

## Chapter 5: Transport

*“Every day thousands of people are killed and injured on our roads. Men, women or children walking, biking or riding to school or work, playing in the streets or setting out on long trips, will never return home, leaving behind shattered families and communities” (World Health Organisation, 2004:v).*

From 1 January 2004 to 30 June 2005, transport fatalities were the leading external cause of death for Queensland children and young people, accounting for 70 deaths (47.9%). Transport accidents were the most common cause of death for both adolescents aged 15 to 17 years (60.7%) and toddlers aged one to four years (41.7%).

### Nature and extent of transport fatalities

In 1968 the Convention of Road Traffic in Vienna defined the term ‘road crash’ as: “any person who was killed outright or who died within 30 days as a result of the accident” (Australian Transport Safety Bureau, 2005:5). Australia, along with most Organisation for Economic Co-operation and Development (OECD) nations, has endorsed this definition (Australian Transport Safety Bureau, 2005:5).

The *International Road Safety Comparisons Report* provides an overview of road death rates for all OECD nations, including Australian states and territories (Australian Transport Safety Bureau, 2005:1). This report found that Australia had the eleventh lowest rate (of 24 countries) of road deaths per 100,000 population and the seventh lowest rate (of 22 countries) of road deaths per 10,000 registered vehicles (Australian Transport Safety Bureau, 2005:1).

In Australia, Queensland had the fourth lowest median rate of road deaths per population (8.2 per 100,000) and the third lowest median rate of road deaths per registered vehicles (1.2 per 10,000) (Australian Transport Safety Bureau, 2005:7–11).

In most OECD nations, transport accidents (or road crashes) are the number one cause of fatality for children aged from birth to 14 years<sup>99</sup> (Organisation for Economic Co-operation and Development, 2004:17). On average, one in 2100 children will die in a transport accident before the age of 15 years and an even higher number will suffer severe injuries or lifelong disabilities due to a transport accident (Organisation for Economic Co-operation and Development, 2004:17).

In 2004 the OECD released a report titled *Keeping Children Safe in Traffic*. The report outlined successful programs and strategies that improve children’s safety on roads and identified areas for further improvement (Organisation for Economic Co-operation and Development, 2004:8). It stated that “success in improving safety for children is likely to be achieved through combining measures to address the behaviour of all road users and improve the road environment and design vehicles that better protect both their occupant and those at risk outside the vehicle” (Organisation for Economic Co-operation and Development, 2004:8).

### Transport fatalities in Queensland

Road trauma ranks as one of the most significant public health problems in Queensland. In the past decade more than 3,500 Queensland adults, children and young people died and 46,000 were seriously injured in road related transport accidents (Queensland Government, 2003:i).

The nature of transport accidents and the type of transport involved are many and varied. Victims include drivers, passengers, pedestrians and cyclists and the type of transport ranges from motor vehicles, motorcycles, trucks and bicycles to watercrafts, all-terrain vehicles (ATVs) and tractors.

The Queensland Government along with various non-government organisations and research bodies are actively researching causes, trends and patterns associated with transport accidents to reduce transport deaths and injuries.

99 A child is defined as a person aged from birth to 14 years for the purposes of the OECD’s reports. As a result data for 15 to 17-year-olds is not reported on.

As outlined in the Commission’s 13 year review (see chapter 2), 764 children and young people aged from birth to 17 years died as a result of transport accidents in Queensland during the period 1 January 1991 to 30 December 2003. Key trends and patterns for the 70 transport fatalities that occurred from January 2004 to June 2005 are examined in this chapter.

In view of the complexity and volume of research in this area, the Commission has reviewed the literature in two key areas:

- low speed run-overs of toddlers, and
- the risks to children from ATVs.

The Commission has made two recommendations to help prevent these types of accidents discussed in the trends and patterns section of this chapter.

### Low speed run-overs

During the reporting period, seven toddlers and one infant (aged 10 months) died from a low speed run-over.

#### Defining low speed run-overs

‘Low speed run-over’ is a term used to describe incidents where a pedestrian – usually a child – is injured or killed by a slow moving vehicle in either a traffic or non-traffic area.

#### Frequency of low speed run-overs

Concern about low speed run-over death, particularly of toddlers, was first identified in the research literature more than 20 years ago. In 1979 Canadian researchers found that children aged one to four years were disproportionately involved in motor vehicle accidents on or near a private driveway (Henderson, 2000:13). In comparison, five to nine-year-olds were over-represented in pedestrian accidents before and after school hours, many while crossing the road between parked cars (Henderson, 2000:13).

By the 1990s it became apparent that low speed run-overs were an international problem, with studies in the United States, New Zealand and

Australia finding a high proportion of toddler injuries and deaths in residential driveways (Henderson, 2000:14). For example, a study in Virginia found that 50% of pedestrian accidents involving children aged from birth to five years were non-traffic accidents (accidents that occur in driveways, parking lots and laneways). Further, a study in Auckland found non-traffic injury numbers were under-represented, with 48% misclassified as traffic pedestrian injuries in hospital records (Henderson, 2000:14).

In 1998 a study at the Children’s Hospital in Denver, United States, investigated driveway related injuries in children and the outcome of those injuries compared to other blunt trauma injuries (Henderson, 2000:17). The study found that “driveway injuries carry a significant risk of head injury and a 10-fold increase in mortality in children under five years of age when compared with all other child pedestrian accidents” (Henderson, 2000:17).

