Paramedic Services Environmental Scan and Baseline Knowledge of Cross Border Agreements and Processes

Sub report from the Canada-United States Enhanced Resiliency Experiment (CAUSE) IV

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 Background

Canada (CAN) and the United States of America (US) share the longest terrestrial border in the world. Numerous towns along this border share emergency services and resources interchangeably. These communities have seen a recent increase in the enforcement of border security in response to the 2001 terror attacks which has created complications with cross-border movement of emergency personnel and resources. These changes were most notably felt when the Western Hemisphere Travel Initiative [1], in 2009, started requiring Canadian and American travellers to show a valid passport to cross into and out of both countries at land and sea borders.

US President Barack Obama and Canadian Prime Minister Stephen Harper issued the Beyond the Border Action Plan (BtB) [2] on February 4th, 2011. This plan addresses issues with economic activities and transportation over the CAN-US border, and also sets out to "Strengthen our two countries to respond more rapidly and effectively, as well as to recover faster from disasters and emergencies on either side of the border". This plan opens the door for cross-border emergency management (EM) agreements to be further developed, increasing response capability to a disaster event.

The CAN-US Enhanced Resiliency Experiment (CAUSE) series aims to demonstrate that improvements to shared situational awareness and interoperable communications during an emergency lead to an overall increase in the level of community resilience. CAUSE IV is a two part experiment which will test the capabilities of both CAN and the US while responding to an incident on the opposite side of the border. The experiment will be comprised of two Vignettes, each with a different focus. The focus of the Canadian led Vignette 1 will investigate technologies and processes that support the communications between paramedics and healthcare stakeholders while crossing the border with a patient on board an ambulance. The US led Vignette 2 will focus on public alerting, notification, warnings and will also contain a digital volunteer component focusing on interaction with the public via social media.

1.2 Objectives

The objectives of this environmental scan are to support the planning of Vignette 1 of CAUSE IV by:

- Exploring the current processes in place for the transportation of patients, paramedics and ambulances across the CAN-US border and to identify the current gaps in these processes; and
- Identifying current documents and policies that relate to cross-border emergency management, with a focus on cross-border paramedicine.

1.3 Methodology

In order to develop this environmental scan, an understanding of the national processes and procedures for cross-border ambulance, patient and paramedic movement was required. The documents in Section 2 were reviewed to develop this understanding which included agreements and policies from federal, provincial, regional and local jurisdictions. From this review, policy and procedure gaps were extracted and outlined in Section 3.

2. RELATED DOCUMENTATION

2.1 Overview

The following is a list of documentation reviewed within this report and includes a brief description of its content and its applicability to cross-border memorandums of understanding (MOU) and medical patient/paramedic movement.

2.2 Federal

2.2.1 Beyond the Border Action Plan

US President Barak Obama and Canadian Prime Minister Stephen Harper issued the Beyond the Border Action Plan in 2011. This plan aims to enhance security and accelerate the flow of legitimate goods between the two countries. There are 4 main areas of focus that are outlined in this plan: addressing threats early; trade facilitation, economic growth and jobs; cross-border law enforcement; and critical infrastructure and cyber-security.

This document does not directly reference paramedics and cross-border paramedicine; however, it has a section of particular interest that aims to "Build on successful cross-border law enforcement" and outlines a new initiative to build on successful law enforcement pilot programs. This development will be achieved by "Using cost-effective, voice-over-internet technology to introduce interoperable radio capacity, so that law enforcement officers on both sides of the border can communicate immediately when responding to cross-border incidents" [2].

This plan also contains a section focused on the improvement of Health Security within CAN and the US. The 2015 report "Canada-United States Beyond the Border Action Plan Implementation Report" outlines the actions taken in 2014 to support the implementation of the BtB Action plan. 2014 saw significant work done to harmonize cross-border emergency communications including; the signing of MOUs to allow information exchange between CAN and US public alerting systems; the signing of an agreement allowing seamless transport of licensed mobile devices and radios for emergency workers; and the execution of an exploratory experiment (CAUSE III) aimed at identifying further areas for improvement in interoperable communications [3].

Being a multi-faceted plan, the BTB Action Plan contains numerous objectives. These objectives are championed by various departments within the CAN and US federal governments. When combined, these improvements to cross-border activities aim to make the border as seamless as possible for emergency personnel and the general public. The health security portion sets out to strengthen CAN and the US to respond and recover more effectively from health disasters that affect both sides of the border.

