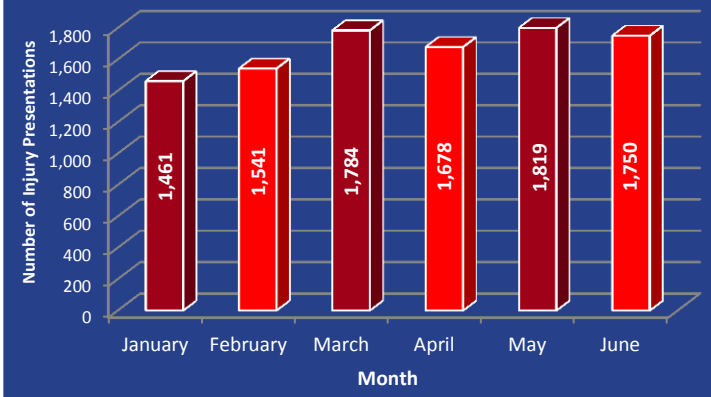
WA Childhood Injury Surveillance
Biannual Bulletin
Princess Margaret Hospital for Children, Emergency Department
No. 30, July 2014

Road Traffic Injuries

Childhood Injury Presentations: January to June 2014

- Between January 2014 and June 2014 there were 33,989 presentations to the Princess Margaret Hospital Emergency Department (PMH ED) from children under the age of 16.
- Injury presentations accounted for 29.6% (n=10,033) of the total number of presentations to the PMH ED during this time period.

Number of Injury Presentations by Month; January 2014 to June 2014



- The majority of injury presentations were from children under the age of 5 (39%, n=3,908). Children aged 1 and 2 years accounted for 10.1% (n=1,016) and 9.1% (n=917) of presentations respectively, which was the highest in any age category.
- Males represented 57.2% (n=5,739) of injury presentations.
- The home was the most common location for childhood injuries (22.9%, n=2,301), with the outdoors accounting for the largest portion of injuries within the home (19.4%, n=447).
- Falls were the most common cause of injury, representing 37.8% (n=3,789) of all injury presentations.
- The majority of children were recorded as living within a metropolitan postcode (93.2%, n=9,351).
- Children of Aboriginal and/or Torres Strait Islander ethnicity accounted for 3.4% (n=339) of presentations.
- Unintentional injuries accounted for 97.0% (n=9,736) of injury presentations.

Introduction

- There were a total of 325,911 presentations to PMH ED during the five year period between July 2009 and June 2014. Of these presentations 28.6% (n=93,290) were due to injury.
- Between July 2009 and June 2014 there were 7,675 road traffic injury presentations to the PMH ED, accounting for 8.2% of injury presentations.
- Road traffic injuries include motor vehicle occupants, motorcyclists, and injuries to pedestrians, wheeled pedestrians (e.g. scooters and skateboards) and cyclists.
- Children between 10 and 14 years of age were at significantly more risk of sustaining a road traffic injury, accounting for 47.3% (n=3,629) of presentations.
- Males were also found to be at greater risk, accounting for 65.9% (n=5,055) of the presentations.
- Wheeled pedestrians accounted for the largest number of road traffic injuries, accounting for 42.7% (n=3,280) of presentations, followed by cycling injuries (30.4%, n=2,332).
- The road, footpath, cycleway and parking areas were the most common locations for road traffic injuries to occur, accounting for 25.5% (n=1,958) of presentations, followed by the home (13.7%, n=1,050).
- Almost all of the road traffic injuries were unintentional (99.2%, n=7,617).
- Of those injuries where the use of safety equipment was known, the majority of presentations had used safety equipment (64.3%, n=1,098).

- The majority of road traffic injury presentations (71.9%, 5,515) were treated and discharged within the PMH ED. A further 27.1% (n=2,077) of presentations required hospital admission.

