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**Manitoba EMS System Review**

**THE GOVERNMENT OF MANITOBA  
Minister of Health**

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Supported by Fitch & Associates**

**CONSULTANT REPORT**

# The Government of Manitoba – Manitoba, Canada

## EMS System Review

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# EXECUTIVE SUMMARY

The Review was commissioned to provide guidance and direction facilitating development of a more integrated, responsive, reliable and sustainable system. Many dedicated individuals are committed to providing and improving Emergency Medical Services (EMS) throughout the province. During the review, the number of regional health authorities (RHA) in the Province was reduced resulting in amalgamation of some of the existing ambulance services. Currently, 92 rural and Northern stations and 18 stations in Winnipeg are utilized to respond to approximately 156,000 requests for service in the Province during calendar year 2011. Land ambulance expenditures approximate \$105 million with an additional \$23 million allocated to support air ambulance service.

The review process involved developing objective operational and financial data and information gleaned from a wide variety of system stakeholders. Service delivery models were constructed and analyzed to determine operational feasibility and costs associated with achieving defined service standards.

The report is organized along the same lines as the functional components of an EMS system. These include: Dispatch/911; medical accountability/oversight; operational performance; customer accountability; prevention and community engagement; education and program development; organization and leadership (governance) and financial sustainability. Each section of the report identifies best practices, describes the current situation and key findings. Where appropriate, specific improvement recommendations are made.

Key findings include:

- Call volumes are increasing
- Operational and clinical service levels, as well as the cost to produce ambulance coverage, vary widely
- Medical direction and recognized quality improvement processes require improvement
- Data is not routinely available to support clinical and operational decisions
- There is wide variability of user fees
- EMS as a system is fragmented with minimal provincial coordination.

High-level implementation recommendations include:

- Continue utilization of two primary dispatch centres with responsibility to assign appropriate units to specific calls, provide optimal coverage on a continuous basis and better coordinate inter-facility requests
- Implement a province-wide Office of the Medical Director with standardized oversight that can be operationalized with local input and support
- Utilize primary care paramedics as the entry level for providers; develop transition training-in-place opportunities to assist current emergency medical responders in meeting this minimum required training level

- Reconfigure land and air ambulance placement to more closely match resources with actual service demand to achieve defined response time standards
- Develop Requests for Proposals to enhance basic air ambulance services
- Implement province-wide electronic patient care records and develop an integrated management information system
- Simplify user fees
- Reorganize the governance structure for EMS by creating an EMS Review Task Force to complete detailed implementation plans, lead the implementation, manage the new initiatives and review organizational options and recommend a long term EMS organization
- Transform the mission focus from a response culture to one of prevention and risk reduction

The additional costs to implement an enhanced system are broadly estimated at \$5.6 million annually (this does not include an estimated cost of \$1.4 million annually for an ongoing EMS organization) with one-time costs of approximately \$2.5 million. These are the costs if you implement all this over 5 years, but recognizing that this will likely take 10 years to do. Key steps to be accomplished each year to effect implementation are provided.

The way forward requires additional planning. As community expectations, staffing and mission focus are aligned stakeholders will need to be further engaged in that process. Implementation will require political tenacity to work with community leaders and EMS personnel alike to successfully implement a more responsive, reliable and sustainable system.

# TERMS OF REFERENCE

On May 18, 2012 the Minister of Health forwarded a letter to EMS service providers and stakeholders announcing that an external review of Emergency Medical Services (EMS) was to be completed. She indicated that the review will be led by Reg Toews with the support of Fitch & Associates who will provide subject matter expertise.

Reg Toews is the former CEO of the former South Eastman Regional Health Authority. Mr. Toews has held numerous leadership positions in the Manitoba healthcare system , most recently as the Acting CEO of Diagnostic Services of Manitoba for 8 months where his primary tasks were to help establish a new Board and to assist with the recruitment of a new CEO. Mr. Toews also recently led the former Nor-Man RHA Administrative review. Dr. Jay Fitch of the internationally renowned EMS consulting firm of Fitch & Associates has been sub-contracted to provide subject matter expertise related to EMS systems. Dr. Fitch was previously instrumental in the development of Manitoba's Medical Transportation Coordination System, and has consulted widely for a number of Canadian EMS systems. Guillermo Fuentes, a Senior Associate with Fitch & Associates, will provide additional support particularly in the area of operating EMS systems. For more than 16 years, he has held senior leadership positions in major EMS organizations throughout Canada.

As stated in the Project Charter accompanying the Minister's letter " the purpose of this Provincial EMS External Review is to create a pre-hospital patient care and inter-facility transport system that offers more integrated , responsive, reliable , and sustainable service". The Project Charter goes on to state that the External Review will provide recommendations to:

- Ensure service levels consistent with national benchmarks;
- Enhance integration of EMS across the province;
- Ensure the EMS system is publicly accountable;
- Ensure the EMS system is financial and operationally sustainable.

The project scope for the review identifies specific areas that are to be included, but the review may expand beyond them.

- EMS system performance standards and benchmarks for rural and urban Manitoba;
- Strengthening Medical First Response as a component of EMS delivery;
- Medical oversight model including options to achieve greater province wide protocol consistency, paramedic portability, day to day medical oversight, and patient safety;
- Staffing models, including consideration of an appropriate and sustainable mix of educational levels for staffing and scope of practice;
- Alignment of EMS stations, including locations and numbers, to achieve system performance benchmarks;
- The type or number of ambulance vehicles within the EMS system;
- EMS education programs available to EMS including educational options to meet the staffing models and for achieving an adequate workforce supply;

- Performance of current and future enhancement options for EMS dispatch systems;
- Examination of inter-facility transport (IFT); should IFT remain integrated with EMS or operate as a separate system, including the potential of alternate service providers in IFT delivery;
- EMS capacity for data collection and analysis;
- Greater integration of Manitoba EMS including land ambulance, first response and air ambulance;
- Policy suggestions to ensure integrated and seamless service across municipal or regional boundaries;
- Options for EMS system to achieve more consistency and uniformity in service delivery;
- A strategy including timelines for implementing the recommended changes and an estimate of costs to achieve the recommendations;
- Suggestions for an optimal governance model and organizational systems.

It should be noted that this is a provincial review and not a review of individual regions. Consequently the recommendations will be of a provincial nature although individual regions may well be referenced.

At the time of the announcement of the review there had just been an announcement regarding changes to the existing RHA regional structure. Eleven regions were reduced to five regions. Nor-Man and Burntwood RHAs were combined to form the Northern RHA; Interlake and North Eastman RHAs were combined to form the Interlake/North Eastman RHA; Central and South Eastman RHAs were combined to form the Southern RHA; Brandon, Assiniboine and Parkland RHAs were combined to form the new Prairie Mountain Health RHA and Churchill RHA was added to the Winnipeg RHA. For the purposes of this review we will generally utilize the former RHA structure in our analyses and recommendations although wherever possible we will also reference the new structures.



# METHODOLOGY

The consultants formally began the review in late May. Service provider and stakeholder contacts were made during the summer months as best as was possible. Consultant Reg Toews initiated individual meetings with the former RHA CEOs prior to the formal beginning of the review.

The methodology selected was intended to ensure broad and focused involvement from front line paramedics. In particular this included visits to EMS services in all the regions, with the exception of Churchill RHA, and meetings with small groups of front line paramedics at each station. During travel time to each station there was ample time for discussion with each regional EMS manager.

## ***PROCESS***

### ***Meetings & Discussion***

The lead Manitoba consultant visited approximately 38 stations spread across all the rural regions, with the exception of Churchill. Typically a visit included a tour of the station. A Fitch staff member participated in the visits to the Burntwood and Assiniboine RHA EMS stations.

During these visits meetings were held with approximately 110 paramedics. Typically these discussions included small groups of paramedics that were at the station and usually did not include the EMS manager. A meeting could include anywhere from one paramedic to five or six paramedics at a larger station.

### **Service Provider Meetings**

- EMS managers/directors – individual meetings were held with most EMS managers.
- Trainers/educators – a small number were interviewed separately.
- Medical Directors – a number were interviewed individually. There was also a group meeting to which all the Medical Directors were invited. Approximately seven were in attendance in person or by teleconference.
- EMS Managers meetings – One or more consultants met twice with this group at their regularly scheduled monthly meeting. The full consultant team was present at the second meeting.
- Manitoba Transportation Coordination Centre (MTCC) – One or more consultants had numerous meetings with the Director and the MTCC staff.

### **Stakeholder Meetings**

- Fire/Paramedic services – Winnipeg Fire Paramedic Service (WFPS), Brandon Fire & Emergency Services and Thompson Fire & Emergency Services. One or more consultants met three times with the WFPS and once or twice with Brandon and the Thompson services.
- Service Purchase Agreement (SPA) providers – two consultants met with SPA operators in the north e.g. Cross Lake Ambulance, Michelle Memorial EMS, Norway House Cree Nation

Ambulance and Wabowden Ambulance. These SPAs serve either First Nation and/or Metis communities.

- Educational institutes – Red River College School of Health Sciences & Community Services, Criti Care, Inc, Manitoba Emergency Services College
- Air Ambulance services – Lifeflight, STARS, and Basic Air providers – Perimeter Aviation, Keewatin Air and SkyNorth Air, Missinippi Airways, FastAir and Sky Medical.
- Vehicle and Equipment Management Agency
- Medi-Van Stretcher Car Services
- Assembly of Manitoba Chiefs Secretariat (AMC)
- Manitoba Metis Federation (MMF)
- First Nations and Inuit Health Branch (FNIHB)
- Paramedic Association of Manitoba (PAM)
- Unions – Manitoba Government Employees Union, Manitoba Association of Health Care Professionals, United Fire Fighters of Winnipeg, Brandon Professional Fire Fighters/Paramedics Association
- Association of Manitoba Municipalities

### **Manitoba Health Meetings**

- EMS Branch – numerous formal and informal meetings/discussions were held with the EMS Branch staff, the A/Director of Emergency Medical Services and the Executive Director, Health Emergency Management.
- Manitoba Health senior executives – Deputy Minister, Assistant Deputy Minister of Regional Policies and Programs.

### ***Review of Related Background Documents***

**Primary Documents** – there are two primary documents that provided background information:

- Provincial Emergency Medical Services Framework; Planning Document – this document reflects the work of the Provincial Emergency Medical Services (EMS) Steering Committee and Project Team that were established in the spring of 2004. This document was to guide the development of the emergency medical services in Manitoba.
- Reports from the Emergency Medical Services Chiefs of Canada (EMSCC) – two major documents released by EMSCC were **Defining the New Road Ahead** and **Community Paramedicine in Canada**.

### **Secondary Documents**

- In the late 1990's and early 2000 Manitoba Health prepared a number of working documents including an Implementation Strategy for the Provincial EMS Program.
- In 2007 the Paramedic Association of Manitoba released the document Manitoba's Quiet Crisis: Recommendations for System Improvement.

### ***Information, Statistics & Data***

- Dozens of documents, reports, and statistical tables were provided by the EMS Branch, MTCC, various service providers and others as part of the meeting process.<sup>1</sup>

### ***Literature Review***

- EMS related reports from across Canada and other countries were researched on the web.

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<sup>1</sup> The lack of consistent and reliable information available centrally was a challenge. Every effort has been made to make the data as accurate and complete as possible so that it can be considered reliable for the limited purpose of this review. The data should be treated with caution when used for any other purpose. The Annual Operation Plan completed by the RHAs and other service operators was a primary source of information.

# INTRODUCTION

## *HISTORICAL*

Prior to 1997, the delivery of Emergency Medical Services (EMS) was the responsibility of municipal governments. The Municipal Act enabled municipalities to establish local ambulance services. In 1997, with the coming into force of the Regional Health Authorities Act, the delivery of health care services, including Emergency Medical Services became the responsibility of the Regional Health Authorities (RHAs). The provisions of the Municipal Act relating to Emergency Medical Services were repealed. With this action the RHAs assumed responsibility for the direct delivery of Emergency Medical Services or through Service Purchase Agreements between RHAs and local service providers. EMS was now to develop into a pre-hospital emergency care service including emergency medical dispatch, emergency medical response and medical care, emergency medical transport and inter-facility medical transport.

Since each RHA was given the responsibility to organize and provide EMS services in its region this meant that 11 EMS systems developed across the province. Each RHA developed their land ambulance services according to the availability of human and financial resources, geographical reality, and the priority given to the EMS program by the RHA. As a result there were significant variations between the regions in how the program was organized and delivered and how it evolved over time. In particular this resulted in various organizational structures, staffing models, response times etc. While the RHAs had been made responsible for all facets of the land ambulance services the air ambulance services developed on a separate track quite apart from the RHAs.

The last 15 years have seen unprecedented development of the provincial Emergency Medical Services. These developments have taken place both at the provincial level and at the regional level. At the provincial level these developments include:

- establishing a provincial fleet vehicle program and purchasing 175 new ambulances;
- the introduction of the Medical Transportation and Coordination Centre to provide coordinated land and air medical dispatch services;
- establishing the Primary Care Paramedic education program at Red River College;
- providing capital funds to construct or substantially upgrade ambulance stations in communities across the province;
- funding for the full patient costs of inter-facility transports;
- providing financial support to Red River College paramedic students for their education should they return service in rural Manitoba;
- providing funding to the regional health authorities to permanently hire additional full-time and part-time paramedics across the province;
- improving emergency air ambulance services with the addition of rotary wing in the southern portion of the province, and introducing a fixed wing air ambulance inter-facility program in southern Manitoba.

Since the RHAs were made responsible for developing the EMS program in their regions this highly decentralized model led to innovation and creative problem solving. The accomplishments at the local level include:

- employing more EFT Primary Care Paramedics;
- creating Intermediate Care Paramedic positions with enhanced skills;
- staffing more ambulance stations with 7/24 Primary Care Paramedics;
- increasing the availability of EMS Medical Director services;
- partnering smaller stations with larger ambulance stations;
- consolidating IFT services at larger stations;
- creating supervisor/enhanced skill positions to treat more complex cases;
- partnering with Red River College to provide PCP training at regional locations;
- utilizing Geo-Posting to provide improved service coverage;
- replacing an ambulance crew after 16 hours if unloading is delayed;
- designating certain ambulances to be used primarily for IFT transports.

## ***PROVINCIAL SERVICE OVERVIEW***

Today the core EMS services are being provided province wide: emergency medical dispatch, emergency medical response and medical care, emergency medical transport and inter-facility medical transport. While challenges remain, and they are the focus of this review, a province wide dispatch system, with some exceptions, is operating effectively; the land ambulance system, while under continuing stress in part due to rapidly increasing call volumes, is generally meeting current need; air ambulance services have been expanded to include emergency rotary wing services in addition to Lifeflight services, Basic Air ambulance services in the north and the establishment of fixed wing air ambulance Inter-facility Transport Program (IFT) in the south.

The land ambulance services as of 2012 are delivered either directly by the RHAs or by SPA operators from 92 rural and northern stations plus eighteen stations in Winnipeg. In 2012 the rural and northern land ambulance services operated 143 Fleet units to provide both primary and inter-facility transport services. In Winnipeg in 2012 WFPS operated 32 Fleet units to provide the same service. In 2011 the ambulances in rural and northern Manitoba were staffed by 305 licensed Emergency Medical Responders (EMR), 708 licensed Primary Care Paramedics (PCP) of which approximately 209 are also trained as unlicensed Intermediate Care Paramedics (ICP). The Winnipeg Fire Paramedic Services as of June 2011 employed eight licensed EMRs in Dispatch, 384 licensed Primary Care Paramedics and 91 licensed Advanced Care Paramedics (ACP).

Call volumes have increased dramatically since the transfer of EMS to the regions in the late 1990s. In 2011 the land ambulances responded to approximately 156,000 calls across the province. Of this total approximately 76,000 were rural responses and approximately 80,000 were from Winnipeg. This represents about a 6% increase in call volume in rural and northern Manitoba and approximately a 3% increase in Winnipeg over the previous year. Approximately 43% of the rural calls were IFT transports and approximately 25% of the Winnipeg calls, including stretcher car, were IFT transports.

Air Ambulance services continue to grow as well. Basic Air Ambulance services in the first four months of 2012 completed 1,867 patient transports. In Fiscal Year 2011/12 Lifeflight completed 466 transports. Between April, 2011 and March, 2012 STARS completed 168 transports.

To complete the picture 20 licensed rural Medical First Response agencies responded to just over 1,000 incidents. In 2010 WFPS Fire trucks provided a medical first response in 8,195 incidents and in a further 35,339 incidents both fire and ambulance responded.

EMS revenue and expenditures have grown dramatically in the last 15 years. In 2011 EMS program expenditures, including MTCC and the Manitoba Fleet, amounted to approximately \$105m. This does not include air ambulance or stretcher car expenditures.

EMS is now entering a new phase and is moving away from a highly decentralized system to a system that is more provincial in nature. The Minister's letter announcing the external review identifies the future system as being "a pre-hospital patient care and inter-facility transport system that offers more integrated, responsive, reliable, and sustainable service."

## ***THE OPTIMAL SYSTEM***

An optimal EMS system is best designed from the patient's perspective. There are multiple models for delivering these services throughout the world. Most have several common elements that are noted here as optimal. In short, patients should expect that the system will be engaged in illness and injury prevention, health education, and early symptom recognition, in addition to responding to emergency and non-emergency transportation requests. The EMS system should provide a rapid and appropriate response when a caller dials 911 and routinely provide scripted medical instructions until help arrives. Community volunteers and other first responders should be able to provide medically approved first-aid/self-help measures prior to the ambulance's arrival.

The arrival of a transport capable ambulance should occur within a clinically appropriate time frame (e.g. nine minutes [ $<8:59$ ] on life-threatening emergencies [Echo and Delta type calls] in urban areas, within fifteen minutes [ $<14:59$ ] in rural areas and within 30 minutes [ $<29:59$ ] in remote areas. Suburban, rural and remote response times should be pre-set by government balancing call densities, desired outcomes and funding capacity but measured in the same fractile manner. Response times for other type calls (e.g. non-life threatening assignments inter-facility transports) should be set by medical authorities with capabilities to monitor compliance to standards.

Patients should be transported to a hospital that is best suited to treat their specific condition. The system should be externally and independently monitored with the system's participating agencies and personnel held accountable for their responsibilities, sophisticated systems develop specific metrics for each underlying component. Finally, the system must deliver solid value for the resources invested.

# DISPATCH/911

## ***BEST PRACTICES***

EMS dispatch centres are considered the coordination centres for EMS systems, they take calls with complex call taking algorithms, and they categorize calls, prioritize calls and then assign the appropriate resource. Best practice EMS dispatch centres are designed to accommodate public emergency reporting services (PERS) and phase II wireless (network to network interface of wireless providers) these mandatory connections facilitate wire-line, cellular, voice over internet protocol, automatic crash notification, 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.