2.2.2 Agreement Between the Government of the United States of America and the Government of Canada on Emergency Management Cooperation

This agreement outlines the plans of both CAN and US federal governments to strengthen and further develop plans and procedures as they relate to cross-border emergency management in order to better respond to a major emergency event in either country, or a combined emergency [4]. This document outlines the requirements for each country when either a) receiving emergency mutual aid or b) providing mutual aid. There are pre-defined arrangements that are outlined in this agreement providing structure to the development of a combined US-CAN response.

While this agreement does not directly mention health services personnel, it has very high level language that generalizes paramedic services, emergency medical services (EMS), fire fighters, and their related resources as being "emergency personnel, equipment or other resources". Although this doesn't linguistically relate to paramedic Services and health services, it can be inferred that the agreement is taking paramedic activities into consideration.

2.2.3 Communications Interoperability Strategy for Canada (CISC)

This document focuses on the issues with cross-border and cross-jurisdictional communications [5]. It was developed in 2011 by Public Safety Canada and identifies the national priorities required to enhance the "governance, planning, technology, training and exercises to promote interoperable voice and data communications."

This document considered cross-jurisdictional communications but made considerations for cross-border communications in the event of an emergency requiring activation of mutual assistance. Strategic objectives were developed to guide the research and development of new interoperable communication strategies.

Paramedic services personnel were not directly referenced in this document, but are involved with the CAUSE IV interoperability experiment that is testing capabilities that are mentioned within this document.

2.2.4 Paramedic Chiefs of Canada White Paper

This 2006 white paper was developed by the Paramedic Chiefs of Canada and outlines the challenges and opportunities for the future growth of the profession. This paper identified six key strategic areas that would enable "positive and controlled movement towards the future vision" of the profession [6]. These strategic areas were identified in 2006 before the BtB initiative was developed, however there are areas that remain relevant in 2016.

2.3 Regional

2.3.1 Northern Emergency Management Assistance Compact (NEMAC)

This compact is an MOU open for the Canadian provinces of Ontario, Manitoba,

Saskatchewan, and Alberta as well as the US states of Illinois, Indiana, Michigan, Minnesota, Montana, New York, North Dakota, Ohio, Pennsylvania and Wisconsin [7]. Full participation would make this the largest of the three regional agreements however it is still in the developmental stage. To date, only Manitoba has signed the agreement on the Canadian side with Saskatchewan close to signing. On the US side, participation from Michigan, Minnesota, Montana, North Dakota and Wisconsin has been confirmed. When (and if) all eligible signatories sign this agreement, the access to resources and personnel would be extensive.

2.3.2 International Emergency Management Assistance Compact (IEMAC)

This Compact currently signed by the Canadian provinces of New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island (PEI) and Quebec and the US states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. The purpose of this compact is to "provide for the possibility of mutual assistance among the jurisdictions entering into this compact in managing any emergency or disaster when the affected jurisdiction or jurisdictions ask for assistance, whether arising from natural disaster, technological hazard, man-made disaster or civil emergency aspects of resource shortages" [8].

This regional agreement speaks in a high level language and includes paramedic services personnel within the term "emergency response services". Provisions are made for the need for licensing of emergency services when responding across the CAN-US border.

2.3.3 Pacific Northwest Emergency Management Arrangement (PNEMA)

This signed agreement provides a very strong framework for the facilitation of cross-border mutual aid and provides standard operating procedures for its members. The PNEMA is the best example of a well-developed and well maintained regional cross-border mutual aid agreement and includes participation from British Columbia (BC), the Yukon Territory, Alaska, Idaho, Oregon and Washington State [9].

This agreement has been the basis for many other mutual aid agreements in the medical and health services area that includes the Operational Plan for Moving Emergency Medical Services Staff and Resources Across the Washington and British Columbia Border described below.

2.3.4 Operational Plan for Moving Emergency Medical Services Staff and Resources Across the Washington and British Columbia Border

This plan was developed to compliment the PNEMA and establishes a process for the fluid movement and use of paramedic services and resources across the Washington and British Columbia border [10]. This plan is to be utilized in the event of an emergency declaration or a mass casualty incident (MCI) that overwhelms the EMS capacity of a border jurisdiction.

