

Emergency Medical Service Use by Children in Aotearoa in 2023

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INTRODUCTION

National characteristics of children attended by road-based Emergency Medical Services (EMS) in Aotearoa New Zealand (NZ) have not previously been described.

Determining the incidence and nature of prehospital care provided to children is important for evidence-based strategic planning, policy, prevention, and resource allocation.

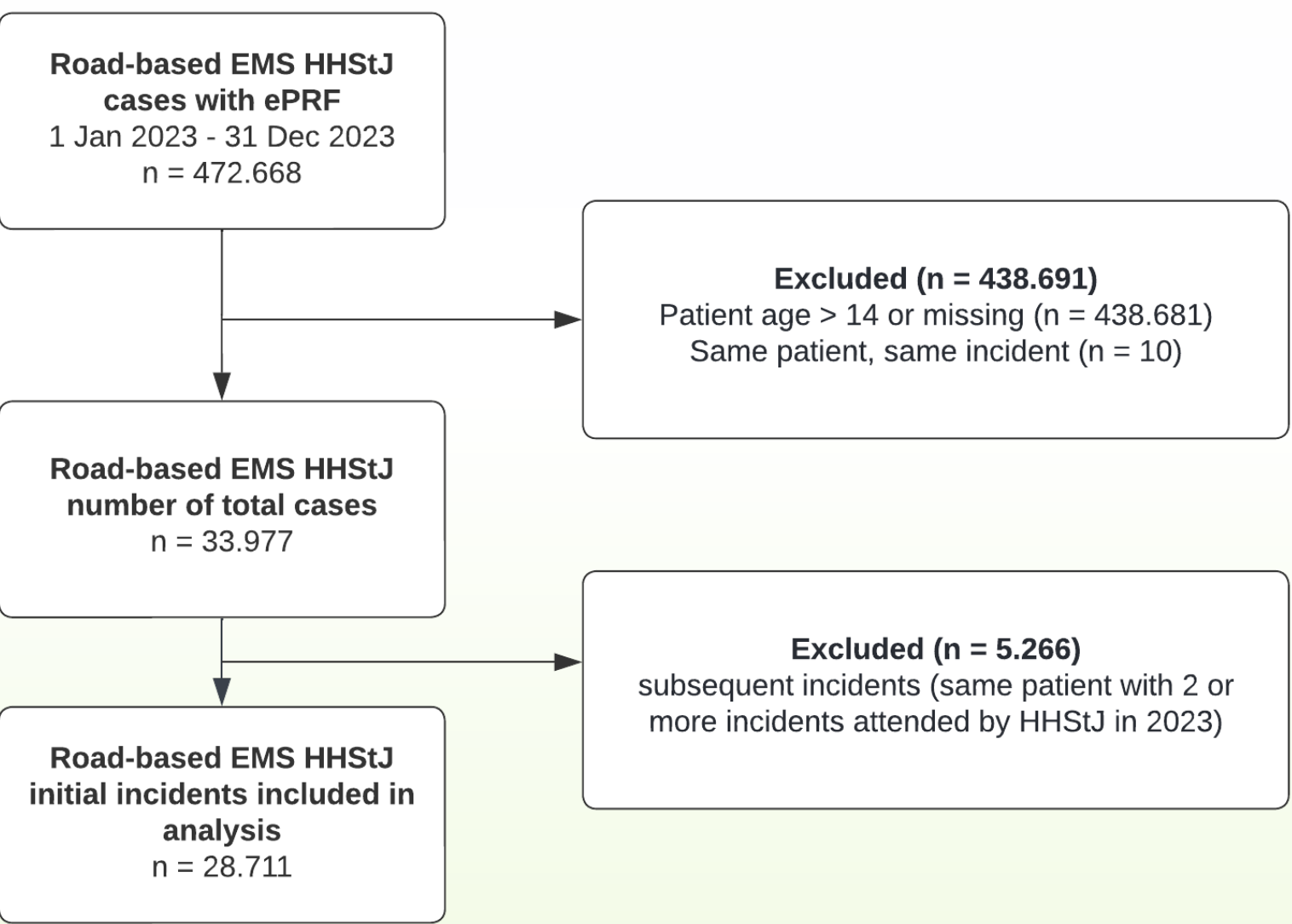
Little is known about the demographics of children requiring prehospital care in Aotearoa NZ, including their ages, sex, rurality, and ethnicity.

