

Emergency Department Utilization and Emergency Calls for Ambulance in NL

Objectives

1. To report the number of visits to Emergency Departments (EDs) in NL defined by acuity and analyzed by hospital and health centre.
2. To report the emergency call volumes to responding ambulance bases in NL.

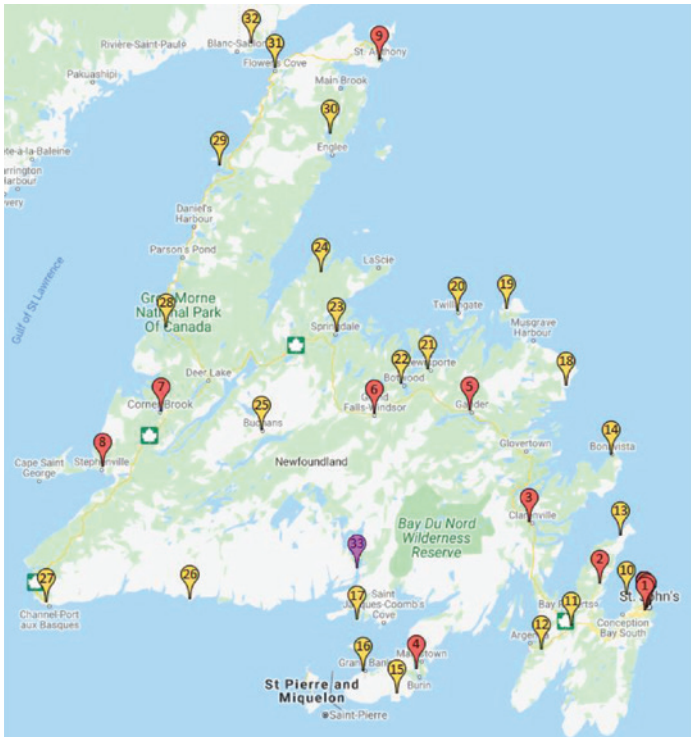
Practice Points

1. The Canadian Triage and Acuity Scale (CTAS) is based on a five-level scale: Level 1: Resuscitation, Level 2: Emergent, Level 3: Urgent, Level 4: Less urgent, Level 5: Non-urgent.
 - ◇ Level 1 patients have a problem with their airways, breathing, and circulation requiring immediate intervention or continuing treatment.
 - ◇ Level 2 conditions are considered threats to life, limb, or function requiring rapid medical interventions and the use of condition-specific controlled medical acts.
 - ◇ Level 3 conditions could potentially progress to a serious problem requiring emergency interventions, and may be associated with significant discomfort or affect ability to function at work or activities of daily living.
 - ◇ Level 4 conditions relate to patient age, distress, potential for deterioration, or complications that would benefit from intervention or reassurance.
 - ◇ Level 5 conditions are minor complaints that do not pose any immediate risk to the patient.
2. There are 37 EDs in NL in 13 hospitals, 23 health centres, and one medical clinic. In Northern and Southern Labrador, community clinics provide emergency services.

3. For CTAS levels 1–3, it is important to have access to timely, experienced care. For example, in ischemic stroke, an effective therapy is available, provided the patient presents and has a CT scan within 4.5 hours of symptom onset. For a ST elevation myocardial infarction, thrombolysis is effective within 6 hours and a cardiac catheterization should be performed within 24 hours to determine the need for coronary revascularization.
4. Concerns exist about quality of care and sustainability in small EDs. A rota of three family physicians in an ED receiving few resuscitation/emergency cases a week, of varying causes, is not conducive to maintenance of skills. Alternate options include advanced paramedic services connected to regional EDs and collaborative ED models using interdisciplinary teams.

Data

ED data were obtained from the NL Centre for Health Information (NLCHI) by the Harris Centre, and analyzed for 2017–18. EDs were defined by the number of level 1 and 2 cases seen per day, and by the percentage of cases that were level 4 or 5. The emergency call volumes made in 2018–19 for responding ambulance bases in the province was obtained from the Department of Health and Community Services.