Supported by The Government of WA

Kidsafe
Child Accident Prevention Foundation of Australia
Western Australia

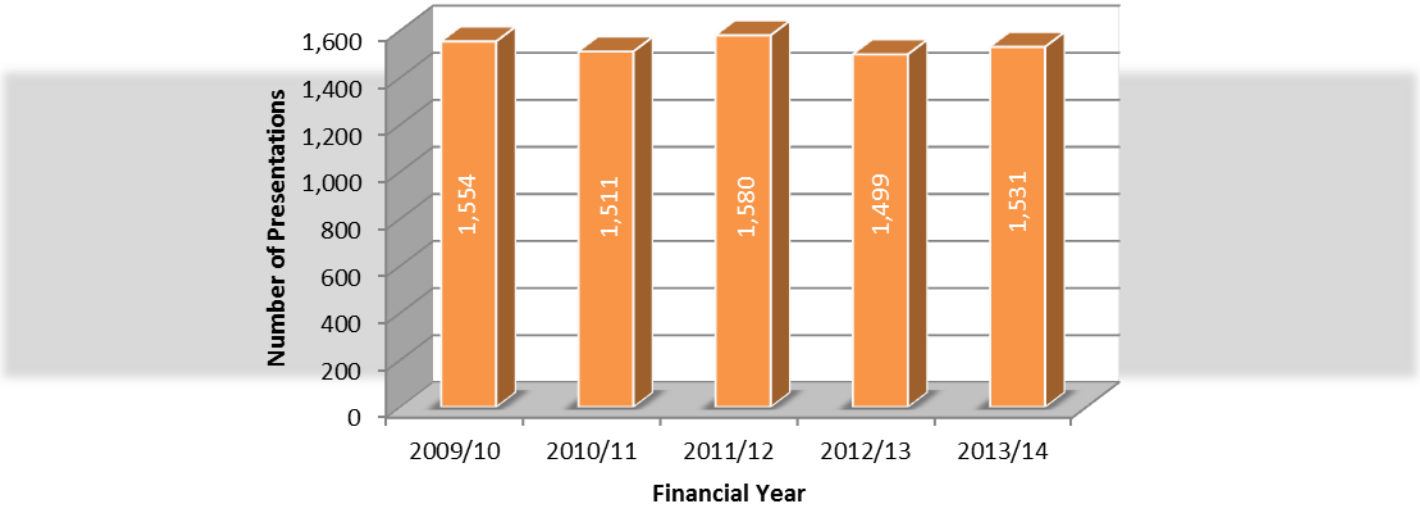
Results

Road traffic injuries continue to be a leading cause of major health problems globally[1]. These types of injuries generally involve motor vehicles but also include other road users such as motorcyclists, cyclists, wheeled pedestrians, and other pedestrians.

Each year in Australia an average of 1,627 deaths occur due to road crashes, and an average of 11.8% (n=192) of these road traffic deaths occur in Western Australia[2]. In Australia during 2008 and 2009, approximately 53,406 people were seriously injured due to a land transport injury, and of these presentations 13.3% (n=7,120) were 0 to 14 years of age[3]. Although road traffic injuries still remain high, there has been a decrease in the number of presentations over the years[1].

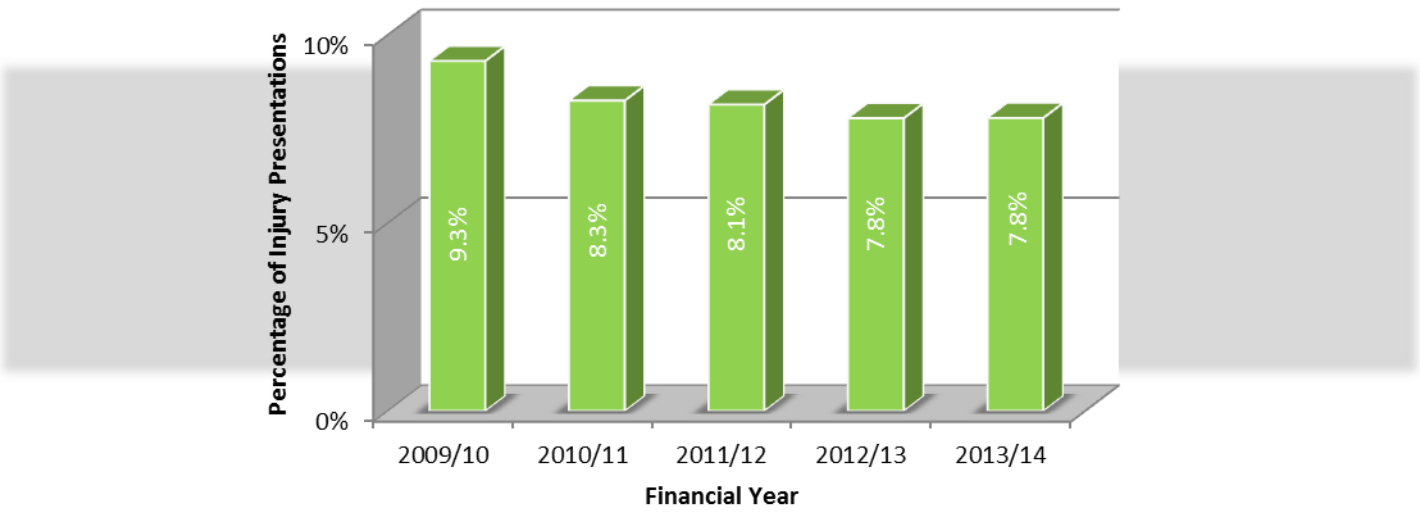
Between July 2009 and June 2014 there were 7,675 children between 0 and 15 years of age presenting to the PMH ED as a result of road traffic injuries. This accounted for 8.2% of total injury presentations. The number of road traffic injuries over the five year period has remained fairly stable (figure 1).

Figure 1: Total Road Traffic Injury Presentations by Financial Year; July 2009 to June 2014



When looking at the road traffic injury presentations as a percentage of the total presentations to PMH ED, there is a slight decrease from 9.3% between July 2009 and June 2010, to 7.8% between July 2013 and June 2014 (figure 2).

