Serious injuries among children and young people aged 0–24 years in the ACT, 2000–2020

Results in brief

Injury is the leading cause of death and a major contributor to physical disability and psychological trauma for children and young people. As such, the ACT Children & Young People Death Review Committee requested a detailed statistical analysis of injury related hospitalisation among young people in the ACT, with a focus on injury severity.

This brief provides a short summary of the report: Serious injuries among children and young people in the ACT 2000-2020 . The report provides a detailed analysis of the burden, severity and trends of childhood injury in the Australian Capital Territory.

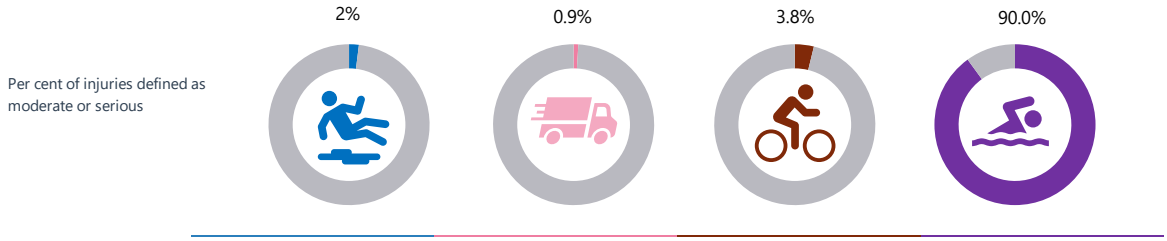
Key messages

- The number of injury related hospitalisations for young people aged 0–24 years in the ACT increased steadily from 1,152 hospitalisations in 2000/01 to 2,941 hospitalisations in 2019/20
- The age-standardised injury related hospitalisation rate for ACT males aged 0–24 years increased by an average of 2.8% per year between 2000/01 and 2019/20, from 13.2 to 24.3 hospitalisations per 1,000 persons respectively. The rates for females increased by 4.8% per year from 7.0 to 17.4 hospitalisations per 1,000 persons over the same period.
- Most injury related hospitalisations were classified as minor, however the proportion of injuries classified as moderate or serious increased with age.
- Head injuries were the leading type of injury reported. The proportion of these injuries classified as moderate or serious increased with age.
- The leading cause of injury for all ages was slipping, tripping, stumbling and falls. This was followed by intentional self-harm injuries for young people aged 13 to 24 years. Intentional self-harm injuries have increased significantly over time.
- The most frequent place of injury for children aged 0–12 years was the home, for those aged 13–18 years it was sports and athletics areas and for young people aged 19–24 years it was education facilities, other institutions, and public administration areas.
- The most common activity leading to an injury was wheeled non-motored sports (for 0–12 years), and team ball sports (for 13–18 years and 19–24 years).

Figure 1. Leading cause of injury by age group, rate per 100,000 and per cent of injuries classified as moderate or serious, ACT, 2015/16 to 2019/20

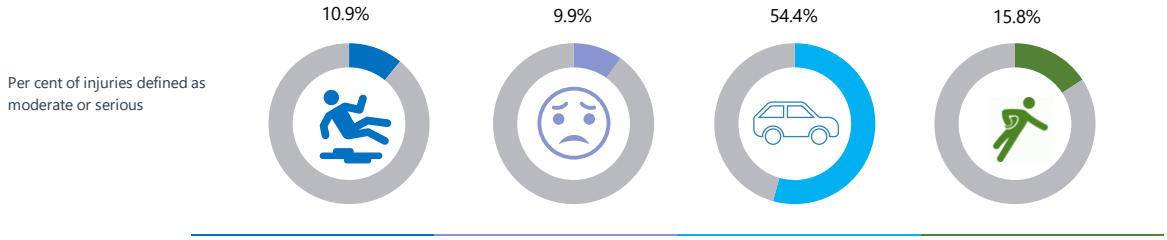
Children aged 0–12 years

	Slipping, tripping, stumbling and falls (W00-W19)□	Exposure to inanimate mechanical forces (W20-W49)□	Pedal cycle rider injured in transport accident (V10-V19)□	Accidental non-transport drowning and submersion (W65-W74)□
Minor	640.6	336.9	73.2	0.3
Moderate	12.5	3.2	2.9	0.0
Serious	0.3	0.0	0.0	2.6



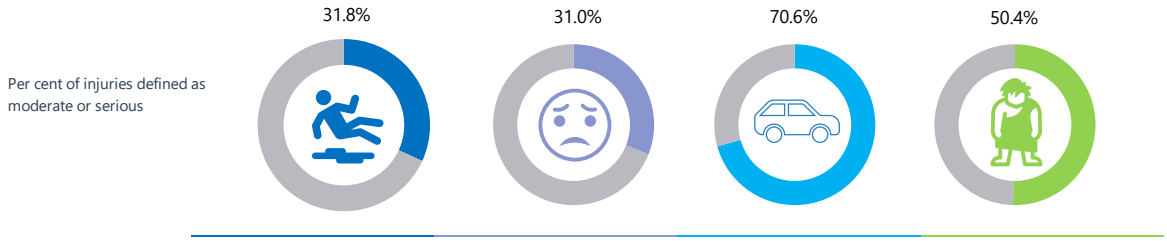
Young people aged 13–18 years

	Slipping, tripping, stumbling and falls (W00-W19)□	Intentional self-harm (X60-X84)□	Car occupant injured in transport accident (V40-V49)	Exposure to animate mechanical forces (W50-W64)□
Minor	469.2	471.4	33.4	193.4
Moderate	51.2	44.1	34.8	34.8
Serious	6.4	7.8	5.0	1.4



