

Healthline and Teletriage Impact on Emergency Departments

March 2025

Executive Summary

New Zealand's telehealth services are proving to be vital in reducing pressure on emergency departments (EDs) nationwide. Two research studies clearly demonstrate this impact:

1. Whakarongorau Aotearoa's Emergency Triage Service

successfully diverted approximately 57% of potential ED visits in the first half of FY25 (July-December 2024), with significant cost savings of over \$8 million in ambulance costs alone.

2. Te Pūnaha Matatini & Auckland

University's research with Whakarongorau and Health NZ / Te Whatu Ora, covering the Te Manawa Taki (Midlands) region shows Healthline prevents approximately 80 unnecessary ED visits daily (13% reduction), while identifying another 36 daily ED visitors (6%) who could have been better served by Healthline.

Together, these findings highlight the critical role telehealth services play in connecting New Zealanders with the right care at the right time, while making more efficient use of our emergency healthcare resources.

Key Findings



STUDY 1: Whakarongorau Aotearoa Half-Year Analysis (July-December 2024)

Based on National Telehealth Service Emergency Triage Quarterly Reports

Emergency Triage Outcomes

- **11,037 patients were diverted from EDs** in the first half of FY25 through the Emergency Triage service
- Of these diversions, around **8,000 patients were diverted by Whakarongorau clinicians specifically**
- **57.4% of all cases (11,037 out of 19,201 cases) processed through Emergency Triage were successfully diverted from ED**
- The Emergency Triage service operates through a **partnership between Whakarongorau clinicians, Hato Hone St John, and Wellington Free Ambulance**, working together in ambulance control rooms.



Alternative Care Pathways

When diverting patients from EDs, the Emergency Triage service connected them with more appropriate care:

- 30% of all calls into Emergency Triage service result in primary or self care - **of the 21,000 calls received, around 7,000 are redirected to primary care or resolved through self care**
- Approximately **3,000 patients directed to primary care facilities including GP or urgent care clinics**
- Over **2,000 patients managed through self-care advice with follow-up options**
- Around **1,700 were treated on site or transported to another facility.**



“My daughter became ill the night before. I wasn’t sure about ringing the ambulance but had no choice as there were no doctors open in our community on a Sunday. Both the emergency caller and the paramedic were very clear in their advice and very helpful. Thanks to the paramedic I know now that we have a great emergency medical centre available to our community 20 minutes away when our medical centre is closed on the weekends.”