Quality in dispatch centres is established through continuous quality improvement that at the front end is medically directed. These medically directed systems are protocol based emergency call taking; the most commonly used protocol based call taking system is emergency medical dispatch (EMD). Call taking is regulated and performance standards exist for each part of the call taking process, these standards ensure that the communication centre is performing optimally. Technology should support the caller and direct the call from the primary Public Safety Answer Point (PSAP) to the appropriate secondary PSAP for the geographic location of the call.

Data collection facilitates the analysis of key service elements and these data points should be routinely benchmarked and reported. These data elements should become the foundation for the performance measurements that will be the accountability standards by which the service will be considered as adequate, excellent or failing in its service delivery. Technology should support the interface between 911; and the medical dispatch functions and administrative processes. Radio/cellular linkages between dispatch, field units and medical facilities need to provide coverage and facilitate both voice and data communications. Interoperability between allied public safety agencies needs to be present at all levels.

## ***KEY ACCOMPLISHMENTS & CURRENT SITUATION***

There are two principle dispatch centres in the Province. The Medical Transportation Coordination Centre (MTCC) located in Brandon provides EMS medical and inter-facility dispatch for all of rural Manitoba and portions of the north. Winnipeg Fire and Paramedic Services provide dispatch for fire and EMS medical and inter-facility dispatch for Winnipeg. There are a number of Service Purchase Agreement operators, mainly in the north, that continue to provide their own dispatch, and they have been provided with the Dispatch Standards and are being encouraged to meet those standards or devolve their operations to the MTCC.

MTCC became operational in 2006 with a plan to phase in full operations over a five-year period. MTCC has just implemented its fifth or final phase, this year. This phase includes the provision of dispatch

services for Air Ambulance – LifeFlight (in an earlier phase), Basic Air Ambulance, STARS, and Southern Air Ambulance Inter-Facility Transport Program (SAAP). MTCC operates as a division of Regional Health Authorities of Manitoba Inc (RHAM). In turn RHAM has a signed agreement with Manitoba Health outlining this arrangement and the amount of funding to be provided by Manitoba Health to accompany this agreement. In 2011/12 Manitoba Health provided \$4,350,000 funding for the operation of this centre. It employs 53 staff representing 37.2 full time equivalents (including a .3 FTE for a medical director).

The MTCC work volume continues to grow. In 2011 MTCC handled just under 70,000 CAD (computer aided dispatch) incidents for ground EMS resulting in just over 78,000 calls dispatched. This generated approximately 49,000 patient transports.

Given Manitoba's history and geo-political context, it makes sense to have two dispatch centres – one for rural and northern Manitoba and another one for Winnipeg. In 2011/12 the WFPS expenditures for the dispatch centre were \$3.7m. In 2011 WFPS handled approximately 80,000 incidents to which one or more operational units (fire, ambulance or both) were dispatched.

During this year WFPS has assumed responsibility for receiving the stretcher car calls and referring them to Medi-Van Inc. for dispatch. Currently Medi-Van is the only stretcher car operator in Winnipeg, and for that matter the province. In 2011 Medi-Van handled approximately 16,000 IFT calls.

The two major dispatch services enjoy a good day-to-day working relationship. According to the MTCC Director there is frequent contact on a daily basis between the two services. There is however, not a formal structure in place to facilitate communication. Earlier in the history of MTCC there were plans to set up an Interregional EMS Coordination Committee (IFT Committee) to identify EMS issues and potential solutions specific to Inter-facility transports across rural and northern Regional Health Authorities. This committee however was never established. Currently the MTCC Director meets twice a year with all the EMS operations and other EMS related entities to discuss EMS issues and solutions. WFPS is not part of this informal group.

The comments that the reviewers heard both in the field and from EMS directors were overwhelmingly positive about MTCC and the service it provided. The Thompson Fire and Emergency Services, however, were of the view that their providing the dispatch services resulted in a better level service than having MTCC provide the dispatch. The Air Ambulance providers, who have just begun to be dispatched by MTCC, expressed the opinion that having the dispatch centralized under MTCC was a fair arrangement. While LifeFlight and STARS were of the opinion that MTCC should not set up a separate triage centre and take over the triage function they nevertheless felt that the coordination that MTCC provided for the call taking/dispatch was very helpful and should continue.

There are challenges that remain. While MTCC through the CAD collects accurate and extensive information on the dispatch process it does not collect any patient care information. Until approximately 6 years ago there was a basic patient care record program in place but that program became disabled



and was not replaced. This represents a very large gap in available information and seriously hinders any assessment of the quality of the patient care provided. The quality of EMS services has two primary measures. The first is response time and the second is the quality of the care provided by the paramedics. WFPS does operate an effective Electronic Patient Care Record (EPCR) system. This provides them with very valuable information that the rural and northern EMS services do not have. WFPS have indicated that they would be very willing to roll out their EPCR program across the province. If this were to be done it would establish a common EPCR program across the province. Also to use the WFPS Electronic Patient Care Record program would in all likelihood be less costly than to create a new EPCR program and it could be rolled out in a shorter timeframe.

The other major issue that remains is the effective incorporation into MTCC of those EMS services that are currently self-dispatching. These self-dispatching services typically operate in the north under Service Purchase Agreements. According to the most recent available information the following services are self-dispatching: Thompson Fire and Emergency Services, Michele Memorial EMS, Cross Lake Ambulance, Nelson House EMS, Gilliam EMS, Wabowden EMS, and Fisher EMS. Six of these services are located in the former Burntwood RHA, and one in the former Interlake region.

On September 13, 2012 a letter from the EMS Branch of Manitoba Health was sent to those services that are currently self-dispatching informing them that every EMS license holder in Manitoba must: a) operate a dispatch centre in accordance with the standards approved by the Minister of Health, or b) enter into a relationship to have dispatch services provided by another license holder that is acceptable to the Minister of Health. The letter goes on to say that there were no EMS Dispatch Standards in 2006 when the regulations were announced and distributed, however, recently the EMS Branch has received approval by the Minister of Health to publish and implement the EMS Dispatch Standards, a copy of which are attached to the letter.

The letter acknowledges that the license holder will need time to review the new standards and determine the impact on its service. Should the license holder be unable or otherwise elect not to comply with the standards, assistance will be provided to develop a transition plan to have its EMS service enter into a dispatch services agreement with MTCC. The letter requests that the EMS service advise its RHA of their decision/ability to comply with the standards by November 30, 2012 and the RHA will notify the EMS Branch.

This directive clearly addresses the major outstanding issue of self-dispatching SPA's. When this directive is fully implemented all dispatch services will at that point be licensed. In all likelihood the majority, if not all of the self-dispatching services will have difficulty meeting the prescribed standards and consequently will be entering into an Agreement with MTCC.

## 911

There have been no recent changes to the areas covered in Manitoba by 911. While most of the provincial residents have access to 911 there continue to be rural and northern areas that are not covered. The areas not covered are comparatively small in number but for the residents living in those areas it does inconvenience them and leave them without the same level of emergency coverage that is available to other Manitoba residents

If an area is on 911 service and the 911-caller requests ambulance or medical services, the call is automatically forwarded to MTCC for triage/dispatch/coordination of the closest most appropriate EMS resource. For areas that are not on 911; MTCC will work with the RHA and community to utilize the existing local 7-digit number which through a forwarding “fix” is directly answered by MTCC.

It is not within the capacity of MTCC to resolve this issue. The 911 system is operated by MTS and it is only MTS that can resolve this issue. In the meantime MTCC has initiated a reasonable “work around” for this situation so that safety is not seriously compromised.

## COMMUNICATIONS

Best practices and the current processes and technologies utilized in the two primary centres are summarized below in Table 1.

**Table 1: Comparison of Communications Centre Best Practices to Current Practices**

Best Practice	Winnipeg Fire	MTCC
1. Call taking done by specialized personnel	<b>YES</b> Paramedics with field experience hand call taking to ensure optimal patient contact	<b>Yes</b> Call takers specialized; but are not required to have field experience
2. Protocol based call taking	<b>YES</b> Use Medical Priority Dispatch System (MPDS), a standard of care protocol for medical emergency triage and pre-arrival instructions to patients/callers	<b>YES</b> Use Medical Priority Dispatch System (MPDS), a standard of care protocol for medical emergency triage and pre-arrival instructions to patients/callers
3. Quality assurance program with calls reviewed for call taking accuracy	<b>YES</b> but is not accredited as a centre of excellence	<b>YES</b> but is not accredited as a centre of excellence
4. External oversight	<b>YES</b> Independent medical director for dispatch	<b>YES</b> Independent medical director for dispatch
5. Time measurements and reporting	<b>NO</b> No accountability, no performance requirements by oversight body, no apparent reporting and no consequences for poor performance	<b>NO</b> No accountability, no performance requirements by oversight body, no apparent reporting and no consequences for poor performance
6. Computer aided dispatch (CAD) with mapping	<b>YES</b> Strong geospatial capabilities; up-to-date mapping; latest version of CAD system	<b>YES</b> Strong geospatial capabilities; up-to-date mapping; latest version of CAD system

Best Practice	Winnipeg Fire	MTCC
7. AVL/GPS, automatic vehicle location, global positioning system	<b>YES</b> All vehicles equipped with AVL/GPS; dispatcher can see the resources on the CAD	<b>NO</b> None
8. Mobile data terminals communicate with CAD	<b>YES</b>	<b>NO</b>
9. Radio/Radio interoperability	<b>YES</b>	<b>YES</b>
10. Drag and drop dispatching, ensures proper time stamps	<b>YES</b> Calls are placed on units in a windows based environment that ensures that call times are logged accurately	<b>Yes</b> but relies on radio updates for time stamps
11. Prescribed continuous training for call takers	<b>YES</b> 24 hours of bi-annual continuing education is required	<b>YES</b> 24 hours of bi-annual continuing education is required
12. Personnel mobility	<b>YES</b> Fully trained paramedics can be promoted both internally and externally	<b>NO</b> Personnel limited to dispatch functions
13. Field and Dispatch SOP, standard operating procedures, up to date	<b>YES</b> it is integrated into field operations	<b>Yes</b> for internal SOP but not integrated with field operations

## ***WHAT NEEDS TO BE ACCOMPLISHED***

All dispatch centres need to comply with Provincial standards. Both primary dispatch centres have maximized their independent Computer Aided Dispatch (CAD) capacities. The Winnipeg Fire and Paramedic dispatch service has more of the bolt on technologies that give them superior information about resource activities.

## ***SPECIFIC RECOMMENDATIONS***

1. Continue utilizing two primary dispatch centres. In the future utilize a single tender for CAD to facilitate seamless views of each centre's data and improve interoperability.
2. Primary dispatch centres must have an unfettered right and obligation to assign the most appropriate ambulance to any specific call and move resources as required to achieve optimal ambulance coverage on a continuous basis.
3. Both dispatch centres should enter into formal agreements with the 911 agencies to have monthly compliance reports based on call handling and call transfer times.
4. All dispatch centres should also be measured against the nationally recognized standards and publish monthly reports on compliance, specifically to high acuity calls (echo and delta).
5. Integration of CAD & EPCR data should be accomplished in a timely fashion.
6. Establish a Dispatch Centre Coordinating Committee with MTCC and WFPS as the members for the purpose of sharing ideas and information and addressing common issues.
7. Complete the process of requiring all self-dispatch centres to either meet the approved provincial standards or transfer the dispatch function to MTCC.

# **MEDICAL ACCOUNTABILITY AND OVERSIGHT**

## ***BEST PRACTICES***

There is clearly defined legal authority and responsibility for the medical direction within the system. There is a clear-cut organization of information flow, authority, and responsibility for clinical governance and medical direction from the provincial level through the individual service level.

The lead agency enforces, utilizing well-defined standards, policies, procedures, and authority, enforcement of all clinical practice. It employs a documented, effective system of performance improvement that has specific points of integration with and separation from EMS agency, facility, and personnel disciplinary and other licensure/certification/ permissions actions and is coordinated well with the medical direction for the larger system.

Operationally, medical direction occurs proactively, interactively, and retrospectively. Detailed job descriptions guide the medical director's responsibilities, and EMS physicians have received specialized training equivalent to that sanctioned by the International Committee of the (USA) National Association of EMS Physicians or Canadian Association of Emergency Physicians. Physician directed clinical education for the system is coordinated and managed effectively and efficiently.

## ***KEY ACCOMPLISHMENTS AND CURRENT SITUATION***

There are currently 24 EMS Medical Directors under contract with the different EMS services, regional health authorities, air ambulances and Service Purchase Agreement operators. The contracts vary from .1 EFT to .5 EFT. None of the Medical Directors are full time. This is a significant improvement over what was in place at the time that the RHAs assumed responsibility for EMS. During the past decade Manitoba Health has provided \$300,000 to the rural RHAs for the contracting of EMS Medical Director services. This represents about \$30,000 for each RHA.

The Medical Directors act as Medical Control for EMS protocol, policy and procedure in regards to patient care. Specifically this includes authorizing the transfer of function skills and protocols for EMS personnel. Additionally, the Medical Director oversees the developments, implementation and evaluation of basic and advanced training programs and skill progressions. They oversee continuing education of Regional EMS personnel and ensure all aspects of medical quality control are carried out in conjunction with the EMS Program Management personnel. While the above are the primary responsibilities the Medical Director may also provide liaison with the RHA Medical Advisory Committee, ensure preparation and presentation of appropriate reports and records and other related functions. Given that the Medical Directors are all very part time they are hardly able to fulfill the full responsibilities that the role requires. At the same time in our visits to the regions the reviewers interacted with some very committed Medical Directors who were doing an exemplary job.

The Provincial EMS Director position has been vacant for some time (a new Director has just been recruited). During that time the Manitoba Emergency Medical Advisory Committee (MESMAC) has not met. This has created real problems for the delivery of services at the field level since it is the responsibility of MESMAC to approve Emergency Treatment Protocols, commonly referred to as Transfers of Function, for use by Manitoba licensed EMS personnel under their Medical Director's authority and direction.

During the review process the consultants were informed at every level that the current decentralized system of Medical Directors is not working. If there is any one part of the EMS system that works against a seamless system of emergency medical services it is this arrangement. Paramedics in particular complained that since it was a specific Medical Director that authorized their transfer of function skills and protocols if they wanted to change employment and work in another region those skills were not necessarily approved by that region's Medical Director. This was a source of great frustration. In a similar vein a Medical Director does not necessarily approve all of the skills and protocols in which a Paramedic has been educated and licensed as a Primary Care Paramedic. The Paramedic still has to undergo additional training in particular functions before those skills can be used in the field.

The WFPS has a half time contract with its EMS Medical Director. The current Medical Director has been in this position for a decade and during that time has developed a very complete and effective medical oversight system. The WFPS, including the Medical Director, are prepared to be of assistance in developing a provincial/rural medical oversight program.

## ***WHAT NEEDS TO BE ACCOMPLISHED***

As has already been stated the current arrangement of multiple EMS Medical Directors with no centralized/provincial medical oversight and direction cannot be allowed to continue. If it does continue there is no way that a more seamless, effective and consistent provincial EMS program can be developed.

From our consultations and interviews it became clear that there was a broad consensus among paramedics, EMS managers and current EMS Medical Directors in which direction the solution lay. The consensus was that a provincial Office of Medical Director should be established. Both for workload reasons and the need to be sensitive to the different regional realities the EMS Medical Director should appoint associate EMS Medical Directors as part of the OMD. This office would provide medical oversight for the entire province. This would ensure consistency in the transfer of function and protocols for EMS personnel and in the development, implementation and evaluation of basic and advanced training programs and skill progressions. The responsibility for setting the curriculum and the training requirements for the Intermediate Care Paramedic program would become part of the OMD. A trainer/educator should be added to the OMD to oversee the actual training of ICPs. This would ensure that a qualified ICP should be able to work anywhere in the province. This office should also be available to provide consistent medical advice to paramedics in the field. Additionally, it would be very important that the OMD establish a Manitoba Emergency Medical Advisory Committee.

## ***SPECIFIC RECOMMENDATIONS***

8. Implement an Office of the Medical Director (OMD) providing a province wide standardized approach with oversight for training requirements, medical care, continuing education and quality improvement efforts.
9. Operationalize the OMD in a manner that provides centralized direction through associate Medical Directors and QI staff that provide local input and support.
10. Ensure that Medical Director and key staff in the OMD participate in national/international professional associations to facilitate maintenance of practice currency.

# OPERATIONS & CLINICAL PERFORMANCE MANAGEMENT

## ***BEST PRACTICES***

In a best practice EMS system, a mechanism exists to identify and assure adequate deployment of ground, air, and marine transportation resources meeting specific standards of quality, to assure timely response scaled to nature of event. There is an ability to monitor safety and response time issues. Defined response time targets exist by severity of call and individual response components are measured by using both mean and 90<sup>th</sup> percentile measures.

Units are staffed and equipped to meet the identified service requirements. Procurement, maintenance, and logistics processes function to optimize unit availability. Resources are efficiently and effectively deployed to achieve response time performance for projected demand. When multiple agencies are involved, a smooth integration and transition of care is achieved.

## ***MEDICAL FIRST RESPONSE***

There are two different approaches to Medical First Response in place at the present time. The one approach is in operation in rural Manitoba and the other approach in the City of Winnipeg. Additionally there are those RHA/SPAs that do not provide this service. The Brandon and Thompson fire/paramedic services state that there is no reason for them to operate an MFR program. Such a program would not improve their response time.

Manitoba Health began to licence MFR services in 2011 and MTCC operationalized procedures for dispatching the MFR agencies on January 1, 2012. The Manitoba Health policy describes MFR as a non-transporting component of an EMS system. It establishes the following operational requirements that an agency must meet in order to provide MFR. The agencies must have a written agreement with the RHA in which it operates; all staff providing MFR must hold a current EMS provider license; MFR agencies must operate under medical direction and be subject to the same quality assurance processes as a patient-transporting ambulance service and finally MFR agencies will respond to medical incidents only when dispatched by a licensed dispatch centre.

The policy goes on to describe the roles and responsibilities of MFR agencies as follows:

- To provide primary EMS response, assessment and treatment to urgent situations where MFR may be able to arrive prior to an ambulance. MFR will be primarily dispatched to high priority calls (Priority 1, 2 or 3) as defined by the dispatch centre;
- MFR may be dispatched to selected lower priority calls in accordance with dispatch centre protocols;
- To provide ambulance-base EMS crews with assistance with ancillary tasks;

- MFR may, in selected circumstances, be dispatched to an incident without an ambulance also being dispatched.