Hospitals

1. St. John's
 - Health Sciences Centre 55,872
 - St. Clare's 38,413
 - Janeway 37,116
2. Carbonear 27,013
3. Clarenville 22,445
4. Burin 20,473
5. Gander 29,937
6. Grand Falls-Windsor 24,013
7. Corner Brook 39,063
8. Stephenville 29,718
9. St. Anthony 8,652

Labrador Hospitals

- Happy Valley-Goose Bay 20,753
- Labrador City 17,679

Health Centres

10. Bell Island 5,458
11. Whitbourne 8,567
12. Placentia 4,691
13. Old Perlican 6,421

Health Centres continued

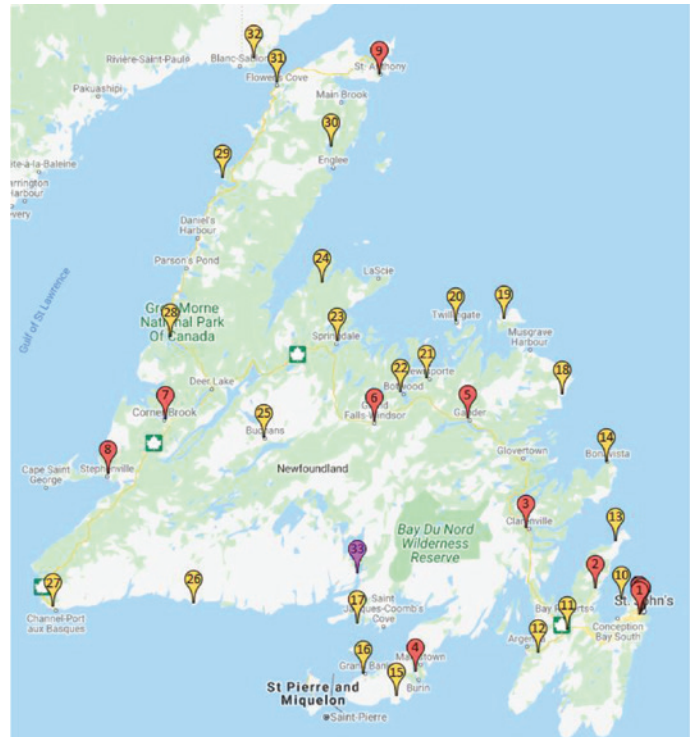
14. Bonavista 10,443
15. St. Lawrence 3,337
16. Grand Bank 8,114
17. Harbour Breton 3,293
18. New-Wes-Valley 2,247
19. Fogo 3,929
20. Twillingate 13,210
21. Lewisporte 6,039
22. Botwood 8,041
23. Springdale 7,809
24. Baie Verte 6,754
25. Buchans 1,572
26. Burgeo 1,520
27. Port aux Basques 6,718
28. Bonne Bay 4,253
29. Port Saunders 6,977
30. Roddickton 2,522
31. Flowers Cove 5,551
32. Forteau 1,673

Medical/Community Clinics

33. St. Albans 4,123
 - Labrador South Clinics 704
 - Labrador North Clinics 2,958

Figure 1. Geographic Location of Hospitals (Red), Health Centres (Yellow), and Clinics (Purple), With Number of ED Visits in 2017/18

- All hospitals had >15,000 visits/year, except St. Anthony (N=8,652).
- All health centres and clinics had <10,000 visits/year, except Bonavista (N=10,443) and Twillingate (N=13,210).



Hospitals

1. St. John's
 - Health Sciences Centre 5,252
 - St. Clare's 4,510
 - Janeway 2,020
2. Carbonear 1,108
3. Clarenville 1,544
4. Burin 311
5. Gander 369
6. Grand Falls-Windsor 1,108
7. Corner Brook 1,941
8. Stephenville 206
9. St. Anthony 91

Labrador Hospitals

- Happy Valley-Goose Bay 1,153
- Labrador City 143

Health Centres

10. Bell Island 33
11. Whitbourne 37
12. Placentia 149
13. Old Perlican 85

Health Centres continued

14. Bonavista 156
15. St. Lawrence 78
16. Grand Bank 46
17. Harbour Breton 25
18. New-Wes-Valley N/A
19. Fogo N/A
20. Twillingate N/A
21. Lewisporte 225
22. Botwood 34
23. Springdale 149
24. Baie Verte 23
25. Buchans 49
26. Burgeo 38
27. Port aux Basques 78
28. Bonne Bay N/A
29. Port Saunders N/A
30. Roddickton N/A
31. Flowers Cove N/A
32. Forteau N/A