SOUTHLAND/OTAGO PARENT,
rated service Very Satisfied

Regional Differences

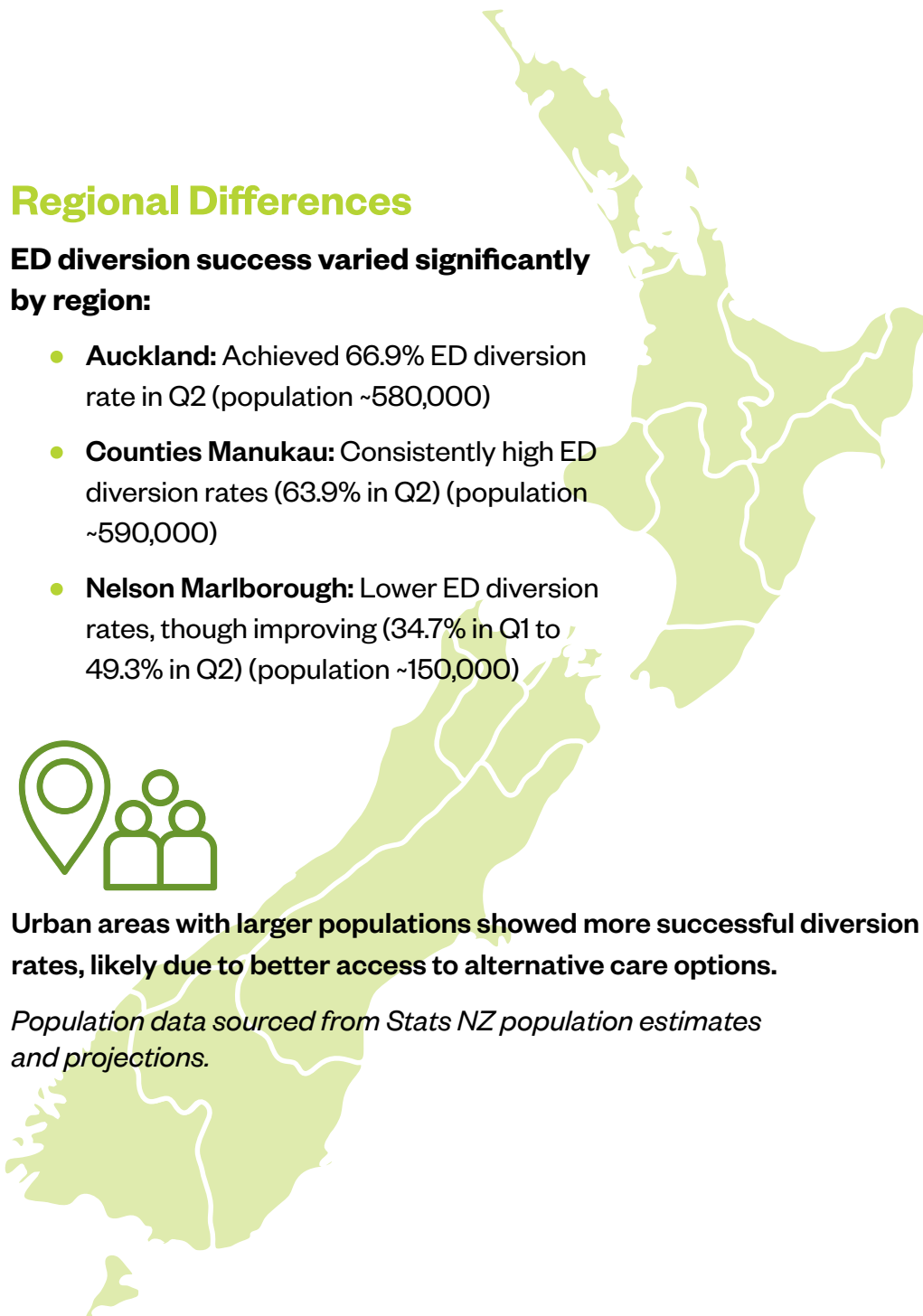
ED diversion success varied significantly by region:

- **Auckland:** Achieved 66.9% ED diversion rate in Q2 (population ~580,000)
- **Counties Manukau:** Consistently high ED diversion rates (63.9% in Q2) (population ~590,000)
- **Nelson Marlborough:** Lower ED diversion rates, though improving (34.7% in Q1 to 49.3% in Q2) (population ~150,000)



Urban areas with larger populations showed more successful diversion rates, likely due to better access to alternative care options.

Population data sourced from Stats NZ population estimates and projections.



Economic Impact



The Emergency Triage service delivered substantial cost savings:

- Prevented 11,037 unnecessary ED visits in the first half of FY25
- Avoided 8,777 unnecessary ambulance dispatches
- Combined savings of approximately **\$12.61 million** in the first half of FY25
 - \$8.2 million in ambulance costs (at \$934 per call-out)
 - \$4.41 million in ED costs (at \$400 per T4/T5 presentation)

Note: This is a conservative estimate based on minimum costs. According to Hato Hone St John, it costs up to \$324,000 to buy and equip an ambulance, and the cost of a typical emergency ambulance call-out is around \$934. ED presentations cost from \$400 for less urgent cases (T4/T5) up to \$1,100 for cases requiring admission.

Patient Safety and Satisfaction

- In Q2, 28% of cases returned for ambulance dispatch were upgraded to urgent response (RESP4 or above), down from 31% in Q1
- Patient satisfaction has improved from 82% in Q1 to 88% in Q2
- Higher satisfaction among those who received ambulance dispatch (92% in Q2).



“I called because our 10-week-old grandson had accidentally been burnt by the water spout in the bathroom. The spout retained the heat after filling the basin for a baby wash. His tummy was leaning against the spout for a few seconds. My daughter placed him under a cold tap but as he was so young and the area looked very red I didn’t know how deep the burn was, so I called 111. I was very quickly given an assessment and advised a nurse would call back. She did promptly and asked very clear questions about the incident, the size of the area and asked for a photo. From this it was ascertained that a hospital visit wasn’t required but a visit to her doctor on returning to Auckland later in the day should be done. She also was clever in advising the use of glad wrap to cover the wound to avoid further damage to the skin.”