MTCC provides all the dispatch services for MFR in the province except in Winnipeg where the WFPS dispatch centre provides this service. According to the current operational policy licensed MFR resources will be dispatched to all incidents that occur in geographic areas where MFR is available and are triaged as Priority 1, 2, or 3. MFR resources may also be dispatched at the request of the responding EMS crew into approved response areas for lower acuity calls.

According to the information provided by MTCC there are currently 20 agencies providing MFR services in 20 different areas/communities. These agencies are located in five RHAs: Assiniboine RHA, Central RHA, Interlake RHA, North Eastman RHA and South Eastman RHA. In 2011 calendar year their call volume was just over 1,000 incidents. Over 600 of these calls came from four municipalities located around the perimeter of the City of Winnipeg. Four agencies have just come on stream in 2012 and have not had any activity to date. For the RM of Headingly most of the MFR calls are to the Headingly correctional institute and highway accidents. The other three services in the RMs of East St. Paul, West St. Paul and St. Andrews are located in a high call volume/population corridor for EMS services hence the high MFR activity.

Each of these areas is covered by either two or three RHA ambulance stations with a total of 6 or 8 ambulances. According to MTCC EMS is typically on the scene simultaneously or before the MFR agency.

With one exception each of these MFR services are run/owned by a local municipal Fire Department. Typically the MFR volunteers are also volunteers with the Fire Department. The operational funding for the MFR service is a municipal responsibility. In some cases the RHA may provide some minimal funding for start-up costs and/or for basic equipment and in one or two instances the RHA funds the service

In summary, the MFR service in rural and northern Manitoba is very limited. There are no MFR agencies in the north and typically those in the south are either close to Winnipeg or within a few hours driving time. Presently it is not operating as a complementary service to the land ambulance services.

WFPS operates a very active non-transporting MFR service. According to the WFPS 2010 EMS System Performance Summary in 2010 Firefighter Paramedic units were dispatched to 43,534 incidents. Of these total incidents 8,195 incidents were attended by Fire only and 35,339 were attended by both Fire and EMS. When both Fire and EMS attend to a call this typically involves a pumper and an ambulance and a total of six personnel three of which are paramedics. When a Fire unit responds the crew always includes a Primary Care Paramedic. When the ambulance unit attends it has two Primary Care Paramedics on board or increasingly one PCP and one ACP. In 2010, 698 Firefighters attended medical calls with a licensed FF/PCP to provide assistance with patient care.

According to the 2010 Performance Summary, the service model is constantly being refined to send the 'right' resources to medical emergencies. The service model refinement now includes sending an



ambulance only when transport to hospital is likely required, however a slightly quicker response by fire would not provide additional anticipated benefit to the patient. Secondly, sending fire only if there is a high likelihood that there is no patient or transport may not be required. Or, thirdly, a dual response (fire and ambulance) for high acuity calls where a quick response is imperative and likelihood of transport is high.

From 2007 to 2010, the number of incidents that were mitigated by fire without dispatch of an ambulance has roughly doubled to 8,195. This mitigation of calls serves to 'level' the call volume experienced by ambulance resources. Also, of the incidents to which units were dispatched from 2007 to 2010, ambulances are now sent to 5.6% fewer incidents, and fire is sent to 2.9% more incidents. As part of the agreement between the WRHA and WFPS, the WFPS expenditures in a recent year included \$7.1m in recognition of the value of the first responder support (these expenditures are shared according to the 50/25/25 funding formula).

### ***What Needs to be Accomplished***

The WFPS service model is significantly different from the rural model both in the funding available for this service and in the utilization of paid Firefighters to provide the staffing. In all likelihood it will be difficult to establish a province wide MFR service within the current MFR policies. This rural service model is dependent on the willingness of the municipality to fund the service and for Firefighters and other residents of the community to provide the volunteer staffing. As long as this is the case MFR agencies will be established only in those areas where municipalities and Fire Departments are willing to take on this responsibility. This again makes it impossible to reliably establish an MFR service in the areas of greatest need and where a non-transporting service provides the most benefit.

### ***Specific Recommendations***

11. Review the current purpose and policies of the MFR program.
12. Develop a program that is more equitable between Winnipeg and rural and northern Manitoba.
13. Review (and change) the current funding requirements for the municipalities.
14. Develop a provincial program plan that identifies where MFR stations should be developed in the future.

## ***LAND AMBULANCE***

### ***Organization of Service Delivery***

An image from the field of art and culture comes to mind when attempting to describe the current EMS operations across the province. That is the image of a patchwork quilt – or possibly a coat of many colours. A typical patchwork quilt is composed of various colours of solids and prints, pieces with many shapes and sizes, different kinds of fabrics and finally all the individual pieces are stitched together and surrounded by a border, frequently of one colour.

The above image represents another picture of how Emergency Medical Services currently operate across the province. In this section we will look at five different models/variations of current EMS operational systems. In doing this we will identify four specific regional models and a fifth model/variation which is really a hybrid of the other four. While there are similarities between these different models it is the differences that represent a future challenge.

### ***Current EMS Operation Models***

In describing these first four models the former RHA structure will be used since that structure demonstrates the differences most clearly.

#### **Assiniboine RHA**

This regional model relies primarily on on-call staff to provide 24 hours per day/7 days per week coverage. This is unique to the Assiniboine RHA. The program also employs full time and part time paramedics in sites where EFT positions are justified. The region is heavily dependent on EMRs to maintain their ambulance operations.

The region does not have any stations that are staffed with primary care paramedic EFTs 7/24. The EFT paramedics are typically assigned to the day shift while on-call EMRs generally provide the service during evening and night hours. Stations if they do have EFT staff typically do so only for only a limited number of hours a day M-F and on the weekends stations are staffed by casual on-call staff. The smaller stations may frequently have their ambulance service provided from an adjacent larger station. In the case of the IFT program the transports are provided out of six larger stations.

Out of the 25 stations in this region there are a significant number of stations that provide less than 100 primary transports or inter-facility transports annually. In the case of the IFT program there are ten stations that have fewer than 50 transports a year and 16 stations that have under a hundred transports. In the case of primary transports, there are two stations that have under 50 transports per year and nine that have under a hundred transports annually.

While this region is highly dependent on on-call EMRs to maintain its service at the same time it has among the highest number of ICPs of all the regions. This may in a limited way compensate for the large number of EMRs used in delivering the service.

Due to the large number of stations the region does not track Geo-Posts.

### **South Eastman RHA**

This model relies on EFT Primary Care Paramedics to provide 24 hours per day/7 days per week coverage. Each station, with the exception of Falcon Lake, has at least one unit EFT staffed 24 hours/7 days per week. Steinbach operates 3 units two of which are EFT staffed 7/24 and a third unit is staffed by on-call paramedics; Ste. Anne, St. Pierre and Vita each operate two units of which one is EFT staffed 24 hours/7 days per week and the second unit is operated with on-call paramedics. In the case of the fifth station at Falcon Lake it has one unit which is EFT staffed for 12 hours/ 7 days a week and with on-call paramedics for the remaining 12 hours/day.

If a unit cannot be staffed the region has the ability to move staff and/or units from an alternate site to provide EMS coverage within the affected area. In addition the availability of EFT staffed primary units in the five communities allows for the staffing of additional units with overtime or mandated staff. Geo-Posting allows the region to provide coverage for a station when its resources are drawn down below a predetermined level.

In this model the ambulances are staffed with PCP's. The region employs a limited number of ICPs typically in supervisory and/or enhanced treatment positions.

With the exception of the stations at Falcon Lake and Vita the other stations have over 700 primary calls annually. The annual primary call volumes at these three stations are St Pierre with approximately 750 calls, Ste Anne approximately 1,000 calls and Steinbach over 2200 primary calls. Vita completes annually just over 300 primary calls and Falcon Lake just under 200 primary calls. The situation in regard to inter-facility calls is very similar. Two stations are above 300 inter-facility calls annually, one over 500 calls and the other one over 900 calls. Falcon Lake does not complete inter-facility transfers.

### **Burntwood RHA**

The EMS program in this region is provided primarily by Service Purchase Agreement operators. The two sites that the RHA operates are Lynn Lake and Leaf Rapids. The annual combined call volume between these two stations is just over 200 primary calls and less than a 100 IFTs. Each station has one ambulance staffed with on-call casual staffing 24 hours per day 7 days a week.

The RHA has signed SPAs with seven service providers located in six communities (Cross Lake has 2 SPAs). These communities are Thompson, Wabowden, Cross Lake, Norway House, Nelson House and Gillam. With the exception of Thompson these SPA operators provide services primarily in First Nation/Metis communities.

The Thompson Fire and Emergency Services provides 7/24 EMS services to the city of Thompson. This is a crossed trained Fire/Paramedic service with all the staff trained both as Firefighters and Paramedics and working regular shifts on both fire trucks and ambulances. The service has 24 cross trained staff.

This station is fairly busy with approximately 2,000 primary calls and 3,000 IFTs annually (most of the IFT transports are to and from the airport). The service continues to dispatch its own calls.

The other six SPAs, as mentioned, serve primarily First Nation and Metis communities. With the exception of one station each of the communities has either a nursing station or a hospital. If the SPA operator has sufficient resources the response time can be quite satisfactory since the geographic area to be covered is quite small.

Typically the ambulances are staffed with on-call staff trained at the EMR level although the one service has PCPs on staff. There are no ICPs employed in these communities. The annual call volumes can range from very low – less than a 100 primary calls and less than a hundred IFTs – to fairly substantial - in excess of 1,500 primary calls and in excess of 1,000 IFTs.

The Norway House service is dispatched by MTCC. All the others are self-dispatched. There are no MFR stations in the region and the services do not track geo-posts. While the Burntwood RHA covers a very large geographic area typically each operator serves a specific community with few transports occurring outside that community.

In our conversations with representatives from AMC and MMF the lack of EMS services in remote and isolated communities was emphasized. If an ambulance transport is available it takes a long time. Generally in these communities there is no ambulance transport available and other inappropriate vehicles need to be used. It was also identified that in these remote communities a medical first response service would be very beneficial.

### **Winnipeg**

Winnipeg Fire Paramedic Service serves all of Winnipeg under an SPA with the WRHA. It is the sole EMS service provider in Winnipeg.

WFPS is structured with two operating divisions. The fire division operates the non-transporting Medical First Response service. Whenever a pumper or another fire unit attends to an MFR call a cross trained fire/paramedic is on board. This division does not provide transportation. According to the 2010 WFPS EMS System Performance Summary at that time there were 198 Firefighter/ Primary Care Paramedics. According to the same report, 698 Firefighters attend to medical calls together with a licensed FF/PCP to provide assistance with patient care.

The second division operates the EMS medical care and transport services. These paramedics are not cross trained and do not attend fires. In this past year the WFPS responded to approximately 80,000 calls. All of the paramedics are at least licensed as PCPs. We are told that the plan is to have an ACP on every unit. In June 2011 there were approximately 91 ACPs.

WFPS operates its own dispatch service. This centre dispatches all MFR and ambulance service calls. This year the centre began to receive the dispatch calls for all stretcher car transports. These calls are then

referred to Medi-Van which arranges the dispatch. In 2011 Medi-Van transported approximately 16,000 patients. In prior years Medi-Van has transported as many as 20,000 patients. WFPS is responsible for the medically critical IFT transports. In 2010 that involved approximately 8000 transports.

WFPS is also an approved educational site for the education and training of Advanced Care Paramedics. It has been enrolling 14 PCPs annually to upgrade them to ACPs. In the last enrolment WFPS accepted seven PCPs from the rural RHAs.

The WRHA has worked out a funding formula with WFPS. While this formula has not been perfectly achieved it states that 50% of the annual revenue is to come from user fees and the remaining 50% is to be divided equally between the WRHA and the City of Winnipeg.

### **Other Regions - A Hybrid Model**

In the other regions the EMS operations generally fall somewhere in between the extremes of the two rural models and increasingly look more like the South Eastman EMS than the Assiniboine EMS.

None of the RHAs in this model employ as large a number of EMRs as does Assiniboine. With the exception of Norman and Burntwood the ratio of EMRs to PCPs in the other RHAs is low. On the other hand Assiniboine employs among the largest number of ICPs. Nor do any other services rely primarily on on-call staff to provide 24 hours per day/7 days per week coverage. Only a few of these services have any ambulances EFT staffed 7/24 as does South Eastman. Three of the RHAs in this model utilize Geo-Posting as does South Eastman. Burntwood is the only RHA that primarily delivers service through Service Purchase Agreements. The other RHAs have full responsibility for direct service delivery although a few may continue to have one or two SPAs. In addition to the City of Thompson, there are two additional services in Brandon and Winnipeg that employ cross trained fire/paramedics.

Assiniboine has a much higher number of stations and units than the other RHAs. This is not because the RHA prefers it this way but rather because so far they have not received support to restructure. Assiniboine has many more low call volume stations than do other RHAs. This is partly a result of the large number of stations. Increasingly in the other regions more EFT paramedics are employed to provide coverage supported by on call paramedics.

The WFPS provides a quality service to the residents of Winnipeg. While this fire/paramedic service model will continue in the future it will not become the preferred model for other areas. There is no other EMS service that has the kind of financial, hospital, medical and MFR resources immediately available that WFPS does. Nor will the cross trained fire/paramedic services in Brandon and Thompson become the model in other areas. Both of these services have a very long history and do a good job of meeting the needs of their respective communities. It is unlikely that Burntwood will any time soon take over the operation of the current First Nation and Metis SPAs. Consequently for the foreseeable future Manitoba EMS will continue to utilize three models in delivering its services - the cross trained fire/paramedic model in Winnipeg, Brandon and Thompson, the SPA model in the Burntwood RHA and in the rest of the province a "rural" model where the EMS services will be delivered directly by the RHAs.

This multiplicity of operational models is a reality and needs to be taken into account in completing this review. At the same time it needs to be understood that this is a provincial review of EMS and that no model is excluded from the review process.

What struck the reviewers in their station visits and in their discussion with the paramedics was how creative the different RHAs have been in adapting the EMS service in their area to local realities and available resources. This capacity to adapt is clearly a strength of a decentralized system such as we have in Manitoba. Examples of this are: consolidate IFT transports at larger stations, designate a portion of all the regional ambulances for IFT transport, serve smaller volume stations from larger sites, create a partnership arrangement between a larger station and a smaller station, Geo-Post to provide coverage, provide EMR training locally, create supervisor cars with increased expertise dispatched separately, provide sleeping quarters to maintain crews on site, replace a crew if unloading delays will cause the crew to work for more than 16 hours, and many other examples.

### ***What Needs to be Accomplished***

One of the challenges facing EMS is how to tie together the total EMS system when in the foreseeable future there will be two, or possibly three, models of service delivery. It will be a major task for the provincial EMS entity being proposed to work towards integration and effective coordination.

An immediate task for the new RHAs is to incorporate the different EMS systems that existed in the former regions but which are now part of a larger RHA. For some RHAs this will be a particular challenge since they now have both fire/paramedic services and just paramedic services that need to be structured and coordinated within the same region.

As proposed later in this report the land ambulances are to be operated on a day to day basis by the four rural/northern RHAs (the WRHA does not directly operate EMS services). It is proposed that the RHAs operate under a performance contract with a new provincial EMS entity. All other service operators will have similar performance contracts. This should help create a more seamless and integrated provincial EMS service.

An important objective for any new provincial entity as well as the individual RHAs will be to move from a service model that still utilizes many casual on call EMRs to a service model where increasingly the ambulances are staffed with EFT PCPs. To complete this shift, or even to make major headway, will take considerable time.

### ***Specific Recommendations***

15. In rural and northern Manitoba the EMS program should continue to develop a “paramedics only” model and increasingly employ EFT licensed PCPs as entry level. This model will continue to train/employ ICPs and over time possibly some ACPs. EMRs should be phased out as resources allow.
16. Continue the cross trained fire/paramedic system in Winnipeg, Brandon and Thompson.

17. Have the new RHAs proceed with the amalgamation and organization of the different EMS services that were transferred to them as part of the regional restructuring. This should be done in consultation with Manitoba Health or the proposed Implementation Task Force when it is established.
18. Authorize each rural and northern RHA to establish the EMS leadership structure for the region (the WRHA will need to have an EMS lead).

## **PRIMARY RESPONSE & DEPLOYMENT OF SERVICES**

### **Key Accomplishments and Current Situation**

At the present time there are 92 EMS stations in rural and northern Manitoba and the WFPS has its ambulances located in 18 Fire/EMS substations. Currently, there are 175 provincial Fleet units. In addition the different EMS sites operate approximately another 25 ambulances that are not part of the Fleet. Many of the regionally owned units are 15 years old or more and are of questionable reliability. The costs for these extra units are the responsibility of the RHA. Additionally there are another 45 units listed as spares with no assigned crews. Twenty three of these “spare” units are owned by First Nations, National Defense, or are special purpose WFPS units that would not be available as a backup to replace out of service vehicles. These spares are not assigned to any region. The RHAs also own and operate some non-transporting vehicles, such as SUVs for EMS supervisor use. These units are not part of the provincial fleet. In regard to the number of paramedic positions as of June 2011 there were 305 EMR positions, 1,092 PCP positions and 96 ACP positions (this includes full time, part time and casual positions). (See **Table 2. Current Resources** for more details).

While it was not part of the review mandate we heard many comments on the need for new or additional equipment e.g. power stretchers. We also heard many complaints about the maintenance of the ambulances. Frequently the ambulances were out of service too long while awaiting maintenance which made it more difficult to meet all the transport needs.

**Table 2: Current Resources**

RHAs	Stations	Fleet units	MFR locations	EMRs	PCPs	ICPs (in PCP)	ACPs
Burntwood	9	9	0	40	50	0	
Nor-Man	6	10	0	23	28	9	
Assiniboine	25	31	3	117	83	41	
Brandon	3	5	0	16	74	NA	
Parklands	11	19	0	39	66	10	
Central	14	21	5	18	123	59	1
South East	5	11	3	0	57	8	
North East	8	13	3	27	60	18	
Interlake	11	23	6	17	167	64	4
Winnipeg	1	32	NA	8	384	NA	91
<b>Total</b>	<b>93</b>	<b>175</b>	<b>20</b>	<b>305</b>	<b>1092</b>	<b>209</b>	<b>96</b>

RHAs	Stations	Fleet units	MFR locations	EMRs	PCPs	ICPs (in PCP)	ACPs
EFT equivalent				51	857.6		92.7
casual				245	211		3

**Notes to Table 2:**

**Fleet Units** – does not include a small number of locally owned vehicles.

**Paramedic numbers** – numbers effective June, 2011 as reported by EMS operators through operational plans or separately for ICPs. The PCPs are inclusive of ICPs. Only the rural ICPs are included. Brandon Fire & Emergency Services has some ALS paramedics which may be equivalent to ICP and in Winnipeg after the first year of ACP training they receive the designation of ICP. The ACPs outside of Winnipeg typically have their primary employment with WFPS.

