Bicycle safety

- Each year, an average of almost 40 cyclists are killed and more than 1,000 suffer high-threat-to-life injuries on Australian public roads[1,2].
- Bicycle sales outstrip motor vehicle sales annually[2].
- As more and more people are turning to bicycle riding for health and transport needs, improving the safety of cyclists is a priority.

State of the Road A Fact Sheet of the Centre for Accident Research & Road Safety - Queensland (CARRS-Q)

THE FACTS

- Cycling is an important form of transport and recreation for many Australians. It is accessible to a wide range of people and has significant health and environmental benefits for the community[3].
- Bicycles outsell cars each year. Over 1.3 million bikes were sold in 2010. These figures represent a 12% increase from the previous year and a 67% increase from 2001[4].
- Gearing up for active and sustainable communities: *National cycling strategy 2011-2016*[3] aimed to double the number of people cycling by 2016 but the latest data suggests that this is unlikely to be achieved[5].
- Unfortunately, the various sources of data regarding cycling provide inconsistent views on cycling trends. During the period 2011-2015, there was no statistically significant change in the percentage of respondents cycling in the previous week, and a decline in cycling in the past month and in the past year[5].
- In 2015, 49% of Australian children aged under 10 years had ridden a bicycle in the last week, compared to 37% aged 10-17, 11% of adults aged 18-29, 13% aged 30-49, and 5% aged over 50[5].
- At every age group, the percentage of the population cycling is higher for males than females[5].
- More people ride for recreation than for transport. Among those who rode in the last week, the percentage riding for recreation has increased from 2011 to 2015. There was a significant decrease in cycling for commuting between 2013 and 2015[5].
- Observational studies by CARRS-Q[6] showed a 28% increase in bicycle riders in the Brisbane CBD from 2010 to 2012. The greatest increase was in the morning peak (43%), suggesting a growth in the use of bicycles for commuting to work in the city.

Always wear a properly fitted bike helmet and highly visible clothing.

Cycling fatalities and injuries

- Many road crashes involving cyclists are not reported to police, particularly those that do not involve a motor vehicle. Therefore road crash data underestimate the number of cyclists injured and give a very different pattern of cyclist crashes than hospital data. For example, across Australia in 2013 cyclists made up 4.4% of all police-reported traffic injuries but about 15% of hospital-reported traffic injuries[7].
- During 2008-2013, in Australia[7]:
  - There were 120 fatalities in 2011-2013 compared to 99 in 2008-2010;
  - Almost a quarter of the fatalities did not involve a motor vehicle;
  - In two-vehicle bicycle crashes, almost a quarter of the fatal crashes involved a heavy vehicle (compared with 3% of injury crashes);
  - For injured child cyclists, crashes involving vehicles moving from the footway or the driveway were common; and
  - For adult cyclists, cross traffic, opposing direction and sideswipe crashes were more common.
- In 2010-2014, cyclists comprised 3.7% of Queensland traffic fatalities, up from 2.3% in 2005-2009. In 2011, cyclists comprised 15.2% of all traffic hospitalisations in Queensland, an increase over previous years[7].

Cycle safety changes

- Recognising the positive health, economic and environmental gains of cycling, much has been done in recent years in an effort to reduce bicycle fatalities and injuries and improve the safety of this vulnerable road user group.
- Australia was the first country to introduce compulsory cycle helmet legislation in 1991. It was a major safety improvement. The Cochrane review of bicycle helmet effectiveness[8] found that helmets provide a 63-88% reduction in the risk of head, brain and severe brain injury for cyclists of all ages. Analyses of Queensland data by CARRS-Q[9] found reductions of 60% in the likelihood of head injury, 53% for serious head injury and 58% for head and/or facial injury associated with wearing a helmet. Injuries to other body regions did not differ noticeably between helmet wearing riders and non-helmeted riders, except for shoulder and upper limb injuries.
- The Queensland Cycle Strategy[10] provides strategic direction for promoting safe cycling across the state, and has a target to double cycling's share of commuter trips by 2021 and triple these by 2031.
- Greater attention has been paid in recent years to the provision of bike lanes and shared use paths to increase cyclist safety. In all Australian states, children under 12 years of age are allowed to ride on footpaths and in Queensland, South Australia, Tasmania, Northern Territory and the ACT cycling on footpaths is legal for all ages. A CARRS-Q review of international evidence related to the safety of footpath cycling[11] concluded that many

of the studies reporting concerns for cyclist safety on footpaths were based on low-severity crashes, while there is little evidence that footpath cycling contributes to serious injuries to pedestrians. Indeed, it may provide cyclists with an option to avoid collisions with motor vehicles. The challenge occurs when cyclists are riding on the footpath in the opposite direction to traffic and not being noticed by drivers when the cyclists leave the footpath to cross intersections. From a public health perspective, the opportunity to ride on the footpath may act to encourage cycling (particularly among new cyclists) because it is perceived to be less dangerous than riding on the road.

TIPS FOR STAYING SAFE

- Wear a standards approved and properly fitted **bicycle helmet**.
- **Obey the road rules.**
- Wear **highly visible** light coloured or reflective clothing.
- **Fit bicycle lights/reflectors** for early morning, evening and night riding.
- Ensure the **bicycle is correctly sized** for the rider (the rider should be able to place their feet flat on the ground when sitting on the bike seat). For children particularly, a bicycle is not something to "grow into". An incorrectly sized bicycle will be difficult to handle and places the rider at increased risk of injury.
- Children under the age of 10 years have limited peripheral vision and are poor judges of the speed of approaching vehicles. Children under this age need **adult supervision** to ride safely.
- Where possible, **select travel routes** where cyclists are separated from other road users (e.g. bicycle paths).
- Do not assume that riding on a bike path/footpath is without risk. **Constant vigilance** remains essential to give way to pedestrians and avoid surface hazards.
- **Allow plenty of space** for pedestrian and vehicular traffic and adequate time for crossings.
- **Dismount and cross at controlled intersection points.**
- Do not assume other road users have seen you just because you can see them. Try to **establish eye contact** with the driver before crossing.

CARRS-Q'S WORK IN THE AREA

- Evaluation of the minimum passing distance road rule[12].
- Improving the visibility and safety of pedestrians, road-workers and cyclists.
- Usage and outcomes of public bicycle schemes[13].
- The role of fear and perceived risk in decisions to ride or not[14,15].
- How bicycle-specific and other road infrastructure affects cycling safety.
- Evaluation of laws related to cycling.
- The use of intelligent transport systems (ITS) to increase safety[16].

FUTURE DIRECTIONS

- The development of best practice safe cycling education interventions for cyclists and other road/path users.
- Consideration of cycling in safety audits and black spot identification programs.
- Continuous monitoring to reduce hazards such as surfacing irregularities and oversee road/path upgrades.
- Improved traffic engineering measures and cycle path/road networks allowing for greater coverage, linkage, separation from vehicular and pedestrian traffic, adequate lighting, vision around corners and single direction paths.
- Improved vehicle design to reduce cyclist injury in the event of a crash with a motor vehicle. 4WD's with their raised height and increased weight cause greater injury to pedestrians, cyclists and motorcyclists.
- Improved reporting of bicycle injuries. Official statistics on cyclist injury crashes in Queensland are based on hospital data and police crash reports which, while accurately report fatalities, are known to under-report non-fatal injury crashes[17].
- The research and trial of measures to improve safety for cyclists.
- ITS solutions to increase safety[18].

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CARRS-Q is a joint venture initiative of the Motor Accident Insurance Commission and Queensland University of Technology

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Fact Sheet current as at April 2016