Medical/Community Clinics

33. St. Albans N/A
 - Labrador South Clinics 13
 - Labrador North Clinics 25

N/A: not available by CTAS score

Figure 2. Geographic Location of Hospitals (Red), Health Centres (Yellow), and Clinics (Purple), With Number of CTAS Level 1 and 2 Cases Seen per Year

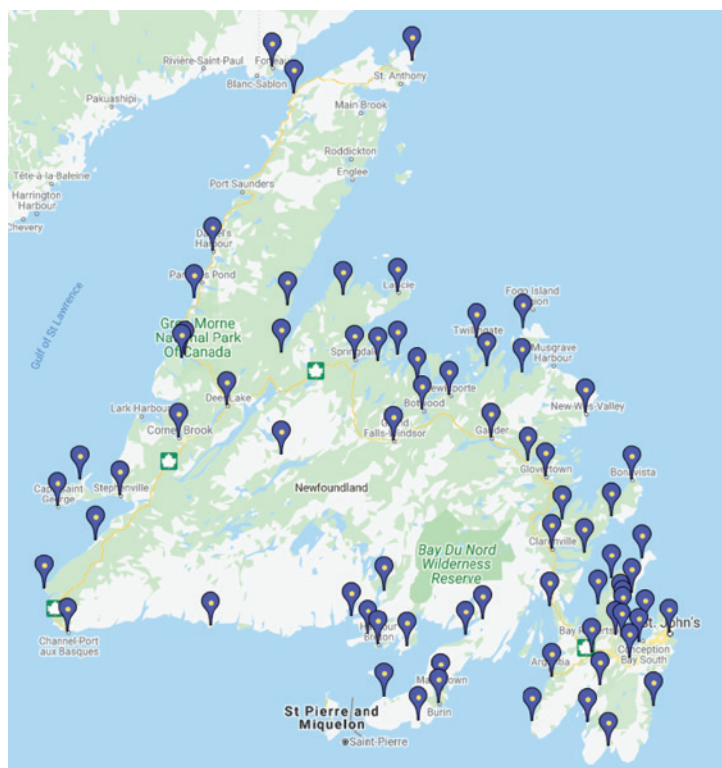
- The following four hospitals saw <365 level 1 and 2 cases per year: Burin, Stephenville, St. Anthony, and Labrador City.
- No health centre saw >365 level 1 and 2 cases per year.

Table 1. Number per Day of CTAS Level 1 and 2 Visits and the Percentage of Visits That Were Level 4 and 5

Facility	Days to see one Level 1 or 2 case	% visits Level 4 or 5	% of ED visits that did not go to the nearest ED	% of Level 1-3 visits that did not go to nearest ED
Eastern Health – Hospitals				
Health Sciences Centre	0.07	41.2	–	–
St. Clare's	0.08	50.5	–	–
Janeway	0.18	50.8	–	–
Carbonear	0.33	61.0	17.4	17.7
Clareville	0.24	56.3	10.4	9.1
Burin	1.17	74.2	9.6	14.9
Eastern Health – Health Centres				
Bell Island	11.06	91.1	47.4	79.4
Whitbourne	9.86	79.4	54.8	80.0
Placentia	2.45	58.2	17.3	22.7
Old Perlican	4.29	78.3	19.8	38.2
Bonavista	2.34	72.9	14.0	24.6
St. Lawrence	4.68	80.1	37.7	39.2
Grand Bank	7.93	91.8	13.1	43.9
Central Health – Hospitals				
Gander	0.99	69.6	9.9	12.4
Grand Falls-Windsor	0.33	69.8	9.1	8.8
Central Health – Health Centres				
New-Wes-Valley	N/A	N/A	N/A	N/A
Fogo Island	N/A	N/A	N/A	N/A
Twillingate	N/A	N/A	N/A	N/A
Botwood	10.74	89.7	23.5	43.5
Lewisporte	1.62	86.2	36.6	60.4
Springdale	2.45	80.1	22.8	35.2
Baie Verte	15.87	84.4	8.4	28.0
Buchans	7.45	79.5	13.3	20.7
Harbour Breton	14.60	82.9	20.2	33.5
Central Health – Medical Clinic				
St. Albans	6.89	77.4	15.6	23.3
Western Health – Hospitals				
Corner Brook	0.19	69.9	5.8	5.7
Stephenville	1.77	79.7	4.8	9.6
Western Health – Health Centres				
Port Saunders	N/A	N/A	N/A	N/A
Bonne Bay	N/A	N/A	N/A	N/A
Port aux Basques	4.68	66.5	11.5	16.9
Burgeo	9.61	N/A	N/A	N/A
Labrador-Grenfell Health – Hospitals				
St. Anthony	4.01	76.4	4.8	11.1
Goose Bay	0.32	66.6	5.2	5.0
Labrador City	2.55	89.2	4.3	13.4
Labrador-Grenfell Health – Health Centres				
Roddickton	N/A	N/A	N/A	N/A
Flowers Cove	N/A	N/A	N/A	N/A
Forteau	N/A	N/A	N/A	N/A

