JAMIESON TRAUMA INSTITUTE

Road trauma-related hospitalisations in Queensland public acute hospitals: 01 Jan 2019 to 31 Dec 2023

This report presents patterns and trends in road trauma related hospitalisations in Queensland public acute hospitals over a five-year time-period from 2019 to 2023 covering the pre-pandemic (2019), pandemic (2020) and post-pandemic (2021-23) years as part of an expanded surveillance and monitoring activity.

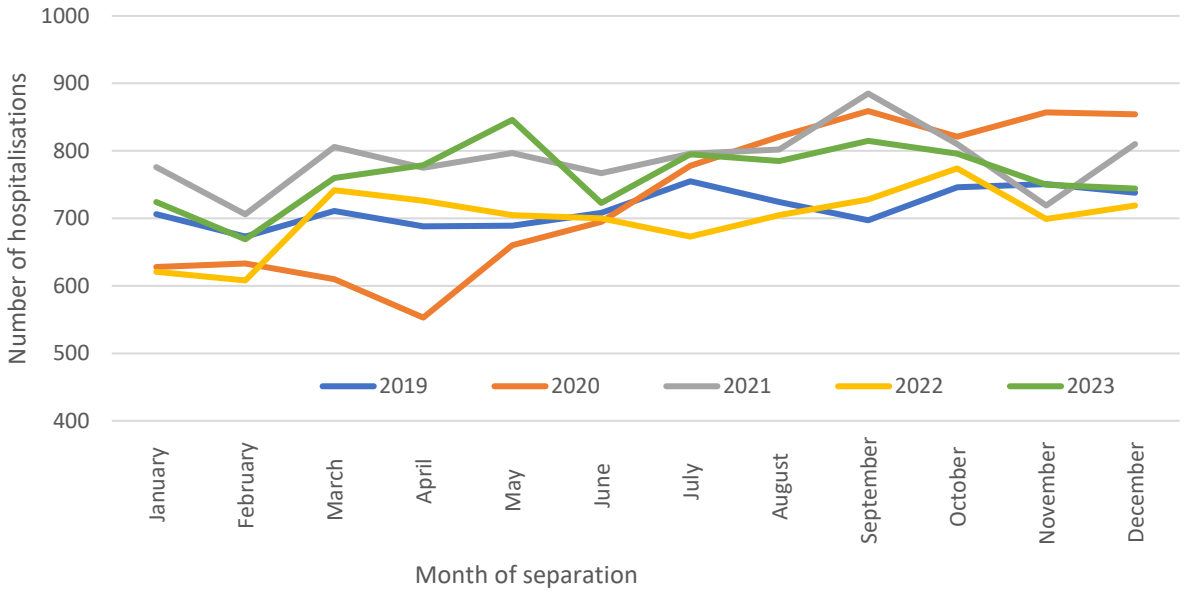
Key Findings

Between 01 Jan 2019 to 31 Dec 2023:

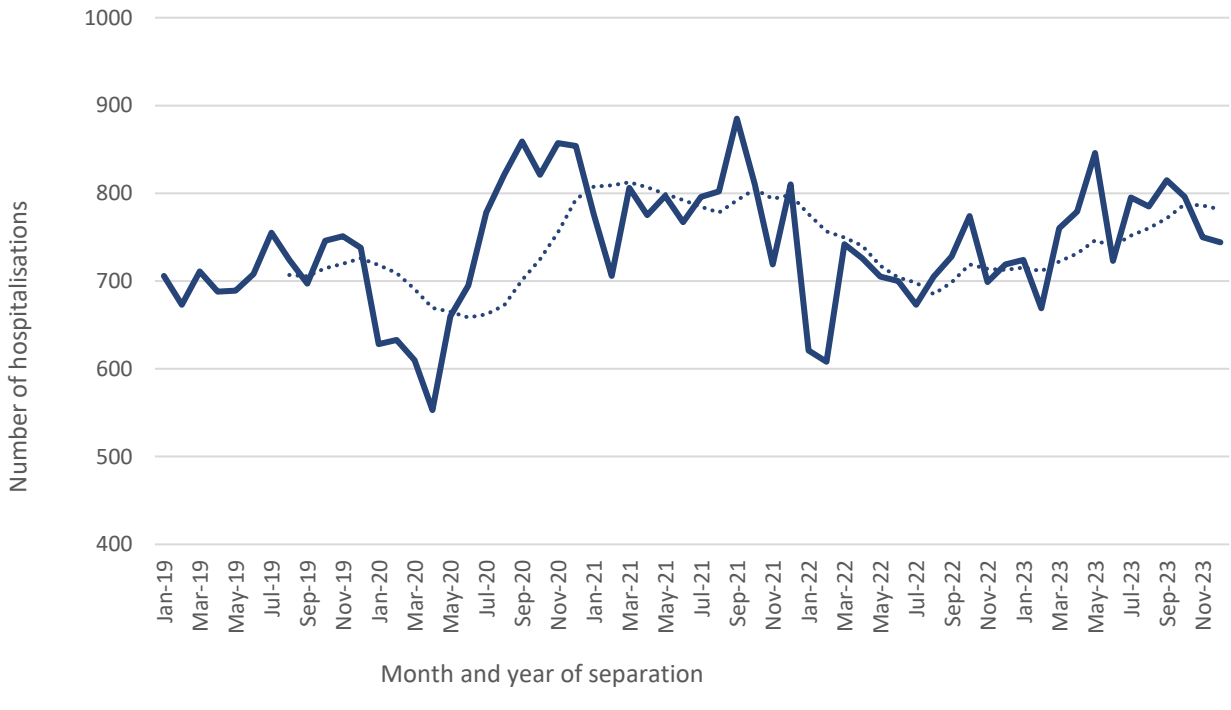
- 44,390 road trauma related hospitalisations occurred in Queensland public acute hospitals.
- Trend analysis using a moving average time series trend line shows that the daily number of hospitalisations were slightly higher in 2019 and gradually decreased in early 2020 during the COVID-19 lockdown and broader pandemic restrictions. Numbers gradually increased in 2021 after the pandemic restrictions were lifted. This upward trend peaked after Queensland state borders were opened. During 2022 road trauma hospitalisations decreased to pre-pandemic 2019 levels. Trends were overall higher in 2023, with a peak in May followed by a drop in June.
- 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 as pedestrians and bicyclists accounted for 16% of all road trauma related hospitalisations.
- However, motorcycle riders (4 days) and pedestrians (4.7 days) experienced a longer average length of hospital stay (LOS) compared to car/pick up van drivers (2.6 days).
- Males aged between 20-29 years had the highest incidence of road trauma related hospitalisations (N=6,316, 14%).
- Injuries to the upper and other lower extremities and traumatic brain injuries (TBI) were the leading body regions of injury sustained, accounting for 37% and 16% of all road trauma related hospitalisations respectively.
- Fractures were the main injury sustained accounting for more than one-third of all road trauma related hospitalisations (N=16,941, 38%).

