



Centre for Accident Research
& Road Safety - Queensland
(CARRS-Q)

State of the Road

A fact sheet of the Centre for Accident Research & Road Safety - Queensland



Injury is the leading cause of death and hospitalisation among adolescents.¹

Mortality rates resulting from injury among young people reveal strong associations with risk-taking behaviour, consistently involving transport and violence.¹

Young males are hospitalised for injury at more than twice the rate of females.¹

THE FACTS

Who is an adolescent?

Perspectives regarding the age range of 'adolescents' vary from study to study, often starting in the early teens and ending in the late teens. This factsheet focuses on young people aged 10 to 16 years.

Injury during adolescence

- Injury is the leading cause of death and disability among Australia's young people, with more deaths among adolescents being a result of injury than all other causes combined.¹
- Injury is also a primary cause of hospitalisation among young people, and the leading cause of hospitalisations for young males.²
- Injury rates increase dramatically between 12-14 years and 15-17 years of age. The Australian Institute of Health and Welfare (AIHW) reported that "the proportion of all deaths due to injury differed by age – accounting for 38% of all deaths among 12-14 year olds, 66% of all deaths for 15-17 year olds, and 71% of all deaths among those aged 18-24 years in 2005".²
- In 2004, injury was estimated to contribute more than \$4 billion per year to the costs of the health system in Australia.³

- The fact that the rate of death due to injury increases considerably between 12-14 and 15 years and older indicates the need for a preventive intervention in early adolescence.
- Injury prevention and control strategies are essential to mitigate the major increase in injury incidence that begins in adolescence.

Major mechanisms of adolescent injury

A number of recent Australian reports regarding injury indicate that adolescent injury is a major and ongoing concern.

In Australia:

- In 2005, the primary cause of injury deaths among persons aged younger than 15 years was transport accidents (35%). The main injury causes of hospitalisations included falls (38%), transport and pedestrian accidents (14%) and contact (including impact with objects or another person) and crushing injuries (8%).²
- Injury hospitalisation rates among young males were more than twice that of young females.²

In Queensland:

Patterns of injury in Queensland are similar to those for Australia overall:

- Between 2002 and 2007, transport-related accidents and self-harm were the leading causes of death among adolescents. The main injury causes of hospitalisations amongst adolescents included contact injuries, falls and transport accidents (see Table 1 overleaf).⁴
- In the 10-14 year age group, contact injuries (particularly with other people), accounted for over 40% of the causes of injuries to males and 20% for females, while fall injuries accounted for 60% of female injuries and 43% of male injuries.⁴
- Injury hospitalisation rates among young males were almost twice that of young females.⁴

Risk-taking and injury

- Whilst the risk-taking behaviour of adolescents can be considered a normative developmental process⁵, it undoubtedly has serious injury consequences.
- Adolescents and young adults are particularly vulnerable to injury because development of executive brain function and appreciation of risk is continuing in this period.⁶⁻⁷ Adolescence is also a time of heightened risk of injury due to increasing exposure to adult

Table 1. Mechanism of injury requiring hospitalisation among 10-14 year olds in Queensland, by gender (%) [Queensland Injury Surveillance Unit (QISU) data]⁴

Age group (years)		
Mechanism of injury	Males: 10-14 yrs	Females: 10-14 yrs
Contact	71.8	49.1
Falls	61	84.5
Transport	30.8	18
Heat	2.5	3.6
Poisoning	0.9	0.9
Cutting/crushing	17.4	17.9
Foreign body	1.8	2.2
Exertion	4.9	9.3
Animals/stings	4.3	7.9
Other/unspecified	4.5	6.6

activities such as alcohol use, sexual relationships, driving and employment typically in situations of decreasing parental supervision.⁶

- Much of the injury among young people is associated with risk-taking behaviour, including transport accidents and violence, both of which can occur in association with underage alcohol use. An international study found that 11-15 year olds who reported the highest number of risk-taking behaviours were nearly three times more likely to report medically treated injuries.⁸

