

**Perspectives Related to the Community
Paramedicine Pilot Program in Northern Ontario
from April 2015 – March 2017
Year 2 Evaluation Activities**

August 2017



LaurentianUniversity
Université**Laurentienne**



**Perspectives Related to the Community
Paramedicine Pilot Program in Northern Ontario
from April 2015 – March 2017
Year 2 Evaluation Activities**

August 2017

Prepared by:

Julia Russell, MSc.

Jill E. Sherman, MPH

Jordan Nixon, MHK Candidate

Chad Prévost, INDH Candidate

Stephen D. Ritchie, PhD

*Centre for Rural and Northern Health Research
Laurentian University*

Prepared for:

Amy Olmstead, Director

Home and Community Care Branch, Ministry of Health and Long-Term Care

Robert Smith, Chief of Paramedic Services

Manitoulin-Sudbury Paramedic Service, Manitoulin-Sudbury District Services Board

Jean Carriere, Director and Chief

Cochrane District EMS, Cochrane District Social Services Administration Board

The analyses, conclusions, opinions and statements expressed in this document are those of the authors and do not necessarily represent the views of the Funder.

Copyright © 2017 Centre for Rural and Northern Health Research (CRaNHR)
Laurentian University
Sudbury, Ontario
All rights reserved.

Contents

List of Acronyms	7
Executive Summary	8
Summary of Key Findings	8
Conclusions	11
1. Introduction and Overview	12
1.1 Background	12
1.2 Purpose of the Perspectives Report	12
1.3 Summary of the 2016 <i>Final Evaluation Report</i> –Submitted June 30, 2016.....	14
1.4 Overview of the Perspectives Report	16
1.5 Perspectives Report and the Evaluation Framework	17
2. Patient Perspectives	18
2.1 Introduction	18
2.2 Methods	19
2.3 Results & Discussion	20
2.4 Conclusions	27
3. Paramedic Perspectives	29
3.1 Introduction	29
3.2 Methods	29
3.3 Results & Discussion	30
3.4 Conclusions	37
4. Commander Perspectives	39
4.1 Program Status and Updates	40
4.2 Follow-up on Recommendations from the 2016 <i>Final Evaluation Report</i>	44
4.3 Challenges and Successes	50
4.3 Vision of the Future	52
5. Conclusions	55
5.1 Capacity Building and Knowledge Translation	56
5.2 Final Conclusions	57
References	60
Appendices	61
Appendix A: 2016 <i>Final Evaluation Report</i> Recommendations	61
Appendix B: Evaluation Framework	64
Appendix C: ICES Confirmation of Feasibility	65
Appendix D: Summary of Responses to the Patient Survey	66
Appendix E: Summary of Responses to the Paramedic Survey	68
Appendix F: Knowledge Translation Activities Undertaken by the CRaNHR Team	70

Figures

Figure 1: EMS/ Paramedic Services represented in the report	14
Figure 2: Percentage of patients by CP service within each region (n=57).....	21
Figure 3: Percentage of patients that agreed or strongly agreed to statements related to the clinical dimension	23
Figure 4: Percentage of patients that agreed or strongly agreed to statements related to the structural dimension.....	25
Figure 5: Percentage of patients that agreed or strongly agreed to the statements related to the interpersonal dimension of patient care	26
Figure 6: QoWL summary scores, by level of CP experience.....	36

Tables

Table 1: Overview of report chapters highlighting districts/cities, paramedic services, and number of participants involved	13
Table 2: Demographics of the districts and communities receiving CP services	20
Table 3: Number of CP visits by type of service	22
Table 4: Characteristics of northern Ontario paramedic survey respondents	31
Table 5: Service type, satisfaction, and preferences of paramedics practicing CP.....	32
Table 6: Comparison of QoWL scores for paramedics with and without CP experience, by QoWL subscale	37
Table 7: Summary of program updates from 2016-2017 - Commander perspectives.....	42
Table 8: Summary of future plans for CP in Manitoulin-Sudbury and Cochrane	54
Table 9: Summary of Key Findings in northern Ontario	58
Table 10: Summary of Home Visit patients' responses to Quantitative Survey Questions	66
Table 11: Summary of Wellness Clinic patients' responses to Quantitative Survey Questions ...	67
Table 12: Perceptions of paramedics practicing CP in northern Ontario	68
Table 13: Paramedic attitudes towards CP (all paramedics)	69
Table 14: Interest in practicing CP, among paramedics reporting no CP experience	69

**For any further information, questions, or comments related to this report,
please contact:**

Julia Russell, MSc

Centre for Rural and Northern Health Research

Laurentian University

Ramsey Lake Road

Sudbury, Ontario, P3E 2C6

Telephone: (705) 675-1151, ext. 4280

Fax number: (705) 675-4845

E-mail: jrussell@laurentian.ca

List of Acronyms

ACP	Advanced Care Paramedic
CB	Capacity-Building
CCAC	Community Care Access Centre
CHAP-EMS	Community Health Assessment Program through Emergency Medical Services
CMHA	Canadian Mental Health Association
COPD	Chronic Obstructive Pulmonary Disease
CP	Community Paramedicine
CRaNHR	Centre for Rural and Northern Health Research
CREMS	Community Referral by EMS
CTBC	Consent to be Contacted
DSB	District Services Board
DSSAB	District Social Services Administration Board
ED	Emergency Department
EMS	Emergency Medical Services
HSP	Health Service Provider
HV	Home Visit
ICES	Institute for Clinical Evaluative Sciences
KT	Knowledge Translation
MOHLTC	Ministry of Health and Long-Term Care
MOU	Memorandum of Understanding
MSDSB	Manitoulin-Sudbury District Services Board
OSI	Operational Stress Injury
PCCF	Patient-Centred Care Framework (Green, Tuzzio and Cherkin, 2012)
PCP	Primary Care Paramedic
PERIL	Paramedics Assessing Elders at Risk for Independence Loss
PRU	Paramedic Response Unit
QoWL	Quality of Working Life
RPM	Remote Patient Monitoring
WC	Wellness Clinic

**Perspectives Related to the Community Paramedicine
Pilot Program in Northern Ontario
from April 2015 – March 2017
Year 2 Evaluation Activities
August 2017**

Executive Summary

As of March 31, 2017, the two year funding period for the community paramedicine (CP) pilot programs in the province of Ontario came to an end. In this Summary Evaluation Report, we seek to:

- Share the perspectives of three distinct sets of CP stakeholders - patients, paramedics and two Paramedic Commanders - on the CP programs they had experience with during this pilot period.
- Summarize key findings related to CP in Northern Ontario.

This report is a follow-up to *The Cochrane and Manitoulin-Sudbury Joint Community Paramedicine Program: Final Evaluation Report*(1). Thus, in this report we also address progress made on the recommendations put forth in the *Final Evaluation Report* previously submitted to the Ministry of Health and Long-Term Care (MOHLTC) in 2016.

In order to collect the information for this report, surveys were conducted with both patients and paramedics. Participants were drawn from throughout northern Ontario, including from the Districts of Algoma, Cochrane, Kenora, Manitoulin, Parry Sound, Rainy River, Sudbury, and Thunder Bay as well as the single-tier municipality of the City of Greater Sudbury. These districts represent a large geographic area with many small rural communities and long travel distances throughout. Additionally, two Commanders with program responsibility for community paramedicine, in Cochrane District EMS and Manitoulin-Sudbury Paramedic Services, each participated in an interview with a member of the evaluation team.

Summary of Key Findings

Patient Perspectives. Survey responses were received from 60 patients involved in CP programs offered through three different paramedic services in northern Ontario. Overall, patients reported being satisfied with the CP services they received (91.7%), whether they were served at Wellness Clinics (WC) (n= 39) or Home Visits (HV) (n=18), with nearly all of the patients indicating that they would recommend CP to others (98.3%). Indeed, 87.7% of patients indicated that they agreed CP services should be expanded beyond the original pilot programs.

Patient perspectives of CP suggest that the service model is consistent with a patient-centred framework that includes interpersonal, psychosocial, clinical, and structural dimensions. As initially reported in the *2016 Final Evaluation Report*, psychosocial benefits of CP were highly valued by patients. All HV patients and 83% of WC patients agreed that the CP program made them feel more supported and connected to the community. The patients described positive relationships with the paramedics and viewed the paramedics as caring, friendly, and professional service providers. Paramedics were seen as healthcare system navigators and patient advocates. HV and WC patients alike valued CP for the ease of access and the reassurance provided by the paramedics monitoring their health concerns.

Although the sample size was small (n=60), these results are an encouraging early sign suggesting that from an elderly patient perspective, CP is an acceptable and accessible program that appears to be helping improve the experience of being a patient in rural communities across northern Ontario.

Although WC patients agreed that CP was beneficial to them, it appears that CP may provide greater benefit to HV patients than to WC patients. However, we suspect this is the case because WC patients report better health status than HV patients, and are likely more mobile than HV patients. Compared to WC patients, HV patients were more likely to agree with statements about the benefits of CP including:

- the CP program increased their confidence in managing their own health at home;
- they received more medical care as a result of CP;
- the CP program reduced their need to go to the doctor or hospital;
- they had learned about other health and social services in the community from paramedics;
- CP was addressing a service gap in their community.