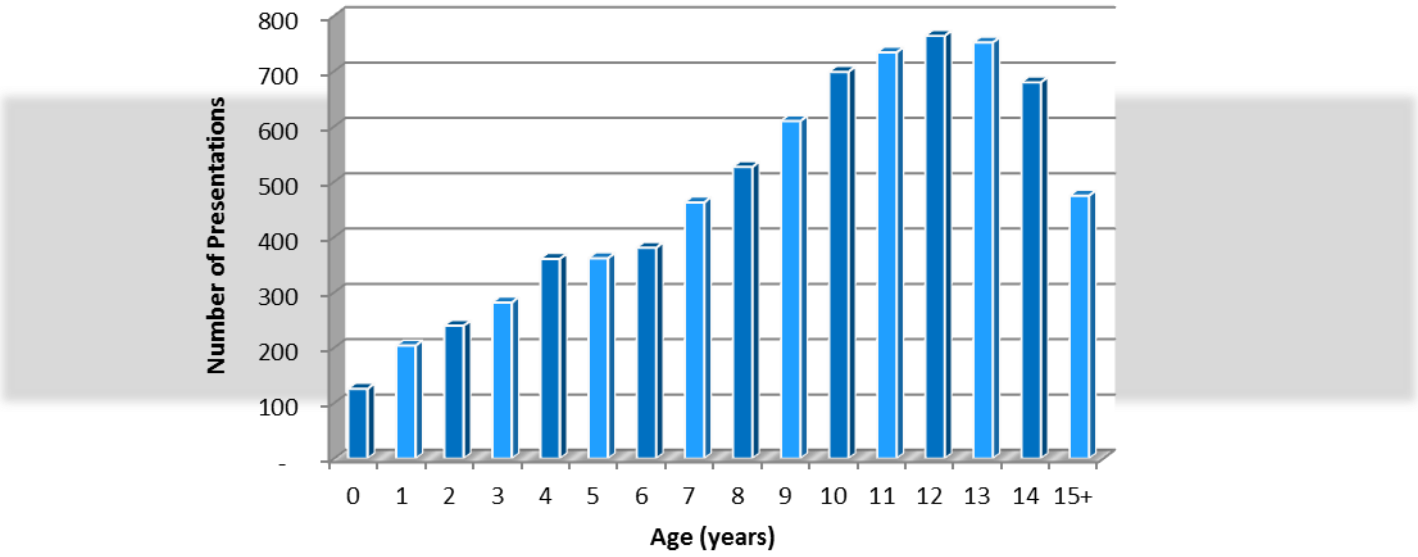
Figure 2: Road Traffic Injuries as a Percentage of Total Injury Presentations by Financial Year; July 2009 to June 2014



Demographic Data

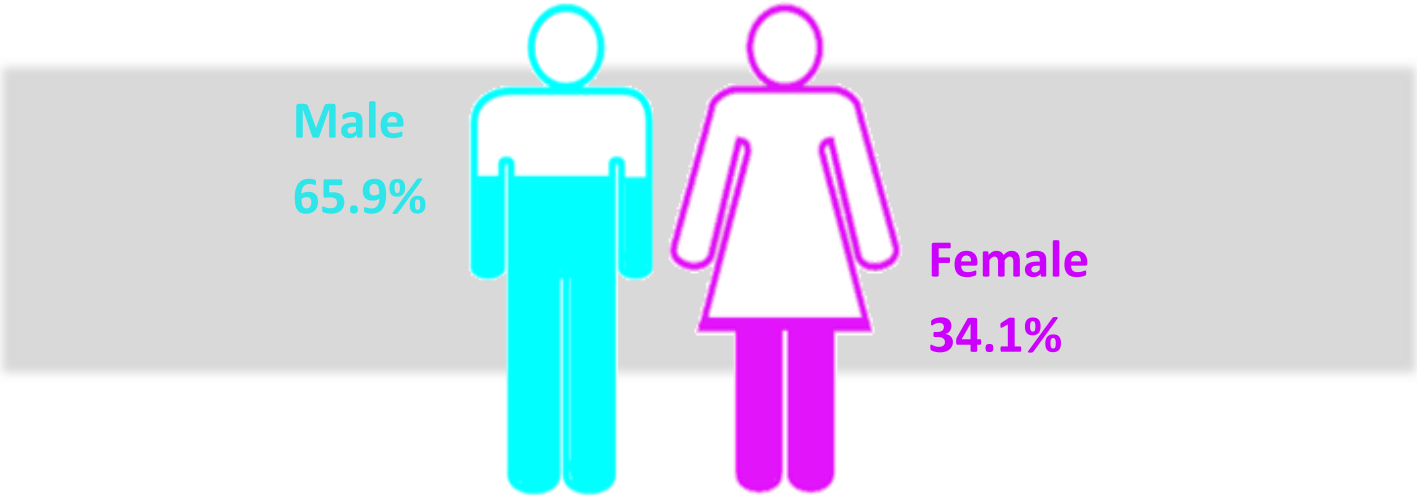
Children aged between 10 and 14 years are at greater risk of sustaining a road traffic injury. They account for 47.3% (n=3,629) of total road traffic injury presentations to the PMH ED. This is in contrast to overall injury presentations, where children under the age of 5 years are at greater risk. Children under the age of 5 accounted for only 15.8% (n=1,213) of road traffic injuries. Children at this age often spend more time within the home rather than outside near traffic. Children aged 10, 11, 12, 13 and 14 years of age represented 9.1% (n=699), 9.6% (n=734), 10% (n=764), 9.8% (n=752) and 8.9% (n=680) of road traffic injuries respectively (figure 3). Once children reach 12 years of age there is a gradual decline in the number of road traffic injury presentations, possibly due to a general tendency for adolescents to present to non-paediatric facilities.

