



# QUAD BIKE INJURY POSITION PAPER

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# BACKGROUND


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Quad bikes are 4-wheeled vehicles with motorcycle-type controls and seating, designed primarily for off-road use <sup>(1)</sup>. Quad bike related incidents are one of the most common mechanisms for serious and fatal injury on Australian and New Zealand farms <sup>(2, 3)</sup>. Between 2011 and 2020, 160 people in Australia have died from quad bike related incidents, 24 of which were children <sup>(2)</sup>. In New Zealand, 609 people suffered fatal or serious injury from quad bike related incidents between 2010 and 2020 <sup>(3)</sup>. It is estimated that injuries and fatalities occurring from quad bike incidents cost the Australian economy at least \$200 million per year <sup>(8)</sup>, as well as the unquantifiable emotional toll on friends, family, workplaces and the communities of those injured.

Data regarding mortality from quad bike related incidents are generally reliably captured in coronial data and mortality statistics. However, timely non-fatal quad bike injury data are not captured comprehensively by a single organisation in Australia or New Zealand, limiting estimations of the magnitude of effect quad bikes have on injury rates. Four key data sets of non-fatal injury from quad bikes in Australia do, however, show a significant number of non-fatal quad bike injuries occurring in both adults and children each year <sup>(4-7)</sup>.

There is a perception that quad bikes are easy to ride, contributing to complacency in use of protective equipment and in safe operation. Maintaining stability, particularly on slopes, is likely to be outside of the physical capacity of some people. Instability in the design of quad bikes leads to the vehicle's susceptibility to rollover, and increased risk of serious injury or death. Up to 60% of quad bike injuries are from rollovers <sup>(2)</sup>, where a person can be pinned by the vehicle resulting in a crush injury and/or mechanical asphyxia <sup>(9)</sup>. An analysis of Australian fatal quad bike incidents found 70% of cases were pinned under the quad bike <sup>(10)</sup>. Research has shown that quad bike injuries do not discriminate based on a person's level of experience using quad bikes <sup>(11)</sup>.

Children are over-represented in quad bike fatalities, with 15% of quad bike fatalities in Australia between 2011-2020 being children under the age of 16 <sup>(2)</sup>. Children under the age of 16 years are likely to have physical and cognitive challenges depending on their developmental stage which impact on their ability to safely operate a quad bike <sup>(12)</sup>. All manufacturers of quad bikes sold in New Zealand state that children under the age of 16 years should not ride an adult sized quad bike (engine capacity exceeding 90cc) <sup>(13)</sup>.




In October 2020, the Australian Competition and Consumer Commission (ACCC) introduced a mandatory standard for the requirements of new and imported second hand quad bikes in Australia <sup>(14)</sup>. These included the requirement for a label showing risk of rollover, information in the owner's manual for risk of rollover and that the quad be tested for lateral static stability, and show the angle it would tip on a label affixed to the point of sale. Label requirements showing the potential risk of rollover may not be an effective way to communicate the real risk associated with quad bikes, or promote safer choices regarding quad bike choices and use. Previously published research has shown that manufacturer labels neither deter quad bike use by children under 16 years of age, not prevent injuries <sup>(15)</sup>.

From October 2021, all new quad bikes are required to be fitted with an approved protection device to prevent rollover and crush injury <sup>(14)</sup>. These regulations will not apply to quad bikes sold before the indicated dates, meaning the majority of quad bikes currently in use will not provide appropriate protection. Initiatives should be encouraged to address this legacy fleet, including state government-administered incentive schemes which promote retrofitting operator protection devices (OPDs) or purchase of side-by-side vehicles (SSVs) as a safer alternative to quad bikes. Such incentives have been introduced in Victoria, New South Wales and Tasmania to reduce quad bike-related injury <sup>(16-18)</sup>.

The Transport and Road Safety (TARS) research group from the University of New South Wales (UNSW) have developed and proposed a safety rating system for stability, handling, and crashworthiness of quad bikes <sup>(19)</sup>. In concept and aim, this system is similar to the safety rating system currently used for cars; the Australasian New Car Assessment Program (ANCAP). Introduction of a quad bike safety rating system could be used to inform safer consumer purchasing, as well as drive improvements and innovation in vehicle design and safety. Together, these impacts could result in a reduction of quad bike related injuries and fatalities.