This plan provides activation procedures, a concept of operations, and legal and administrative guidelines for mobilizing paramedic resources to a cross-border incident. Provided along with these guidelines are the checklists that are to be used when

requesting paramedic staff and resources to either a cross-border MCI and also to an emergency and disaster declaration. A third annex to this plan is the cross-border movement process checklist that outlines the considerations that are required before paramedic personnel cross either the CAN or US border.

2.3.5 Memorandum to Share and Protect Health Information to Assure Prompt and Effective Identification of Infection Disease and Other Public Health Threats

This signed MOU facilitates the sharing of both individually identified and population related health information between the state of Washington and BC [11]. The MOU ensures that response to disease outbreaks are prompt and keep populations from spreading infectious diseases.

2.3.6 CAUSE III After Action Report

This report developed by ISR in 2015 outlines the results of the CAUSE III Western Scenario communications experiment involving the Canadian provinces of Alberta and Saskatchewan and the US state of Montana [12]. This experiment tested the functionality of an interoperable 700MHz radio system and a Public Safety Broadband Network (PSBN) Long Term Evolution (LTE) system to allow responders in each jurisdiction to communicate during an emergency event located at the cross section of all 3 borders.

This experiment provided valuable insight into the need for a cross-border communication system that can be utilized by emergency responders. The paramedic community relies heavily on their communications systems but lose the ability to communicate with their dispatcher when leaving their country. This is potentially life threatening for patients and the safety of the paramedics when responding to an emergency event under a mutual aid agreement.

This experiment identified that a deployable 700MHz radio system and supplementary PSBN-LTE system allow for emergency responders responding to a wildfire to maintain a higher level of situational awareness in a multi-jurisdictional response. These systems could be modified to serve the needs of EMS personnel when travelling to a neighbouring country to ensure that communications are available during response.

2.4 Local

2.4.1 Lambton County EMS Policies

Lambton County EMS Department provided their policies 85, 86 and 87 [13] as literature for review and comparison. These policies provide information to their paramedics on the procedures required when transporting a patient from a Canadian Hospital to a US hospital. It outlines the procedures for contacting the border to notify border authorities of their imminent arrival.

2.4.2 Regional Municipality of Niagara EMS Policies

Niagara Emergency Medical Services provided policies IV-3.12h and IV-5.5 for

reference within this environmental scan [14]. Policy IV-3.12h and the related procedures help guide the decision making process of paramedics when selecting the most appropriate destination for a patient. Policy IV-5.5 provides specific procedures to ensure an efficient patient transfer across the CAN-US border. These policies will be further explored in Section 3.

2.4.3 Ornge Paramedic Operations Policy & Procedures

Ornge provided policies 1.5 "Passport Requirement" and 3.6.7 "VSA Patients- Patient Death in Flight in non-Ontario Airspace" from their Paramedic Operations Policy & Procedure manual. These policies and procedures outline the requirements of Ornge employees to carry a passport while on duty for flights into the US and the steps to take in the event of a patient death over non-CAN airspace [15][16].

3. FINDINGS

3.1 Introduction

After completing a thorough review of the aforementioned documentation and plans, the findings have been grouped into the following themes for further exploration:

- Licensing;
- Interoperable Communications;
- Federal Coordination;
- Standardization of Agreements; and
- Policy Development.

3.2 Licensing

3.2.1 Overview

Licensing practices for paramedics between Canadian jurisdictions, and between CAN and the US differ. Provinces and states involved with the PNEMA are leading the way with making amendments to local legislation, identifying other jurisdictions' paramedic licensing processes and standards to be equal to that of their own during disasters and MCIs.

The PNEMA, IEMAC and NEMAC each state in different language that the professional licensing standards of all members are to be seen as equal within all jurisdictions when providing mutual aid. Amendments to legislation and laws have been successfully implemented in the PNEMA region however IEMAC and NEMAC regions have not implemented new laws or amendments to the same extent.

Another area for consideration is the issue that arises with legal liability for paramedic services when they administer care to patients while across the border. This section will further explore this below.

3.2.2 Discussion

The IEMAC, the NEMAC and the PNEMA state that whenever a person holds a licence that provides evidence that they meet the needs of their professional, mechanical or other skills issued by a participating jurisdiction, they are deemed to be licensed, certified or permitted by a requesting jurisdiction to provide their services or skills [8][7][9]. These services or skills may be provided to the same extent as would be allowed in their home jurisdiction [17]. The literature in these compacts outlines that personnel licensing is seen as equal, but the local municipalities or governments are responsible for setting this into regional and local legislation.