**CENTRAL EAST GRANDPARENT,
rated service Very Satisfied**

STUDY 2: Te Pūnaha Matatini & Auckland University Research (July 2019-June 2024)

Based on analysis of Healthline and Health NZ / Te Whatu Ora ED data across Te Manawa Taki (Midlands) region

Healthline's Impact on ED Prevention

Approximately 83 people per day (14.6% of potential ED visits) were successfully diverted from EDs through Healthline advice

Impact varied by region:

- Bay of Plenty: 21.46 people per day (+29.6%)
- Lakes: 7.29 people per day (+23.5%)
- Waikato: 46.5 people per day (+14.1%)
- Taranaki: 7.88 people per day (+5.8%)



Potential for Further ED Visit Reduction

Approximately 34 people per day (6% of current ED visits) could have been managed through Healthline instead of attending ED

Potential varied by region:

- Bay of Plenty: 9.51 people per day (-13.1%)
- Lakes: 3.55 people per day (-11.4%)
- Taranaki: 9.44 people per day (-6.9%)
- Waikato: 11.71 people per day (-3.6%).



Demographics of Potential Healthline Users

People who used ED when Healthline might have been more appropriate:

- **Age:** Under-30s and over-70s overrepresented by 2.15%
- **Gender:** Men overrepresented by 2.68%
- **Ethnicity:** Pākehā and Māori overrepresented by 14%
- **Socioeconomic:** People from high-deprivation areas (deciles 7-10) overrepresented by 5.64%.

Research Methodology

For ED visits avoided through Healthline:

- Analysed Healthline call data for successfully self-managed patients
- Categorised presenting symptoms by clinical risk (low, medium, high)
- Estimated probability of ED attendance without Healthline advice
- Calculated separate probabilities for in-hours and after-hours periods.

For potential avoidable ED visits:

- Identified ED visits suitable for Healthline management based on:
 - Private transport to ED
 - Routine discharge or self-discharge
 - Triage codes 4 or 5 (less urgent/non-urgent cases).



User Persona: The Case of James

To illustrate who might benefit from Healthline instead of ED visits, the research identified typical users:

James: 24-year-old Pākehā male, warehouse operator in Hamilton, living in a decile 8 area.

- Injured his knee at Sunday football; can walk but it's worryingly sore
- Concerned about work tomorrow, needs a certificate, and unsure about after-hours options
- Heads to Waikato ED despite situation potentially being manageable through Healthline.

Key characteristics of James and similar cases:

- "Waits and sees" with health issues until they become concerning
- Self-diagnoses via internet searches
- Cost-conscious about healthcare options
- Uncertain about what constitutes a "real" emergency
- Finds standard GP hours difficult to access due to shift work.



Healthline could help by providing 24/7 clinical advice, helping determine if ED is necessary, sharing information about local care options, and offering a free service that removes cost barriers.



Detailed Regional Comparison



Emergency Triage (FY25 Half-Year):

Region	ED Diversion Rate	Population Served
Auckland	66.9% (Q2)	~580,000
Counties Manukau	63.9% (Q2)	~590,000
Nelson Marlborough	49.3% (Q2)	~150,000

Population data sourced from Stats NZ population estimates and projections.

Healthline Impact (July 2019-June 2024):

Region	Daily ED Visits Prevented	ED Reduction	Potential Additional Reduction	Total Impact
Bay of Plenty	21.46	+29.6%	-13.1% (9.51 people/day)	42.7%
Lakes	7.29	+23.5%	-11.4% (3.55 people/day)	34.9%
Taranaki	7.88	+5.8%	-6.9% (9.44 people/day)	12.7%
Waikato	46.5	+14.1%	-3.6% (11.71 people/day)	17.7%

The combined potential impact varies significantly across regions, with Bay of Plenty showing the highest total impact potential at 42.7% reduction in ED visits.

Service Comparison

Emergency Triage Service:

- Focuses on patients who have already called 111 for ambulance services
- Employs real-time secondary triage by health professionals in ambulance control rooms
- Measures actual diversion from emergency services through direct intervention
- Calculates cost savings based on avoided ambulance dispatches
- Applies across all of New Zealand.

Healthline:

- Examines both actual and potential impact across Te Manawa Taki (Midlands) region only
- Uses retrospective data analysis spanning five years (July 2019-June 2024)
- Employs clinical risk categorisation and probability modelling to estimate impact
- Compares multiple hospitals with varying demographics and service availability
- Identifies specific patient characteristics associated with avoidable ED visits
- Analyses differ by district due to variations in data recording methods.