**Fire stations in Winnipeg** - in the above number Winnipeg is treated as one station even though the ambulances work out of 18 substations.

### ***What Needs to be Accomplished***

According to the Terms of Reference, the reviewers were to examine the alignment and number of EMS stations and the type or number of ambulance vehicles within the EMS system. In order to provide a meaningful answer to the above questions the expected response time must be clearly indicated.

The reviewers utilized a unit hour model in reviewing this area. This model examines the question of future resources required on the basis of demand and more specifically unit hours. This work was supplemented with some internal analysis done by MTCC and the EMS Branch.

### ***Unit Hour Model***

This model is intended for theoretical value only. It is to give the Manitoba Government an order of cost magnitude and it is not intended to reflect actual station locations. A further process will need to be completed to determine the location of the stations. The location names identified in this report were strictly a computerized output to allow for a count of required resources.

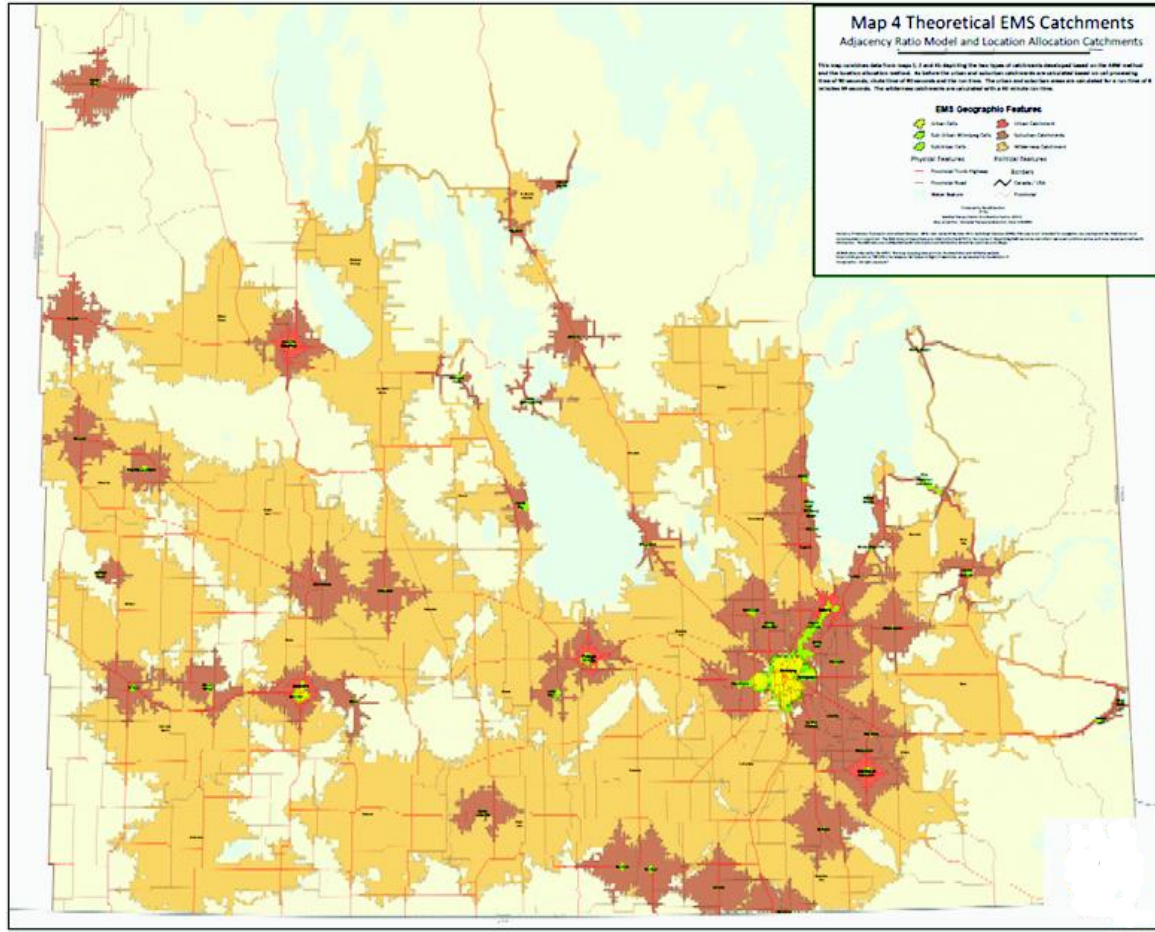
As part of the overall review Fitch & Associates was asked to develop a conceptual system model in which all Manitobans would have a predictable, responsible and reasonably cost ambulance service. In order to opine on this we used a demand analysis for the whole province and then applied cost to the demand analysis as a unit hour cost. The unit hour cost is calculated using existing budgets and dividing the budgets by the total amount of ambulance hours required to properly cover all of Manitoba. Demand was calculated using proprietary modeling which builds a risk model based on historical call demand and overlaying that onto a given geography. The model builds from highest risk area (commonly referred to as Urban zones) and builds out toward less risk areas (referred to as rural and remote). Using this “apples to apples” comparison this modeling allows decision makers to understand where call behavior has similar risk and requires a like response. Once that is done the methodology then adds the corresponding call volume back into the system to assess the total required ambulances needed to cover off all the risk and activity. The model ends by calculating how many hours are required when and where (theoretically) and allows for a unit hour (total budget divided by total ambulance



hours on the road) calculation. The methodology yields an approximate system cost for measurable performance. This entire model is predicated on the dispatch centres ability to have unfettered resource management; the existing municipal boundaries disappear in favor of vehicle movement that optimizes risk coverage.

The following map represents the optimal resource locations throughout the Province.

**Figure 1: Recommended EMS Resource Locations**



Resources are located in urban, rural and remote areas.

**Urban**

Brandon	Dauphin	Flin Flon	Norway House	Portage	Selkirk	Steinbach	The Pas	Winnipeg
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## **Rural**

<b>Altona</b>	<b>Ashern</b>	<b>Beausejour</b>	<b>Birds Hill</b>	<b>Birdtail Sioux</b>	<b>Blumenort</b>	<b>Brandon</b>	<b>Brokenhead FN</b>
Dauphin	Ebb and Flow	Emerson	Fairford	Falcon Lake	Flin Flon	Gimli	Grand Beach
Grand Rapids	Headingly	Hwy 9 Corridor	Ile des Chenes	Lac du Bonnet	Lake Manitoba FN	Lake St Martin	Libau
Long Plain	Lorette	Manigotagan	Matlock	Minnedosa	Moose Lake	Morden	Neepawa
Norway House	Oakbank	Pine Falls/Fort Alexander	Portage	Roblin	Russell	Sandy Bay	Sandy Hook
Shilo	Sioux Valley	St Laurent	St Malo	Ste Anne	Steinbach	Stonewall	Stony Mountain
Swan Lake FN	Swan River	The Pas	Viriden	Waywayseecappo	West Hawk Lake	Winkler	Winnipeg
Winnipeg Beach							

## **Remote**

<b>Remote 30 Minute Location Allocation Catchments</b>
Name
Beaconia
Belmont
Bloom
Chater
Deloraine
Dominion City
Elma
Eriksdale
Fraserwood
Gilbert Plains
Giroux
Great Falls
Harcus
Hollow Water (Wanipigow P.O.)
La Barriere
Meadow Lea
Meadow Portage
Miniota
Neepawa
Oak Lake Beach
Peguis 1L
Pomeroy
Sandy Lake
Silverton
St. Martin Junction
Ste. Rose du Lac
Swan Lake
Sylvan

The locations above are established by minimizing risk using generally accepted response time for Urban (8:59), rural (14:59) and remote response (30 minute) times.

Resources required for Manitoba without Winnipeg					
Hour	Urban	Rural	Remote	Total	10% overlap correction
Hours Total	248.47	1,461.49	672	2,381.96	2,143.77
Ambulances	10	61	28	99	89

Therefore, 89 ambulances per hour per day are required (about ten additional ambulances will be required for areas that the data does not account for), inter-facility volume is accounted for in the demand analysis

Using similar modeling Winnipeg can be analyzed

Hour	Winnipeg volume	Winnipeg volume corrected for time on task	Urban coverage	Urban total	Sub Urban Total	Total
Hours Total	197.05	246.32	144.00	390.32	72.31	462.62
Ambulances	8	10	6	16	3	19

Due to the volume of interfacilities, Winnipeg dedicates ambulance to interfacility transports, Fitch did not specifically analyse the interfacility requirement and used the numbers that Winnipeg uses.

interfacility off peak	24
interfacility on peak	36
total	60

Completing the analysis, Fitch used the current operating budget and applied it to both the existing resource hours and the future resource hours.

### Cost

Hour	Manitoba	Winnipeg with interfacility units	Total	Rural/Northern Manitoba cost	Winnipeg Cost	Cost
Hours Total	2,143.77	522.62	2,666.39	\$64.37	\$227.11	\$95.69
Ambulances	89	19	109			
total operating budget 2011 excluding administrative cost				\$50,314,844.14	42,587,625.00	\$92,902,469.14
Daily Budget				\$137,848.89	\$116,678.42	\$254,527.31
hourly				\$5,743.70	\$4,861.60	\$10,605.30
Current situation in Rural/Northern Manitoba (2,592 unit hours, average 108 ambulances a day)				\$53.18		
Current situation in Winnipeg (528 unit hours)					\$220.98	

The general rule of thumb for 12 hour shifts is it requires 2.5 FTE (paramedics) for every ambulance hour.

### **Paramedic and EMS station Requirements**

Rural Manitoba needs  $89 * 2.5 * 4 = 890$  (4 shifts represent offsetting shifts for one day on and one day off shifts, 2.5 per shift represent two paramedics with replacement factor). Winnipeg needs  $19 * 2.5 * 4 = 190$  (some additional paramedics would be required for inter-facilities)

In an effort to determine what care enhancement opportunities exist, the reviewers utilized data provided from both the MTCC and WFPS to profile the existing service demand against industry recognized performance standards.

We described areas as urban, rural or remote areas utilizing a widely accepted methodology. For those areas North of the 52 Parallel not otherwise noted as urban or rural, the status quo was assumed as the cost to achieve response times to impact outcomes in areas with little demand would be cost prohibitive.

In summary, according to this model the following number of ambulances will be required: south of 52 a total of 89 ambulances (or 99 ambulances for some peak days of coverage) are required to meet the demand, in the north 19 ambulances (not including IFT units) are required, which remains the same as now, and in Winnipeg 19 ambulances are required to meet the demand 7/24. The total ambulances required for the province in order to meet the identified demand is between 127 and a 137 ambulances plus 38 to 48 ambulances to cover for downtime. The deployment of these resources would provide a response time of 8:59 minutes in identified urban areas, 14:59 minutes in identified suburban areas, 30 minutes in areas identified as remote south of 52 and a response time of 30 minutes north of 53 and except for three urban areas north of 53 a response time of 30 minutes for 90% of the time for 90% of the population. These response times apply 90% of the time to 90% of the population. This model identified a need for 74 ambulance stations outside of Winnipeg.

In the supplementary work done by MTCC and the EMS Branch the question of the number of stations required was explored. Using a combination of computer modeling and judgment coming from experience it was projected that 74 stations should be sufficient to achieve the approved response time in rural and northern Manitoba. This represented a reduction of 18 stations over the current 92 stations. According to this supplementary work of these 18 stations 11 are in the former Assiniboine RHA and the remaining 7 stations are scattered across the former regions of Central, Interlake and North Eastman. The Assiniboine RHA over the years has reviewed the matter of the number of stations required in their region very carefully. The preliminary modeling done by the Assiniboine RHA and the EMS Branch suggests that Assiniboine RHA could maintain their current response time of 30 minutes 90% of the time for 90% of the population if the savings were reinvested in providing more staffed "in house" hours of service in the remaining stations.

In the reviewers discussion with paramedics in western Manitoba the comment was frequently heard that Assiniboine RHA should have fewer stations. Typically the reason given for this view was that the region has too many low volume stations.

In any consideration of fewer stations it is important to acknowledge that fewer stations do not necessarily mean fewer ambulances. Furthermore, it is not the stations themselves that represent the major cost but rather the primary cost is the ambulance itself staffed with two paramedics. The question can legitimately be raised why proceed with closing stations if there is no or little cost saving?

There are two primary reasons for closing or consolidating stations. First, in the long term the current model of staffing stations with on call EMRs is not sustainable. EMRs have regular jobs and it is only with their employer's permission that they are able to take a call. As the time spent on a transport becomes longer and longer it is becoming increasingly difficult for on-call EMRs to get the time off from their regular employment. A motivating reason for on-call EMRs to take on this responsibility is their commitment to their community. We frequently heard that this historic commitment to serving the community in this manner was definitely waning. This is similar to the diminishing interest in volunteerism. What this means is that most, if not all, EMS service will be need to be staffed by salaried paramedics.

Second, while response time is important equally important is the quality of care provided. Quality care can be best provided by trained, competent paramedics who are at least at the PCP level. Low volume stations will not be able to attract or retain primary care paramedics. As a consequence, there will need to be a consolidation of stations with the smaller stations absorbed into larger units. This will make it easier to recruit and retain primary care paramedics and ensure quality care.

Over time it has become less helpful to think in terms of stations. Station is becoming too narrow a concept in looking at the future. A station is typically defined as an EMS garage with EMS staff on site or on-call. New models are developing that are not dependent on a local garage e.g. Geo-posting, partnerships between smaller and larger stations, larger stations serving an area that was previously served by a number of small stations etc. What is important is not the garage but rather the response time. Ambulances that are staffed with on-site EFT paramedics have a significantly shorter chute time than ambulances staffed with on call paramedics. This allows an ambulance to travel a greater distance and still have the same or better response time.

We want to add one further word on the kind of vehicles. As mentioned already it is ambulances that are used for transport whether that is for a primary transport or an IFT. While ambulances can carry two patients they seldom do. In the future consideration should be given to adding more multi-patient vehicles particularly for the transport of stable IFT patients. The WFPS should also review whether it is feasible to use smaller vehicles when responding to an MFR call rather than the large pumper trucks that are currently used. It would appear that this should reduce the cost of the call.

## ***Staffing Models***

There is a broad consensus that the entry level to EMS services should be the Primary Care Paramedic level. The main reasons for this have already been identified but providing a high quality level of care is the primary reason. EMRs do not have sufficient training to ensure this. In rural Manitoba PCPs are increasingly being supplemented with Intermediate Care Paramedics. ICPs have a larger transfer of function than PCPs and so are able to provide care for more complex cases. The rural ICP program should be continued indefinitely. At such a point where sufficient ACPs are being trained ICPs in many cases may be replaced by ACPs. Even today the rural RHAs have a desire for the selective use of ACPs but there are essentially none available. With very few exceptions it is only the WFPS that currently employs ACPs. The objective of WFPS is to have an ACP on each ambulance.

In time EMRs need to be replaced by PCPs. Currently the system continues to be very dependent on EMRs in order to provide a 7/24 service. Of all the RHAs Assiniboine remains the most dependent on EMRs. If the EMRs were eliminated today in Assiniboine the service would collapse. As a consequence the replacement of EMRs must be very carefully phased in over a number of years.

## ***Costs***

There is significant additional cost to converting casual and on-call staff, mainly EMRs, with EFT PCPs and moving to PCPs as the entry level. As mentioned above in the unit hour model an additional \$16m over 5 years would be required for rural Manitoba to move to a funding target of \$85 per unit hour. This would make it similar to Nova Scotia which according to the information available has the lowest per unit hour cost in Canada. This would represent an increase of just over \$30 per unit hour.

The EMS Branch approached this matter of additional funding from another perspective and came up with a similar result. In order to move to 80 percent EFT PCPs 430 new PCP positions would be required to replace the current service provided by casual and on-call EMRs. According to the formulas used this would require \$15.7m in additional funding. The average additional cost to convert 1 position from casual to EFT is \$36,000. Adding these additional 430 EFT positions would result in a total of 888 EFT positions in the province.

## ***Specific Recommendations***

19. Transition to full time paramedics with Primary Care Paramedic being the entry level required province-wide.
20. Standardize and continue indefinitely the rural ICP program under the leadership of the OMD.
21. Establish a province-wide response time standard of not more than 30 minutes for 90% of the population 90% of the time.
22. Establish new response time targets for urban and rural areas (exclusive of remote locations) of 8:59 minutes and 14:59 minutes respectively.
23. Approve, in principle, the closure or consolidation of low volume stations into higher volume stations.

24. Begin the process of developing a provincial plan to create larger more effective and efficient stations by consolidating or closing smaller stations.
25. Establish a rural and northern funding target of \$85 per unit hour and phase in the increase in funding of \$16m over a multi-year period.

## **AIR AMBULANCE**

### ***Key Accomplishments and Current Situation***

Medevacs have been occurring in the province on an informal basis for decades. Since the very early days of aviation in Manitoba, pilots helped transport sick and injured patients to receive medical care. Since those early days a variety of structured air ambulance services have been established: Lifeflight Air Ambulance, Basic Air Ambulance Services, STARS and SAAP. A description of each of these services follows.

#### **Lifeflight**

In December, 1985 Lifeflight made its first flight with a Cessna Citation. Lifeflight's mission is to provide the highest possible quality of health care to critically ill or injured patients in rural Manitoba and to safely transport these patients to sites capable of meeting their health care needs. The care provided on board is similar to what would be provided in a Winnipeg Tertiary centre during all phases of transport.

This care is provided by a group of critical care physicians, emergency physicians and obstetricians that provide 24 hour coverage. They are supported by flight nurses with advanced critical care training and extensive training in the triage of all calls. Lifeflight provides the primary means of air transport for all seriously ill or injured Manitobans from areas outside the 80 mile radius of Winnipeg in rural and northern Manitoba to urban referral centres in Winnipeg. Lifeflight operates out of the Government Air Services Hangar in Winnipeg. Government Air Services provides the aircraft and the flight crew while the EMS Branch is responsible for providing the medical staff and the Flight Nurses. Manitoba Health reimburses Government Air Services for its costs and directly funds the cost of the professional staff. In 2011/12 Manitoba Health provided \$5.6m for operational costs and \$2.1m for amortization/interest costs. The Lifeflight program is overseen by the EMS Branch. FNIHB is billed for Lifeflight services to First Nation members.