Paramedic Perspectives. Perspectives were elicited from 221 paramedics from eight different paramedic services in northern Ontario, and of these, 185 were working in areas with a CP program. More than one third (40.8%) of paramedics working in areas with CP programs reported some experience with CP, with significantly more rural (62.0%) than urban (15.5%) paramedics participating in some aspect of CP. The majority of paramedic respondents (77.2%) believed that more paramedics should be permitted to practice CP, and nearly half of the paramedics who had not practiced CP were indeed interested in practicing CP.

The majority of paramedics who practised CP believed that it had a positive impact on the patients that they saw and that the program was acceptable, appreciated, and well-received by their patients.

Overall, paramedic respondents agreed that more organization and structure would improve the CP programming and referral process. Additionally, strengthening CP training and data management systems may increase paramedics' interest and satisfaction with CP. Ultimately, engaging and consulting paramedics in the ongoing process of CP development and implementation is important to ensure:

- (1) they feel valued and are part of the change process;
- (2) they are contributing to the development of the CP system they will be working in;
- (3) the CP system benefits from front-line work experiences and insights relevant to the geography, culture, and context of northern Ontario.

Compared to other healthcare professionals, the Quality of Work Life (QoWL) of paramedics in northern Ontario is average, but there is preliminary evidence of higher QoWL among paramedics with CP experience in comparison to those who had no CP experience.

Progress Updates from Cochrane District EMS and Manitoulin-Sudbury Paramedic Services.

The interviews with two Paramedic Commanders responsible for CP in Manitoulin-Sudbury and Cochrane Districts revealed dynamic and rapidly evolving CP programs in their respective regions. Although core CP services remain similar, the service delivery models in the two districts appear to be diverging.

The commanders acknowledged that paramedic engagement and reporting remains a challenge. Managing uncertainty and paramedic buy-in are two areas to remain focused on in future programming. However, in both Manitoulin-Sudbury and Cochrane there are reports of Community Paramedics who are enthusiastic and highly engaged in the program and are showing strong interest, acceptance and commitment to CP. At the same time, data collection and reporting has improved; however, acquiring a fully functional platform, and the capacity for data management and analysis, remain important goals for the future. Initiatives are underway to improve paramedic training and education as well as to continue to develop alternatives for reporting. Further specification and communication of CP expectations is also required.

Remote patient monitoring (RPM), WCs, and HVs have been developing in both Cochrane and Manitoulin-Sudbury. A particular area of strength of each program is the collaboration that has been occurring. Partnerships with other health and social service providers have enhanced the delivery of CP. Notable patient outcomes have included the identification and diagnosis of previously unrecognised ailments. In addition, decreased anxiety about medical conditions has enabled 6 patients to remain in their homes for longer than would have been possible. Future objectives should seek to further enhance collaboration across agencies, and maintain patient trust.

Conclusions

There was a high level of satisfaction with CP based on the perspectives of patients, paramedics and commanders; the vast majority of these participants reported that CP programming should continue and be expanded. Further engagement with some of the recommendations from the 2016 *Final Evaluation Report*, such as collaboration with First Nations communities, is encouraged. With continued improvement, through program refinement, education, and cross-agency collaboration, we anticipate that most of the challenges and barriers related to CP in northern Ontario can be overcome with time. We are confident in this assertion based on the compiled perspectives from patients, paramedics, and Paramedic Commanders who participated in this evaluation process.

**Perspectives Related to a Pilot Community Paramedicine
Program in Northern Ontario
Year 2 Evaluation Activities
August 2017**

1. Introduction and Overview

1.1 Background

In 2014, the Ministry of Health and Long-Term Care (MOHLTC) announced funding for community paramedicine (CP) demonstration projects to be launched within the province of Ontario. This program involved 30 pilot CP projects that were initiated in 2015, and 23 of these programs continued into 2016.

From its inception, the Joint Pilot Program of the Manitoulin-Sudbury Paramedic Services and Cochrane District EMS partnered with the Centre for Rural and Northern Health Research (CRaNHR) at Laurentian University to develop and implement an evaluation framework. In the second year of funding, the geographic scope of some evaluation activities broadened to include other pilot programs in Northern Ontario.

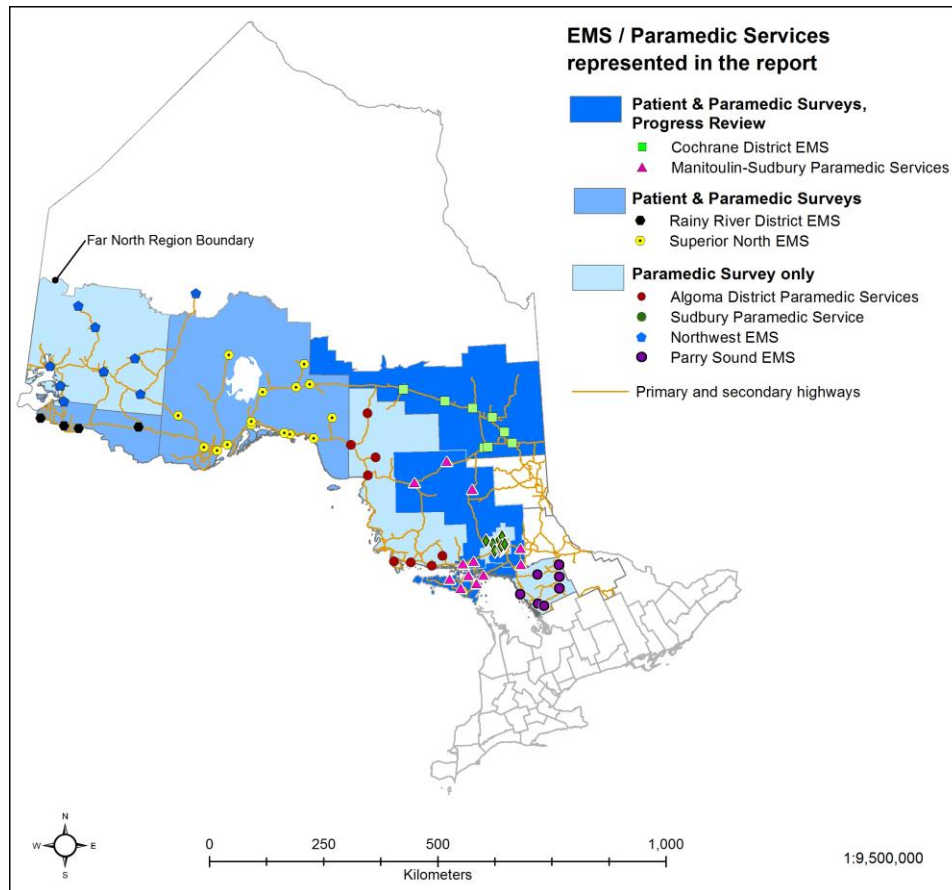
While the initial pilot funding has ended, the MOHLTC has recently released a draft framework that explores the future funding strategy for community paramedicine. In early 2017, the MOHLTC announced that \$6 million in base-funding for CP would be provided to the Local Health Integration Networks (LHINs). CP programs would be able to access this funding if they were operating their programs in collaboration with Health Service Providers (HSP), as HSPs are eligible to receive funding through the LHIN.

1.2 Purpose of the Perspectives Report

In this report, we seek to provide an overview and analysis of three distinct sets of perspectives of those who have been involved in CP programming in northern Ontario. This report builds on the earlier report entitled, *The Cochrane and Manitoulin-Sudbury Joint Community Paramedicine Program: Final Evaluation Report*(1), from here on referred to as the 2016 *Final Evaluation Report*, and addresses some of the outstanding questions related to the CP programs that were raised within that document. The 2016 *Final Evaluation Report* covered activities from April 1, 2015 to March 31, 2016, while this report provides summary perspectives related to the entire two year pilot funding period (April 2015 to March 2017). This report will provide an overview of responses to the recommendations proposed within the 2016 *Final Evaluation Report*, as well as describe other new program developments over the previous year. Primary data sources for this report include: (1) a survey of patients, (2) a survey of paramedics, and (3) interviews with two Paramedic Commanders.

