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Newfoundland and Labrador Ambulance Program Review
Department of Health and Community Services
Government of Newfoundland and Labrador

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CONSULTANT FINAL REPORT

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EXECUTIVE SUMMARY

In December 2012, Fitch & Associates, in partnership with Jane Helleur & Associates (collectively, the "Consultants") began a comprehensive review of the Newfoundland and Labrador Provincial Ambulance Program on behalf of the provincial government's Department of Health and Community Services. The objectives of the review included analysis and recommendations for Program improvements.

The review was shaped by the following tenant:

> *Most Emergency Management Service (EMS) systems function according to definitions that have been set by the systems themselves, or by the systems' service providers. However, by defining and evaluating emergency ambulance service from the patient's point of view, the focus is on the patient first: before any other interests. In this way, one can compare various provider service models and results objectively, according to how they best serve the patient, rather than how they best serve the provider.*

Medical transportation service in Newfoundland and Labrador is complex. It faces numerous challenges, some of which are unique to the geography of the province including a large landmass, harsh weather and a widely dispersed service population. These elements put emergency medical services and ambulance transportation in Newfoundland-Labrador to the test every day.

Yet, EMS is not about the environment. It is about people. It is about the critically ill or injured patients and those who care for them. EMS is about ensuring a transport system that safely moves patients to healthcare facilities and serves as an effective and efficient link to tertiary and specialty clinical services. It is supported by EMS personnel who are committed to high standards of care.

Like many ambulance services in North America, Newfoundland and Labrador's Ambulance Program began as a grassroots, humanitarian effort to address the needs of the ill or injured who required care and transport to medical facilities in rural areas of the province. The community ambulances services were started by volunteers with limited medical training. Over the past decade, the provincial government has

invested heavily to increase the size and professionalism of the Program. For example, the Road Ambulance program budget has increased in size by 350% from $14 million in 2001-02 to almost $50 million in 2011-12.

In 2011-12, the Newfoundland-Labrador Ambulance Program completed nearly 66,000 transports through its road ambulance programs, which utilize:

- 61 hospital, private and community based ambulance services, operating 171 ambulances;
- 3 government owned and one leased air ambulance configured aircraft stationed on the island and in Labrador;
- 6 utility helicopters that can provide daytime medevac response; and
- 800 ambulance professionals.

During the review process, the Consultants heard opinions that:

- EMS is not being operated as efficiently and effectively as it could be;
- Demographic shifts are having a significant impact on demand for service; and
- Provincial costs for ambulance services are escalating.

Despite the increased investment, the Newfoundland and Labrador Ambulance Program has not reached its full potential as a high-performance emergency ambulance service that consistently and predictably delivers clinical excellence, response-time reliability, economic efficiency and patient/customer satisfaction. High performance emergency ambulance services exhibit the following five hallmarks:

Hallmark 1 — Holding the emergency ambulance service accountable.

Hallmark 2 — Establishing an independent oversight entity.

Hallmark 3 — Accounting for all costs.

Hallmark 4 — Requiring system features that ensure economic efficiency.

Hallmark 5 — Ensuring long-term high performance service.

Currently, the province's funding model results in the payment of high levels of ambulance availability when there are low periods of ambulance service demand. In other words, the province is paying for ambulances when they are not needed. The private and community operators are also funded, in part, by a model that recognizes volume and pays for mileage. This funding model provides an incentive for the Program's costs to increase.

The Consultants also found that the Newfoundland and Labrador Ambulance Program is not an organized system as there is no central coordination or legislatively enabled authority. Further, the current poor quality of available transport data hobbles system improvement or redesign.

The surveys, interviews and discussions held revealed a service industry doing its best, despite a host of challenges.

Operators expressed concern over widespread workforce shortages, unsuccessful recruitment efforts and low employee retention. Some reported situations where other ambulance operators, other provinces and even other industries hire away staff through higher pay. Unscheduled and non-emergency late day, evening or weekend transfers are hindering the operators' ability to serve local communities. Late night calls also place staff in harm's way, especially if they experience fatigue and declining weather conditions as they travel across the province.

The emergency medical responders, primary care paramedics and advanced care paramedics spoke proudly and passionately about their work. Despite their love for their professions, they voiced concerns with the industry. In the private ambulance sector specifically, they identified pay disparity, long hours and poor quality of life issues. Professionals voiced concerns with fear of reprisal, or worse, loss of employment for speaking up about problems or issues.

The Newfoundland and Labrador Ambulance Program is not suffering from a lack of determination or commitment. Across the province are individuals, groups and communities with a keen focus on system improvement, innovation and solutions to these issues, many of which we include in our findings and recommendations. In fact, the genesis of our recommendations came from stakeholders themselves.

The following represent the strategic recommendations to enable the changes required to operate an efficient, effective, sustainable and quality ambulance system

for a province patient centric model. All of these recommendations should be implemented within a five-year time horizon, beginning now.

Immediate Recommendations: (to be completed within the first 18 - 24 months)

1. Transition the ambulance "level of effort" contracts to performance-based contracts. This will provide for higher levels of accountability by establishing performance metrics that are to be reported by all ambulance operators. The assignment of auditors to assess and report on consistent compliance is an important component of this recommendation.

2. Clarify ambulance operator roles, responsibilities and rights in relation to service area exclusivity. This is fundamental to the implementation of a Centralized Medical Dispatch Centre (CMDC).

3. Commence implementation of Ambulance Dispatch and Management System (ADAMS) within the Regional Health Authorities.

4. Enact Emergency Medical Services (EMS) legislation to govern the ambulance services in the province. The legislation would provide the Department of Health and Community Services with the authority to:

    a. License and regulate ambulance operators;
    b. Establish medical oversight for ambulance professionals;
    c. Establish standards for ambulances and equipment; and
    d. Register ambulance vehicles.

5. Build and operationalize a Centralized Medical Dispatch Centre (CMDC).

    a. Begin to develop a CMDC with a target to be operational within 18 months. This includes ensuring the technology and tools exist to electronically capture province-wide service delivery outputs and performance data for measuring, monitoring and quality improvement; and
    b. In tandem with the recently approved 911 centre, the CDMC should work in tandem with fire and emergency services to provide for the seamless receipt and coordination of emergency requests, effective medical and operational control, real time performance monitoring and hard data for

the province's EMS system design and continuous operational improvements.

6. Establish EMS Newfoundland and Labrador with direct accountability to the Deputy Minister of Department of Health and Community Services. EMS Newfoundland and Labrador should:

    a. Assume accountability and responsibility for all aspects of road and air ambulance services delivered by operators and agents except for the registration and licensure of EMS professionals;
    b. Assure accountability for the system's performance results including in the areas of clinical excellence, response-time reliability, economic efficiency and patient satisfaction;
    c. Define provincial quality benchmarks for the delivery of the EMS Newfoundland-Labrador system; and
    d. Replace the existing PMO office and incorporate an Office of Medical Director (OMD) within the new governance structure.

Medium Term Recommendations (to be completed within 36 - 42 months)

7. Review options for self-regulation of EMS personnel through the Newfoundland-Labrador Council of Health Professionals and the existing *Health Professions Act.*

8. Design and begin implementation of a tiered EMS response including a robust Medical First Responder program. In the design of such a capability, the unique attributes and demographics of the province's communities must be a driving factor in determining the level of EMS personnel required at a community and local area basis.

9. Establish and implement a plan to address human resource issues raised by stakeholders to include recruitment, retention, pay, benefits, quality of work life, training program access and accreditation.

Longer Term Recommendation (to be completed within 48 – 60 months)

10. Finalize the design of the Newfoundland and Labrador EMS system and begin implementation. The key data and performance results from the

recommendations listed above will have been compiled for application validating the final EMS system design.

None of the recommendations should be implemented without an unrelenting commitment to the fundamental reason for the significant investment of time, talent and resources: the patient. It is the patient who will experience the most gain. However, a significantly improved EMS will benefit the entire province as it moves toward a high performance EMS service.

ACRONYMS

ACP	Advanced Care Paramedics
ADAMS	Ambulance Dispatch & Management System
ALS	Advanced Life Support
AVL	Automated Vehicle Location
CAD	Computer-Aided Dispatch
CCAC	Community Care Access Centre
CCP	Critical Care Paramedic
CCT	Critical Care Transport
CMDC	Centralized Medical Dispatch Centre
CME	Continuing Medical Education
CAN	College of the North Atlantic
CPR	Cardio-Pulmonary Resuscitation
ECP	Extended Care Paramedic
EHIS	Emergency Health Information System
EHS	Emergency Health Service
EMD	Emergency Medical Dispatch
EMR	Emergency Medical Responders
ePCR	Electronic Patient Care Record
GAS	Government Air Service Division
GIS	Geographical Information System
GPS	Global Positioning System
HEMS	Helicopter Emergency Medical Services
IDR	Information Data Request
IFR	Instrument Flight Rules
MFS	Medical Flight Service
MPDS	Medical Priority Dispatch System
OHS	Occupational Health & Safety
PCP	Primary Care Paramedics
PCR	Patient Care Record (Report)
PMO	Provincial Medical Oversight
PMT	Paramedicine and Medical Transport
PSAP	Public Safety Answer Point
RHA	Regional Health Authority
VOIP	Voice Over Internet Protocol

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1. INTRODUCTION

Medical transportation service in Newfoundland and Labrador is a complex and highly visible health care program. The challenge is to provide appropriate, safe and timely transport and effective clinical interventions in response to medical emergencies for critically ill or injured patients. The program must also ensure a medical transport system effectively serves as a link to tertiary and specialty clinical services.

Providing ambulance services in Newfoundland and Labrador is not without its share of challenges. The province has a population of just over 514,000 people and a landmass of approximately 400,000 square kilometres. Approximately 92 per cent of the province's population resides on the island portion of the province (including its associated smaller islands) and more than half of the total population lives on the Avalon Peninsula. Home to a variety of climates and weather, from a humid marine climate on the Island to subarctic and sub polar climates in Labrador, transportation even under the best of conditions is not always easy. At its worst, heavy fog, blizzard and high wind conditions can shut down transportation between communities.

Like many ambulance services in North America, the Newfoundland and Labrador Ambulance Program began as a grassroots, humanitarian effort to address the needs of the ill or injured who required care and transport to a hospital or clinic. Today, ambulance service continues to build on the legacy of community goodwill and receives strong community and government support. As well, ambulance services benefit from its personnel who deliver a consistent, strong effort to support patient care.

In December 2012, Fitch & Associates, in partnership with Jane Helleur & Associates (collectively, "The Consultants"), commenced a comprehensive review of the Newfoundland and Labrador Ambulance Program on behalf of the Department of Health and Community Services. The project timeline is included in Annex A. Thus, the review included a thorough analysis of the current operating environment and detailed analyses to support recommendations aimed at achieving a high performance Emergency Medical Services (EMS) system.

While the Consultants' scope of work considered how the medical airplanes helicopters integrate with the ground ambulance program, the location, selection, funding and/or operation of emergency air transportation were all *outside* the project scope.

The information reflected in this report was collected from December 1, 2012 to March 8, 2013. Wherever available, three-year program data was collected. Benchmarks for standards and performance criteria were determined through industry guides and standards, national and provincial practices and international industry guidelines.

1.1 Background of Newfoundland and Labrador Ambulance Program

As important context for this report, it is first necessary to provide background information about the Newfoundland and Labrador Ambulance Program.

The primary mandate of the Program is to respond to patients in emergency situations. However, ambulances and aircraft are also utilized for the conveyance of patients requiring specialized medical attention or tests at another medical facility. There are three programs, including:

1. The Road Ambulance Program which contracts with 27 private ambulance operators, 22 community ambulance operators and 12 hospital based services with each delivering service in their respective regions. Through the Road Ambulance Program, approximately 66,000 patients are transferred annually.

2. The Fixed Wing Ambulance Program, the aircraft are operated by the Government Air Service Division (GAS) of Transportation and Works, with 3 government-owned King Airs and a month-to-month leased Citation jet. The medical component is operated by Eastern Health's Paramedicine and Medical Transport department. Through the Fixed Wing Ambulance Program, approximately 1,200 patients are transferred annually throughout the province and to out-of-province facilities.

3. Rotary wing (helicopter) emergency medical evacuations are provided throughout the province through the use of six utility configured Bell 206 and 407 helicopters leased by GAS from Universal Helicopters Limited. These helicopters are also used by several government departments for search and

rescue, firefighting, wildlife tracking, etc. In 2011/12 there were approximately 80 RW medical flights: 40 were medevacs and another 40 flights were scheduled to transport physicians and patients to and from remote communities. If the Bell helicopters are not available, GAS will call upon the Department of National Defense Search and Rescue (SAR) or charter Cougar Helicopters Limited.

1.1.1 Organizations and Their Role

This section introduces the organizations involved in the Newfoundland and Labrador Ambulance Program.

Department of Health and Community Services

The Department of Health and Community Services provides leadership in health and community services programs and policy development for the province. This involves working in partnership with a number of key stakeholders including Regional Health Authorities (RHAs), community organizations, professional associations, post-secondary educational institutions, unions, consumers and other government departments.

The Department of Health and Community Services provides funding, leads policy and program development, monitors and provides support to the RHAs for the delivery of ambulance programs in their region.

Regional Health Authorities

Four RHAs deliver health programs and services to the citizens of their region. These are:

1. Eastern Health
2. Central Health
3. Western Health
4. Labrador-Grenfell Health

Figure 1 identifies the geographic areas serviced by each RHA and identifies the approximate number of ambulance transfers in each region.

Each RHA has a Paramedicine and Medical Transport staff that manages their hospital-based ambulance services and oversees the operations of the private and community-based ambulance operators in their region.

The Department of Health and Community Services has delegated four Program responsibilities to Eastern Health's Paramedicine and Medical Transport (PMT) Division to provide the following services to all the RHAs:

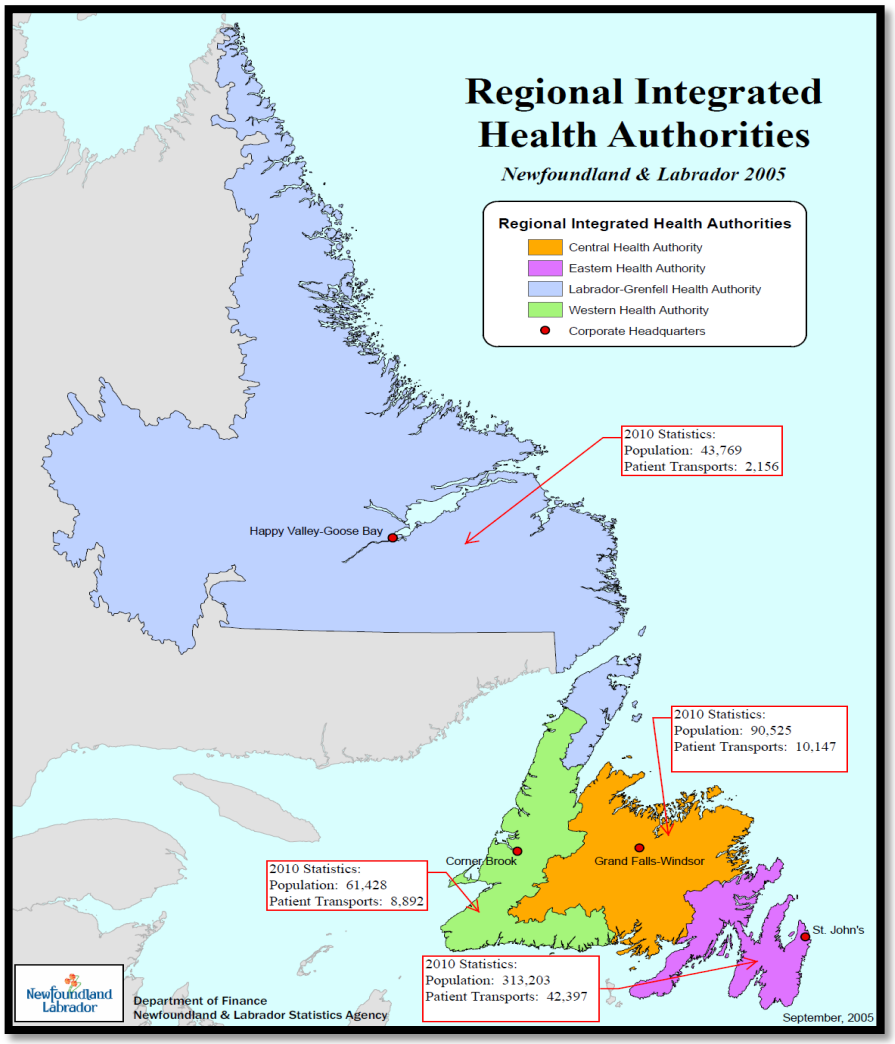
1. **Regional Services** – Monitors compliance and performance to provincial ambulance polices and adherence to provincial standards. The Medical Communications Center (MCC) provides medical communications and dispatch coordination for Provincial Air Ambulance, On-Line Medical Control, and road ambulance services such as northeast Avalon 911 medical dispatch, province-wide road ambulance dispatch for RCMP, Royal Newfoundland Constabulary and the Health Line, as well as long-distance transport coordination from tertiary care centres in St. John's.

2. **Financial Services** – Processes all ambulance operator mileage/attendant claims for each transfer completed in the province. Private and community operators send their claims to Financial Services where the claims are adjudicated against the Department of Health and Community Services' rules and regulations and then approved for payment. Batches of approved claims are sent to the RHAs for payment.

3. **Provincial Medical Oversight (PMO) Program** – See the PMO Section below for details. PMO also administers the province wide purchase of new technology.

4. **Medical Flight Team** – A team of 12 flight trained Registered Nurses and Advanced Care Paramedics fly on the provincial fixed wing and rotary wing aircraft. Recruitment and training is underway for a second Medical Flight Team to be stationed in Happy Valley-Goose Bay to service Labrador and northern Newfoundland.

Figure 1: RHA, Population and Number of Patient Transports by RHA



Source: Department of Finance Newfoundland and Labrador Statistics Agency and Paramedicine and Medical Transport Annual Report 2009-10

Provincial Medical Oversight

All paramedicine personnel practicing in the province carry out standardized medical diagnosis and treatment protocols that are required during transport, under the license of the Provincial Medical Director for Paramedicine and Medical Transport. The Provincial Medical Oversight (PMO) Program was established to support the registration and medical delegation to attendants through four functions:

1. Acts as the Provincial Registrar of Ambulance Attendants through the following activities:
    a. Review and approve of eligibility to practice requirements;

b. Administer the entry to practice exam;
c. Administer the annual protocol exams;
d. Oversee and track the attendants' Continuing Medical Education courses; and
e. Track attendants' clinic skills completion requirements.

2. Works with the Medical Director to establish and update the Basic Life Support, Advanced Life Support and Critical Care Transport protocols.

3. Provides 24/7 on-line medical control to attendants who require the advice of a physician during a transfer.

4. Quality assurance monitoring and continuous quality improvement of the care provided by attendants through audit and investigation of patient concerns.

Road Ambulance Operators

The 61 provincial road ambulance services licensed by the Public Utilities Board are classified in one of three categories:

1. **Private Ambulance** – 27 private businesses provide road ambulance services in designated geographic areas. Depending on the size of the service an operator may have between two and ten ambulances in their fleet. There has been a general trend towards consolidation, with larger operators buying the licenses and assets of smaller operators.

2. **Community Ambulance** – 22 volunteer or not-for-profit organizations provide ambulance services in designated geographic areas. Most community ambulance operators have one ambulance in their fleet.

3. **Hospital Ambulance** – In 12 regional centres, RHAs have their own ambulance services that are staffed by hospital employees.

Ambulance operators per RHA and ambulance numbers per RHA are listed in Table 1.

Table 1: Ambulance Operators per RHA and Number of Ambulances per RHA (2012)

	2012				
Regional Health Authority	**Private Operators**	**Community Operators**	**Hospital Operators**	**Total**	**Number of Ambulances**
Eastern	15	6	2	**23**	**84**
Central	5	8	5	**18**	**40**
Western	5	7	2	**14**	**36**
Labrador-Grenfell	2	1	3	**6**	**11**
Total	**27**	**22**	**12**	**61**	**171**

Source: Eastern Health – PMT Division

Currently, the 61 operators work independently from each other within their defined service areas and each has their own dispatch process.

There are two associations representing the private ambulance operators and one association representing the community operators. No formal association representing the hospital-based ambulance services exists. The current ambulance Service Agreement for private and community operators expired on March 31, 2012. The agreement is automatically renewed for successive periods of 180 days.

Emergency Medical Service Professionals

There are three categories of road ambulance attendants in the province. Their minimum training requirements are as follows:

- Emergency Medical Responder (EMR) - 2 weeks classroom training;
- Primary Care Paramedic (PCP) - 8 months classroom training with a clinical skills component; and
- Advance Care Paramedic (ACP) - PCP qualification plus 16 months of additional classroom training with an advanced clinical skill component.

Table 2 below outlines the breakdown of EMS staff in the province.

Table 2: Ambulance Professionals per Category, April 2012

Category	Number of Ambulance Professionals
Advanced Care Paramedic (ACP)	30
Primary Care Paramedic (PCP)	444
Emergency Medical Responders (EMR)	336
Total	**810**

Source: Provincial Medical Oversight

Government Air Services

Government Air Services (GAS) operates air assets on behalf of the Government of Newfoundland and Labrador and serves four ambulance functions:

1. Operates (pilots, maintenance, etc.) three Government owned King Airs. Two are stationed in St. John's and one in Happy Valley-Goose Bay in Labrador. The aircraft are used to transfer patients to and from the province's health care facilities and out-of-province facilities.

2. Manages the use of a Citation jet (on month-to-month retainer to the Department of Health and Community Services) used for rapid emergency response of the Medical Flight Team and the Janeway Children Hospital's Neonatal Team from St. John's to Labrador and for the transportation of patients to and from out-of-province medical facilities.

3. Manages the charter of six non-dedicated utility Bell 206 & 407 helicopters stationed around the island. When used for medevacs or bush rescues, the helicopters are converted to carry a stretcher and medical attendants.

4. Oversees the selection and movement of fixed and rotary wing assets when required for air transfers and medevacs through a centralized dispatch operation.

1.1.2 Road Ambulance Service Evolution

Prior to April 1, 2005, an Emergency Health Services Division within the Department of Health and Community Services was responsible for the ambulance program. This division was responsible for all operational issues, medical control, registration of ambulance personnel and vehicles, policy development as well as negotiations

related to the service agreements between the department and the individual ambulance operators.

On April 1, 2005, responsibility for operational issues related to the road and air ambulance program was devolved to the RHAs. The Provincial Government has maintained responsibility for contract negotiations with private and community operators as well as the development and maintenance of provincial policies, procedures and operational standards.

1.1.3 Fixed Wing Ambulance Service Evolution

The provincial government has operated a fixed wing air ambulance service since the early 1960s. In the last three years, the provincial government invested in new aircraft with the purchase of two new state of the art King Air 350s in an air ambulance configuration. The province has a network of airports and airstrips adjacent to medical facilities which allows for a system of air transport to move patients to the appropriate level of medical care.

1.1.4 Rotary Wing Ambulance Service Evolution

Since the late 1960s the provincial government has chartered non-dedicated utility helicopters that provide medevac services. The underlying medevac principle is the stabilization of the patient before flight and the monitoring of the patient during the flight to the nearest medical facility. These helicopters operate under visual flight rules (VFR) and are not available for use at night and in periods of inclement weather. In emergency situations requiring instrument flight operations and/or involving night operations, the Department of National Defense (DND) Search and Rescue (SAR) helicopters (stationed in Gander and in Happy Valley-Goose Bay) may provide assistance.

1.1.5 Ambulance Funding Models

Road Ambulance Program

Hospital-based ambulance services receive annual global funding through the RHA's operating budgets. Private and community operators receive funding as outlined in Table 3.

Table 3: Types of Funding, Who Receives Funding and the Intended Purpose

Type of Funding	Who Receives this Funding	Intended Purpose
Operational Block Funding	Private and Community Operators	An annual fixed payment to cover the costs of daily operations and calculated using formulas that incorporates workload history, number of ambulances, etc.
Mileage/Attendant Subsidy	Private and Community Operators	Subsidy that is based on the number of kilometers driven and the level/ experience of attendants on board.
Training Funding	Private and Community Operators	Funding provided to train new staff or to upgrade staff to higher levels.
Supplies Funding	Private and Community Operators	Medications and supplies are provided by the RHAs for each approved ambulance.
Patient Fees	Private and Community Operators	Legislated (Motor Carrier Regulations) that anyone who avails of the use of an ambulance is required to pay a fee with the exception of interfacility fees, which are paid by the provincial government. For individuals in receipt of Income Support, this fee is paid by the provincial government.
Garage Funding	Private Operators	For operators who have ambulance bays used for regular ambulance storage and meet the standards set by the Department of Health and Community Services.
Dispatch Funding	Private Operators	To provide persons to act as call takers and dispatch ambulances. Required to take call takers course and register with the PMO department as a dispatcher.

Source: Eastern Health

In Section 3.4 of this report, additional information regarding ambulance funding is provided.

1.2 Project Methodology

The analysis framework used in the Newfoundland and Labrador Ambulance Program review encompassed EMS-specific analysis for six major areas of inquiry:

1. Care delivery;
2. Operational model and integration;
3. Standards and performance;
4. Governance and system structure;
5. Technology and information management; and
6. Public and patient expectations and experiences.

The framework acknowledges that national, provincial, regional and community government entities, medical facilities, operators and professionals must work together to provide the highest possible level of quality services within available resources on behalf of the public and patients.

1.2.1 Description of Stakeholder Consultation

The Consultants embraced extensive stakeholder consultations in order to gain a full, 360-degree view of the Newfoundland and Labrador Ambulance Program. This involved the following methods:

1. Public Input: The Consultants designed a web-based survey to gather public input (Annex B), which was promoted through provincial government media releases. An option for a paper-based survey was also provided. While the electronic survey was accessed through the Department of Health and Community Services website, all survey responses were anonymous and accessible only by the Consultants. Confidential facsimiles and postal returns of surveys were accommodated. In total, 152 electronic surveys were completed. One (1) anonymous letter from a citizen was mailed directly to the Consultants.

2. Ambulance Professionals' Survey: The Consultants designed a web-based survey to gather input and to collect data from the province's ambulance professionals (Annex C). An option for a paper-based survey was provided. To comply with privacy provisions, the PMO office, which registers ambulance

professionals, provided the survey link on behalf of the Consultants. All survey responses were anonymous and accessible only by the Consultants. Confidential facsimiles and postal returns of surveys were accommodated. In total, of the possible 810 responses, 424 were received, representing a 52% response rate.

3. Ambulance Operators' Roundtables: Each operator was invited to a roundtable discussion with the Consultants. Each roundtable discussion was structured to have no more than 12 individuals, with each operator able to send two individuals. In addition, roundtables were organized by sector, such that there were separate roundtables for private, community and hospital operators. A total of 12 roundtables were scheduled in St. John's, Clarenville, Gander, Grand Falls-Windsor and Corner Brook. A total of 38 individuals from the ambulance operators sector attended the roundtable meetings (though 3 individuals attended more than one meeting). In total, 9 (of 27) private operators and 7 (of 22) community operators were represented at the roundtable discussions.

4. Ambulance Professionals' Town Halls: Through PMO communication, all 810 ambulance personnel in its database were invited to attend a town hall. These sessions were designed for personnel only, and those in managerial roles were asked to leave to ensure full and open discussion and input. A total of 13 town halls were scheduled in St. John's, Clarenville, Gander, Grand Falls-Windsor, Corner Brook and Happy Valley-Goose Bay. A total of 52 ambulance personnel attended, representing 6.4% of all industry personnel. This included 21 personnel working with private and community operators, or 2.6% of all of their colleagues in private and community operations. During the town hall meetings, participants advised the Consultants that attendance of ambulance personnel from private operations would be minimal. They shared concerns of potential job loss and possible reprimands from their employers. Therefore, the Consultants scheduled a telephone focus group for personnel working with private operators. Though seven individuals were confirmed, three attended.

5. Government Officials and Regional Health Authorities: Individual and small group meetings were convened with key program, health system and governmental officials throughout the province.

6. In-person stakeholder meetings: Numerous in-person and small group stakeholder meetings were held throughout the province and where required, by telephone. The range of these stakeholders embraced virtually all aspects and touch-points in the Provincial Ambulance Program.

7. Mail: E-mail and postal communication also facilitated stakeholder input. Solicited and non-solicited email and posted mail and community submissions were received during the consultation phase.

1.2.2 Data Collection Methods and Limitations

Data for the Newfoundland and Labrador Ambulance Program review was obtained from multiple sources as described below.

1. Transport Activity Data: Transport activity data was obtained primarily through the Department of Health and Community Services from the Emergency Health Information System (EHIS). This information is derived from a three-part Patient Care Record (PCR) entered into EHIS for billing and claims adjudication. Although EHIS is a legacy system with limited analysis and performance monitoring capability, it was the most complete dataset available to the Consultants.