AIM

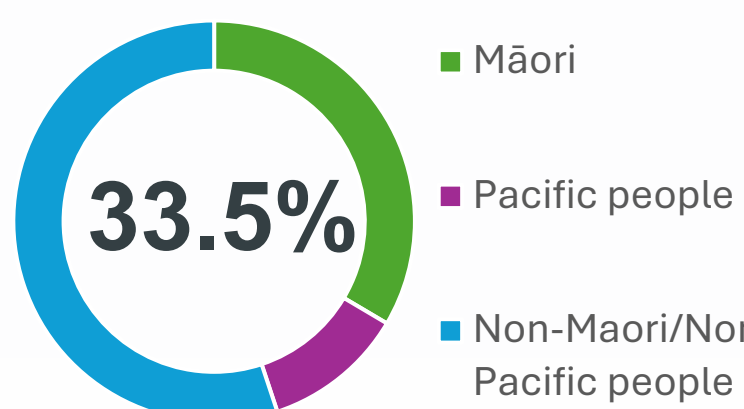
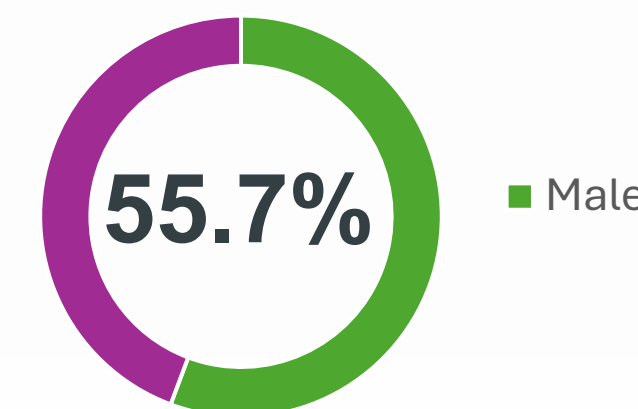
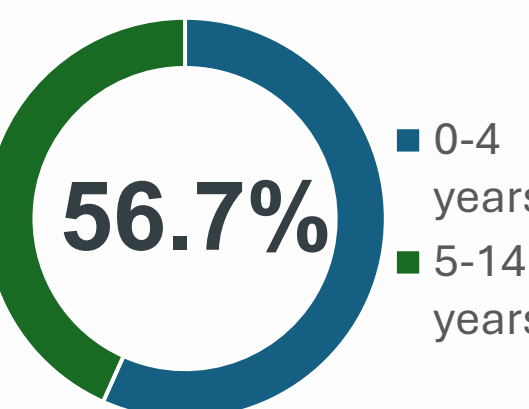
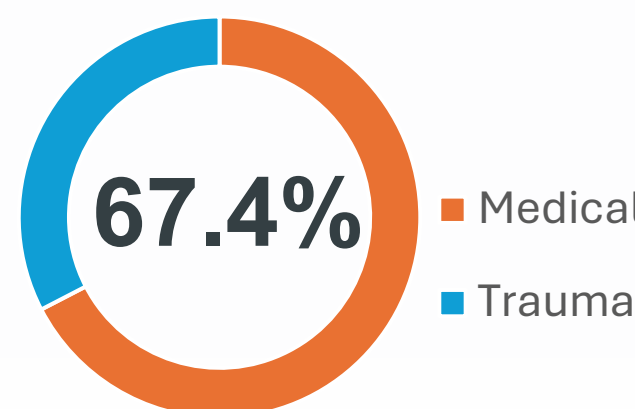
To describe the national cohort of children (aged 0-14 years old) who were attended by road-based EMS in Aotearoa NZ, over one year (1 January 2023 - 31 December 2023).



COHORT



RESULTS



In 2023, **28,711 children** were attended by road-based EMS.

Infants and toddlers (aged 0-4 years) constituted 56.7% (n=16,267) of all children (0-14 years) presenting for road-based EMS, most commonly due to medical events (65.6%, n=12,688). Conversely, school-aged children (aged 5-14 years) had a significantly higher rate of trauma-related incidents (61.8%, n=5,778) (p<.001).

Most children were attended to in a home/private house/grounds (70.1%, n=20,105), with nearly 30% of patients residing in deprived areas of NZ (NZDep 2018 Quintile 5; 29.6%, n=8,271).