#### Queensland statistics

In Australia pedestrian accidents are responsible for half of the transport accident deaths of children aged one to four years. Of these deaths, half are from a low speed run-over (Hockey et al., 2003:1). In most accidents, toddlers are reversed over in the driveway of their home by a vehicle driven by a family member. Low speed run-overs are the third most common cause of death for children aged one to four years after drowning and passenger fatalities (Hockey et al., 2003:1). This is consistent with the Commission’s findings during the 18 month reporting period.

In a 1998 report, the Queensland Council on Obstetric and Paediatric Morbidity and Mortality identified that in the period 1994–96 low speed run-over fatalities were the second most common cause of injury related death of children aged between one and four years. During the same period 58 people were admitted to hospital following a non-traffic pedestrian injury. In addition, the council found that the incidence of low speed run-over fatalities is significantly higher in Queensland than the rest of Australia (Hockey, 1999:3).

In a similar review of Queensland Injury Surveillance Unit data, Hockey and colleagues (2003:1) found that 28 children under the age of five died after a low speed non-traffic accident during the seven year period 1994–2000. Further, between 1998 and 2001, 68 children under the age of five visited an emergency department following a low speed run-over, with 60% of those requiring hospital admission.

The Centre for Accident Research and Road Safety, Queensland (CARRS-Q) investigated the incidence and characteristics of non-traffic<sup>100</sup> child pedestrian accidents that the Queensland Ambulance Service responded to between January 1998 and December 2000. The study found that Queensland has a significantly higher rate of low speed run-overs than the rest of Australia (2.4 per 100,000 children aged one to four years), with infants and toddlers more likely to be struck in driveways than pre-school and school aged children who are more often hit when they run into traffic (Centre for Accident Research and Road Safety, Queensland & Australian Centre for Prehospital Research, 2002:3).

### **Circumstances and risk factors**

The driveway and surrounding yard are generally considered safe areas for play, with parents and the community underestimating possible risks to children, particularly from slow-moving vehicles (Edwards, 2003:1).

Studies on the circumstances surrounding non-traffic low speed run-over deaths have found that these incidents are distinctly different from pedestrian casualties at normal traffic speeds.

Most low speed run-overs involve toddlers near a stationary vehicle (Australian Transport Safety Bureau, 2002:16). Typically the accident occurs when the vehicle is reversing at low speed and the driver is unaware of the child's presence (Centre for Accident Research and Road Safety, Queensland & Australian Centre for Prehospital Research, 2002:4).

Most often, the driver is a member of the child's immediate family (usually a parent) or a family friend. Hockey and colleagues' (2003:2–3) review of pedestrian fatalities of children aged under five years between 1994 and 2000 found that 60% of vehicles were reversing.

Children under five years are particularly at risk of low speed run-overs as they are difficult to see. Their height also means that children sustain severe crush injuries to the head and chest, rather than to their lower bodies in the case of adult pedestrians (Hockey et al., 2004:2; Henderson, 2000:4). The injuries suffered by children are more likely to be fatal.

Research has also identified environmental risk factors such as a lack of a barrier between driveways and play areas (Henderson, 2000:4). Other studies have found that children from large families and those living in rental or public housing and dwellings with shared driveways, have a higher risk of low speed run-overs (Hockey et al., 2003:3).

### **Age**

There is a demonstrated relationship between a child's age and accident location. As stated earlier, children under the age of five are most likely to be injured in a driveway or car park, while pre-school and school aged children (five to nine years) are more likely to run out in front of vehicles on a road (Centre for Accident Research and Road Safety, Queensland & Australian Centre for Prehospital Research, 2002:4; Scott et al., 2004:1).

Toddlers sustain the highest overall number of pedestrian injuries and are the most likely group to be injured in non-traffic low speed run-overs. These accidents most commonly involve children aged between 12 and 23 months (Hockey et al., 2003:2)<sup>101</sup>. Children in this age group are becoming mobile but don't yet understand personal safety and they are not easily visible from the driver's position (Hockey et al., 2003:2; Australian Transport Safety Bureau, 2002:16)

100 Non-traffic pedestrian accidents were defined as those that occur in driveways, parking lots and laneways.

101 Between 1994 and 2000, one third of low speed run-over fatalities involved children aged one year.

## Gender

Scott and colleagues (2004:1) analysed childhood pedestrian injury in Queensland between 1994 and 2000 and found that boys were more likely to be injured than girls (including in the birth to four year age group where the over-representation of male injury is often less evident). However, CARRS-Q and the Australian Centre for Prehospital Research (2002:4) report that although boys are more at risk of traffic pedestrian accidents than girls, there appears to be a relatively equal gender distribution in low speed driveway run-overs.

## Location and time of day

Hockey and colleagues' (2003:2) review of the Queensland Injury Surveillance Unit (QISU) data for the period 1994 to 2000 found that about 80% of low speed run-overs of young children occurred at home, with 60% in the driveway or garage/carport.

Forty percent of low speed run-overs occurred on a weekend, 40% took place between 3pm and 6pm (with most occurring in late afternoon) and 32% between 8am and 12pm (Hockey et al., 2003:2). The CARRS-Q and the Australian Centre for Prehospital Research (2002:4) report that most incidents occur between 2pm and 6pm.