2. Ambulance Operator Data Collection: Ambulance operators were requested to complete a web-hosted Information and Data Request (IDR). The primary purpose was to gather and assess data that was either not available and/or not collected by government. The IDR was sent to operators primarily by email. The IDR also provided operators with an opportunity to participate fully in identifying the strengths and weaknesses of the ambulance system as a basis for their system improvement recommendations.

IDR response rate by sector is noted in Table 4. For the total of 61 ambulance operators in Newfoundland and Labrador, one third (23) responded to the IDR. The lowest response rate (14%) was from private ambulance operators, with 4 of the 27 responding.

Table 4: Ambulance Operator IDR Response Rate

Sector	# Operators	# Responses	Response Rate (%)
Private	27	4	14%
Community	22	8	36%
Hospital	12	12	100%

3. Additional Stakeholder Data Collection: Twelve IDRs were distributed to other identified governmental and non-governmental stakeholders. Ten IDRs, five from governmental agencies and five from non-governmental were returned for a response rate of 83%. Non-responses were followed up by email and telephone. This information gathered served as a source of secondary validation.

1.2.3 Data Limitations

Currently, the tools and technology to support a robust data set for the Newfoundland and Labrador Ambulance Program are not sufficiently developed. Consequently, the data currently captured is inadequate for fully assessing EMS performance in the province. This is in part the result of the absence of an electronic Patient Care Report (ePCR), automatic vehicle locators (ACL) and a central medical dispatch center (CMDC).

The most current and complete dataset is from the EHIS. However, EHIS lacks verified patient pick-up location and time stamp data fields. Therefore, all information utilized in this report is subject to the accuracy of ambulance operator-submitted data. To the extent possible, suspect data was verified through alternative sources and if data was not provided through a primary source, alternative resources were researched.

The 14% response rate from private operators limited data validation in the following areas:

1. *Activity Level:* Operator data on "return transport" volume would distinguish return versus routine transports;
2. *Vehicle Out-of-Service Times/Incidents*: Given the age of the Newfoundland-Labrador fleet, this would have provided documentation of vehicle breaks downs and maintenance;

3. *Response Times:* Operator provided data for two key indicators (point of pick-up and time on task) to assist in modeling the EMS Newfoundland-Labrador system design;
4. *Human Resource Data:* Data related to recruitment, retention and vacancy rates were not reported and limited the Consultant's ability to analyze staffing;
5. *Salaries and Benefits:* Information from ambulance professionals about pay and benefits could not be corroborated with the ambulance operators;
6. *Occupational Health and Safety (OHS):* Operator data was inadequate to validate personnel needs;
7. *Equipment*: Key medical equipment reliability and maintenance costs was inadequate for definitive conclusions; and
8. *Quality Assurance:* inadequate information to review the ambulance operator's quality assurance and quality improvement programs.

In other instances, data is not being captured. The Consultant's attempted to mathematically model the data and apply national benchmarks. However, the absence of key data (e.g., such as time-on-task and point of pick-up) limited the ability to draw irrefutable conclusions where we would have liked to do so (e.g., the number of ambulances required in the province).

The need for information systems to collect accurate and verifiable ambulance transfer data for system design, management and improvement is the basis for the immediate term recommendations.

2. FINDINGS: STAKEHOLDER CONSULTATIONS

Taken together, nearly 7,000 pages of responses were submitted for review from the roundtable, town hall and individual meetings and from other electronic, paper and hand written notes that were collected.

Without hesitation, a clear message was conveyed. The Newfoundland and Labrador Ambulance Program is not currently operated as single, cohesive ambulance system. Instead, it is operated as 61 systems that work independently. Stakeholders believe the program is not operating as efficiently and effectively as it could be and that demographic changes are contributing to rising costs.

2.1 Public Survey Results

Detailed public survey results are contained in Annex D, and tabular results are presented in Annex E. It must be noted that the flavour and detailed commentary provided indicates family members and EMS personnel themselves may represent a portion of the public survey respondents. The following key categories capture the nature and substance of the survey findings.

1. *Access.* The public are concerned about access to emergency ambulance services and feel that it is government's responsibility to assure access.
2. *One System.* The public want a single ambulance system versus the current multiple-provider system.
3. *Human Element.* The public sent clear and consistent messages about the importance of the "human element" present in the interactions they have with EMS personnel. Public comments conveyed concern for the well-being of EMS personnel in terms of wages received, hours of work and their inability to have a reasonable work-life balance.
4. *Community-oriented.* Public input was heavily themed with a sense of community ownership and pride in community-based ambulance services.

2.2 Private Operator Roundtables

Private ambulance operators articulated issues with workforce availability, bureaucratic challenges and inadequate funding. As private operators had a low response rate (14%) to the Consultant's IDR requests, it was not possible to validate and quantify their concerns noted below:

1. *Funding*. Operators said they provide more ambulances and services than what is actually funded. Current funding levels were felt to too low to address Occupational Health and Safety (OHS) standards.
2. *Recruitment and Retention.* Private operators reported widespread workforce shortages and difficulty competing with the RHAs, other provinces and other industry sectors. The method of first-come, first-entry into available seats the College of North Atlantic (CNA) for paramedic training does not adequately meet the needs of the Program.
3. *Return and Routine Transfers.* Operators indicated these types of transports are too frequently expected by hospitals late in the day, at night or during weekends with little or no coordination by the sending facility. This causes operators to put ambulances and crews on the road at night, increasing risk and contributing to staff fatigue.
4. *Annual Professional Registration.* Operators reported that PMO's annual registration testing of EMS personnel that requires a 90% passing score is onerous and contributes to unplanned workforce shortages. Notification of testing failure, even by 1%, results in the immediate suspension of the employee.
5. *Role of PMO.* Apart from the PMO role in annual professional registration, operators reported high levels of dissatisfaction with their interactions with PMO. Problems with receiving consistent responses to issues, having telephone calls returned and the directive tone of interaction and responsiveness were all noted.
6. *Vehicle licensing and registration.* Operators believe the time for licensing and registering an ambulance is too long.
7. *Equipment.* Government-provided medical equipment (e.g. cardiac monitors) has improved care. Some report the least costly equipment is being purchased and there is not always an adequate supply of loaners when equipment is being repaired.
8. *Payment. W*hen a claim submitted for payment is in dispute, the process for resolving the issue is arduous.

2.3 Community Operator Roundtables

Through the roundtable discussions with community operators, there were similar messages as those expressed by private operators. Community operators demonstrated an optimistic attitude regarding their services. While they spoke of

funding challenges, they also reported using creative methods to value their workforce and to finance new ambulances and equipment.

The following main themes emerged.

1. *Recruitment and Retention.* Smaller operators experience difficulty in recruiting and retaining EMS personnel. The remoteness of community-operated ambulance services makes recruitment and retention challenges even more acute. There are ongoing concerns with providing staff enough time off from "on call" duty. They feel that their capacity to pay competitive wages and benefits to their employees is limited
2. *Funding Sufficiency*: Community operators felt they should receive full block funding, less profit.
3. *Sustainability:* Community operators reported offers and pressure from private operators to buy out their service.
4. *Community Paramedicine*: Community operators support the development of community paramedicine programs.
5. *Community Support:* Many community operators have established reserve funds to enable the future replacement of their ambulances. These reserves are accumulated either through community fund-raising events and/or prudent savings from their operations, government funding and patient transport fees. Community operators reiterated frequently their ambulance service is perceived as an asset, or baseline community service much like fire and law enforcement. Community operators indicated that their communities truly value their service.

2.4 Hospital-Based Operator Roundtables

Hospital operators presented a different perspective, one that focused on system issues, standards and coordination. The following major themes emerged from hospital operators.

1. *System Issues.* Hospital operators voiced the opinion that ambulance services in the province are not well-coordinated.
2. *Parity.* It was acknowledged that hospital operators offer wages and benefits not offered by private and community operators.
3. *Vehicle Age and Mileage.* Hospital operators expressed a desire for higher vehicle standards.

4. *Coordination of Transports*. Coordination of transports, especially "empty return legs" was a concern for hospital operators. From an oversight perspective, this contributes to higher Program costs.

2.5 Ambulance Professional Survey and Town Hall Results

The survey for ambulance professionals is provided in Annex C, the survey narrative and analysis is located in Annex F and tabular results in Annex G. This section also reflects input received from sector-specific town halls and a telephone focus group.

It is clear that ambulance professionals believe their role goes beyond those transactions necessary for care delivery. Their sense of value goes deeper than their work being "just a job" as they report being deeply committed to a high level of care and service for their patients.

There was a shared sentiment that the introduction of PMO has supported consistent, high standard of patient care through the introduction of protocols and annual re-registration testing. In other words, there is high confidence that care delivered to a patient in a rural or remote area is equal to care delivered in larger centres. As well, assuming there are no communication challenges encountered as a result of reduced cellphone coverage areas, EMS personnel value Online Medical Control. Through an on-call system, this enables quick access to emergency expertise for advice and direction when needed.

Ambulance professionals identified key issues as described below.

1. *Schedules.* Private and community-based ambulance personnel report they are routinely scheduled for work lasting several days or more, without a day off duty.
2. *Pay.* Private and community-based ambulance personnel report being not being paid for hours exceeding 40 hours of work per week, even though on-duty shifts and on-call time exceed the 40 hour per week base.
3. *Quality of Life Issues*. Private and community-based ambulance personnel professionals report a lack of work/life balance.
4. *Safety:* Concerns for personal and patient safety were expressed for travel during adverse weather conditions. They believe routine transfers should ideally occur during daylight hours.
5. *PMO.* Accolades for PMO standardization of protocols were expressed.

Concerns with PMO included testing standards, discipline standards, responsiveness to emails and telephone inquiries, and consistency of information provided by different PMO personnel.

2.5.1 Town Hall Meeting Attendance Barriers

Ambulance professionals from the private sector were nearly absent from town hall meetings. The few who attended reported concerns of possible retaliation or termination as a consequence for those attending the meetings.

3. FINDINGS: CURRENT OPERATING ENVIRONMENT

3.1 Ambulance Volume and Call Types

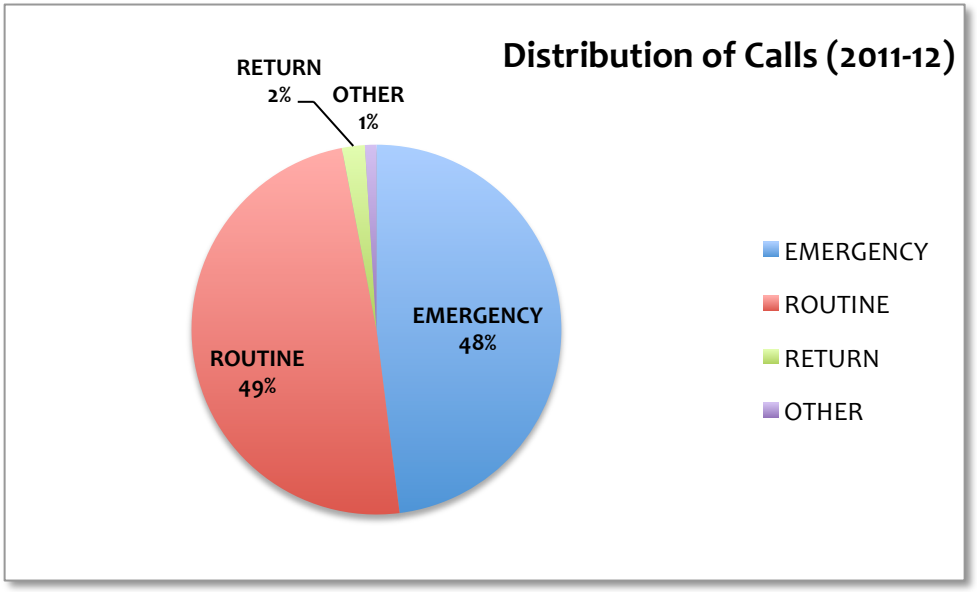
Private, hospital, and community ambulance operators completed nearly 66,000 ground transports in 2011-12, as illustrated in Table 5.

Table 5: Ground Ambulance Volume for Fiscal Year 2011-12

	Trips	Kilometers	% Trips	% Kilometers
Private	36,843	5,874,400	56%	88%
Hospital	25,679	257,000	39%	4%
Community	3,444	537,000	5%	8%
TOTAL	**65,996**	**6,668,000**	**100%**	**100%**

In Newfoundland and Labrador, 99% of all provincial private and community ambulance transports are classified as being emergency, routine, or return transfers as illustrated in Figure 2.

Figure 2: Ground Ambulance Calls by Type for Fiscal Year 2011-12



An emergency transfer occurs as the result of an accident, illness or injury. Emergency calls are unscheduled, unpredictable and presume a life-threatening situation, requiring an immediate response. For fiscal year 2011-12, emergency

transfers accounted for 48% of all ambulance transfers. In Newfoundland and Labrador, the vast majority of all emergency calls result in a transfer to a health care facility.

A routine transfer is a non-emergency, scheduled or unscheduled transport. Routine calls presume the need is non-emergent, but the patient needs to be transported by an ambulance. In Newfoundland and Labrador, they are a necessary mechanism for patient movement between facilities. This is in part the result of consolidation of medical expertise within some regional centres that requires a patient to be transferred from one facility to another that provides the level of care required.

Return transfers in 2011/12 represented only 2% of all ambulance transfers. However, they represent a category that is not usually tracked or categorized as such. Transfers may be classified as routine when they are actually return transfers.

Correctly identifying return transfers is a prerequisite for improving ambulance coordination and planning. Correct identification helps begin the process of reducing the number of ambulances it takes to move a single patient to, and then back from a facility, particularly if the movement is across the province to and from St. John's. One way long distance ground interfacility transfers that exceed four hours is in itself worthy of review for transport by other means (e.g. scheduled, multi-patient air transport), both from a patient care perspective and as a fatigue management concern for staff.

It is more practical and economical to have an ambulance wait for a procedure to be completed and then return the patient home rather than generate a new routine transfer using a different ambulance. However, hospital scheduling does not always support this. Current policy requires the transporting ambulance to wait for 75 minutes before it is released. The following example illustrates a scenario, which unfortunately, the Consultants consistently heard:

> *An inpatient at the James Paton Memorial Hospital in Gander is transported by a central Newfoundland-based ambulance to the Health Science Centre for diagnostic tests that will take half a day. After the mandated wait, the ambulance returns to central Newfoundland empty, without determining if there is another patient waiting for return along its route.*

When the test is complete the patient has to be returned to James Paton Memorial. First, Health Science Centre calls an ambulance operator in central Newfoundland to pick up the patient. If the central Newfoundland ambulance cannot respond in 30 minutes (the most likely case) the Health Sciences Centre calls an ambulance service based in the Avalon Peninsula to collect the patient and return the individual to Gander.

At the same time an ambulance from Corner Brook has dropped a patient off at the Health Science Centre and is now ready to return to Corner Brook empty, driving past James Paton Memorial on the way. The empty Corner Brook ambulance and the Avalon ambulance (with the patient) drive together to Gander.

Under this transportation methodology government is paying for:

- *The central Newfoundland Ambulance to return to Gander empty;*
- *The Corner Brook ambulance to return to Corner Brook empty; and*
- *The Avalon ambulance to return from Gander empty.*

More importantly, while the Corner Brook Ambulance could have completed the return transfer to Gander, the Avalon ambulance had to be removed from its emergency response availability to return the patient to Gander.

System changes are needed to better manage all segments of the ambulance trip.

3.2 Demand and Service Delivery

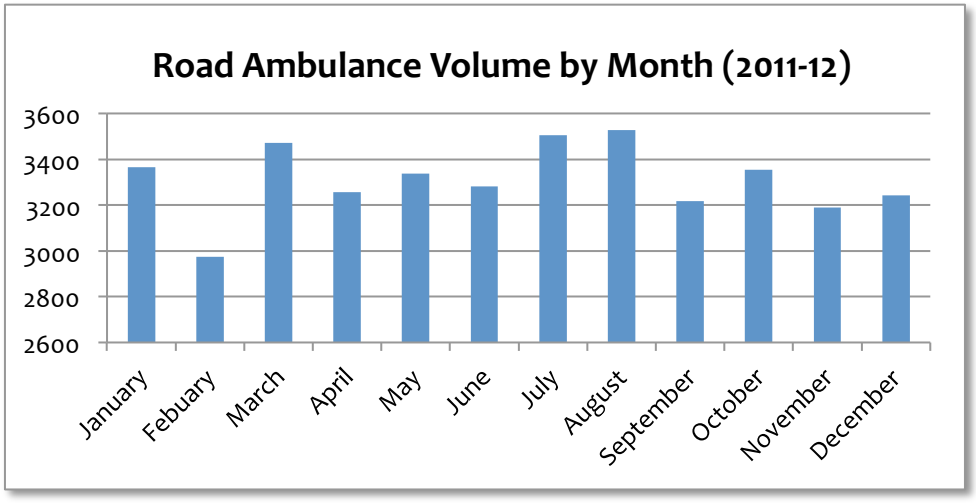
The current Newfoundland and Labrador Ambulance Program is funded to provide the same number of ambulances every hour of every day: 171 ambulances are to be available on a 24/7 basis. Additionally, the ambulances are paid for mileage. The funding for a fixed number of ambulances does not take into account that demand for ambulance service varies significantly by day (weekend versus weekday) and time of day (2:00 a.m. versus 2:00 p.m.).

Answering the question of how demand for services should be distributed across Newfoundland and Labrador requires a prediction of future behaviour. From the

perspective of EMS risk, historic demand is a good predictor of where future demand will be because the geographic mobility of the population is already reflected in the historic demand. Hence, historic data is of immense and irreplaceable value to planners and policy makers.

Time-based activity volume is calculated by dividing the call volume by a standard notion of time (e.g., month, week, weekday and hour). Actual 2011-12 Program volume by month, for private and community operators only, is demonstrated in Figure 3 below (hospital operator data could not be included due to data incompatibility).

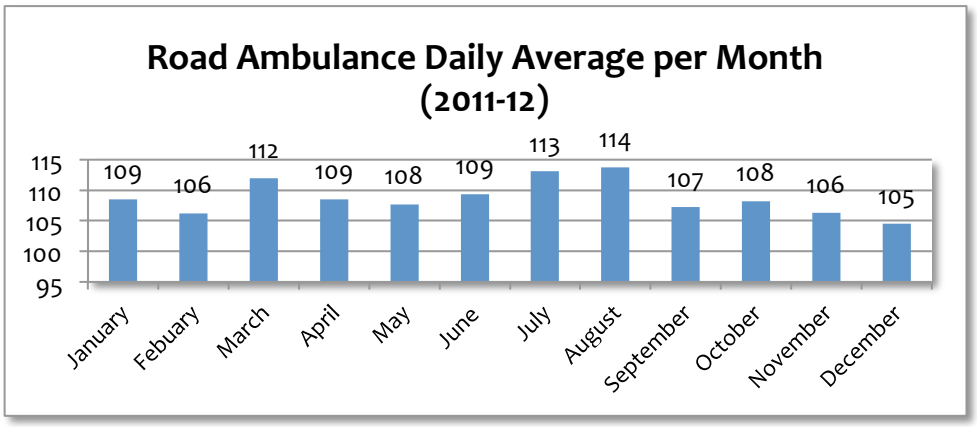
Figure 3: Private and Community Ambulance Volume by Month (2011-12)



Month-to-month volume is variable: from a low of 3350 transports to a high of just over 3800 transports. To obtain a better understanding, the Consultants used a smoothing principle (average call by month) to ascertain actual net effect as shown in Figure 4 on the following page.

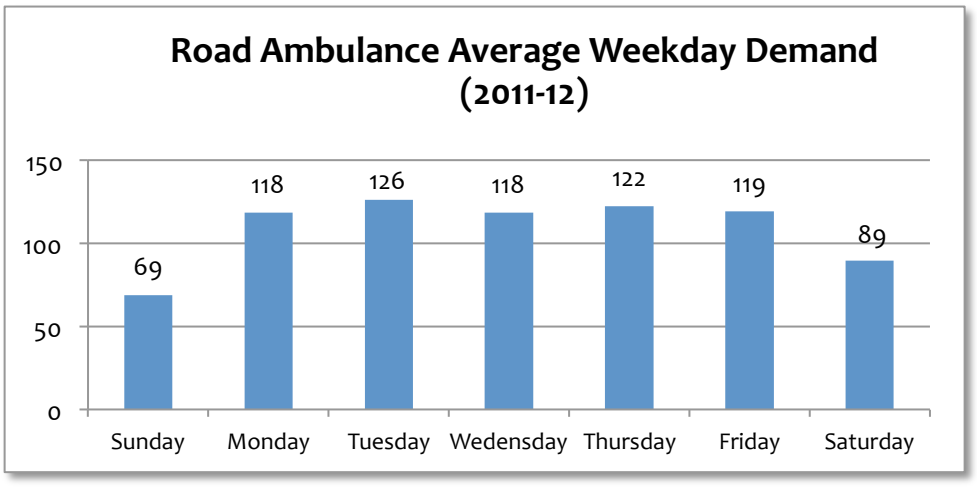
Comparing the low month and the high month in Figure 4, the difference is less than 10 calls a day, reflecting low variability. For example, in December, on an average day, there were 105 calls and in August, on an average day there were 114 calls. This data indicates that no additional resources would be required to deal with such a small month to month variability.

Figure 4: Private and Community Ambulance Daily Average (2011-12)



The next most important variable to consider is timing: that is, on what days do those hundred calls occur during the week? This is demonstrated in Figure 5. The notion of "call clustering" is very important as emergency service staffing is directly affected by the variability in weekly demand (i.e., staffing up for high days, and in some cases hourly demand).

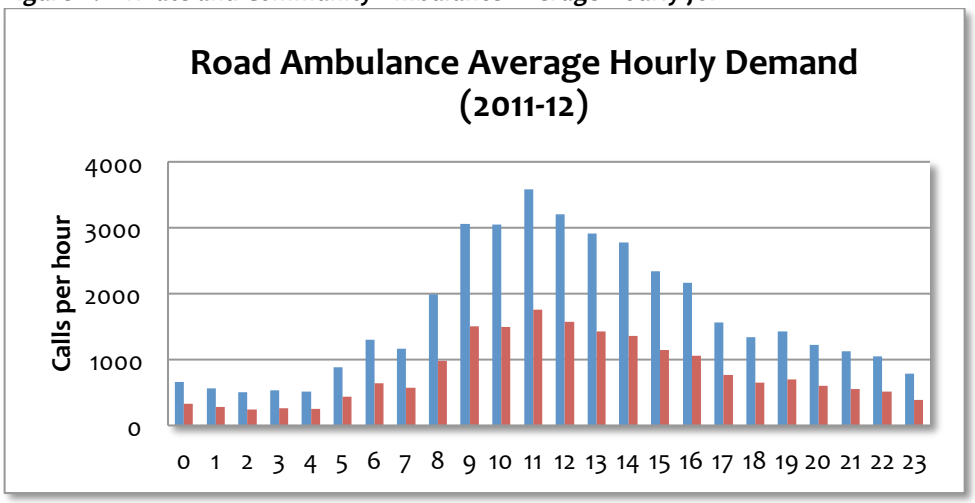
Figure 5: Private and Community Ambulance Average Weekday (2011-12)



As was expected, the variability between weekday and weekend demand is significant. This is directly related to the province's need for a higher number of ambulances during the week for interfacility or routine transfers. Generally, weekend demand for routine transfers drops significantly.

From a funding and staffing perspective, call activity behaviour over a 24-hour period is important. Figure 6 represents road ambulance demand on a 24-hour clock when an ambulance physically began moving in response to a request for service. Emergency calls cannot be controlled, thus the system must staff and deploy a baseline level of resources 24 hours a day to respond to the potential need. Potential need is based on historic call volume. Routine calls also occur on a 24-hour basis. However, the decision to staff additional resources and respond 24 hours a day can be controlled by the system. The fundamental concept of putting the right vehicle in the right place at the right time and moving them dynamically in order to maximize outcomes is key. This can be controlled in Newfoundland and Labrador because 50% of the transports are routine as highlighted in Figure 6 below.

Figure 6: Private and Community Ambulance Average Hourly for 2011-12



The blue columns represent the total call activity over a 24-hour period. The sum of the calls for every hour of the day approximates 110 calls over a 24-hour period. The red column represents only the routine transfer calls over a 24-hour period.

Thus, there are two key elements in operational and financial efficiency:

1. A fixed number of ambulances are being paid to be available on a 24-hour basis, each day of the week when in actuality; the demand for ambulance response is not fixed; and
2. Demand is significantly lower on the weekends and it is lower each day during the hours of 2300 and 0500.

The province is currently funding over 1,498,000 hours (171 ambulances times 24 hours times 365 days) of ambulance coverage (unit hours) per year on a fixed basis.[i] The total ambulance cost was $49,988,260 for FY 2011/12. The Consultants believe there is potential to match coverage to hourly and weekly demand as opposed to the current fixed level, static ambulance deployment and availability.

When dealing with emergency medical service coverage, it is essential to understand the concept of the "probability of a call" or the "probability of a demand for service" which is herein referred to as "risk".

Ambulance deployment is defined as the minimum number of ambulances needed in order to provide the required coverage consistently over the entire service area.[ii] The goal of deployment is to provide ambulances during the days and times they are needed by matching the ebb and flow of call demand. Based on the risk metric, a high functioning, high performance EMS system would determine the number of hours of service it needs to provide or purchase. From there, the system is designed based on "unit hours" needed and then to hold the provider accountable to a "unit hour cost."

- *Unit Hour* is defined as a fully equipped and staffed ambulance in the EMS system for one hour.
- *Unit Hour Cost* factors all the costs (for vehicle and equipment purchase and maintenance, personnel, supplies transport services, medical direction, licensing and regulation fees, etc.) required for one hour of operation of an ambulance.

It is important to note that the approach allows for the identification of ambulance unit hours when they are needed (e.g., call demand) and creates a "peak" of coverage that meets demand.

This approach for coverage is different from the current Newfoundland and Labrador system of a fixed number of ambulances (a "flat line" approach) that does not flex nor match demand. In a flat line approach, the number of ambulances needed to fill peak demand times (e.g., Tuesday at noon) is the same as the number of ambulances that are available during low demand periods (e.g., Sunday at 3:00 A.M.).

However, the approach of matching ambulance availability with demand cannot be implemented until the following two key data elements are collected:

1. Point of Pick Up. This is the accurate Graphical Information System (GIS) location where the patient is picked up.
2. Time on Task. This is the time it takes to complete an ambulance transport and be available, or back in service, to respond to another request.

There are other requirements as well which are discussed in the remaining sections of this report, including for example, the establishment of a Central Medical Dispatch Center (CMDC) that is enabled to capture the data needed upon which a revised EMS Newfoundland-Labrador system could be designed.

As ambulance and Medical First Responder (MFR, see section 4.2.2) coordination improves in the province, further analysis could be completed to determine deployment, time on task and the actual number of unit hours needed for ambulance transportation coverage.

Interim measures are needed to mature the current delivery model and to put information systems in place to achieve the level of data required. It must be noted that this approach assumes transitioning to incorporate a tiered EMS response system, including a robust MRF component, which should, over time and with data, reduce the number of transports and improve the timing of the delivery of care.

3.3 Management of Routine and Return Transfers

Over the last few years, the number of routine transports in the province has grown. As of the end of fiscal year 2011/12, routine transfers have emerged as the largest transport percentage (49%) of ambulance utilization.[iii] Routine transports in other Canadian provinces average as low as 10% of total EMS transports. Through more rigorous coordination and control, Manitoba's routine transports have dropped from 40% to 25%. Manitoba's reduction in routine transports was achieved as a result of the following:

- Establishment of a centralized Medical Transportation Communications Center;
- Rigorous triage of transport requests for medical necessity; and
- Establishment of alternative, low cost, non-ambulance transportation services (public and private).

The Consultants noted stories of the use of ambulances as taxies (e.g., dialysis transports for patients who do not need any specialized in-transport care and who can walk on and off of ambulances); patients or hospital personnel who request transport because patients do not have shoes; and patients who arrive at local hospitals and are unwilling or unable to find alternative transport to attend medical appointments in another health care facility.

A province-wide system to adjudicate and coordinate routine transfers is not in place. However, Western Health's Paramedicine and Medical Transport (PMT) Division has taken measures to evaluate requests for routine transports between facilities through a home-grown, web-based program called "ADAMS" or Ambulance Dispatch and Management System. This is a tool that holds potential for improving efficiency of interfacility transfers in other RHAs.

As described in a 2011 Western Health news release,[iv] ADAMS coordinates multiple factors and sets guidelines for when transfers are made between public facilities. This includes the following guidelines:

- Patient care at the receiving facility is pre-arranged;
- Transfers are made in daytime hours and in good weather conditions;
- ADAMS determines the level of care provider required during transport;
- Wherever possible, ambulance return trips are utilized; and
- Availability of an ambulance for emergencies at rural facilities is maintained.

Western Health staff members enter the ambulance request directly into the hosted web solution and the computer program then provides instant feedback on whether the patient requires an ambulance or if another mode of transport should be used.