Table 1: Overview of report chapters highlighting districts/cities, paramedic services, and number of participants involved

Chapter	District /City	EMS/Paramedic Service	Primary Source of Information	Number of Participants
1 Introduction and Overview	N/A		N/A	N/A
2 Patient Perspectives	Cochrane Rainy River Thunder Bay (City and District)	Cochrane District EMS Rainy River District EMS Superior North EMS	Survey	60 Patients
3 Paramedic Perspectives	Algoma Cochrane Manitoulin-Sudbury Kenora Parry Sound Rainy River City of Greater Sudbury Thunder Bay (City and District)	Algoma District Paramedic Services Cochrane District EMS Manitoulin-Sudbury Paramedic Services Northwest EMS Parry Sound EMS Rainy River District EMS Sudbury Paramedic Services Superior North EMS	Online Survey	221 Paramedics
4 Progress Review	Cochrane District Manitoulin-Sudbury	Cochrane District EMS Manitoulin-Sudbury Paramedic Services	Interview	Two Paramedic Commanders
5 Conclusion	N/A	N/A	N/A	All - Summative

Figure 1: EMS/ Paramedic Services represented in the report

1.3 Summary of the 2016 *Final Evaluation Report* –Submitted June 30, 2016

The 2016 *Final Evaluation Report*, submitted to the Ministry of Health and Long-Term Care in June 2016, provided a summary of the state of the joint CP Program implemented by the Cochrane District EMS and the Manitoulin-Sudbury District Services Board (DSB) – Paramedic Services. There were two pilot sites launched by each service provider (Gore Bay and Gogama in Manitoulin-Sudbury, and Hearst and Smooth Rock Falls in Cochrane District). Data sources for the evaluation included administrative data, the preliminary results of a survey of patients and caregivers, and site observations. The results indicated that although there had been challenges in launching CP, where CP was operating, patients, caregivers and paramedics seemed to identify positive outcomes associated with participation in the programming. This Report

summarized eleven recommendations that, if initiated, could lead to enhancement of the CP programming. A summary of these recommendations is included below (For the full-text, see **Appendix A**).

It was recommended within the 2016 *Final Evaluation Report* that the Paramedic Service Providers:

1. Support the paramedics practicing CP by identifying potential patients (i.e. frequent 911 users) that could benefit from regular HVs;
2. Support paramedics practicing CP with additional training opportunities, including retraining on the revised PERIL tool;
3. Implement a regular CP Program Review process with each site engaged in CP activities;
4. Focus on developing more promotional material and branding CP so it is clearly differentiated from emergency response;
5. Review the administrative data acquisition systems to ensure that all CP activities are documented with minimal errors and omissions;
6. Seek to better understand, manage, and document informal encounters with community members as CP activities;
7. In collaboration with the CRaNHR research team, engage Circle of Care Partners and collectively identify and implement methods to strengthen CP referrals and health services integration that meets the unique needs of each community;
8. Consider collaborating with appropriate First Nation community leaders to explore the possibility of implementing relevant CP services to these communities;
9. Develop a plan to address CP activity interruption by 911 calls;
10. Develop a plan to provide equitable CP services to patients throughout the entire service area of the bases participating in CP;
11. Consult with the MOHLTC to explore the possibility of extending the scope of practice for Primary Care Paramedics to include CP activities.

A limitation identified within the original report was a challenge with data quality and completeness. Refer to the 2016 *Final Evaluative Report*, for further details regarding the pilot communities and initial results.

Since the submission of the report, two additional research studies, the Patient Survey (See Chapter 2) and the Paramedic Survey (See Chapter 3), have been completed, supplementing what was learned earlier. Furthermore, at the time of writing the 2016 *Final Evaluation Report*, new activities were underway such as the expansion of CP activities beyond the initial pilot communities, training of more paramedics, and implementation of a remote monitoring component for patients with chronic disease; Chapter 4 will highlight these developments.

As noted in the 2016 *Final Evaluation Report* within northern Ontario there are unique cultural, linguistic, and geographic contexts that require flexibility and an ongoing cycle of learning and improvement in order to establish an appropriate and effective model of CP for rural and remote communities, including coverage of vast service areas and diverse populations (e.g. Indigenous and Francophone communities).

1.4 Overview of the Perspectives Report

Throughout this report we seek to present the perspectives of patients, paramedics, and the Paramedic Commanders who are leading CP programs. In examining community paramedicine from each of these perspectives, we endeavor to present a more thorough illustration of the current state of CP in northern Ontario. In the following sections, we will also highlight the similarities and differences in perspectives and provide some interpretation of the results.

Chapter 2: Patient Perspectives, and Chapter 3: Paramedic Perspectives, are based on the results of surveys with stakeholder populations involved in CP. Ethics approval from the Laurentian Research Ethics Board was obtained for each of the two separate research projects that are profiled in these chapters. The 2016 *Final Evaluation Report* included preliminary findings from the patient survey, however at that time data collection was ongoing; Chapter 2 presents the completed survey results.

Chapter 4: Commander Perspectives provides a progress update from Cochrane District EMS and the Manitoulin-Sudbury Paramedic Service. It differs in that it is primarily structured around interviews with two Paramedic Commanders responsible for their Districts' CP Programs, David Wolff from Manitoulin-Sudbury DSB – Paramedic Services and Derrick Cremin from Cochrane DSSAB EMS. These two Commanders hold leadership roles within their Districts, and they are able to provide an administrative and service-wide perspective on the implementation and development of CP in two districts of northeastern Ontario. In this chapter we examine the activities that have been implemented since March 31, 2016, the Paramedic Commanders' responses to the Recommendations of the 2016 *Final Evaluation Report*, and their future vision of CP as we move beyond the Pilot Program Phase of CP within the province of Ontario.

Chapter 5: Conclusions provides a synthesis and summary of the diverse range of stakeholder perspectives related to CP in northern Ontario. We also provide final conclusions to inform future development of CP services in the north.

CP has evolved considerably in northern Ontario over the past two years, and the following Chapters will provide important perspectives from key stakeholders. These perspectives illustrate how far CP has come and provide guidance and insight into future directions.

1.5 Perspectives Report and Evaluation Framework

The process undertaken by the CRaNHR team has largely remained consistent with the originally proposed Evaluation Framework that was developed at the onset of the program (**See Appendix B**). It is important to note that a CP Outcome Evaluation was designed in collaboration with the Institute of Clinical Evaluative Sciences (ICES), but it has not been completed at this time. Evaluation of the ICES data remains a relevant opportunity for future CP evaluation and research, and we have received a confirmation of feasibility letter from ICES (**See Appendix C**). Thus, an ICES study such as this may be something the MOHLTC, LHINs, or researchers decide to pursue as an outcome evaluation in the future.

We are currently investigating the relevance and timing related to proceeding with the planned Circle of Care Survey. The context surrounding CP is rapidly developing and evolving with the establishment of Health Links, and the role of the LHIN in managing base funding. If the survey goes forward, rather than narrowly focusing on partners who have been identified as members of the Circle of Care (3) all health and social service care providers could be invited to participate in a survey. In both instances, a picture may emerge of how CP could potentially interact with the entire health and social care system.

2. Patient Perspectives

Summary

- Perspectives were elicited from 60 patients involved in community paramedicine programs offered through three different paramedic services in northern Ontario.
- Patients were very complimentary about paramedics as caring, friendly, and professional service providers.
- HV and WC patients alike valued CP for the ease of access and the reassurance provided by the paramedics monitoring their health concerns.
- All HV patients and 83% of WC patients agreed that that the CP program made them feel more supported and connected in the community.
- Self-reported physical and mental health status of HV patients was lower than WC patients, and HV patients were more likely to agree with statements about the benefits of CP.
- Nearly all (91.7%) patients were satisfied with the CP services they received, and 98.3% would recommend the CP program to others.
- Patient perspectives on CP suggest that the service model is consistent with a patient-centred framework that includes interpersonal, psychosocial, clinical, and structural dimensions.

2.1 Introduction

CP has been identified as a promising strategy to address gaps in community-based health services and provide patients with an alternative to calling 911(4). However, little is known about the acceptability of CP to patients and caregivers in rural communities across Ontario(5). Acceptability of CP to patients and caregivers is crucial given the MOHLTC emphasis on putting patients first by developing patient-centred programming and care(6).

A survey was undertaken to assess patient and caregiver experiences and satisfaction related to their involvement in a pilot CP program in northern Ontario. The Three Dimensions of Patient-Centred Care Framework (PCCF) by Greene, Tuzzio and Cherkin(7), was used to structure the analysis. At the time of the *2016 Evaluation Report*, the survey was being conducted in Cochrane and Manitoulin-Sudbury Districts. Since then, patients of the CP programs in Thunder Bay and Rainy River Districts also participated in the survey.

2.2 Methods

A self-reported survey was used to collect data on patient and caregiver perspectives on the services they (or the person for whom they were caring) had received from the CP program. (See the 2016 *Final Evaluation Report*, Part B. Survey, for a description of the survey development and initial results). The survey instrument contained 33-items with a combination of fixed choice statements, open-ended items, and attitudinal scales; the survey was offered in English and French. Paramedics were to distribute invitations to participate to all CP patients; if the patients were interested, they returned a “Consent To Be Contacted” (CTBC) form to the research team. Approximately three months after receiving the CTBC form, the CRaNHR research team sent the potential participant (patient or caregiver) a survey package. This time period was established in order to provide the patient with more time to experience the CP services before completing the survey.

Survey participants were patients of the Cochrane District EMS, Rainy River District EMS, and the Superior North EMS CP programs. Although patients of the Manitoulin-Sudbury CP program were included in the recruitment process, this group was excluded from analysis due to an insufficient number of participants ($n < 5$). Participants from a total of 16 communities participated in the study. Demographic data for each pilot community are presented in **Table 2**.

Within the rest of this chapter the use of the term patient is not referring to all CP patients. The term patient is used throughout this chapter to refer only to those patients who participated in the survey, unless otherwise indicated.