Key difference:

Emergency Triage intervenes at the point of 111 calls, while Healthline operates earlier in the care pathway, potentially preventing both 111 calls and direct ED presentations.

Population Impact and Healthcare System Benefits

The telehealth services are having a substantial quantifiable impact on New Zealand's population:

Scale of Impact:

- **Annual Impact in Te Manawa Taki (Midlands) Region:**
Approximately 30,350 ED visits avoided annually through Healthline
- **Potential Additional Reduction:** Another 12,490 ED visits could be avoided annually in the Midlands region alone
- **Total Potential Annual Impact in Midlands:** Over 42,800 people could benefit from appropriate telehealth triage
- **Projected Annual Impact of Emergency Triage:**
Approximately 22,070 ED visits and 17,550 ambulance dispatches avoided nationwide
- **Combined Potential:** Over 52,000 ED visits potentially avoided annually across both services

Per Capita Impact by Region:

- **Auckland:** With a 66.9% diversion rate for a population of ~580,000, approximately 78 ED visits avoided per 100,000 population
- **Counties Manukau:** With a 63.9% diversion rate for a population of ~590,000, approximately 75 ED visits avoided per 100,000 population
- **Nelson Marlborough:** With a 49.3% diversion rate for a population of ~150,000, approximately 15 ED visits avoided per 100,000 population

Reduced Pressure on Emergency Services:

- Combined effect of both services prevents over 100 unnecessary ED visits daily in the Midlands region alone
- Allows ED staff to focus on genuinely urgent cases
- Reduces ambulance utilisation for non-emergency transport.

“Very helpful, helped me calm down as I was in a panic, I thought my 1-year-old was choking on something, but she was ok and the caller reassured me she would be fine and told what to do and stay calm. After that we didn’t need an ambulance and it was cancelled.”

AUCKLAND PARENT,
rated service **Very Satisfied**



Economic Benefits:

- Conservative cost savings of approximately **\$12.61 million** in the **first half of FY25**, achieved through avoided ambulance dispatches and reduction in Type 4 and 5 Emergency Department presentations.
- Indirect savings through reduced ED presentations
- More efficient use of healthcare resources across the system.

“Initially I thought the injury was more serious than it was. After speaking with St. John’s an ambulance was dispatched, but we were quicker to drive to the hospital, so we opted to do that. The triage on the phone was excellent and the advice on which hospital to attend was helpful.”

AUCKLAND PATIENT,
rated service **Very Satisfied**



Equity Considerations:

Detailed demographic analysis shows overrepresentation of certain groups in avoidable ED visits:

- **Age:** Under-30s and over-70s overrepresented by 2.15% compared to general population
- **Gender:** Men overrepresented by 2.68%
- **Ethnicity:** Pākehā and Māori overrepresented by 14%
- **Socioeconomic:** People from high-deprivation areas (deciles 7-10) overrepresented by 5.64%.

These patterns suggest targeted telehealth promotion could help address specific healthcare access inequities, particularly for young men, older adults, Māori communities, and those in higher-deprivation areas.



Integration Opportunities:

- Findings support closer integration between telehealth and emergency services
- Waikato Hospital exploring ways to connect non-urgent ED patients with Healthline on-site
- Potential for telehealth to serve as a more formal “front door” to the healthcare system.



Wider Application:

- Potential for expansion of telehealth services to further reduce ED burden nationwide
- Evidence supports investment in public awareness campaigns about telehealth options
- Effective triage through nurse, paramedic, and clinician pathways enables doctors to operate at the top of their scope while integrating with nationwide Doctor Services
- Capability to direct patients to Urgent Care facilities, with potential to align with ACC’s consideration of a booking service.

Conclusion.

The complementary approaches of Emergency Triage (intervening at the point of 111 calls) and Healthline (operating earlier in the care pathway) provide a comprehensive telehealth model that addresses healthcare needs at multiple points.

With continued investment, improved public awareness, and stronger integration with other healthcare services, telehealth has the potential to play an even greater role in creating a more efficient, equitable, and responsive healthcare system for all New Zealanders.

Data sources:

- *Whakarongorau Aotearoa / New Zealand Telehealth Services Emergency Triage Quarterly Reports Q1-Q2 FY25*
- *Te Pūnaha Matatini, Auckland University and Health NZ Interim Findings Impact of Healthline on Emergency Departments Research (July 2019-June 2024)*