## Types of vehicles

Research by the Australian Transport Safety Bureau (2002:16) has found that most vehicles involved in fatal low speed run-overs were large four-wheel drive passenger vehicles (4WD). Large utilities, delivery vans and heavy trucks also accounted for a significant proportion of accidents. In contrast, sedans and station wagons, which are involved in about two thirds of pedestrian deaths in Australia, were only involved in about one fifth of driveway fatalities.

These findings concur with other recent studies of low speed pedestrian accidents. Holland and colleagues (Australian Transport Safety Bureau, 2002:13) found that 4WDs and light commercial vehicles were involved in about 50% of low speed pedestrian accidents. Queensland studies have also found that 4WDs, utilities and heavier vehicles are over-represented in driveway accidents (CARRS-Q & Australian Centre for Prehospital Research (2002:4). Hockey and colleagues (2003:2) found that although only 6% of cars are 4WD vehicles, they were responsible for 41% of low speed run-overs in Queensland between 1994 and 2000<sup>102</sup>.

## Prevention strategies

### *Queensland Department of Housing initiatives*

The Queensland Department of Housing has developed the Smart Housing initiative, which provides advice reducing the risk of household injuries to children, the elderly and people with disabilities. One recommendation is to ensure that driveways are separated from children's play areas in new homes<sup>103</sup>.

### *National initiatives*

In response to the deaths of 17 children from driveway run-overs in a three and half year period in New South Wales, the NRMA Insurance Group (NRMA) is encouraging car manufacturers to modify simple design features to improve reversing visibility. The NRMA tests rearward visibility as part of its standard vehicle testing and has found that all cars have a 'blind area' that could easily hide a child. It argues that car designers should put more emphasis on rearward visibility to improve safety (Hockey et al., 2003:4).

The NRMA tests passenger vehicles in Australia with the NRMA Reversing Visibility Index to determine how well a driver can see out of the back of a car<sup>104</sup>.

102 The reason for the over-representation of 4WD vehicles is not clear. Studies of rearward visibility have found that the relatively high sitting position of the driver tends to counteract any reduction in rearward visibility resulting from the high window sills in such vehicles. However, this visibility is significantly compromised by high mounted spare wheels (or other accessories) on the rear door of some models (Australian Transport Safety Bureau, 2002:13; Hockey et al., 2003:3).

103 See <http://www.housing.qld.gov.au/initiatives/smarthousing/index.htm>.

104 The full results of the NRMA Reversing Visibility Index can be viewed at [www.nrma.com.au/reversing](http://www.nrma.com.au/reversing).

The index tested 80 vehicles in October 2002. The latest data was released in May 2005 and features 222 vehicles including 4WDs, people movers, utilities and sport, luxury and sedans of all sizes.

The NRMA has also aired driveway safety radio advertisements.

#### *New South Wales initiatives*<sup>105</sup>

In response to the recommendations of the 1998–99 New South Wales Child Death Review Team Annual Report, the Motor Accidents Authority in partnership with the Child Deaths and Injuries in Driveways Project Steering Committee has developed a range of education campaigns to reduce driveway accidents and deaths in New South Wales (NSW).

- A brochure targeting parents and caregivers, *Where are your kids? Child safety in your driveway*, has been distributed in NSW through the Personal Health Record to parents of new infants and nationally through the Australian Transport Safety Bureau. A television commercial based on the brochure images has been broadcast in northern NSW and Sydney.
- The Early Childhood Road Safety Education Program at Macquarie University has prepared a display kit demonstrating the difficulty of seeing a small child behind a vehicle. The kit is available for loan for community events.
- Two rounds of Driveway Safety grants have been made available to councils and health or community agencies in NSW for local projects to promote driveway safety awareness. Projects are supported by brochures, posters and a short video.

### All terrain vehicles (ATVs)

ATVs are emerging as a significant factor in transport accidents in Queensland, particularly in rural communities. As discussed in the trends and patterns section of this chapter, ATVs were involved in four deaths of children under the age of 12 (including two children under five) during the reporting period. It appears that these deaths occurred on rural farming properties.

Injuries and deaths of children on farms is an international public health concern. The high incidence of injuries and fatalities in Australian rural areas has been the focus of considerable attention in recent years (Fragar et al., 2003:3; Lower et al., 2005:vi).

Rural properties in Australia are often both a home and place of work. According to Fragar and colleagues (2003:3), the potential for injury is heightened when children live in a work environment.

Mobile plant and transport, including four-wheel motorcycles (quad-bikes or ATVs) and tractors on rural properties cause significant child safety concerns and were given priority status in Farmsafe Australia's National Strategy for Child Farm Safety in 1999 (Farmsafe Australia, 1999).

On average about 10 deaths are linked to ATVs in Australia each year, most occurring while the vehicle is used for farming (Fragar et al., 2005:7).

National Coronial Information System data shows at least 63 ATV related deaths from 2000 until May 2005<sup>106</sup>, 19 were of children under the age of 18 (30%). The average age of children dying in ATV accidents is eight years.

In addition, Queensland Trauma Registry data shows that between 2000 and 2004, 27 children under 18 were admitted to hospital for 24 hours or more after being injured in an accident involving an ATV. Twenty-one of these children were under 15 years<sup>107</sup>.