Table 2: Demographics of the districts and communities receiving CP services

Region	CP Program	Community	Total Population ¹	Percent Francophone ²	Population of Seniors (Aged 65+) ³	Number of Paramedics Employed
Northeast	Cochrane	Smooth Rock Falls	1,376	68.0%	24.7%	100
		Fauquier-Strickland	530	80.2%	25.8%	
		Hearst	5,090	85.7%	16.6%	
		Cochrane	5,340	39.0%	16.9%	
		Moonbeam	1,101	82.7%	22.3%	
		Mattice-Val Côté	686	88.9%	16.0%	
Northwest	Superior North	Upsala	5909	3.6%	15.7%	181
		Marathon	3,353	10.3%	10.4%	
		Terrace Bay	1,471	6.8%	16.7%	
		Schreiber	1,126	4.9%	17.3%	
		Manitouwadge	2,105	15.0%	15.9%	
		City of Thunder Bay	108,359	2.3%	17.6%	
	Rainy River	Emo	1,252	0.8%	16.4%	51
		Atikokan	2,787	3.1%	21.0%	
		Fort Frances	7,952	1.2%	19.2%	
		Rainy River	842	2.4%	26.7%	

1 Census data (2011) of the CP pilot sites, unless otherwise stated. Population at the Census Subdivision (CDS) level. (8). Data does not represent the population of the entire EMS service area.

2 Census data (2011) of percent who chose French as the first official language (9).

3 Census data (2011) of age characteristics (9).

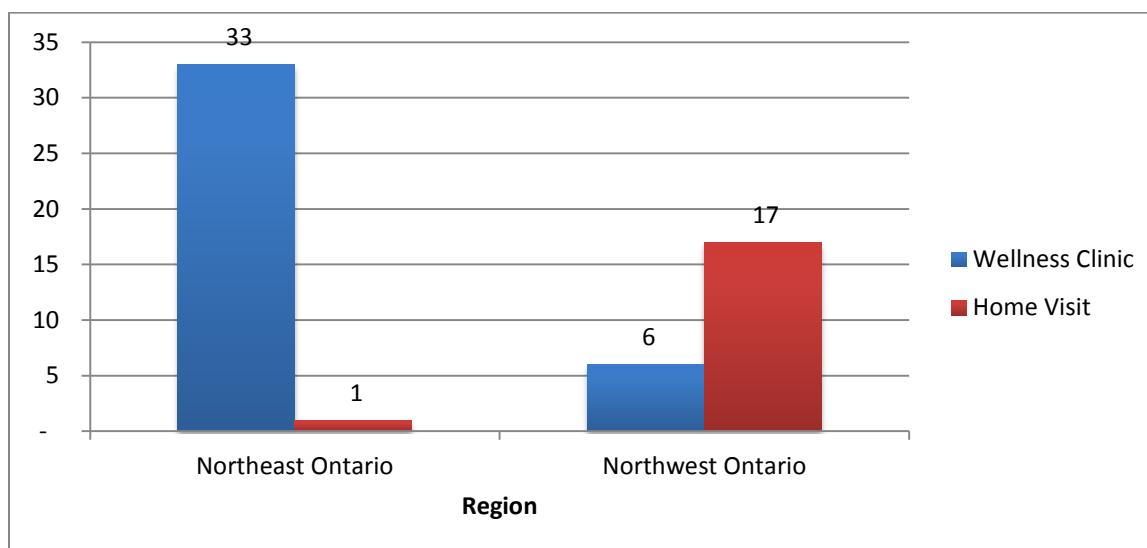
2.3 Results & Discussion

This section begins with a broad overview of the results followed by a breakdown according to the three themes of the PCCF(7). We were unable to determine how many CTBC forms were distributed by paramedics during CP activities. However, 119 completed CTBC forms were received from patients. Only 60 surveys were completed and available for analysis, yielding a response rate of 50.4%. The mean age of patients was 75.6 years and 66.7% of the patients were female (n=40). Thirty-four patients (56.7%) were Anglophone, 33.3% were Francophone and 10.0% considered themselves bilingual. The largest percentage of patients was from Cochrane District (56.8%), in the northeast region, with the remainder from Rainy River District (16.7%), Thunder Bay District (15.0%) and the City of Thunder Bay (11.7%). Thirty-nine patients (65.0%) participated in Wellness Clinics (WCs), 18 patients (30.0%) participated in Home Visits

(HVs), and three patients (5.0%) participated in both WCs and HVs. Due to the small number of patients who took part in both WCs and HVs, they were excluded from any comparative analyses.

As depicted in **Figure 2**, participation in WCs versus HVs was unevenly distributed by region and paramedic service provider. All but one patient from the Cochrane area were involved in WCs; all patients from Thunder Bay City and District participated in HVs, with three participating in both. In Rainy River, patients participated in both types of services, with slightly more participating in WCs. **Table 3** portrays the number of times the patients reported being seen by the CP paramedics for each service received (at the time they participated in the survey).

Figure 2: Percentage of patients by CP service within each region (n=57)



*Excludes three patients that received both services

Table 3: Number of CP visits by type of service

Number of Visits or Encounters	Wellness Clinics	Home Visits
1-2	16	2
3-5	17	9
6-10	5	4
11 or more	1	3
Total Patients	39	18

*These results (n=57 total) do not include 3 patients that received both services.

Self-reported health status. Patients were asked to rate their own physical and mental health. WC patients reported significantly better health than HV patients, where 79.5% of the WC patients perceived their physical health as good or very good/excellent, compared to only 44.4% of the HV patients (Fisher's exact, $p=.014$). The difference between WC and HV patients for perceived mental health status was even greater, where 97.4% of the WC patients perceived their mental health as good or very good/excellent, compared to 66.7% of HV patients (Fisher's exact, $p=.003$). Given the significant differences between the intervention type (WC vs HV) and the health status of patients served, the following analyses disaggregate and compare WC and HV patient responses.

There was an imbalance of the sample in terms of proportion of WC and HVs patients at different locations (see **Figure 2**). Of the 35 patients in the northeastern Ontario CP programs, only one patient received a HV, whereas for the northwest Ontario region, 76.9% of the patients received HVs, or a combination of HVs and WCs. It is unclear whether this distribution accurately reflects the type and quantity of CP services delivered at each location, or whether other issues (e.g. uneven survey recruitment) contributed to this imbalance. Each CP program was managed by its respective paramedic service provider and may have favoured one intervention over the other, at least in the early stage of program development. Unfortunately, the imbalance in these results limited any meaningful comparisons of self-reported health between services (HV vs. WC) or between regions (Northeastern vs. Northwestern).

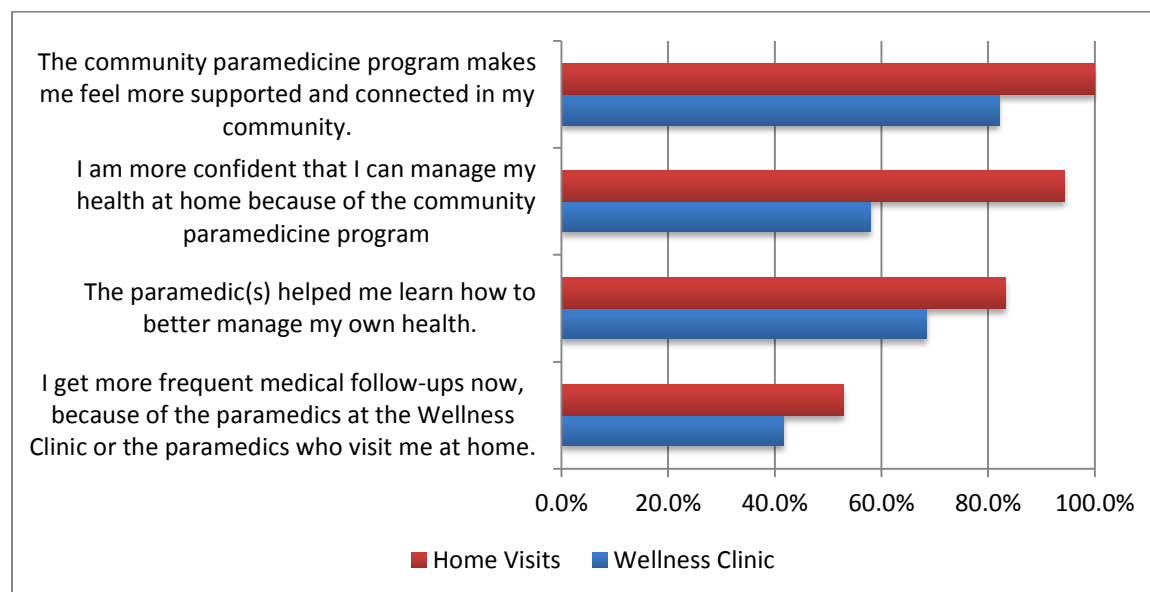
Overall, patient perspectives were favourable with respect to their experience with CP services received. All of the HV patients, and 87.2% of the WC patients indicated that they were satisfied with the services provided by the CP paramedics. CP was also recommended by 100.0% of the HV patients, and 97.3% (n=36) of the WC patients.