Western Health presented the Consultants with data demonstrating a 68% reduction in costs over a seven-year period[v] a $500,000 savings in private operator charges over a recent 12-month period.[vi]

ADAMS appears to be a simple and effective tool for matching patient medical need with the required level of care during routine ambulance transport.

3.3.1 Interfacility Transports: Hub and Spoke

Using rural ambulance services to complete interfacility transports over consumes time and resources. As a consequence, communities are without ambulance resources for extended periods. Adding ambulance resources is not always an option, and the best solution is to limit the length of time that ambulances are away from their community. This can be achieved by *staging*.

Staging is the concept of transporting a leg of a total trip, then handing off patients from one provider to another thus limiting the distance that each service is covering. The drawback is that if not designed from a patient-centric perspective, staging can be very inefficient because it disrupts the one-to-one relationship that exists between the patient and a single ambulance provider.

Based on lessons learned from private sector transport agencies, the concept of collectors and communal transport can be both dignified and cost effective. The concept is to transport patients to holding areas ("transport control") and then transfer to a specially-outfitted bus or multi-patient transport unit to transport patients from holding areas to provincial services (i.e., St. John's) where most transports end. The same concept is possible in the reverse to enable transportation of patients back to the holding area and then by ambulance back to the originating facility.

In order for this model to work, three conditions must be met:

- A centralized communications and coordination system must be established;
- The volume of transports needs to be sufficient so that a multi-patient unit can be affordably used; and
- Holding areas must not be too distant as otherwise, this option defeats the principle purpose of the model which is to reduce the time ambulances are not available due to interfacility transports.

Manitoba illustrates an example of this alternative which is included in Annex H.

3.4 Program Funding Methods and Accountability

The Canada Health Act does not require any province to provide ambulance services. Though Newfoundland-Labrador citizens are required to pay a user fee of $115 per

ground ambulance run and $130 per air ambulance run, the cost for EMS is essentially fully subsidized by the provincial government.

In fiscal year 2011-12, total direct governmental ambulance funding for the entire air and road service in Newfoundland and Labrador was $56.6 million (Table 6). Of that total, $31.7 million was spent for private and community operations. An additional $16.8 million was paid by the province to the four RHAs for hospital-based ambulance services and another $1.5 million for waived interfacility fees. Air ambulance, funded from the Government Air Service budget, totaled $6.6 million.

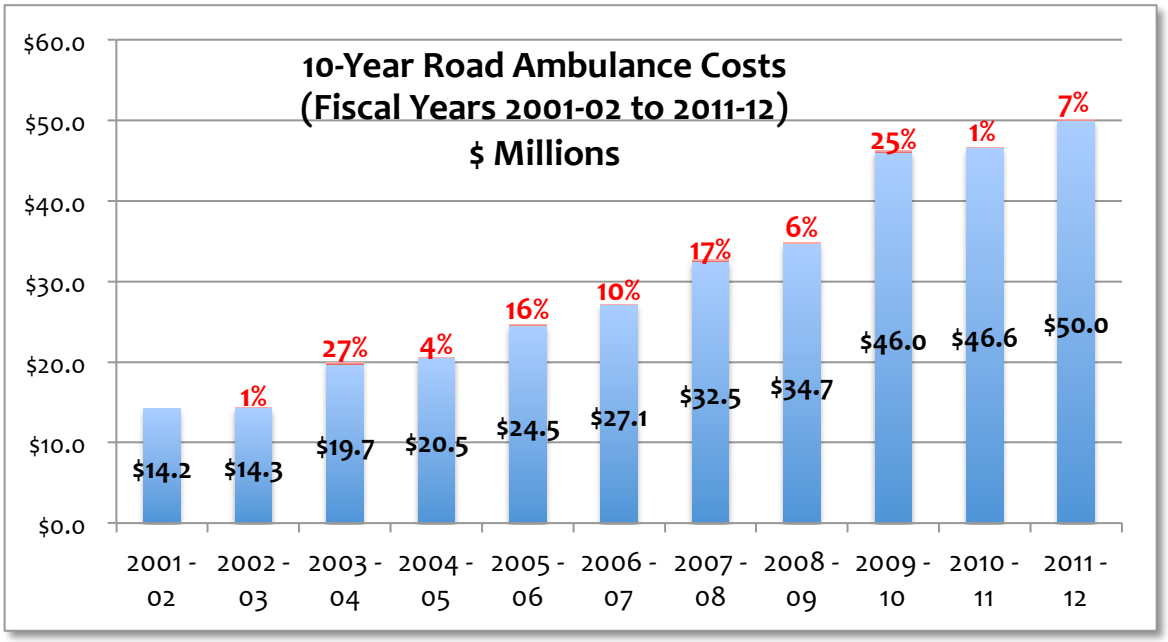
Table 6: Newfoundland and Labrador Ambulance Program Costs (Fiscal Year 2011-12)

2011-12 Newfoundland-Labrador Ambulance Program Funding (Millions)		
Road Ambulance Payments (private & community)	$31.7	
Payment Hospital Ambulances	$16.8	
Waived Interfacility Patient Transport Fee (paid by the province)	$1.5	
Road Program Total		***$50.0***
Air Ambulance Program (Transportation & Works)	$6.0	
Helicopter Usage Payments	$0.6	
Air Program Total		***$6.6***
Medical Escort Costs	$2.2	
Medical Supplies Costs	$0.5	
Income Support Patient Fee Subsidy	$2.4	
Total Other		***$5.1***
Total Newfoundland and Labrador Ambulance Program Costs		***$61.7***

Additional system costs of $5.1 million are veiled in medical escort costs, medical supplies and Patient Fees Subsidy within other government agencies (such as the Income Support Division of the Department of Advanced Education and Skills) or within the RHAs. All said, approximately $61.7 million dollars is currently expended annually by the provincial government for air and road ambulance service in the province.

As shown in Figure 7 on the following page, over the last ten years, program costs have increased by more than 350%.

Figure 7: Ten Year Trend: Road Ambulance Program Costs Fiscal Years 2001-11



In addition to the funding amounts noted above, patient or "user fees" contribute to the provision of ambulance services in the province (Table 7). This user fee is paid by the consumer of service. However, in the case of interfacility transfer (i.e., hospital to hospital), the fee is paid by the provincial government. Where a patient receives Income Support, government directly pays the user fee to the ambulance operator. The general public was responsible for $3.7 million in user fees to be paid directly to ambulance operators in 2011/12. However, the actual amount collected from the public was not able to be confirmed.

Table 7: Patient (User) Fees, Fiscal 2011/12 (Millions)

Newfoundland and Labrador User Fees ($)	
66,000 transfers * $115 =	$7.6
Less Interfacility (-)	*($1.5)*
Less AES Patient Subsidy (-)	*($2.4)*
Patient Responsibility	$3.7

The current provincial funding model for private and community road ambulance operators is based on two main criteria:

1. Operational block funding that supports fixed costs; and

2. A mileage/attendant subsidy that addresses variable costs. There is also a fuel escalator that is calculated and paid monthly to address the variable cost of gas.

Depending on the size and location of an ambulance service, operators may receive additional funding for training, supplies, garage facilities and dispatch systems.

Block funding is a fixed annual payment to ambulance operators for their operations, with variable mileage funding provided in addition to the annual payment. The variable payment is based on activity, not performance. In other words, as the volume of ambulance transfers or mileage travelled increases, so too does the level of remuneration. As a consequence, there is an inherent financial incentive to increase transfer volume and/or mileage.

Medical supply expense represents an undocumented cost to the Newfoundland and Labrador Ambulance Program. During stakeholder consultations, ambulance supply depots were described. These depots are housed and stocked by each RHA and are accessed by registered ambulance operators. There is no charge to the operator for restock and resupply of disposable, single-use medical supplies and pharmaceuticals. The annual cost for these supplies is estimated to be $500,000.

Under the current system of block funding, the province's community ambulance operators must provide documentation of expenditures for government audit and annual verification of dollars spent or accrued for future expenses (i.e., ambulance replacement). Private ambulance operators are not held to this same standard and do not provide the same documentation or accountability.

There are inefficiencies in the current ambulance operator fixed funding that is based upon ambulance availability on a flat line basis. This approach does not align with the peaks and valleys of the demand for ambulance services. While ambulance demand is less on the weekends (average of 79 for all operators), the number of ambulances available is unchanged from that of the peak weekday demand (average of 121 calls for weekdays). The costs associated with flat line ambulance availability in the province can be reduced when ambulance deployment is fully controlled under the CMDC.

Ambulance restock and resupply should be monitored through an inventory management and control system.

Ambulance payment is in part based on kilometers driven. Performance measures such as actual delivery of the services provided to patients and response times are not measured, nor tied to payment. Currently, ambulance services are not monitored for clinical outcomes, response time reliability, and compliance with operating rules and/or policies, or patient/customer satisfaction.

Table 8 lists 2011-12 annual trips, mileage and funding for all the road ambulances.

Table 8: Operator Trips, Kilometers Funds (Fiscal Year 2011-12)

	Trips	Kilometers	Funding (Millions)	Patient Fees (Millions)	% Trips	% Km
Private	36,843	5,874,400	$30.0	$4.2	56%	88%
Hospital	25,679	257,000	$16.8	$3.0	39%	4%
Community	3,444	537,000	$ 4.2	$0.4	5%	8%
TOTAL	**65,996**	**6,668,000**	**$50.0**	**$7.6**	**100%**	**100%**

The current ambulance operational model in Newfoundland and Labrador is based on the level of effort. The funds invested are not tied to specific performance objectives or adjusted according to hourly and daily demand. A change to "unit hours of coverage" is recommended.

As a component of contractual arrangements with private and community-based ambulance operators, every ambulance is required to have a PCP on-board. Mileage payments recognize the advanced skills and pay a higher mileage rate as illustrated in Table 9.

Table 9: Mileage Rates Paid per Attendant Type as of January 1, 2010

Level of Training	Up to and including 120 kms	Greater than 120 kms
PCP	$100/trip	$100 +[(km-120) X 0.95]
EMR	$80/trip	$80 +[(km-120) X 0.75]
No attendant	$50/trip	$50 +[(km-120) X 0.60]

Operators have argued that there is a shortage of PCPs and are consequently guided by a "best effort" policy. "Best Effort" allows an EMR-staffed ambulance as long as operators have tried their best to place a PCP on the ambulance. As a result, "best effort" has become common practice.

3.5 Service Area Exclusivity

A fundamental tenant of a high performance ambulance system is control of the operating areas and the authority to contract for performance and cost.

In Newfoundland and Labrador, ambulance operators are assigned coverage areas by the Public Utilities Board under the *Motor Carrier Act* for the purpose of facilitating a service contract with Department of Health and Community Services for ambulance coverage and response. This has become known as "service area exclusivity".

There is a perception amongst ambulance operators, primarily private, that defined operating areas are held in perpetuity. These operators indicated that their operating areas are transferable through sale and purchase by a new owner. Transfer of an existing service area agreement, based on the sale of a business, requires ministerial approval.

Service area exclusivity limits the opportunity for an EMS system to work at its maximum performance as the nearest ambulance response may not be activated.

The following is an example of how efficiency and quality is not being maximized:

> *A resident in a rural area resides within the region serviced by Ambulance Operator A. The resident has chest pains and phones for an ambulance. The current Ambulance Operator Service Agreement dictates the call has to be responded to by Ambulance Operator A whose base is 30 minutes away even though Ambulance Operator B, who services the adjacent region, has a base five minutes away. To compound the situation Ambulance Operator B may have staff on shift that would be better qualified to respond to a potential heart attack."*
>
> *With Service Area exclusivity Operator A has the right to respond to the emergency call even though the ambulance would take 25 minutes longer to arrive on scene.*

3.6 EMS Coordination and Dispatch

EMS dispatch centres are considered the coordination centres for EMS systems: they take calls through call taking flow processes that help manage complexities

(algorithms), categorize and prioritize calls, and then assign the appropriate resource.

Currently in the province, without CMDC, the ambulance coordination process is fragmented which limits the ability to reallocate resources in a way that maximizes coverage in a timely and efficient manner.

The hospital-based EMS systems have all invested in technologies that assist in entering calls into their respective dispatch centres. Private and community providers either do not have dispatch centres or are not using them optimally.

The Consultants found:

- Variation exists in ambulance activation processes. Citizens are calling seven digit numbers, the local health care facility, or in some limited areas, "911" which is then transferred to another answer point;
- Inconsistent information is being captured from the caller by the call taker;
- Inconsistent medical instructions are provided by call takers (e.g., medical interrogation and intervention);
- There is limited ability to review the call taking process for quality assurance and improvement purposes;
- Call handling time is not measured against nationally accepted best practices;
- Service area exclusivity is at times a barrier to deploy available or closer units;
- No single control point is currently in place that has the technologies to identify ambulance location and availability throughout the province;
- Currently, the province uses voice communications for ambulance dispatch, activity tracking (i.e., call assign, depart for call, arrive on scene, etc.) and pertinent patient information exchange;
- Mobile data communications has limitations in remote areas; and
- Information is being manually inputted by ambulance personnel or operators and in select areas; it is keyed in by dispatch centre personnel.

To have optimal ambulance integration with the recently recommended 911 solution,[vii] the 911 centres will need supporting front-end technologies to enable quick hand-off to the secondary level Public Safety Answer Point (PSAP). Dispatch centres that serve as secondary answering points must be capable of receiving calls in an efficient manner and then immediately process these calls using the appropriate tools and protocols.

As the province-wide 911 system is developed and implemented, the secondary PSAPs to manage ambulance requests will need to be implemented.

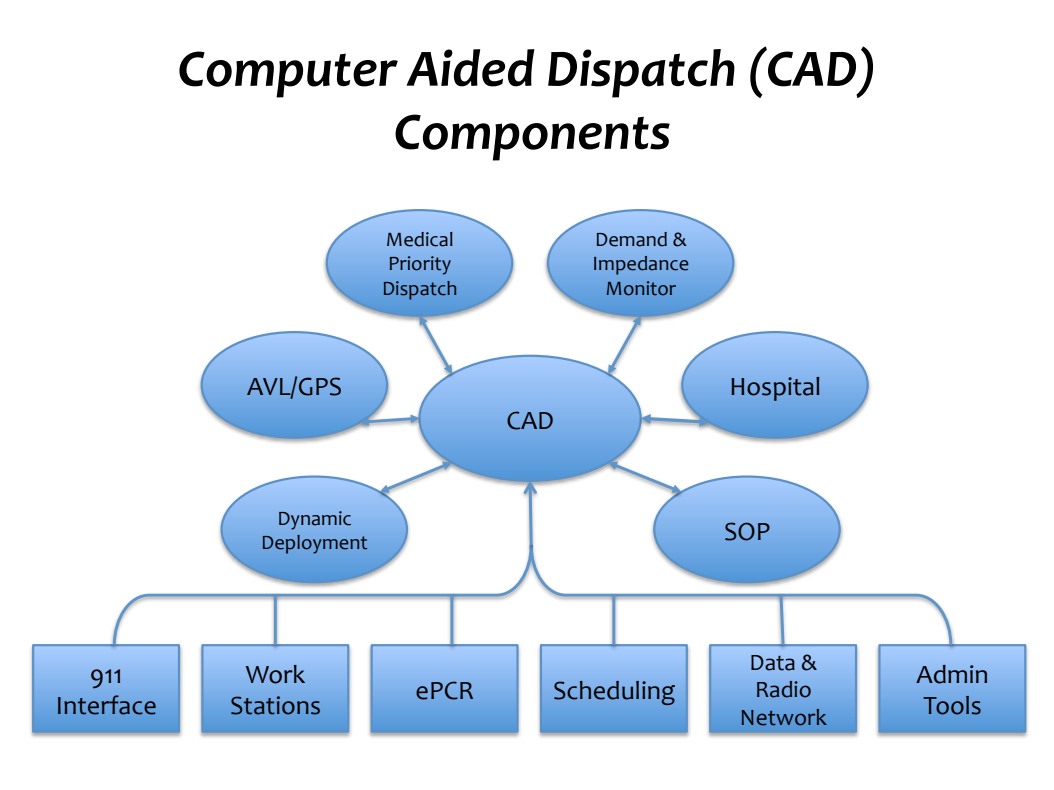
Quality in dispatch centres is established through front-end, medically directed continuous quality improvement. These medically directed systems use "protocol-based" emergency call taking. The most commonly used protocol-based call taking system is Emergency Medical Dispatch (EMD). Internationally recognized performance standards exist for each part of the call taking processes (Annex I). These standards provide a yardstick for communications centre performance measures. The collection of comprehensive data on performance and the routine reporting of this data are key elements for evaluating quality of dispatch centre operations.

The main dispatch technology is called a Computer Aided Dispatch (CAD) system. CADs are designed to host information on ambulance activities: everything from call assignment, caller questioning, and pre-ambulance arrival instructions to follow through on the call. Each time is captured and allows system administrators to evaluate performance on many levels. A typical CAD has the technologies listed in Figure 8 on the following page.

The CMDC would have the authority to move or post ambulances at locations, as influenced by changing demands for service and to dispatch these ambulances as needed.

This model assumes that a modern Computer-Aided Dispatch (CAD) system has been installed at a provincial Central Medical Dispatch Centre and that Automated Vehicle Location (AVL)/Global Positioning System (GPS) hardware has been installed in all ambulances. Most importantly, the AVL/GPS links directly with the proposed 911 centre being designed for Newfoundland and Labrador. This will assure seamless receipt and coordination of emergency requests being delivered to the closest ambulance.

Figure 8: Typical CAD Design



The arrival of a transport-capable ambulance should occur within a clinically appropriate time-frame based on known EMS response times.[viii] This is achieved through a central medical dispatch facility that has knowledge and control over the EMS system resources. Common EMS system response times are listed below.

- Less than nine minutes (8:59) on life-threatening emergencies in areas of Urban call densities;
- Less than fifteen minutes (14:59) in areas of rural call densities; and
- Less than thirty minutes (29:59) in areas of remote call densities.

The above response times illustrate the concept of setting a standard and then measuring it. With measurement, improved management of response times is possible since information emerges about how the overall system interacts with itself and how resources are deployed to meet call demand.

It is critically important to note that performance metrics are applied to urban, rural and remote areas that are designated based on *call densities* and are not based on *population densities.* Call densities are based on accurate capture of "point of pick up" data (i.e., where the calls are occurring). The placement of ambulances should be near where the next call is predicted to occur, which may or may not be in areas of higher populations. However, it is also important to address factors such as time of day population shifts (e.g., as could be expected in an urban population) and demographics shifts (e.g., areas where the population is primarily over age 65) as these factors will also affect call demand.

Response times should be captured in the database and measured in a consistent fractile manner (i.e., nine times out of ten, or 90% reliability) versus an average (i.e., a measure of the "middle" or "typical" value of a dataset), which does not provide a good measure of reliability.

Effective emergency medical dispatching has the goal of sending the right resources to the right person, at the right time, using the right response mode, and providing the right instructions for the care of the patient until help arrives. To achieve this, CMDC operations must be built on a Medical Priority Dispatch framework and based on the criteria established by the International Academy of Emergency Dispatch (IAED). Medical Priority Dispatch enables communications personnel to accurately categorize the system response to those requesting assistance by following established questions and pre-determined response protocols approved by the Medical Director.

Appropriately utilized Medical Priority Dispatch has the potential for improving the level of service provided within the province and for safely and effectively managing the demand for service and deployment of resources. Knowing that the system is protocol driven and the repetitive predictive nature of Medical Priority Dispatch is integral to ensuring proper functioning of the entire EMS system. Quality improvement in Medical Priority Dispatch is also a process of positive reinforcement to ensure the patient's chief complaint was established through the appropriate recognition of signs and symptoms and that the pre-arrival instructions are both properly delivered and applied.

The implementation of a CMDC is the critical first step for the province to gain control of the operational and financial efficiency of its EMS system. It is only through CMDC that the optimal coordination of transporting and non-transporting response to 911

and other medical requests can be achieved. When the CMDC is fully operational, the province will be armed with solid transport data to determine how future investments would improve remote coverage, whether by road or by air ambulance services.

3.7 Quality Standards: Issues and Challenges

3.7.1 Data Capture for Quality Improvement

Based on policy of the Department of Health and Community Services[ix], ~~a~~mbulance operators are required to establish and maintain a Quality Assurance/Quality Improvement program. Operator compliance with this policy could not be validated due to a low return rate of operators' IDRs.

The Patient Care Record (PCR) is the tool for documenting care received from the hands of the attending ambulance professional. This field-delivered care must be both prospectively and retrospectively managed, especially since advanced care can result in negative patient outcomes. While advanced intervention is a positive act for the patient when it is performed well, it can have very negative outcomes when it is performed poorly or inappropriately. These medically delegated acts require strong supervision and a continuous quality improvement environment that allows medical oversight to continually monitor and correct behaviour in the field.

PMO is challenged to conduct quality assurance and improvement processes on 66,000 paper patient care. The planned implementation of an electronic Patient Care Record (ePCR) will facilitate the quality assurance and audit processes.

3.7.2 Vehicle Standards

Current Department of Health and Community Services policy states:

> *"New ambulances shall be replaced within 10 years from the in-service date or when the odometer reaches 500,000 kilometres, whichever comes first. Used ambulances shall be replaced 10 years from its original in-service date, or 500,000 kilometres, whichever comes first."*[x]

This standard for vehicle replacement is lower in comparison to other provinces and other North American ambulance services (Annex J).

A review of the data indicates that private ambulance operators run higher mileage ambulance fleets annually (255,923 average kilometers) compared to community operators (142,057 average kilometers) and hospital-based operators (107,687 average kilometers). Fleet characteristics (vehicle failures per 100,000 kilometers and collisions per 100,000 kilometers) are not tracked nor reported within the province.

Transportation field staff of Service Newfoundland and Labrador report instances of failed ambulance inspections to the appropriate RHA, yet the RHAs have no formal authority to remove non-complying ambulance from service. Additionally, RHAs currently do not have a formal process or supporting information system that enables them to proactively identify and prevent non-compliant vehicles from performing a transport.

3.8 Ambulance Professionals

3.8.1 EMS Professionals, Training and Workforce Supply

According to Provincial Medical Oversight (PMO), there were 810 ambulance professionals registered in Newfoundland and Labrador as of April 1, 2012. Of that total, 41% are Emergency Medical Responders (EMRs), 55% are Primary Care Paramedics (PCPs), 3.4% are Advanced Care Paramedics (ACPs) and one is a Critical Care Paramedic (CCP). All EMS personnel working within the Newfoundland and Labrador Ambulance Program must be duly registered with PMO.

In Newfoundland and Labrador, an EMR has successfully completed a recognized two-week training program (80 hours) and one week of on-the-job experience in emergency patient care and transportation. This program is offered on an "as needed" basis. In the Newfoundland and Labrador Ambulance Program, EMRs ideally work with a Primary Care Paramedic for initial patient assessments, delivery of safe and prudent care and in the patient's transport to the most appropriate health care facility.

PCPs complete a nine-month education program supplemented by on-the-job experience, generally three months. This training prepares them for the decision-making skills required in the field and controlled or delegated acts such as semi-automated defibrillation and administration of certain drugs.

The College of the North Atlantic (CNA) offers a 37-week PCP program three times annually, twice in St. John's and once in Stephenville. Each intake admits approximately 22 students. Keyin College offers a 44-week PCP program in Grand Falls-Windsor in cooperation with Central Health with an intake of 15 students. The number of eligible applicants to CNA's program currently exceeds the number of available entrance slots. This has resulted in a wait-list for applicants of approximately 1.5 to 2 years. Student completion rate over the last three years (2010-12) have averaged 75% and 100% of graduates have been employed upon program completion.

Advanced Care Paramedics (ACPs) perform controlled and delegated medical acts including advanced techniques to manage life-threatening problems affecting patient airway breathing and circulation, including measures that are invasive and which require administration of drugs. Across Canada, the length of time required for ACP training varies. In Newfoundland and Labrador, ACP and CCP training occurs out-of-province. Critical Care Paramedic (CCP) is currently the highest level of paramedic certification that includes all of the previous competencies, in addition to interpretation of laboratory and radiologic data, the autonomous implementation of treatment and the use of invasive hemodynamic monitoring devices.

The Medical Flight Specialists (MFS) in the province are hired and employed under the authority of Eastern Health and based in St. John's. Comprised of a registered nurse (RN) and ACPs, MFS team members staff the medical airplane and medical helicopter located St. John's. Recruitment and training is underway for a second flight team to locate with the second medical airplane based in Happy Valley-Goose Bay. Pediatric and neonatal care is provided by a specialty team of healthcare professionals from the Janeway Children's Health and Rehabilitation Centre aboard provincial air resources.

Critical or Specialty Care transport by road, fixed-wing or helicopter may also include RNs or physicians, in addition to the paramedics as described above. When the patient requires care beyond the scope of the transporting ambulance staff, a medical escort may occur, normally through in-hospital registered nurses or physicians who accompany a patient during transport.

The accreditation of paramedic educational programs in Canada varies from province to province. The Canadian Medical Association's Committee (CMAC) on Conjoint Accreditation offers the most comprehensive and best-known system of national

accreditation.[xi]

The number of registered EMS professionals in the province does not represent the actual workforce at any given time other than on the registration date. The actual number of EMS professionals in the province fluctuates as they enter and exit the workplace. Currently, it is estimated to take approximately 800 professionals to staff the 171 registered ambulances in the province with two caregivers, twenty-four hour per day (12 hours staffed and 12 hours on call).

3.8.2 Professional Registration

In most Canadian jurisdictions, PCPs do not work under their own professional license, rather they are "certified" or "registered" and work under a medical director's practice authority. This is the case in Newfoundland and Labrador. One exception is in British Columbia where each paramedic regardless of level, has his/her own license to practice. Most PCPs in Canada are also permitted to perform regulated medical acts under "delegation" from a physician.

Some provinces are studying the merits of self-regulation for PCP profession, where medical authority is derived from legislation and self-regulation in much the same manner as nurses and other health professions.

In Newfoundland and Labrador, the scope of practice for the paramedic is defined in protocols, policies and procedures (also referred to as medical directives or delegated medical acts). These protocols specify which skill and the conditions required for the paramedic to act.

Applicants for registration who meet specific requirements are placed on active status for one year and require annual re-registration. As stated under PMO's general registration requirements[xii]:

> *"Active registration status alone does not grant the registrant the ability to practice at the full scope of their training. In order to perform invasive treatments, registrants must be provided medical oversight authority by way of delegation of authority, from a physician licensed to practice medicine in Newfoundland and Labrador in a role of a Medical Director. Without medical oversight authority registrants are only able to perform treatment at the basic first aid level."*

Re-registration of ambulance professionals in Newfoundland and Labrador occurs annually on April 1st. The re-registration process requires each applicant to complete certifications, continuing medical education, clinical exposure and competency demonstration according to level of certification and scope of practice. There is also a re-registration exam that is written before April 1st.

The annual protocol exam process was highlighted by ambulance operators and EMS personnel as requiring change. Each April 1st, ambulance professionals may be immediately suspended if their paperwork has not been submitted or processed by PMO. Such a suspension can create an immediate, unplanned shortage of personnel and the possible reduction in the number of available ambulances.

The annual re-registration process requires each registrant to successfully complete PMO's protocol examination. Failure to achieve a passing mark of 90% results in immediate suspension of registration and ability to practice. In other provinces, 70% to 80% is the typical minimum passing score[xiii]. Additionally there are critical error questions that, if answered incorrectly, result in examination failure. The consultants were not given evidence-based reasoning for a higher than national average minimum passing score for continued registration.

3.8.3 EMS Salaries

Salaries of EMS professionals in Newfoundland and Labrador are established by their employer, and/or through the negotiated contract and are listed in Annex K, as reported by the ambulance professionals. In general, professional salaries in Newfoundland and Labrador tend to be lower than their peers in other provinces.

3.9 Medical Air Services

Information regarding the role and organization of medical air ambulances services is provided in Section 1.1.1 of this report (Organizations within EMS and their Roles).

The Consultants' scope of work for this section of the project was to analyze and make recommendations on the integration of the existing fixed and rotary wing ambulance programs with the road ambulance program to more effectively and efficiently transfer patients around the province.

An optimized ambulance transport system is not built upon Fixed-Wing (FW) air ambulance or Helicopter Emergency Medical Service (HEMS), but integrates these modes of service delivery to supplement ground ambulance and other delivery components. Ground transportation is the "back-bone" of pre-hospital emergency medical service delivery. Ground ambulances have the advantage of delivering directly "to the door".

Medical airplanes play a vital role in emergent and routine transport of patients in Newfoundland and Labrador, as well as repatriation of the province's residents who are returning to the health care system after receiving care out-of-province. The necessity of air ambulance in a regionalized health care system cannot be overstated, as it enables access to services that are otherwise unavailable or economically unsustainable.

At a relatively high system cost per single patient transport over long distances, both routine and scheduled transports of medically screened/triaged patients could be devolved to a lower expense, higher capacity and alternative modes of air transportation. For example, scheduled, high-capacity airplanes, appropriately staffed with health care professionals, operating on a daily "round robin" route from outlying communities into St. John's and on a scheduled return could be explored. In concept, a scheduled medical transport of multiple routine patients could provide economic efficiency over single patient transports where Medical Flight Service (e.g. critical, lifesaving) level care is not required. Patients currently transported in ground ambulances travelling over four hours one way may also benefit in both time and comfort, via this alternative.