Studies in the United States reveal similar statistics. Smith and colleagues' (2005:783) national study found that while only 14% of ATV riders are children under 16 years, they account for 35–40% of deaths and 40–50% of injuries from ATV accidents. Pittsburgh based research has also found that 40% of all ATV deaths and injuries occurred in children aged 16 and under and 20% of deaths and injuries occurred in children aged 12 and under (Lynch et al., 1998:329–330).

105 Information provided by the Motor Accidents Authority, 14 March 2005.

106 This does not represent the total number of ATV deaths in Australia to date as there is no Queensland data on the NCIS prior to 2001 and there are significant delays in importing data from certain states and territories.

107 Data provided 19 May 2005.

Nearly all ATV injuries and deaths appear to be preventable. Most are caused by rider inexperience, lack of protective equipment and dangerous driving. People aged between 10 and 24 years are most likely to get hurt or killed riding an ATV (Department of Human Services, 2004).

Since the 1990s there has been a marked increase in the use of ATVs in the Australian rural sector, as these machines progressively replace the conventional tractor as a flexible and economical rural 'workhorse' (Alford, unknown date:1; Fragar et al., 2005:1). The Federal Chamber of Automotive Industries reports that between 1998 and 2003 an average of 10,000 ATVs were imported into Australia annually. While some ATVs are designed for competition and recreational riding, most are agricultural and sold directly to the rural sector.

Workplace Health and Safety (WPHS) Queensland has also reported an increase in the purchase of ATVs for rural properties<sup>108</sup>. Some 14,000 ATVs were sold in 2002, a 12% increase from 2001 (Workplace Health and Safety & Farmsafe Queensland, 2003). Unfortunately, there has been a corresponding increase in injuries and deaths.

The 1998 Queensland Farm Safety Survey published in 2000 estimates that 37% of farms have children aged 15 years and under living on them. Child visitors to farms are also at risk of death or injury from ATV accidents (Fragar et al., 2003:4).

## **Risks factors associated with all terrain vehicles**

### *Riders under 16 years of age*

Control of an ATV is complex and sometimes counterintuitive. Driving requires considerable muscle strength, psychomotor skills and good cognitive judgement (Smith et al., 2005:786).

The size of the driver has a major influence on safe ATV operation. On a two wheel motorbike, the straddle seat, handlebars for steering and

comparatively light weight allows riders to move their weight around and maintain control. However, ATVs are not designed to lean when turning corners so whole body movement is critical to influence the centre of gravity. The rider's ability to shift weight quickly and confidently is the key to preventing overturns. An ATV too large for the rider makes weight transfer difficult (Alford, date unknown).

Rider active techniques are dependent on a number of variables including:

- height of operator
- weight of operator
- mobility of operator, and
- rider experience.

People who lack any or all of these characteristics will not be able to stabilise the vehicle effectively (Parliament of Victoria, Rural and Regional Services Development Committee, 2005:122).

ATVs are too powerful for children to operate safely and children do not have the body size, weight, perception or coordination skills to actively ride an adult size ATV. Children also have limited opportunities to practice riding the vehicles. For these reasons, child research studies recommend that the minimum age for riding ATVs be set at 16 years and that suitability to ride a motorcycle should be tested (Fragar et al., 2003:ix).

Manufacturers clearly state that children under the age of 16 should not ride adult sized ATVs, as they have not been designed for safe driving by children. Each vehicle comes with a sticker warning against this practice.

The Commission considers the risk to children under 16 years riding adult sized ATVs to be unacceptably high. This was also the view of Victoria's Rural and Regional Services and Development Committee's 2005 Inquiry into the Cause of Fatality and Injury on Victorian Farms.

108 Telephone conversation Work Place Health and Safety, 17 May 2005.

### *Riding without a helmet*

Preventing head injury is an important way to reduce risk of serious injury and death from ATV accidents.

Head injury can result when an ATV driver loses control, the machine rolls over and the operator or passenger is crushed between the ATV and the ground or is flung towards a rock, tree or other surface (Fragar et al., 2005: 26; Farmsafe Australia, 2004; Phrampus, et al., 2005:59).

At least 15 of the 63 ATV deaths in Australia since 2000 involved head injury. Wearing a helmet while riding a motorcycle or ATV is one way to minimise risk of head trauma (Fragar, 2003:xi). Substantial evidence has proved the effectiveness of helmets in reducing head injury.

Other protective equipment – goggles, gloves, long pants and sturdy footwear – can also reduce the severity of injury in a fall or collision.

### *Carrying passengers*

Significant risks are associated with carrying passengers on ATVs (Parliament of Victoria Rural and Regional Services Development Committee, 2005:123). ATV manufacturers specify that passengers should not travel on most four-wheel models. Each vehicle not designed to carry passengers has a sticker warning against this practice.

### **All terrain vehicles and the media**

The Commission has identified a number of commercial newspapers and visual media showing unsafe ATV practices. Examples include images of very small children riding ATVs, children and adults carried as passengers and drivers without helmets.

This issue was raised in the recent Inquiry into the Cause of Fatality and Injury on Victorian Farms and has also been identified as a problem by ATV manufacturers and WPHS Queensland.

The Commission believes the media should portray the safest practice for riding ATVs and motorcycles.

## **Transport related fatalities trends and patterns**

Seventy children and young people died in transport accidents in Queensland between 1 January 2004 and 30 June 2005.