In the PNEMA region, amendments to regional legislation and law have been enacted to support the regional MOU. In Washington State, the "Cross-Border Ambulance Reciprocity" recognizes the emergency medical licensing standards in BC, Idaho and Oregon as being equal to their own. This reciprocity provides requirements and

limitations for transporting patients across Washington State borders by ground or air ambulance. This reciprocity has set out in law that during a disaster or an MCI that personnel from a neighbouring jurisdiction are legally allowed to provide their professional medical services. This allows for requested emergency medical personnel from BC, Idaho or Oregon to practice emergency medicine and to transport patients into and out of the state for care, however, they cannot provide transportation service between two locations within the state of Washington [17].

In BC, to accommodate a potential influx of emergency personnel from neighbouring jurisdictions, the "Emergency Medical Assistants Regulation, B.C. Reg. 562/2004" [18] has been amended to allow the issuing of temporary licences in extraordinary circumstances. These temporary licences may be issued during an MCI or a disaster for a period of up to 30 days and the term may be extended for a further period of up to 30 days on one or more occasions.

An issue within these agreements is that they do not set a framework for how licensing is to be handled for the equipment related to emergency response while operating in a requesting jurisdiction's boundaries. Agreements are beginning to address personnel licensing practices, but equipment needs to be licensed when operating outside of its home jurisdiction.

Ambulances and other medical equipment require proper licensing and inspection. Once an ambulance crosses over an international border, it ceases to be licensed as an ambulance. As stated above, licensing standards in some areas are starting to be seen as equal for paramedic personnel; however, the same is not true for emergency medical equipment. A question emerges from this, would providing care in an unlicensed medical transport vehicle create a greater level of legal vulnerability for a paramedic? Ambulances additionally contain controlled substances that are monitored under strict regulations.

Table 1 shows in greater detail another factor in the difficulty of paramedic equipment licensing. This table shows that some areas do not have any legislated standards while others have multiple legislated standards for ambulance licensing. In the future, when regions look to make amendments to legislation for paramedic services equipment licensing, the varying amount of legislation may create complications in the process.

Table 1: Canadian Ambulance Legislation by Province

PROVINCE	LEGISLATION
Alberta	Emergency Health Services Act [19] Ambulance Vehicle Standards Code [20]
British Columbia	Emergency Health Services Act [21]
Manitoba	Land Emergency Medical Response System Regulation (Under the Emergency Medical Response and Stretcher Transportation Act) [22]
New Brunswick	Ambulance Services Act [23]
Nova Scotia	Ground Ambulance Services Act [24]
Ontario	Ambulance Act [25]
PEI	Emergency Medical Services Regulations (Under the Public Health Act) [26]

Quebec	Act Respecting Pre-Hospital Emergency Services [27]
Saskatchewan	Ambulance Act [28]
Northwest Territories	No Legislated Standards
Yukon	No Legislated Standards
Nunavut	No Legislated Standards
Newfoundland and Labrador	No Legislated Standards

3.3 Interoperability of Communications

3.3.1 Overview

Communication gaps exist between CAN and US paramedic fleets. Canadian ambulances are unable to access the radio channels of the US system and US ambulances are unable to access Canadian channels. This causes an issue for paramedics when transporting a patient across the border, or when providing mutual aid for an MCI or disaster. Communication procedures within the paramedic community are well documented using established radio systems. A gap exists with the lack of interoperability between Canadian and US radio systems, the dispatch centers, hospitals, and other paramedic services within the requesting jurisdiction's boundaries.

3.3.2 Discussion

The CAUSE IV Vignette 1 in Sarnia and Port Huron aims to explore how interoperable communications will assist in the cross-border movement of patients and paramedic personnel. To further illustrate, Figure 1 shows the current ambulance communications that are maintained during transport of a medical patient to a hospital across the border [29]. All other organizations depicted in this figure are able to communicate via phone or email however these lines of communication are omitted from the figure. Currently, there are only cell phone communications between the ambulance and the US hospital/dispatch once across the border. This restriction to cell phone communication reduces the amount and type of information that can be transmitted between ambulances and hospitals. This is a potentially dangerous situation as paramedics require the ability to communicate with proper authorities if a need to change or modify a pre-designed plan arises due to the deterioration of a patient, or updates from the receiving facility.