Most of the responses from the other attitudinal and open-ended survey data were also positive with respect to the CP experience. The following sections used the PCCF(7) as an organizational framework to analyze and present the attitudinal and open-ended data from the

survey. Findings were grouped into each of three dimensions of the PCCF: clinical, structural, and interpersonal. The data also revealed that there was an important psychosocial aspect of the patient experience that was not represented in the PCCF. As the PCCF was developed for facility-based care providers, it is not surprising that patients in the community might have some different or additional views on patient-centred care.

Clinical dimension. Patients were asked questions about the perceived impacts of the CP program on their health, with an emphasis on their ability to remain in their home and/or in their community while receiving care. HV patients were more likely than WC patients to agree that the CP program increased their confidence in managing their own health at home; that CP paramedics helped them learn how to manage their own health; and that they received more medical care as a result of CP (See **Figure 3**). For these responses however, it was likely not only the more in-depth and individualized nature of the HV encounter that made a difference, but the fact that many WC patients indicated that these questions did not apply to them, perhaps because they view themselves as healthy. (see **Appendix D**). The higher self-reported physical and mental health of WC patients supports this interpretation.

Figure 3: Percentage of patients that agreed or strongly agreed to statements related to the clinical dimension



One item was included to assess the impact of CP on social connectedness: all HV patients and more than 80% of WC patients agreed with the statement that CP “makes me feel more supported and connected in the community.” Given the recognized health benefits of social inclusion and connectedness, it was included here as an important outcome.

Open-ended comments related to the clinical domain were relatively few compared to the other domains. Prevention was perhaps the most common theme, with one patient commenting *“I find it keeps me on an even balanced lifestyle”* (Patient 046, Male, HV) and another stating *“These visits help prevent serious problems”* (Patient 108, Male, WC).

Structural dimension. The structural dimension includes aspects of care such as the built environment and access to care. Again, HV patients were more likely than WC patients to agree that the CP program reduced the need to go to the doctor or hospital; that they had learned about other health and social services in the community from paramedics; and that CP was addressing a service gap in their community (see **Figure 4**). As described above, because WC patients were relatively healthier, there were a greater number of “don’t know” and “not applicable” responses (See **Appendix D**).

Patient comments indicated further benefits related to having CP paramedics help them navigate the healthcare system. Patients reported that the paramedics provided their patients with additional information in regards to other healthcare services in their community, with one patient explaining how it was, *“Very good. Helps persons who don’t know what is out there to help and how to use the services that are there to help.”* (Patient 058, HV, Female).

One question asked patients whether they thought paramedics should be allowed to conduct WCs and HVs beyond the pilot communities, and if CP should be expanded from the pilot communities and offered to everyone; most patients (87.7%) agreed.

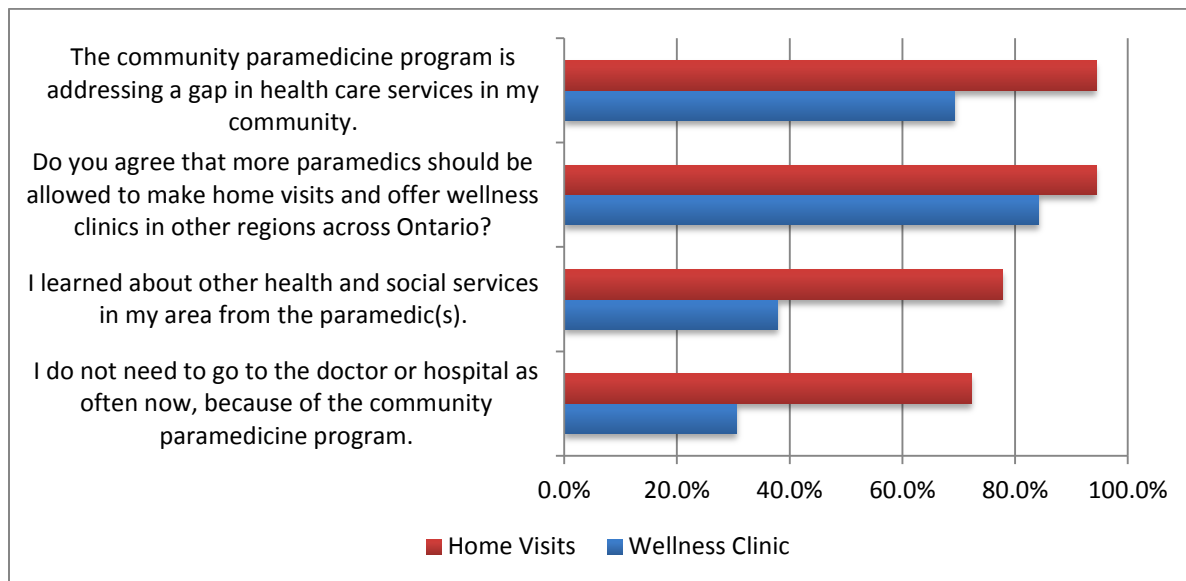
In the open-ended comments, for HV and WC patients alike, the ease of access was an important benefit of the program. One patient explained how the CP model facilitated their access to care, through:

The convenience of having them come to my home. Sometimes too sick or tired to go out (my age against me). Do not drive. They listened to me and validated me and took the time to talk to me. I don’t get that in a doctor’s office. Comfort of knowing someone was coming to my home to check up. (Patient 055, HV, Female).

Some patients were not only relieved that they no longer had to go to the ED or doctor’s office for minor issues, but also perceived that there were cost benefits to the system.

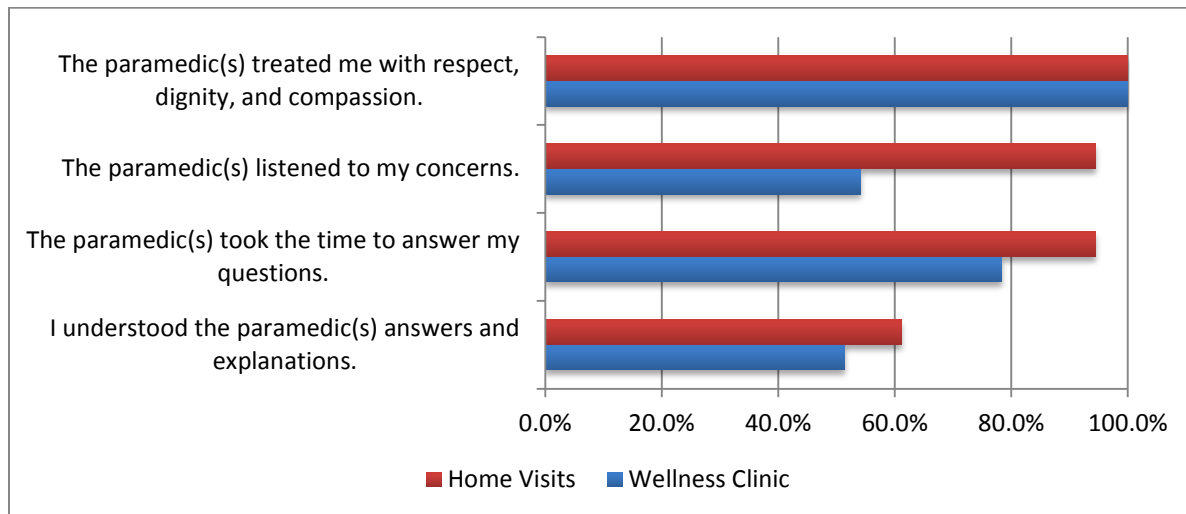
Many elders are not well enough to go to the doctor's office and wait for an hour and their problems are chronic and all they need is some monitoring. This service is also cheaper than a visit to the doctor. (Patient 001, WC, Female).

Figure 4: Percentage of patients that agreed or strongly agreed to statements related to the structural dimension



Interpersonal dimension. All patients (100.0%) agreed that paramedics treated them with “respect, dignity, and compassion” (See **Figure 5**). Given the time difference in the length of encounters between WC and HV with paramedics, it is not surprising that HV patients indicated greater agreement with statements about paramedics’ listening to their concerns, taking the time to answer questions, and understanding paramedics’ answers and explanations.

Figure 5: Percentage of patients that agreed or strongly agreed to the statements related to the interpersonal dimension of patient care



In the open-ended comments, patients indicated high levels of trust and appreciation for the paramedics. Many of the patients felt that the paramedics gave them the time they needed to be able to express themselves, provided explanations as needed, and were friendly, polite, caring, and professional. Some respondents contrasted CP with the rushed care they received at their physician's office.

Some patients described how CP allowed for the paramedics to see the whole person, and not just an illness. Particularly for HV patients, CP enabled the paramedics to acquire more knowledge of their patients, in turn ensuring that patients received the assistance that they needed.

Some patients also described how the paramedics served as health advocates for their patients. In particular, the paramedics could act as an intermediary between the patients and their primary care providers. As explained by one patient, *"I had bad swelling of the feet and 1 hand. Paramedic sent notice to doctor who phoned me and put me on a water pill that reduced the swelling"* (Patient 054, HV, Female). This is significant given the challenges described in seeing the physician (mobility challenges; long wait times for appointments) and reluctance to "bother" a busy physician with perceived minor complaints. In this particular case, it was also significant because the outcome was improved mobility for the patient.