Key Figures

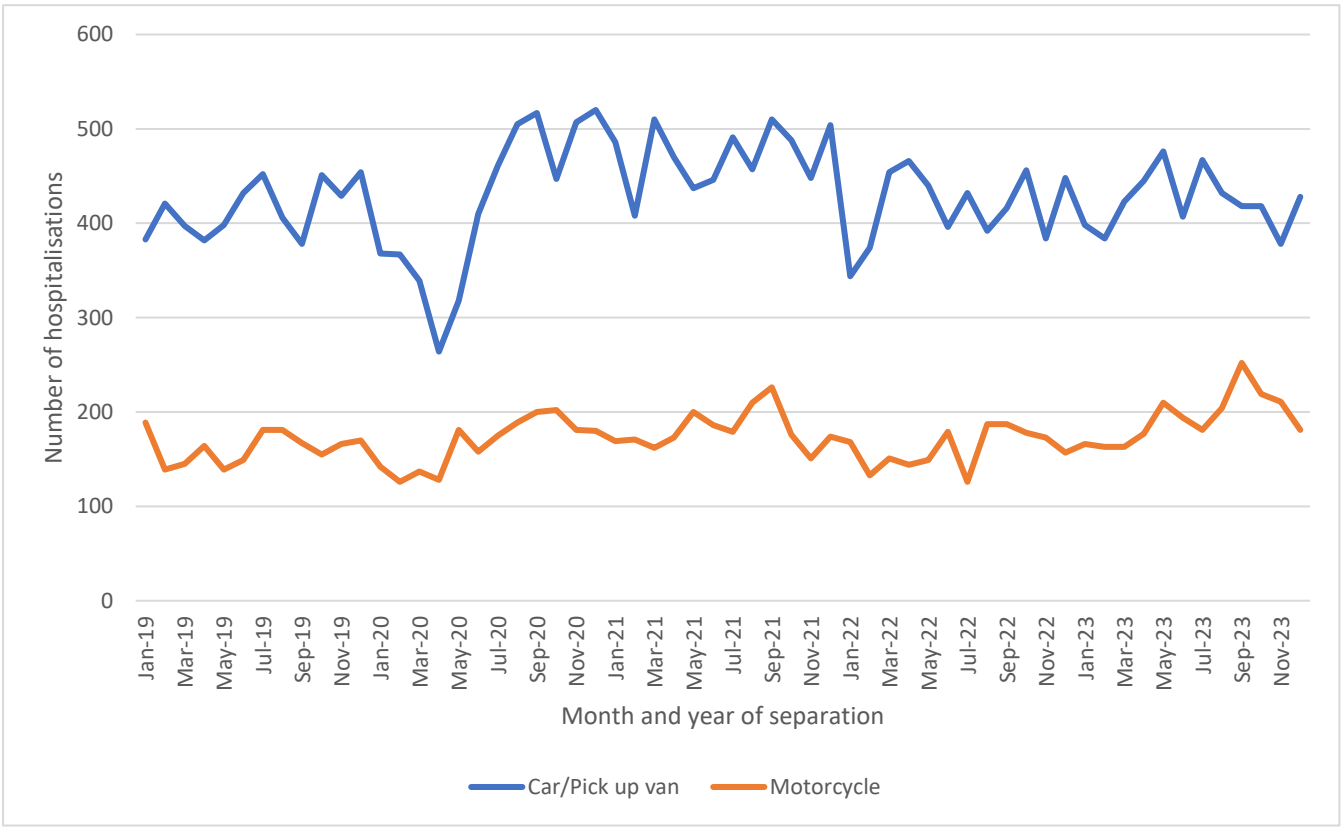
Observed Trends Over Time



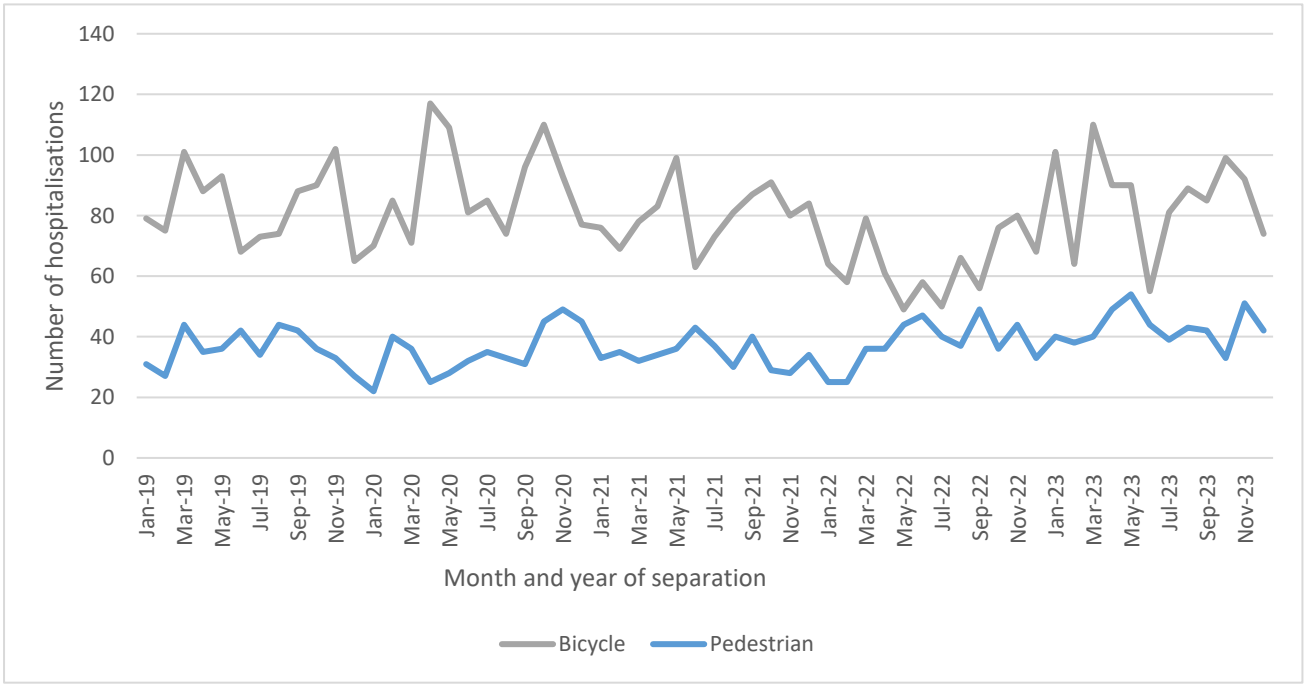