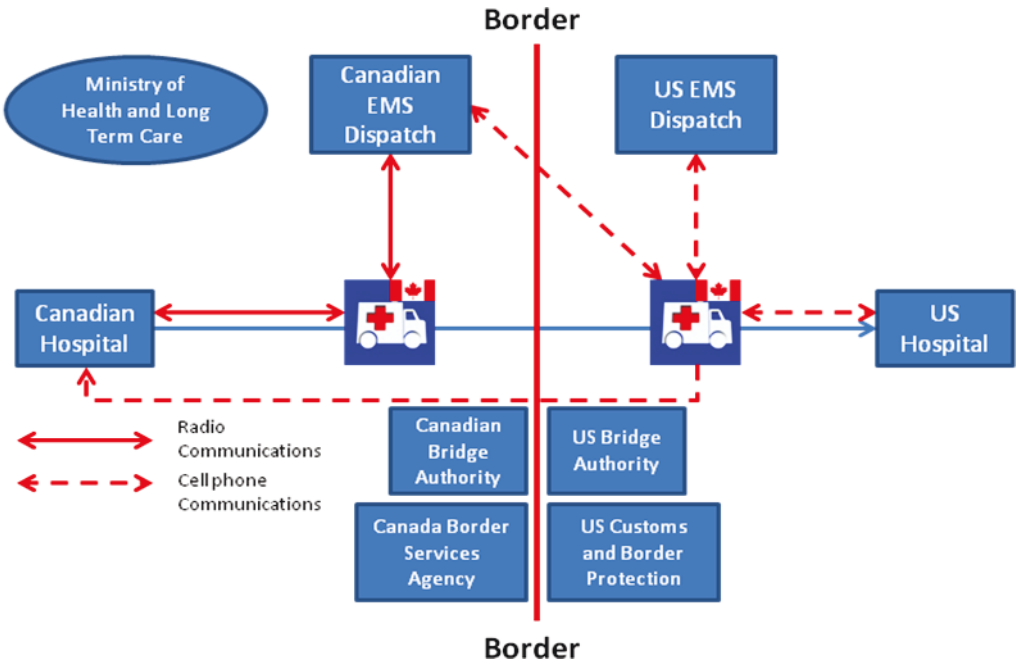

Figure 1: Current ambulance communication methods during a transfer from a CAN hospital to a US hospital.

Niagara Region EMS policy IV-5.5 procedure 5.5.4 states that if a CAN ambulances' destination within the US is changed after crossing over the international border that this information must be relayed back to Niagara communications. This relay of information is currently done via cell phone. Niagara communications is responsible for notifying the US Customs of the changed destination [14].

Currently, when transporting a patient from Sarnia to Detroit, Lambton County Emergency Medical Services Department Policy 85 requires ambulances to take a longer route on Canadian soil to ensure that communications remain available through the majority of the trip. With an interoperable communications system, the ambulance could take the most direct route and not have to remain in CAN as long thus improving patient transport time.

The CISC assists in the strengthening of cross-jurisdictional communications for paramedic response by ensuring that technology and communications needs are considered and that CAN agencies and organizations have action plans for their development and implementation [30].

The CAUSE experiment series is an example of an effort by both the CAN and US federal governments to research options for interoperable cross-border communications. In particular, the After Action Report for the CAUSE III experiment highlighted the advantages of viable communications open for use by multiple responding jurisdictions in both countries [31]. CAUSE IV will further explore potential communications systems in the central region.

3.4 Federal Guidance

3.4.1 Overview

Through review of the three regional agreements (IEMAC, PNEMA, NEMAC) and the documentation listed in Section 2.3 it appears that there is a varied level of federal leadership in providing support and guidance to the future development of regional EM agreements.

3.4.2 Discussion

Investigation into the federal agencies involved in the maintenance and development of cross-border health emergency agreements identified that Federal agencies are filling an important role by connecting the resources of all levels of government, however, there is still more work to do to further support first responders.

The Public Health Agency of Canada (PHAC) created "Canada's Center for Emergency Preparedness and Response" (CEPR) which acts as the federal government's center for coordinating public health emergency management. This centre is crucial to the continued development of paramedic services' cross-border transportation policies within the three regional agreements as it possesses the resources and expertise required to share ideas and best practices between cross-border mutual agreements. The CEPR has established an executive liaison post that links it with Public Safety Canada. This connection is a crucial element in developing links with various departments and agencies to ensure that health emergency preparedness planning remains of upmost importance.