Psychosocial benefits. Beyond the three dimensions of the PCCF, CP seemed to have a valuable psychosocial aspect as reported in the open-ended comments of the survey. Many patients reported that the CP services helped reduce anxiety, provided reassurance and/or an increased sense of security, and gave them peace of mind. As one patient described, they *"looked forward*

to having them [paramedics] come to give me some answers instead of waiting for a long time to see the doctor, get an appointment, etc. They eased my mind.” (Patient 055, Male, HV).

Overall, this psychosocial aspect appears to be an important component of CP because it seemed to contribute to an improvement in quality of life for the patients, and helped maintain independence for those living alone.

Patient recommendations. Beyond general recommendations that the CP programs continue and/or expand, recommendations for improvement were few. One patient thought that additional tests should be performed during the CP visits, such as blood glucose monitoring. A few commented that CP would benefit not just seniors, but any person with a disability, mobility challenge, or other severe illness.

The survey was launched in the northwest region at the same time that funding had ended for the 2015-2016 fiscal year, and before additional funds were received for 2016-2017. During this time, some CP programs (including Superior North) were discontinued for lack of funds, and many of the Thunder Bay patients that completed the survey were disappointed when the program ended: *“There is nothing I didn’t like about the program other than it wasn’t around long enough... I do know I valued it and would like it back.”* (Patient 055, HV, Female).

Limitations. The limitations of this study remain much the same as reported in the *2016 Final Evaluation Report*, including challenges related to patient recruitment and difficulty contacting patients; this is likely most responsible for the lower than expected number of patients in the sample. An insufficient number of caregivers meant that we had to exclude caregivers from the analysis. Lack of participation from Manitoulin-Sudbury and the imbalance in service type by region and service providers meant that we were unable to compare patient responses by region or provider.

2.4 Conclusions

Overall, the patients reported many positive experiences with the services that they received from the CP paramedics. Results from the self-reported health status items support the paramedics’ assertions (made during site visits for the *2016 Final Evaluation Report*) that WC patients are the “walking well” in contrast with HV patients, who tend to be much sicker and less mobile. While perhaps not surprising, we have not found this documented elsewhere.

The results seem to suggest that CP provides greater benefits to HV patients, however, caution is warranted. First, WC and HV components were largely delivered by different service providers in different regions, and it is unknown what effect that may have had on results. Second, for many items, WC patients frequently chose “not applicable,” and indeed, we acknowledge that some items were more appropriate for HV patients. For example, fewer WC

patients agreed that CP had reduced the need to go to the doctor or hospital, likely because they were not frequent users to begin with. Nevertheless, for many items, the majority of WC patients agreed that CP was beneficial. It is also worth noting that CP at the WC works at a primary prevention level, and this likely requires longer follow-up times to measure impacts.

Given the analysis of results with respect to the PCCF, it appears that the CP program fosters patient-centered care in rural communities. It helped facilitate access to care for patients, and helped improve their overall quality of life by improving psychosocial aspects of the patient experience. Most patients expressed positive comments when asked about the relationship between themselves and the paramedics. Patients also indicated that the paramedics created a comfortable and trusting relationship with clear communication, although communication was perceived to be less clear during WC encounters. It was apparent that many of the patients felt more confident in managing their own health and accessing appropriate health services in their community. Although the sample size was small (n=60), these results are an encouraging early sign suggesting that, from an elderly patient perspective, CP is an acceptable and accessible program that appears to be helping improve the patient experience in rural communities across northern Ontario.

3. Paramedic Perspectives

Summary

- Perspectives were elicited from 221 frontline paramedics in northern Ontario who completed an online survey about community paramedicine and quality of work life. Of these, 185 were working in areas with a CP program.
- More than one third (40.8%) of paramedics working in areas with CP programs reported some experience with CP, with significantly more rural (62.0%) than urban (15.5%) paramedics participating in some aspect of CP.
- Nearly all paramedics practicing CP believed that the services were acceptable, appreciated and well-received by patients.
- Nearly half of the paramedics who had not practised CP were interested in practicing CP, and 77.2% of all paramedics agreed that more paramedics should be allowed to practice CP across Ontario.
- As a whole, paramedics' quality of work life (QoWL) was average. However, preliminary results indicate a moderate association between higher QoWL and practicing CP. Paramedics practicing CP had better QoWL on two subscales (job-career satisfaction, stress at work) than paramedics without CP experience.
- Strengthening CP training and program management may increase paramedics' interest and satisfaction with CP.

3.1 Introduction

The purpose of this section is twofold. First, we report on paramedic perspectives related to community paramedicine in northern Ontario. CP is a relatively new approach to health care and there is very little information about CP from the frontline paramedics practicing CP. Second, we report on the Quality of Work Life (QoWL) of paramedics practicing CP compared to regular-duty paramedics not practicing CP in northern Ontario. While there has been previous research in relation to the impact of providing paramedics with additional duties within in their scope of practice (10), paramedic QoWL related to practicing CP has not been addressed.

3.2 Methods

From November 2016 to January 2017, an online survey was conducted with eight paramedic services across northern Ontario. **Figure 1** depicts these service locations on a map. The majority of these services provide pre-hospital care to rural areas throughout northern Ontario,

although many paramedics employed with these services also provide pre-hospital care in larger, urban centres. There are approximately 879 paramedics working in these service areas, and these include a combination of primary care paramedics (PCPs) and advanced care paramedics (ACPs). Of the eight participating services, six had established CP programs, while the other two were preparing to initiate CP programs in 2017. The majority of rural paramedic services used a model of CP wherein paramedics practiced CP duties on their regular shift, when not actively engaged on an EMS call. In the larger urban areas of Greater Sudbury and the City of Thunder Bay, CP was usually provided on dedicated CP shifts.

The online survey was distributed via email to paramedics by each service's Chief, Commander, and/or Community Paramedic lead. The survey consisted of both closed- and open-ended questions related to the paramedics' experiences with and/or opinions about CP (See **Appendix E**). It also contained two validated scales assessing QoWL and operational stress. The results of analysis related to operational stress are beyond the scope of this report, however preliminary results related to QoWL are included in this report.

The scale used to assess QoWL was the 23-Item Work-Related Quality of Life Scale (11, 12). This scale is comprised of six subscales that measure a worker's general well-being, control at work, home-work interface, career satisfaction, working conditions, and stress at work (11). QoWL is a holistic measure that also encompasses many aspects of occupational stressors that can affect workers. Higher QoWL scores are associated with lower rates of absenteeism, turnover, improved retention, improved job satisfaction, improved life satisfaction and lower occupational-related stress (11).

It was hypothesized that paramedics practicing CP would have higher QoWL than regular-duty paramedics not engaged in CP activities, and an independent samples T-test was used to test this hypothesis.

Within the rest of this chapter the use of the term paramedic is not referring to all paramedics in northern Ontario. The term paramedic is used throughout this chapter to refer only to those paramedics who participated in the survey, unless otherwise indicated.

3.3 Results & Discussion

Of the eligible paramedics, 221 completed the survey, yielding a response rate of 25.1%. For the purpose of the following analysis, the sample was restricted to the 185 paramedics working primarily in areas with functioning CP programs. Paramedic characteristics are presented in **Table 4**.

Participation in community paramedicine was measured by asking about CP activities and reflects paramedics' experience with any one or more of three types of CP activities: WCs, HVs,

and remote monitoring/ TeleHomeCare. Fewer than half of the respondents (40.8%) indicated participating in CP activities. However, significantly more rural (62.0%) than urban (15.5%) paramedics reported involvement in some CP activity. Of those reporting CP activity, 83% worked primarily in rural areas (Table 4)

Table 4: Characteristics of northern Ontario paramedic survey respondents

	%Total (n=185)	%CP (n=75)	%Non-CP (n=110)	P-value
Sex				ns
Male	71.6	64.0	76.9	
Female	28.4	36.0	23.2	
Age				ns
20-35	47.0	48.0	46.4	
36-50	35.1	33.3	36.4	
51-65	17.8	18.7	17.3	
Certification				**
Primary care paramedic	85.3	96.0	78.0	
Advanced care paramedic	14.7	4.0	22.0	
Years Employed				ns
0-9.9	46.5	52.0	42.7	
10.0-19 years	27.0	18.7	32.7	
20-29 years	16.2	18.7	14.6	
30+ years	10.3	10.7	10.0	
Employment status				ns
Full-time	70.7	65.3	74.3	
Part-time/Casual/Modified Duty	29.4	34.7	25.7	
LHIN				ns
North East	65.4	61.3	68.2	
North West	34.6	38.7	31.9	
Community Type				***
Rural	54.4	82.7	34.9	
Urban	45.7	17.3	65.1	
Interest in CP (among those with no CP experience)				
Yes	-	-	47.6	
No	-	-	22.6	
Maybe	-	-	29.8	

Urban and rural are defined by the population size of the main community of employment, as reported by the paramedic. Urban communities are defined as having a population $\geq 30,000$, and rural communities were defined as having a population $< 30,000$.

