



The Burden of Head Trauma in North Queensland

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Introduction

- Head trauma is a leading cause of **death** and **disability** worldwide; and is the commonest injury requiring emergency medical transfer in Australia¹⁻³.
- The burden of head trauma is much **higher in rural and remote areas**, with **males** and **Indigenous people** having been identified as high-risk populations^{4,5}.
- KNOWLEDGE GAP** = what continuum-of-care variables affect patient outcomes following traumatic head injury in rural and remote North Queensland?

Objectives

To define and describe the:

Incidence **Demographics** **Outcomes**
Pre-Hospital Interventions

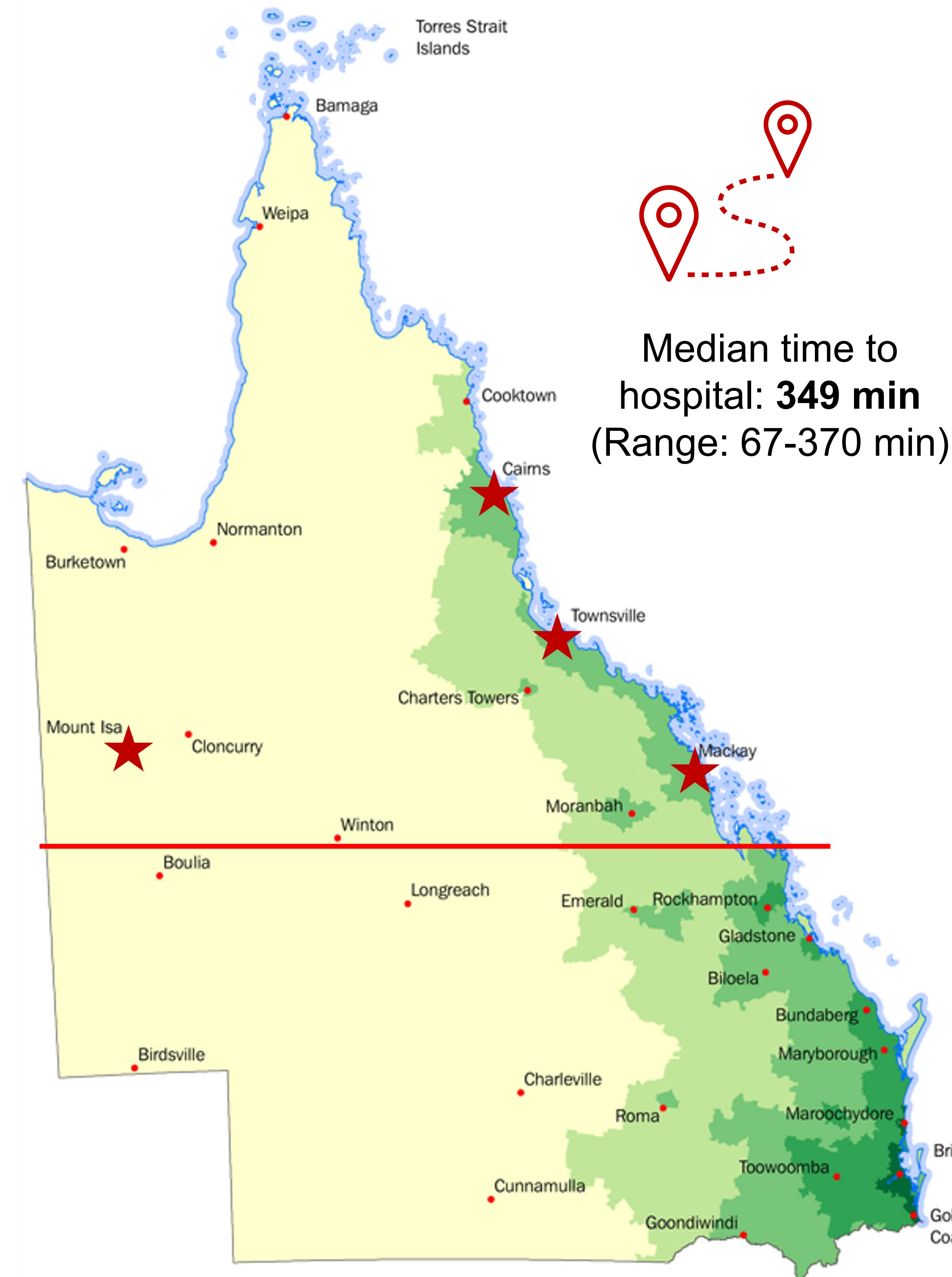
of head trauma patients transported by aeromedical services across **North Queensland**.