The Paramedic Chiefs of Canada (PCC) and the Paramedics Association of Canada aim to further the paramedic profession within Canada. Although not part of the federal government, the Paramedics Association of Canada and the PCC are a part of the CSS Paramedic Services Community of Practice [32]. They provide strategic input to the federal government to fortify the response capabilities of Canadian paramedics. The Paramedic Association of Canada's mission is to "provide quality care for the public through leadership in the advancement of the profession of paramedicine" [33]. This mission to advance the paramedic profession supports the current need to further develop plans, operational procedures and technologies to increase the response capabilities of Canadian paramedics.

Paramedic organizations are outlining goals and priorities to support paramedics in all Canadian provinces and territories [34]. The PCC White Paper is an example of the efforts made by national paramedic organizations. This paper outlines the challenges and future opportunities for the paramedic profession [35] and although produced in 2006, provides an example of the focus that the national Paramedic Chiefs Association put on the continued evolution of the profession.

One key strategic area within this white paper remains particularly relevant to the objectives of CAUSE IV and further amplifies the support that the PCC provides on a national level. Strategic area 3 Systematic Improvement outlines the need for the profession to stay current with technological and system capabilities:

"Ensure accountability and embrace systematic improvement to keep pace with an ever-changing, complex environment... The potential benefits of a common technological framework for data sharing, interoperability of systems, and enhanced communication within the healthcare and emergency response network are undeniably substantial" [35].

Federal agencies such as the PHAC are providing support in strengthening preparedness and response capabilities for public health issues and events. This is to be accomplished through "actions taken through partnership with key jurisdictions and international partners" [36]. The paramedic profession requires federal support across CAN and the US as they can provide connections with the necessary resources to guide the development of policies and operational procedures across multiple jurisdictions.

3.5 Standardization between Agreements

3.5.1 Overview

There is a limited level of standardization for procedures and processes in the three regional EMAC agreements for moving medical personnel, patients and ambulances across the CAN-US border.

3.5.2 Discussion

In order to have consistency in health emergency planning across the three major regions outlined in Figure 2 [37], a high level of interoperability between each cross-border assistance agreement is recommended. The policies, the guidelines and the framework of each agreement must display a level of similarity to each other ensuring that the ideas and future growth of the agreements heads in a similar direction. Sharing best practices and ideas between the 3 major regions allows for all agreements to develop in a consistent manor and does not allow for a region to fall behind in preparedness activities.

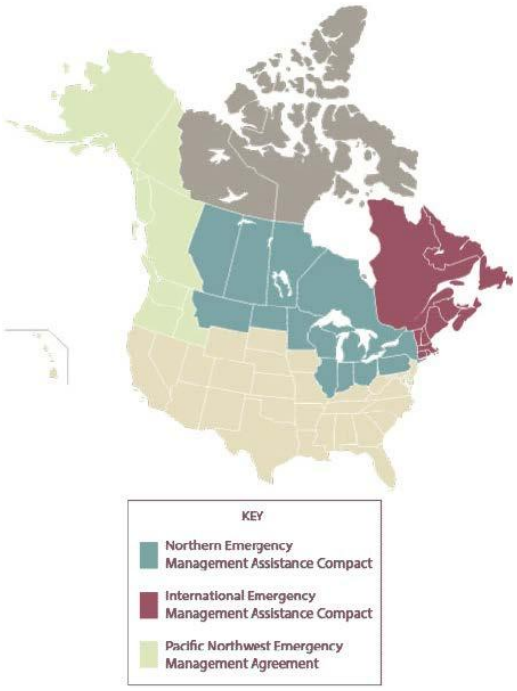

Figure 2: Regional Emergency Management Agreements

US Public Law 112-282, consenting the State and Province Emergency Management Assistance Memorandum of Understanding, approved January 14, 2013, states directly that in the process of developing policies and procedural plans, the participating jurisdictions may share and review their information regarding local hazard analysis, emergency operations plans and operational procedures. The language in the law does not legally require jurisdictions to do this, however in the better interest of public safety, information sharing is invaluable [38].

