Road trauma-related hospitalisations in Queensland public acute hospitals: 01 Jan 2019 to 31 Dec 2022

This report presents patterns and trends in road trauma related hospitalisations in Queensland public acute hospitals over a four-year time-period from 2019 to 2022 covering the pre-pandemic (2019), pandemic (2020) and post-pandemic (2021-22) years as part of an expanded surveillance and monitoring activity.

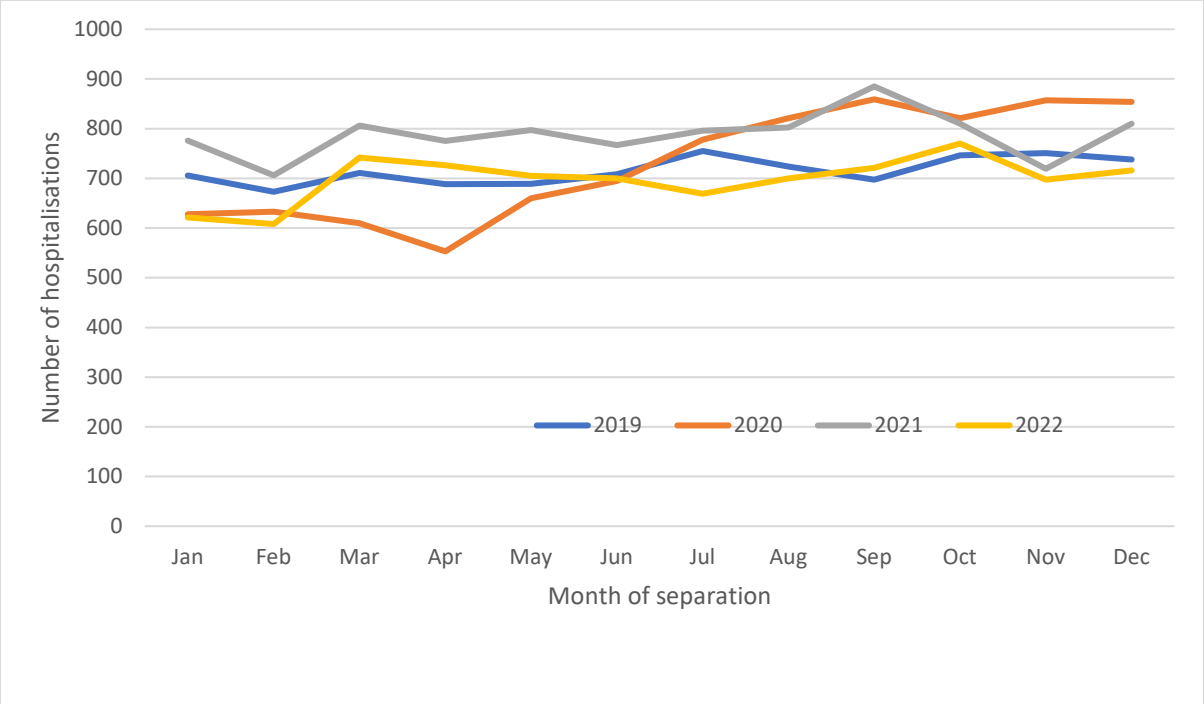
Key Findings

Between 01 Jan 2019 to 31 Dec 2022:

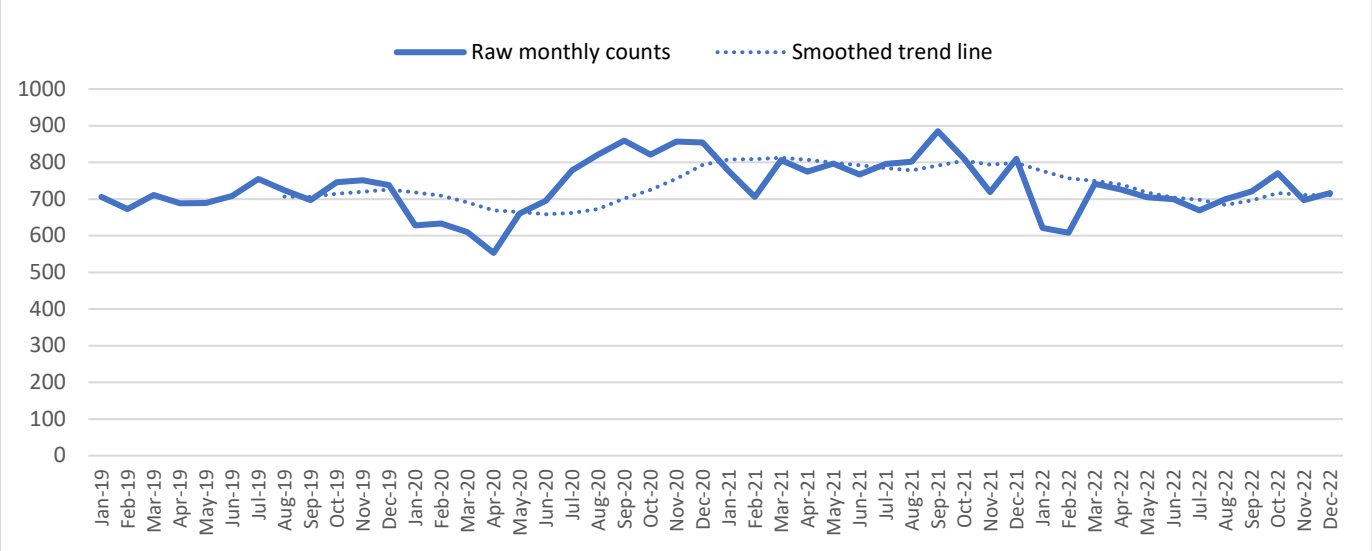
- 35,179 road trauma related hospitalisations occurred in Queensland public acute hospitals.
- Trend analysis using a moving average time series trend line shows that the daily number of hospitalisations were slightly higher in 2019 and gradually decreased in early 2020 during the COVID-19 lockdown and broader pandemic closure. Numbers gradually increased in 2021 after the pandemic lock down restrictions were lifted. This upward trend peaked after Queensland state borders were opened. During 2022 road trauma hospitalisations decreased to pre-pandemic 2019 levels.
- Car/Pick-up van related hospitalisations accounted for almost 60% of all road trauma related hospitalisations. Motorcyclists accounted for 23% of all road trauma related hospitalisations. Other vulnerable road users such pedestrians and bicyclists accounted for 16% of all road trauma related hospitalisations.
- However, motorcycle riders (4 days) and pedestrians (4.5 days) experienced a longer average length of hospital stay (LOS) in days compared to car and pick up van drivers (2.5 days).
- Males aged between 20-29 years had the highest incidence of road trauma related hospitalisations (N=5061, 14%).
- Injuries to the upper and other lower extremities and traumatic brain injuries (TBI) were the leading body region of injury sustained following a road trauma related hospitalisation accounting for 36% and 16% of all hospitalisations respectively.
- Fractures were the main injury sustained accounting for more than third of all hospitalisations (N=13,283, 38%).