Methods

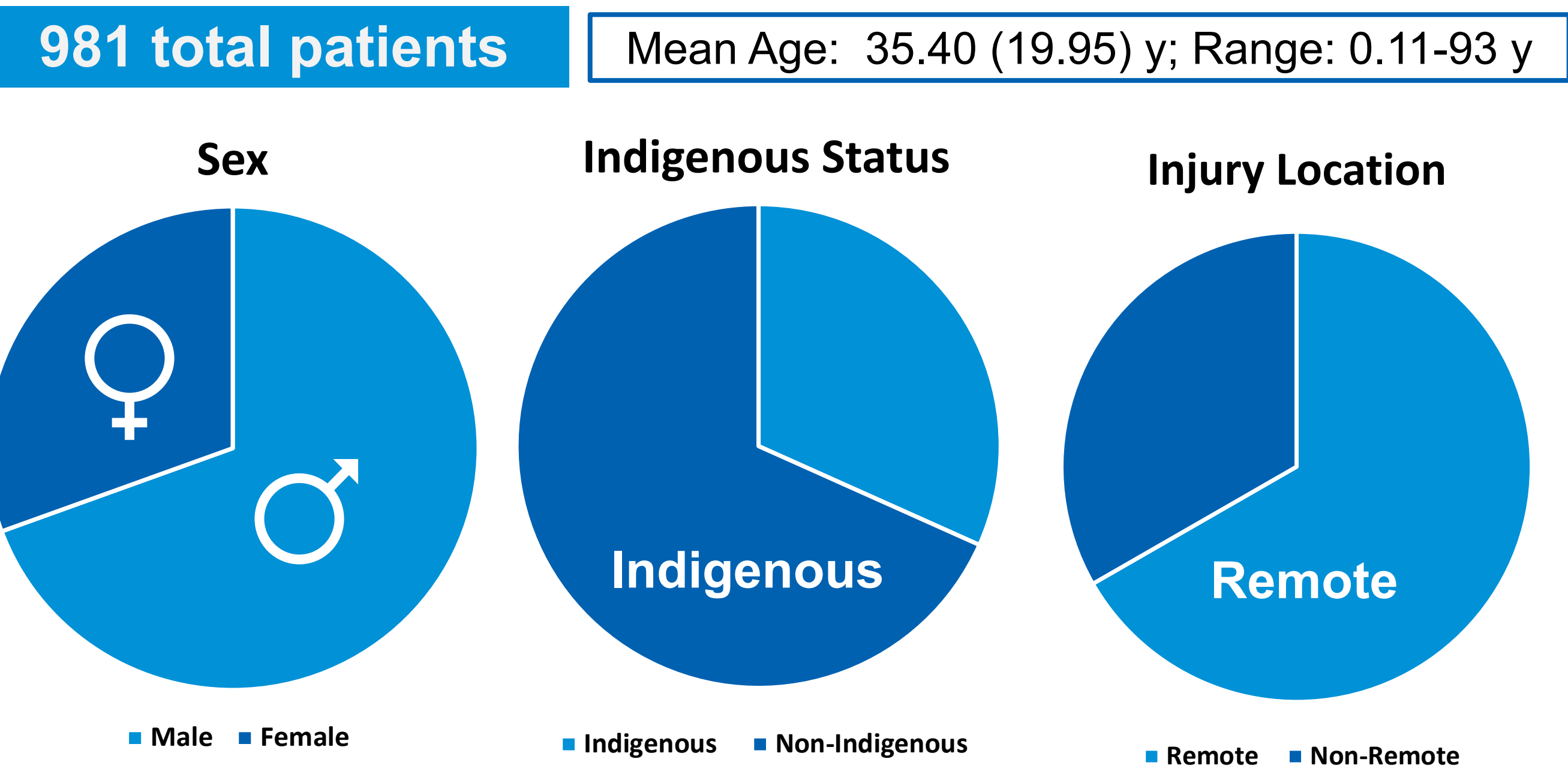
A retrospective descriptive study of all head trauma patients transferred by air to or between:

- ★ Townsville University Hospital
 - ★ Cairns Base Hospital
 - ★ Mackay Base Hospital and
 - ★ Mount Isa Hospital
- from Jan 1, 2016 to Dec, 31 2018.

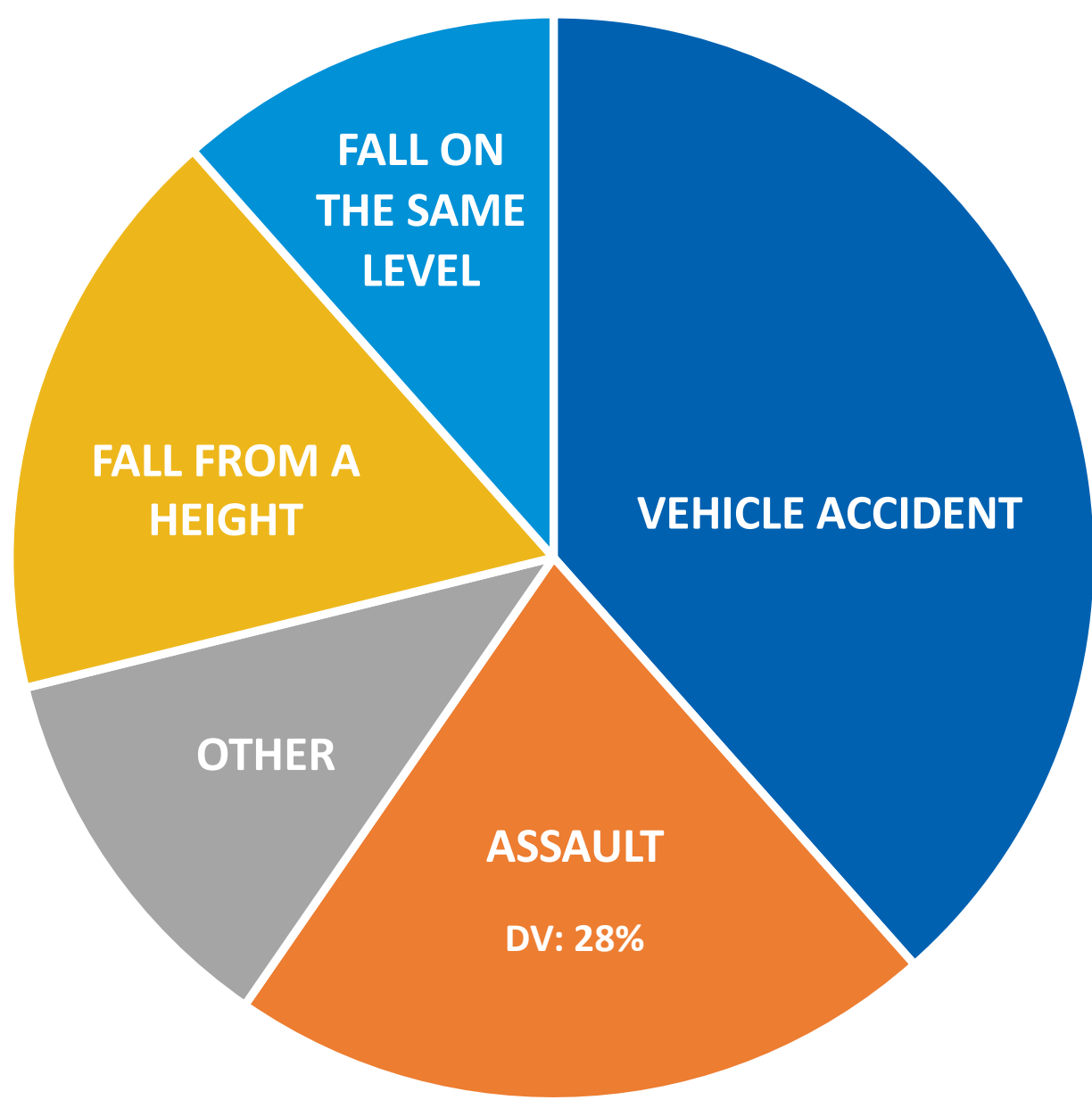
Patients were identified from the Trauma Care in the Tropics de-identified dataset and followed from point-of-injury for a median 30-months post-injury.