In November, 2010, MTCC began coordinating Lifeflight transport requests from referral facilities across the province. During the 2011/2012 fiscal year there were 745 requests for a Lifeflight transport of which 466 resulted in a patient being transferred from the pickup location.

#### **Basic Air Ambulance**

In 2006, regulations were passed for air ambulance operations to be licensed by the Province of Manitoba. Since that time, numerous companies have been licensed to provide air ambulance services to Manitobans, including: Perimeter Aviation, Keewatin Air, SkyNorth Air, Missinippi Airways, FastAir

and SkyMedical. Most of the Basic Air ambulance transports originate in the north and provide service for the Northern Patient Transportation Program and the First Nation Inuit Health Branch.

The companies providing Basic Air ambulance all use either King Air or Merlin aircraft. They have a captain and a first officer plus a Registered Nurse, who is a graduate of a recognized critical care or emergency nursing program with related aeromedical training or an Advance Care Paramedic with aeromedical training. The patients transported on Basic air ambulances are typically stable, requiring medical monitoring by an aeromedical attendant, and a stretcher for their comfort.

MTCC began dispatching Basic Air Ambulance calls in March of 2012. They have gathered dispatch data since the go live date on March 19, 2012 up to July 19, 2012. During this four month period there were 2005 Basic Air incidents created. Of these 2005 incidents, 1907 incidents were assigned and dispatched to a fixed wing aircraft. These 1907 incidents had 2572 air resources assigned to the incidents. This number reflects the fact that some transports may have had multiple resources assigned. Of the 2572 air resource assignments, 1867 of these assignments completed a patient transport to the prescribed destination. During the four month reporting period, MTCC received a total of 2447 patient transport requests from facilities and Nursing Stations.

Of the 2,572 assignments 43% were responded to by a single carrier. The next two busiest carriers completed 41% of the assignments. Cross Lake was the common airport pickup location and Winnipeg International Airport was the most frequent destination for all Basic Air Ambulance flights.

The individual carriers have not entered into a performance contract with Manitoba Health. Manitoba Health is currently in the process of drafting a performance contract template which would be used in entering into a formal contract with each Basic Air carrier. There is only a loose linkage, with no clear accountability lines, between Manitoba Health and/or the EMS Branch and the carriers. When a provincial resident (not including First Nation members) is transported by Basic Air Ambulance those charges are billed to the appropriate RHA and reimbursed out of the Northern Patient Transport Program. In 2010/11 Manitoba Health provided an estimated \$6m in funding for Basic Air Ambulance services. These costs are funded out of the Northern Patient Transportation Program but are not tracked separately. In the case of the transport of a First Nation member the carrier bills the appropriate Nursing Station/Hospital and those charges are forwarded to the Federal government First Nation Inuit Health Branch for payment.

### **STARS**

Shock Trauma Air Rescue Society (STARS) began operating in Manitoba in April, 2009, initially for humanitarian efforts related to the 2009 flood in southern Manitoba. In 2011 the province contracted with STARS again to assist with another flood. At the beginning of 2012 the Province of Manitoba entered into a 10 year Service Purchase Agreement with STARS to provide rapid and specialized emergency care on primary responses and urgent inter-facility transports. STARS operates as a non-profit/charitable agency, using rotary wing aircrafts. It has created a separate Foundation to oversee its fund raising activity. It is the only land ambulance or air ambulance service provider that actively



markets its services to the public. The program takes the emergency room to the patient while providing ongoing pre-hospital care. STARS also has operations in Alberta and Saskatchewan. As outlined in the contract with Manitoba Health each year Manitoba Health and STARS negotiate the capital and operating budget for the coming year. The contract does not include a financial ceiling. As part of the contract STARS is to organize/facilitate an ongoing critical and emergent care transport medicine education program for rotary wing air medical providers, fixed wing and ground EMS providers and other rural and critical care providers across the Province.

MTCC provided the dispatch service during the 2009 and 2011 floods and thereafter when STARS became a permanent service in the province. MTCC is the call taker and coordinates the dispatch process for each call, but does not provide triage services. Onboard every STARS flight are two pilots, a critical care nurse, and an advanced care paramedic. A qualified emergency physician is also available by phone and travels in the helicopter whenever medically necessary. The optimal operating range without refueling is approximately 200 Kilometres, within the province.

During the 2011/12 fiscal year, there were 258 incidents resulting in 168 patient transports. Ninety six transports were IFTs and 20 were primary responses for vehicle crashes.

Currently STARS operates out of a base in Winnipeg. This is their primary landing site for patients transported to Winnipeg. Currently a new helipad is under construction at HSC atop the new Diagnostic Centre of Excellence. There are currently no helipads located in southern and northern Manitoba. This has a negative impact on transport time provided by a helicopter since presently a land ambulance must still pick up the patient at the Winnipeg airport and provide the ground transport to the hospital.

Currently neither STARS nor the Province bill FNIHB for the transport of a First Nation member. So far the cost has been absorbed by the Province. In 2011/12 Manitoba Health provided \$10.2m in funding for the STARS program. This funding includes \$2.7m for flood costs. The budget for 2013/14 is currently being negotiated between Manitoba Health and STARS.

### **Southern Air Ambulance Inter-Facility Transport Program (SAAP)**

The Southern Air Ambulance Inter-Facility Transport program was implemented as a pilot project to provide inter-facility air ambulance service (that would otherwise have been provided by the land ambulance system) to residents who would experience one way ambulance trips greater than two and one half hours. This program to transport patients in southern Manitoba was begun in November, 2011. Government Air Services provided the aircraft and the flight crew while the primary care paramedics were seconded from several of the RHAs. Oversight for this program was provided by the EMS Branch. In the pilot stage FNIHB was not billed for any First Nation transports.

For the period November 14, 2011 – June 6, 2012 SAAP transported 321 patients. SAAP picked up patients from 14 airports and transported them to 19 airport destinations. The primary pickup and destination location was Lifeflight hanger T5 in Winnipeg. The Dauphin airport was the second highest pickup and destination location.

As of November 2012 this program is again operational and will operate on a permanent basis. At the end of twelve months a program review will be completed at which time the results of the EMS review will be taken into account. The service operates within similar guidelines as the earlier pilot project – Government Air Services to provide the aircraft and flight crew and the paramedics to be seconded from an RHA.

In their discussions with groups of paramedics, particularly in the northern part of the Parkland RHA, the reviewers heard many positive comments about the Southern Air Ambulance project. A real problem for the Parkland RHA is the long IFT transport times and the stress it puts on the patient and paramedics. A transport from Dauphin or Swan River to Winnipeg can take 4-5 hours driving time in each direction and potentially a 3 or 4 hour wait time before they can discharge the patient to the receiving hospital. This project helped to reduce those long transport times and to put the ambulance back in service for another call in a much shorter time. Clearly SAAP is an important response to improving the IFT service.

### ***What Needs to be Accomplished – Air Ambulance***

In order to achieve greater integration of land ambulance and air ambulance in a coordinated provincial EMS service it is clear some significant changes are required. Currently the only place these services come together is in the dispatch services provided by MTCC. MTCC dispatches the land ambulance which is a necessary part of the air ambulance services. As recently as six month ago there was no common dispatch service and there was even less coordination of these two services. Today the land ambulance services are operated by the RHA/SPAs and there is no common place where the land ambulance services and air ambulance services interact with each other. As is apparent there is also little interaction or planning between the different air ambulance services. All services including land ambulance, air ambulance, medical first response and stretcher car should ideally be part of a single province wide EMS entity that would have oversight of all EMS operations of any description. In all cases this should include performance contracts with each of the service providers.

A further issue that requires attention is how the air ambulance services should be structured. Currently, two of these services are operated by the provincial government e.g. Lifeflight and SAAP, one service is provided by private carriers but without a contract e.g. Basic Air Ambulance and another service is operated by a non-profit corporation under a contract with Manitoba Health e.g. STARS. As mentioned, in the case of Basic Air Ambulance, three carriers provide nearly all the services even though there are a total of six carriers providing service. It has been suggested to the reviewers that all of the Basic Air Ambulance services could be provide by a single carrier. Others have suggested that there should still be more than one carrier providing services. One way in which this matter could be sorted out is by a public Request for Proposals (RFP). The RFP would clearly state what requirements the carrier(s) would have to meet in order to be selected to provide Basic Air ambulance services.

The reviewers understand that at the end of a further year of operation SAAP will be evaluated. This evaluation may include the question of whether Government Air Services should provide the service or

whether the service will be opened up to private carriers either in whole or in part. If it were to include private carriers it could operate in a very similar fashion as the current northern Basic Air Ambulance service. Again if private carriers were to provide services that should be determined by an RFP process.

Currently the air ambulance carriers provide the airplane and flight crew as well as the nurse and advanced care paramedic. Another option would be to have these two components separated and the carrier provide only the airplane and the flight crew and the EMS service provide all the medical staff and services. This arrangement is in place in some other provinces.

While Lifeflight has been delivering quality health care to critically ill or injured patients in rural Manitoba for many years another option might be to have private carriers approved to deliver these emergency services as well. This need not result in the current Lifeflight program coming to an end but could rather be seen as providing additional capacity at peak periods.

### ***Specific Recommendations:***

26. Involve Basic Air Ambulance carriers as important partners in the total air and land ambulance service. This may be as sole provider or in cooperation with Government Air Services.
27. Publish a Request for Proposals (RFP) inviting applications to provide Basic Air ambulance services in both the northern and southern portions of the province. The RFP could be for aviation services only. This could result in multiple carriers being approved.
28. Institute performance contracts with all Basic Air Ambulance carriers.

## ***IFT SYSTEM (LAND & AIR)***

### ***Key Accomplishments and Current Situation***

The Inter-facility Transport Program (IFT) is both straightforward and complex. It is straightforward in that every transport must be preauthorized by a doctor/nurse and the full cost of the transport is covered by Manitoba Health. The complexity results from the number of different transport providers, the various funding arrangements, the varying IFT user fees and multiple dispatch systems. In order to develop a complete picture of the IFT program information must be pieced together from different sources and frequently estimates must be relied on since consistent province wide data does not exist for the total program.

As part of this program the transportation is provided by both land and air ambulances and in Winnipeg also by stretcher cars. In rural Manitoba – south of the 53<sup>rd</sup> – the service is primarily provided by the RHA EMS service or in a few cases by an SPA provider. In the north the service is provided by a combination of land ambulances and Basic Air Ambulance providers. Typically the land ambulance provides the transport to the airport from where the patient is flown to the approved destination. Typically, though not always, the destination is a hospital in Winnipeg and most frequently HSC or St.

Boniface hospital. An ambulance or stretcher car meets the plane in Winnipeg and transports the patient to the hospital. This process reverses itself when the patient is ready to return home.

Lifeflight and STARS air ambulance operators provide transport for the more critical IFT patients. Lifeflight, as a fixed wing provider, serves both rural and northern Manitoba. STARS, a rotary wing operator, provides service mainly in rural Manitoba since it is limited to 2 hours flight time before refueling. Again the land ambulance provides the transportation to and from the airport. There are still seven SPA operators located mostly in the former Burntwood region that self-dispatch. At this point all of the Air Ambulance operators are dispatched by MTCC. In Winnipeg WFPS provides the dispatch service for all the land ambulances.

### ***Call Volume***

As mentioned, information from different sources will need to be pieced together in order to get an estimate on the provincial IFT call volume.

- In 2011 MTCC provided 29,383 IFT land ambulance dispatches to those areas it serves in rural and northern Manitoba. This resulted in 21,505 total IFT patient transports. Of this number 1372 were emergent and 20,133 were non-emergent.
- In 2011 Winnipeg WFPS had approximately 8000 IFT dispatches. The majority of these dispatches were for critical care patients. Medi-Van, a stretcher car operator, provided just under 16,000 IFT transports in 2011.
- Those SPA operators that self-dispatched, for which there are no central records, had an estimated 3300 IFT dispatches.

According to the above data and estimates there were a total of 32,700 rural IFT land ambulance dispatches in 2011. The rural and northern IFT dispatches represented approximately 43% of the total dispatches for that year. In Winnipeg there were approximately 8000 IFT ambulance dispatches and approximately 16,000 stretcher car dispatches/transports in 2011 for a total of approximately 24,000 IFT dispatches. Of the total Winnipeg dispatches approximately 25% represented IFT dispatches.

In addition to land ambulance and stretcher car dispatches air ambulance also provides an IFT service. In 2011/12 MTCC received 745 requests for a Lifeflight air transport, of which 466 requests resulted in a patient being transported on one of the Lifeflight aircrafts. STARS in the same period had 168 patient transports of which 96 were IFT transports. MTCC began dispatching Basic Air Ambulance in March of 2012. Between March and the middle of July there were 2005 Basic Air Ambulance incidents created. Of these 2005 incidents, 1907 incidents were assigned and dispatched to a fixed wing aircraft and 1867 patients were transported. During the 7 months it was in operation SAAP transported 321 IFT patients out of 369 scheduled trips. In total it is estimated that the four air ambulance programs provided approximately 2,750 IFT transports for 2011/12. (Extrapolating to the full year there would be approximately 6000 IFT transports).

In regard to IFT pickup locations for patient land transports there were four locations that had over 2000 pickups in 2011. They were Brandon, HSC, Selkirk Hospital and St. Boniface Hospital. Another three locations had over 1000 pickups annually. These locations are Boundary Trail Hospital, Dauphin Hospital and Portage Hospital. In total there were 224 pickup locations in 2011.

In 2011 IFT patient land transport destination locations included 3791 patients with HSC as their destination and over 2000 patients had St Boniface Hospital and Brandon Hospital as their destination. Over 1000 patients had Dauphin Hospital, Boundary Trails Hospital and Selkirk Hospital as their destination. As in pickup locations there were many destination locations that received less than 100 patients.

In 2011 Basic Air ambulance used 36 airports as IFT patient pickup locations. Nine locations out of 36 locations had the majority of the patient pickups, including: Cross Lake Airport, Thompson Airport, Winnipeg Intl. Airport and St. Theresa Point Airport. In regard to destination locations the three primary locations were Winnipeg Intl. Airport, Thompson Airport and The Pas Airport. Lifeflight utilized 36 pickup locations. The four locations that were most frequently used were Lifeflight Hanger T5, Dauphin Airport, The Pas Airport and Thompson Airport. The primary destination location was Lifeflight Hanger 75 in Winnipeg. STARS picked up IFT patients from 47 locations of which Boundary Trails was the busiest. The final destination for patients was predominantly HSC and St. Boniface Hospital.

### **Funding**

The cost for all IFT transports is fully covered by Manitoba Health. Invoices for each IFT transport must be submitted by the EMS operator in order to receive payment from Manitoba Health. In the case of WFPS, invoices need not be submitted since the WRHA provides an agreed upon amount of funding out of its global funding from Manitoba Health. Each EMS operator sets the user fee for IFT transports. It is these rates that are used when billing Manitoba Health. The following financial information is a combination of information provided by Manitoba Health and information extracted from other sources.

Manitoba Health provided the following funding for the IFT program in 2011/12.

- Inter-facility Transportation Program.....\$10,377,215
- Lifeflight Air Ambulance Program (Ops & amort/int).....\$6,778,106
- STARS Air Ambulance Program (57% of total cost).....\$5,853,445
- Southern Air Ambulance Program.....\$674,910

The following funds came more indirectly from Manitoba Health.

- Reallocation from WRHA to WFPS.....\$3,204,297
- Basic Air Ambulance estimate.....\$6,000,000
- Stretcher car estimate.....\$2,000,000

A few points should be added for clarification. The Basic Air Ambulance expenditures are part of Northern Patient Transport Program and can only be estimated since they are not tracked separately.

The STARS IFT funding is an estimate based on the fact that 57% of all STARS transports are IFT transports. The stretcher car transports are reimbursed by the hospital or PCH requesting the transport and are absorbed in the total institutional funding.

### ***What Needs to be Accomplished***

There was no other item on which the reviewers heard as many complaints from EMS managers and front line paramedics as on the IFT program. This became a topic of conversation at nearly every visit with paramedics at the different stations. These complaints about the IFT program fell into three general areas: transport authorization, the transport process itself and unloading the patient at a Winnipeg hospital.

We heard many complaints about doctors and nurses authorizing transportation by ambulance when it was not required and other means of transportation should have been utilized. While there is no data available on the incidence of potentially inappropriate authorization we heard many anecdotal stories. The feeling among paramedics was that misuse of the program was occurring frequently. In our discussions ideas were shared as to how this perceived problem might be addressed. It was fully recognized that doctors and nurses are influenced by many factors when making a decision to authorize the transportation so finding an overall solution will be difficult. The ideas discussed included making the Inter-facility transport check list more detailed so that more diagnostic information must be provided by the doctor/nurse in requesting the transportation. It was felt that this might help the doctor/nurse think more carefully before authorizing transport. Many paramedics also felt that doctors, particularly new doctors, did not fully understand the purpose and parameters of the IFT program and so an educational initiative with doctors might lead to more appropriate decisions. Similarly it might help if the community was better informed on the purpose of the program and under what circumstances medical transportation is authorized. A more aggressive idea included establishing a central control point where each request for transportation from a doctor or nurse would have to be formally approved before an ambulance would be dispatched. ( this is standard practice in Ontario) It was felt that this additional step should not be too problematic since most IFT transports must be scheduled in advance, typically the day before. Doctors and nurses may, however, have difficulty accepting such an intervention in the authorization process.

There were two primary complaints expressed about the IFT transportation process itself. The demand for IFT transportation was so great that all too frequently it negatively impacted the EMS primary service. Simply put responding to the IFT transport requests left insufficient vehicles available to respond to the primary calls. The second complaint related to the length of transport itself. In the Assiniboine and Parkland RHAs transports to Winnipeg can typically take 4 or 5 hours each way. We were told that it was not unusual to have to wait 4 hours for the patient to be unloaded. Consequently it was not that unusual for the transport of a single patient to take 12 to 14 hours or even 16 hours. These long transports put great stress on the paramedics since frequently they involve significant overtime which contributes to fatigue and the possibility of road accidents. Understandably these lengthy transports were also very stressful for the patient.

This situation is most serious in Assiniboine and Parkland RHAs and the northern portion of the Interlake RHA. While we also heard complaints in the north this problem is less severe there since the IFT transports are provided by Basic Air Ambulance. This only requires the land ambulance to provide transportation to and from the airport allowing them to be back in service much more quickly. Transport time is also less of an issue in the southern part of the province near to Winnipeg. However, these latter areas are also impacted by the growing demand for IFT transport services. In Winnipeg stretcher cars provide approximately two-thirds of the IFT transports reducing the pressure on the ambulance services.