Major adolescent risk-taking issues

Alcohol use

- Alcohol is arguably the most significant risk factor for adolescent injury and death, particularly transport accidents and suicide.⁹
- Alcohol is the most commonly used drug amongst young Australians.²
- Alcohol consumption increases injury risk through increased exposure to dangerous circumstances and a direct biological effect negatively affecting perceptions of, and responses to, dangerous circumstances.¹⁰ Alcohol use can also potentially cause physiological harm to the liver and brain.¹¹⁻¹²
- Alcohol use was higher for Australian youth, with over one third of 12-14 year olds reporting use in the past 30 days.¹³ Australian adolescents tend to drink more heavily in a single session than adults, and at levels

that risk short-term harm.¹

- A recent report conducted in Australia revealed that, among adolescents aged 12-15 years, slightly higher proportions of females are considered to be 'risky and high risk' drinkers than males (10% and 6%, respectively).¹⁴
- In Australia in 1998, transport accidents were the largest contributor to alcohol-related injury deaths among young males, followed by self-harm and interpersonal violence. Transport factors also appeared to be the largest contributor to alcohol-related injuries requiring hospitalisation among young males.¹
- Early intervention programs targeted at adolescents showing signs of problematic drinking have been shown to prevent more severe alcohol use behaviours and reduce negative outcomes.¹⁵

Transport-related injuries

- Young people are over-represented in Australian road crashes, and transport crashes are the leading cause of hospitalisation among young people.¹⁶
- Mortality rates resulting from injury among young people reveal strong associations with risk-taking behaviour, particularly those involving transport-related injuries.¹⁷
- A study conducted between 1996-2000, using data collected by NSW Police at the scene of motor vehicle crashes, recorded 526 crashes

involving an underage driver, with the majority of underage drivers being male and 84% of crashes leaving the driver injured or killed.¹⁹

- Drink driving, or more particularly being a passenger of a drink driver, are also risk behaviours that can lead to motor vehicle crash related injuries among young people.^{18,20}

Who is at highest risk?

- Research with adolescents has revealed that risk-taking behaviour is more prevalent among males, early school leavers, as well as youths with less parental supervision, peers who also actively engage in risk-taking behaviour, negative attitudes to authority and high alcohol use.²¹
- Males have been found to be more likely to engage in risk-taking behaviour compared to females from an early age (eg. 3 years old), less likely to believe that they will get hurt when taking risks and more likely to see injury as a product of bad luck rather than a result of controllable behaviours (ie. optimism bias).²²⁻²³
- Males are over-represented in injury statistics from as early as preschool age.⁴
- Throughout the period 1993-94 to 2000-01, young Australian males were hospitalised for injury at more than twice the rate of females and mortality data has revealed that more than 1,600 young male deaths each year are caused by injury.¹⁶
- A number of personality factors have also been found to be correlated with increased risk-taking among youth, including greater levels of risk tolerance, sensation seeking and impulsivity.^{24,25,26}

PROTECTIVE FACTORS

The likelihood that injury occurs as a result of adolescent risk-taking is related to the social context and individual factors. The likelihood of adolescent injury risks is reduced if:

- the adolescent has had training in *attitudes* towards injury avoidance and risk management. Such training should take into account personal attitudes to risk-taking²¹;
- The adolescent is a member of a *school community* marked by connectedness and support. The extent to which a student feels

personally accepted, respected, included and supported by others in school has shown to be related to increased student retention, decreases in delinquency, aggression and violent behaviour, and reduced substance abuse;²⁷⁻²⁸