Fixed-wing air ambulances do well in connecting patients with regionalized, tertiary care services. Compared with helicopters, fixed-wing aircraft travel faster and decrease transport time intervals over greater distances. Additionally, fixed-wing aircraft are less susceptible to weather constraints and allow control of the atmospheric pressure within the aircraft cabin.

The choice of helicopter transport is multifactorial: urgency of the patient's condition, mobilization time, distance or time to destination, weather and traffic conditions, location of the nearest helicopter landing sites, need for secondary ground transfers and cost.[xiv] Helicopter transportation has been shown to minimize the time interval to initiation of critical care or time-sensitive procedures provided at

the receiving health care facility.[xv]

While there were only 40 transports in 2012, it has attracted interest from communities and medical professionals province-wide, who support of a dedicated, twin-engine, Instrument Flight Rules (IFR), all-weather Helicopter Emergency Medical Services resource.

There is full agreement that Helicopter Emergency Medical Services is a beneficial mode of transport and care, but its dependency on a functioning emergency medical system is being overlooked. Helicopter Emergency Medical Services provide access to the critically ill patients and into areas unreachable by other modes of transportation. However, the more fundamental EMS infrastructure requirements in Newfoundland and Labrador must take priority.

While HEMS in Newfoundland and Labrador is underdeveloped in comparison to other provinces and more mature EMS systems, the available Helicopter Emergency Medical Services resources are currently underutilized within their operating capabilities and should be more integrated into the system.

3.10 Provincial Medical Oversight

The role of the Provincial Medical Oversight (PMO) is to ensure the registration of EMS personnel, to set and enforce medical care standards, to assure ambulance registration and to provide Online Medical Control.

PMO has established protocols for care to assure consistent standards across the province. EMS personnel speak highly of the Online Medical Control, a process whereby field providers call and speak with a PMO physician during a patient care event.

Quality and Learning Coordinators review PCRs and provide feedback to field professionals about identified issues. Complaints regarding care are submitted to PMO for review and where there are instances of substandard care, PMO may remove a professional's registration.

A common theme that emerged from virtually all types of stakeholder consultation meetings related to role confusion of PMO as a consequence of being housed within Eastern Health. EMS professionals are not convinced PMO takes a truly provincial

perspective, as many believe it operates as a division under the direct control of Eastern Health.

Issues regarding PMO's relationships with its stakeholders represent the single most mentioned system change required in the Newfoundland and Labrador Ambulance Program. While the existence of standard protocols and the availability of On-line Medical Control are noted as being positive for the province, most other aspects of PMO's role and operations were a source of considerable dissatisfaction for stakeholders.

3.11 EMS Governance and Legislation

The Consultant's key finding is that the appropriate foundational system attributes are not well-developed or coordinated to support of high performance emergency medical system. The Newfoundland and Labrador Ambulance Program is fragmented and is not operating at high performance levels for provincial coordination, oversight and leadership.

In Newfoundland and Labrador, there is no one single agency responsible for the provincial ambulance program. Existing agencies that support the Program are:

- Licensing of ambulance services is administered by the Public Utilities Board;
- Registration of ambulances and professionals is conducted by PMO;
- Ambulances are regulated and inspected by Service Newfoundland and Labrador;
- Contracting for ambulance service is conducted by government through Department of Health and Community Services and the RHAs through the tri-party agreement;
- Operators' payments are adjudicated by Eastern Health;
- PMO authorizes the use of air medical resources from a medical perspective; and
- GAS approves air asset use from an operational perspective

There are also differences in the services provided by various ambulance operators (e.g., dispatch services, response times, and vehicles), which are reflective of the absence of baseline performance standards and low levels of accountability.

Legislation typically sets licensing/certification requirements for personnel and outlines the parameters of the authorized medical care acts. It provides broad public policy guidance for regulators to operationalize, monitor and adjust the elements of

the EMS system over time. In short, well-written legislation provides positive direction and guidance for a wide variety of disparate stakeholders who must function to provide effective and efficient care for patients.

Canadian provinces that have structured and regulated EMS (Table 10) through legislation have a solid foundation for building the framework of EMS system elements. It clarifies system requirements, specific authorities and roles. Among all stakeholders, there was clear, strong endorsement regarding the need for provincial EMS legislation.

Table 10: EMS Legislation in Canadian Provinces

Province	*Legislation*
Alberta	*Emergency Health Services Act* *Ambulance Vehicle Standards Code*
British Columbia	*Emergency and Health Services Act*
Manitoba	*Ambulance Services Act* *Ambulance Services Amendment Act*
New Brunswick	*Ambulance Services Act*
Nova Scotia	*Ground Ambulance Services Act*
Ontario	*Ambulance Act*
Prince Edward Island	*Emergency Medical Services Regulations (under the Public Health Act)*
Quebec	*Act Respecting Pre-Hospital Emergency Services*
Saskatchewan	*Ambulance Act*

4. TOWARDS A HIGH PERFORMANCE EMS SYSTEM

The vision of an optimal ambulance system design for Newfoundland and Labrador is rooted in the concept of a high-performance emergency ambulance service. A high-performance emergency ambulance service consistently and predictably delivers clinical excellence, response-time reliability, economic efficiency and patient/customer satisfaction as essential performance results.

All patients want the fastest, most appropriate response by a trained MFR and/or ambulance to arrive when they are in need of help. An optimal system must be designed with the patient in mind. It is in everyone's best interest if the best service is provided for the lowest cost. If money were not a concern, then the simple answer would be to continuously add resources to the EMS system. This simply is not possible. A more sophisticated and sustainable approach must be taken.

The modern EMS system consists of those organizations, individuals, facilities, and equipment that are required to ensure timely and medically appropriate responses to each request for pre-hospital care and, as needed, for medical transportation. Optimal emergency medical service / ambulance system design is best described in the following quotation from the *EMS Structured for Quality* publication.[xvi]

> *Most EMS system definitions have been developed from the viewpoint of the system itself, or from the viewpoint of the system's service providers. By defining emergency ambulance services from the patient's point of view, however, performance results ensure that the patient is served first, before any other interests. This allows the different provider models and their results to be compared objectively as to how they best serve the patient, rather than how they best serve the provider.*

4.1 Hallmarks of a High Performance EMS System

The American Ambulance Association's publication, *EMS Structured for Quality: Best Practices in Designing, Managing and Contracting for Emergency Ambulance Service (2008),*[xvii] describes five hallmarks to ensure high-performance EMS system. The Consultants have assessed the current Newfoundland and Labrador Ambulance Program against these hallmarks. This assessment illustrates the starting point for the cultural changes required for EMS in the province.

Hallmark 1 — Holding the emergency ambulance service accountable.

The current system in Newfoundland and Labrador needs additional controls developed to ensure ambulance operators' accountability.

With effective emergency ambulance service design and performance-based contracting, ambulance services can achieve high performance in communities of various sizes and demographics. The designated emergency ambulance provider should be required to meet or exceed specified levels of performance in each of the four RHA operational areas. Without accountability, there are no assurances. Level of effort is not measurable and therefore avoids accountability to achieve the expected results or assure value for money.

Hallmark 2 — Establishing an independent oversight entity.

There are functional areas of the Newfoundland and Labrador Ambulance Program that are overseen by provincial departments other than the Department of Health and Community Services.

Independent oversight promotes performance accountability by giving the overseeing entity the authority and the tools to improve service or safely replace a non-performing provider. It is accomplished by creating a true arm's-length relationship between an overseeing entity and the provider organization. The independent oversight entity is responsible for monitoring and routinely reporting the provider's performance and compliance in clinical excellence, response-time reliability, economic efficiency and customer satisfaction. The oversight entity also requires periodic independent expert audits of the program's performance against other high-performance programs.

Hallmark 3 — Accounting for all costs.

The province's Department of Health and Community Services provides significant funding to ambulance providers, but provider accountability is not fully developed.

An effective emergency ambulance service accounts for all its costs, whether direct, indirect and/or shared. Whatever the provider type, whether privately-owned, hospital-based, part of a public agency, or staffed by volunteers, cost calculations

should include labour, medical communications centre, buildings, vehicles, equipment, supplies, liability exposure, administrative overhead and independent oversight costs.

Hallmark 4 — Requiring system features that ensure economic efficiency.

The Newfoundland and Labrador Ambulance Program is a patchwork of different ambulance operators with contracted areas for emergency and interfacility transports. The Ambulance Program is funded for fixed ambulance coverage and deployment—there are as many ambulances available on Sunday morning at 3:00 A.M. as there are available on Tuesday at noon. Lacking central coordination of ambulances, the closest ambulance may not be sent.

The volume and location of medical emergencies vary by hour-of-day and day-of-week. To reflect this reality, ambulance deployment in a high performance EMS environment should be based on geographically locating the right number of ambulances according to historical call demand and relocating the ambulances as calls occur.

In contrast, "fixed base" or "static" deployment, in which ambulances are staffed and unit locations are fixed, is generally discouraged due to response time and financial inefficiencies. They should be limited to remote emergency response, low-volume locations.

To improve efficiency, the EMS system design should allow the ambulance service provider to appropriately cover emergency and interfacility ambulance transports to maximize economies of scale. These practices promote productivity and eliminate wasted resources.

Hallmark 5 — Ensuring long-term high performance service.

In Newfoundland and Labrador, the ambulance providers are contracted every four years for the geographic areas (as determined by the Public Utilities Board).

Contractually required performance standards should be established through structured, effective competition for service rights for a given term. Properly structured competition promotes the highest quality within the available funds. This can be achieved in one of two ways:

1. Benchmarking the clinical and financial performance standards of the current service against other recognized high-performance emergency ambulance services, or
2. Instituting a competitive procurement process.

Subsequent to either process, emergency ambulance service providers can earn service-right extensions by meeting or exceeding the established performance standards. By applying an effective competitive process, the provincial government can create a level playing field for all potential providers and ensure that the best service for the community is obtained.

Under a high performance EMS model, an ambulance operator, whether operating in an urban or a rural area, is expected to meet specific performance standards to retain market or service area rights. Providers are rewarded or penalized if they do not meet performance criteria. Performance monitoring and reporting are mandatory. Thus, service and reward are based on payment for outcomes and performance instead of payment for volume of transport regardless of performance.

Adopting these five hallmarks will lead to the development of a high-performance, sustainable ambulance program in the province for the long term.

4.2 Staffing a High Performance EMS System

4.2.1 Tiered System Response

In a high-performance EMS system, ambulance professionals and operators deliver emergency care via a highly coordinated tiered system response designed to preserve life, prevent further injury and promote recovery. This is achieved through the following six stages. [xviii]

1. **Early detection.** Members of the public, or another agency, find the incident and understand the problem.
2. **Early reporting.** The first person on scene make a call to the emergency medical services and provides details to enable a response to be mounted.
3. **Early response**. The first professional (EMS) rescuers arrive on scene as quickly as possible, enabling care to begin.
4. **Good on-scene care.** The emergency medical service provides appropriate and timely interventions to treat the patient at the scene.

5. **Care in transit.** The emergency medical service loads the patient in to suitable transport vehicle and continues to provide appropriate medical care throughout the journey.
6. **Transfer to definitive care.** The patient is handed over to an appropriate care setting, such as the emergency department at a hospital and into the care of physicians.

Four levels of care may be delivered by an EMS system:

1. **Basic Life Support (BLS)** is emergency care at the foundational level: first aid, cardio-pulmonary resuscitation (CPR), and in some systems, automatic external defibrillation. Many tiered EMS systems deliver BLS care through fire or law enforcement first response with a short, rapid response time goal of getting a trained medical person to the patient's side. This foundational, basic level of care, sometimes called "medical first response" may not have transport capability.
2. **Advanced Life Support (ALS)** is the next level of care and consists of a paramedic arriving to intervene with more advanced medical skills, clinical interventions, medical equipment and medications. ALS, as the second tier in a tiered EMS response, is also designed around achieving established response time goals. ALS is the most common level of response that has transport capability.
3. **Critical Care Transport (CCT)** denotes a level of care offering more advanced professional medical interventions and skills. It includes administration of drugs and monitoring that is typically offered for critically ill or traumatically injured patients transferred from a community hospital to a higher level of care.
4. **Specialty Care Transport (SCT)** is the highest level of medical transport care and represents highly specialized neonatal, pediatric and cardiac (e.g., intra-aortic balloon pump) services.

4.2.2 Medical First Responders

The addition of a Medical First Responder (MFR) system (also referenced as a Community First Responder system), will enhance the province' EMS program. MFR is a non-transporting program.

MFR programs have evolved into being a core foundational component of EMS systems as they provide prompt intervention and appropriately decrease costs associated with ambulance transports and emergency department admissions for minor injuries or illnesses.

The MFR is being elevated from basic trained responders to training at the Paramedic level. These professionals are strategically based in rural and remote communities to serve as the timeliest intervention for a patient's medical need. The aim is to quickly arrive at the patient's location and assess and render care while determining *if there is need* for immediate ambulance transport and/or further in-hospital care. It is important to note that the needs of small and rural communities are all different and that the MRF model for communities must be customized to meet these different needs.

Examples of MFR Model are included in Annex L. However, a new initiative in Western Health is noteworthy. In Western Health, the EMS leadership team, together with community-based volunteer fire services, is launching a pilot MFR project in several small communities. This entails MFR support through mutual aid agreements, training, provision of equipment (such as Automatic External Defibrillation (AED) units) and medical supply provisions to support basic trained, non-transporting, volunteer fire agencies.

Funding of ambulance operators with low transport volume has questionable economic efficiency for many small communities in Newfoundland and Labrador. Low volume transports are the case for most community ambulance operators. Table 11 below shows fiscal year 2011/12 community ambulance operator transport data ranged from a low of 37 annual transports to a high of 749, with an average of 172 transports and a median of annual transport of 103.

This data demonstrates that the busiest community operator completes just over two transports a day, and the average community completes less than one transport every other day. This represents very low transport volume for a very high fixed cost. However, an additional concern is the skill degradation for ambulance professionals under such low volume conditions.

A funded MFR model would place a qualified caregiver more immediately at the patient's side and begin to render care while a transporting ambulance, if needed, is

dispatched to the location. The community operators will, in many communities, be transitioning from providing ambulance transport services to providing MFR in their communities.

Table 11: Annual Community Ambulance Transports, Fiscal Year 2011-12

Community Ambulance Annual Transports	
Low	37
High	749
Average	172
Median	103

There may well be challenges in remote areas to attract paramedics, but a system goal toward a province-wide ALS response should be the focus of the EMS system design for the province. This is not only a clinical level of care commitment as it also has operational and financial benefits as it maximizes flexibility in ambulance deployment since all ambulances are clinically capable to the same level.

There are areas in which targeted pilot projects can be implemented to determine the optimal value point for the use of paramedic personnel in community health improvement initiatives. However, this will first require the MFR program to develop a specific curriculum to integrate this role into the foundational educational programing within the province.

4.2.3 An All-ALS System

An important benchmark of high performance EMS is that these systems operate at an all-ALS level. This means that every emergency medical system operates all responding ambulances with at least one paramedic. In turn, the ambulance is equipped and stocked with sufficient supplies for the paramedic to treat the medical needs of any patient needing emergency care in the pre-hospital environment.

It is important to note that an ALS system may not be feasible for certain rural or remote areas due to staffing, clinical proficiency and economic reasons. However, it also means that a standard higher from an operator's "best effort" to staff ambulances with a PCP is required.

4.2.4 Alternative Models for Pre-Hospital Community Care

Alternative models of pre-hospital community care have emerged in response to geographic, staffing and funding challenges. The MFR model already discussed is distinguished from an alternative delivery system since it is so fundamental and foundational to an effective EMS response. Here, in this section, alternative methods and models for pre-hospital community care models are identified that are worthy of consideration in an EMS Newfoundland and Labrador system.

Community Paramedicine

A new definition of paramedics is emerging, especially in rural and remote areas that have a strong focus on community and primary health care. Community paramedicine is a model of care whereby paramedics apply their training and skill in community-based environments (outside the usual emergency response/transport model). The community paramedic may practice within an expanded scope by applying specialized skills and protocols beyond that of the basic PCP training program, or within an expanded role by working in non-traditional roles using existing skills.[xix] The Community Paramedicine model is already established in the United States, most notably in Alaska's successful Community Health Aides/Practitioners (CHA/Ps) Program that has been operational for several decades. This program was established to meet the health needs of Aboriginals in remote villages. [xx]

The Community Paramedicine program in Nova Scotia was established on Long and Brier Islands in 2004 in response to the challenges of an aging population, communities that are only accessible by car ferries and minimal onsite physician support. The Long and Brier program has two paramedics stationed at the local health clinic on a 24/7 basis and who are available to treat patients seeking care when not on an emergency call. The paramedics also work collaboratively with the clinic-based Nurse Practitioner. Thus, the paramedics also attend home visits and perform tasks such as wound management, vital signs checks/blood pressure monitoring and phlebotomies. This service has been extremely well received by the community. It has also resulted in a 23% decrease in emergency department visits at the nearest hospital.[xxi]

The Toronto EMS Community Paramedicine Program was developed since 1999. It is a non-emergency, community-based service with a focus on health promotion and injury prevention in urban area.[xxii] The mission of this program is to help patients in

the community solve some of their medical and care problems before they become real emergencies.

There are several pilot programs ongoing in Alberta. Those are initiatives that have paramedic performing expanded roles within their existing scope of practice in their communities.[xxiii]

Extended Care Paramedic

The Extended Care Paramedic Program (CECP) is a model of alternative delivery developed in Nova Scotia. It involved a small team of Advanced Care Paramedics (ACPs) who were assigned to a unique ECP role in a nursing home setting. These ECPs received specialized training tailored to the needs of nursing home patients, including geriatric assessment and management as well as other advanced skills such as suturing. [xxiv]

The imperative for the program resulted from a review of number of transports in long term care settings that involved skilled nurses for non-emergency procedures. Today, patients receive timely, enhanced non-emergency and emergency medical services delivered by Extended Care Paramedics in their own nursing homes at their own bedsides. These patients do not experience the trauma of long transports and emergency room waits. After 92 weeks of the ECP Nursing Home Program, Extended Care Paramedics attended 1,311 nursing home calls and 73% patients were treated on site eliminating the need for ambulance transport for these patients.

Treat and Release

Similar in focus to community paramedicine, treat and release allows an ambulance's professional team to provide appropriate, low acuity care in the field and then release the patient without the requirement for transport. Generally an alternative or stepping stone to community paramedicine, treat and release requires medical oversight, enabling legislation and a mechanism for funding or cost recovery for private, non-governmental operators.

Vitals, Interview, Safety, Inspection and Treatment

The Annapolis Valley District Health Authority in Nova Scotia estimates that at any given time there are approximately 25-35 individuals in hospital awaiting alternate level of care placement. This limits the District's acute care capacity and results in a

number of potentially at-risk seniors remaining in their homes while awaiting either hospital admission or alternate placement. In response, a support program, Living Independently with Community Supports (LINCS) was developed. Its specialized team of health professionals interfaces with EHS paramedics as a core partner for the identification and referral of at-risk seniors in the community and for providing follow-up visits as a means of monitoring their health status, a program known as VISIT (Visit, Interview, Safety, Inspection and Treatment).

Similar to VISIT in concept, Community Referrals by EMS is a Toronto-based EMS alternative care delivery program whereby referrals can be made by paramedics. Paramedics, when they respond to 911 calls, can determine if a patient is in need of additional healthcare or support services and then make the appropriate referral to the Community Care Access Centre.

4.3 Enabling Technology and Processes for a High Performance EMS

In Section 3.6, EMS coordination and dispatch issues were identified and the vital role of a Centralized Medical Dispatch Centre (CMDC) was discussed to achieve coordination and control. Certain technology, equipment and processes are required to facilitate the required data capture and analysis that optimize the role and function of a CMDC. Additionally, technology should direct the call from the 911 primary Public Safety Answer Point (PSAP) to the appropriate secondary PSAP that services the geographic location of the call.

Best practice EMS dispatch centres are designed to accommodate Public Emergency Reporting Services and Phase II network-to-network interface of wireless agencies. These mandatory connections facilitate wire-line, cellular, voice over Internet protocol (VOIP), automatic crash notification from citizen's automobiles, patient alerting system devices and other public 911 access to the Emergency Medical Services System. Voice, video, telemetry and other data communications conduits are utilized as necessary to best enhance real-time information management for patient care. These technologies and processes are described below.

4.3.1 Automatic Vehicle Location (AVL) and Global Positioning Systems (GPS)

The key technology for EMS optimization is the addition of automatic vehicle location/ global positioning systems (AVL/GPS). Well-designed emergency systems do not use fixed stations. Rather, they continuously move resources

based on the most likely location of the next call and assign the closest unit to the call. The key to this making this predictive function work successfully is ascertaining (in real time) where the ambulance resources are located.

4.3.2 Computer-Aided Dispatch (CAD) to Mobile Data Terminals

Another key component of a high-performance system is the acquisition of accurate data in real time. In order to enhance the capture of data and to share better information between field operations (i.e., ambulances) and CMDC, sophisticated systems use data connectivity between CAD and mobile data terminals for information sharing. In such systems, the ambulances are equipped with ruggedized laptop computers, which interact with the CAD and pass relevant call information back and forth without the need for the voice channel on a radio. Voice communications are used as back-up to the data transfers. The current communications system in the province is entirely voice and mobile cellular dependent.

4.3.3 Call Processes and Standards

Understanding the CMDC's role is the key to interpreting how the processes are core to the success of an EMS system. The province's CMDC must be able to provide sophisticated real-time deployment and redeployment of resources. It must engage callers in medical interrogation and intervention. It is the primary source for information necessary to manage the system for the benefit of patients. The International Academy of Emergency Dispatch has established processes and procedures for CMDCs. Currently, this level of coordination and standardization is not in place in Newfoundland and Labrador.

4.3.4 Electronic Patient Care Records (ePCR)

Electronic patient care records (ePCR) are the industry standard for emergency medical systems. Electronic PCR systems are superior over paper care records as they provide ready access for medical direction and program operation.

Electronic PCRs flag certain calls for mandatory review and alert medical control to review this call specifically. This ensures that the highest risk calls are reviewed for quality. This is both in the patient's and the province's best interest in order to proactively manage potential areas of liability and to support consistent high quality care.

Electronic PCRs have mandatory fields that must be completed allowing for excellent data quality and mining capabilities. These "call closure rules" as they are commonly called, allow EMS system administrators to capture the required data elements to properly manage the system. At today's annual volume of 66,000 paper-based PCRs, quality reviews are difficult, if not impossible to review in a substantive way.

4.4 EMS Governance and Leadership

In best practice EMS systems, a lead agency is typically designated and thereafter charged with the comprehensive leadership, development and regulation/oversight of the EMS System, regardless of the actual service provider(s) that deliver the service. As well, the system's organizational governance, structure, and relationships are well defined and internal clinical, operational and administrative processes are designed to facilitate high performance levels with due regard for effective development and engagement of EMS personnel.

To assure trust and cooperation, the handoff or delegation of accountability to contracted providers (operators and other agencies that interrelate within the EMS system) must be communicated in clear terms and then monitored to assure compliance.

Within the envisioned EMS for the province, there are three key elements that are critically important for assuring sustainability:

1. Legislation must enable the EMS Newfoundland and Labrador agency;
2. Governance and oversight must be independent of service delivery and functions; and
3. Expectations for performance results must be embedded in performance contracting that features measureable indicators and outcomes.

Legislation should be considered for specific regulatory requirements to implement a robust EMS lead agency through a Provincial Ambulance/EMS Act. The Act would set the structure, authority, and responsibilities of the EMS Newfoundland and Labrador system.

Quality of care must be codified by legislation, a clear and empowered provincial authority, and greater proactive, interactive and retrospective medical oversight.

4.4.1 Governance

The establishment of a single EMS authority should be considered by the Minister of Health and Community Services.

- The overall purpose of the Ambulance Division would be to operate and/or have oversight of all emergency medical services across the province.
- EMS Newfoundland-Labrador would be accountable to manage its capital and operating budget to assure fiscally responsible and sustainable delivery of the provincial ambulance system performance results. It would carry sole authority to hold any sub-agencies and contracted providers accountable for the full scope of their roles and mandates.

4.4.2 Structure and Components of EMS Newfoundland-Labrador

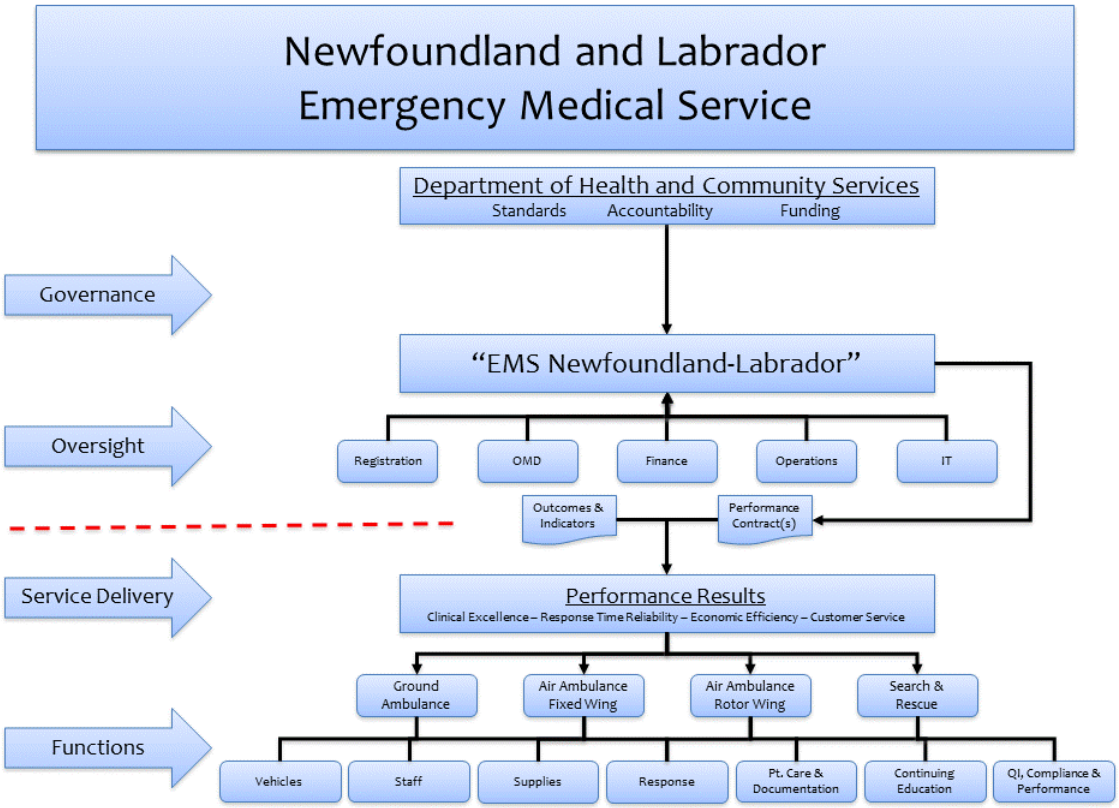
In addition to clear legislative authority, a more uniform and consistent approach to program oversight, performance standards, medical oversight, coordination and management and system monitoring is required.

The envisioned structure and components of the EMS Newfoundland and Labrador entity are illustrated in Figure 9 on the next page.

EMS Newfoundland and Labrador would be mandated with the responsibilities to contract for all resources (including funding) needed to efficiently and effectively operate and manage the emergency medical system, including the providers. Importantly, the mandate would also detail the nature of the working relationship between EMS Newfoundland and Labrador and the Department of Health and Community Services.

EMS Newfoundland-Labrador would provide the Department of Health and Community Services with a three- to five-year strategic plan, an annual operational plan with corresponding budget and the associated performance results reports.

Figure 9: Recommended Structure and Components of EMS Newfoundland and Labrador



Roles and Functions within EMS Newfoundland-Labrador

- *Provincial EMS Director*: Leadership would take form as the Provincial Ambulance Director (or similar title) to convey senior management authority and responsibility for management of EMS Newfoundland and Labrador. The Provincial EMS Director would oversee the operation of six areas or divisions: the Office of Medical Director, Registration, Finance, Operations and Information Technology.

The following outlines suggested roles and responsibilities:

- *Office of the Medical Director (OMD):* A Provincial EMS Medical Director, hired by the Provincial EMS Director in conjunction with the Deputy Minister for Medical Services at the Department of Health and Community Services, would lead the OMD. The OMD would ensure development of standards, educational services and quality improvement functions and ensure contractual obligations of EMS Newfoundland and Labrador are fulfilled. OMD would

provide medical oversight for the entire province and ensure consistency in educational standards, care and protocols.

- *Operations:* This division would be responsible for overseeing the delivery of all EMS services, including all land and air ambulance services. No provincially funded ambulance service delivery would fall outside the scope of this division. The division would ensure *all* EMS service providers have a performance contract with EMS Newfoundland and Labrador. This includes responsibility for negotiating, managing and monitoring these performance contracts. An additional area of responsibility would be the development and implementation of CMCD.