Young adults aged 19–24 years

	Slipping, tripping, stumbling and falls (W00-W19)□	Intentional self-harm (X60-X84)□	Car occupant injured in transport accident (V40-V49)	Assault (X85-Y09)□
Minor	248.5	213.7	32.7	61.9
Moderate	101.8	89.0	66.0	55.2
Serious	14.3	7.2	12.8	7.7



Note: Leading cause of injury is ranked by the sum of moderate and serious injuries

Leading cause of injury

Between 2015/16 and 2019/20, the leading cause of moderate and serious injury for each of the three age groups examined was slipping, tripping, stumbling and falls (Figure 1). Among children aged 0–12 years, most injuries were classified as minor, with 2.0% classified as either moderate or serious. The proportion of injuries resulting from slipping, tripping, stumbling or falls classified as moderate or serious increased with age (13–18 years, 10.9%; 19–24 years, 31.8%)

After slipping, tripping, stumbling and falls, the most common cause of moderate or serious injury among children aged 0–12 years was exposure to inanimate mechanical forces, pedal cycle rider injured in a transport accident, and accidental non-transport drowning and submersion.

While there were only 10 hospitalisations between 2015/2016 and 2019/20 arising from non-fatal accidental drowning and submersion for children aged 0–12 years, 90% of these cases were classified as a serious injury. This illustrates that while non-fatal drownings may occur less frequently than other causes, these injuries have a substantial adverse impact on health and other outcomes for young people.

For young people aged 13–18 years and young adults aged 19–24 years, the second and third leading causes of injury were intentional self-harm and car occupant injured in transport injury. For these causes of injury, the proportion of injuries defined as moderate or serious increased with age.

Intentional self-harm increased among young people aged 13–18 years and 19–24 years over the 20-year study period. In 2000/01–2004/05, 309 hospitalisations per 100,000 persons were reported for this age-group in the ACT. This increased to 456 hospitalisations per 100,000 persons in 2010/11–2014/15. However, by 2015/16–2019/20, this figure had increased by a further 83%, to 833 hospitalisations per 100,000 persons.

The ACT Children & Young People Death Review Committee

In the ACT, the ACT Children & Young People Death Review Committee (the Committee) is committed to reducing the number of preventable deaths that occur among young Territorians and, routinely reviews all child deaths that occur within the ACT. The Committee is legislated to identify areas requiring further research.

To gain a deeper understanding of the circumstances leading to accidental death, the ACT Minister for Families and Community Service, and Minister for Health, agreed for the Committee to scope the extent of serious injury among children and young people in the ACT.

This work will provide the Committee with a more nuanced understanding of the burden and severity of hospitalised childhood injury in the ACT between 1 July 2000 and 30 June 2020. This will help shape injury prevention strategies, policy prioritisation and resource allocation in the ACT.

Injury severity methodology

Injury severity classifications were based on research completed by Mitchell and colleagues from the Centre for Healthcare Resilience and Implementation Science, Australian Institute of Health Innovation at Macquarie University[1].

Survival Risk Ratios (SRRs) were calculated for each injury diagnosis based on the International Classification of Injury Severity Score (ICISS) methodology[2]. The SRR represents the ratio of the number of individuals with each injury diagnosis who did not die to the total number of individuals with the injury diagnosis. Separate SRRs have been created for adults (defined as over 16 years) and children (under 16 years). For the present study, child SRRs were applied to those aged 16 years or younger at hospitalisation and adult SRRs were applied to those aged greater than 16 years and less than or equal to 24 years at hospitalisation.

Three different ICISS levels were used for classification of injury[3].

- Minor (>0.99), Moderate (0.941-0.99) and Serious (<0.941)

For example, the diagnostic code S12.0–Fracture of first cervical vertebra, received an SRR of 0.97 and would be classified as a moderate injury. This indicates that, on average, patients hospitalised with this injury have around a 97.0% chance of surviving the injury, or alternatively, a 3.0% risk of death.

References

1. Mitchell R, Ting H, Driscoll T, Braithwaite J. Identification and internal validation of models for predicting survival and ICU admission following a traumatic injury. Scand. J. Trauma, Resusc. Emerg. Med. 2018;26(1) https://doi.org/10.1186/s13049-018-0563-5

2. Mitchell, R. & Ting, H. P. Survival risk ratios for ICD-10-AM injury diagnosis classifications for children. Macquarie University. 1 Jul 2021, 10.25949/14852949.v1

3. Dayal S, Wren J, Wright C. Mapping injury severity scores against hospitalisation day stays for injury priority areas Wellington: Public Health Intelligence, Health and Disability Systems Strategy Directorate, Ministry of Health, 2008.