

Lost futures: The global burden of injuries on children

Road traffic crashes are now the leading global cause of death for children and young people adults between the ages of 5-29.¹ The victims of road traffic crashes are part of a neglected epidemic unfolding on our streets, too often unseen or ignored.

There are a number of models that estimate the numbers of deaths from road traffic injuries.² The Global Burden of Disease (GBD) study by the Institute for Health Metrics and Evaluation (IHME), which estimates causes of death and injury for every country in the world,³ concludes (Figure 1):

- Over 1.24 million people are killed in a road crash each year globally – nearly double the number that die from malaria (620k) and a quarter higher than die from infections related to HIV (955k).⁴
- A further 50 million people suffer injuries in road traffic crashes each year. The impacts of road injuries can last many years; over 150 million people globally were estimated to be living with ongoing injuries from a road traffic crash.⁵

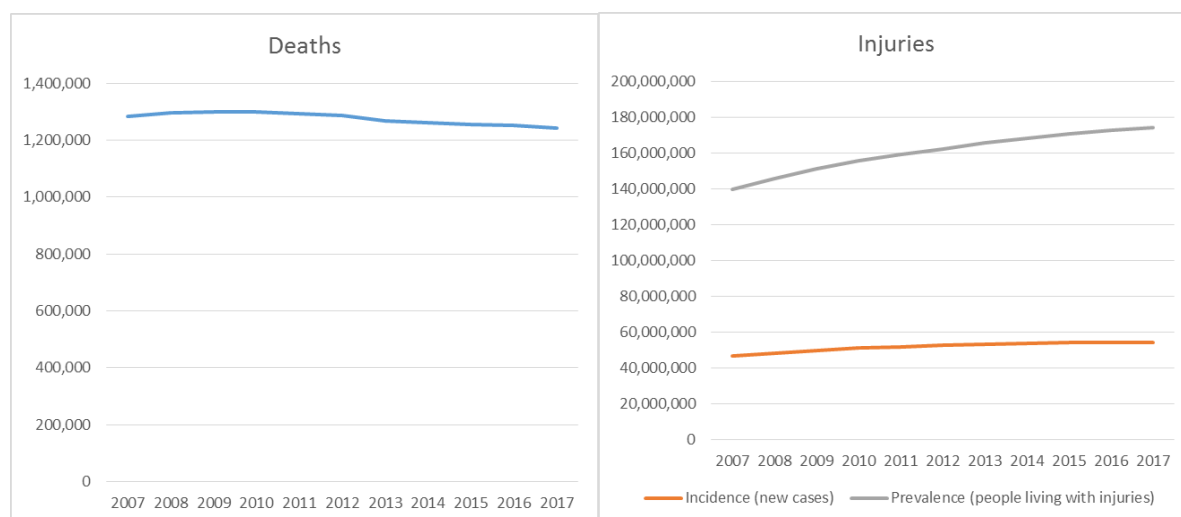


Figure 1 Deaths and Injuries – Source GBD 2017

Children and young people are particularly vulnerable to road traffic injuries. Children progress from total dependence on caregivers in infancy to increasing autonomy in adolescence. There is a transition across this period from children being predominately passengers and accompanied pedestrians, to active riders, drivers and independent explorers, and these are reflected in the risks they face, and the responsibility to make.

¹ WHO (2018) Road traffic injuries factsheet <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>

² This analysis focuses on the Global Burden of Disease as this has deeper tools for comparing between causes of death, exploring injuries and impacts on children and adolescents. However, World Health Organization (2018) Global Status Report on road safety is considered the authoritative estimate for overall deaths https://www.who.int/violence_injury_prevention/road_safety_status/2018/en/

³ Global Burden of Disease Study 2017 (GBD 2017) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2018. Available from <http://ghdx.healthdata.org/gbd-results-tool>

⁴ Source: GBD (2017) Road traffic injury: <http://ihmeuw.org/4zoo> HIV data - note, deaths are from infections associated with HIV: <http://ihmeuw.org/4zom>; Malaria: <http://ihmeuw.org/4zon>

⁵ GBD (2017) <http://ihmeuw.org/4zot>

The US Academy of Sciences concludes that this is “a critical period of development during which key areas of the brain develop and mature... Adolescents must explore and take risks to build the cognitive, social, and emotional skills necessary for productivity in adulthood.” It concludes that society has a “responsibility to protect and support them in their growth”, by making streets safe.⁶

The study estimates that over 10.5 million children and young people are injured in road traffic crashes each year, in addition to 186,000 road traffic deaths of those aged under 20. Nearly 7 million children and young people were living with road injuries at any point (Figure 2).⁷

Over 10.5 million children and young people are injured each year globally by road traffic injuries.