- *Registration (Professional and Ambulance):* This function would provide oversight for*:*
    - Administration of all EMS-related legislation and regulation;
    - Administration of ambulance operator licenses;
    - Interface with EMS Health Professionals Association (along with OMD) on professional standards, registration and licensure;
    - Evaluation of emergency medical services education programs;
    - Completion of land and air ambulance service inspections and administration of the air ambulance-licensing program; and
    - Licensing, registration and inspection of ambulance and other emergency medical response vehicles (e.g. 1st response vehicles, air ambulance).

- *Information Technology:* This function would assure successful data integration and management and the effective and efficient application of hardware and software in EMS Newfoundland and Labrador. This division would assume responsibility for all information technology and data collection programs, and management information systems to support decision-making, quality improvement and performance reporting. The role would also have responsibility for development and management of applications such as: a new ePCR (electronic Patient Care Report) and which enable the ability to accurately track vehicle mileage, inspections, accidents, and/or critical failures.

4.4.3 Finances and Funding

Success would be questionable if EMS Newfoundland and Labrador did not receive and manage all the financial resources to operate emergency medical services for the province. EMS Newfoundland and Labrador would receive and manage all the funding and resources that are part of the revenue stream of the EMS program. Specifically, this includes the Department of Health and Community Services funding for EMS, all user fees and all funding from other sources.

EMS Newfoundland and Labrador would, in turn, be responsible for operating and/or funding all the EMS services from within the available resources.

5. RECOMMENDATIONS AND IMPLEMENTATION TARGETS

These following represent the strategic recommendations to enable the change required to operate an efficient, effective, sustainable and quality ambulance system for the province based on a patient centric model. These recommendations should be implemented within a five-year time horizon

Immediate Recommendations: (to be completed within the first 18 - 24 months)

1. Transition the ambulance "level of effort" contracts to performance-based contracts. This will provide for higher levels of accountability by establishing performance metrics that are to be reported by all ambulance operators. The assignment of auditors to assess and report on consistent compliance is an important component of this recommendation.

2. Clarify ambulance operator roles, responsibilities and rights in relation to service area exclusivity. This is fundamental to implementation of a Centralized Medical Dispatch Centre (CMDC).

3. Commence implementation of Ambulance Dispatch and Management System (ADAMS) within the Regional Health Authorities.

4. Enact Emergency Medical Services legislation to govern the ambulance sector in the province. The Act would provide Health and Community Services with the authority to:

    a. License and regulate ambulance operators.
    b. Establish medical oversight for ambulance professionals
    c. Establish standards for ambulances and equipment
    d. Register ambulance vehicles

5. Build and operationalize a Centralized Medical Dispatch Centre (CMDC).

    a. Begin to develop a CMDC with a target to be operational within 18 months. This includes ensuring the technology and tools exist to electronically capture province-wide service delivery outputs and performance data for measuring, monitoring and quality improvement.

b. In tandem with the recently approved 911 centre, the CDMC should work with Fire and EMS to provide seamless receipt and coordination of emergency requests.

6. Establish EMS Newfoundland-Labrador with accountability to the Department of Health and Community. EMS Newfoundland-Labrador should:

    a. Assume accountability and responsibility for all aspects of road and air ambulance services delivered by operators and agents except for the registration and licensure of EMS professionals.
    b. Assure accountability for the system's performance results including in the areas of clinical excellence, response-time reliability, economic efficiency and patient satisfaction
    c. Define provincial quality benchmarks for the delivery of the EMS Newfoundland-Labrador system
    d. Replace the existing PMO office and incorporate an Office of Medical Director (OMD) within the new governance structure

Medium Term Recommendations (to be completed within 36 - 42 months)

7. Review the option of self-regulation of EMS personnel through the Newfoundland-Labrador Council of Health Professionals and the existing *Health Professions Act.*

8. Design and begin implementation of a tiered EMS response includes a robust Medical First Responder program. In the design of such a capability, the unique attributes and demographics of the province's communities must be a driving factor in determining the level of EMS personnel required at a community and local area basis.

9. Establish and implement a plan to address human resource issues raised by stakeholders to include recruitment, retention, pay, benefits, quality of work life, training program access and accreditation.

Longer Term Recommendation (to be completed within 48 – 60 months)

10. Finalize the design of the Newfoundland – Labrador EMS system and begin implementation. The key data and performance results from the recommendations listed above will have been compiled for application validating the final EMS system design.

None of the recommendations should be implemented without an unrelenting commitment to the fundamental reason for the significant investment of time, talent and resources: the patient. It is the patient who will experience the most gain. However, a significantly improved EMS will benefit the entire province as it moves toward a high performance EMS/ambulance service.

6. SUMMARY

The Consultants, through an inclusive and iterative process, have reviewed and analyzed the Newfoundland and Labrador Provincial Ambulance Program. Over an approximately 90-day period we held several dozen stakeholder roundtables and town halls and participated in numerous conference calls and held face-to-face meetings. We surveyed citizens and professionals. We asked, listened and noted positive, constructive and critical facts about the Program. Concurrently we collected and analyzed documentation from other stakeholders. In total, we reviewed paper and electronic documentation in the thousands of pages.

In closing, we would like to acknowledge and thank the many concerned and passionate participants, stakeholders and citizens of the province for allowing us the opportunity to participate in this vitally important endeavor.

While stakeholders have laid the strong case for change, this desire must now be channeled into unified action.

ANNEX A

Project Timeline

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& ASSOCIATES

	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Number	Phase/Task	Nov 5 - 9	Nov 12 - 16	Nov 19 - 23	Nov 26 - 30	Dec 3 - 7	Dec 10 - 14	Dec 17 - 21	Dec 24 - 28	Dec 31 - Jan 4	Jan 7 - 11	Jan 14 - 18	Jan 21 - 25	Jan 28 - Feb 1	Feb 4 - 8	Feb 11 - 15	Feb 18 - 22	Feb 25 - Mar 1	Mar 4 - 8	Mar 11 - 15	Mar 18 - 22	Mar 25 - 29
Phase 1	**Initiate Project**																					
1.1	Identify Lead & "kick off" teleconference call																					
1.2	Begin Stakeholder ID and Contact List																					
1.3	Draft IDR & Survey Tools																					
Phase 2	**Materials & Data Collection**																					
2.1	Identify Entities & Responsible Contact																					
2.2	Modify IDR for System & Respondents																					
2.3	Distribute IDRs																					
2.4	Distribute GIS Request																					
2.5	Monitor Data Collection Progress																					
2.6	Receive Materials & Data																					
2.7	Organize & Catalog																					
2.8	Consultant Review of Materials & Data																					
Phase 3	**Stakeholder Consultation Arrangements**																					
3.1	Identify Accessible Location(s)																					
3.2	Schedule & Distribute Invitations																					
3.3	Develop stakeholder consultation plan																					
3.5	Consultant Review of Data																					
Phase 4	**Online Survey**																					
4.1	Receive E-mail Distribution List																					
4.2	Develop Online Survey																					
4.3	HCS review of survey																					
4.4	Distribute Survey & Collect Data																					
4.5	Consultant Review of Data																					
Phase 5	**On-Site Interviews & Stakeholder Consultation**																					
5.1	**On-site HCS - Eastern RHA (5 days)**																					
5.1.a	HCS																					
5.1.b	GAS Officials																					
5.1.c	Private Operators																					
5.1.d	Community Operators																					
5.1.e	Hospital Operators																					
5.1.f	EMS Professionals																					
5.1.g	EH-PMT services inc, MCC, PMO Med Flt Team																					
5.2	**On-site Central RHA (2.5 days)**																					
5.2.a	HCS																					
5.2.b	GAS Officials																					
5.2.c	Private Operators																					
5.2.d	Community Operators																					
5.2.e	Hospital Operators																					
5.2.f	EMS Professionals																					
5.3	**On-site Western RHA (2.5 days)**																					
5.3.a	HCS																					
5.3.b	GAS Officials																					
5.3.c	Private Operators																					
5.3.d	Community Operators																					
5.3.e	Hospital Operators																					
5.3.f	EMS Professionals																					
5.4	**On-site Labrador-Grenfell RHA (5 days)**																					
5.4.a	HCS																					
5.4.b	GAS Officials																					
5.4.c	Private Operators																					
5.4.d	Community Operators																					
5.4.e	Hospital Operators																					
5.4.f	EMS Professionals																					
5.4.g	air medical team - HV/GB																					
5.5	**Video-Tele Stakeholder Conferencing**																					
5.6	**Optional Additional Stakeholder Consult On-site**																					
Phase 6	**Project Governance Steps**																					
6.1	Issue ID, research, findings, potential impact																					
	Proposed governance structure analysis and recommendations																					
	Proposed standards and performance delivery criteria																					
6.2	Proposed operational delivery model																					
Phase 7	**Benchmarking & Compliance Assurance**																					
7.1	Identify Similar & Best Practice Systems																					
Phase 8	**Define Future State**																					
8.1	Develop Service Improvement Recommendations																					
8.2	Prioritize List & Timeline																					
8.3	High Level Costing																					
Phase 9	**Report Results**																					
9.1	Drafting of report																					
9.2	Release of review draft																					
9.3	Client review & input																					
9.4	Drafting of final report																					
9.5	Final report delivery																					
9.6	Schedule Onsite Report Presentation																					
9.7	Develop Report Presentation																					
9.8	Report Presentation On-site																					

This schedule is preliminary ONLY - subject to change with HCS review and approval. On-site consultation may involve multiple team members at different locations.

ANNEX B

Public Survey Template

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Provincial Ambulance Review – Public Comment

Fitch & Associates, in partnership with Jane Helleur & Associates, is conducting a Provincial Ambulance Program Review on behalf of the Government of Newfoundland and Labrador. The goal of this review is to make recommendations aimed at improving the program's efficiency and effectiveness. Please answer the following questions about ambulance services within your Regional Health Authority.

page 1

* 1. Which Regional Health Authority do you live in? if you are uncertain of which Regional Health Authority to select, chose "other" and type in the city or town where you reside. (Select one option)

- □ Eastern Health
- □ Central Health
- □ Western Health
- □ Labrador/Grenfell Health
- □ Other (please specify):

  _____

2. Have you or a member of your immediate family received ambulance service in the past 2 years? (Select one option)

- □ Yes Go to Page No. 2
- □ No Go to Page No. 3

page 2

3. Was the ambulance service provided in a timely manner? (Select one option)

- □ Strongly Agree

- ☐ Agree
- ☐ Neither Agree or Disagree
- ☐ Disagree
- ☐ Strongly Disagree

4. Was the ambulance service provided in professional manner? (Select one option)

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neither Agree or Disagree
- ☐ Disagree
- ☐ Strongly Disagree

5. Were you satisfied with the ambulance service? (Select one option)

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neither Agree or Disagree
- ☐ Disagree
- ☐ Strongly Disagree

6. In reference to the service you or a member of your immediate family received, please describe your satisfaction or dissatisfaction.

Please Attach Additional Pages if needed

page 3

7. Are there specific issues about the Newfoundland-Labrador ambulance service that you would like to make the reviewers aware of (positive or negative)? (Select one option)

No

Yes (please describe) _____

_____

_____

_____

_____

8. Do you have any suggestions for making the ambulance service more effective or efficient? (Select one option)

No

Yes (please describe) _____

_____

_____

_____

_____

Thank you for your participation in this survey. We look forward to reviewing your ideas on improving ambulance services in Newfoundland and Labrador.

Please return your completed survey via fax to 709.579.0466 or mail to:

Fitch & Associates – Newfoundland-Labrador Ambulance Review
C/O JHA
PO Box 21041
St. John's, Newfoundland-Labrador Canada A1A 5B2

About Fitch & Associates

For nearly 30 years, *FITCH* has helped communities of all sizes across North America and around the world manage change and deliver better and more efficient emergency services. More information about Fitch & Associates can be found at www.fitchassoc.com.

About Jane Helleur & Associates

Jane Helleur & Associates (JHA) is a Newfoundland and Labrador based management consulting firm, with the majority of its work in the health care system. Through a variety of assessment methodologies for large-scale planning and evaluation initiatives, JHA aims to leverage individual and organizational potential to ensure the best possible outcome for its clients.

ANNEX C

Ambulance Professional Survey Template

FITCH & ASSOCIATES

Fitch & Associates in partnership with Jane Helleur & Associates, is conducting a Provincial Ambulance Program Review on behalf of the Government of Newfoundland and Labrador. The goal of this review is to make recommendations aimed at improving the program's efficiency and effectiveness. A critical element of the review is input from you, the industry stakeholders. We are asking for your participation by completing this brief on-line survey

1. Please select the ambulance service sector in which you are employed (Select one option):
    a. Private
    b. Community
    c. Hospital
    d. Other (describe) _____

2. Please select your level of professional training and certification (Select one option)
    a. Emergency Medical Responder (EMR)
    b. Primary Care Paramedic (PCP)
    c. Advanced Care Paramedic (ACP)
    d. Registered Nurse (RN)
    e. Other (describe) _____

3. Which Regional Health Authority do you work as an ambulance professional in? if you are uncertain of which Regional Health Authority to select, chose "other" and type in the city or town where you reside. (Select one option)
    a. Eastern Health
    b. Central Health
    c. Western Health
    d. Labrador/Grenfell Health
    e. Other (please specify) _____

4. Describe your employment status (Select one option)
    a. volunteer
    b. part-time, paid hourly
    c. full-time, paid hourly
    d. full-time, salaried

5. Please select your age (Select one)
    a. 21-25 years

b. 26-30 years
c. 31-35 years
d. 36-40 years
e. 41-45 years
f. 46-50 years
g. 51-55 years
h. 56-60 years
i. 60+ years

6. Please indicate your gender
    a. Male ___
    b. Female___

7. Please indicate the number of years you have worked in this profession.

8. Will you be leaving the profession in the next 5 years? If yes, please select the reason for leaving the profession
    a. Retirement
    b. Relocation
    c. Higher pay somewhere else
    d. Better schedule somewhere else
    e. Want to go back to school
    f. Leaving EMS for another industry
    g. Dissatisfaction with your agency's culture
    h. Other (please specify) _____

9. How frequently is continuing education offered to professionals in your organization? (Select one option)
    a. On demand or asynchronously (e.g., Internet)
    b. Monthly
    c. Quarterly
    d. Every six months
    e. Once a year
    f. More frequently than monthly
    g. Less frequently than once a year

10. Skill exposure and success rates are tracked as part of your organization's quality assurance process. (Select one option)

a. No
b. Yes, skill exposure rates
c. Yes, skill success rates
d. Yes both skill exposure AND success rates

11. Many systems have implemented skill proficiency practice and competency confirmation at regular intervals to assure performance. Please select the statement that best describes your organization: (Select just one option)
    a. Practice and competency confirmation occurs monthly
    b. Practice and competency confirmation occurs quarterly
    c. Practice and competency confirmation occurs every six months
    d. Practice and competency confirmation occurs once per year
    e. Practice and competency confirmation occurs once every two years
    f. Other (please specify) _____

12. Please describe the method used to practice and confirm proficiency at your organization: (Select just one option)
    a. Practice on a peer
    b. Practice on a traditional manikin
    c. Practice using a simulation manikin (e.g., SimMan®)
    d. Practice on a cadaver
    e. Combination of C and D
    f. Other (please specify) _____

13. At your current level of professional practice, please indicate your level of satisfaction with the following (LIKERT SCALE Strongly Agree – Agree - Neither agree nor disagree – Disagree - Strongly disagree)
    a. Initial Training Program
    b. Ongoing Annual/Continuing Education
    c. Initial Skill Training (e.g. venipuncture, cardiac monitoring, oxygen admin.)
    d. Ongoing Annual Skill Proficiency Training
    e. Equipment to do my job
    f. Clinical policies and procedures to support my practice
    g. Medical Control & direction
    h. Quality assurance and feedback on patient care

14. Provincial Occupational Health and Safety requires several programs for worker health and safety, please indicate your level of satisfaction with the following

(LIKERT SCALE Strongly Agree – Agree - Neither agree nor disagree – Disagree - Strongly disagree)

a. -Fatigue Management
b. -Musculoskeletal Injuries (MSI)
c. -HAZMAT/hazardous medications
d. -Infection Control/Personal Protective Equipment

15. Please record the following pay grade information about YOUR position.
    a. Annual salary ($00,000)
    b. Average hourly wage ($00.000)
    c. Average number regularly SCHEDULED HOURS PER WEEK (e.g., 40 hours)
    d. Average SHIFT LENGTH in hours (e.g. 8 hour shift, 12 hour, 24 hour)
    e. Average number of ON-CALL HOURS PER WEEK (e.g. 20 hours)
    f. Average ON-CALL LENGTH in hours
    g. What functions do you perform when on call? (TEXT)

16. Please indicate the what benefits you currently receive as an ambulance professional

	Not Applicable	Paid in Full by Employer	Partially Paid by Employer	Paid in Full by Employee
New Employee Relocation Expenses				
Life Insurance				
Line-of-Duty-Death Insurance				
Medical (Employee)				
Medical (Employee's Family)				
Short-Term Disability				
Long-Term Disability				
Employee Assistance Program				
Dental				
Optical/Vision				
Liability Insurance (errors & omissions)				
Tuition Reimbursement				
College Tuition Reimbursement				
Scholarship Fund for Employee's Children				

Retirement (e.g., Pension Plan				
Profit Sharing				
Shift Differential Pay				
Uniform Allowance				
Health Club Membership Reimbursement				
Paid Time Off (PTO) bank of combined benefit leave				
Daycare Reimbursement				
Dry-Cleaning of Uniforms				
Meal Service				

GENERAL COMMENTS

17. What is the ambulance program doing well?

18. Where does the ambulance program need to improve?

19. What are the opportunities and challenges facing you as a key stakeholder?

20. What are the opportunities and challenges facing the provincial ambulance program?

21. What is your vision for the future of the provincial EMS system and the changes required in achieving the vision?

To include your input, this survey request MUST be completed no later than January 31, 2013.

Thank you for your commitment to the provision of EMS in your communities. We look forward to hearing your ideas about improving EMS services in Newfoundland and Labrador.

About Fitch & Associates

For nearly 30 years, *FITCH* has helped communities of all sizes across North America and around the world manage change and deliver better and more efficient emergency services. More information about Fitch & Associates can be found at www.fitchassoc.com.

About Jane Helleur & Associates

Jane Helleur and Associates (JHA) is a Newfoundland and Labrador based management consulting firm, with the majority of its work in the health care system. Through a variety of assessment methodologies for large-scale planning and evaluation initiatives, JHA aims to leverage individual and organizational potential to ensure the best possible outcome for its clients.

ANNEX D

Public Survey Narrative

FITCH
& ASSOCIATES

Methodology

Questionnaire Design. The survey questionnaire used for the public online survey was developed by Fitch.

Data Collection

The public online study was conducted between January 02 and February 08 2013. The public were able to access the survey through the Department of Health and Community website.

A total of 152 residents of Newfoundland and Labrador participated in the survey.

Data Tabulation

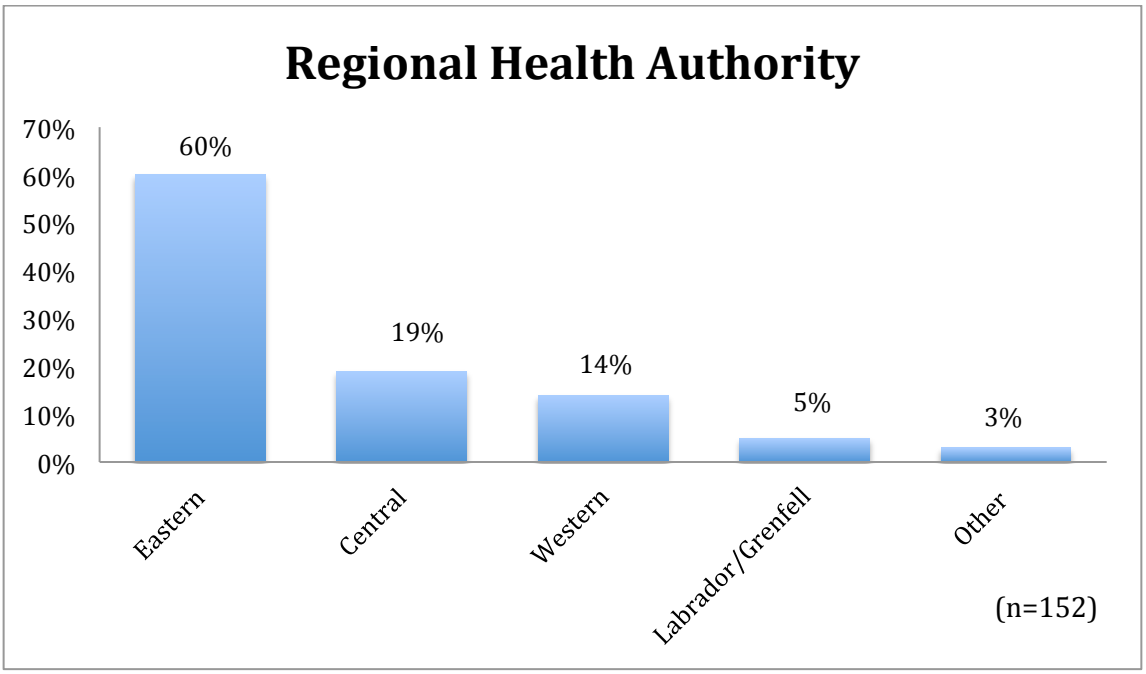
The data was tabulated using SPSS computer software. A complete set of data tables may be found in the Tabular Results section of this report (Attachment E). It should be noted that all percentages presented in the tabular results have been rounded to the nearest whole number and, consequently, may not always total 100 percent. The term "sample size" found on each table indicates the number of persons who responded to the particular questions asked. All other references presented in the tables are stated in percentages. The survey quantitative results have been reported.

Regional Health Authority

The majority of respondents live in Eastern Health.

As might be expected, the majority of respondents reside in Eastern Health (60%), followed by Central (19%) and Western Health (14%). The remainder resides in Labrador/Grenfell (5%) or outside the province (3%) (i.e., Nova Scotia and Ontario). (Figure 1)

Public RHA



Ambulance Use and Experience

While the majority is satisfied with the professionalism of the service received, there is an opportunity to improve response times.

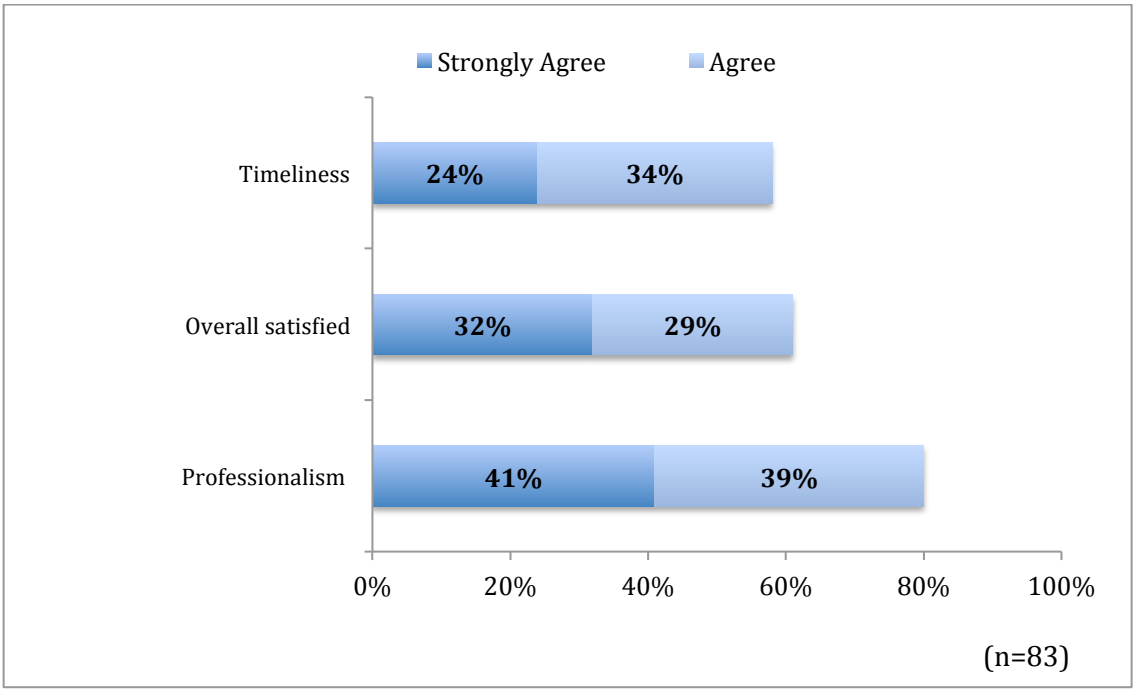
Of the 152 respondents, just over half (55%) report either they themselves or a member of their immediate family have used the ambulance service in the past two years, while the remainder (45%) have not (Tabular 2).

Respondents who had used the ambulance service within the past two years were asked to express their level of agreement with the timeliness of the service provided, the professionalism of the staff and their overall satisfaction with the service provided.

As can be seen in Figure 2, eight in ten (80%) agree that the service they received was delivered in a professional manner, while the remaining two in ten expressed a neutral opinion (8%) or disagreed (12%) with this statement (Tabular 4).

Respondents were somewhat less inclined to agree that they were satisfied with the overall ambulance service they received (61%) and its timeliness (58%). It merits mention that close to four in ten (37%) did not feel the service received was timely (Tabular 3 & 5).

Satisfaction with the Ambulance Service Received



Respondents were given an opportunity to further explain why they were satisfied or dissatisfied with the service they received. Of the 152 respondents, 53 (35%) provided a response to this question. Overall, four in ten (40%) report the ambulance professionals were competent and professional. However, two in ten (19%) feel the response time was too long and not acceptable. Similarly, another two in ten (17%) commented that either the ambulance itself or the equipment onboard was substandard.

Other less frequently identified responses include:

Poor patient care (16%);
Long shifts for ambulance professionals/exhaustion (16%);
Good patient care (13%); and
Good response times (11%).

Ten percent or more of those who responded to this question provided no other single response.

The public were asked to highlight specific issues, both positive and negative, that they believe the Provincial Ambulance Review should consider as part of this review. Of the 152 respondents, 126 (83%) provided a definite response to this question.

Respondents tended to focus primarily on the negative aspects of the province's ambulance system. While there were a variety of issues identified, how ambulance professionals are treated, most notably in terms of length of hours worked was identified by half (49%) of respondents as a major issue facing the system. Respondents reported that ambulance professionals are working inhumane hours, with many suggesting it is both a danger to their own health and the health of those they are trying to serve.

To a significantly lesser extent, the following were also cited as concerns:

Poor response times and dispatching (15%);
Too much emphasis on profit and not enough attention on patient care on the part of ambulance operators (14%);
Lack of standardization (11%);
Inappropriate use of ambulance services as basically taxi services (10%);
Poor condition of ambulances and the equipment (8%); and
Lack of communication/insufficient cell phone coverage (5%).

Four percent or more of respondents provided no other single response to this question.

Suggestions for Improvement
Having one provincial ambulance service is the most frequently identified suggestion for improvement.

The general public were given an opportunity to make suggestions to make the ambulance service more efficient and effective. Of the 152 respondents, 125 (82%) provided a definite response to this question.

The most frequently identified suggestion for improvement was to create a single provincial ambulance system, with three in ten respondents (30%) making such a recommendation. In addition, many respondents felt the ambulance system should be publically run.

To a lesser extent, the following suggestions for improvement were cited.

Legislate the amount of hours an ambulance professional can work (18%)

Ensure pay equity for the province's ambulance professionals (17%)
Have staffed bases and qualified staff located in strategic locations (14%)
Standardize the service being provided (13%)
Increase resources/hire additional staff to meet the demand (10%)

Seven percent or more of respondents provided no other single response to this question.

ANNEX E

Public Survey Tabular Results

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HELLEUR AND ASSOCIATES

Newfoundland and Labrador Ambulance Review

TABLE 1:

Which Regional Health Authority do you live in? If you are uncertain of which Regional Health Authority to select, choose 'other' and type in the city or town where you reside.

	OVERALL %	REGIONAL HEALTH AUTHORITY				AMBULANCE SERVICE	
		Central	Eastern	Labrador/ Grenfell	Western	No	Yes
Eastern Health	60	0	100	0	0	44	73
Central Health	19	100	0	0	0	26	13
Western Health	14	0	0	0	100	21	10
Labrador/Grenfell Health	5	0	0	100	0	6	4
ont	1	0	0	0	0	0	1
Hickey's	1	0	0	0	0	1	0
Dartmouth, Nova Scotia	1	0	0	0	0	1	0
SAMPLE SIZE (#)	152	29	91	7	22	68	84

TABLE 2:

Have you or a member of your immediate family received ambulance service in the past 2 years?