Table 5.1 illustrates the number of transport accident deaths by age and gender.

**Table 5.1:** Transport accident deaths by age, gender and rate

Age	Male <i>n</i>	Female <i>n</i>	Total <i>n</i>	Rate per 100,000
Under 1 year	1	1	2	*
1–4 years	11	9	20	9.8
5–9 years	5	1	6	2.2
10–14 years	5	3	8	2.9
15–17 years	28	6	34	21.0
<b>Total</b>	<b>50</b>	<b>20</b>	<b>70</b>	<b>7.3</b>
<b>Rate per 100,000</b>	<b>10.1</b>	<b>4.3</b>	<b>7.3</b>	<b>–</b>

Data source: Queensland Child Death Register (2004–05)

\* Rates are unable to be calculated for numbers less than four.

### **Gender**

Consistent with trends identified in chapter 2, more males died in transport accidents than females (50 males compared to 20 females), with males representing 71.4% of all transport fatalities. During the reporting period, the number of male fatalities was 2.5 times greater than females.

The rate of males who died in transport fatalities was also substantially greater, with 10.1 deaths per 100,000 males compared to 4.3 deaths per 100,000 females.

### **Age**

Age is a major factor in the type and frequency of transport accidents (World Health Organisation 2004:2). Age influences mobility and independence in and around vehicles. The following is a breakdown of the types of transport accidents common for each age category.

## Under one year

Children under one year of age are the least likely to die in a transport accident. Their involvement is dependent on their parent rather than their own behaviour (World Health Organisation, 2004:2). During the reporting period, two infants under one year died in a transport accident (accounting for 3.0% of all child transport deaths). This finding is consistent with the 13 year review (see chapter 2) which found that infants were the least likely age category to die in transport accidents.

## One to four years

Toddlers aged between one and four years were the second most likely age category to die in transport accidents, with 20 deaths during the 18 months examined (29.0%). The rate of deaths was 9.8 per 100,000 toddlers.

Nine of the 20 toddlers were passengers in a vehicle, eight were pedestrians, two deaths were from ATV accidents (one was the driver and one the passenger) and one toddler fell from a front end loader.

The 13 year review (see chapter 2) also found that toddlers were the second most likely age category to die in transport accidents. Seventy of the 135 (51.9%) toddlers who died from transport accidents during that period were pedestrians.

During the 18 month reporting period, seven of the toddlers (and one infant) who died as pedestrians were killed in low speed run-overs. The circumstances of these incidents are discussed in the pedestrian section of this chapter.

## Five to nine years

During the 18 months examined, five to nine-year-olds had the second lowest number of transport accident deaths, with six deaths (8.6%). The rate of transport accident deaths was also the second lowest, with 2.2 deaths per 100,000 five to nine-year-olds. These findings are consistent with the trend analysis in chapter 2.

Generally, five to nine-year-olds who die in transport accidents are pedestrians. The Road Transport Authority in New South Wales has attributed the high pedestrian accident rate for this age group to the increasing mobility of children who may be unsupervised but still lacking skills needed to cross roads safely (Henderson, 2000:9).

During the reporting period, only one of the children aged five to nine who died in transport accidents was a pedestrian. Three five to nine-year-olds died in motor vehicle accidents, one in a bicycle accident and one in an ATV accident.

## 10 to 14 years

Eight young people aged 10 to 14 years died from a transport accident between 1 January 2004 and 30 June 2005 (11.4% of all child transport deaths). The rate of transport deaths for children in this age group was 2.9 per 100,000 children. Children aged 10 to 14 were the third most likely age category to die from a transport accident. This is also consistent with the 13 year review of child deaths in chapter 2.

Four of the children in this age group were passengers of motor vehicles, one was riding a motorcycle, one was a passenger on an ATV, one was a cyclist and another a pedestrian.

The pedestrian was hit by a motor vehicle while crossing a road. The young person was reported to be under the influence of alcohol at the time.

## 15 to 17 years

Young people aged 15 to 17 years were the most likely age group to die from transport accidents. During the 18 months examined, 34 adolescents aged 15 to 17 years died in transport accidents (49.0% of all child transport deaths). Most of these deaths occurred in motor vehicle accidents (64.7%). Motorcycle accidents accounted for six deaths (17.6%), three were pedestrians (8.8%), one was riding a bicycle and one death has been classified as 'other'<sup>109</sup>. One of the pedestrians was a 16-year-old intoxicated male. The accident appears to have been the result of his own actions.

109 The circumstances are not clear, but it appears that the young person was crushed by machinery.

## Aboriginal and Torres Strait Islander status

Seven children who died in transport accidents were of Aboriginal or Torres Strait Islander origin. Four were passengers in motor vehicle accidents and three were pedestrians.

Two of the pedestrian accidents were low speed run-overs (a 10-month-old and three-year-old). The other pedestrian was 16 years.

Three of the children who died were toddlers and two were teenagers. Two of the four passengers were infants.

## Geographical Distribution (ARIA)

Most transport fatalities occurred in regional areas, with 39 deaths, compared to 20 deaths in metropolitan areas and seven in remote areas<sup>110</sup>. Regional areas had the highest rate of transport fatalities with 11.1 deaths per 100,000 children, followed by 6.6 per 100,000 in remote areas and 4.8 per 100,000 in metropolitan areas. This is consistent with the 13 year review (see chapter 2) which found that the rate of transport deaths was highest in regional areas with 8.1 deaths per 100,000 children<sup>111</sup>.