Figure 3: Road Traffic Injuries by Age; July 2009 to June 2014



Males accounted for a large proportion of the road traffic injury presentations to the PMH ED during the five year study period. Males represented 65.9% (n=5,055) of road traffic injury presentations, while females accounted for 34.1% (n=2,620) (figure 4). This is slightly above the male: female gender ratio of 3:2 traditionally seen across child injury statistics. Peaks of male presentations are seen in the 13, 14 and 15+ age categories where males account for 76.7% (n=577), 78.7% (n=535), and 76.8% (n=365) of road traffic injury presentations respectively.

Figure 4: Road Traffic Injuries by Gender; July 2009 to June 2014



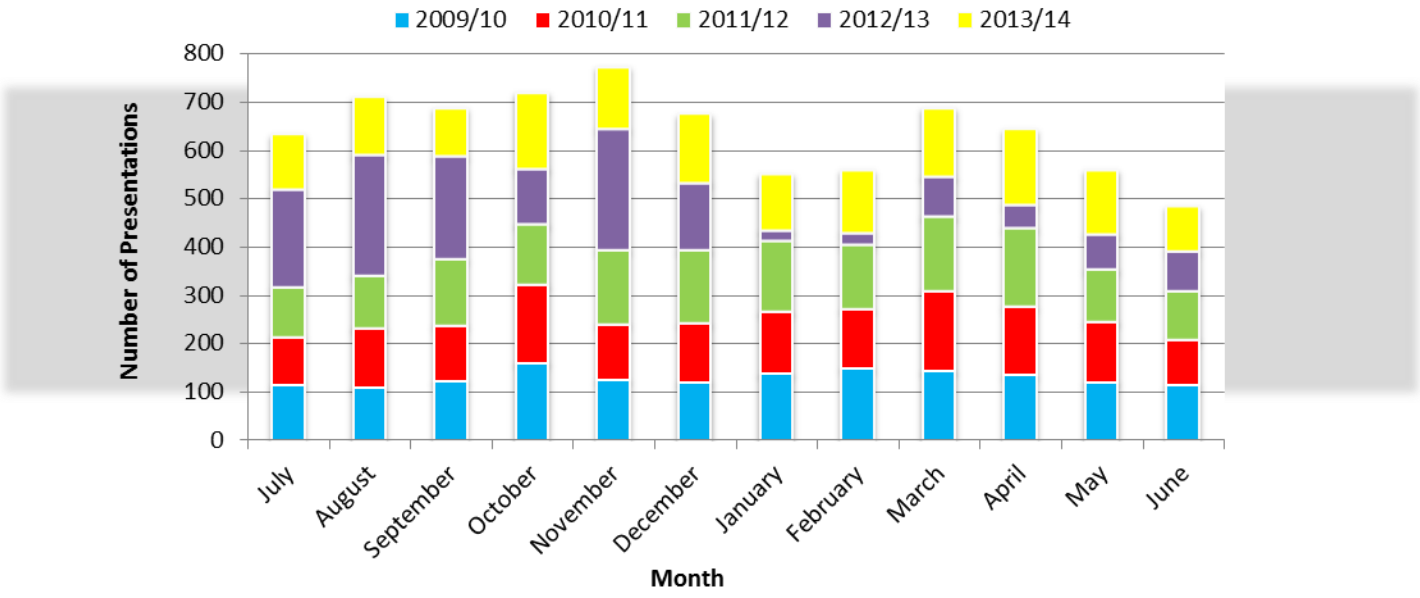
As children present to the PMH ED, their ethnicity is recorded as either Aboriginal and/or Torres Strait Islander descent, or other. Only a small proportion of children who presented to the PMH ED with a road traffic injury were recorded as being either Aboriginal and/or Torres Strait Islander Descent (5.1%, n=398).

The majority of children presenting to the PMH ED for a road traffic injury lived within the metropolitan area (91.9%, n=7,054). The remaining children presenting lived in a rural area of Western Australia (6.5%, n=499), or were unknown/other area (6.1%, n=122).