Results



Mechanism of Injury



85.6% of remote patients experienced mild head trauma (vs 57.2% for non-remote) and were 3x less likely to have severe head trauma (p<0.001).

Remote head trauma patients:

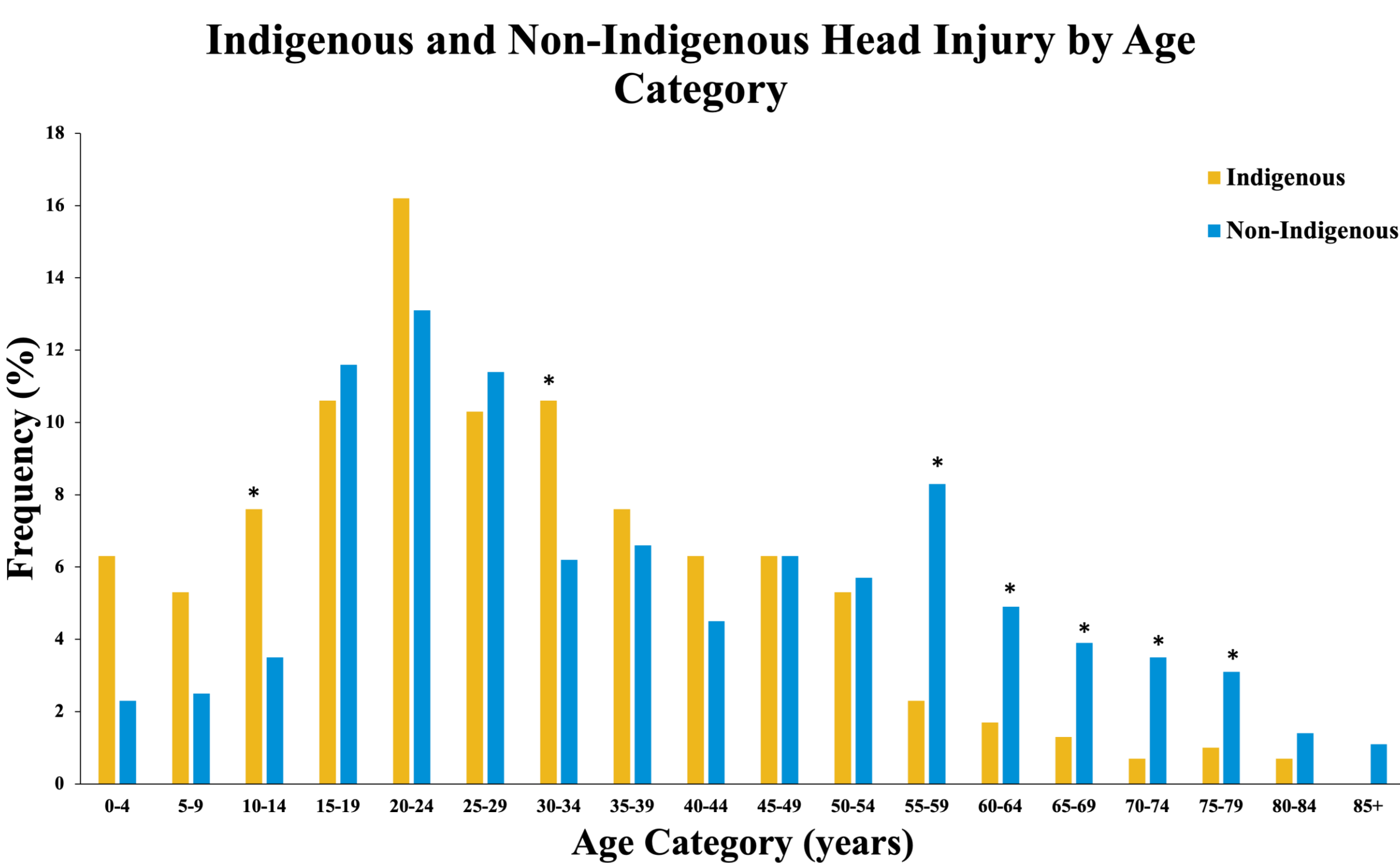
- Higher % of injury by falls and assaults, especially DV (32.9% vs 8.8%; p=0.05).
- 2.5x more likely to have previous trauma (p<0.001).
- ~6x more likely to have previous head injury** (p<0.001).
- Had a **median time to hospital of 6.65 h**, vs 4.25 h for non-remote patients (p<0.001).