Key Figures

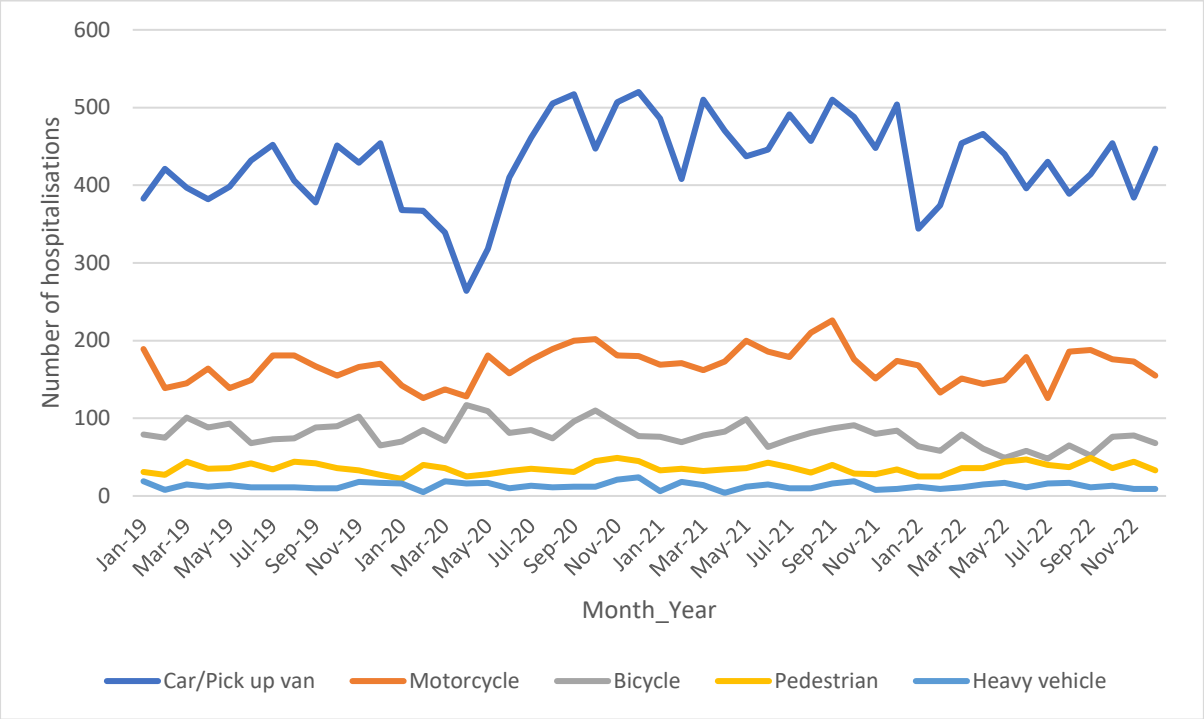
Observed trends over time



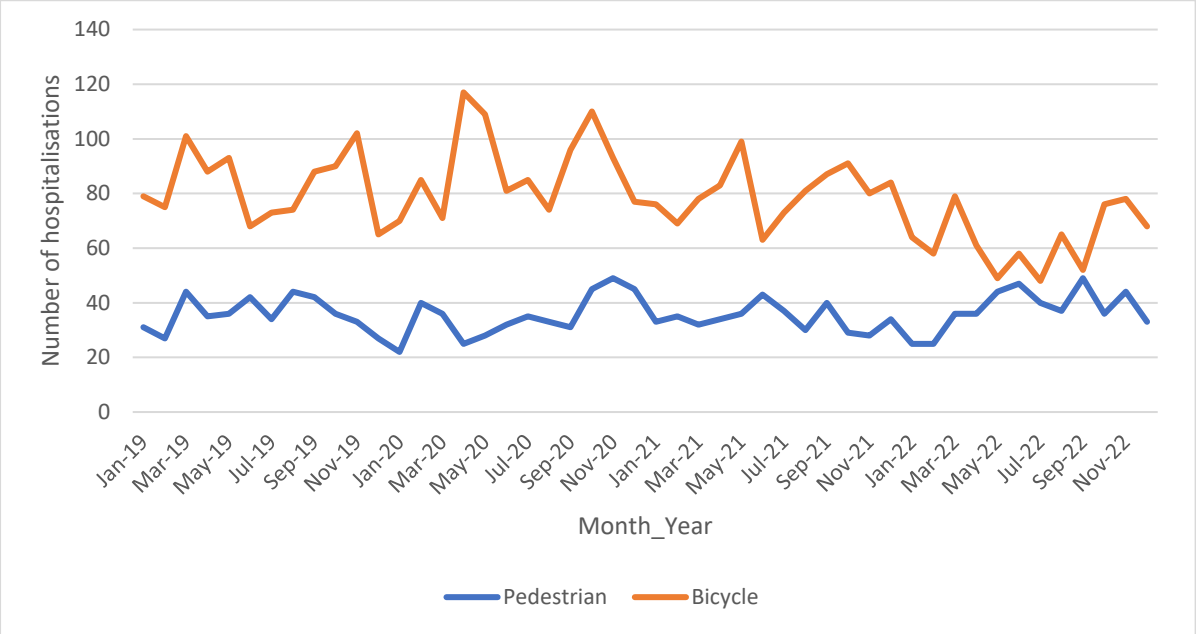
Trend analysis: Time Series Moving Average