Across the total sample, medical presentations were predominantly due to infections (48.2%, n=9,330), followed by respiratory complaints (15.3%, n=2,956) and seizures (8.2%, n=1,591). Trauma-related clinical impressions were more diverse, with fractures, low-acuity falls, skin, soft-tissue and brain injuries collectively accounting for 48.4% (n=4,523) of patients.

While most child patients were low-acuity (Status 3 or 4; 86.5%, n=24,830), more medical-related patients were high-acuity compared to trauma patients (15.3% vs. 8.7%)(p<.001).

Table 1. Characteristics of children attended by EMS in 2023

		Medical (n=19,354)	Trauma (n=9,357)	Total (n=28,711)	p-value
Age group	0-4 years	12,688 (65.6%)	3,579 (38.2%)	16,267 (56.7%)	<.001
	5-14 years	6,666 (34.4%)	5,778 (61.8%)	12,444 (43.3%)	
Rurality	Urban	14,816 (78.0%)	6,763 (75.1%)	21,579 (77.1%)	<.001
	Ethnicity	Māori	3,107 (34.6%)	9,229 (33.5%)	
	Pacific people	2,357 (12.7%)	771 (8.6%)	3,128 (11.4%)	<.001
	European & Other	10,046 (54.2%)	5,106 (56.8%)	15,152 (55.1%)	
Deprivation Quintile	Q1 (least deprived)	2,836 (14.9%)	1,563 (17.4%)	4,399 (15.7%)	<.001
	Q2	2,933 (15.5%)	1,551 (17.2%)	4,484 (16.0%)	
	Q3	3,394 (17.9%)	1,490 (16.5%)	4,884 (17.4%)	
	Q4	4,107 (21.6%)	1,844 (20.5%)	5,951 (21.3%)	
	Q5 (most deprived)	5,711 (20.1%)	2,560 (28.4%)	8,271 (29.6%)	
Clinical Status	Status 1	302 (1.6%)	77 (0.8%)	379 (1.3%)	<.001
	Status 2	2,644 (13.7%)	741 (7.9%)	3,385 (11.8%)	
	Status 3	12,006 (62.1%)	4,094 (43.8%)	16,100 (56.1%)	
	Status 4	4,326 (22.4%)	4,404 (47.1%)	8,730 (30.4%)	
	Status 0 (deceased)	58 (0.3%)	29 (0.3%)	87 (0.3%)	

METHODS

- Aotearoa NZ Paramedic Care Collection (ANZPaCC) contains data from all road-based EMS in NZ (Hato Hone St John and Wellington Free Ambulance).
- Data were collected from 1 January 2023 to 31 December 2023.
- The current analysis focuses on each child's first EMS presentation.
- Child patients were aged between 0-14 years (inclusive).
- Descriptive analyses were used to examine patient's demographics (e.g., age, sex, rurality, ethnicity) and clinical characteristics (e.g., clinical impression, acuity, transport disposition, mechanism of injury).
- Chi-square analysis was undertaken using SPSS (version 29.0). A p-value <.05 was considered significant.
- This study was approved by the Northern B Health and Disability Ethics Committee (2022 FULL 13415)

CONCLUSIONS

This study reports the first national demographic and clinical profile of child presentations to road-based EMS in Aotearoa NZ.

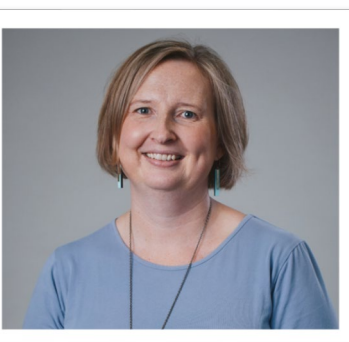
There was a higher proportion of medical-related patients compared to trauma patients. Additionally, medical-related patients had a greater proportion of high-acuity patients.

Over 15% of children were attended more than once during 2023 - a cohort that merits further research.

Future work will include calculating crude annual age-, sex-, ethnic-, area (urban, rural)-, and region-specific child road-based EMS incidence per 100,000 person years.

Our findings will highlight areas for continued clinical education and response preparedness, and strategic planning that focuses on the realities of EMS services for children in NZ.

CONTACT INFORMATION & ACKNOWLEDGEMENTS



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