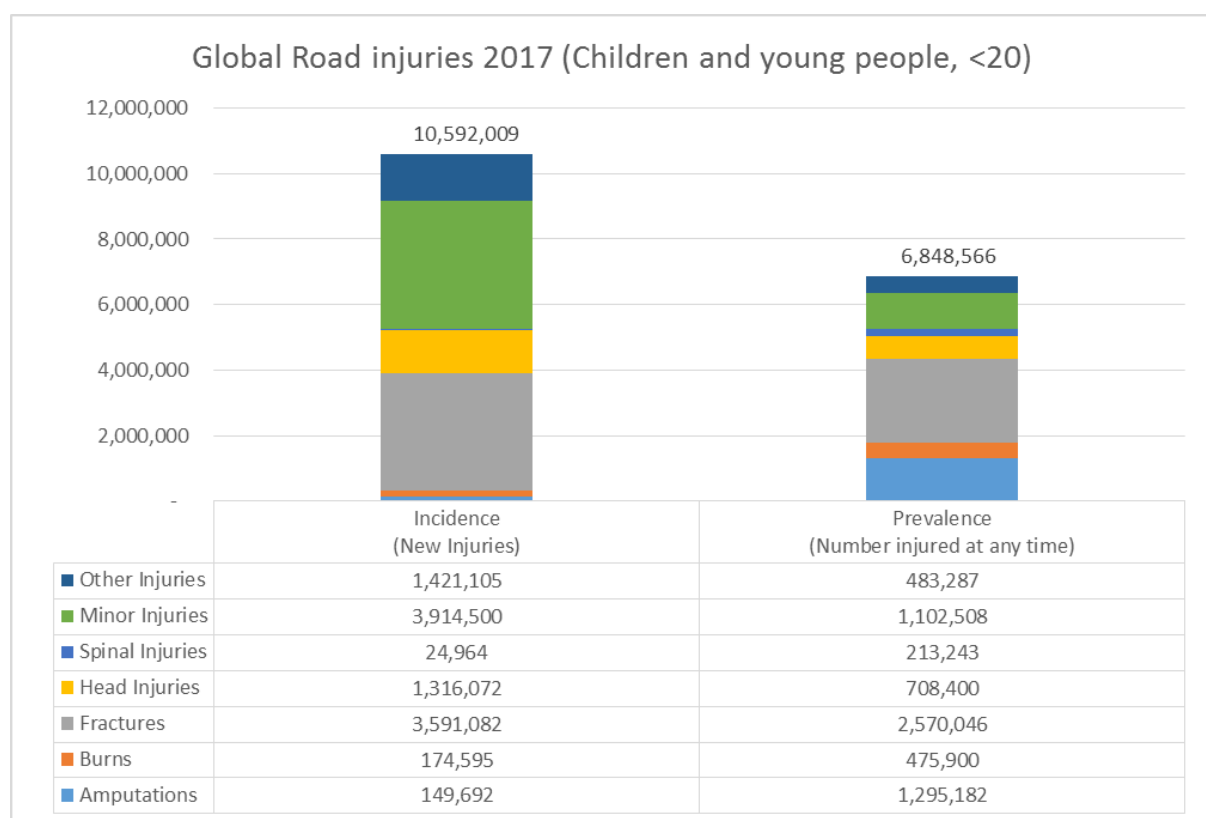


Figure 2 Injuries for children and young people – Source GBD 2017

The burden of road injuries goes beyond the immediate pain and trauma of a crash incident, with the costs of treatment and missed education and employment often extending to include long-term care and ongoing financial and economic costs. While many will recover fully from their injuries, others are left with lasting impairments that fundamentally change their life experiences and trajectory.