## Socioeconomic Status (SEIFA)

During the 18 months examined, 42 of the 70 children and young people who died in transport accidents lived in a low or very low socioeconomic region (60.0%). Fourteen lived in moderate areas (20.0%) and 10 in high or very high socioeconomic areas (14.2%)<sup>112</sup>.

## Nature of Transport Accident

Figure 5.1 shows the proportion of deaths by type of transport.

**Figure 5.1:** Types of transport fatalities by nature of fatality

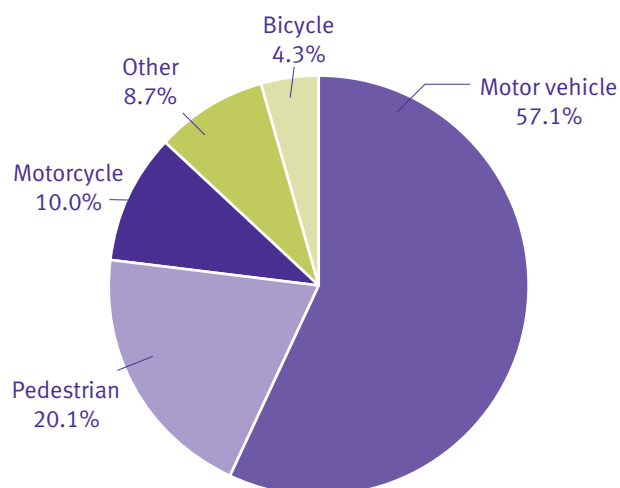


Figure 5.1 illustrates that the greatest number of transport fatalities occurred in motor vehicles (40 deaths) followed by pedestrian deaths (14 deaths) and motor cycle accidents (seven deaths).

## Motor vehicles

Table 5.2 shows the number of passengers and drivers who died in motor vehicle accidents by gender, age and rate. As illustrated in Figure 5.1, motor vehicle accidents were responsible for the greatest number of transport deaths of children and young people (57.1%).

<sup>110</sup> Geographical distribution rates are calculated on 66 of the transport fatalities as four involved children whose usual place of residence was outside Queensland (three New South Wales and one Victoria).

<sup>111</sup> The rates for chapter 2 Overview of child deaths in Queensland 1991–2003 were calculated over 12 months, whereas rates in this chapter were calculated over an 18 month period.

<sup>112</sup> Percentages do not add to 100 as four children are included whose usual place of residence was outside of Queensland (three New South Wales and one Victoria).

**Table 5.2:** Motor vehicle accident fatalities for drivers and passengers by age, gender and rate.

Motor vehicle accidents				
Age	Male <i>n</i>	Female <i>n</i>	Total <i>n</i>	Rate per 100,000
Passengers				
Under 1 year	0	1	1	*
1–4 years	4	5	9	4.4
5–9 years	2	1	3	*
10–14 years	2	2	4	1.4
15–17 years	13	1	14	8.7
<b>Subtotal</b>	<b>21</b>	<b>10</b>	<b>31</b>	<b>3.2</b>
Drivers				
10–14 years	0	0	0	*
15–17 years	6	3	9	5.6
<b>Subtotal</b>	<b>6</b>	<b>3</b>	<b>9</b>	<b>5.6**</b>
<b>Total</b>	<b>27</b>	<b>13</b>	<b>40</b>	<b>4.2</b>

Data source: Queensland Child Death Register (2004–05)

\* Rates are unable to be calculated for numbers less than four.

\*\* Rates are calculated based on children and young people aged 15–17 years only.

## Gender

Males were more likely to die in motor vehicle accidents, with 27 deaths (67.5%) than females with 13 deaths (32.5%). Of these, 21 passengers and six drivers were male compared to ten female passengers and three female drivers.

## Age

All drivers who died in motor vehicle accidents were aged 15 to 17 years (nine deaths). Passenger fatalities were also most likely to involve males aged 15 to 17 years (41.9% of passenger deaths in all age groups). Thirteen male passengers and one female aged 15 to 17 died during the reporting period.

## Drivers

Six male drivers died in motor vehicle accidents (66.7%), compared to three female drivers (33.3%). Seven of the drivers were 17-years-old, one was 15-years-old and the other 16-years-old. These findings are consistent with the 13 year review (see chapter 2) which found that the majority of driver deaths occurred among males aged 15 to 17 years.

## Passengers

Twenty-seven male passengers and 13 female passengers died. Adolescents aged 15 to 17 years were the most likely to die as passengers in transport accidents, with 14 deaths. Nine children aged one to four and four children aged 10 to 14 years also died.

## Multiple fatalities

Overall, 40 children and young people died from 36 separate transport accidents. In three of the accidents, two young people who were passengers in the same motor vehicle died. In one accident both the driver and passenger (both aged 17 years) died.

## Single versus multi vehicle accidents

### Drivers

Six of the nine (66.7%) driver fatalities were the result of single vehicles colliding with fixed objects such as trees, fences or power-poles.

Two of the drivers who died in collisions with other vehicles were believed to have caused the accident. One driver was overtaking and collided with a vehicle travelling in the opposite direction; the other driver is believed to have lost control of a sedan and crashed into the path of an oncoming vehicle (an adult relative of the driver also died in this incident).