Pearson chi square test of independence/Fisher's exact was used for analysis; * $p<.05$; ** $p<.01$; *** $p<.000$; ns=not significant

Among paramedics participating in CP activity (n=75), the experience level varied (see **Table 5**). Urban paramedics were more likely to have participated in a WC than rural paramedics, although the difference was not significant (76.9% and 56.5% respectively). On the other hand, rural paramedics were significantly more likely to have conducted HVs than urban paramedics (77.4% compared to 46.2% respectively). Rural paramedics were also twice as likely to have been involved in remote patient monitoring (30.7% compared to 15.4% respectively), however the difference was not statistically significant. Of the paramedics who participated in any CP activity, nearly half (43.5%) indicated that they had participated in more than one of these activities.

Table 5: Service type, satisfaction, and preferences of paramedics practicing CP

	Total % (n=75)	Urban % (n=13)	Rural % (n=62)	p-value
CP service type †				
WC	60.0	76.9	56.5	0.222
HV	72.0	46.2	77.4	0.038
Remote monitoring/ TeleHomeCare	28.0	15.4	30.7	0.330
Satisfaction with CP				0.081
Very dissatisfied/Dissatisfied	21.9	0.0	26.7	
Satisfied/Very satisfied	67.1	84.6	63.3	
Don't know	11.0	15.4	10.0	
Practice preference				0.056
Regular EMS only	27.8	7.7	32.2	
CP only	5.6	15.4	3.4	
Combination of EMS & CP	66.7	76.9	64.4	

† Multiple responses possible; columns do not add up to 100%.

Pearson chi square test of independence/Fisher's Exact was used for analysis

Interest in practicing CP

When paramedics who had no experience with CP were asked if they would consider practicing CP, nearly half (47.6%) said “yes” and another 26.8% indicated “maybe” (Table 4). Thus, if provided the opportunity, more paramedics might choose to participate in CP. Three-quarters of all paramedics (77.2%) agreed that more paramedics should be allowed to practice CP across Ontario.

When asked which paramedic duties they would prefer to practice, a majority of all paramedics (58.1%) indicated they would prefer a combination of regular EMS duties and CP, with 38.1% indicating EMS only, and 3.8% preferring to practice only CP.

Among paramedics with CP experience, two-thirds indicated a preference for engaging in a combination of EMS and CP duties (**Table 5**). Paramedics with CP experience were significantly more likely to prefer a combination of EMS and CP duties (66.7%) than those with no CP experience (51.1%) (See **Appendix E**).

Overall Impressions of Community Paramedicine

Paramedics who practiced CP (n=75) were asked to indicate their opinions about CP through their agreement with a number of statements about CP (see **Appendix E for Summary of Responses**). In this section, the term “agree” includes the response categories “agree and strongly agree”; and “disagree” includes the response categories “disagree and strongly disagree”. The questions or statements that resulted in the strongest agreement from paramedics were with respect to the receptiveness and appreciation of the patients (97.3% agreed), and believing more paramedics should be permitted to practice CP (76.7% agreed). When paramedics were asked if they were satisfied with the overall impacts and outcomes of the program, two-thirds (67.1%) were satisfied or very satisfied, while 21.9% were dissatisfied, and 11.0% were not sure.

Other insights related to paramedic perspectives were compiled from analysis of the responses to open-ended questions at the end of the survey. Satisfaction with CP seems to originate from several sources. CP provides opportunities for paramedics to spend more time with their patients and understand their healthcare needs in greater depth. As one paramedic explained, CP provides the time to “*properly interact with patients/clients. With proper listening skills you can truly understand the issues at hand*” (ID 014). CP also provides the opportunity for paramedics to develop professional relationships with patients. As well, paramedics seemed to enjoy the educational aspect of CP, perhaps because it led to patient empowerment:

The aspect of giving individuals the opportunity to take their health into their own hands. Being able to open doors to them on how to take care of themselves. A lot of older residents want to get better but simply do not know how and this provides them with the resources to help themselves. (ID 067)

The additional time spent with patients on a CP call, as opposed to an emergency call, seemed to be an important factor that enabled paramedics to develop relationships and then provide health education to patients.

Although CP was generally well-received by paramedics, there were also challenges. To gain further insight into the CP programs, paramedics were asked what they felt could be improved. The responses indicated that some paramedics were concerned about what they perceived as a lack of organization in the operational details of CP. Several paramedics also indicated that it was difficult to schedule CP activities with patients because of the fear that paramedics would have to leave their patient for an emergency call. This was highlighted by one paramedic who

explained that CP:

should be dedicated to clinic[,] not just come on duty if available[,] should not have to take off and run for emergency or hold off on paperwork from previous call to do a clinic. (ID 165)

Another paramedic was more concerned with understanding what is expected of paramedics, stating:

I don't like how it is very unorganized and I really was just thrown into it. I also find I get no feedback if what I'm doing is the correct way. I find there is a lot of great possibilities for it but just don't feel we are there yet. (ID 012)

The perceived lack of organization and scheduling was seen as detrimental to the quality of the CP programs. For programs without dedicated CP services, scheduling may be improved through partnerships with other health care services (e.g. Health Links). There are some CP programs that have already embraced this model (See **Chapter 4**).

Wellness Clinics

Overall, paramedic responses related to their involvement in WC (n=45) were generally positive. For example, 86.7% of respondents agreed that WCs were acceptable to patients, while 61.4% agreed that WCs improved the wellbeing of patients. With respect to whether WCs reduced the number of unnecessary 911 emergency calls, 46.7% of paramedics indicated that they agreed, while 24.4% disagreed, and the remaining 28.9% did not know.

Several paramedics indicated that scheduling issues impeded the success of the WCs. As one paramedic explained, WCs:

Should not be done by on line crews. The risk of being called away by 911 and leaving the wellness clinic abandoned is too strong. Should be completed by dedicated crew or light duty medic who is not responsible for 911 calls. (ID 219)

The risk of possibly having to abandon WCs to respond to a call was the most common issue reported by paramedics conducting WCs.

Home Visits

Overall, responses related to HVs (n=54) were generally positive as well (see **Appendix E**). The vast majority of paramedics indicated that they believed the HVs were acceptable to the patients (92.6% agreed), and that they improved patient well-being (75.9% agreed). However, similar to the paramedic responses regarding WCs, fewer paramedics agreed that the HVs assisted in reducing the number of unnecessary 911 emergency calls, with 56.9% agreeing, 22.0% disagreeing, and 17.1% indicating they did not know.

Although paramedic perspectives of HV were generally positive, the paramedics' responses to open-ended questions indicated there was a need for better documentation and patient

reporting when performing HVs. One paramedic had several ideas for improving this aspect of the HVs:

Better documentation standards, including the use of an electronic, retrievable form to track patient status (e.g. to discuss trends with patient during visit)[...] it's not an emergency, but it's still an ambulance call. It should be treated and documented as such. Consider these visits 'medical appointments' instead of just a vital-signs checkup. Also, outside of a PPT [PowerPoint] I read through, I got no training. (ID 030)

Improved documentation and patient reporting may mitigate the issue identified in the *Final Evaluation Report* related to the importance of improving the tracking and documentation of CP activities (Ritchie et al., 2016).

Quality of Work Life

A total of 167 paramedics in the six service areas operating CP programs completed the 23-item Quality of Work Life (QoWL) scale. For each item, possible responses ranged from Strongly Disagree (score: 1) to Strongly Agree (score: 5). Summary scores were calculated, with possible scores ranging from 23 to 115. Paramedics who skipped two or more items in the scale were excluded from analysis; where a paramedic skipped a single item, an imputed value based on the individual's mean score for other items in the same subscale was used. In this sample, summary scores ranged from 37 to 105, with a mean of 74.0 (S.D. 13.49) and median of 74.0. Scores were approximately normally distributed. According to the scale developers, norms were developed such that individual scores between 72 and 84 are considered "average"(12).

Given that this scale has not been used with a paramedic population before, scores cannot be compared with other paramedic populations. However, the scale has been used extensively with other healthcare professionals, and this data was used to develop the norms(11).

According to the scale developers, those who score in the average range do not receive high amounts of satisfaction from their work, nor do they experience high dissatisfaction(11).

However, workers who score in the lower range experience dissatisfaction with their work and changes are recommended to reduce negative health effects(11). QoWL in the high range is linked with lower rates of absenteeism and turnover(11). Preliminary results are summarized in this report, however, further analysis is required to examine other factors that may be associated with paramedics' QoWL and this will be reported in the future.