Purely in financial terms, the ongoing costs of serious road injuries are massive. A study by the US government’s National Highway Traffic Safety Administration (NHTSA) estimated the economic costs

⁶ National Academies of Sciences, Engineering, and Medicine (2019) The Promise of Adolescence: Realizing Opportunity for All Youth. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25388>.

⁷ GBD (2017)

of road traffic crashes in the country at \$242 billion annually. When a value for loss of quality of life was also included in their assessment, the total cost of societal harm increased to \$836 billion – principally due to the devastating loss due to fatalities (valued at nearly \$8 million each) and serious injuries (an average of \$4.5 million for the most serious cases).⁸ On average, the World Health Organisation (WHO) estimates that road traffic crashes cost most countries 3% of their GDP each year.⁹

Of course, in our inter-connected world with increasing global travel, the safety of roads and vehicles everywhere is a major concern for everyone. Road crashes are the single greatest annual cause of death of U.S. citizens traveling abroad,¹⁰ and a major risk for travellers in developing countries. While rates of death are often higher in low income countries, better safety measures and post-crash emergency care in developed countries mean that survival rates for serious injuries are better, but this improved care can be associated with substantial long-term costs.

One way of shining a spotlight on these is to examine data from the Transport Accident Commission (TAC) in Victoria State, Australia. The TAC is a unique public body that exists to provide financial support to people injured in crashes in the State, funded by a mandatory registration charge on motorists. Because the TAC covers the costs of road injuries, they work hard to reduce the frequency and severity of injuries in the State, and advocate for improved road safety. The FIA Foundation's partner the International Road Assessment Programme (iRAP) is working closely with the TAC to draw wider insights from its data.

In 2018/19 alone, the TAC paid out A\$1.6 billion to more than 58,000 people who were involved in a crash. The Commission's average payment in the case of death was A\$170,000, but the ongoing long-term costs of the most serious injuries means that in these cases (e.g. traumatic brain and spinal injuries), the average cost is estimated to be over twelve times higher at A\$2.25 million.¹¹ 84% of claim costs across all injury types are for ongoing care and support more than 2 years after the crash itself.

The cost of care for traumatic brain and spinal injuries are twelve times higher than average road traffic injuries. 84% of claim costs are for ongoing support and care

⁸ Blincoe, L. J., Miller, T. R., Zaloshnja, E., & Lawrence, B. A. (2015, May). The economic and societal impact of motor vehicle crashes, 2010. (Revised) (Report No. DOT HS 812 013). Washington, DC: National Highway Traffic Safety Administration. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812013>

⁹ <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>

¹⁰ Association for Safe International Road Travel 'Road Safety Facts' <https://www.asirt.org/safe-travel/road-safety-facts/> Accessed 6 February 2020

¹¹ Traffic Accident Commission of Victoria 'What we do' Accessed 6 February 2020 <http://www.tac.vic.gov.au/about-the-tac/our-organisation/what-we-do>

Small children are less able to judge vehicle speeds and assess risk, and may be harder for drivers to spot.¹² Worldwide approximately half of road traffic deaths among children aged 5-14 were pedestrians (Figure 3).¹³ Around a third road traffic deaths were in motor vehicles. While motorcycle and cycle injuries are smaller proportions of deaths, they are also responsible for a considerable part of the injury burden for this age group, a fact that reinforces the importance of wearing helmets.