TABLE 1: Demographics and hospital outcomes for remote vs non-remote patients

Data Category	Parameter	Remote	Non-Remote	p value
Demographics	Male Sex	66.9%	74.5%	0.015
	Age (years)^ (Range)	33.40 (18.83) 0.11-93	39.66 (21.51) 0.40-87	<0.001
	Indigenous	41.9%	11.8%	<0.001
Hospital Outcomes	Hospital LOS (days)^	4.3 (7.7)	10.6 (23.7)	<0.001
	ICU Admission	7.4%	39.6%	<0.001
	ICU LOS (min)	7150 (10652)	5523 (8613)	0.823
	Separation Mode			<0.001
	Home/Usual Residence	94.6%	87.2%	<0.05
	Transferred to Another Hospital	4.5%	3.8%	
	Care Type Change	0.0%	2.2%	<0.05
	Died in Hospital	0.6%	6.7%	<0.05
	Other	0.3%	0.0%	

Data presented as percentage or median (IQR) except where indicated. ^ mean (SD).

Rate of domestic violence (DV)-associated head trauma was 3.1-times higher in Indigenous than non-Indigenous females (p<0.001).



Aboriginal and/or Torres Strait Islander head trauma patients:

- >2-fold incidence of previous injury (p<0.001).
- 3x more likely to have sustained previous head trauma (p<0.001).
- 46.6% of injuries due to assault** vs 9.1% for non-Indigenous patients (p<0.001).
- 2.5x more likely to have injuries associated with alcohol and/or drug use (p<0.001).

**Every ↑ year in age → 3% more likely to die in hospital (p=0.02).
Every ↓ in initial GCS → 23% more likely to die in hospital (p=0.038).**

Conclusions

- In North Queensland, young Indigenous males are at highest risk of traumatic head injuries.
- Vehicle accidents are an important preventable cause of head injury in the region.
- Alcohol and DV support services will be imperative to reducing the impact of assault-related head trauma in remote, Indigenous communities.

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DIGITAL POSTER