Trend Analysis: Time Series Moving Average



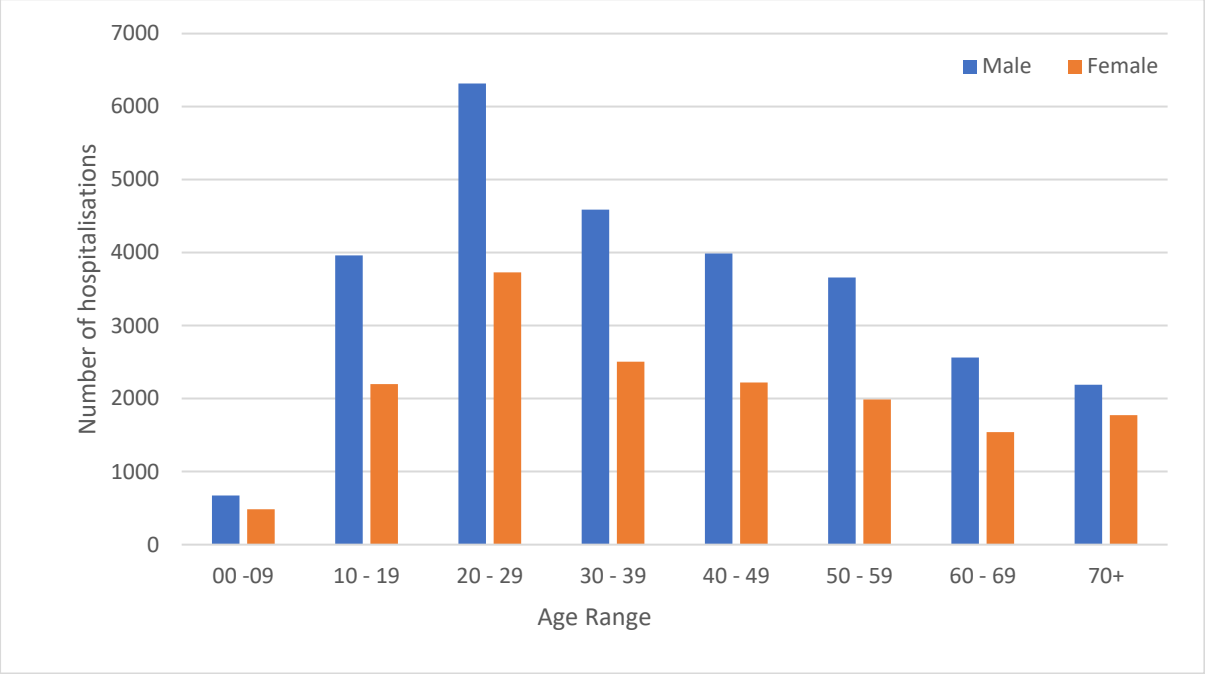
Observed Trends Over Time for Car/Pick up van and Motorcycle