Month, Day and Time of Injury

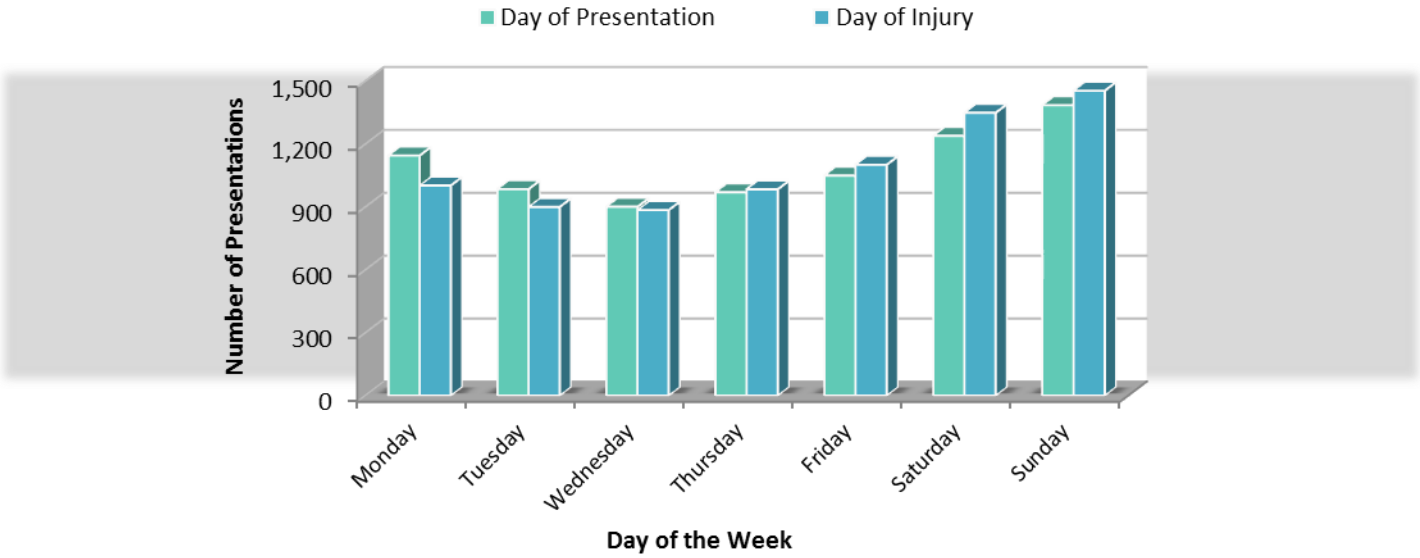
Between July 2009 and June 2014 the number of road traffic injury presentations peaked in November, accounting for an average of 10.1% (n=772). The lowest number of road traffic injury presentations was recorded in June with an average of 6.3% (n=483) (figure 5).

Figure 5: Road Traffic Injuries by Month and Year; July 2009 to June 2014



The number of road traffic injury presentations were greater over the weekend, with Saturday and Sunday accounting for 16.1% (n=1,239) and 18% (n=1,385) respectively. The day in which the injury occurred was also more likely to be a Saturday or Sunday accounting for 17.6% (n=1,349) and 18.9% (n=1,454) (figure 6). Wednesday recorded both the lowest number of injuries (11.5%, n=885) and presentations (11.7%, n=901).

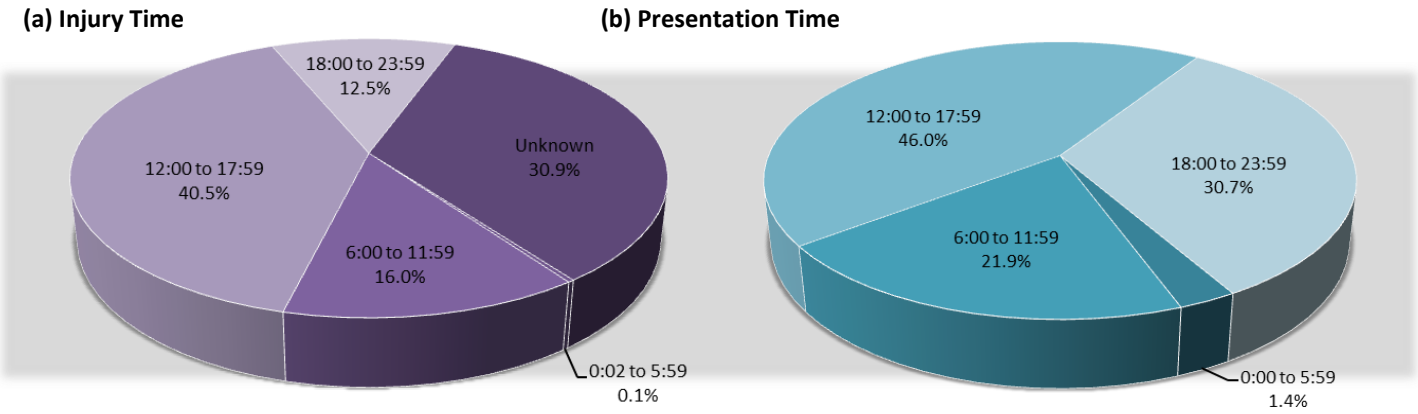
Figure 6: Road Traffic Injuries by Day of Presentation and Day of Injury; July 2009 to June 2014



The most common time for road traffic injuries to occur is between 12:00 and 17:59 (12:00pm to 5:59pm), accounting for 39.9% (n=3,060) of presentations (figure 7a). Unknown injury time accounted for 34.3% (n=2,634) of the injury presentations.

The time of presentation is also recorded for each injury case presenting to the PMH ED, with presentation times broken down into four 6 hour time intervals over the 24-hour day. The most common time for presentation of road traffic injuries is between 12:00-17:59 (12:00pm to 5:59pm) accounting for 44.4% (n=3,407) of presentations (figure 7b).