### Passengers

Ten of the 31 (32.2%) accidents where a child died as a passenger involved two vehicles and one accident involved three vehicles. Most passenger deaths (64.5%) were the result of single vehicle accidents.

## Place of incident

### Drivers

Six of the nine driver fatalities occurred in a speed zone of between 40 and 80 kilometres per hour (66.7%). The other three occurred on a highway (33.3%)<sup>113</sup>.

113 The Commission has defined highway to mean an area with a designated speed limit of 100 kilometres per hour or more.

## Passengers

Eighteen of 31 passengers who died were killed in accidents on a highway (58.1%) and 10 died in speed zones of between 40 and 80 kilometres per hour (32.2%). Two passengers in the same vehicle drowned after it crossed a flooded causeway. One passenger died in an accident on a private property.

### Speeding, drinking alcohol and other risk taking behaviours

Speed was a possible contributing factor in seven of the nine driver deaths, with two drivers definitely exceeding the speed limit, three probably and two possibly exceeding the limit<sup>114</sup>. Further, it is believed alcohol was involved in two deaths of 17-year-old drivers (in one case the vehicle was definitely exceeding the speed limit and in the other case the vehicle was probably exceeding the speed limit). One of these incidents also involved the death of a 17-year-old passenger.

Two of the drivers who died were believed to be driving within the speed limit. One had a blood alcohol level of 17mg/100ml (.017).<sup>115</sup>

### Seatbelts

Four of the nine drivers who died were wearing seatbelts. In the other five cases, it was unknown whether the drivers were wearing seatbelts at the time of the accident.

Sixteen of the passengers who died were wearing seatbelts at the time of the accident (51.6%). Six passengers (19.3%) were not wearing a seatbelt; one unrestrained passenger (aged 23 months) fell out of a moving car when the door opened while turning a corner<sup>116</sup>.

### Other information

In one accident, the passenger and adult driver died after the driver suffered a possible heart attack.

## Pedestrians

Table 5.3 shows the number of pedestrian fatalities by gender, age category and rate.

**Table 5.3:** Pedestrian deaths by age, gender and rate

Pedestrians				
Age	Male <i>n</i>	Female <i>n</i>	Total <i>n</i>	Rate per 100,000
Under 1 year	1	0	1	*
1–4 years	5	3	8	3.9
5–9 years	1	0	1	*
10–14 years	1	0	1	*
15–17 years	1	2	3	*
<b>Total</b>	<b>9</b>	<b>5</b>	<b>14</b>	<b>1.5</b>

Data source: Queensland Child Death Register (2004–05)

\*Rates are unable to be calculated for numbers less than four.

### Gender

Nine male pedestrians died (64.3%) compared to five females (35.7%).

### Age

Fifty-seven percent of pedestrian fatalities involved children aged one to four years; 75.0% of these fatalities occurred in driveways.

### Place and circumstances of incident

#### Low speed run-overs

Eight of the pedestrian deaths involved low speed run-overs of children under the age of four; one was aged three years, six were aged between one and two years and another was aged 10 months.

Six low speed run-overs occurred in driveways while vehicles were reversing, one occurred on the road next to the family home as the car was entering the driveway and one occurred on a private property. In seven cases, the vehicle was driven by a family member.

In the private property accident, an unattended motor vehicle rolled down the hill and ran over a child playing nearby. It is unknown whether the child was being supervised at the time. In the other seven low speed run-over incidents the driver was

114 Information as recorded in the Police Report of Death to a Coroner (Form 1).

115 Information obtained from the toxicology report.

116 It is unknown if the door opened due to mechanical failure or if the child opened the door.

not aware that the child was on or near the driveway. Most cases occurred when the toddler followed their parent or relative without the adult's knowledge. In one case the front door latch was faulty and the infant was seen near the door; the adult assumed the infant had gone back inside the house before driving the car out of the driveway.

#### Other pedestrian fatalities

One toddler wandered onto a busy main road into the path of oncoming traffic.

There was only one pedestrian fatality of a child aged five to nine. The child was hit and fell under the tyre of the vehicle as it was pulling out from the kerb in a school drop-off zone.

One young person aged 10 to 14 was hit by a motor vehicle while crossing a road. The young person was reported to be under the influence of alcohol at the time. Another young person aged 15 to 17 years was reportedly heavily intoxicated, fell onto the road and was hit by a car travelling at more than 80 kilometres per hour.

Two 15 to 17-year-old females died after being struck by motor vehicles. In both cases, the young people were walking on or near the road when they were hit.

### Motorcycles

Table 5.4 shows motorcycle related fatalities by gender, age category and rate.

**Table 5.4:** Motorcycle related fatalities by age, gender and rate

Motorcycles				
Age	Male <i>n</i>	Female <i>n</i>	Total <i>n</i>	Rate per 100,000
10–14 years	1	0	1	*
15–17 years	6	0	6	3.7
<b>Total</b>	<b>7</b>	<b>0</b>	<b>7</b>	<b>0.7</b>

Data source: Queensland Child Death Register (2004–05)

\* Rates are unable to be calculated for numbers less than four.

Note: 1. Age categories were excluded from this table where no children of that age group died in the reporting period.

### Gender

All young people who died in motorcycle accidents were male.