In discussing this area many ideas and options were shared. They included the following:

- Typically ambulances only transport one patient even though they are designed to hold two stretchers. There was little enthusiasm among paramedics to use the ambulance to transport two patients at a time. If effectively implemented this option could reduce pressure on the system. Currently ambulances are used very infrequently to transport two patients.
- In addition to ambulances multi-patient vehicles should also be added to the fleet. With appropriate coordination of appointments these vehicles could transport a number of patients at a time. This would obviously reduce the number of ambulances doing IFT transport at any one time and would also reduce the total number of paramedics required for transport.
- Some of the ideas implemented by RHAs could be utilized more broadly. Assiniboine has consolidated its EFT transports at six larger stations. Parkland and possibly some other RHAs have taken their total fleet of ambulances and designated a number of the ambulances to be used primarily for IFT transports and the rest of the ambulances to provide the primary services. When all the IFT designated ambulances are busy the region attempts to reschedule new requests or find other solutions.
- In Winnipeg stretcher cars are used to transport stable IFT patients. In areas adjacent to Winnipeg it might be feasible to have stretcher cars return the patient home. This would reduce the number of trips that a rural ambulance would have to make. This idea may first require an upgrade and an expansion to the current stretcher car services.
- Winnipeg also utilizes specialty teams for transport e.g. Neonatal Transport, Critical Care Transport. When transporting advanced or basic level escorts are often required.
- As reviewers we heard enthusiastic praise for the Southern Air Ambulance service. While this service was not in operation at the time of the interviews everyone hoped that it would be re-established as a permanent service (it has since been re-established). Depending on how it is operated this program could have a very beneficial impact on IFT transports in the southern areas of the province. Air transports are less stressful for patients, ambulances are returned to service more quickly and the stress on paramedics is reduced. This service would be even more effective if airplanes with multi-patient capacity were part of this program.
- Another idea that is receiving serious attention is the establishment of hub and spoke centres. This option was modeled and the results are outlined below in the section titled “Hub and Spoke.”

An area where we heard major complaints was around the whole issue of excessive wait times before a patient can be unloaded. Excessive delay is occurring particularly at HSC and St. Boniface Hospital. The hospitals have attempted various ways to solve this problem but so far without any real success. Any long term or permanent solution will, nevertheless, have to come from the hospital and acute care system itself. The EMS service can only offer temporary band aid suggestions. Since our Terms of Reference do not include a review of the acute care system as reviewers we are not in a position to propose any permanent or long term solutions for this problem. It needs to be urgently addressed, however, since excessive delays in unloading are having a detrimental impact on EMS.

In our discussions with the paramedics some suggestions were nevertheless made on how this issue might be addressed, at least, in the short term. These suggestions included establishing a separate holding centre in the hospital so patients could be unloaded more promptly and the ambulance and crew be put back in service more promptly. Another suggestion was that EMS or the hospital itself employ paramedics who would look after the patient while awaiting admission and/or assist the patient in completing their scheduled appointments. This would again allow the ambulance and crew to be put back into service with less delay. Any significant use of multi-patient transport units would require a high level of coordination and the streamlining of diagnostic and other medical appointments.

### ***Option of Creating Two Separate Services***

As part of the review we were asked to explore whether the IFT program should remain integrated with the primary EMS service or operate as a separate system. The reviewers explored this question in many different venues and with numerous EMS managers and paramedics. For discussion purposes we advanced some practical options. Conceptually it is possible to think of two separate systems. These separate systems could be operated as two parts of one regional EMS service or the IFT system could be separated from EMS at the provincial level. The design of each system would be determined by its primary purpose. In the case of IFT the primary purpose is to provide prearranged transportation to a designated location where additional medical or diagnostic service is to be provided. The transport provided by IFT involves both patients who are in need of critical care and patients who are stable and are unlikely to require any significant care during transport. A much higher percentage of IFT transports are for patients who are stable. Nevertheless the number of critical care patients being transported is substantial. These patients because of their care needs must be transported by ambulance which are staffed with appropriately trained paramedics. Typically this means Primary Care Paramedics or in some instances Intermediate Care Paramedics.

The question is now reduced to whether stable IFT patients can be managed by a separate transport system. Such an IFT system could utilize different kinds of vehicles and not necessarily fully equipped ambulances. In Winnipeg stretcher cars currently provide much of this transportation. If the system were properly coordinated multi-patient units could also be used. In regard to the medical crew it would be composed of staff with lesser qualifications. As an example the stretcher car service in Winnipeg uses staff trained in basic first aid. Quite likely this service would have a majority of staff trained at the EMR



level. The essential point is that the ambulance attendants in this new separate IFT system would not be as well qualified as the paramedics on the ambulance.

According to the EMS managers and paramedics with whom this option was tested the biggest shortcoming of this proposal to separate the two services was that it would leave the respective services without any backup capacity in peak periods. This would be particularly problematic for the primary care service since the separated IFT service would no longer use qualified paramedics but more likely EMRs. Additionally the IFT staff would have no experience in providing pre-hospital ambulance care. The IFT service could draw more easily from the primary service but in so doing it would use over qualified staff and partly defeat the purpose of separating the services.

As reviewers we did not project the cost of two separate systems but it is possible that two separate services would be as costly as the current single system. Separating the two services would also entail additional capital costs for the purchase of new and different vehicles. Having two services could also mean a separate management structure with all the additional costs that might go with that. There is also the risk that separating the two services could result in two weak services rather than in two strong services.

In the reviewers opinion there is more to be gained from implementing creative solutions at the local or regional level than there is to be gained from establishing two fully separated systems. These solutions can be tailored to the local reality. As an example new approaches may work in stations with high volumes of IFT transports but not be feasible in low volume situations. As already identified in this report new approaches are currently being tried by the RHAs. Hopefully as a result of this review other ideas and initiatives will be pursued.

### ***The Hub & Spoke Concept***

Inter-facility transports are a challenge in every community, if they are blended with emergency calls they remove valuable resources from the community that may be required to respond to the next emergency call. If they resource the inter-facility ambulances independently to the 911 services, it creates over resourcing of ambulances and drives costs up exponentially.

In Manitoba the challenge is that rural ambulance services are doing inter-facility transports that take a significant length of time. Even though MTCC and the RHAs take all available measures to provide as wide a range of services as possible, there are still times communities are without timely ambulance resources for significant periods.

Since additional resources are not always an option the best option is to limit the length of time that ambulances are away from their community. This can be achieved by intelligent staging; staging is the concept of transporting a leg of a total trip, handing off patients from one provider to another thus limiting the distance that each service is covering. The problem is this is not patient centric and is very

inefficient because a one for one relationship exists between the patient and transport median (one patient per ambulance).

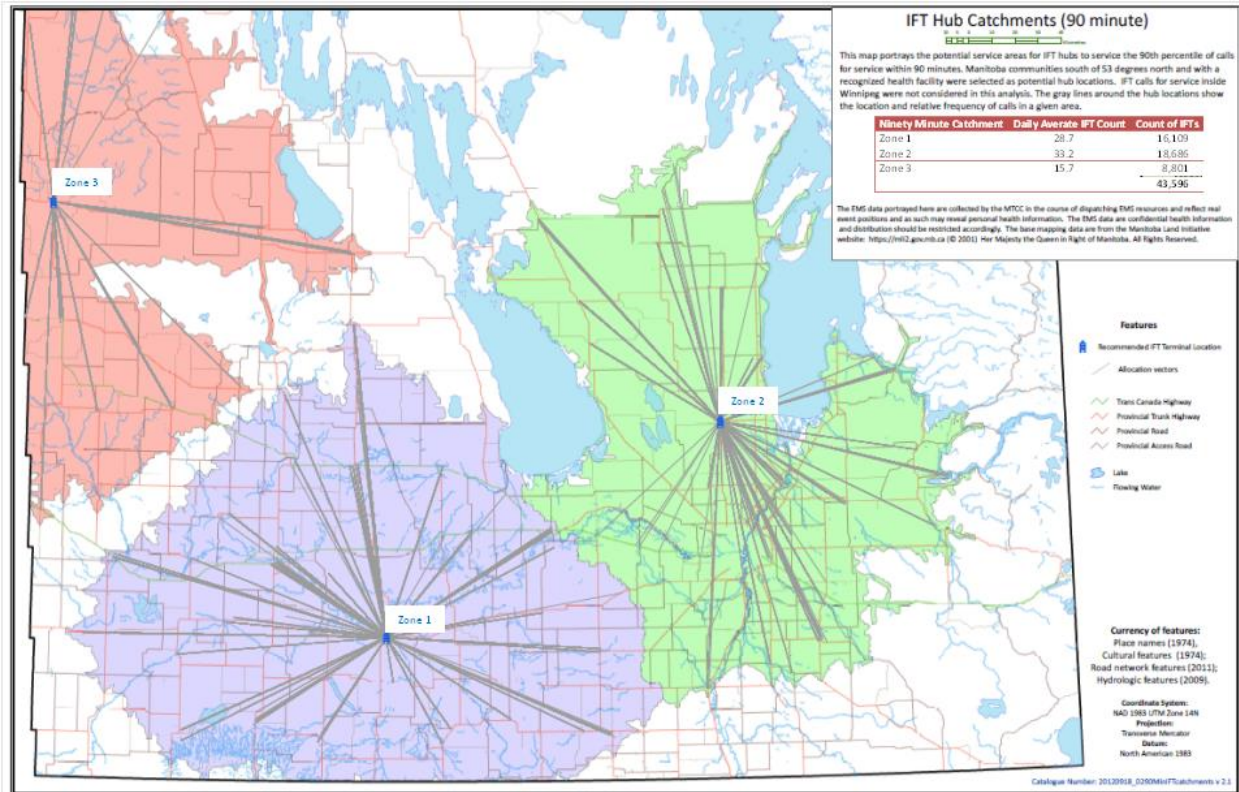
Learning from private sector transport agencies, the concept of collectors and communal transport is both dignified and cost effective. The concept is to transport patients to holding areas (called transport control) and then use a bus or multi-patient transport unit to transport from there to Winnipeg where most transports end. The same concept is done in the inverse, bus or other multi-patient transport median transports patients back to the holding area and ambulances from the region pick up the patients and bring them back to the originating facility.

In order for this modeling to work, two conditions must be met:

- The volume of transports needs to be sufficient so that a multi-patient unit can be used.
- The second condition is that the transports to the holding areas is not too far a distance to defeat the principle purpose of the model, which is to reduce the time ambulances are not available due to inter-facility transports.

Many models were tried but 90 minute polygons (transport times) were used 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 2: Interfacility Hub Catchments (90 minute)**



This model creates three distinct holding zones for patient transports. The inter-facility transports north of the 52<sup>nd</sup> parallel were not included in this model as they have an effective transport model.

**Figure 3: Recommended IFT Zones**

Ninety Minute Catchment	Daily Average IFT Count	Count of IFTs
Zone 1	28.7	16,109
Zone 2	33.2	18,686
Zone 3	15.7	8,801
		<b>43,596</b>

The 43,596 transports represent two years of data. They represent 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, those that are within two and half hour driving distance to Winnipeg and the one that is more than four hours.

**Model One (Ground Transport)**

Ambulances will pick up patients at smaller hospitals and other locations, then they will drive and drop off the patients to transport control in either Zone 1 or Zone 2 (the actual locations will be determined by the working committee), the maximum ambulance transport time is 90 minutes. Transport control is a holding room with at least 10 beds in a hospital that would be staffed by a single paramedic that is there to watch and coordinate transports with MTCC. 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 the patients into Winnipeg and drop the patients at the different hospitals in Winnipeg for treatment or diagnostics. The returns would be coordinated in the same way, with the transport Bus or multi-patient unit picking up the patients in Winnipeg and then transporting to the holding facility in Zone 1 or Zone 2. MTCC would coordinate the transports back to the originating hospitals with the appropriate ambulance service.

**Model Two (Air Transport)**

Now that Southern Air Ambulance is flying again it requires maximum coordination to ensure that the system is as efficient as possible. Air transport is very expensive and the only way to reduce the cost is to have as many multi-patient transports as possible. Thus the ambulances would transport the patients to Zone 3 transport control (see above) and MTCC would coordinate multi-patient movement to the plane, on arrival to Winnipeg, MTCC and WFPS dispatch would have to coordinate the movements from the plane to the Winnipeg hospitals. The inverse would be done the same way. This model requires a significant amount of coordination between the two dispatch centres and transport control.

Both models if done correctly can reduce costs and increase patient satisfaction. Patient centric models require careful planning and high levels of coordination. The current operating expenditures for inter-facility transports are higher than expected and may be reduced if this program is well coordinated.

### ***Specific Recommendations – IFT***

29. Maintain integrated approach to provision of IFT on a province-wide basis. However, Emergency cut-off levels must be clearly established so that primary system (emergency) response capacity is not compromised.
30. Centralize/enhance accountability for transport coordination with MTCC.
31. Utilize multi-load vehicles (air and ground) for the provision of these services when practical.
32. Further explore development of a Hub and Spoke transport system appropriately using both air and ground resources.
33. Review the transportation authorization policy including a review of the Inter-facility Transport Checklist. Should more diagnostic information be required on the Checklist?
34. Further explore the development of a central control point to provide preauthorization for all IFT transports.
35. Explore the possibility of Winnipeg stretcher cars returning patients home in areas adjacent to Winnipeg after discharge from hospital.
36. SAAP include multi-aircraft capacity as part of its ongoing IFT service.

## ***ABILITY TO MANAGE LAND, AIR & IFT SERVICE IS DEPENDENT ON DATA***

### ***Key Accomplishments & Current Situation***

What is lacking in the EMS program is any centralized collection of management information or of patient care information. There are two areas, however, where reliable data is consistently collected. MTCC through the CAD collects accurate and extensive information on the dispatch process. WFPS through its CAD also collects complete information on the dispatch process. WFPS also maintains an effective Electronic Patient Care Record. Until approximately six years ago EMS maintained a basic electronic patient care record. However, that program was found to be inadequate and was discontinued without any other patient care record program put in its place. Currently the regions are manually maintaining selective patient care information but none of this information is centrally collected nor is this information available in real time.

The primary source for management information is the operational plan which must be completed annually by the RHAs and SPA operators. None of this information is stored electronically and the EMS branch only receives a hard copy of the information. Since there are variations in how the operational plans are completed by the different operators the information is not always consistent or entirely reliable and is not easily used for comparative purposes. One of the challenges of the review was the lack of consistent and reliable information centrally available. There is also no central collection of financial information. While Manitoba Health has a record of the funding provided to the different parts of the EMS program it does not maintain a central record of the user fee income collected by the operators. As a consequence the EMS system does not have a complete and accurate record of all revenue and expenditures. In order to develop as complete a financial picture as possible the reviewers were required to piece together information from many different sources e.g. Manitoba Health, RHAs,

SPA operators etc. Where complete and accurate information was not available the reviewers had to work with estimates.

### ***What Needs to be Accomplished***

What is urgently required is the development of an Electronic Patient Care Record (EPCR) for rural and northern Manitoba and a Management Information System (MIS). WFPS is prepared to roll out their EPCR in the rest of the province. If a new provincial EMS entity is to be effective it will require electronic access to good information on all parts of EMS.

### ***Specific Recommendations***

37. Establish province-wide standard data set, using EPCR capable of integrating EMS with other Health Information.
38. Consider utilizing/extending the WFPS platform with full transparency and availability to the province.

## ***USER FEES***

### ***Key Accomplishments & Current Situation***

There is no pattern or system to the user fees being charged across the province. The RHAs and SPAs have their various rates and the Basic Air carriers have their different rates. In the case of the rural RHAs and SPAs they have a base rate of varying amounts for primary calls and a base IFT rate that also varies among the providers. The RHA/SPA base rate ranges from a low of \$250 to a high of \$530. Nine of the RHA/SPAs have a base rate between \$200 and \$300. The IFT base rate for a transfer in the region ranges from a low of \$150 to a high of \$435. In the case of an IFT transfer to a facility outside the region and more specifically to Winnipeg the base rate varies again – in one RHA it is \$1,054 and in another \$1,175.

After the base rate come the surcharges. In total there are 9 categories of surcharges including: ALS surcharge, out of province surcharge, out of community surcharge, treat – no transport surcharge, cancelled call surcharge, waiting time surcharge, refusal surcharge and finally an event standby surcharge. These additional surcharges may substantially increase the cost of an ambulance transport. It is essentially impossible to establish a single rate for an RHA/SPA – it all depends. In regard to WFPS it has a regional rate and a basic rate. The regional rate, subsidized by the province, is \$479 and the basic rate, not subsidized by the province, is \$767. WFPS also has a subsidized regional rate and a basic rate for a situation in which the paramedics have provided treatment but there is no transport service. And then there is the stretcher car rate which is \$130 plus the possibility for additional minimal surcharges.

The six companies that provide Basic Air ambulance services have their own rate structure. The potential rate/charge is calculated on the basis of 12 surcharge categories: basic rate per stat mile, fuel, short leg fee, landing fees, Nav/airport fees, ground support, including deicing, 2<sup>nd</sup> RN charge, MD charge, charges for meds, crew expenses/ taxis, hangar fees, holding fees and finally minimums. The

amount of each surcharge varies between carriers and no carriers charges each of the surcharges. Again it is impossible to reduce this to a single rate for each carrier.

In the same way that the rates vary from RHA/SPA to RHA/SPA so does the amount raised from user fees vary between providers. According to available financial information it is estimated that approximately a third of total annual revenue comes from user fees. In this estimate the term “User Fees” includes payment from Manitoba patients/customers, payment from the Federal Government, payment from Manitoba Agencies, payment from LifeFlight, payment from non-Manitoban patients and finally payment from other sources. If the analysis is restricted to payment from Manitoba patients/customers only it is estimated that approximately one-fifth of the total revenue may come from this source.

When comparing the amount of revenue coming from user fees in the different RHA/SPAs it is apparent that there is a wide variance. There is a similar variance if the analysis is restricted to payment coming from Manitoba patients/customers only. In the case of the fire/paramedic services in Winnipeg, Brandon and Thompson typically a greater percentage of the total revenue is generated from user fees. It should also be noted that typically patients/customers do not have to pay any ambulance charges in First Nations communities. The primary revenue source to cover these costs is the First Nation and Inuit Health Branch.

