Evaluating Response Times for Ground Ambulance Services

Objective

To evaluate the response times of the ground ambulance services for high-priority 911 calls in Newfoundland and Labrador.

Practice Points

1. When Newfoundland and Labrador Health Services (NLHS) was formed by merging the former regional health authorities, it also consolidated the province's air and ground ambulance system under one organization. This change has allowed for more consistent data collection beginning in June 2024.

2. NLHS are contracting a third party to manage air and ground ambulance services for the province. Key performance indicators (KPIs) will be part of the contract to measure success.

3. One of the KPIs is response time, which is defined as the time between a call received by Emergency Services to the ambulance arriving on-scene. The evaluation below uses the two highest priorities for 911 calls: Critical (P1) and Emergent (P2).

4. This metric was evaluated as a proof of concept for what is accessible in the current data system. Median, 90th percentile, and percentage completed with 9, 15, and 30 minutes were established as data points of interest in consultation with NLHS.

Methods

1. Response time data was provided by NLHS using tracking data for ambulance services. Each dispatch has a timestamp for specific events recorded by their central dispatch. The analysis covers P1 and P2 calls made for a ground ambulance between 1 Jun–31 Dec, 2024.

2. N represents the total number of P1 and P2 calls made in that health zone from 1 Jun–31 Dec 2024.

3. Eastern Urban and Eastern Rural health zones were combined for this analysis as some systems are still using the older regional health authority breakdown.

Results

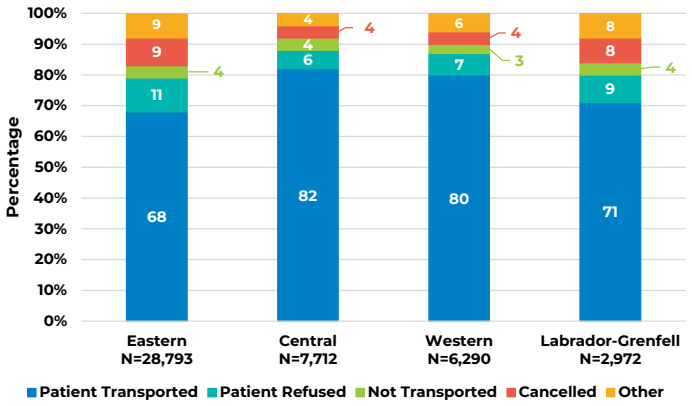

Figure 1. Call Outcome by Health Zone, 1 Jun–31 Dec 2024

- Not all calls that were received and responded to ended with patients being transported to a health care facility. Of the 45,767 high-priority calls made in the province, 33,128 (72%) were transported to a facility.

Picture of Ambulance

Table 1. Provincial Breakdown, by Health Zone, of Time (Minutes) from Call Received to Ambulance Arrival on Scene

Both Priorities	N	Median	90th Percentile	Completed in 9min (%)	Completed in 15min (%)	Completed in 30min (%)	Data Missing (%)
Eastern Health	28,793	16.53	39.89	13	40	76	7
Central Health	7,712	17.17	45.91	16	42	70	5
Western Health	6,290	18.17	42.29	12	37	73	5
Labrador-Grenfell Health	2,972	15.50	39.46	16	43	74	10
Priority 1 - Critical							
Eastern Health	18,828	15.40	35.87	15	45	80	6
Central Health	4,861	17.20	44.78	17	42	72	4
Western Health	4,116	17.63	40.83	14	39	75	5
Labrador-Grenfell Health	1,963	14.85	37.65	17	46	76	9
Priority 2 - Emergent							
Eastern Health	9,965	19.02	48.25	1	31	68	9
Central Health	2,851	17.03	47.79	16	41	69	6
Western Health	2,174	19.15	45.75	9	33	70	6
Labrador-Grenfell Health	1,009	16.80	45.78	14	37	68	12

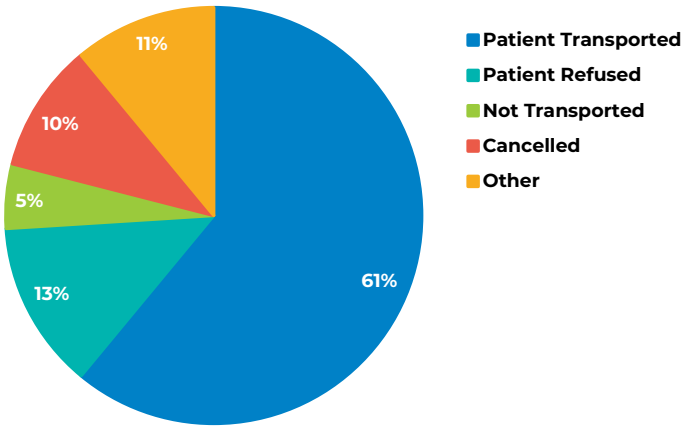

Figure 2. Call Outcome for St. John's Metro, 1 Jun–31 Dec 2024

- The St. John's Metro area has the highest instance of patients not being transported at 39%. That area also has the highest volume, rate of patient refusal and cancellation.

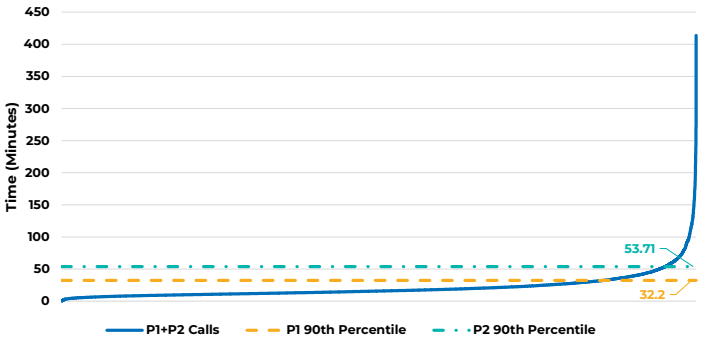

Figure 3. Time (Minutes) from Call Received to Ambulance Arrival on Scene in St. John's Metro, 1 Jun–Dec 31 2024 (N=16,754)

- Total number of P1 and P2 calls for the St. John's Metro area was 16,754. Each one is represented on the P1 + P2 line from shortest to longest response time.

- St. John's Metro includes the bases of the Health Sciences Centre, Mount Pearl, Major's Path, and Conception Bay South as that group of bases uses dynamic dispatch and share coverage responsibilities.

- St. John's Metro is being used as the largest example of a dispatch "base", but any dispatch base can be evaluated to the same degree.

Conclusions

1. To address outliers and to bring median values down, focus should be on where the issues are occurring and the specific dispatch bases, if required.

2. Evaluating potential solutions would entail a Learning Health System approach. NLHS has begun this process by establishing KPIs. Next steps include:

    - ensure the working group includes the appropriate mix of skills, reach and patient/public input,
    - collect, assemble and analyze data,
    - interpret the results,
    - translate the evidence,
    - apply the knowledge, and
    - take action to change practice.

3. As with any learning cycle, once any change has taken place, data should be collected again and the process restarts, evaluating the change.