Observed Trends Over Time For Pedestrians And Bicyclists



Age And Sex Breakdown



Patient Outcomes By Road User Group And Year

Road User	2019			2020			2021			2022			2023		
	Episodes	Patient days	Average LOS	Episodes	Patient days	Average LOS	Episodes	Patient days	Average LOS	Episodes	Patient days	Average LOS	Episodes	Patient days	Average LOS
Car/Pick up van	4,983	13,181	2.6	5,023	12,217	2.4	5,655	14,229	2.5	5,002	13,446	2.7	5,074	13,484	2.7
Motorcycle	1,945	7,442	3.8	1,999	7,245	3.6	2,177	8,734	4.0	1,932	8,191	4.2	2,321	9,644	4.2
Bicycle	996	2,218	2.2	1,068	2,445	2.3	964	2,491	2.6	765	2,278	3.0	1,030	2,585	2.5
Pedestrian	431	1,982	4.6	421	1,893	4.5	411	1,944	4.7	452	1,985	4.4	515	2,671	5.2
Heavy vehicle	156	567	3.6	176	733	4.2	141	373	2.6	151	556	3.7	145	512	3.5
Other Transport	75	233	3.1	82	234	2.9	101	416	4.1	98	264	2.7	101	242	2.4

Clinical Activity By Road User Group And Year

Road User	2019			2020			2021			2022			2023		
	Procedures*	ICU**	CVS***	Procedures	ICU	CVS	Procedures	ICU	CVS	Procedures	ICU	CVS	Procedures	ICU	CVS
Car/Pick up van	2,018	175	143	1,989	181	160	2,235	173	156	1,991	167	149	1,971	194	177
Motorcycle	1,314	90	67	1,339	94	82	1,464	108	81	1,339	94	72	1,584	132	104
Bicycle	612	35	34	674	53	51	596	32	28	496	37	31	680	52	47
Pedestrian	291	20	14	310	29	18	269	23	16	290	18	18	328	25	18
Heavy vehicle	77	10	9	83	10	11	69	NP	NP	71	7	6	77	12	8
Other Transport	38	NP^	NP	39	NP	NP	40	5	6	52	NP	NP	57	NP	NP

*This is a count of patients undergoing either surgical or non-surgical procedures during an episode of care.
**This is a count of patients admitted to an Intensive Care Unit during an episode of care.
***This is a count of patients receiving Continuous Ventilatory Support during an episode of care.
^Not publishable due to the low number of cases.