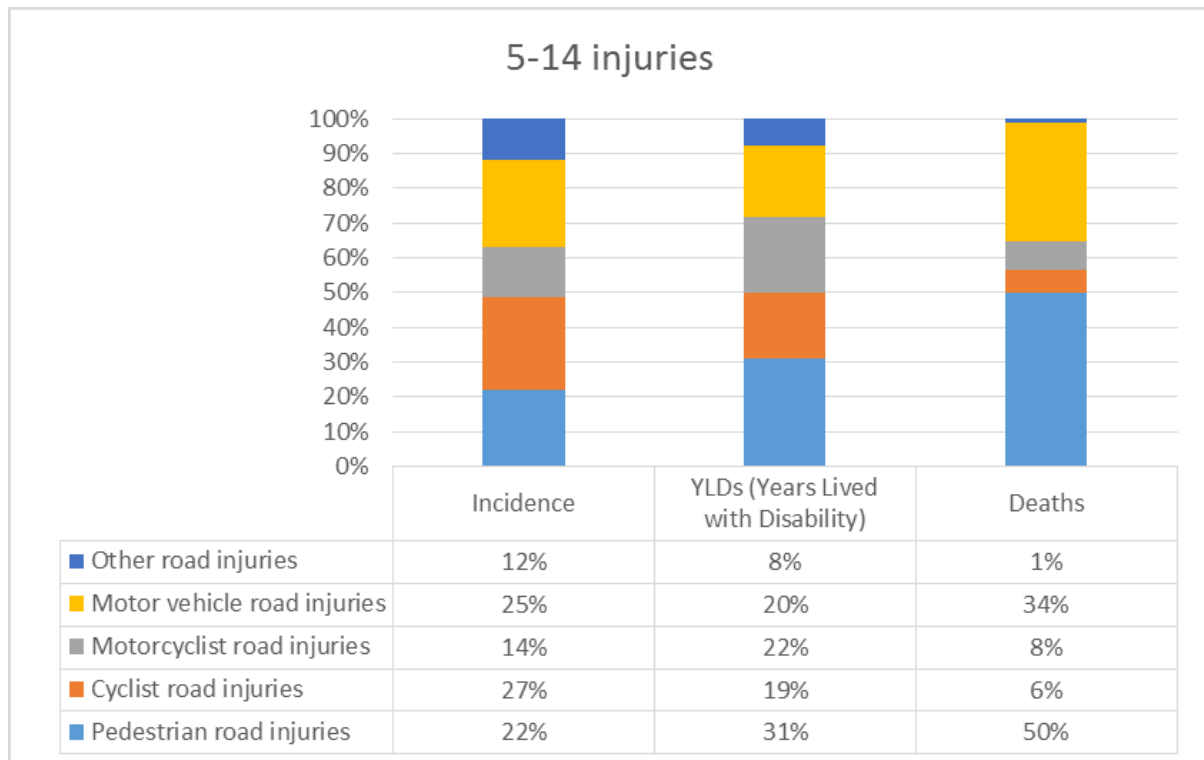


Figure 3 Road traffic injuries and death by mode of transport – GBD 2017

Children and adolescents are particularly vulnerable to serious injuries, and often have the longest ongoing healthcare costs because of their age and physiology. The average cost to TAC of injuries in Victoria over the past decade was almost three times higher for child pedestrians aged 5 to 19 (A\$256k) than for those over the age of 20 (A\$87k).¹⁴

The average costs of pedestrian injuries for those aged 5 to 9 were particularly high – each case costing on average nearly one million Australian dollars (Figure 4). Reducing vehicle speeds in built up areas and improving pedestrian infrastructure are ways to reduce the risks of serious injuries.

¹² Peden et al (2008) World Report on Child Injury Prevention, WHO

<https://www.ncbi.nlm.nih.gov/books/NBK310645/>

¹³ IHME (2017) <http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api-2017-permalink/19cb8d063d7286390b2ec0c5fc4c727b>

¹⁴ The data covers 11 years (2006 – 2016)