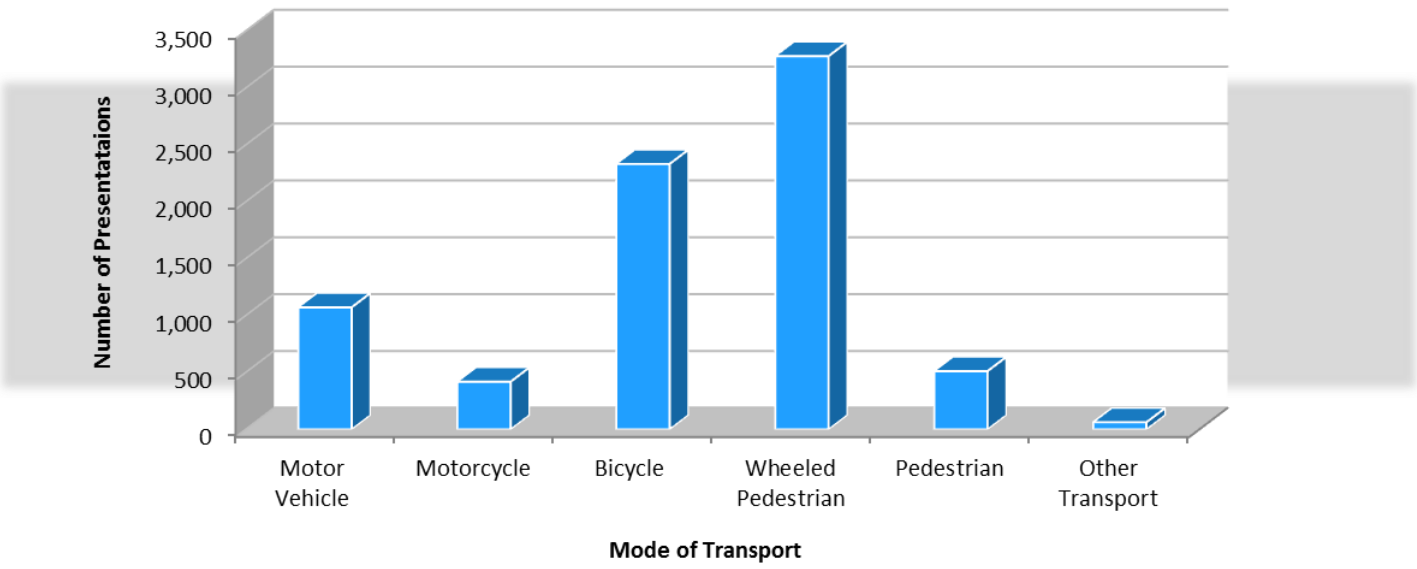
Figure 7: Road Traffic Injuries by Time of Injury (a) and Time of Presentation (b); July 2009 to June 2014



Injury Data

Injuries sustained to wheeled pedestrians were the most common road traffic injury, accounting for 42.7% (n=3,280) of all road traffic injury presentations. Wheeled pedestrians include activities such as scootering, skateboarding, roller-skating and rollerblading. The second largest injury cause was cycling (30.4%, n=2,332), followed by motor vehicle accidents (14%, n=1,072). Motor vehicle accidents also include injuries sustained whilst using quad bikes or go-carts, and/or participating in other motor sports, accounting for 10.9% (n=117), 7.0% (n=75) and 1.1% (n=12) of all motor vehicle accidents respectively. The remaining road traffic injuries include pedestrian injuries (6.7%, n=511), motorcycle accidents (5.4%, n=418), and other transport events (0.8%, n=62) (figure 8). Other transport events are those which could not be classified elsewhere.

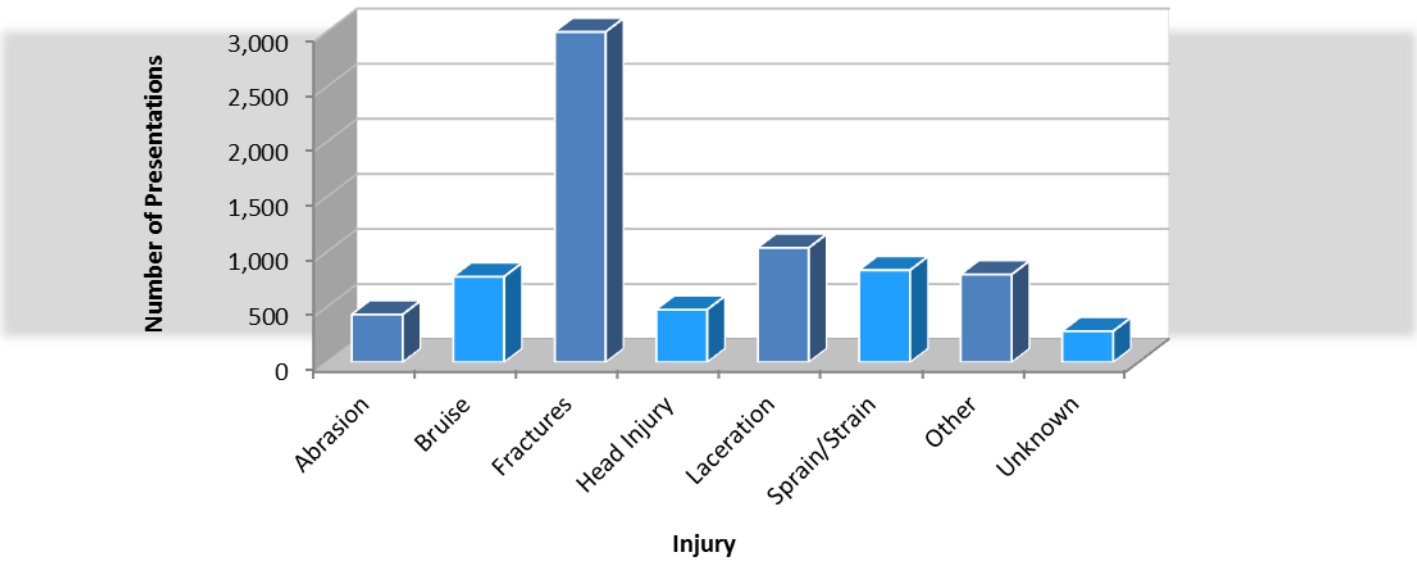
Figure 8: Road Traffic Injuries by Mode of Transport; July 2009 to June 2014