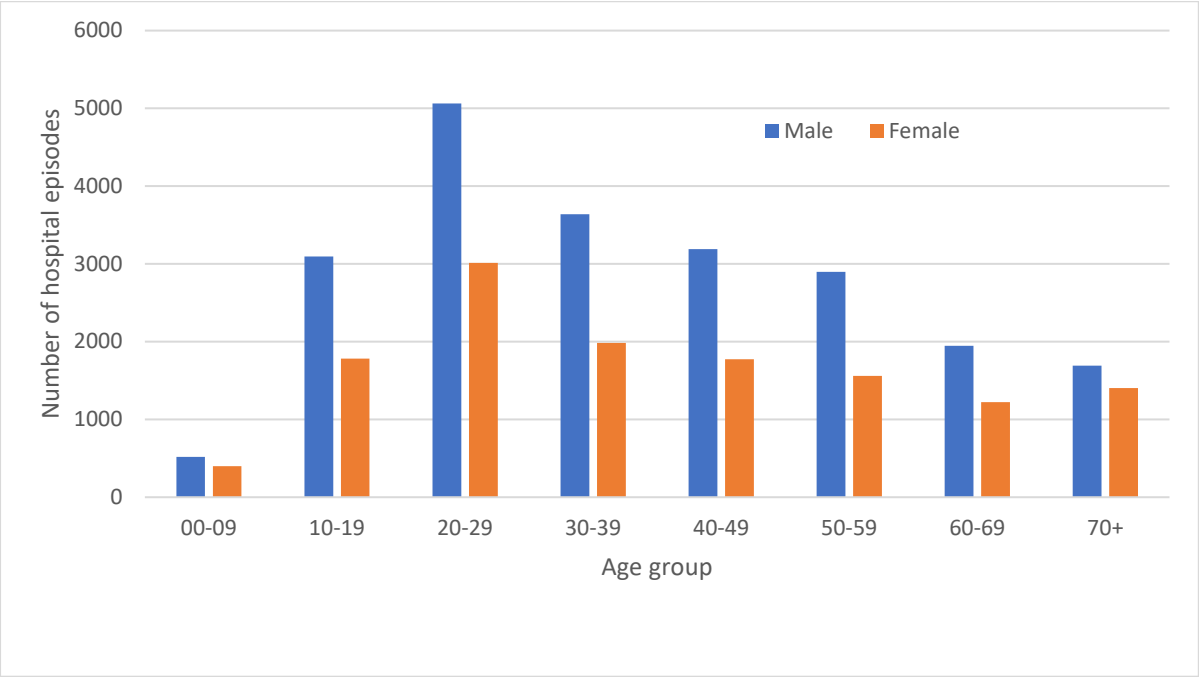
Observed trends over time by road user types



Observed trends over time for pedestrians and bicyclists



Age and sex breakdown



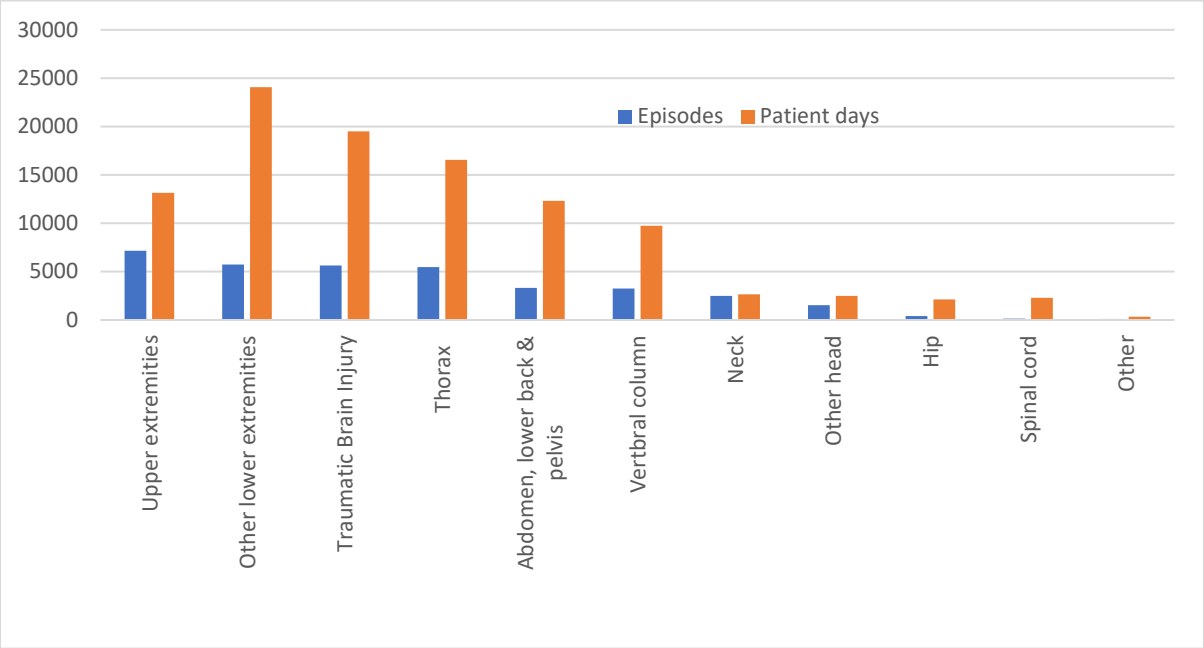
Clinical activity and severity/death outcomes by road user group and year

