

# Characterising patients who did not wait (DNW) for treatment at a rural hospital emergency department – A retrospective cohort study

## Abstract

### Background:

'Did Not Wait' (DNW) presentations are a critical indicator of emergency department (ED) performance, reflecting patient dissatisfaction, systemic inefficiencies, and potential safety risks. Patients who leave before being seen may experience deterioration or delayed diagnosis. While DNW trends are well documented in metropolitan settings, rural-specific data remains limited.

### Objective:

To examine the characteristics of patients who DNW for treatment at a rural Australian ED, and to identify the demographic, clinical, and temporal factors associated with increased risk of DNW using time-to-event analysis. This study aims to address the lack of rural-specific data in existing DNW literature and inform targeted interventions.

### Methods:

A retrospective cohort study was conducted at Casino & District Memorial Hospital ED in Northern NSW. All 13,913 patient presentations from 1 January to 31 December 2023 were analysed.

Cox proportional hazards regression was used to model the time to DNW based on patient characteristics and arrival factors.

### Results:

The DNW rate was 6.0%, higher than the NSW average, with most leaving within 90 minutes of arrival. Key predictors of DNW included:

- Age 16–25 (HR=1.42,  $p=0.02$ )
- Male gender (HR=1.19,  $p=0.01$ )
- Evening presentations (HR=1.41,  $p<0.0001$ )
- Low acuity (Triage 5: HR=8.21,  $p<0.0001$ )
- Frequent ED presentations (HR=1.39,  $p=0.01$ )

### Conclusion:

This study highlights the need for early triage engagement, and staffing models aligned with peak DNW risk. The findings support evidence-based, locally relevant strategies to improve rural ED performance and patient equity.

### Keywords:

Did Not Wait, Walk outs, Left without being seen, Emergency department, Rural



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