A large number of presentations (69.6%, n=5,340), indicated that the use of safety equipment was unknown. This suggests that there are limitations with the data as majority of these road traffic presentations most likely required the use of safety equipment. Of presentations where it was confirmed that safety equipment was required, the majority had used at least one piece (64.3%, n=1,098). Safety equipment used included helmets (60.1%, n=660), seatbelts (24.2%, 266), approved child restraints (13.1%, n=144), protective gear (1.7%, n=19), and other safety equipment (0.8%, n=9).

The majority of road traffic injuries resulted in fractures (39.6%, n=3,037). This was followed by lacerations (13.5%, n=1,038), sprains/strains (10.9%, n=836), bruises (10.1%, n=777), head injury (6.2%, n=477) and abrasions (5.6%, n=777). The remaining injuries were classified as other injuries (10.4%, n=796) or were unknown (3.7%, n=281) (figure 9).

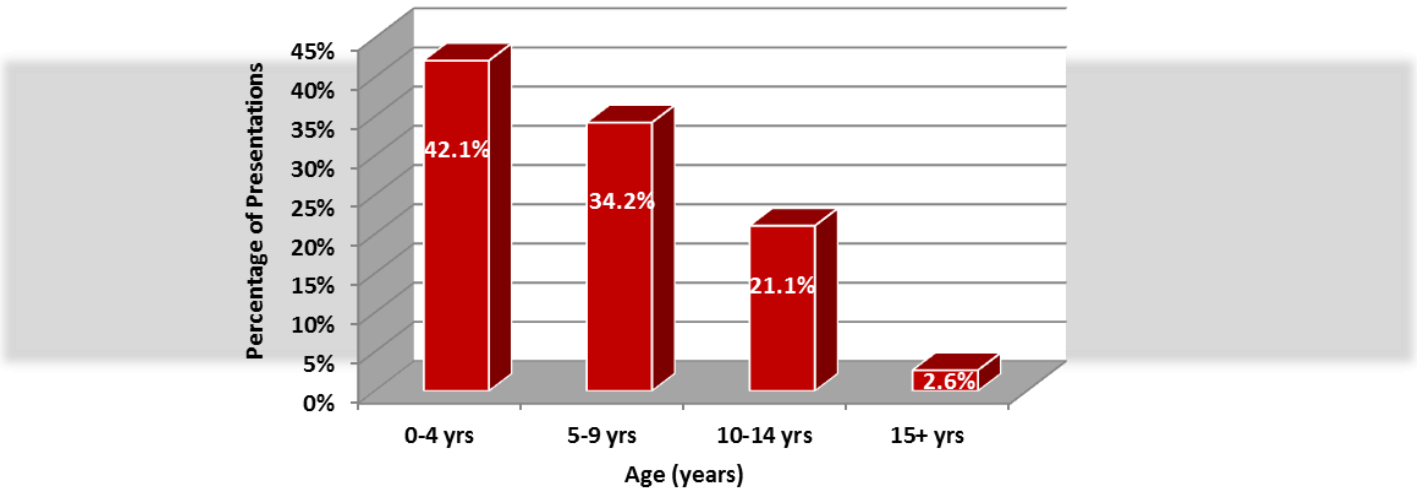
Figure 9: Road Traffic Injury Types; July 2009 to June 2014



Driveway run overs are a rising concern in Australia. Each year approximately seven children aged 0 to 14 years are killed and 60 are seriously injured due to driveway run over incidents[4]. In Western Australia approximately five children present each year to the PMH ED with an injury resulting from a driveway run over. Although the numbers presenting to the PMH ED are small, the proportion of run over injuries have increased over the past five years. This is most likely an underrepresentation of driveway run overs in WA as it does not take into account deaths, near misses, those who do not present to a hospital facility and/or those who present to other hospital facilities.