Regional Compacts such as the IEMAC, the NEMAC and the PNEMA set out to provide a large geographical region with a standardized legislative framework for cross-border mutual aid and support the movement of paramedic personnel and equipment across the CAN-US border. The PNEMA region has developed documents such as the Operational Plan for Moving Paramedic Services Staff and Resources Across the Washington and British Columbia Border [10]. This is a model plan created under the umbrella of a regional EM agreement. These types of operational plans succeed in creating a greater level of resilience for the member communities and serve as an example of a policy or framework that could be shared and developed by members of the NEMAC and IEMAC.

The Pan Border Public Health Preparedness Council (PBPHPC) is an organization that has been paramount in facilitating collaboration between stakeholders of the 3 major regional agreements. The PBPHPC is comprised of health department/ministry representatives from CAN and US federal governments, Alberta, Manitoba and North Dakota, and three regional border health collaboratives (Eastern, Great Lakes and Pacific Northwest). The PBPHPC aims to strengthen capacity at all levels to address public health threats and attempts to provide assistance for policies and operational plans that would be valuable if developed and implemented in all regional emergency

management agreements. This is achieved through the Council's ability to enhance coordination between various PBPHPC members and regional Pan Border collaborative agreements [39].

3.6 Policies and Procedures

3.6.1 Overview

Current policies and procedures provide guidance to paramedics for efficient transportation of patients over international borders while adhering to all applicable laws. There are multiple documents that are to be filled out and faxed to border officials prior to ambulance arrival to limit the amount of time that is spent at the border.
Along with this fax, there is a document that is required to be sent to the province of Ontario for "Out-of-Country" (OOC) Health Services as the initial request for moving a Canadian patient across the border [40]. This policy works for planned medical transfers but none are present for use during an unplanned medical assistance request, as they are not legislated to respond as a paramedic unit.

3.6.2 Discussion

In 1998 the province of Ontario began delegating responsibility for providing land ambulance services to upper tier municipalities and district social services administration boards. This transfer of responsibility took 3 years to complete and has put more responsibility on the municipalities and boards for providing quality paramedic care [41]. The province provides these upper tier municipalities approved funding for providing ground ambulance services. The Ministry of Health and Long Term Care funds approximately 50% of municipalities costs for land ambulance services and 100% of the Ministry approved costs of ambulance dispatch centres and base hospitals [42].

While operational aspects of paramedic services have been transferred, the province has maintained responsibility for setting ambulance, equipment and patient care standards and monitoring and ensuring compliance with these standards. The province remains responsible for land ambulance communications services and base hospital programs that support the land ambulance program and the broader health care system [42].

Lambton County policies 85, 86 and 87 provide instructions for transporting patients between CAN and the US [13]. These policies and subsequent procedures instruct paramedics through the steps for the transportation of a patient from a CAN hospital to a US hospital. Niagara Regional Municipality provided policies IV-5.5 and IV 3.12h which outline similar policies and procedures, but provide more detailed information on how to communicate once in the USA [14]. When comparing these two sets of policies and procedures, a difference in the level of detail within the policies emerges.

In the Washington State/BC region, operational procedures are being developed that outline in detail, tasks and items to consider when paramedic cross-border movement is requested. The state of Washington and the province of BC have entered into an agreement and jointly developed a set of operational procedures for paramedics. In the "Operational Plan for Moving Emergency Medical Services Staff and Resources Across the Washington and British Columbia Border" there are specific checklists to be filled out

and followed by paramedic personnel prior to arriving at the border in response to an MCI or disaster. These forms are very detailed, providing an in depth description of the reasons for a mutual aid request. This can facilitate planning and improve information exchange across the border during emergency situations. These operational procedures ensure that paramedic personnel are familiar with the steps required in transportation across the CAN-US border and they can stand as a model for future development in other jurisdictions across CAN and the US.

4. CONCLUSION

This review of the current literature pertaining to cross-border movement of medical patients, ambulances and paramedics will assist the development of the CAUSE IV experiment by identifying areas of this process that will improve communication between Canada and the United States in the paramedic/health sector. In order to develop this scan, a baseline of knowledge of the current state of cross-border patient and ambulance movement was developed. To develop this, some of the current documentation such as legislation, policies, and procedures were reviewed. This baseline knowledge identified areas of CAN and the US that are leading the way in the field of cross-border movement of patients and ambulances. The policies, procedures, legislation and best practices of other regions were analyzed and compared against those of the leading region outlining the areas where the rest of CAN and the US can focus further efforts. By identifying these trends, this review will provide the experiment design team a framework for both developing and evaluating Vignette 1.