	OVERALL %	REGIONAL HEALTH AUTHORITY				AMBULANCE SERVICE	
		Central	Eastern	Labrador/ Grenfell	Western	No	Yes
Yes	55	38	67	43	36	0	100
No	45	62	33	57	64	100	0
SAMPLE SIZE (#)	152	29	91	7	22	68	84

HELLEUR AND ASSOCIATES

Newfoundland and Labrador Ambulance Review

TABLE 3:

[AMONG THOSE WHO ANSWERED YES IN Q2, Q2=YES]
Was the ambulance service provided in a timely manner?

	OVERALL %	REGIONAL HEALTH AUTHORITY				AMBULANCE SERVICE	
		Central	Eastern	Labrador/ Grenfell	Western	No	Yes
Strongly agree	24	18	23	33	38	0	24
Agree	34	27	35	33	25	0	34
Neither agree nor disagree	5	9	5	0	0	0	5
Disagree	25	36	25	0	25	0	25
Strongly disagree	12	9	12	33	13	0	12
SAMPLE SIZE (#)	83	11	60	3	8	0	83

Note: One respondent failed to provide an answer to this question.

TABLE 4:

[AMONG THOSE WHO ANSWERED YES IN Q2, Q2=YES]
Was the ambulance service provided in a professional manner?

	OVERALL %	REGIONAL HEALTH AUTHORITY				AMBULANCE SERVICE	
		Central	Eastern	Labrador/ Grenfell	Western	No	Yes
Strongly agree	41	27	41	100	50	0	41
Agree	39	45	39	0	25	0	39
Neither agree nor disagree	8	9	8	0	13	0	8
Disagree	11	18	10	0	13	0	11
Strongly disagree	1	0	2	0	0	0	1
SAMPLE SIZE (#)	83	11	61	2	8	0	83

Note: One respondent failed to provide an answer to this question.

HELLEUR AND ASSOCIATES

Newfoundland and Labrador Ambulance Review

TABLE 5:

[AMONG THOSE WHO ANSWERED YES IN Q2, Q2=YES]
Were you satisfied with the ambulance service?

	OVERALL %	REGIONAL HEALTH AUTHORITY				AMBULANCE SERVICE	
		Central	Eastern	Labrador/ Grenfell	Western	No	Yes
Strongly agree	32	27	31	67	38	0	32
Agree	29	27	28	33	25	0	29
Neither agree nor disagree	11	0	13	0	13	0	11
Disagree	17	9	20	0	13	0	17
Strongly disagree	12	36	8	0	13	0	12
SAMPLE SIZE (#)	84	11	61	3	8	0	84

ANNEX F

Ambulance Professional Survey Narrative

FITCH & ASSOCIATES

Methodology

Questionnaire Design. The survey questionnaire used for the professional online survey was developed by Fitch and can be found in Annex C.

Data Collection

The Professionals online survey was open for completion between 02 January and 08 February 2013. Survey invitations were sent to 799 ambulance professionals through the PMO's office. A total of 424 completed surveys were received. Overall, this represents a response rate of 53 percent.

Data Tabulation.

The data was tabulated using SPSS computer software. A complete set of data tables may be found in the Tabular Results section of this report (Annex H). It should be noted that all percentages presented in the tabular results have been rounded to the nearest whole number and, consequently, may not always total 100 percent. The term "sample size" found on each table indicates the number of persons who responded to the particular questions asked. All other references presented in the tables are stated in percentages. The survey quantitative results are included in the report.

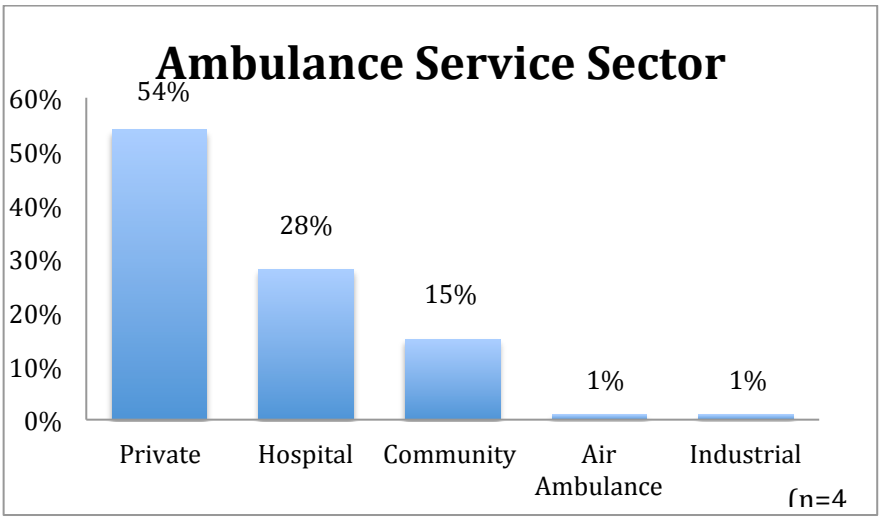
Participant Characteristics

This section presents a brief profile of the ambulance professionals who completed to the survey.

Ambulance Service Sector

Just over half (54%) of ambulance professionals work in the private sector, while one in three (28%) work in the hospital setting. The remainder work in the community setting (15%), with the air ambulance (1%) or in an industrial setting (1%)-Figure 3 (Tabular Q1).

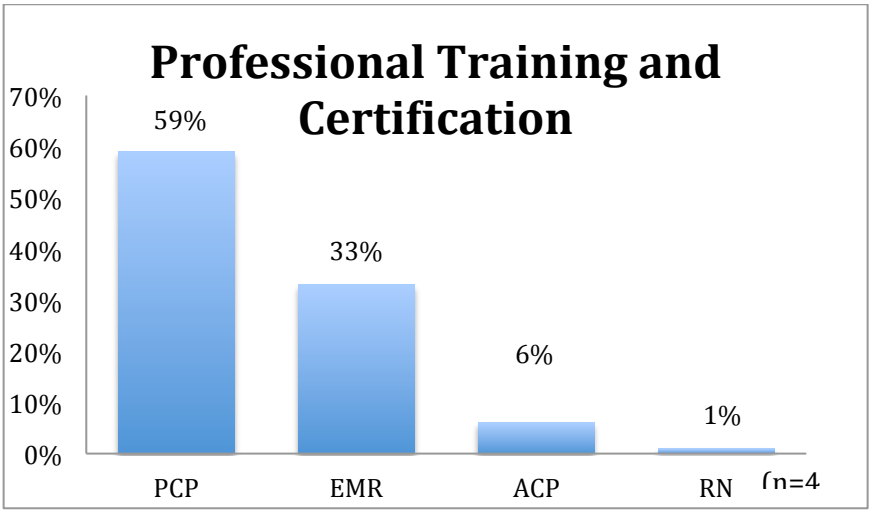
Figure 3: Professional Industry Sector



Professional Training and Certification

Overall, six in ten (59%) have trained as a PCP, while one third (33%) have trained as EMRs. Very few have trained as an ACP (6%) or as a registered nurse (1%)-Figure 4 (Tabular Q2)

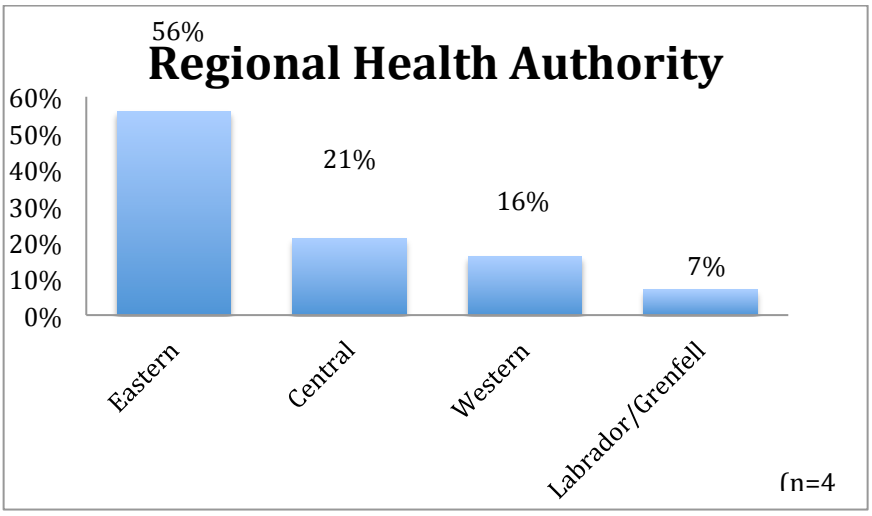
Figure 4: Professional training



Regional Health Authority

As might be expected, the majority of participants reside in the Eastern Health Authority (56%), followed by Central (21%) and Western Health (16%). The remainder reside in Labrador/Grenfell (7%)-Figure 5 (Tabular Q3)

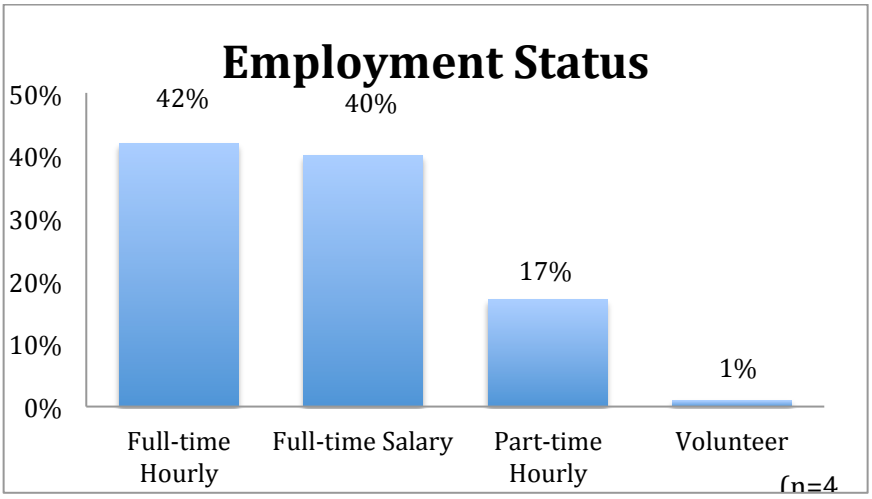
Figure 5: Professional RHA



Employment Status

The majority of ambulance professionals are working on a full-time basis and are receiving an hourly wage (42%) or are salaried (40%). Close to two in ten (17%) are employed part-time and are paid hourly, while very few (1%) are volunteers-Figure 6 (Tabular Q4).

Figure 6: Professional Employment

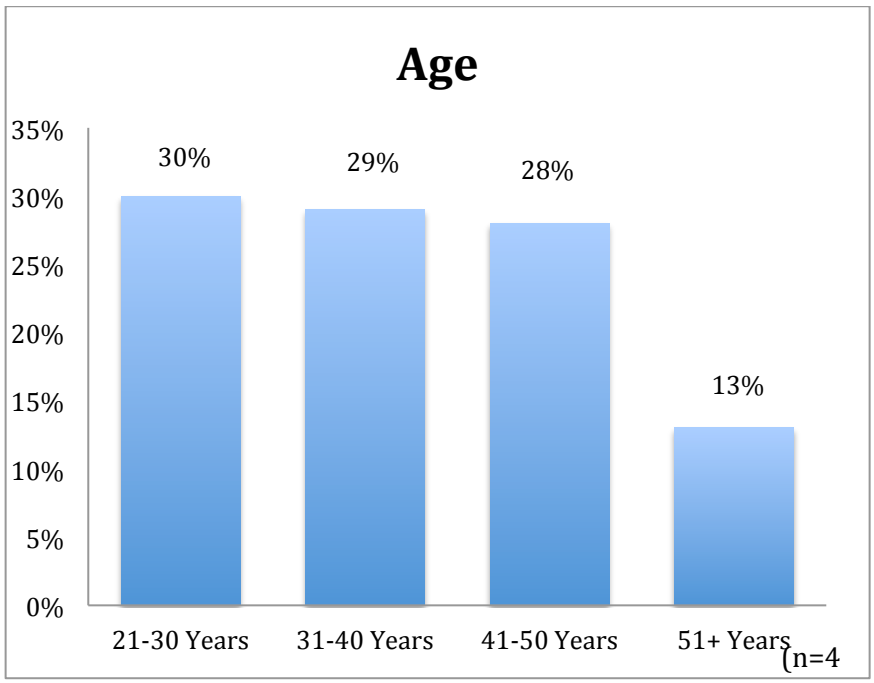


Half (49%) of the survey participants reported having worked in the profession for five years or less. One-third (33%) of them have been in the profession for six to 15 years. The remaining two in ten (18%) have worked as ambulance professionals for 16 years or more (Tabular Q7).

Age and Gender

The majority of ambulance professionals fall into one of three age categories – Figure 7 (Tabular Q4). More males (62%) than females (38%) completed the survey (Tabular Q6).

Figure 7: Professional Age

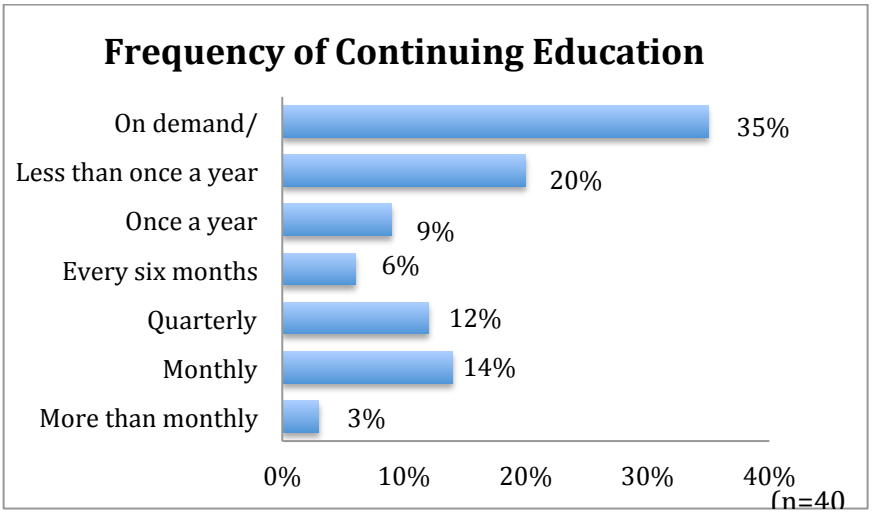


Continuing Education Opportunities

Continuing educational opportunities are happening on an ad hoc basis.

The findings from the survey suggest continuing education opportunities (CME) are occurring on an "as needed" basis, as opposed to any degree of regularity-Figure 8.

Figure 8: Continuing Education



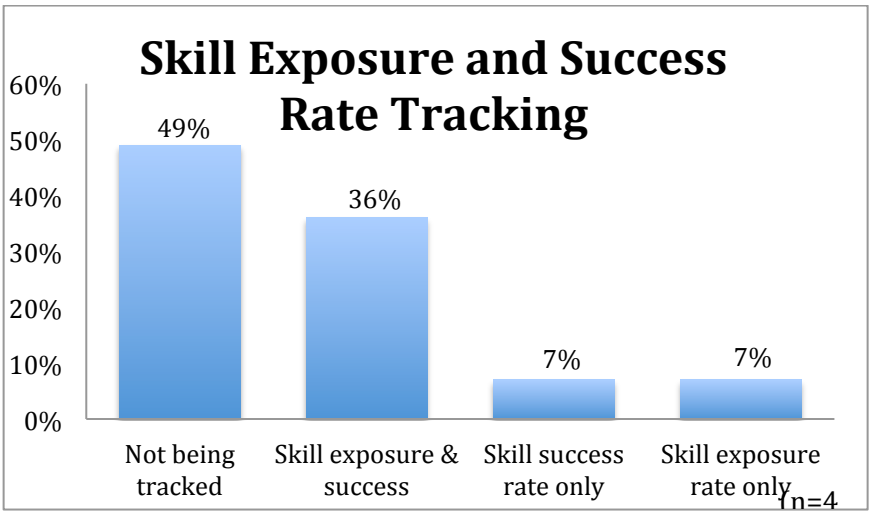
Across the demographics, ambulance professionals working in the hospital setting and ACPs are more likely to report CME is being offered on a monthly or quarterly basis, while those in the community are more apt to report it is provided on demand or asynchronously. Those in the private sector are also more likely to report CME is delivered on demand or less than once a year.

Skill Exposure and Success Rate Tracking

Skill exposure and success rates are either not being tracked or are both tracked as part of the quality assurance practice.

Ambulance service providers, as part of their quality assurance practices, regularly monitor skill exposure and success rates. As can be seen in Figure 9, half (49%) of ambulance professionals report their employer is not tracking skill exposure and success rates, while just over one-third (36%) report both of these variables are being measured. Very few ambulance professionals report their employer is tracking either skill success (7%) or skill exposure (7%) in isolation (Tabular Q10).

Figure 9: Skill Exposure



Those most likely to report their employer does not track skill exposure and success rate as part of their quality assurance processes are ambulance professionals working in Central Health, EMRs and PCPs, and those working in the private setting. Ambulance professionals working in the community setting and ACPs are more likely to report their employer is tracking both of these variables.

Satisfaction with Current Professional Practice

While ambulance professionals are satisfied with the initial training they received, there is room for improvement with respect to continuing education, skill proficiency training and patient quality assurance feedback.

Ambulance professionals were given an opportunity to rate their level of satisfaction in eight areas of practice. These eight areas include: initial training, continuing education, initial skill training, annual skill proficiency training, equipment access, supportive clinical policies and procedures, medical control and direction and quality assurance and feedback on patient care.

As can be seen in Figure 10, three-quarters (76%) of ambulance professionals are satisfied with their initial training. Seven in ten are also satisfied with the current level of medical control and direction (72%) and their initial skill training with respect to venipuncture, cardiac monitoring and oxygen administration (71%). However, they express somewhat lower satisfaction with respect to having the clinical policies and procedures to support their practice (64%) and having the equipment they require for doing their jobs (63%). They express the least satisfaction with:

- Ongoing annual/continuing education (43%)
- Ongoing annual skill proficiency training (40%)
- Quality assurance and feedback on patient care (40%)

Figure 10: Satisfaction with Current Professional Practice

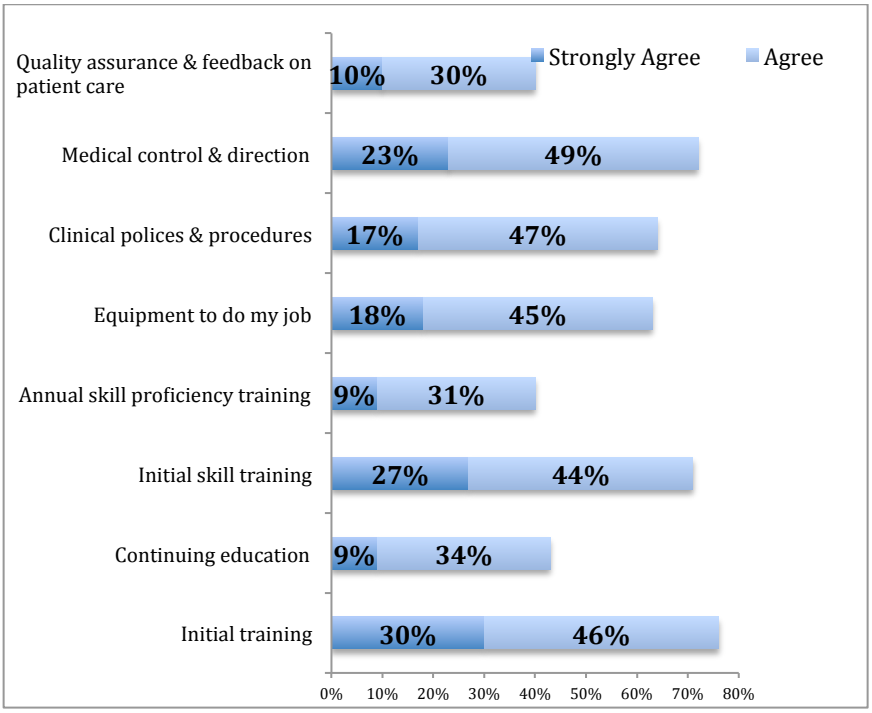


Table 3 provides a summary of the demographic differences by the practice area being assessed. In addition, it should be noted that for all eight areas presented, agreement with the statement increases with number of years in the profession.

Table 3: Practice Demographic Differences

Practice Area Being Assessed: "Satisfaction with…"	Demographic Difference Observed:
Initial training program	Agreement is higher among those in Labrador-Grenfell. EMRs are more apt to have a neutral opinion.
Ongoing annual/continuing education	Agreement is higher among part-time hourly employees and those practicing in the community setting. Those working in Labrador/Grenfell are more likely to disagree

	with this statement.
Initial Skill training	EMR's and those working in the private sector are more pat to express a neutral opinion.
Ongoing annual skill proficiency training	Agreement is higher among those practicing in the community setting. ACPs are more likely to express disagreement.
Equipment to do my job	Agreement is higher among those practicing in the community setting. ACPs are more likely to have a neutral opinion.
Clinical policies and procedures to support my practice	Agreement is higher among those practicing in the community setting. Those practicing in Eastern are more likely to disagree with this statement.
Medical control and direction	Agreement is higher among those practicing in the community setting. ACPs are more likely to disagree with this statement.
Quality assurance and feedback on patient care	Agreement is higher among those practicing in the community setting. ACPs and those working in Eastern are more likely to disagree with this statement.

Satisfaction with Provincial Occupational Health and Safety Requirements
Provincial health and safety receives its highest scores with respect to infection control and providing protective equipment and its lowest score in fatigue management.

Provincial Occupational Health and Safety has several programs designed to enhance worker health and safety. Ambulance professionals were ask to rate Occupational Health and Safety's performance in the following four areas:

1. Fatigue management
2. Musculoskeletal injuries (MSI)
3. HAZMA/hazardous medications
4. Infection control/personal equipment

Occupational Health and Safety receives its highest satisfaction scores for its performance in infection control/personal equipment (58%), followed distantly by the MSI (37%) and the

hazardous medications (36%). It receives its lowest score in terms of its performance in fatigue management (30%) – Figure 11 (Tabulars Q14a-14d).

Figure 11: Satisfaction with Provincial Occupation Health and Safety Requirements

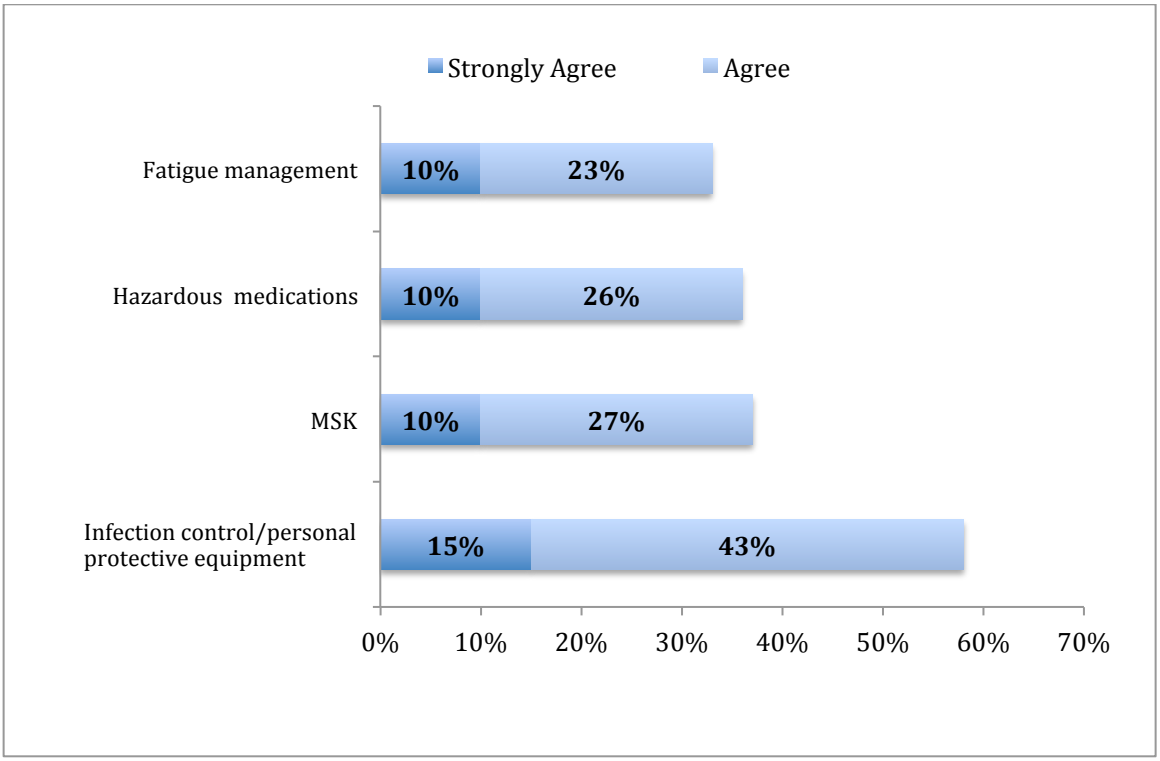


Table 4 provides a summary of the demographic differences by the Occupational Health and Safety area. Once again, agreement with the statement presented increases with number of years in the profession.

Table 4: OHS Demographic Differences

Occupational Health and Safety Area Assessed: "Satisfaction with…"	Demographic Difference Observed:
Infection control/personal protective equipment	Agreement is higher among those working in Labrador/Grenfell, full-time, hourly employees and those practicing in the community. ACPs are more likely to express a neutral opinion.
MSI	Agreement is higher among those in Labrador-Grenfell, Western and those working in the community setting.
Hazardous medications	Agreement is higher among EMRs and PCPs and those working in the community.
Fatigue management	Agreement is higher among those in Labrador/Grenfell and Western, EMRs and those practicing in the community setting.

Current Benefits

Ambulance professionals were asked a series of questions regarding the benefits they currently receive. The benefits presented were as follows:

- Reimbursement of relocation expenses
- Life insurance
- Line-of-duty-death insurance
- Medical (employee)
- Medical (employee's family)
- Short-term disability
- Long-term disability
- Employee assistance program;
- Dental
- Optic/vision
- Liability insurance (errors and omissions)
- Tuition reimbursement
- College tuition reimbursement
- Scholarship fund for employee's children
- Retirement (i.e., pension plan)
- Uniform allowance

- Health club reimbursement
- Daycare reimbursement
- Dry cleaning of uniforms
- Meal service

Relocation expenses
Most ambulance professionals have personally incurred work relocation costs.

For the most part, ambulance professionals are personally incurring the cost for relocating for work purposes (72%). Across the demographics, however, it is not surprising to learn that ambulance professionals working in Labrador/Grenfell are more apt to report their employer either partially or fully paid their relocation expenses. ACPs are also more likely to report their employer paid their moving expenses, as are those who with greater tenure in the profession (Tabular Q18a).

Insurance
Very few employers are covering the entire cost of life, line-of-duty-death and liability insurance.

Close to six in ten (57%) report their employer partially pays their life insurance, while one-third (33%) incur the costs themselves. The remaining one in ten (9%) report their employer covers part of the cost. Those working part-time hourly are more likely to report their employer pays a portion of the cost, whereas PCPs and those working in the community setting are more likely to report they personally pay for their own life insurance (Tabular Q18b).

Overall, one-half (50%) report their employer pays a portion of their line-of-duty-death insurance, while one-third (34%) are paying it out of their own pockets. Very few (16%) report their employer is covering the total cost. Those most likely to report their employer partially pays the cost of line-of-duty-death insurance include ACPs, those working part-time, hourly and those working in the hospital setting. As might be expected, those working in Labrador/Grenfell are more likely to have this insurance fully paid for by their employer (Tabular Q18c).

Similarly, two-thirds (65%) of ambulance professionals report their employer covers the entire cost associated with liability insurance, while two in ten (20%) report it is partially covered. The remaining 15 percent are paying for their own liability insurance. Those most

likely to have their liability insurance fully covered by their employer include those working in Labrador/Grenfell, those who are full-time salaried and those working in the community setting (Tabular Q18k).

Medical Insurance & Health Benefits

Most employers are partially covering the costs associated with medical insurance and health benefits.

Approximately two-thirds of ambulance professionals report their employer is covering the cost of their medical insurance (66%) and their families (66%). ACPs and those working in the hospital setting are more likely to report their employer partially pays for both of these insurances. In contrast, those in Labrador/Grenfell are more likely to report that their employer pays the full cost of both or they themselves personally incur the costs (Tabulars Q18d & Q18e).

Seven in ten ambulance professionals report their employer partially pays for their optical (70%) and dental (67%) expenses, while one-quarter pay their own optical (25%) and dental (30%) costs. Across the demographics and for both optical and dental expenses, those working in Labrador/Grenfell are more likely to either have their employer cover the entire cost or pay it him or herself. ACPs are more likely to report these costs are partially covered by their employer. Finally, those working in the community setting are more likely to have to pay for their own dental expenses (Tabulars Q18i & Q18k).

Disability Insurance

The majority of employers are partially covering the costs of short and long-term disability packages.

Six in ten ambulance professionals report their employer partially pays for their short-term (59%) or long-term (57%) disability. One-quarter report they are personally paying for their own short-term disability, while three in ten (30%) report they are personally paying for their long-term disability. Very few employers are providing full coverage for short-term (15%) or long-term (14%) disability (Tabular Q18g).