Generally the user fee rate is strongly influenced by budget requirements. The revenue from this source is often used as a budget “balancer”. The RHA/SPAs know what revenue it will get from other sources, specifically from Manitoba Health, and then sets the user fee rate in order to meet its budget. The second factor that influences the rate is what the public will tolerate. The WFPS situation is somewhat different. It follows a 50/25/25 formula in establishing its revenue and budget. Fifty percent of total revenue is to come from user fees, 25% from the WRHA, and 25% from the City of Winnipeg. On this basis after their budget has been set they attempt to ensure that revenue from user fees will equal fifty percent of the budget. It should be noted that IFT rates are reimbursed in full by Manitoba Health. The above formula applies only to primary EMS services.

What is very apparent is that the current rate structure is very complex and that users of the service pay different rates in different parts of the province. At least from the users’ perspective this would hardly seem fair. It is also a challenge to operate this rate structure in an effective and cost efficient manner. It should be noted that historically it has been entirely up to the RHA/SPA to set the rate. There was limited effort made to provide central guidance or control over the base rates or the various surcharges.

In undertaking the review the reviewers were informed that at this time Manitoba Health did not plan to move to a fully government funded EMS service. There will continue to be private/user participation in paying for the service.

### ***What Needs to be Accomplished***

The obvious question is whether the current complex rate structure can be fixed/modified so that it is fairer for all provincial residents and that the collection of the user fee can be managed in a more cost efficient manner. We were informed that the present arrangement, where it is up to each RHA/SPA to collect payment, is not capturing all the revenue. It is likely that if collection were taken over by a central office much of the cost of setting up and staffing this office could be covered from a more efficient system that captured those fees that are now being lost.

It is straightforward to calculate the amount of revenue that must be generated by a revised rate structure. According to the best financial information available the total annual revenue generated by the Provincial EMS system in 2010/11 is approximately \$93m. Out of total revenue the base funding amounts to approximately \$60m and revenue generated from user fees amounts to approximately \$32m. Further, out of the user fee revenue approximately \$20m came from Manitoba patients /customers. It is particularly this latter amount that is paid by the patient or their insurer and must be recovered. The remainder of the user fees come from payments by the Federal government and payment from Manitoba agencies and minor other sources. Since it is actual patient transports that generate user fees, and not dispatches, the amount to be recovered is the user fees generated by ambulance transports divided by the number of transports.

Since in the reviewers opinion there is no way of “fixing” the current user fee structure a new simpler and uniform rate structure should be established.

### ***Specific Recommendations***

39. Develop a simpler and more uniform user fee system for the province. Eliminate all surcharges.
40. Transfer the responsibility for setting rates and collecting user fee revenue to a new provincial EMS entity.
41. Until the new central collection system is in place require central approval for any user fee rate changes.
42. Review the current policy of allowing RHAs and SPAs to set their own IFT rate and billing Manitoba Health accordingly

# **CUSTOMER ACCOUNTABILITY**

## ***BEST PRACTICES***

In an optimal system, a single lead agency is statutorily charged with the comprehensive leadership, development, and regulation of the Emergency Medical Services System. It has developed the system based on an accountable system of clinical care and operational processes and has the authority and funding to lead these efforts

At the operations level, community and customer accountability involves developing administrative processes to ensure that patient and community (external) concerns are addressed in a timely fashion. Internal customer (employee) issues are routinely benchmarked and addressed in a timely fashion. The system participates with, and is responsive to, a wide variety of community stakeholders.

## ***KEY ACCOMPLISHMENTS & CURRENT SITUATION***

Currently there is no consistent reporting to the public on EMS nor is there any other form of public accountability. Media releases are provided at the time of major announcements. These typically describe the provision of additional funds for EMS, purchase of new ambulances, upgrading or building new ambulance stations or the purchase of equipment. On these occasions a summary of prior activity is frequently included.

## ***WHAT NEEDS TO BE ACCOMPLISHED***

Public accountability should be an essential part of a quality Manitoba EMS service. This should include the systematic reporting of EMS system performance standards and benchmarks for rural and urban Manitoba. Performance metrics for the system and individual service providers should be measured monthly and made available on the Internet/Website to facilitate transparency. Public accountability is further amplified in the governance section of the report.

## ***SPECIFIC RECOMMENDATIONS***

43. Report compliance to density specific response time targets.
44. Publish response times electronically within 15 days of the completion of each months reporting period.



# PREVENTION & COMMUNITY ENGAGEMENT

## ***BEST PRACTICES***

In best practice systems, consumers expect seamless integration throughout the continuum of healthcare: From prevention and primary care initiatives through first responders and EMS systems through emergency departments, hospital admission, and discharge. To the maximum extent possible, the EMS system should facilitate that goal.

Collaboration exists between the EMS system and public health leaders to complete emergent illness/injury risk assessments. The system works with public health authorities to identify emergent illness/injury at-risk populations. In addition to risk assessments for age and cultural/ethnic cohorts, geographic distribution of emergent illness/injury within the EMS system have been analyzed.

EMS system leaders are engaging policy makers in discussions about emergent illness/injury prevention and EMS. Examples are evident of media awareness and media messaging targeted at emergent illness/injury prevention activities. The EMS lead agency has developed or adopted a community outreach informed self-determination program to help communities determine the type of local EMS system and level of public cost they prefer.

The EMS lead agency routinely distributes public information education and relations (PIER) support. This program includes not only raising the profile of the agency and emergency illness/injury prevention efforts in the community, but enables agency leaders to explore opportunities to become involved in directly meeting preventive health, primary care and other needs in the community in order to strengthen the clinical base and response capabilities of the agency.

## ***KEY ACCOMPLISHMENTS & CURRENT SITUATION***

In our discussion with different groups of paramedics in different stations across the province we heard numerous examples of how paramedics are using their skills in different settings. Generally these were examples of how they were using their skills in the hospital setting. The paramedic would help out a nurse in the Emergency Department or on the ward who was being run off her feet. Typically this assistance was provided informally when they had time and was offered as the result of good personal working relationships. To the reviewers it felt like it was friends helping out friends. At the present time there are no provincially approved policies or procedures in place to make this expansion of the paramedic role a formal part of the EMS system or of the paramedics practice.

In the reviewers meetings with small groups of paramedics the expansion of their role to new settings became a frequent topic of discussion. While there was some understanding by the paramedics of how they might use their skill set in new environments it was clear that by and large paramedics saw their primary role being that of a paramedic providing pre-hospital services as part of the ambulance

transport function. Generally they looked positively on the possibility of an enlarged role for paramedics sometime in the future. For now they were focused on the present with all its challenges.

Similar to the above situation at this time community paramedicine is not part of the Manitoba EMS system. As we discovered in our discussions with groups of paramedics they might have an academic interest in this topic but they did not see it applying to their current reality. At the same time there were those paramedics that were excited by the possibility of enlarging their role of practice in the future to include community paramedicine.

While we did not come across any rural examples there is, however, an example of a community-based paramedic project in Winnipeg. This project entitled “Impact of a Novel Community-Based Paramedic Program on the Care of Intoxicated Persons” evaluated the impact of the implementation of a paramedic specialized in the medical clearance of intoxicated persons at a community based intoxication centre. The role of the expanded scope paramedic was to differentiate complicated from uncomplicated patients and provide an appropriate level of care. The study findings indicated that the specialized on site paramedic at an urban intoxication facility resulted in decreased EMS transports from the facility and a significant cost saving.

## ***WHAT NEEDS TO BE ACCOMPLISHED***

Continuing to utilize EMS as a “response agency” does not optimize the significant number of hours that are already funded that can be optimally utilized for prevention, education and risk mitigation. Other Provinces in Canada and EMS systems in the United States have developed strong linkages to utilize the “sunk cost” of personnel awaiting an emergency response to routinely be engaged in prevention activities. One of the successful programs is in Nova Scotia. The following is an overview of programs utilized in Nova Scotia.

### ***Extended Care Paramedic (ECP)***

There are currently 19 licensed nursing homes, including 2,135 beds within the Capital District Health Authority (CDHA) as well as 15 assisted living facilities. These facilities employ in-house health care professionals, such as registered nurses. However, their ability to provide on-scene treatment is limited. There is a large concentration of nursing homes located within the CDHA from which a high number of EHS calls originate.

A review of this data indicated that many of these transports involved routine transfers for non-emergency procedures. This can lead to lengthy and uncomfortable waits at the emergency department, significantly impacting these older and often frail patients. A review of EHS data indicated that many of these calls involved transfers to hospital for non-emergency procedures when treatment could have been provided within the comfort and familiarity of the nursing home. In response to this situation, an innovative initiative was developed to deliver timely, enhanced non-emergency and emergency medical services in nursing homes at the patient’s bedside – the Extended Care Paramedic program.

Partners for this program are Emergency Health Services, the Capital District Health Authority and Care by Design, an integrated long-term care physician network.

The program involved a small team of Advanced Care Paramedics (ACP's) who were assigned to a unique ECP role in the nursing home. These ECP's received specialized training tailored to the needs of nursing home patients. This included geriatric assessment and management and other advanced skills such as suturing. Sixteen nursing homes in the Halifax area participated. The ECP unit (non-transporting vehicle) at the nursing home was staffed with a single paramedic on duty seven days per week from 0900 to 2100.

In collaboration with the CDHA Care by Design physician group, a dedicated EHS Medical Oversight Physician was assigned to support and help coordinate necessary treatments or transports. The program includes response to appropriate non-emergency calls as well as regularly scheduled visits for patients with chronic health conditions.

The ECP does not participate as a regular paramedic unit, available for emergency calls. However, it may render assistance to crews as required, provided they are close by and their assistance deemed valuable.

### ***Collaborative Emergency Centre (CEC)***

CEC's have created a transition from separately functioning primary care clinics and emergency/outpatient departments to an integrated, single entry, open access model designed to meet the emergency and primary health care needs of the population.

As part of the provincial government's "Better Care Sooner" plan, CEC's match the level of services to the needs of the community served.

CEC sites have been selected based on input from communities and where the need and interest are greatest. Pertinent DHA's will work in collaboration with EHS to provide night time coverage. Currently, there are five CEC's in operation since July 27, 2011.

There is an estimated six additional CEC's to open within the next year in the province. Clinical configurations will vary based on the needs of the individual communities. Paramedics work collaboratively with nurses to provide patient care, assessment and follow-up under the direction of a Medical Control Physician.

There are several possible dispositions for patient of these CEC's; discharge home, discharge home with follow-up, hold and signed over to an oncoming physician, or transferred out to a higher level of care.

### ***VISIT (Vitals, Interview, Safety, Inspection, and Treatment)***

The Annapolis Valley District Health Authority (AVDHA) estimates that, at any given time, there are approximately 25-35 individuals in hospital awaiting alternate level of care (ALC) placement, which limits the District's acute care capacity and results in a number of 'potentially at-risk' seniors remaining in homes while awaiting either hospital or ALC placement.

In response to this situation, AVDHA established a support program for seniors living in the community called Seniors LINC'S (Living Independently with Community Supports). This small, specialized team of health professionals supports seniors, their families and caregivers within the community.

Seniors LINC'S has identified EHS as a core partner in the identification and referral of 'at risk' seniors in the community, and to provide follow-up visits to seniors in their homes to check on their overall ongoing health status.

The VISIT program will utilize the existing paramedic scope of practice to check vital signs, conduct minor treatment regimes, and provide a general overview of household safety.

The VISIT program is a collaborative effort of EHS and the AVDHA. It is currently in the development stage with launch date estimated for September 2012.

### ***SPECIFIC RECOMMENDATIONS***

45. Develop time defined outcome oriented prevention goals that are measurable.
46. As the Manitoba system evolves, transition the system's culture from that of response to prevention.
47. Implement targeted pilot projects to determine the optimal value point for the use of paramedic personnel in community health improvement initiatives.
48. Develop curriculum components to integrate this role into the foundational educational programming within the province.

# EDUCATION & PROGRAM DEVELOPMENT

## ***BEST PRACTICE***

Education programs for physician extenders are designed to meet the cognitive critical thinking and practical skills commensurate with the roles established by the OMD. Programs are designed to encourage portability and reciprocity. Programming is modular in nature and can be used as building blocks in developing an expanded healthcare career. To the maximum extent possible, didactic training needs to be available “in place” via video or tele-classes.

Operational and clinical data is used to guide the decision process. Comprehensive annual reports on the status of the EMS education system, including the effectiveness of all subsystems routinely report information system data and performance measures. A structured performance/quality improvement (QI) system exists and addresses administrative as well as clinical education issues. The EMS lead agency maintains clear procedures for enforcing personnel compliance with laws, regulations, and policies pertaining to provider licensure/certification.

## ***KEY ACCOMPLISHMENTS & CURRENT SITUATION***

In our visits to different ambulance stations our discussion with paramedics typically included the topic of the development of the profession. In response to a reviewer’s question many of the paramedics stated that the reason they wore a uniform was to look professional. The other reason frequently stated was so that they would be easily identifiable. The other topic that came up frequently was the question of education for paramedics. Where should this education be provided – by an educational institute or by the EMS service itself? There was broad agreement that the education should take place at an educational institute. It was felt that this was essential in order to be recognized as a full profession. We also heard frequent comments that they didn’t feel fully accepted as a professional by other health professionals.

Many, if not most, of the paramedics were aware that the Paramedics Association of Manitoba had made application to become a self-regulated profession. While in many cases the paramedics didn’t know what all was entailed they nevertheless felt that this was an important step to being recognized as a profession and consequently were in favour of such a move.

As mentioned PAM has made application to become a self-regulated profession under *The Regulated Health Professions Act*. They have received letters of endorsement from a number other self-regulated health professions, including the College of Physicians and Surgeons of Manitoba and the College of Registered Nurses of Manitoba. The application process will still take some time to complete before a formal decision will be made on their application. The United Fire Fighters of Winnipeg, however, have come out publicly in opposition to paramedics becoming a self-regulated profession. This union also

represents cross trained fire/paramedics who are employed as fire/paramedics in Winnipeg, Thompson and Brandon.

Paramedics are part of very young profession. In the late 1990's EMS became the responsibility of the newly formed regional health authorities. Until that point the providing of ambulance services was generally a municipal responsibility. This service was typically provided by volunteers who were often volunteer firefighters. Generally they only had basic first aid training. When the RHAs took over EMS they progressively developed it into a pre-hospital service and with that came the requirement for more training. Initially the training required was increased to the emergency medical responder (EMR) level.

Over time this was replaced with the requirement for paramedics to be trained/educated as Primary Care Paramedics (PCP). The RHAs then on their own created a new category of paramedic called Intermediate Care Paramedics. ICPs have an enlarged scope of practice and are able to respond to more complex cases. Over time more than 200 PCPs have been trained as ICPs by the RHAs. ICPs are not an officially approved category of paramedics so this training is only offered by the RHAs. Finally, Advanced Care Paramedics (ACP) were added to the system. Currently most ACPs are employed by WFPS in its EMS division. At the present time ACP is the highest level of paramedic training available in the Province. It is generally accepted that PCP should be the entry level to EMS service.

**Table 3: Number of Graduates that Became Licensed Between 2009 & October 2012**

	EMR	PCP	ACP	PCP Graduates 2011
Red River College	5	101	0	34
ARHA	79	0	0	0
MESC	82	100	0	37—cross trained
Criti Care	24	205	0	54
SMART	88	0	0	0
WFPS bridge	0	21	49	0
Total	278	427	49	125

There are currently a range of education programs available in Manitoba for the training of paramedics. See Table 3: Number of Graduates that Became Licensed Between 2009 & October 2012. There are currently six educational programs that train paramedics. They are Red River College, Assiniboine Regional Health Authority, Manitoba Emergency Services College, Criti Care, SMART and Winnipeg Fire and Paramedic Services. RRC, ARHA, Criti Care and SMART since 2009 have trained 278 EMRs. RRC, MESC and Criti Care for that same period have trained 406 PCPs. During that same period WFPS provided bridge training for 21 PCPs. The MESC program only offers cross training for fire/paramedics. Criti Care does not cross train but offers separate programs for firefighters and for paramedics. All of the above education programs are CMA accredited.

The EMS Branch continues to oversee the licensing and competency requirements for all paramedics. These are functions that would typically be the responsibility of the profession if it was self-regulated.

Effective at the end of June of this year The Canadian Organization of Paramedic Regulators offered the first national certification examinations for the paramedic profession in Canada. A national examination is a major step forward in the evolution of a profession and aligns paramedics with other health professions such as physicians, nurses, dentists and physiotherapists. All Manitoba PCPs and ACPs must take this National Registry Examination before they can be licensed. The EMS Branch is responsible for administering the examination process leading to Licensing as an EMR, PCP, ACP, Aeromedical Attendant, Air Ambulance Pilot and Stretcher Attendant.

As per the *Land Emergency Medical Response System Regulation* paramedics are required to complete either a relicensing examination or participate in an ongoing alternate skills maintenance and education process. The Alternate Route to Maintenance of License (ARML) program was initiated in 2006 to address the shortfall of an exam-only option as the method of demonstrating competence to practice. As of 2006 the majority of paramedic practitioners have selected the ARML program as the method of maintaining their license. Paramedics are issued a new license every three years by the paramedic regulator, if they are in compliance with the regulations. The EMS Branch is responsible for administering this program.

## ***WHAT NEEDS TO BE ACCOMPLISHED***

Manitoba Health is committed to the long term goal of having paramedic education provided in a college or university setting. With this goal in mind Manitoba Health approached RRC with the request that RRC prepare a proposal to expand its paramedic education offerings. The preliminary thinking of the RRC program leadership includes the following possibilities. The PCP training would be lengthened and upgraded to a diploma level program. The Advanced Care Paramedic training would be built on the PCP program and possibly involve an additional two years of training. This could be followed by the development of a Community Paramedic program. And the finally a Paramedic Leadership degree program could also be developed. RRC is currently in the process of completing an environmental scan out of which will come their proposal to Manitoba Health.

In 2011 the above educational programs graduated 57 EMRs, 125 PCPs, of which 37 were cross trained fire/paramedics, and 12 ACPs. During this same year there was significant turnover of paramedics as well as additional staff being added. The new hires by the regions included 25 EMRs and 72 PCPs. If the cross trained fire/paramedic PCPs graduates are removed from the count there were 88 new PCP graduates in 2011 and 72 new PCPs were employed. This represents a net gain of 16 PCP positions added to the EMS services.

At the current time 305 EMRs are employed by the various service providers. These positions are mainly filled with part time on-call staff. On the assumption that primary care paramedics will be the EMS entry level there is currently an undetermined number of PCPs required by the system.

The above information clearly indicates that all the current educational programs will be required for the foreseeable future. Also the current programs will need to enroll more students to meet the

demand for PCPs and/or new educational programs will need to be established. There may also be an upgrading of the current ICPs to ACPs over an extended period of time. As indicated in an earlier section of the report as many as 430 new PCPs will be required in order to move to an ambulance transport system staffed by PCPs. To achieve this personnel target could take as long as ten years even if all goes well.