Road user group	2019					2020					2021					2022				
	Episodes	Patient days	Average LOS	Severe injury* (%)	Died**	Episodes	Patient days	Average LOS	Severe Injury* (%)	Died**	Episodes	Patient days	Average LOS	Severe injury* (%)	Died**	Episodes	Patient days	Average LOS	Severe Injury* (%)	Died**
Car/Pick up van	4983	13,181	2.6	11.6	17	5,023	12,217	2.4	10.9	22	5,655	14,229	2.5	11.1	31	4,992	13,439	2.7	11.6	30
Motorcycle	1945	7,442	3.8	13.6	9	1,999	7,245	3.6	13.1	7	2,177	8,734	4.0	13.9	10	1,928	8,191	4.2	13.5	10
Bicycle	996	2,218	2.2	16.1	0	1,068	2,445	2.3	16.0	4	964	2,491	2.6	16.7	2	756	2,248	3.0	18.8	4
Pedestrian	431	1,982	4.6	21.3	7	421	1,893	4.5	21.4	14	411	1,944	4.7	24.3	4	452	1,978	4.4	19.9	7
Heavy vehicle	156	567	3.6	12.2	1	176	733	4.2	13.6	1	141	373	2.6	12.1	0	150	537	3.6	17.3	1
Other	75	233	3.1	12.0	0	82	234	2.9	15.9	0	101	416	4.1	12.9	1	97	263	2.7	14.4	1

*Severe injury was determined using the International Classification of Diseases (ICD)-based Injury Severity Score: ICISS. The ICISS methodology uses survival risk ratios (SRRs) calculated for each injury ICD diagnosis to estimate injury severity, by multiplying the individual SRRs for each injury diagnosis code together for a person. The ICISS can then be used to categorize patients as having a high threat to life (ICISS ≤0.941) or low threat to life (ICISS > 0.941) (1). We have used the cut point for high threat to life to indicate severe injury.

** Died in hospital

Body region of injury sustained



Top 10 injury sustained

Injury sustained	Number of episodes
Fracture	13,283
Superficial & contusions	5,014
Internal organ injuries	4,071
Open wound	2,753
Dislocation	487
Burn	165
Blood vessel	152
Amputation	59
Crushing	25
Other specified	4,140
Unspecified	5,005

About Us

The ***Jamieson Trauma Institute (JTI)*** connects clinicians, researchers, government and industry partners striving to advance trauma prevention, research and clinical management, to deliver the best possible care for people who experience traumatic injury. JTI is funded via a partnership between the Motor Accident Insurance Commission, Metro North Health and Queensland University of Technology.
Jamieson_trauma_institute@health.qld.gov.au

DATA SCOPE AND DEFINITIONS

This overview was produced by the Jamieson Trauma Institute, in consultation with the Statistical Services Branch, Queensland Health using Queensland Hospital Admitted Patient Data Collection (QHAPDC) (derived subset of data tables comprising injury related hospital admissions from all Queensland public acute hospitals excluding Mater South Brisbane Hospitals).

Data Scope

- Includes episodes of admitted patient care with separation date between 01 Jan 2019 & 31 Dec 2022.
- Road trauma related injury hospitalisation is defined by ICD-10-AM principal diagnosis code between S00-T98 with first external cause codes related to 'on-road trauma' and place of occurrence code Y924- street and highway.
- Data from July 2022 are preliminary and subject to change.
- A moving average trend/regression analysis was used. This trendline smoothes out fluctuations in data to show a pattern or trend more clearly. A moving average trendline uses a specific number of data points, averages them, and uses the average value as a point in the trendline. In this case, the period is set to 8, for example, then the average of the first 8 data points is used as the first point in the moving average trendline. The average of the ninth and sixteen data points is used as the second point in the trendline, and so on.
- Care Type = Acute.
- This overview presents raw counts, not age standardised rates, as data relate to episodes of care and not individual patient.

References

1. Stephenson S, Henley G, Harrison JE, Langley J. 2003. Diagnosis-based Injury Severity Scaling. A method using Australian and New Zealand hospital data coded to ICD-10-AM. Injury Research and Statistics Series Number 20. Adelaide: AIHW (AIHW cat no. INJCAT 59).