- *Peers* are more likely to take protective steps to care for each other. Typically adolescents' friends are considered a risk factor for adolescent engagement in risk-taking; however they can also be a protective factor. A recent CARRS-Q study revealed that more than half the surveyed adolescents indicated that they would intervene in friends' alcohol, drug use, alcohol-related harms and interpersonal violence. Intervening was associated with being female, having friends engage in overall less risk-taking and having greater school connectedness;²⁹ and,
- The adolescent has close and supportive *family* associations.³⁰

CARRS-Q'S WORK IN THIS AREA

- Skills for Preventing Injury to Youth Program (SPIY): CARRS-Q developed and trialled a curriculum program for early adolescents aimed at reducing risk-taking behaviour by increasing protective behaviour toward friends and improving first aid skills. The program is primarily a set of classroom activities structured over 8 weeks (50 minute lessons) targeted at Year 9 Health students aged 13-14 years. The intervention proved effective when trialled in a sample of south-east Queensland State Education schools in 2006. Currently CARRS-Q is awaiting notification on funding approval to conduct a large scale trial and evaluation of the program. Funding has also been obtained to conduct a smaller trial in the Australian Capital Territory which will trial an additional school connectedness component;
- Examination of peer friendship as a protective factor in adolescent engagement in risk-taking and an investigation of friends' potential to intervene to reduce risk-taking;
- Exploring the importance of school connectedness in adolescent risk-taking and injury prevention;
- An examination of adolescent peer protective behaviour as a potential strategy to reduce alcohol and drug

related harms;

- Development of a web-based intervention to improve young adult passenger safety;
- Compilation of a comprehensive report⁴ to the Queensland Injury Prevention Council on Injury Prevention in Queensland reviewing current injury statistics and injury prevention initiatives and providing recommendations for the future;
- Development and evaluation of the PASS (Plan a Safe Strategy) Program. PASS aimed to weaken students' intentions to drink and drive, or to be the passenger of a drink driver, and to strengthen their intentions to use alternative strategies to avoid these situations. Twelve lessons were delivered to 60,000 Year 10 (14-15 year old) students and the ongoing evaluation of the PASS Program has been conducted for more than 20 years. CARRS-Q is currently investigating hospitalisation data from this group to examine the pattern of injuries from young people over the past 10-15 years. In 2000, PASS was awarded outstanding intervention status in Australia and received the USA Promising Program Award from the Department of Health and Human Services, USA, National Register of Effective Prevention Programs in recognition of its significant contribution to the international substance abuse prevention field.

FUTURE DIRECTIONS

Injury prevention has been recognised by Australian, state and territory ministers as a key national health priority since 1986. The Queensland Government has recently commissioned a major review (conducted by CARRS-Q) of the status of injury and related interventions across the state. *Strategic Directions for Injury Prevention and Safety Promotion 2009-12*³¹ and the *National Injury Prevention and Safety Promotion Plan*³² details the respective Queensland and Australian plans for reducing injury across the life stages. Potential future directions include:

- The development, widespread implementation and evaluation of an effective curriculum targeting early adolescents aimed at reducing risk-taking behaviour, especially

associated with alcohol consumption, transport and violence, and increasing protective behaviour toward friends;

- The development, implementation and evaluation of school and community programs to encourage adolescent support, protective behaviours and school connectedness;
- The development of social marketing and enforcement to encourage the use of protective equipment (eg. helmets) when playing sport and riding bicycles, skateboards, etc;
- The development of interventions to educate parents, educators and caregivers about adolescent injury and risk-taking dangers, and to provide appropriate messages and recommended action to assist their support of young people through the adolescent years (eg. awareness of the benefits of cars with a high level of crash protection for young drivers and importance of supervised practice for learner drivers);
- Maximise enforcement practices regarding under-age and unlicensed driving and riding, helmet wearing, underage drinking and the service of alcohol to under-age persons in licensed premises, drug possession and sale, etc; and,
- Encourage and support the adoption of liquor outlet management strategies (eg. lockouts) to reduce excessive alcohol consumption and alcohol-fuelled violence.



FOR MORE INFORMATION

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See also:

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