## ***SPECIFIC RECOMMENDATIONS***

49. Establish train in place bridge programming to facilitate development of existing EMR personnel to the PCP level.
50. If there is to be a self-regulated College of Paramedics, it must address the diverse needs of multi-task or multi-career personnel.
51. All paramedics should be educated or certified in affiliation with a college or university institution.
52. For the foreseeable future all the current paramedic education programs should continue in order to meet the demand for PCPs either entry level or upgrade of EMRs



# ORGANIZATION & LEADERSHIP

## ***BEST PRACTICES***

In best practice systems, the lead agency is charged with the comprehensive leadership, development and regulation of the Emergency Medical Service System.

Organizational governance, structure, and relationships are well defined. Human resources are developed and otherwise valued. Internal processes are designed to facilitate achievement of performance with due regard for effective development, involvement and motivation of personnel at multiple levels within the organization.

Agency leaders have established measurable program goals and outcome-based, time-specific, quantifiable, and measurable objectives that guide system effectiveness and system performance. Clinical outcomes and patient experience are clear drivers in the organization. Business planning and measurement processes are defined and utilized. An internal or external examination of the EMS including a performance and needs assessment is performed every three to five years.

Operational and clinical data is used to guide the decision process. Comprehensive annual reports on the status of the EMS system, including the effectiveness of all subsystems routinely report information system data and performance measures. A structured performance/quality improvement (QI) system exists and addresses administrative as well as clinical issues. The EMS lead agency maintains clear procedures for enforcing personnel compliance with laws, regulations, and policies pertaining to provider licensure/certification.

## ***KEY ACCOMPLISHMENTS & CURRENT SITUATION***

The review findings clearly indicate that currently there is not an integrated, coordinated and seamless EMS system. To the contrary the EMS program is fragmented, lacking in both provincial coordination and professional oversight. There are also considerable differences between the services provided in Winnipeg and the EMS services that the RHAs are able to deliver in rural and northern Manitoba.

In order to achieve a more integrated and seamless service there will need to be significant changes made in how the EMS program is structured provincially. The current EMS program as a “patchwork quilt” will have to change. What is required to achieve a more uniform and consistent provincial EMS program is a provincial EMS organization that will provide program oversight, set performance standards, coordinate/manage all EMS service delivery and provide continuous monitoring of the EMS system.

Overtime Manitoba Health has developed a number of provincially operated health programs. These programs include Diagnostic Services of Manitoba (DSM), Regional Health Authorities of Manitoba

(RHAM) and other smaller programs such as E-Health, Provincial Dialysis Program, and Community Cancer Care. E-Health and the Dialysis Program are coordinated by WRHA on a province-wide basis. In this report we want to examine two of the programs in a little more depth since they may have particular relevance to this review.

RHAM was established as a non-profit corporation at the time of the creation of the RHAs. Its purpose was to provide a legal structure through which the RHAs could operate shared programs and enter into contracts. The board is composed of the Regional Health Authority CEOs. RHAM continues as a modest organization operating a select number of shared programs. This includes a regional purchasing program as well as providing an organizational home for MTCC.

RHAM has some distinct limitations that would need to be addressed if the provincial EMS program were to become part of the RHAM organization. The board does not have the composition required for overseeing this provincial program. It has a very strong regional orientation. Secondly, EMS is a very large and complex program and could potentially overwhelm the administrative capacity of RHAM. The reviewers are of the opinion that unless RHAM underwent major change it would not provide a suitable home for a new provincial EMS entity.

DSM was established six years ago to assume responsibility for delivering all laboratory and imaging services across the province (with some exceptions in Winnipeg). These services remain part of the total services delivered by the hospitals while the hospitals continue to be operated by the RHA. All the laboratory and diagnostic staff were transferred from the RHAs to DSM. Manitoba Health continued to flow all the lab and diagnostic funding to the RHAs and DSM in turn invoiced the RHAs for service provided. DSM established a full-fledged corporate office with four divisions: operations, human resources, finances/IT and program and medical oversight. The programs themselves were transferred from the RHAs to DSM in phases over a four to five year period.

DSM has had its own organizational challenges. It has been a challenge to create an effective working relationship between DSM and the RHAs. The lack of an effective working relationship has, at least on occasion, made it more difficult to solve operational issues that arise between the RHAs and DSM. Significant governance issues developed in the first 5 years resulting in the restructuring of the board. The board membership was changed from the RHA CEOs constituting the membership to a much more diverse membership with no direct CEO representation. Concern has been expressed in some quarters about the large corporate structure that has been developed by DSM.

## ***WHAT NEEDS TO BE ACCOMPLISHED***

As has already been mentioned the current program is highly fragmented with little provincial coordination and professional oversight. That will have to change in order for an EMS system to develop that offers more integrated and responsive service. As reviewers we are presenting two possible approaches for achieving this. The two approaches are complementary with both having the objective of creating a province-wide EMS system.

## ***Create a Non-profit Organization***

The Minister of Health would establish a non-profit organization (Manitoba Emergency Medical Services – MEMS). The general purpose of this organization would be to operate and/or have oversight of all emergency medical services across the province.

### **Board Composition**

All the board members would be appointed by the Minister of Health. The Chair, who preferably should not be a Manitoba Health employee, would also be appointed by the Minister. The board would be composed of 7 to 9 members. The members should bring a range of skills and experience including members with experience in the delivery of land and air ambulance services.

### **Service Agreement & Strategic & Operational Plans**

MEMS would enter into a Service Agreement with Manitoba Health. This Agreement would outline responsibilities, deliverables, performance requirements and the funding to be provided by Manitoba Health. MEMS would provide Manitoba Health with a 3-5 year Strategic Plan and an annual Operational Plan.

### **Finances & Funding**

MEMS would receive and manage all the funding and resources that are part of the EMS revenue stream. In turn MEMS would be responsible for operating and/or funding all the EMS services from within the available resources. The billing for all user fees would either be directly managed by MEMS or contracted with another body.

### **Employment of Staff**

There are two options: the RHA EMS staff are transferred to the employ of MEMS, or secondly the EMS staff remain employed by the RHA and are seconded to MEMS. Both of these options have their limitations. Only a portion of EMS related staff could be transferred since all of air ambulance services are contracted and cross trained fire/paramedics could not be transferred. In the second option the accountability lines might be confused. On balance we as reviewers lean towards the second option.

### **Organizational Structure**

The board would appoint a Chief Executive Officer to manage and provide leadership for the total EMS operation. The CEO would oversee the operation of the following three divisions.

- **Office of Medical Director** – This office would provide medical oversight for the whole province and ensure consistency in the transfer of functions and protocols. The purpose and organization of this division is outlined in the Medical Accountability and Oversight section of this report.
- **Support and Licensing Division** – All of the current EMS Branch support functions would be transferred to this division. Staff would continue in their current positions. Any operational programs would be transferred to the Operations Division. This division would assume responsibility for all IT and data collection programs, for organizing the user fee collection, for

recording/tracking all revenue and expenditures including budget preparation and the annual audit and limited HR functions.

- **Operations Division** – This division would be responsible for managing/overseeing the delivery of all EMS services including land and air ambulance services and the MFR program. This division would be responsible for managing the performance contracts or Service Purchase Agreements that all service providers would enter into with MEMS. Under a Service Purchase Agreement the new RHAs would be responsible for the day to day operation of the land ambulance program and MFR services. A regional EMS manager reporting to MEMS would be responsible for managing all EMS services in their region. The current SPA that RHAM has with Manitoba Health on behalf of MTCC should become an SPA between MTCC and MEMS.

The staffing requirements for MEMS should be primarily met from current staff positions or by the secondment of staff from the RHAs and Manitoba Health.

### ***Establish an EMS Review Task Force***

The Review Task Force (RTF) would serve a two-fold purpose. First, develop detailed plans for the implementation of the recommendations, lead the implementation and oversee the ongoing management of these initiatives. Secondly, review organizational options and then recommend an ongoing organizational structure for the provincial EMS program.

### **Composition and Role of the Membership**

RTF would be composed of 7 to 9 members appointed by the Deputy Minister of Health. The members would be currently active in the EMS program and bring a wide range of skills and experience. The membership should include the A/Director of Emergency Medical Services, Executive Director, Health Emergency Management, two regional EMS managers (one from rural/northern Manitoba and one from Winnipeg), one representative from air ambulance, Provincial EMS Medical Director or designate, a representative from the paramedic education programs and a front line paramedic. The above members could decide to add one or two members to fill a specific need.

The appointed members would constitute an executive committee with overall responsibility for leading the work of the RTF. These permanent members should be appointed long term and there should not be rotation in the membership. The members must be given sufficient time and support to fulfill their responsibilities. The RFP is an operational body and the members will be active in planning, implementation and managing. They may also head up Work Teams.

The chair should be appointed by the Deputy Minister and would not be one of the members identified above. An “external” appointment may be considered. The chair should be a “working chair” who would play an active role in the work of the RTF.

### **Accountability**

The RTF, through the chair, would report to and be accountable to the Deputy Minister. On a day to day basis the reporting may occur through the Assistant Deputy Minister of Regional Policies and Programs.

### **Work Teams**

Most of the tasks may be assigned to specific Work Teams. The members of the Work Teams would be appointed by the RTF members and would be selected for their expertise and experience on specific topics. The Work Teams would be accountable to the RTF members. When their work is done the Work Teams would be disbanded.

The specific assignments for the Work Teams would be drawn from the Review Report. They would include establishing an OMD, addressing dispatch issues, preparing an RFP for Basic Air Ambulance carriers, completing performance contracts for all service providers, reviewing and proposing a uniform user fee, developing a plan for the consolidation of EMS stations, developing a plan for the training of paramedics etc.

### **Administrative and Staff Support**

RTF would work primarily with internal resources. These internal resources include the staff in the EMS Branch, the Provincial EMS Medical Director and the Medical Directors currently under contract. Additionally, as a result of the RHA mergers there could be some former EMS managers and trainers available for secondment. Any other resources required by the RTF should come primarily by secondment from the RHAs or Manitoba Health.

A well organized and well run RTF should be effective in the short term and possibly even in the intermediate term. However, for the long term a more permanent structure will be required. As already mentioned, the RTF has a second major assignment and that is to review possible organizational options and develop its preferred option for a long term EMS organizational structure for consideration by Manitoba Health and the primary EMS stakeholders and partners. While the reviewers are including a long term organizational option in this report this should not limit the work of the RTF.

## ***SPECIFIC RECOMMENDATIONS***

53. Create an EMS Review Task Force to complete the detailed plans for implementation of the approved recommendations, lead the implementation and oversee the ongoing management of the initiatives.
54. Have the EMS Review Task Force review organizational options, develop its preferred option for a long term EMS structure and present this option to Manitoba Health and the primary stakeholders for their review and approval.

# FINANCIAL SUSTAINABILITY

## ***BEST PRACTICES***

In a best practice system, in addition to financial measures, it is recognized that the term “ensuring optimal value” includes clinical and customer satisfaction outcomes that are enhanced by the EMS System.

The governing body has identified and appropriated sufficient infrastructure funding from general funds, insurance recoveries and other non-lapsing sources for the EMS system to function in a manner consistent with its legislated mandates. Unit Hour Utilization is measured and resources are deployed in a manner to achieve efficiency and effectiveness. Cost per unit hour, per transport and per capita are both measured and document good value for money. Financial systems accurately reflect system revenues and both direct and indirect costs.

## ***CURRENT SITUATION***

In order to address the issue of the financial sustainability of the EMS system it is important to understand the current financial situation. According to the Manitoba Health CFO in 2011/12 the Manitoba Health funding for the provincial EMS system was \$81.5m. This amount had grown substantially from 2007/08 when it was \$58.6m. The EMS funding in 2011/12 amounted to approximately \$65 per capita. If we include some outstanding funding amounts that are not directly tracked by Manitoba Health the per capita amount increases marginally.

To put this into perspective EMS per capita funding can be compared with the per capita funding for other health services. In 2011/12 the per capita funding for acute services (mainly hospitals) was \$1,722, for Long Term Care \$436, for Home Care \$250 and for Community and Mental Health \$180. The total health care funding in 2011/12 was approximately \$5.1 billion or \$4,073 per capita.

In regard to expenditures in 2010 or 2010/11 the EMS program expenditures plus MTCC and Fleet Management expenditures amounted to \$105,380,839. This amounts to approximately \$85 per capita. The difference in the per capita funding amount and the per capita expenditure amount is due to the user fee income that funds a portion of the EMS services.

Is the EMS system financially sustainable? While the reviewers cannot provide a definitive answer to the question we can say that to achieve the clinical and operational performance required the current system structure is not sustainable. Additionally, the amount of funding for EMS is small, in some cases minuscule in comparison to other major health programs.

### ***Estimated Cost to Achieve the Stated Goals***

It should be clarified that this does not include ongoing annual increases in funding which can be fairly substantial. We have attempted to provide an estimate of costs only for major items that come out of our review. While we can provide rough estimates additional work will be required to confirm, or change, our estimates. It should be noted that while we use a five year time period for the financial projection the complete roll out is more likely to take approximately 10 years.

- To achieve an \$85 unit hour expenditure and/or 80% EFT PCPs \_\_\_\_\_ **\$16m over 5 years**
  - 430 new PCPs are required to achieve 80% EFT PCPs.
  - According to EMS Branch estimates to achieve 100%EFT PCPs could be as high as 20m.
- Education costs for 350 new PCPs to replace on call and casual \_\_\_\_\_ **\$6m over 5 years**
  - In a 5 year period a net 80 PCP graduates would be available beyond the needs of the current system.
  - According to RRC their costs to educate one PCP are approximately \$16,000.
  - Typically COPSI funds the costs for educational institutes
- Electronic Patient Care Record \_\_\_\_\_ **\$1m one time**
  - WFPS is prepared to roll out their EPCR across the province for only the cost of installation which is estimated to be approximately \$6000 per ambulance.
  - If a new EPCR system is selected the cost could be very different/higher.
- Management Information System \_\_\_\_\_ **\$1.5m one time**
- IT operating costs \_\_\_\_\_ **\$500,000 annually**
- Other \_\_\_\_\_ **\$700,000 annually**

A very rough guesstimate of the cost over five years would be \$5.6m annualized and \$2.5m one time. This annualized amount would be less if it takes longer to roll out the full implementation, which as mentioned is not unlikely. If a non-profit EMS organization is established it is estimated that the annualized cost could be \$1.4m. This cost is very dependent on how many of the current staff can be utilized and how many staff are seconded.

# THE WAY FORWARD

## ***A MADE IN MANITOBA MODEL...***

The way forward requires an implementation strategy with time lines. Implementing the recommendations from the review will create an EMS system that is specifically designed for Manitoba. In order to move forward the implementation of the approved recommendations in an expeditious fashion an interim organizational entity will need to be established to provide the necessary leadership and organizational capacity. We are proposing that an EMS Review Task Force (RTF) be immediately established to develop detailed implementation plans, lead the implementation and oversee the ongoing management of these initiatives. Additionally, the RTF should review organizational options and recommend an ongoing organizational structure for the provincial EMS program. The RTF should be composed of members appointed by the Deputy Minister and currently active in the EMS program with a wide range of skills and experience. Staff support for the RTF should come from the EMS Branch and other seconded staff. The chair of the RTF should be an additional member appointed by the Deputy Minister. As soon as a new long term organizational entity is in place and able to assume leadership responsibility the RTF can be disbanded.

The implementation timeline should serve as a guide. Typically tasks take longer than expected or do not begin when planned. Consequently these timelines need to be approached with considerable flexibility.

It should be noted that while we were not requested to review the need for changes to the current legislation and regulations we are fully supportive of the departmental review process that is ongoing. Without a doubt acceptance of the recommendations will require changes to the current legislation and regulations.

## ***Implementation Strategy and Time Lines***

### **First 12 months**

- Establish the EMS Review Task Force.
- Establish the Office of Medical Director – since a new provincial EMS Medical Director has been appointed setting up the OMD could proceed immediately.
- Address outstanding dispatch issues – specifically Manitoba Health should carry through on implementing its recently announced policy regarding self-dispatch.
- Publish the Request for Proposals (RFP) for Basic Air Ambulance carriers and make the final selection of carriers to provide this service. Performance contracts with the carriers should be completed.
- Develop the IT plans and proceed to implementation as quickly as possible. This would include the Electronic Patient Care Record and a Management Information system. The full implementation of these projects will spread over a few years.



### **Year 2 & 3**

- Begin the process of establishing a provincial user-fee rate.
- Develop a plan to address the issue of how many stations the newly designed system requires and proceed to orderly implementation. The Association of Manitoba Municipalities should be consulted and invited to participate, if they are willing.
- Develop a plan for the expansion of education program in order to meet the need for additional PCPs. This should be done in cooperation with the current education programs.
- Participate in the review and develop an ongoing plan for the SAAP operation.
- Review all the suggestions and recommendations for the future of IFT and proceed to implementation where possible. This would include the role of SAAP, the hub and spoke model of transport, the current transport authorization process, etc.
- Review the MFR program and specifically the current funding requirements by the municipalities.
- Develop a plan for the central billing of user fees. Move to implementation as soon as feasible.
- Develop a plan for the public sharing of EMS performance information. This plan can quite likely not be implemented until new IT systems are in place and reliable information is available.
- Review organizational options and develop a preferred model for a long term EMS organizational structure.
- Continue with the implementation of those projects not completed in the first 12 months.

### **Year 4 & 5**

- Expand the number of PCP graduates and initiate a recruitment program.
- In cooperation with the RRC educational program develop plans to expand the training of ACPs and initiate plans for the training of Community Paramedics.
- Develop a plan for the systematic expansion of those areas in which paramedics can enlarge their scope of practice.
- Continue with the implementation of those projects not completed in the earlier phases.

### **Forward from Year 5**

- The focus on the education and recruitment of PCPs will need to continue. It may take as long as ten years before there are sufficient PCPs in the system to replace casual on-call staff and move to a provincial system of EFT PCPs.
- It will take time before all paramedic education can take place in an educational institute such as Red River College. The educational programs should eventually include PCP diploma training, Advanced Care Paramedic training, Community Paramedic training and EMS leadership training.
- Continue with the implementation of those projects not completed in the earlier phases.

We believe that with these changes Manitoba will have created a pre-hospital patient care and inter-facility transport system that offers more integrated, responsive, reliable and sustainable service. At the same time the EMS service will continue to respect local differences and will work cooperatively with stakeholders and partners in the planning and implementing these changes.

