sustained to a Trauma Centre. This figure was slightly higher than in 2004 when direct from scene admission accounted for 72% of admissions. The remainder of patients in the data admitted to a Trauma Centre were transferred from either another Trauma Centre or another non-trauma hospital.

Table 8. Admission type

Admission type	Count	% of total
Transfer in	627 admissions	26% of all admissions
Direct from scene	1,785 admissions	74% of all admissions

Table 9. Outcome by admission type

Admission type	Outcome – Survived	Outcome – Died
Transfer in	557 admissions (89%)	70 admissions (11%)
Direct from scene	1,548 admissions (87%)	237 admissions (13%)

Intensive care

An intensive care unit (ICU) is a designated ward of a hospital which is specially staffed and equipped to provide observation, care and treatment to patients with critical injuries. The ICU provides special expertise and facilities for the support of vital functions and utilises the skills of medical, nursing and other staff trained and experienced in the management of these problems.¹³

Due to the severity of their injuries, patients in this data collection are often admitted to an intensive care unit at a Trauma Centre. In **2005 44% of patients** were admitted to an **intensive care unit**. This figure includes patients who were transferred between Trauma Centres and who may have been admitted to an intensive care unit in each hospital.

At 15%, the death rate for patients admitted to an intensive care unit is higher than the death rate for those who are not (11%). In general this reflects a higher severity of injury for patients requiring intensive care unit admission.

¹³ National Health Data Committee 2003, *National Health Data Dictionary*, Version 12, Volume 1, AIHW cat. No. HWI 43, Canberra: Australian Institute of Health and Welfare.

data summary

Table 10. ICU admissions

Admission to ICU	Count	% of total
Yes	1,026 admissions	43%
No	1,386 admitted patients	57%

Table 11. ICU admission by outcome

Admission to ICU	Outcome – Survived	Outcome – Died
Yes	877 admissions (85%)	149 admissions (15%)
No	1,228 admissions (89%)	158 admissions (11%)

Table 12. ICU average length of stay (LOS)

Outcome – All	Outcome – Survived	Outcome – Died
7.56 days	7.99 days	5.05 days

Hospital length of stay

The hospital length of stay recorded in the *NSW Trauma Minimum Data Set* is the length of stay in a Trauma Centre while classified as an acute care patient. Additional days in hospital, for example while attending rehabilitation, are not included in these figures. For patients admitted to more than one Trauma Centre, lengths of stay in each centre are counted separately.

The **average overall hospital length of stay** for 2005 was **15.86 days**, slightly higher than the 2004 average of 15.32 days.

Table 13. Hospital average length of stay (LOS)

LOS	Outcome – All	Outcome – Survived	Outcome – Died
Overall LOS	15.86 days	17.39 days	5.36 days
Direct admission LOS¹⁴	15.4 days	16.99 days	5.00 days
Transfer in admission LOS	17.17 days	18.5 days	6.56 days

Arrival mode

Arrival modes recorded in the *NSW Trauma Minimum Data Set* refer to the manner in which a patient is delivered to the admitting Trauma Centre. For patients transferred to a Trauma Centre, arrival modes also describe the manner in which they were transferred.

In 2005, **ambulance** was the most common mode of arrival at **71%** of all arrivals. This figure was unchanged from 2004.

Table 14. Arrival mode – Top three arrival modes

Arrival Mode	Admissions	% of total
Ambulance	1,688 admissions	71%
Helicopter	372 admissions	16%
Private vehicle	146 admissions	6%

¹⁴ In this table, admissions are either 'Direct' (from scene), where a patient is admitted directly from the scene of the injury, or 'Transferred in' to a definitive trauma hospital from another hospital.

Surgical procedures

Several types of surgical procedures are recorded in the *Trauma Minimum Data Set*, if the procedure was performed within 24 hours of admission to a Trauma Centre. The procedures are:

- **Craniotomy** – a surgical operation in which part of the skull, called a skull flap, is removed in order to access the brain.
- **Laparotomy** – a surgical incision into the abdominal cavity to examine the abdominal organs and aid diagnosis.
- **Open (compound) fractures** (called Open Ext# in the *Trauma Minimum Data Set*) involve wounds that communicate with the fracture and may expose bone to contamination.
- **Thoracotomy** – a surgical incision into the chest. It is performed by a surgeon to gain access to the thoracic organs, most commonly the heart, the lungs, the oesophagus or thoracic aorta.

Other surgical procedures not listed above are listed as 'Other' in the *Trauma Minimum Data Set*.

Thirty-one per cent of all patients (721 people) underwent **surgery** (820 procedures) **within 24 hours** of admission to a Trauma Centre in 2005, down slightly from the 2004 figure of 34%. Craniotomy continued to be the most common surgical procedure, performed on 220 patients in 2005, which concurs with the head and neck ISS body region being the most commonly injured ISS body region in the 2005 data set.