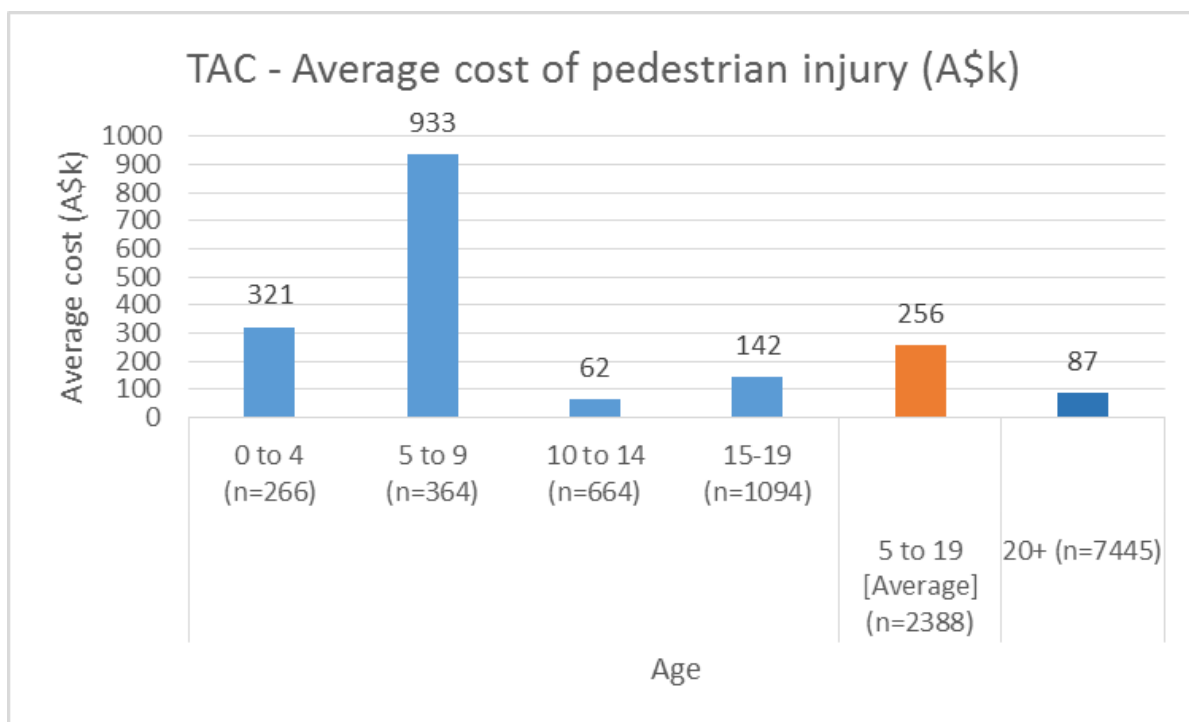


Figure 4 Average cost of pedestrian injuries – Victoria Traffic Accident Commission

The Global Burden of Disease study estimates that over a million children and young people suffered head injuries as a result of road traffic crashes in 2017.¹⁵ The softness of children’s heads make them more susceptible to serious head injuries than adults if they are involved in a road traffic crash.¹⁶ In the case of Victoria, severe brain injuries were less than 1% of claims, but accounted for around half of all the TAC’s total payments for children aged 5 to 19, with pedestrians around half of these cases.¹⁷ In total, over A\$1 billion has been spent out on serious Acute Brain Injury for children aged 5-19 in Victoria in little over a decade, with the majority of these costs spent on long-term care. These injuries are replicated all around the world. Global estimates suggest that Traumatic Brain Injury (TBI) is estimated to cost \$US400 billion annually, with road injuries the highest cause in many countries.¹⁸

¹⁵ GBD 2017 – <http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api-2017-permalink/a90198a4c5838906a427f2e9caaa2341>

¹⁶ WHO (2015) Why are so many children killed in road traffic crashes? Online Q and A Updated May 2015 Accessed February 2020 <https://www.who.int/features/qa/59/en/>

¹⁷ TAC data

¹⁸ Maas et al (2017) Traumatic brain injury: integrated approaches to improve prevention, clinical care, and research The Lancet Neurology Commission 2017; 16: 987–1048 [http://dx.doi.org/10.1016/S1474-4422\(17\)30371-X](http://dx.doi.org/10.1016/S1474-4422(17)30371-X)

Over 3.5 million children and young people suffering fractures globally, making up around a third of all road injuries for this age group. Among 5 to 14 year olds, the highest health burden (as measured by Years Lived with a Disability - YLD) is from fractures and also head injuries (Figure 5).¹⁹ Although there are relatively low numbers of spinal cases, these have a far higher long-term impact. While spinal injuries comprise just 0.2% of road injuries for this age group, the seriousness of these cases mean that they are estimated to comprise 14% of the health burden from road traffic crashes for children and young people.²⁰ On average, cases of Quadriplegia as a result of road traffic crashes among children in Victoria are estimated to have a lifetime cost of over A\$30m, with each Paraplegia case also costing several million dollars, and representing significant additional challenges to be overcome.²¹