Quad bike manufacturers have been critical of Australian safety standards since introduced, and have instead directed attention to driver behaviour as the major reason for the number of injuries and fatalities, shifting focus from the inherent unsafe design of quad bikes. A safety rating system would ensure that manufacturers are transparent and overt in their acknowledgement of the danger of the products they bring into the market. Further, the quad bike safety rating system is strongly supported by the Royal Australasian College of Surgeons and other quad bike injury prevention advocates.

Quad bikes can pose a serious risk to riders. The new mandatory standards are a positive move forward for increasing the safety of new vehicles but do not address the continuing risk



of legacy fleet vehicles and further initiatives are required to reduce the risk of injury and fatality.

## POSITION OF THE AIPN

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The AIPN recognises that:

- Quad bikes are widely used in Australian and New Zealand primary production;
- Children are at particular risk when using quad bikes, regardless of the quad bike's size;
- Reducing the risk of death and serious injury from quad bike rollover through engineering solutions is feasible;
- Farmers and other riders of quad bikes have the right to reduced risk of preventable injury.

The AIPN acknowledges that:

- Approximately 16 people in Australia <sup>(5)</sup>, and 6 people in New Zealand are killed each year <sup>(3)</sup> due to quad bike related incidents;
- Rollover is the dominant cause of quad bike-related injury <sup>(5)</sup>.

## RECOMMENDATIONS

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The AIPN recommends:

- The use of alternative, safer fit-for-purpose vehicles and further exploration of engineering solutions to increase the safety of quad bikes;
- Banning children under the age of 16 from riding quad bikes of any size;
- Continued public awareness campaigns to raise awareness of the risks associated with quad bikes, particularly in relation to children and vehicle selection;
- Promoting the importance of using a suitable helmet;
- Promoting the acquisition of relevant knowledge and skills to enhance safety;

- Safety regulation to support education and information on safety at point of sale;
- Development of state-based initiatives to promote both retrofitting of OPDs to quad bikes, and encourage the sale of SSVs;
- The establishment of a quad bike safety rating system, such as that developed and proposed by TARS;
- Funding of data collection and research into the effectiveness of solutions to provide an evidence base for policy decision making.

## LINKS

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### Aotearoa New Zealand:

- WorkSafe, Vehicles on Farms: Quad bikes <https://www.worksafe.govt.nz/topic-and-industry/agriculture/farm-vehicles/quad-bikes/>
- Accident Compensation Corporation, Quad Bike Safety: Tips on how to stay safe <https://www.nzkgi.org.nz/wp-content/uploads/2016/12/ACC-Quad-Bike-Safety.pdf>
- Waka Kotahi NZ Transport Agency, Quad bikes & ATVs <https://www.nzta.govt.nz/vehicles/vehicle-types/quad-bikes-and-atvs/>


### Australia:

- CARRS-Q, Quad bike safety factsheet <https://research.qut.edu.au/carrsq/wp-content/uploads/sites/45/2020/06/Quad-bike-safety.pdf>
- SafeWork Australia, Quad bike fatality data <https://www.safeworkaustralia.gov.au/quad-bike-fatality-data>

## AUTHORS & ACKNOWLEDGMENTS

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This position paper was prepared by Lauren Pearson (Monash University & Australasian Injury Prevention Network), Dr Kim Vuong (Queensland University of Technology) and approved by



the AIPN Executive Committee. Professor Kirsten Vallmuur (Queensland University of Technology & Jameison Trauma Institute) and Associate Professor Warwick Teague (The Royal Children's Hospital, Murdoch Children's Research Institute & University of Melbourne) are thanked for their expert review of this position paper.

## ABOUT THE AIPN

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The Australasian Injury Prevention Network (AIPN) is the peak body in Australia and New Zealand advocating for injury prevention and safety promotion. The AIPN represents injury researchers, policy makers and practitioners across Australia and New Zealand.

The Australasian Injury Prevention Network acknowledges and pays respects to the First Custodians of the many lands on which its work takes place.

The AIPN has been in operation since 1996.

## DISCLAIMER

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The author(s) declare(s) that there is no conflict of interest.

## CONTACT

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3. WorkSafe. New Zealand Quad bike statistics. New Zealand Government; 2021. Available from: [https://data.worksafe.govt.nz/editorial/quad\\_bikes](https://data.worksafe.govt.nz/editorial/quad_bikes).
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