### Age

Six young people who died in motorcycle accidents were aged 15 to 17 (85.7%). One 10 to 14-year-old died in a trail bike accident on a private property.

### Type of motorcycle

Five of the seven accidents involved trail bikes and two involved 250cc road bikes.

### Place and circumstances of incident

Three motorcycle fatalities occurred in traffic areas (two road bikes and one trail bike). Two of the accidents occurred when riders collided with a tree and one rider collided with a parked car. The trail bike rider was not wearing a helmet. It is suspected that all three were exceeding the designated speed limit (one was definitely over, one probably over and one possibly over)<sup>117</sup>.

Four motorcycle deaths occurred in non-traffic areas and involved trail bikes; one of the riders may have been intoxicated and one was not wearing a helmet.

### Bicycles

Table 5.5 shows the number of bicycle fatalities by gender, age category and rate.

**Table 5.5:** Bicycle related fatalities by age, gender and rate

Bicycles				
Age	Male <i>n</i>	Female <i>n</i>	Total <i>n</i>	Rate per 100,000
5–9 years	1	0	1	*
10–14 years	1	0	1	*
15–17 years	1	0	1	*
<b>Total</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>*</b>

Data source: Queensland Child Death Register (2004–05)

\* Rates are unable to be calculated for numbers less than four.

Note: 1. Age categories were excluded from this table where no children in that age group died during the reporting period.

117 Information as recorded in the Police Report of Death to a Coroner (Form 1).

## Gender

All three children who died in bicycle accidents were males.

## Age

Three children and young people (aged eight, 13 and 15 years) died in three separate bicycle accidents.

## Circumstances

Two of the three children died after riding into the path of oncoming traffic; one was definitely not wearing a helmet and it is unknown<sup>118</sup> if the other child was wearing a helmet. The other incident occurred as the cyclist was entering traffic from the footpath; it appears he may have ridden into the path of an oncoming vehicle. He was not wearing a helmet.

## Other<sup>119</sup>

Table 5.6 shows the number of other transport related fatalities by gender, age category and rate.

**Table 5.6:** Other transport related fatalities by age, gender and rate

Other				
Age	Male <i>n</i>	Female <i>n</i>	Total <i>n</i>	Rate per 100,000
1–4 years	2	1	3	*
5–9 years	1		1	*
10–14 years		1	1	*
15–17 years	1	0	1	*
<b>Total</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>0.6</b>

Data source: Queensland Child Death Register (2004–05)

\* Rates are unable to be calculated for numbers less than four.

Note: 1. Age categories were excluded from this table where no children of that age group died during the reporting period.

## Gender

Three males and two females died in ‘other’ transport accidents. Both females and two of the males died in ATV accidents. Two males died in accidents involving heavy machinery.

## Age and circumstances of death

### All terrain vehicles (ATVs)

Four children died in ATV accidents. Two of these children were four-years-old, one was nine and one was twelve-years-old.

One of the four-year-olds was riding an ATV which appears to have rolled and crushed the child<sup>120</sup>. The child was wearing a helmet. The other four-year-old was a passenger on an ATV ridden by a family member. The ATV flipped while travelling up an embankment and crushed the child. It is unknown whether the child was wearing a helmet.

The nine-year-old died after being crushed by the adult sized quad bike he was riding on his family property. It is unknown how the accident occurred. The child was wearing a helmet.

The 12-year-old was a passenger in a trailer being towed by an ATV. The child, who was not wearing a helmet, fell out of the trailer and died from head injuries.

### Tractors and other machinery

A child aged between one and four years died from injuries sustained when he fell under the rear tyre of a front end loader on which he was a passenger. An adolescent working with heavy machinery died when crushed between a truck and an industrial bin.

118 Information was either not available in the Police Report of Death to a Coroner (Form 1) or not known to the investigating officers at the time of completing the report.

119 Other includes all terrain vehicles (quad bikes) and heavy machinery.

120 The ATV in this case was a 50cc bike. Manufacturers generally recommend that these bikes not be operated by children under the age of six.

## Recommendations

### Low speed (driveway) run-over deaths and injuries of children

The Commission recommends that the Premier request that the Parliamentary Travelsafe Committee<sup>121</sup> investigate and report on ways to reduce fatalities and injuries to children from low speed driveway run-overs in Queensland.

**Reason:** *Queensland reportedly has a significantly higher rate of low speed run-overs than the rest of Australia. A lead agency needs to take responsibility for initiatives to prevent these fatalities on private properties. A detailed investigation and analysis of the most appropriate strategies for preventing these fatalities in Queensland is also required.*

### All terrain vehicles and other rural hazards

The Commission recommends that the Queensland Government notes the research findings about the risks to children and young people posed by all terrain vehicles (ATVs) other rural hazards (also see chapter 6) and as well as the Commission's intention to engage with key agencies to:

- encourage agencies to explore options and strategies to assist the rural sector identify and address the risks to children and young people posed by ATVs and rural hazards, and
- report, in 2005–06, on the strategies identified and outcomes achieved.

**Reason:** *The Commission is concerned about the deaths and injuries to children and young people from ATVs and other rural hazards and believes risk factors can be reduced or eliminated.*

121 The Travelsafe Committee of the 51st Parliament is a select committee established by resolution of the House. The committee examines all aspects of road safety and public transport in Queensland.