

# Bicycle safety



- Bicycle riding has many health and environmental benefits<sup>1</sup> but safety concerns limit participation in Australia and other low-cycling countries.
- From 2010-11 to 2015-16, the number of cyclists hospitalised from road crashes per 100,000 population increased by 4.7% per year while the rate fell for motor vehicle occupants and pedestrians<sup>2</sup>.
- Each year, an average of about 38 cyclists are killed and about 7,000 are hospitalised as a result of crashes on Australian public roads<sup>3</sup>.

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

### THE FACTS

#### Cycling participation

- 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<sup>1</sup>.
- Cycling strategies<sup>4</sup> aim to get more people cycling more often but the latest data suggests that current goals are unlikely to be achieved.
- Almost half of Australian households have at least one bicycle in working order<sup>5</sup>.
- The percentage of Australians who reported riding a bicycle over the past month declined from 27.1% in 2011 to 21.4% in 2015<sup>5</sup>.
- However, counts of people riding in cities and on bike paths show consistent increases. For example, CARRS-Q observations showed a 150% increase in bicycle riders in the Brisbane CBD from 2010-2019<sup>6,7</sup>.
- In Australia, for every age group, more males ride than females, and more people ride for recreation than transport<sup>5</sup>.

#### e-bikes

- In 2019, 2.7% of Australian households had one or more e-bikes<sup>5</sup>.
- While most cyclists ride for recreation, e-bike riders often substitute car or public transport use with bike trips of all types, including commuting to work, shopping, recreation and social activities<sup>8</sup>.
- Further research suggests that e-bike riders tend to be older riders with less riding experience<sup>9</sup>.
- To improve safety, it has been suggested to offer e-bike training to give people experience with vehicle differences (e-bike weight influences handling and braking

capacity), and develop safe infrastructure designs to cater for multi-users including e-bikes. Better data needs to be collected, with regard to e-bike usage, as well as crash and injury reports<sup>8</sup>.

#### Cyclist fatalities and injuries

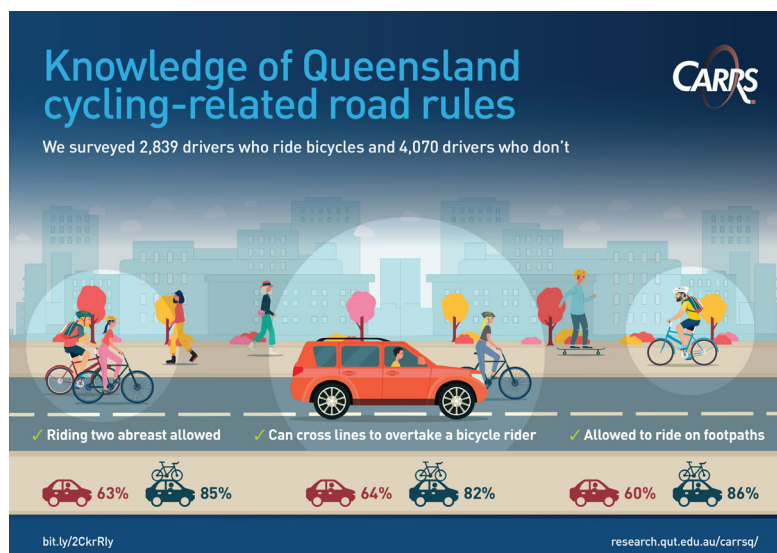
- Cycling fatalities and injuries are counted as road crashes if they occur on roads and footpaths, but not if they occur off-road (i.e. on bikeways, in parks and when mountain biking). Across Australia, about 40% of cyclist hospitalisations result from off-road incidents<sup>2</sup>.
- Many road crashes involving cyclists are not reported to police, particularly those that do not involve a motor vehicle. In 2013, across Australia, cyclists made up 4.4% of all police-reported traffic injuries but about 15% of hospital-reported traffic injuries<sup>10</sup>.
- During 2008-2013, in Australia<sup>7</sup>:
  - About 85% of fatalities involved 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.