Ambulance professionals in Labrador/Grenfell and Western, along with those working in the community setting are more apt to report their employer covers the full cost of both short and long-term disability insurance. Whereas those working part-time hourly, and ACPs, are more likely to report their employer partially covers these costs. With respect to short-term disability, those working in the hospital setting are more likely to report their employer

partially covers the associated cost. Finally, EMRs are more likely to report their employer partially covers their long-term disability costs.

Employee Assistance Program

At a minimum, most employers are covering some of the costs associated with employee assistance programs.

Close to half (45%) of ambulance professionals report their employee assistance program (EAP) is paid entirely by their employer, while three in ten (31%) report its cost is partially employer-paid. The remaining one-quarter (24%) indicates they are required to cover the entire cost. ACPs, those employed on a full-time hourly basis and those working in Labrador/Grenfell and Western are more likely to have the cost of EAP covered fully by their employer (Tabular Q18h).

Tuition Reimbursement

While some employers provide financial assistance for educational advancement, the majority do not.

Close to two-thirds (64%) of ambulance professionals are required to absorb the entire cost of non-college credit or CME tuition personally, while one-quarter (23%) report that those costs are covered entirely by their employer. The remaining one in ten (13%) report their employer covers a portion of the cost (Tabular Q18l).

Similarly, very few ambulance professionals had the cost of their professional training paid/reimbursed by their employer. Indeed, eight in ten (81%) report they paid their own college tuition, while the remaining two in ten report their employer covered part (9%) or all (9%) of the cost (Tabular Q18m).

Pension Plans

Ambulance professionals either belong to a pension plan that is partially funded by their employer or are required to self-direct their retirement savings.

Overall, two-thirds (67%) of ambulance professionals have a pension plan that is partially funded by their employer, while one-quarter (26%) are responsible for managing their own retirement savings. Very few (8%) have a pension plan that is totally funded by their employer. As might be expected, the likelihood of having a pension plan partially paid by the employer increases with the length of time in the profession and is higher among those working in the hospital setting and among ACPs (Tabular Q18o).

Uniforms

Most ambulance professionals have at least a portion of their uniform costs covered by their employer.

Nearly three-quarters (72%) of employers are covering the full cost of uniforms, while one-quarter (23%) are partially covering this cost. Very few (5%) employers require their employees to absorb the full cost of uniforms. Across the demographics, employers in the private setting are more likely to pay a portion of the cost as opposed to provide full reimbursement (Tabular Q18r).

In terms of uniform cleaning costs, six in ten (59%) are paying their own uniform dry-cleaning costs, while close to four in ten (37%) have this expense completely covered by their employer. Very few (5%) have their cleaning expenses partially covered. Those working in the hospital setting and ACPs are most likely to have their uniform cleaning costs covered by their employer (Tabular Q18v).

Meal Services

There is variation in the reimbursement of meals among the community, private and hospital working environments.

There is variation in terms of meal allowances. More specifically, four in ten (38%) have their meals partially covered by their employer, while one-third (34%) are required to purchase their own meals. The remaining three in ten (28%) have their meals paid for by their employer. It is interesting to note that those working in the private setting are more likely to have their meals partially covered, while those in the community setting are more likely to have their meals fully covered. Those working in the hospital setting are more likely to have to pay for their own meals (Tabular Q18v).

Additional Benefits

Most ambulance professionals are paying for their own gym memberships and childcare costs.

For the most part, ambulance professionals are paying their own health club/gym memberships (76%), while two in ten (22%) are receiving partial reimbursement for this expense (Tabular Q18s).

With respect to scholarship funds for dependents, six in ten (60%) report they personally cover the entire cost of this expense, while two in ten report their employer covers the entire (22%) or a portion (18%) of the cost (Tabular Q18n).

Virtually all ambulance professionals (94%) are paying for their own childcare expenses (Tabular Q18u).

What is Working Well?
Ambulance professionals were given an opportunity to identify what they see as working well with the province's ambulance service. Of the 424 respondents, 256 (60%) provided a response to this question.

There was diversity in the responses provided and no one or two key attributes emerged. However, there were several trends that merit highlighting:

- Eighteen percent feel those working in the field are dedicated to the profession and strive to deliver high-quality patient care. The response times of ambulance professionals was seen as being good.
- Fifteen percent think there is very little or nothing working well.
- Thirteen percent feel they receive good training and that good CMEs are available.
- Thirteen percent consider the implementation of standardized protocols is having a positive impact.
- Thirteen percent believe the establishment of the PMO is a step in the right direction.
- Nine percent report they are using, and have access to, new and up-to-date equipment.
- Nine percent think they have good benefit packages (i.e., vacation time, uniforms, wages).

Eight percent or more of those who responded to this question provided no other single response.

Areas Requiring Improvement
Remuneration, including pay equity, and fatigue management, including better schedules, are the two areas of the ambulance program that require immediate attention.

Ambulance professionals were given an opportunity to identify areas of the ambulance program that require improvement. Of the 424 respondents, 292 (69%)provided a definite response to this question.

Overall, better remuneration and pay equity (44%) and better schedules and fatigue management practices (43%) were the two most frequently identified areas requiring improvement followed by closer monitoring of equipment, including vehicles (30%).

Other areas in need of improvement include:

- Response times (24%)
- Better access and support for CME (21%)
- Standardization (15%)
- Mandatory ambulance bases/better dispatch (14%)
- Hire sufficient staff for adequate coverage (12%)
- Increased accountability for operators/government intervention (12%)

Ten percent or more of respondents provided no other single response.

Stakeholder Challenges and Opportunities

Ambulance professionals were asked to identify what challenges they face as key stakeholders in the current ambulance system. Of the 424 respondents, 224 (53%) provided a definite response to this question.

When responding to this question, ambulance professionals tended to focus on the challenges rather than the opportunities. Indeed, 14 percent of respondents noted their opportunities are extremely limited.

Most of the challenges identified pertain to poor working conditions and low remuneration (13%) and heavy and unsafe workloads (12%).

Four percent or more of the respondents identified no other single response.

Challenges and Opportunities in the Provincial Ambulance System

The greatest challenges to the provincial ambulance system lie within the use of private operators and inequities among professionals.

Ambulance professionals were asked to identify both the challenges and opportunities facing the provincial ambulance program. Of the 424 respondents, 231 (54%) provided a definite response to this question.

Overall, ambulance professionals tended to identify more challenges than opportunities with the provincial ambulance program. While there was considerable variation in the challenges identified, the inclusion of private operators and a fragmented system (30%) and pay inequities and poor working conditions (22%) were the two most frequently cited challenges followed distantly by staff recruitment and retention (10%), most notably in rural areas of the province.

“

Other challenges identified include:

- Changing demographics, the provinces geography and road conditions (7%)
- Public’s perception of EMS (7%)
- Funding (7%)

In those instances where ambulance professionals identified opportunities they tended to focus on establishing equity and equality within the profession (11%), developing a provincial ambulance system (10%) and making CME opportunities more accessible to all ambulance professionals regardless of where they live (7%).
Six percent or more of ambulance professionals identified no other single challenge or opportunity.

The Future Provincial EMS System
A provincial or regional-based ambulance system that provides patients with a standardized high level of care and is equitable and fair to ambulance professionals is the hope for the future.

Ambulance professionals were asked to share their vision for the future of the provincial EMS system and the changes required to achieve the vision. Of the 424 respondents, 258 (61%) provided a definite response to this question.

Implementing one provincial or regional system was the vision desired by close to one-half (42%) of the respondents. Many respondents who suggested the ambulance system should be delivered by a central authority did not see a role for private operators. Rather, they believe a government-run EMS system would better serve the people of the province. However, it is important to note that some respondents who suggested the system be centralized did cite that provinces, such as Nova Scotia, have implemented effective third-party run systems.

In addition to a centralized system, one-quarter of respondents envision an EMS system that offers benefits equality (26%), and wage parity (23%). Mandatory 12-hour shifts (21%) and standardization (17%) were also frequently provided responses.

Six percent or more of ambulance professionals identified no other single response to this question.

ANNEX G

Ambulance Professional Tabular Results

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TABLE Q1:

Please select the ambulance service sector in which you are employed.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Private	54	43	61	36	54	44	71	45	0	64	56	67	48	31	52	58	64	46	48	0	0	100
Hospital	28	35	27	46	16	43	8	38	93	7	32	19	33	43	34	17	30	28	19	0	100	0
Community	15	21	9	7	29	9	20	15	0	30	9	14	18	15	11	21	5	21	31	100	0	0
Air Ambulance	1	0	2	0	0	1	1	0	4	0	0	0	0	5	0	2	0	2	0	0	0	0
Industrial	1	1	0	11	0	2	0	0	0	0	2	0	1	3	1	1	0	2	0	0	0	0
Was Private, but just laid off.	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Not yet employed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Flight specialist	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0
EMS Educator, and have affiliation with various ambulance group types	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	2	0	0	0
SAMPLE SIZE (#)	424	89	237	28	69	171	163	71	27	138	250	205	137	74	257	159	181	179	54	63	119	230

TABLE Q2:

Please select your level of professional training and certification.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Primary Care Paramedic (PCP)	59	65	55	79	57	61	65	45	0	0	100	60	55	65	61	57	72	55	28	35	68	61
Emergency Medical Responder (EMR)	33	34	30	21	42	26	31	49	0	100	0	39	33	16	30	38	19	36	67	65	8	38
Advanced Care Paramedic (ACP)	6	0	11	0	1	10	2	4	100	0	0	1	12	9	8	3	8	4	6	0	21	0
Registered Nurse (RN)	1	0	3	0	0	2	1	1	0	0	0	0	1	7	1	2	1	3	0	0	2	0
PCP and LPN	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0
Medical Flight Specialist RN	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0
EMD/EMR	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
SAMPLE SIZE (#)	424	89	237	28	69	171	163	71	27	138	250	205	137	74	257	159	181	179	54	63	119	230

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TABLE Q3:

Which Regional Health Authority do you work as an ambulance professional in? If you are uncertain of which Regional Health Authority to select, choose 'other' and type in the city or town where you reside.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Eastern Health	56	0	100	0	0	57	58	49	96	52	52	54	57	58	59	51	55	60	48	35	54	63
Central Health	21	100	0	0	0	17	25	21	0	22	23	22	20	20	19	25	23	17	26	30	26	17
Western Health	16	0	0	0	100	16	14	24	4	21	16	18	17	11	14	19	16	16	20	32	9	16
Labrador/Grenfell Health	7	0	0	100	0	10	4	6	0	4	9	5	7	11	8	4	6	8	6	3	11	4
Other	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0
SAMPLE SIZE (#)	424	89	237	28	69	171	163	71	27	138	250	205	137	74	257	159	181	179	54	63	119	230

TABLE Q4:

Describe your employment status.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Full-time, paid hourly	42	34	42	61	40	100	0	0	68	34	43	44	38	42	48	32	44	40	39	24	64	34
Full-time, salaried	40	47	41	21	34	0	100	0	16	37	44	39	40	40	35	47	40	38	41	53	11	52
Part-time, paid hourly	17	18	15	14	25	0	0	100	12	26	13	16	20	15	15	21	15	20	17	18	23	14
Volunteer	1	1	1	4	0	0	0	0	4	3	0	0	1	3	2	1	0	2	4	5	1	0
SAMPLE SIZE (#)	410	85	229	28	67	171	163	71	25	134	242	201	136	73	255	155	176	178	54	62	115	222

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TABLE Q5:

Please select your age.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
21-25 years	15	16	14	11	15	14	14	18	0	7	21	30	0	0	11	22	34	0	0	3	11	21
26-30 years	15	18	15	18	12	18	14	13	40	7	18	19	18	0	15	15	34	0	0	3	24	13
31-35 years	14	14	14	11	16	14	17	7	16	13	15	15	19	1	15	12	32	0	0	8	12	17
36-40 years	15	15	14	18	18	15	14	20	16	18	14	12	16	23	16	15	0	35	0	17	15	14
41-45 years	17	14	19	21	10	17	15	20	8	15	17	12	17	28	17	16	0	39	0	24	17	13
46-50 years	11	6	13	11	13	10	14	10	8	15	10	8	12	20	11	13	0	26	0	17	11	9
51-55 years	6	5	7	0	7	7	7	1	12	10	4	3	8	12	7	6	0	0	48	10	5	6
56-60 years	5	11	2	7	6	4	5	6	0	10	2	0	7	12	6	3	0	0	35	13	3	4
60+ years	2	1	2	4	3	2	1	6	0	7	0	0	4	3	4	0	0	0	17	5	1	2
SAMPLE SIZE (#)	414	85	232	28	68	171	161	71	25	136	244	203	137	74	256	158	181	179	54	63	115	224

TABLE Q6:

Please indicate your gender.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Male	62	55	65	75	54	71	55	55	84	56	63	52	64	84	100	0	58	61	76	46	77	59
Female	38	45	35	25	46	29	45	45	16	44	37	48	36	16	0	100	42	39	24	54	23	41
SAMPLE SIZE (#)	416	87	232	28	68	171	163	71	25	136	246	205	137	74	257	159	181	179	54	63	115	226

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TABLE Q7:

Please indicate the number of years you have worked in this profession.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
0-1 years	14	14	16	7	12	13	15	11	0	13	17	29	0	0	12	18	24	7	2	11	3	21
2-5 years	35	38	32	32	43	38	33	35	8	46	33	71	0	0	30	43	48	30	13	33	30	40
6-10 years	21	21	22	21	22	19	23	25	44	21	20	0	65	0	20	24	19	21	31	22	26	19
11-15 years	12	10	12	11	12	12	11	13	20	12	11	0	35	0	14	7	9	13	17	16	13	10
16-20 years	7	7	6	18	6	11	6	3	12	3	9	0	0	41	10	3	1	15	6	6	11	4
21-25 years	7	5	9	4	4	5	8	8	4	4	8	0	0	39	9	4	0	13	11	6	9	5
25+ years	4	6	3	7	1	3	4	4	12	2	3	0	0	20	5	1	0	2	20	5	8	1
SAMPLE SIZE (#)	416	87	232	28	68	171	163	71	25	136	246	205	137	74	257	159	181	179	54	63	115	226

TABLE Q9:

How frequently is continuing education offered to professionals in your organization?

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
More frequently than monthly	3	2	4	4	5	5	3	1	8	0	5	0	8	6	4	2	4	3	4	0	6	3
Monthly	14	13	17	0	14	16	10	21	40	12	13	12	16	19	16	11	15	15	12	13	26	9
Quarterly	12	13	12	7	14	11	12	16	20	8	13	12	16	7	10	15	16	10	6	7	17	11
Every six months	6	6	4	18	5	7	4	7	0	11	4	7	4	6	6	5	3	8	8	8	6	5
Once a year	9	9	7	7	15	10	9	6	4	18	4	11	7	6	6	13	5	12	13	13	5	10
Less frequently than once a year	20	24	19	29	17	21	22	13	8	16	25	24	20	13	23	16	24	18	13	12	19	23
On demand or asynchronously (e.g., internet)	35	33	37	36	31	32	39	34	20	36	37	35	31	44	34	37	32	35	44	47	21	40
SAMPLE SIZE (#)	402	85	223	28	65	168	158	67	25	132	236	199	133	70	252	150	177	171	52	60	111	220

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TABLE Q10:

Skill exposure and success rates are tracked as part of your organization's quality assurance process.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Yes, skill success rates	7	2	8	4	7	7	6	8	16	2	8	7	5	9	7	5	8	5	6	4	8	6
Yes, skill exposure rates	7	5	8	4	8	10	3	9	8	13	4	6	9	9	7	8	5	8	13	11	9	6
Yes, both skill exposure AND success rates	37	29	41	41	33	37	35	42	64	31	38	34	41	39	36	39	34	40	37	44	38	34
No	49	64	43	52	52	46	55	42	12	54	50	54	45	44	50	47	53	47	44	42	45	53
SAMPLE SIZE (#)	400	84	227	27	61	166	159	65	25	128	238	197	133	70	252	148	177	169	52	57	112	219

TABLE Q13a:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Initial Training Program.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	30	39	28	42	22	31	32	23	40	25	33	31	28	32	30	30	33	24	42	36	28	30
Agree	46	38	48	46	50	46	44	52	40	38	50	40	48	59	45	47	43	51	42	46	51	42
Neither agree nor disagree	11	11	11	0	17	9	12	15	8	17	8	11	15	3	10	13	9	12	12	11	10	11
Disagree	8	10	9	8	3	9	6	10	12	13	5	11	6	4	9	7	8	9	4	5	8	9
Strongly disagree	5	2	5	4	8	5	7	2	0	7	5	7	3	1	6	3	7	4	0	2	2	8
SAMPLE SIZE (#)	388	82	219	26	60	163	153	62	25	121	233	190	127	71	244	144	171	165	50	56	109	211

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TABLE Q13b:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Ongoing Annual/Continuing Education.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	9	12	9	4	10	8	10	10	8	13	8	7	11	13	7	13	5	13	10	16	8	9
Agree	34	29	35	23	38	34	29	43	40	39	31	30	35	42	35	32	28	36	49	38	35	33
Neither agree nor disagree	20	17	22	12	17	20	23	13	16	14	23	25	17	10	20	19	26	14	14	21	15	22
Disagree	26	29	24	42	20	25	26	28	36	27	24	25	29	24	25	27	27	25	22	20	29	25
Strongly disagree	11	12	9	19	15	12	13	7	0	8	14	13	9	11	12	10	13	12	4	5	12	12
SAMPLE SIZE (#)	387	82	218	26	60	165	151	61	25	120	233	190	126	71	243	144	170	166	49	56	110	209

TABLE Q13c:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Initial Skill Training (e.g. venipuncture, cardiac monitoring, oxygen admin.).

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	27	36	22	31	27	30	23	25	36	18	30	29	23	28	26	27	31	22	27	25	31	25
Agree	44	38	48	42	40	43	44	48	40	39	46	35	48	61	48	38	39	50	44	48	49	40
Neither agree nor disagree	16	15	16	12	16	16	15	16	16	25	11	20	16	4	17	13	14	16	19	11	12	20
Disagree	9	9	9	15	8	8	11	6	8	15	7	10	9	7	5	18	11	10	4	13	5	11
Strongly disagree	4	3	4	0	8	2	5	5	0	3	5	5	4	0	4	4	5	2	6	4	3	4
SAMPLE SIZE (#)	383	80	214	26	62	161	149	63	25	116	233	184	128	71	242	141	169	164	48	56	110	205

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TABLE Q13d:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Ongoing Annual Skill Proficiency Training.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	9	11	8	4	11	6	10	11	4	12	8	7	10	10	7	12	6	11	8	14	7	8
Agree	31	24	31	44	35	33	28	37	20	37	31	28	34	36	32	30	25	34	45	42	31	29
Neither agree nor disagree	22	28	22	8	18	22	22	22	32	22	21	22	22	20	21	23	25	17	25	19	24	22
Disagree	23	21	25	28	15	22	22	22	40	21	21	23	23	20	23	22	22	24	18	16	24	24
Strongly disagree	16	16	14	16	21	17	18	8	4	7	20	19	11	14	17	13	22	13	4	9	15	17
SAMPLE SIZE (#)	390	82	220	25	62	164	153	63	25	121	235	190	130	70	244	146	171	166	51	57	110	212

TABLE Q13e:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Equipment to do my job.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	18	22	14	17	26	16	21	17	4	23	17	16	21	19	15	23	16	18	24	34	11	18
Agree	45	54	43	54	34	47	40	49	36	48	44	36	53	52	46	42	37	50	55	59	56	35
Neither agree nor disagree	15	6	19	13	15	15	14	19	32	14	14	17	13	14	17	12	17	13	14	4	19	16
Disagree	13	12	16	17	3	11	16	11	16	10	14	16	10	12	13	14	17	12	6	0	8	18
Strongly disagree	9	6	8	0	21	12	9	3	12	4	11	16	3	3	10	9	14	7	0	4	6	13
SAMPLE SIZE (#)	382	82	214	24	61	161	148	63	25	120	229	187	126	69	239	143	167	164	49	56	108	207

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TABLE Q13f:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Clinical policies and procedures to support my practice.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	17	22	13	23	20	16	18	18	8	16	19	17	13	24	15	20	15	18	18	21	15	18
Agree	47	53	45	54	46	47	43	56	44	51	47	45	48	51	47	47	45	50	49	61	46	44
Neither agree nor disagree	17	15	19	12	11	19	15	16	8	19	16	17	19	11	15	19	14	21	14	7	18	18
Disagree	13	9	16	4	11	10	16	10	28	10	12	12	14	13	15	9	16	8	18	9	15	12
Strongly disagree	6	1	7	8	11	9	7	0	12	4	6	9	5	1	8	4	10	4	2	2	7	8
SAMPLE SIZE (#)	386	81	217	26	61	162	152	62	25	120	232	185	130	71	244	142	168	165	51	56	107	211

TABLE Q13g:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Medical Control & direction.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	23	28	20	38	19	22	24	24	12	22	24	23	20	28	21	25	20	26	23	28	19	24
Agree	49	49	48	46	52	48	50	51	40	57	46	47	50	51	50	47	48	49	54	58	45	49
Neither agree nor disagree	15	16	16	4	15	15	15	13	20	14	15	16	15	13	13	18	17	14	13	5	15	16
Disagree	9	4	11	8	10	10	9	10	24	7	9	9	12	6	10	8	11	8	8	7	14	7
Strongly disagree	4	2	4	4	5	5	3	3	4	1	6	5	2	3	5	2	5	3	2	2	6	3
SAMPLE SIZE (#)	386	81	219	24	62	162	151	63	25	118	234	188	129	69	242	144	169	167	48	57	108	209

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TABLE Q13h:

At your current level of professional practice, please indicate your level of satisfaction with the following.

Quality assurance and feedback on patient care.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	10	15	8	8	11	7	12	11	0	13	9	11	6	13	7	14	8	10	12	19	4	11
Agree	30	28	29	38	29	31	30	27	20	39	27	27	36	25	27	34	26	29	46	46	25	29
Neither agree nor disagree	23	25	20	31	31	20	24	33	8	23	26	24	25	20	25	20	19	28	22	16	20	28
Disagree	22	19	27	12	11	24	19	19	40	19	20	21	18	31	23	20	24	22	16	14	29	19
Strongly disagree	15	14	16	12	18	18	16	10	32	5	18	17	15	11	18	11	24	11	4	5	23	14
SAMPLE SIZE (#)	389	81	219	26	62	165	151	63	25	120	235	189	129	71	244	145	170	167	50	57	110	210

TABLE Q14a:

Provincial Occupational Health and Safety requires several programs for worker health andsafety, please indicate your level of satisfaction with the following.

Fatigue Management.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	10	14	8	8	13	7	14	10	4	14	9	8	10	16	7	15	8	12	13	15	6	12
Agree	23	20	19	42	38	24	23	23	12	35	20	22	24	23	20	28	19	23	42	56	17	18
Neither agree nor disagree	14	15	15	8	11	13	11	23	12	14	15	12	20	10	14	13	11	18	15	17	16	13
Disagree	22	29	24	15	10	23	22	23	32	15	24	26	17	22	21	24	26	18	19	7	28	22
Strongly disagree	30	23	34	27	28	33	30	21	40	22	33	32	29	29	37	19	37	29	13	6	33	35
SAMPLE SIZE (#)	384	80	216	26	61	163	149	61	25	118	233	187	127	69	242	141	169	164	48	54	109	210

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TABLE Q14b:

Provincial Occupational Health and Safety requires several programs for worker health andsafety, please indicate your level of satisfaction with the following.

Musculosketal Injuries (MSI).

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	10	11	8	8	15	7	13	10	0	14	9	8	9	16	7	14	7	13	8	15	4	12
Agree	27	26	24	42	33	28	25	29	20	34	25	23	29	35	26	28	15	33	47	55	27	20
Neither agree nor disagree	27	19	32	19	20	27	26	31	32	31	24	30	28	14	24	30	31	25	18	22	25	29
Disagree	19	30	18	19	12	18	17	22	32	15	20	20	19	19	20	18	23	14	22	4	26	21
Strongly disagree	17	14	18	12	20	20	18	8	16	7	22	19	15	16	22	10	24	15	4	5	19	19
SAMPLE SIZE (#)	384	80	217	26	60	164	150	59	25	118	233	186	128	69	241	142	169	163	49	55	109	209

TABLE Q14c:

Provincial Occupational Health and Safety requires several programs for worker health andsafety, please indicate your level of satisfaction with the following.

HAZMAT/hazardous medications.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	10	15	7	4	13	8	11	12	0	16	7	9	8	16	7	15	6	12	14	23	5	9
Agree	26	29	21	46	31	31	22	23	16	28	26	23	26	31	28	21	17	30	40	34	25	23
Neither agree nor disagree	27	21	31	27	20	27	24	32	36	33	23	30	30	14	24	32	30	27	20	29	25	28
Disagree	20	21	22	15	13	17	23	20	28	18	21	18	22	20	21	19	24	16	18	9	25	21
Strongly disagree	18	14	19	8	23	16	21	13	20	6	23	21	13	19	21	13	24	15	8	5	21	19
SAMPLE SIZE (#)	386	80	218	26	61	164	151	60	25	119	233	186	129	70	242	143	169	164	50	56	109	209

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TABLE Q14d:

Provincial Occupational Health and Safety requires several programs for worker health andsafety, please indicate your level of satisfaction with the following.

Infection Control/Personal Protective Equipment.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Strongly agree	15	24	12	15	15	12	19	13	0	20	14	14	14	20	12	21	12	17	18	24	10	16
Agree	43	44	38	65	47	51	33	42	38	49	40	38	48	45	46	36	34	48	55	56	46	36
Neither agree nor disagree	19	19	21	12	10	15	18	28	33	18	17	19	19	16	16	23	18	20	14	16	18	20
Disagree	13	10	15	8	8	9	18	8	13	9	15	15	9	12	12	13	19	7	10	2	15	15
Strongly disagree	11	4	13	0	20	12	12	8	17	4	14	14	9	7	14	7	17	9	2	2	11	13
SAMPLE SIZE (#)	383	80	216	26	60	162	150	60	24	119	231	186	127	69	241	141	168	163	49	55	107	209

TABLE Q18a:

Please indicate the benefits you currently receive as an ambulance professional.

New Employee Relocation Expenses.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	15	15	10	43	27	18	11	20	18	9	15	14	17	18	17	12	15	18	0	0	19	13
Paid in full by employer	12	5	15	29	0	15	8	20	55	18	6	4	21	36	17	0	9	14	38	0	19	7
Paid in full by employee	72	80	75	29	73	67	81	60	27	73	79	82	62	45	66	88	75	68	63	100	61	80
SAMPLE SIZE (#)	97	20	59	7	11	55	36	5	11	11	72	57	29	11	71	26	65	22	8	6	31	54

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TABLE Q18b:

Please indicate the benefits you currently receive as an ambulance professional.

Life Insurance.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	57	56	59	44	58	54	57	71	70	68	55	51	71	49	59	53	58	55	64	42	62	59
Paid in full by employer	9	8	10	17	0	10	8	10	9	10	8	8	8	14	11	6	6	12	12	17	8	6
Paid in full by employee	33	35	30	39	42	36	35	19	22	23	37	42	21	37	30	41	36	33	24	42	30	35
SAMPLE SIZE (#)	218	48	128	18	24	117	77	21	23	40	147	91	76	51	148	70	102	91	25	12	92	103

TABLE Q18c:

Please indicate the benefits you currently receive as an ambulance professional.

Line-of-Duty-Death Insurance.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	50	43	51	46	61	51	44	65	60	47	51	46	60	42	55	37	53	49	45	45	59	47
Paid in full by employer	16	14	15	31	11	14	18	18	13	30	12	14	15	21	20	4	9	20	25	18	12	15
Paid in full by employee	34	43	34	23	28	35	39	18	27	23	37	40	25	36	25	59	38	31	30	36	29	38
SAMPLE SIZE (#)	160	37	92	13	18	85	57	17	15	30	109	72	55	33	114	46	78	61	20	11	69	73

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TABLE Q18d:

Please indicate the benefits you currently receive as an ambulance professional.

Medical (Employee).

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	66	67	69	37	68	65	66	70	87	67	63	59	72	70	70	57	65	65	71	56	72	65
Paid in full by employer	7	3	8	16	3	8	8	0	4	6	8	6	8	9	8	6	5	8	11	11	5	6
Paid in full by employee	27	29	23	47	29	27	26	30	9	27	29	35	20	21	22	38	29	27	18	33	23	29
SAMPLE SIZE (#)	266	58	154	19	34	133	103	27	23	52	183	120	89	57	176	90	129	108	28	18	99	138

TABLE Q18e:

Please indicate the benefits you currently receive as an ambulance professional.

Medical (Employee's Family).

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	66	69	69	42	63	64	71	63	91	65	64	57	73	72	69	59	65	64	78	67	71	65
Paid in full by employer	6	4	6	11	4	7	5	4	0	5	6	6	3	10	7	3	5	7	4	7	4	4
Paid in full by employee	28	27	25	47	33	30	25	33	9	30	30	37	24	18	24	38	30	29	17	27	25	31
SAMPLE SIZE (#)	232	51	138	19	24	121	85	24	22	40	165	103	79	50	161	71	109	99	23	15	93	114

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TABLE Q18f:

Please indicate the benefits you currently receive as an ambulance professional.