Severity And Death Outcomes By Road User Group And Year

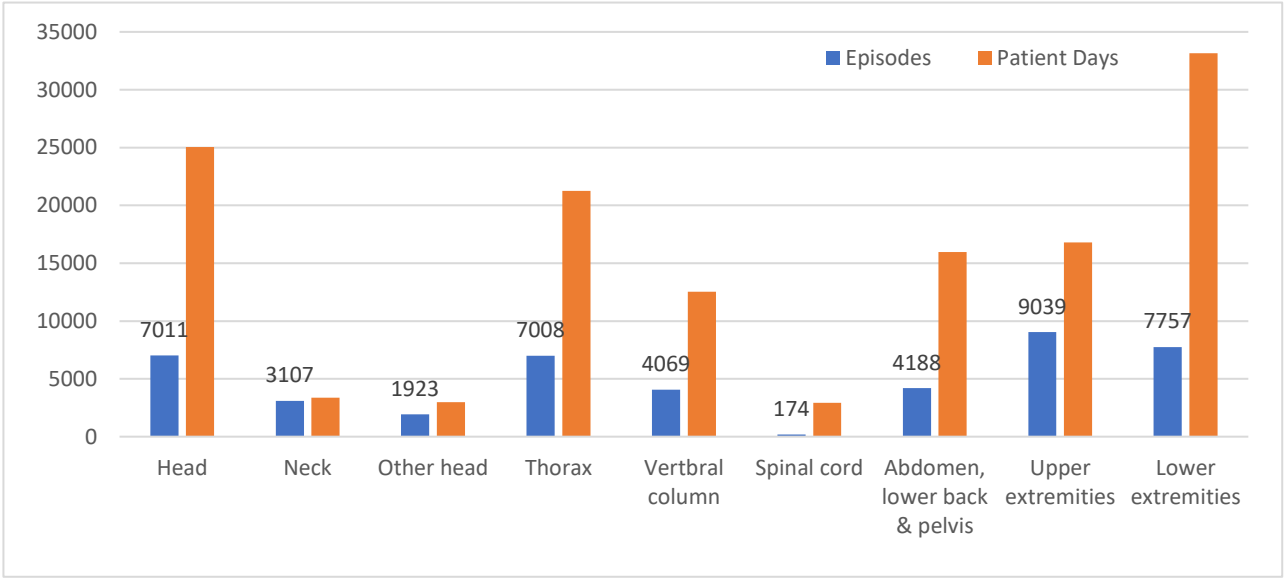
Road User	2019		2020		2021		2022		2023	
	Severe Injury* (%)	Died**	Severe Injury (%)	Died	Severe Injury (%)	Died	Severe Injury (%)	Died	Severe Injury (%)	Died
Car/Pick up van	11.6%	17	10.9%	22	11.1%	31	11.6%	29	12.2%	28
Motorcycle	13.6%	9	13.1%	7	13.9%	10	13.6%	10	15.0%	12
Bicycle	16.1%	NP	16.0%	NP	16.7%	NP	18.6%	NP	16.8%	NP
Pedestrian	21.3%	7	21.4%	14	24.3%	NP	19.9%	7	22.1%	6
Heavy vehicle	12.2%	NP***	13.6%	NP	12.1%	NP	17.9%	NP	19.3%	NP
Other Transport	12.0%	NP	15.9%	NP	12.9%	NP	14.3%	NP	11.9%	NP

*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

***Not publishable due to the low number of cases.

Body Region Of Injury Sustained



Top 10 Sustained Injuries

Injury sustained	Number of episodes
Fracture	16,941
Superficial injuries	6,218
Internal organ injuries	5,214
Wounds or lacerations	3,400
Dislocation	615
Burn	209
Injury to blood vessel	197
Amputation	73
Other specified injury	5,078
Unspecified injury	6,385

Remoteness*

Remoteness	Number of episodes
Major City	25,491
Inner Regional	9,336
Outer Regional	6,150
Remote	612
Very Remote	413

*Data were restricted to Queensland resident only.

JAMIESON TRAUMA INSTITUTE

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 2023.
- 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 2023 are preliminary and subject to change.
- A moving average trend/regression analysis was used. This trendline smooths 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 second and nineth 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 patients.

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).

If you require assistance, please do not hesitate to contact JTI.

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