The PNEMA signatories are paving the way towards enhanced resiliency with their continued dedication to cross-border emergency preparedness. This region is leading the way with operational procedures and policies that provide for a seamless transfer of paramedic personnel and patients in and out of neighbouring jurisdictions.

Vignette 1 in CAUSE IV will see the movement of an ambulance and patient across the CAN-US border. The largest identified gap in this process is the lack of an interoperable communications system. Ambulances must have access to communications systems when operating outside of their home country. As discussed in Section 3.3, the inability to use radio systems to communicate with either the Canadian or US ambulance resources creates a risk to patient safety. CAUSE IV will explore possible interoperable communications methods between the US and CAN by using a Voice Over Internet Protocol system on a PSBN-LTE high-speed broadband network.

A few areas that the EM community is succeeding in with respect to cross-border paramedic services are:

- Identification of paramedic licenses;
- Pre-clearance of paramedics, patients and ambulances;
- Pre-scripted faxes to border officials;
- Strengthening of regional agreements and related operational procedures; and
- Continued exercising/experimentation involving cross-border resource movement.

To move towards a greater level of resiliency in communities along the CAN-US border, there needs to be continued support from private organizations, federal, provincial/state and municipal governments in the further development of cross-border assistance agreements and interoperable communications technology. The CAN-US border should not only be unique and known for its length, but also for its high level of interoperability and efficiency for emergency personnel and the general public.

ANNEX A. PROVIDED DOCUMENTATION

1. County of Lambton Emergency Medical Services Department, Calls to the USA, Section 1, Policy 85, 86, 87, March 2013.

2. Washington State Department of Health, Cross-Border Ambulance Reciprocity, 2003.

3. Emergency Medical Assistants Regulation, B.C. Reg. 562/2004, Order in Council No. 300, British Columbia, 2009.

4. CBSA, DHS, Emergency Medical Transfer Ambulance Border Fax.

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6. Government of the United States, Government of Canada, The Government of the United States of America and The Government of Canada on Emergency Management Cooperation, 2010.

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ANNEX B. CANADIAN CONOP FOR CAUSE IV

The following are the tasks to be completed in CAUSE IV by various organizations involved in the transport of a medical patient in a Canadian ambulance, from a Canadian hospital to a hospital in the US.

B.1 CANADIAN HOSPITAL

1. Contact Canadian Central Ambulance Communication Centre (CACC) to dispatch an ambulance.

B.2 CANADIAN PARAMEDIC DISPATCH

1. Task an ambulance by using the simulated Computer Aided Dispatch (CAD) system.

2. Email the "Emergency Medical Transfer" form to US Customs and Border Protection (CBP) at the Port of Entry (POE).

3. Phone POE. In the case of Sarnia, contact the two bridge authorities (Federal Bridge Corporation Limited (Bluewater Bridge Authority)) and the Michigan Department of Transportation for CAUSE.

4. Maintain contact with the ambulance during transit.

B.3 CANADIAN AMBULANCE

1. Pick up patient at hospital.

2. Monitor patient throughout travel time.

3. Maintain communication with Canadian dispatch.

4. Communicate with US hospital as required (use CAUSE IV interoperable communication system).

B.4 US CANADIAN BRIDGE AUTHORITY (FEDERAL BRIDGE CORPORATION LIMITED FOR CAUSE)

1. Maintain contact with paramedic dispatch and receive requests for support of ambulance.

2. Close one lane of traffic (usually the NEXUS lane)

B.5 US CBP AT POE

1. Once fax form is received from Canadian EMS dispatch, conduct pre-vetting of

patient(s), paramedics and vehicle.

2. Process ambulance, patient and paramedic through POE when they arrive.

B.6 US HOSPITAL

1. Maintain communication with Canadian hospital.

2. Maintain communication with Canadian ambulance (through interoperable communications in CAUSE IV experiment).

3. Receive Canadian patient.

B.7 US PARAMEDIC DISPATCH

1. Current processes have no formal communications with US dispatch one Canadian ambulance enters the US.

2. Using the CAUSE technology the US dispatch could maintain awareness of the movement of the Canadian ambulance similar to that of the Canadian dispatch.

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