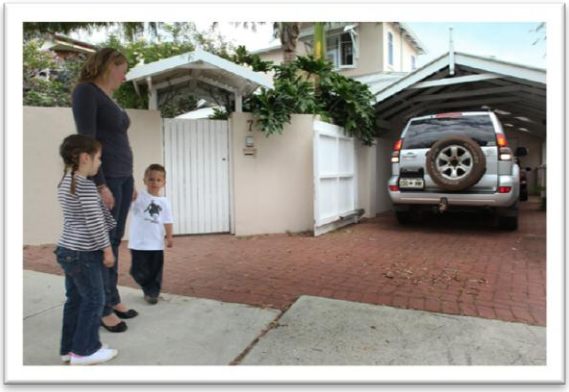
Between July 2009 and June 2014 the majority of children presenting to PMH ED with driveway run over injuries were under four years of age, accounting for 42.1% (n=16) of the presentations. This was followed by children aged between 5 - 9 years old, accounting for 34.2% (n=13) of presentations (figure 10).

Figure 10: Driveway run overs as a Percentage of Road Traffic Injuries by Age; July 2009 to June 2014



Between July 2009 and June 2014 the most commonly recorded location for a road traffic injury was 'other place' (45.9%, n=3,521), referring to an unknown or unspecified place not elsewhere classified. The road, footpath, cycleway or parking area was the second most common location representing 25.5% (n=1,958) of road traffic injuries. This was followed by the home or farm accounting for 13.7% (n=1,050). Other recorded locations for road traffic injuries included recreational or cultural areas (7.8%, n=601), sports and athletics areas (3.3%, n=253), nature

area (1.9%, n=146), school or residential institution (1.5%, n=118) and commercial, industrial or medical area (0.4%, n=28).



Almost all of the presentations for road traffic injuries between July 2009 and June 2014 were deemed to be due to unintentional circumstances (99.2%, n=7,617). The remainder were either classified as other (0.7%, n=50) or were undetermined (0.1%, n=8).

Diagnosis and Treatment Data

The majority of children who presented to PMH ED with a road traffic injury did so based on the concerns of themselves or a relative (81.7%, n=6,271). A further 10% (n=769) of children arrived at PMH ED with a referral by another hospital and 5.1% (n=391) from a general practitioner.

All children who present to PMH ED are initially assessed by a triage nurse who assigns them a triage code based on the perceived severity of their injury/condition (Table 1). A large proportion of children presenting with a road traffic injury are assigned a triage code of 4; semi-urgent (66.3%, n=5,088), followed by 3; urgent (25%, n=1,915), 2; emergency (6.1%, n=467) and 5; non-urgent (2.5%, n=194). Very few children presented with injuries that required a triage code of 1; resus (0.1%, n=11).

Table 1: Triage Categories

Category	Seen Within (mins)
(1) Resus	0
(2) Emergency	10
(3) Urgent	30
(4) Semi-Urgent	60
(5) Non-Urgent	120

The majority of children presenting with a road traffic injury were treated and discharged from the PMH ED (71.9%, n=5,515). Many children were also admitted to hospital for treatment (27.1%, n=2,077). A small number of presentations did not wait for treatment (0.6%, n=43) or were referred to another PMH department or other hospital (0.5%, n=40).

Discussion

Road traffic injuries are one of the leading causes of injury in Australia[5]. Injuries include those resulting from motor vehicles, motorcycles, and those sustained as a wheeled pedestrian, pedestrian or cyclist. There are many hazards and risks associated with these different modes of transport; however it is possible to make simple changes to reduce the risks.

The proportion of road traffic injuries presenting to the PMH ED has continued to decrease over the last five years. An average of 1,500 individual cases present each year, accounting for 8.2% of total injury presentations. Older children aged between 10 and 14 years are at greater risk of sustaining a road traffic injury, potentially due to increased exposure to the road traffic environment. However, the proportion of driveway run overs has increased over the years, and is more common among the 0 to 4 year olds.

Injuries sustained to wheeled pedestrians account for a large number of road traffic injuries, with the majority occurring while using a scooter. Many of the presentations were semi-urgent with the most common injury being fractures.

Parents and carers can minimise the risk of road traffic injuries by following these preventative measures:

- Buckle up every child, every time, every trip.
- Ensure all children are restrained in a correctly fitted child car restraint appropriate for the child's age and size.
- Kidsafe WA recommends children under the age of 12 do not sit in the front seat.
- Teach children to get in and out of cars on the kerb side, using the 'Safety Door'.
- Create safe play areas for children away from traffic and never let children play near the road or in the driveway.
- Create a 'safe spot' for children to stand whilst cars enter or exit the driveway.
- Know where your child is before you or anyone else leaves your driveway. Drivers should walk around their vehicle before moving it.
- Always supervise children near traffic when using bicycles or small wheeled devices.
- Make sure the brakes and locking mechanism work for bicycles and small wheel devices before using them.
- Ensure children wear bright coloured clothing when cycling so that they stand out and are easy to see.
- Make sure children using bicycles or small wheel devices such as scooters, skateboards, roller blades or skates are using appropriate safety equipment including helmets, wrist, knee and elbow guards.

- Hold your child's hand when near traffic.
- Set a good example and explain what you are doing when you cross the road.
- Teach children to 'Stop, Look, Listen, and Think' before crossing the road.
- Ensure children cross the road using designated pedestrian crossings.

For more information visit www.kidsafewa.com.au or http://www.det.wa.edu.au/sdera/detcms/portal/

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For further information please contact Kidsafe WA
GPO Box D184, PERTH WA 6840 (08) 9340 8509 kidsafe@kidsafewa.com.au