Lower traffic speeds or separation from traffic are key for the safety of cyclists

### IMPROVING CYCLING SAFETY

- Safe cycling fundamentally requires slow vehicle speeds to allow safe sharing of the road with motor vehicles, or provision of



separated infrastructure. Shared use paths are common in Australia, but careful design is needed to minimise conflicts with pedestrians<sup>11</sup>.

- Minimum passing distance road rules have been introduced in all Australian states which require all motorists to leave at least 1m between their vehicle and a bicycle when passing a cyclist on a road with a speed limit of 60km/h or lower, and at least 1.5m on a road with a speed limit of more than 60km/h<sup>12</sup>. CARRS-Q research showed 88% of Queensland drivers complied with the rule in the low speed areas, compared to 79% in higher speed areas<sup>12</sup>.
- Cyclists of all ages are allowed to ride on the footpath in all jurisdictions except New South Wales and Victoria. A CARRS-Q review<sup>13</sup> concluded that many of the studies reporting concerns for cyclist safety on footpaths were based on low-severity crashes. There is little evidence that footpath cycling contributes to serious injuries to pedestrians. It may act to encourage cycling (particularly among new cyclists) because it is perceived to be safer than riding on the road.
- Australia was the first country to introduce compulsory bicycle helmet legislation in 1991. The Cochrane review of bicycle helmet effectiveness<sup>14</sup> 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<sup>15</sup> 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. CARRS-Q observations of more than 27,000 cyclists<sup>16</sup> found that over 98% were wearing helmets. The lowest wearing rate (56%) was among boys on local streets in the afternoon.

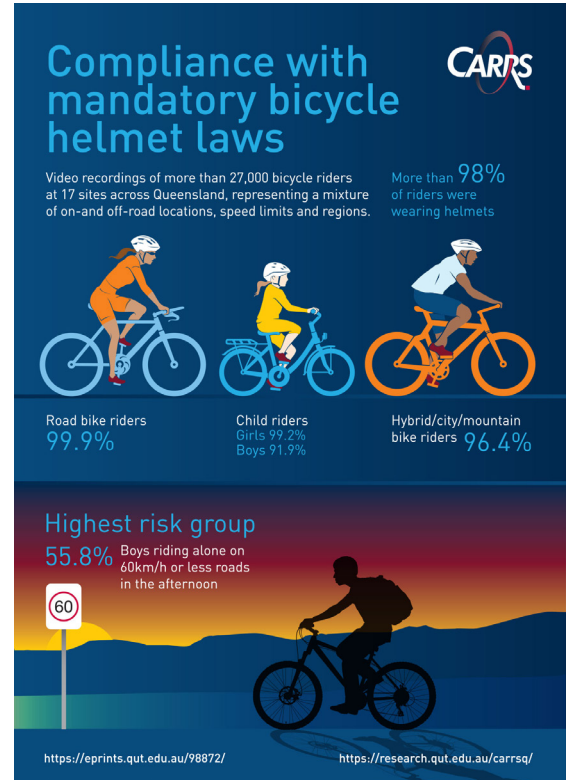
## CARRS-Q RECENT WORK IN THE AREA

- Evaluation of the minimum passing distance road rule (QLD and NSW) and other laws related to cycling.
- The role of fear and perceived risk in decisions to ride or not.
- Driver attitudes and behaviours towards cyclists.
- How bicycle-specific and other road infrastructure affects cycling safety.
- Cyclist warnings when passing pedestrians.
- Driver knowledge of cycling-related road rules in Queensland.
- The use of intelligent transport systems (ITS) to increase safety.

## FUTURE DIRECTIONS

- 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.
- Consideration of cycling in safety audits and black spot identification programs.
- Continuous monitoring to reduce hazards such as road surface irregularities and oversee road/path upgrades.
- Improved vehicle design to reduce cyclist injury in the event of a crash with a motor vehicle e.g. 4WD's with their raised height and increased weight, cause greater injury to pedestrians, cyclists and motorcyclists.

- Development of best practice safe cycling education interventions for drivers and cyclists.
- 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<sup>18</sup>.
- Safety of e-bikes and other e-mobility devices such as e-scooters and e-skateboards.
- ITS solutions to increase safety.



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