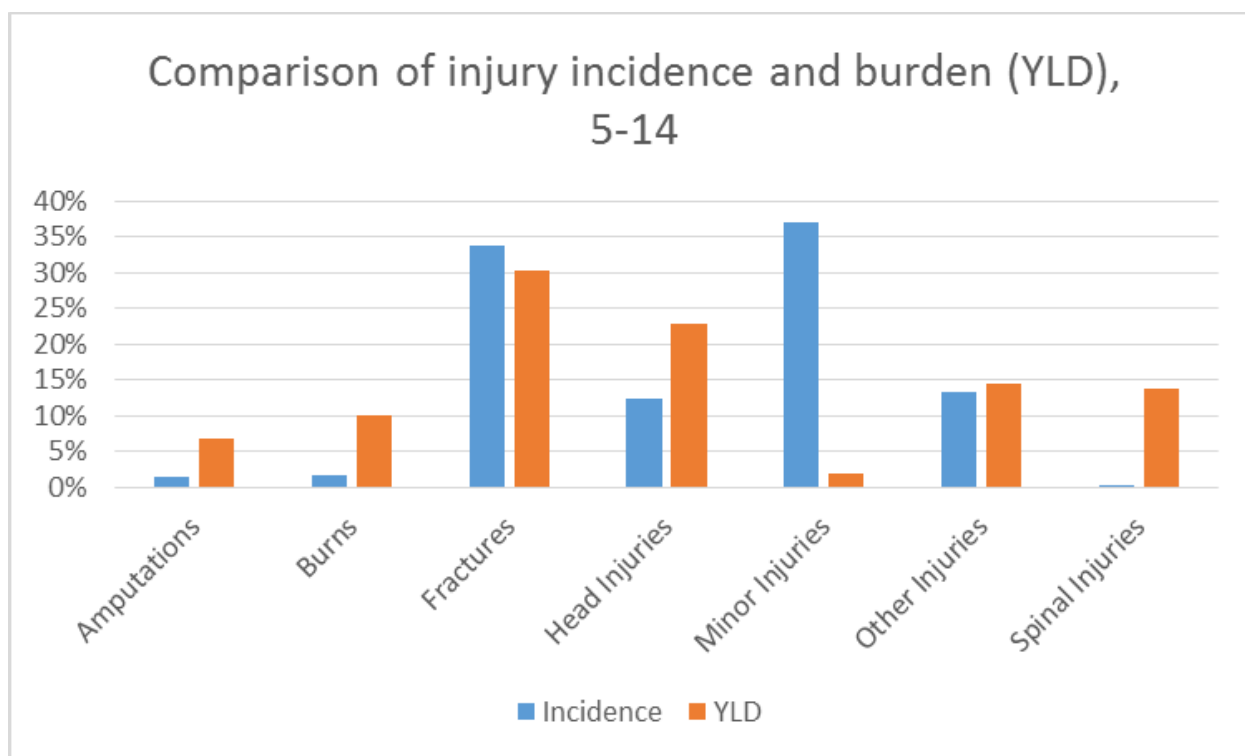


Figure 5 Relative proportion of injuries and health burden from road traffic injuries for children 5-14 – GBD 2017

¹⁹ GBD2017 <http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api-2017-permalink/51acce191036cf70990d2e88501eca2>

²⁰ This compares proportion of incidence with Years Lived with a Disability. GBD2017

²¹ TAC data

Road traffic injuries are devastating the lives and futures of children around the road. It's not just the deaths and health impacts of serious injuries, it's also the time spent missing school in recovery. On average, almost one child every day in Victoria State was hospitalised as a result of a road traffic crash.²² Globally a child or young person suffers a road traffic injury every three seconds.²³ The cost of these injuries – in human life, potential and in purely financial and economic terms – is too much. The evidence from Victoria suggests that the average cost of a child road traffic injury is A\$95k (US\$66k). If this is representative of costs of the 10.5 million child road traffic injuries each year, this would equate to global costs of US\$700 billion. Of course, in many developing countries, most of the population lack access to the kinds of insurance and healthcare systems that would provide this level of care, but it shows that the costs of road injuries are enormous, and that systematically making roads safer for children has massive financial, social and health benefits.

Paper prepared by Richard Clarke, Researcher, FIA Foundation – February 2020

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²² From <http://www.tac.vic.gov.au/road-safety/statistics/online-crash-database/> 351 injured May 2018 to 2019

²³ Calculated using GBD 2017 estimates. Note: According to WHO health estimates, almost 250,000 children under 19 are lost. http://www.who.int/healthinfo/global_burden_disease/estimates/en/