Speeding

- Speeding is a major factor in serious and fatal traffic crashes.
- The risk of having a crash increases with increasing speed, as does the severity of the crash outcomes[1].
- The severity of injuries resulting from a crash, regardless of its cause, is directly related to the pre-crash speed of the vehicle/s.

Image source: Queensland Police Service

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

THE FACTS

- Speeding is not just driving faster than the posted speed limit for a particular section of road. It is also driving too fast for the prevailing weather, traffic and road conditions[2].
- It is difficult to determine the exact cause of every crash. It is also difficult to identify a single cause, as often more than one factor can contribute to a crash. In fatal crashes, speeding often occurs in combination with other risky driving behaviours, including drink-driving and drug driving[3].
- In 2020 in Queensland, 69 people died as a result of crashes involving speeding drivers. This figure represents 1 in 4 deaths or 25% of the state's road toll[4]. In addition to those killed, another 384 people were seriously injured in 2020 from crashes where speeding was a contributing factor.
- Australia has some of the highest highway and rural speed limits in the world[5]. The Australian Transport and Infrastructure Council asserts that lowering speed limits of regional and remote roads will achieve a reduction in fatality and serious injury risk on these roads. Research has shown that decreasing vehicle speeds by 10 km/h on roads with a speed limit of 100 km/h could result in a 35% reduction in fatal crashes and a 31% reduction in serious injury crashes[6].

Speed and energy transfer in a crash

The severity of injuries resulting from a crash, regardless of its cause, is directly related to the pre-crash speed of the vehicle[7]. When a vehicle crashes there are three collisions that occur[8]:

1. **Collision with another object,** be it a pole or tree, another vehicle or person.
2. **Collision involving the occupants of the vehicle.** At the moment of impact, vehicle occupants still travel at the vehicle pre-crash speed. When the car stops, passengers continue to move forward until they come into contact with part of the vehicle (e.g. an airbag or seat).
3. **"Internal" collision of the organs within the human body.** Even after a passenger has become motionless within the vehicle, internal organs are still moving, colliding with other organs and the skeletal system.

Even small decreases in travel speed can reduce crash and injury severity and save lives.

Speed and injury risk

- There are strong direct relationships between the speed at which we drive or ride, the risk of crash involvement and the injuries sustained in a crash[1,7].
- The probability of injury and the severity of those injuries increases exponentially with vehicle speed[1] (see Figure 1). Even small increases in travelling speeds can have a large effect, with speeding up to 10km/h above the posted limit contributing to around half the speed-related fatal crashes[9]. Speeding up to 20 km/h over the posted limit contributes to around 85% of speed-related fatal crashes.
- The likelihood of surviving a crash decreases rapidly above certain impact speeds, depending on the nature of the collision. Modern vehicle technologies such as seatbelts, airbags, and crumple zones can reduce the severity of injury in the event of a crash[1]. However, crash testing has shown that a relatively small increase of just 16km/h in impact speed can result in kinetic energy levels that exceed the ability of these energy absorbing structures to prevent serious injury[10].

What is the problem with speeding?

- Speeding increases the risk of being involved in a fatal or injury crash[1]. An Australian study showed that 87% of speeding-related casualty crashes in metro areas and 75% of speeding-related casualty crashes in regional areas occurred when drivers were speeding by just 10 km/h or less[11] because:
  - you travel further in the time it takes you to notice and then react to hazards;
  - you are more likely to lose control of your vehicle (e.g. on a curve);
  - other road users may misjudge your speed (i.e. they may think you are travelling at the speed limit); and
  - the faster you go, the longer it takes to stop.
- Even when speeding by a small amount, crash risk increases[11]. For example, research suggests that:
  - in a 60 km/h zone, you're twice as likely to have an injury crash when speeding by 5 km/h over the limit;
  - if you speed at 15 km/h over the limit in a 60 km/h zone, you're 10 times more likely to have an injury crash;
  - on rural roads you're twice as likely to have an injury crash when speeding by 10 km/h over the limit and six times more likely when speeding by 20 km/h.

Who speeds?