Table 15. Operating suite in first 24 hours – Top three procedures

Operating suite procedure	Count	% of total procedures
Craniotomy	222 admissions	27%
Open ext#	138 admissions	17%
Laparotomy	126 admissions	15%

Times and days of week

Mid to late afternoon continued to be the most common time of day for serious to critical trauma in 2005, with almost **21%** of people in the data injured **between** the hours of **3pm and 6pm**. **Twenty per cent** of patients arrived at their definitive trauma hospital **between** the hours of **4pm and 7pm**.

The most **common days** for trauma were **Friday, Saturday and Sunday**, with **Saturday** the **busiest day** of the week with **19.5%** of all trauma occurring on that day.

Table 16. Injury time – Top three hours of the day injury occurred (excludes patients where time of injury is unknown)

Hour of day	Count (patients injured)	% of total
15:00	158 patients	7.3%
16:00	149 patients	6.9%
12:00 (Noon)	145 patients	6.7%

¹⁵ Definitions of these surgical procedures obtained from <http://www.wikipedia.com/>

data summary

Table 17. Admission time – Top three hours of the day of admission to definitive trauma hospital¹⁶

Hour of day	Count (patients injured)	% of total
16:00	160 admissions	7.1%
18:00	147 admissions	6.5%
17:00	143 admissions	6.4%

Table 18. Injury day of week

Hour of day	Count (people injured)	% of total
Saturday	446 patients	19.5%
Sunday	366 Patients	16.0%
Friday	325 patients	14.2%
Thursday	306 patients	13.4%
Monday	291 patients	12.7%
Wednesday	281 patients	12.3%
Tuesday	276 patients	12.0%

Injury Severity Score

The distribution of Injury Severity Scores (ISS) in 2005 was very similar to previous years, with approximately **56%** of patients recording an ISS in the **16-24 range** (serious injuries), **35%** recording an ISS in the **25-40** range (severe injuries) and **8%** recording an ISS in the **41-75** range (critical injuries).

Table 19. Injury Severity Score (ISS)

ISS range	Count (people injured)	% of total
16-24	1,291 patients	56.3%
25-40	812 patients	35.4%
41-75	188 patients	8.2%

¹⁶ The definitive trauma hospital is considered to be the Trauma Centre where a patient is provided with all treatment and care required for their injuries.

Times to definitive care

Times to definitive care for patients with an ISS >15 admitted to a Trauma Centre are included in this report for the first time. These times provide an indicator of the effectiveness of the NSW Trauma System, encompassing the progress of the patient from the scene of injury to admission to their definitive trauma hospital.

Times to definitive care¹⁷ are calculated individually for each patient and grouped into time periods. The numbers are further divided into rural and metropolitan locations of injury,¹⁸ and into groups of patients transported directly to a definitive trauma hospital from the scene of their injury, and those transferred to a definitive trauma hospital from another hospital.

For people injured in a **metropolitan area in 2005**, the time to arrival at the definitive trauma hospital was an average **58 minutes for 87%** of those who were transported directly to a Trauma Centre from the scene of injury.

Table 20. Time to definitive care for patients admitted directly to a definitive trauma hospital, rural vs metropolitan location of injury

Time period	Rural	Metropolitan
0-2 hours	52 patients (50%) Average 1 hour 28 minutes	1,157 patients (87%) Average 58 minutes
2-6 hours	38 patients (36%) Average 2 hours 50 minutes	78 patients (6%) Average 3 hours 9 minutes
6-12 hours	2 patients (2%) Average 6 hours 17 minutes	16 patients (1%) Average 8 hours 35 minutes
12-24 hours	3 patients (3%) Average 15 hours 30 minutes	29 patients (2%) Average 17 hours 49 minutes
Greater than 24 hours	10 patients (10%) Average 95 hours 50 minutes	48 patients (4%) Average 72 hours 12 minutes

Table 21. Time to definitive care for patients transferred to a definitive trauma hospital, rural vs metropolitan location of injury¹⁹

Time period	Rural	Metropolitan
0-2 hours	3 patients (1%) Average 1 hour 16 minutes	13 patients (5%) Average 1 hour 7 minutes
2-6 hours	24 patients (11%) Average 4 hours 37 minutes	70 patients (26%) Average 4 hours 16 minutes
6-12 hours	88 patients (41%) Average 8 hours 46 minutes	92 patients (34%) Average 8 hours 3 minutes
12-24 hours	55 patients (26%) Average 16 hours 59 minutes	45 patients (17%) Average 16 hours 47 minutes
Greater than 24 hours	44 patients (21%) Average 66 hours 22 minutes	47 patients (18%) Average 94 hours 21 minutes

¹⁷ The time taken to definitive care is a value calculated from the date and time of injury to the date and time of admission to the Trauma Centre where definitive care was provided to the patient. As time to definitive care calculations require an actual time of injury, these figures exclude records where time of injury is unknown.

¹⁸ This grouping is performed using the postcode where injury occurred. Metropolitan locations include Greater Metropolitan Sydney, extending from Newcastle City in the North to Wollongong in the South.

¹⁹ Figures in this table represent patients transferred to a definitive trauma hospital from another hospital, including patients transferred from non-trauma hospitals to Trauma Centres, and patients who may have been transferred between Trauma Centres for definitive care.