- In Conception Bay North, the health centre in Old Perlican saw a level 1 or 2 case every 4.3 days, and the Carbonear hospital 0.3 per day. Of level 1–3 cases whose nearest ED was Old Perlican, 38% did not go there.
- In Central Health, a level 1 or 2 case was seen once every 7 days or more in New-Wes-Valley, Botwood, Baie Verte, Buchans, Harbour Breton, and St. Albans. Of level 1–3 cases whose nearest ED was Botwood, 43.5% did not go there. The comparable rate for Lewisporte was 60.4%, for Springdale 35.2%, Baie Verte 28.0%, Buchans 20.7% and Harbour Breton 33.5%. The rate for Gander Hospital was 12.4% and for Grand Falls-Windsor Hospital 8.8%.
- In Western Health, the frequency of level 1 or 2 cases were low in all four health centres.
- On the Northern Peninsula, a level 1 or 2 case was seen infrequently in the two health centres and the hospital.
- The percentage of visits that were level 4 or 5 in health centres ranged from 73% to 92%, except for Placentia (58%).

N/A: not available by CTAS score



Ambulance Base	Forteau 313	Placentia 411
Adam's Cove 145	Gambo 532	Point Leamington 92
Arnold's Cove 253	Glovertown 657	Port Aux Basques 594
Bay D'Espoir 297	Grand Bank 621	Port Hope Simpson 68
Bay L'Argent 160	Hampden 94	Port Rexton 92
Bell Island 452	HV-GB 505	Random Island 212
Bonavista 794	Harbour Breton 210	Roberts Arm 88
Botwood 487	Harbour Grace 375	St. Bride's 79
Boyd's Cove 309	Heart's Delight 302	St. Lawrence 192
Brigus 236	Hermitage 65	St. Lunaire-Griquet 59
Buchans 58	Holyrood 718	St. Mary's 231
Burin 196	Jackson's Arm 98	Stephenville 1530
Cape St. George 15	Jeffrey's 165	Terrenceville 139
Carmanville 465	Kelligrews 2,072	Trepassey 150
Cartwright 22	La Scie 115	Triton 98
Clarenville 1,453	Lethbridge 385	Upper Island Cove 426
Clarke's Beach 1,314	Lewisporte 1,075	Whitbourne 715
Codroy 148	Lourdes 205	Winterton 174
Corner Brook 332	Marystown 803	Woody Point 151
Cow Head 99	Mose Ambrose 102	
Daniel's Harbour 142	Mount Carmel 191	
Deer Lake 939	New-Wes-Valley 499	
Ferryland 424	Norris Point 202	
Fogo 159	Old Perlican 382	

Figure 3. Emergency Call Volumes to Responding Ambulance Bases in NL in 2018/19

- 41 of 66 (62%) responding ambulance bases had less than one emergency call per day.

Conclusions

1. For reasons related to quality of care and sustainability, the model of emergency care requires change in health centres. A low number of resuscitation or emergent patients go to the health centres and a high proportion of visits are less urgent or non-urgent. In addition, a high percentage of level 1–3 visits whose closest ED is a health centre do not go to that ED. This change is contingent on having advanced care paramedics to provide ABC care (airways, breathing, circulation), a restructured ambulance system, models of urgent care in primary care networks, and collaborative care models.
2. The low volume of emergency calls to many responding ambulance bases suggests that a province wide ambulance system with a central dispatch would improve the efficiency of the system.