- Many of us might inadvertently speed.
- Some people speed because of the perception that they are immune from being caught by police. Such perceptions can relate to enforcement tolerance thresholds applied by police to speed detection equipment to allow for slight variation in speed measurement[12].
- It is illegal to drive at any speed above

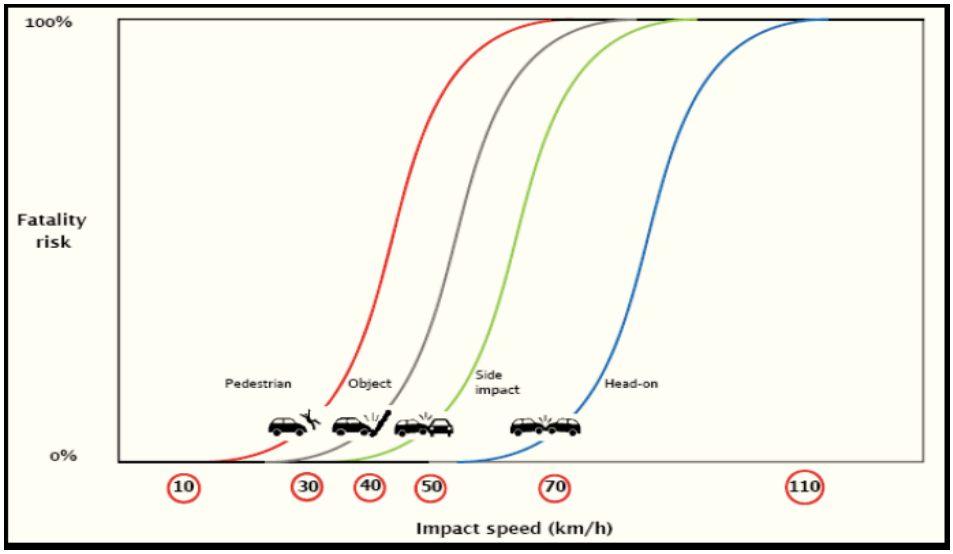

Figure 1 Impact speed vs fatality risk
Source: based on Wramborg, P. (2005). A new approach to a safe and sustainable road structure and street design for urban areas

the posted limit. In Queensland, the enforcement tolerance level used by the police is not published. This means that drivers/riders are likely to be making incorrect assumptions about how fast they can drive without being detected by police. Queensland Police have been incrementally reducing the enforcement tolerance threshold. Their message to the motoring public remains the same: Any speed above the posted speed limit is illegal.

- Certain groups of road users are over-represented in regards to speeding offences and speed related fatalities. For example, males and younger drivers are at a higher risk of committing a speeding offence[13]. People who have committed two or more high-range speeding offences (more than 30 km/h above the speed limit) are also more likely to have committed other driving offences and to have a criminal history[14]. This suggests that those who persistently speed not only disrespect traffic laws but other laws as well.

More speed = faster travel time?

- On most trips, speeding will not save you very much time. For example, on a 10 km journey, you would save less than a minute if increasing your average speed from 60 km/h to 65 km/h. Conversely, on a 100 km journey, a reduction in speed from 110 km/h to 100 km/h added only between 2.2 and 5.5 minutes to the overall travel time[13].
- In-vehicle technology has shown that staying within speed limits, particularly for commuter journeys on urban roads, does not add to your travel time[15]. Keeping to the speed limit may actually assist with reducing traffic congestion by improving traffic flow through reductions in speed variation and improved vehicle headway[1,13]. Use of technology, such as Intelligent Speed Adaptation systems within vehicles, could also lead to a significant reduction in the number of severe crashes[15].
- When travelling faster, more fuel is consumed and vehicles emit more of the gases that contribute to air pollution[1].

Penalties for speeding

- The consequences of speeding include not only a fine and loss of licence, but also potential loss of insurance cover, WorkCover and also possible prosecution for breaches of the Workplace Health and Safety Act.

CARRS-Q RECENT WORK IN THIS AREA

- International review of strategies that have been used to promote public demand for safer speeds on the road. This review, conducted for Austroads, will guide future anti-speeding campaigns.
- International review of point-to-point speed enforcement for Austroads, including the development of recommendations for better practice in the Australian and New Zealand context.
- Examination of offence records of a large sample of motorists who were convicted of speeding, to ascertain characteristics and effectiveness of applied sanctions.
- Examining Speeding Behaviour: An Application of Situational Action Theory (SAT).
- Diagnosing the Fatal Five Road Crash Epidemic.
- Slow Down Move Over Monitoring and Evaluation (WA).
- Road safety messaging trial and evaluation.
- The use of gamified systems, embedded in mobile phone devices, to improve speed related driving decisions.
- Perceptions of the likelihood of being apprehended for speeding offences on reported driving behaviour.

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