Short-Term Disability.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	59	64	61	31	60	54	62	76	81	63	56	55	69	50	59	57	62	52	63	40	70	55
Paid in full by employer	15	8	14	31	27	14	19	12	13	16	16	16	11	21	19	6	11	24	5	40	11	13
Paid in full by employee	26	28	24	38	13	32	19	12	6	22	28	29	20	29	22	37	27	24	32	20	20	32
SAMPLE SIZE (#)	169	39	98	16	15	98	53	17	16	32	116	76	55	38	120	49	82	67	19	10	76	76

TABLE Q18g:

Please indicate the benefits you currently receive as an ambulance professional.

Long-Term Disability.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	57	61	56	36	67	50	63	81	67	70	54	51	69	49	56	60	62	48	65	33	64	56
Paid in full by employer	14	10	13	29	20	15	14	13	10	17	15	15	11	18	18	4	9	21	12	44	11	11
Paid in full by employee	29	29	30	36	13	35	24	6	24	13	32	35	19	33	27	36	29	31	24	22	25	33
SAMPLE SIZE (#)	182	41	112	14	15	106	59	16	21	30	123	75	62	45	135	47	87	77	17	9	89	75

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TABLE Q18h:

Please indicate the benefits you currently receive as an ambulance professional.

Employee Assistance Program.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	31	32	33	11	27	26	38	42	29	42	31	36	26	29	27	41	35	17	50	0	32	39
Paid in full by employer	45	40	43	67	55	50	35	42	71	42	37	26	51	68	52	28	35	61	50	50	56	11
Paid in full by employee	24	28	24	22	18	24	26	17	0	17	32	38	23	3	21	31	30	22	0	50	13	50
SAMPLE SIZE (#)	121	25	76	9	11	74	34	12	21	12	81	47	43	31	89	32	66	41	14	4	72	36

TABLE Q18i:

Please indicate the benefits you currently receive as an ambulance professional.

Dental.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	67	59	73	42	65	65	69	70	96	64	63	59	77	65	70	61	68	66	60	54	69	68
Paid in full by employer	5	4	6	11	0	6	6	4	0	4	7	6	2	10	7	2	4	6	8	8	3	5
Paid in full by employee	28	37	21	47	35	30	26	26	4	32	30	35	21	25	24	37	28	28	32	38	28	27
SAMPLE SIZE (#)	246	46	147	19	34	127	89	27	25	47	166	108	87	51	164	82	120	100	25	13	97	125

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TABLE Q18j:

Please indicate the benefits you currently receive as an ambulance professional.

Optical/Vision.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	70	69	73	44	71	70	72	69	96	66	68	62	79	72	73	65	69	69	81	63	74	70
Paid in full by employer	5	2	5	13	3	5	4	3	0	4	6	5	1	11	7	0	4	6	4	13	4	3
Paid in full by employee	25	29	21	44	26	25	24	28	4	30	26	33	20	17	20	35	27	25	15	25	22	27
SAMPLE SIZE (#)	249	55	147	16	31	128	89	29	25	47	170	109	87	53	167	82	122	100	27	16	97	125

TABLE Q18k:

Please indicate the benefits you currently receive as an ambulance professional.

Liability Insurance (errors & omissions).

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	20	27	18	12	25	21	18	19	28	29	17	24	20	14	21	19	27	12	23	3	28	22
Paid in full by employer	65	64	64	76	63	59	71	65	61	63	66	58	68	73	68	57	54	73	70	83	58	62
Paid in full by employee	15	9	19	12	13	20	10	15	11	8	16	18	12	14	11	24	18	15	7	13	14	16
SAMPLE SIZE (#)	218	45	124	17	32	101	87	26	18	49	143	92	75	51	150	68	92	94	30	30	72	106

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2013 Newfoundland and Labrador Ambulance Review

TABLE Q18l:

Please indicate the benefits you currently receive as an ambulance professional.

Tuition Reimbursement.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	13	22	9	9	15	13	17	0	33	17	9	11	15	17	13	14	11	8	29	6	16	12
Paid in full by employer	23	17	20	45	31	15	24	47	0	52	15	22	21	29	26	16	7	40	35	69	5	22
Paid in full by employee	64	61	71	45	54	72	59	53	67	31	76	67	65	54	61	70	82	53	35	25	79	65
SAMPLE SIZE (#)	113	23	65	11	13	54	41	15	12	29	68	55	34	24	76	37	55	40	17	16	43	49

TABLE Q18m:

Please indicate the benefits you currently receive as an ambulance professional.

College Tuition Reimbursement.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	9	6	8	13	22	9	7	10	25	0	8	7	11	13	12	4	10	4	22	0	10	9
Paid in full by employer	9	6	4	38	22	9	10	10	8	20	8	7	15	6	12	4	2	23	11	60	5	3
Paid in full by employee	81	88	88	50	56	82	83	80	67	80	84	86	74	81	76	93	88	73	67	40	85	89
SAMPLE SIZE (#)	86	16	52	8	9	45	29	10	12	10	61	43	27	16	59	27	51	26	9	5	41	35

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2013 Newfoundland and Labrador Ambulance Review

TABLE Q18n:

Please indicate the benefits you currently receive as an ambulance professional.

Scholarship Fund for Employee's Children.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	18	30	17	0	20	14	27	13	42	22	9	13	20	25	15	24	18	17	20	0	25	8
Paid in full by employer	22	20	25	25	0	28	9	38	17	56	19	19	20	31	28	10	10	39	40	67	25	12
Paid in full by employee	60	50	58	75	80	58	64	50	42	22	72	68	60	44	57	67	72	43	40	33	50	80
SAMPLE SIZE (#)	67	10	48	4	5	36	22	8	12	9	43	31	20	16	46	21	39	23	5	3	36	25

TABLE Q18o:

Please indicate the benefits you currently receive as an ambulance professional.

Retirement (e.g., Pension Plan).

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	67	71	68	56	63	71	48	79	96	53	61	46	74	88	69	59	53	81	85	29	85	23
Paid in full by employer	8	6	7	19	5	8	10	4	4	16	6	5	9	10	10	0	5	11	8	29	7	3
Paid in full by employee	26	23	25	25	32	22	43	17	0	32	32	49	17	2	20	41	42	8	8	43	8	75
SAMPLE SIZE (#)	159	35	88	16	19	93	40	24	24	19	109	63	54	42	118	41	83	63	13	7	102	40

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TABLE Q18p:

Please indicate the benefits you currently receive as an ambulance professional.

Profit Sharing.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	24	100	20	0	0	21	20	100	50	100	15	22	33	0	17	43	25	25	0	0	57	6
Paid in full by employee	76	0	80	100	100	79	80	0	50	0	85	78	67	100	83	57	75	75	100	100	43	94
SAMPLE SIZE (#)	25	2	20	1	2	14	10	1	4	1	20	18	6	1	18	7	20	4	1	1	7	16

TABLE Q18q:

Please indicate the benefits you currently receive as an ambulance professional.

Shift Differential Pay.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	7	7	9	0	0	2	15	14	23	11	3	6	6	8	5	12	9	2	22	0	8	4
Paid in full by employer	80	93	71	93	87	83	62	86	73	78	81	71	84	86	80	79	72	88	78	80	89	35
Paid in full by employee	14	0	20	7	13	15	23	0	5	11	16	23	10	6	16	9	19	10	0	20	3	61
SAMPLE SIZE (#)	137	29	79	14	15	88	26	22	22	9	99	52	49	36	103	34	68	60	9	5	101	23

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2013 Newfoundland and Labrador Ambulance Review

TABLE Q18r:

Please indicate the benefits you currently receive as an ambulance professional.

Uniform Allowance.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	23	19	23	14	31	20	28	17	14	24	24	31	17	12	19	28	30	16	20	12	8	35
Paid in full by employer	72	79	71	86	65	74	68	81	77	69	73	64	80	81	76	67	66	79	76	80	89	60
Paid in full by employee	5	2	7	0	4	6	5	2	9	6	4	5	3	7	5	5	4	5	5	8	3	5
SAMPLE SIZE (#)	316	62	177	22	54	136	127	47	22	94	195	152	106	58	196	120	142	131	41	49	97	164

TABLE Q18s:

Please indicate the benefits you currently receive as an ambulance professional.

Health Club Membership Reimbursement.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	22	22	21	0	33	16	19	63	40	43	17	23	21	22	16	33	24	21	0	0	28	16
Paid in full by employer	1	11	0	0	0	0	5	0	0	0	2	3	0	0	0	4	2	0	0	33	0	0
Paid in full by employee	76	67	79	100	67	84	76	38	60	57	81	74	79	78	84	63	74	79	100	67	72	84
SAMPLE SIZE (#)	68	9	47	3	9	38	21	8	10	7	48	35	24	9	44	24	50	14	4	3	32	31

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2013 Newfoundland and Labrador Ambulance Review

TABLE Q18t:

Please indicate the benefits you currently receive as an ambulance professional.

Paid Time Off (PTO) bank of combined benefit leave.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	20	21	25	6	6	20	22	17	29	10	20	21	16	24	16	32	23	15	31	11	25	16
Paid in full by employer	56	68	46	75	71	58	50	61	71	65	52	49	68	58	61	42	47	69	54	67	64	38
Paid in full by employee	23	12	29	19	24	22	28	22	0	25	28	31	16	18	22	26	30	16	15	22	11	45
SAMPLE SIZE (#)	154	34	87	16	17	88	46	18	17	20	110	72	44	38	116	38	79	61	13	9	80	55

TABLE Q18u:

Please indicate the benefits you currently receive as an ambulance professional.

Daycare Reimbursement.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	6	11	7	0	0	3	14	0	13	10	5	7	4	11	8	4	7	8	0	0	7	7
Paid in full by employee	94	89	93	100	100	97	86	100	88	90	95	93	96	89	92	96	93	92	100	100	93	93
SAMPLE SIZE (#)	62	9	42	3	7	34	21	7	8	10	40	30	23	9	39	23	46	12	4	3	28	29

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2013 Newfoundland and Labrador Ambulance Review

TABLE Q18v:

Please indicate the benefits you currently receive as an ambulance professional.

Dry-Cleaning of Uniforms.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	5	3	7	0	0	3	8	4	6	11	3	3	10	0	5	5	6	0	11	8	4	5
Paid in full by employer	37	12	52	20	19	50	19	40	88	21	34	18	50	57	40	30	28	50	50	33	65	7
Paid in full by employee	59	85	41	80	81	47	74	56	6	68	63	79	40	43	55	66	66	50	39	58	30	88
SAMPLE SIZE (#)	145	34	85	10	16	66	53	25	17	28	95	67	50	28	101	44	83	42	18	12	69	60

TABLE Q18w:

Please indicate the benefits you currently receive as an ambulance professional.

Meal Service.

	OVERALL %	REGION				WORK STATUS			PROFESSIONAL CERTIFICATION			YEARS IN PROFESSION			GENDER		AGE			AMBULANCE SERVICE SECTOR		
		Central	Eastern	Labrador/ Grenfell	Western	Full-time, Hourly	Full-time, Salaried	Part-time, Hourly	ACP	EMR	PCP	0-5	6-15	16+	Male	Female	0-35	36-50	51+	Community	Hospital	Private
Partially paid by employer	38	21	48	43	9	40	39	27	30	45	36	39	40	29	40	34	40	36	31	17	23	50
Paid in full by employer	28	33	27	21	32	25	29	36	20	32	28	25	26	44	30	25	15	44	38	69	30	17
Paid in full by employee	34	47	25	36	59	35	32	36	50	23	37	36	34	26	30	41	45	19	31	14	47	33
SAMPLE SIZE (#)	204	43	124	14	22	85	84	33	10	65	123	108	62	34	133	71	105	72	26	29	53	116

ANNEX H

Manitoba Example: Hub and Spoke

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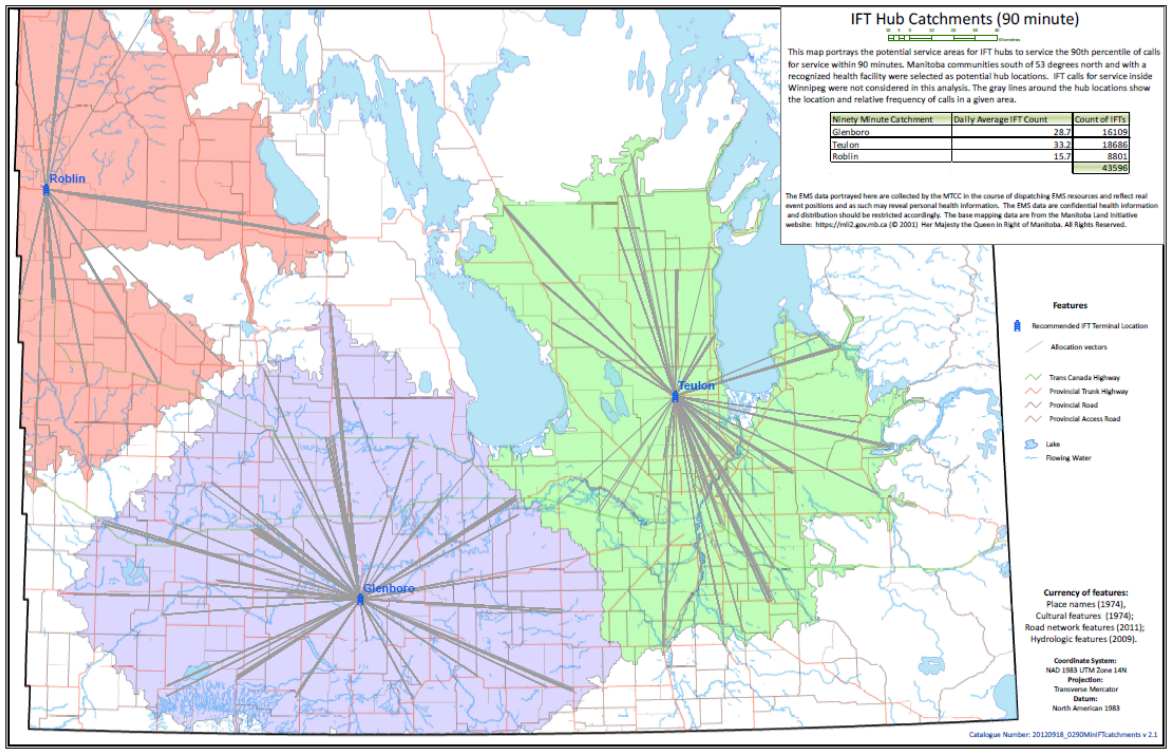
In Manitoba, 90-minute polygons (transport times) were used for modeling, as they created optimal balance between sufficient volume to justify multi-patient units and limited the transport time to a maximum of 90 minutes-Figure 1.

Figure 1: Interfacility Hub Catchments (90 minute)



The Manitoba model creates three distinct holding zones for patient transports.

The modeling illustrated above represents 90 percent of all transports that were within 90 minutes of a hospital that could be used as a holding area. This approach creates two distinct models, one for transports within two and half hours driving distance to Winnipeg, and the other model, for transports greater than four hours.

Model One (Ground Transport)

Ambulances will pick up patients at smaller hospitals and other locations, and then deliver the patients to transport control. Transport control is a holding room with at least 10 beds in a hospital that would be staffed by a single paramedic on duty to watch and coordinate transports with CMCD. The transports would be coordinated in such a way as to have at least six patients in waiting for the transport bus or multi-patient transport unit that would transport them to regional centres for treatment or diagnostics. The returns would be coordinated in the same way, with the transport bus or other type of multi-patient unit

picking up the patients in the regional centre and then transporting them to the designated local holding facility. CMDC would coordinate the transports back to the originating hospitals, using the appropriate ambulance service.

Model Two (Air Transport)
Air transport has high fixed costs, and the only way to reduce its per transport cost is to have as many multi-patient transports as possible. Thus, the ambulances would transport the patients to a transport control (see above) and CMCD would coordinate multi-patient movement on a plane to the tertiary care centres. The return trip would be done the same way. This model requires a significant amount of coordination. Airplane transports can accommodate up to two stretcher patients, or up to x non-stretcher (ambulatory) patients that require long distance transport to health care services. All air ambulance transports would include an appropriate match of care providers.

Both models can reduce costs and increase patient satisfaction. Patient-centric models require careful planning and high levels of coordination. The current operating expenditures for interfacility transports are higher than expected and may be reduced through a central well-coordinated logistical plan that incorporates multi-patient loads.

ANNEX I

Call Processing & Dispatch Standards

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Call Processing Attributes and Standards

Primary and secondary or Public Safety Access Points (PSAPs) are guided by highly prescriptive performance standards. These standards have two purposes: to drive emergency services to be timely and responsive, and to minimize the cost of dispatch centres by controlling the total time on task of the dispatch centres. Two organizations, the National Fire Protection Association (NFPA) and the National Emergency Number Association (NENA), publish standards for processing emergency calls. Both agency standards are used in Canada. The NFPA standards on dispatching (NFPA 1221) specify the flow of an emergency call and the time allotted for each step in the process. For clarification, the PSAP is the call answering point(s) designated in a community to receive 911 calls or other emergency agency specific calls. A summary of NFPA and NEMA standards regarding the dispatch process and its performance is provided below.

Table 1. NFPA Standards for Dispatch

NFPA 1221 Section #	Standard
Section 6.4.2	95% of calls to be answered within 15 seconds; 99% within 40 seconds.
Section 6.4.3	95% of emergency dispatching shall be completed within 60 seconds.
Section 6.4.5	95% of calls transferred from the PSAP (911 intake) shall be within 30 seconds (10 seconds for ring answer and 20 seconds for identification of primary resource required).

Table 2. NEMA NFPA Standards for Dispatch

NENA 56-005 Master Glossary 00-001 Page 8 of 12	Standard
	90% of all PSAP calls to be answered within 10 seconds during the busy hours; 95% of all calls should be answered within 20 seconds.
	911 call taker limited to *very few questions prior to transferring the call to the agency that will dispatch the call.* This is done in order to reduce the delay of the responding agency, which will ultimately deal with the crisis.
Section 3.3	All 911 lines at a PSAP shall begin with "911." The correct statement is "Nine-One-One," never "Nine Eleven." Additional information or questions may be added, as in: "911, what is the emergency?" or "911 what is the address of the emergency?"

Dispatch and EMS Agency Response Time Performance

Performance in EMS systems is measured by the ability of the system to achieve a given response time to provide appropriate aid to a sick or injured patient (and from the financial perspective to do so for a reasonable cost). In an EMS service with central dispatch, there are four time intervals that directly affect a patient's care, as discussed below.

- Dispatch Interval: The time it takes the Dispatch Centre to answer the call, to determine the type and location of the emergency, to assess the acuity of the emergency, and to make a request for service to a local ambulance agency.
- Processing Interval: The time it takes the local agency dispatcher to decide to accept or decline the request for service, to acknowledge this decision back to Dispatch and to notify an agency unit (ambulance with its crew).
- "Chute" Interval: The time it takes the unit to begin rolling.
- En Route Interval: The time it takes the unit to drive from its base to the scene of the emergency.

How long the patient has to wait before receiving help is the total of these four time intervals.

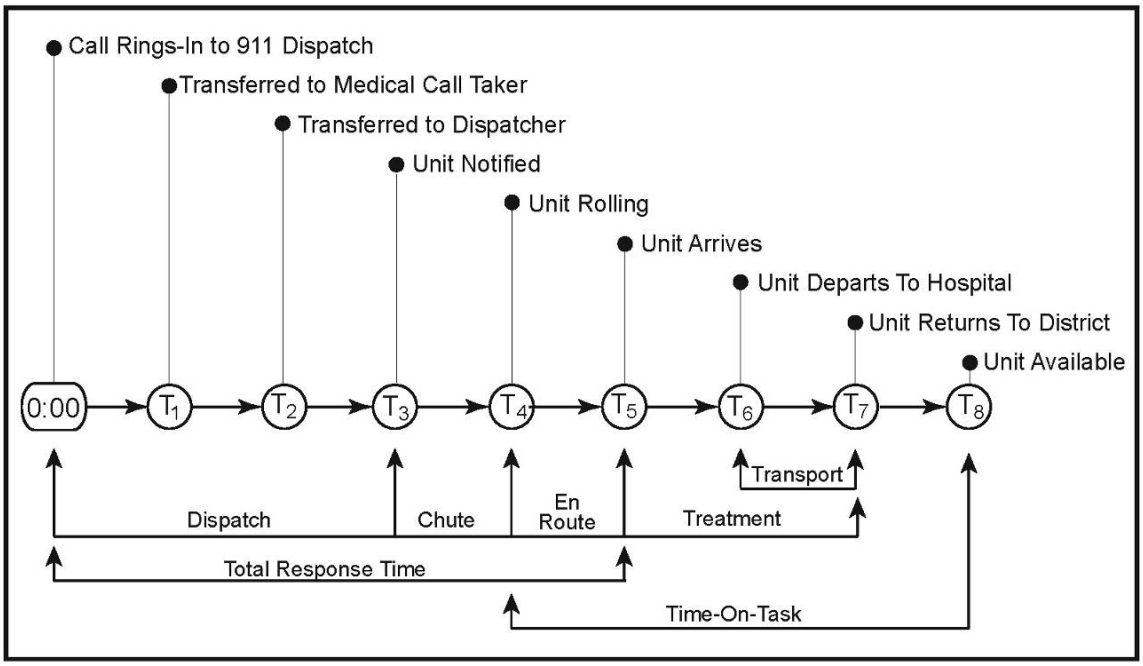
Table 1 below is a simplified depiction of the first six of the multiple steps in the flow of a 911 call. When designing congruent 911 centres and secondary PSAPs, it is important to understand the flow and handoff, as well as the speed of execution. In the chart below, the natural separation between 911 and the secondary PSAP happens between Steps 3 and 4. It is important to note the very stringent performance standards set for each one of the steps. In most high-performance systems today each, one of these times is measured and published so that the community knows they are receiving optimal service. In Newfoundland none of the steps are measured or published. In the case of the private providers, there is no way of knowing if Steps Five or Six are occurring in any reasonable timeframe.

Table 3. Initial Steps of 911 Call Handling and Performance Standards

Step	Action
1	An individual observes an emergency event and determines the need for emergency intervention.
2	The individual initiates a call to 911.
3	A call taker at the 911 Dispatch Centre answers the incoming call, identifies whether it should be medical, police or fire that handles the call, and transfers the call to the appropriate dispatcher. *NFPA 1221 6.4.5 Performance Standard: Less than 30 seconds for 95% of calls*
4	The dispatcher answers the transfer and uses experience and/or scripted dialogs based on best practices to identify the category and acuity of the call. *NFPA 1221 6.4.2 Performance Standard: Less than 15 seconds for 95% of calls*
5	The dispatcher identifies an available response unit and "tones out" or alerts and dispatches that unit. *NFPA 1221 6.4.3 Performance Standard: Less than 60 seconds for 95% of calls*
6	The unit "turns-out" or responds and begins rolling to the site of the emergency. *NFPA 1710 Performance Standard: Less than 90 seconds for 90% of calls*

The complete flow of a 911 call in a typical high-performance system is schematically depicted in Figure 2 below.

Figure 2. Schematic Representation of the Flow of a Typical 911 Call



This schematic is presented to show the relationships between the named intervals of time in a typical 911 call. When viewing the schematic it becomes clear that simply putting a 911 centre into Newfoundland-Labrador will do little, if anything, to improve the overall control of the ambulance services, as they exist today. All elements between T1 and T8 will remain unchecked, uncoordinated, uncontrolled and unmeasured. The schematic above also demonstrates the clear need for a secondary emergency medical services control centre. That is not to say that the control centre could not be co-located within the 911 centre, but these activities between T1 and T8 must be managed and controlled if any success is to be had with improving Newfoundland-Labrador's emergency medical services.

ANNEX J

Ambulance Age & Mileage Comparison

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Ambulance Mileage and Age

According to Service Newfoundland-Labrador data, the highest mileage ambulance in the province had 462,074 kilometres and the oldest ambulance in service was 9 years, 10 months as of Jan 31, 2013. Ambulance mileage and age is detailed in Table 1.

Table 1: Newfoundland-Labrador Ambulance Vehicle Mileage and Age

	Average km	Median km	High km	Low km	Ave Yrs
All (n=206)	207,143	229,546	462,074	366	3.3
Private (n=131)	255,923	268,365	462,704	366	3.2
Community (n=34)	142,057	82,634	392,257	1,197	3.4
Hospital (n=42)	107,687	82,385	391,249	1,516	3.6

In comparison, other Canadian Provinces and CAEMS mean/median data is presented in Table 2. CAEMS mileages (1 mile) are converted to kilometres (1.61 kilometres) for comparison.

Table 2: Canadian and CAEMS Ambulance Replacement

Province	Replacement Kilometres	Replacement Years
Alberta	280,000	5 years
British Columbia	250,000	8 years
Manitoba	250,000	No age
New Brunswick	300,000	4 years
Nova Scotia	~ 260,000	4 years
Ontario	~300,000	4.5-6 years
Quebec	200,000	4 years
Average CAEMS (n=12)	372,513	6 years

ANNEX K

Ambulance Professional Salaries

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Following general industry guidelines, Fitch will only disclose salary survey data when the subsequent conditions are satisfied:

- Information provided by survey participants is based on data more than three months old.
- There are at least five providers reporting data upon which each disseminated statistic is based, no individual provider's data represents more than 25 percent on a weighted basis of that statistic, and any information disseminated is sufficiently aggregated such that it would not allow recipients to identify the prices charged or compensation paid by any particular provider.

Salaries for the three primary EMS/ambulance professionals in Newfoundland-Labrador are listed in Table 1 for comparison. In general professional salaries in Newfoundland-Labrador fall 10 to 13% below peer registrations in other provinces.

Table 1: Newfoundland-Labrador Professional Salaries

	Emergency Medical Responder (EMR) ($00,000)	Primary Care Paramedic (PCP) ($00,000)	Advanced Care Paramedic (ACP) ($00,000)
n=	98	203	22
Low Hr	$10.50	$10.00	$28.00
Ave Hr	$15.71	$21.84	$32.64
High Hr	$21.17	$45.00	$42.00
10th	$23,440	$33,760	$52,000
25th	$30,000	$37,500	$57,500
50th	$32,000	$42,000	$65,000
75th	$34,000	$51,922	$71,422
90th	$39,400	$58,269	$74,200

ANNEX L

Community / Medical First Responder Model

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The primary objective of the pre-hospital emergency medical service (EMS) system is to deliver rapid emergency medical treatment to patients that call for help. A foundational component of emergency care and response is the Medical First Response (MFR). A key element to distinguish in medical first response is the difference between *transport* and *non-transport* EMS service delivery. In many tiered response systems, Medical First Responders are often located closer to an emergency medical incident scene than are the ambulance providers. This closer proximity often results in decreased response times and earlier delivery of patient care. A medical first responder is a person who arrives first at the scene of an incident, and whose job is to provide early basic life support and first aid while awaiting the transporting ambulance provider. Examples of first responders include "co-responders" (police or fire service), trained members of staff of a shopping mall or other public place, trained members of a first aid organization, community members, and others who have some level of medical training—commonly CPR, basic first aid, and AED use. Employees of the local ambulance services may also act as first responders while off-duty. Responders may be dispatched by the ambulance service or CMDC and are sent to provide assistance to those with a medical emergency, and most importantly to start and maintain the chain of survival in cardiac arrest patients, until a fully equipped ambulance arrives.

Community First Responder Model

The Medical First Responder is an effective model, operationally and financially, in providing an immediate response to a medical need to a defined community. This adaptation of the MFR model is referred to as the Community First Responder (CFR). The CFR, is comprised of groups of professionals, paid or volunteer whom, within the community in which they live or work, have been trained to attend emergency calls.

United Kingdom National Health Service

The United Kingdom National Health Service (NHS) has a working model of MFR. In Canada, Manitoba Health approved a general policy regarding MFR in 2008. The Manitoba Medical Transport Communications Center (MTCC) at about the same time approved operational procedures for dispatching the MFR service. The Manitoba Health policy describes MFR as a component of an EMS system. According to the information provided by MTCC there are currently 20 non-transporting agencies providing MFR services in 20 different areas/communities

Emergency Health Services, NS - Medical First Response Program (MFR)

The Nova Scotia Emergency Health Services currently reports 198 MFR Agencies and 2,122 registered Medical First Responders serving the province. According to the website:

Through the sponsorship of EHS, these agencies received medical first response equipment, supplies and, for fully sponsored agencies, training reimbursement. EHS has also provided automated external defibrillators to fully sponsored agencies.[i]

It appears that many of the current Newfoundland-Labrador community ambulance operators began serving their communities as MFR's, then petitioned government to become funded transporting ambulance services. These community based ambulance services are staffed by EMR's in a higher ratio to PCP's (due to recruitment and retention issues, as well as skill retention and clinical exposure for the PCP in the lower volume community setting).

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