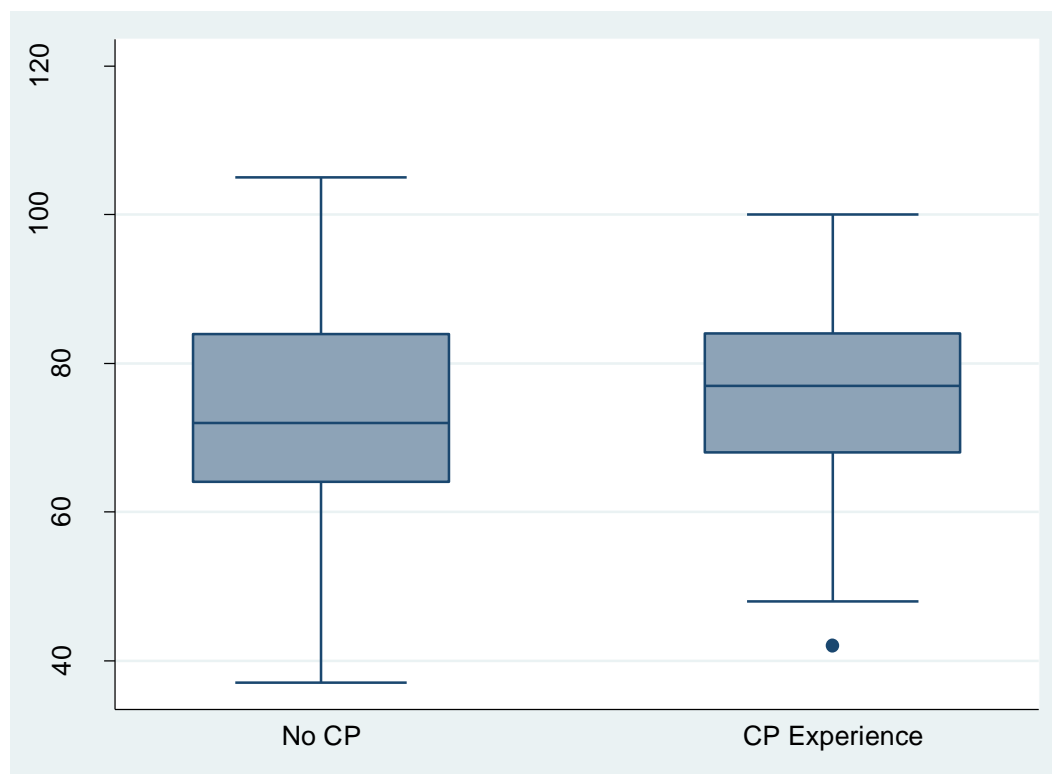
Comparing QoWL by participation in CP

An independent samples t-test was conducted to compare the summary QoWL scores of paramedics practicing CP (CP experience) to those who practice regular EMS only (no CP experience); the hypothesis was that paramedics practicing CP would have higher QoWL than EMS-only paramedics. The difference in the scores for paramedics practicing CP (n=75, M = 76.0, SD = 12.02) and regular duty paramedics not engaged in any CP activities (n=92, M = 72.4, SD = 14.45) was not significant at the .05 level; $t(165) = -1.71$, $p = 0.089$. However, the one-

tailed test was significant in the hypothesized direction ($p=0.04$), suggesting a moderate association between CP and QoWL. Given the study design, it is not possible to ascertain direction of causality; however, these results suggest this may be an important topic for further investigation.

Compared to norms compiled by the scale developers(11), the mean QoWL score for both groups is in the 40th percentile, and considered average QoWL.

Figure 6: QoWL summary scores, by level of CP experience



QoWL Subscales

We next compared the scores of paramedics with and without CP experience at the sub-scale level to better understand what factors might contribute to differences in QoWL. Scores were also compared to the norms established for healthcare workers. For all paramedics in this study, QoWL ranked as “average” for two subscales but “lower” for four. Paramedics practicing CP had significantly higher scores (than regular duty paramedics with no CP experience) on two subscales: Job Career Satisfaction and Stress at Work. Notably, the only sub-scale rated as “higher” QoWL (compared to norms) was for the Stress at Work subscale among paramedics with CP experience (**See Table 6**). A higher score on the Stress at Work subscale is indicative of lower stress at work.

Table 6: Comparison of QoWL scores for paramedics with and without CP experience, by QoWL subscale

Sub-scale	Maximum possible score	Total (n=167)		CP (n=75)		Non-CP (n=92)		p-value
		Mean	QoWL	Mean	QoWL	Mean	QoWL	
GWB	30	21.85	Average	22.0	Average	21.7	Average	0.660
HWI	15	8.54	Lower	8.73	Lower	8.38	Lower	0.374
JCS	30	19.53	Lower	20.29	Average	18.91	Lower	0.023
CAW	15	8.87	Lower	9.13	Lower	8.66	Lower	0.306
WCS	15	9.88	Lower	10.14	Lower	9.67	Lower	0.243
SAW	10	5.33	Average	5.65	Higher*	5.07	Average	0.044

Two sample t-test (2-tailed) was used for analysis. QoWL interpretation of scores (lower, average, higher) based on percentile table and norms for the UK National Health Service. GWB: General Wellbeing; HWI: Home-Work Interface; JCS: Job Career Satisfaction; CAW: Control at Work; WCS: Working Conditions; SAW: Stress at Work.

*Note that a higher QoWL score in the SAW subscale is indicative of *lower* stress at work.

3.4 Conclusions

Based on the results of this study, the majority of paramedics appeared to be in favour of CP in northern Ontario. Overall, paramedics practicing CP believed that the services were acceptable, appreciated and well-received by patients, and nearly half of the paramedics who had not practised CP were interested in practicing CP. However, paramedics also suggested that improved organization, training, and communication would improve the effectiveness CP and this would likely lead to greater interest and acceptance across the workforce.

Compared to other healthcare professionals, the QoWL of paramedics in northern Ontario is average, but there is preliminary evidence of higher QoWL among paramedics with CP experience in comparison to those who had no CP experience. To the best of our knowledge, this is the first study to assess QoWL of paramedics practicing in northern Ontario.

We do acknowledge that CP is in its infancy throughout the province of Ontario and funding is limited; and this poses additional challenges related to securing the resources for improving organization, training, and communication. Furthermore, it remains to be seen whether it is exposure to CP that leads to acceptance and desirability of practice or whether those paramedics who already have an affinity for CP are also those more likely to practice CP, thus accounting for acceptability of CP.

4. Commander Perspectives

Summary

- Perspectives and plans were compiled from two Commanders responsible for coordinating CP activities in two paramedic services in northeastern Ontario.
- Partnerships with other health and social service providers have enhanced the delivery of CP, including development of new CP activities.
- Paramedic engagement remains a challenge, however there have been successes related to increased paramedic interest, acceptance, and commitment.
- Improved paramedic training and the specification of CP expectations are important areas for future development.
- Data collection and reporting has improved, but acquiring a fully functional platform and capacity for data management and analysis remain goals for the future.
- Although core CP services remain similar, the service delivery models in the two districts appear to be diverging.

In this section, we explore the perspectives of two Paramedic Commanders who have been responsible for CP within their districts: David Wolff of the Manitoulin-Sudbury DSB-Paramedic Services, and Derrick Cremin of Cochrane EMS Services. This chapter serves as a follow-up and update to the 2016 *Final Evaluation Report* of the Cochrane and Manitoulin-Sudbury Joint Community Paramedicine Program(1).

The pilot program launched in April 2015 and initially focused on four rural communities in northern Ontario: Hearst and Smooth Rock Falls (Cochrane) and Gogama and Gore Bay (Manitoulin-Sudbury). Throughout the first year of CP activities, the Joint Program used a “discretionary time” model of CP, where regular duty paramedics delivered CP while not actively engaged on a 911 call. Key accomplishments in the first year included the development of online training modules for CP, in collaboration with Northern College; development of regular WC activities in Cochrane District; and recognition of a significant amount of CP being delivered on an informal basis. Remote patient monitoring activities (RPM) were beginning. However there were also challenges in the first year. In both Cochrane and Manitoulin-Sudbury, ad-hoc or paramedic-initiated HVs were slow to start, engagement with Circle of Care partners was limited, and collection of data on program activities was a challenge.

At the end of the second year of CP activities, a member of the evaluation team held interviews with the two Commanders, where the Commanders were asked to describe responses to the recommendations made in the 2016 Evaluation Report and provide program updates on developments and achievements for the past year (April 2016-March 2017). A topic guide was shared with the Commanders in advance. Throughout the discussions, some of the challenges and constraints faced by the Commanders were described, providing a glimpse into the unique context of CP in two different paramedic services in northeastern Ontario. The discussions concluded with the Commanders describing their views for the future development of their CP programs.

4.1 Program Status and Updates

Both programs have expanded the range of services considerably since the first year, so that some aspect of CP is available district-wide for both Cochrane and Manitoulin-Sudbury. Current activities described by the Commanders are summarized in **Table 6**. The Joint CP program has evolved in distinct ways within the two services, to the extent that they might now be considered different programs. Thus, for the purpose of this discussion, we will refer to two programs, rather than a single joint program.

Remote patient monitoring (RPM). Cochrane’s RPM service is functioning well in Smooth Rock Falls and Matheson, in collaboration with the Smooth Rock Falls Hospital and North Cochrane HealthLinks; at the time of the discussion, there had been a total of 18 RPM patients enrolled since inception, with 3 patients currently active.

Manitoulin-Sudbury is collaborating with the CCAC on a TeleHomeCare program similar to a RMP. In Manitoulin-Sudbury, paramedics install TeleHomeCare equipment and demonstrate its use to patients; the CCAC is responsible for ongoing patient monitoring after the initial install. Approximately 20-25 patients have enrolled in TeleHomeCare, with approximately 10 patients ‘graduating’ from the program after completion of the 5-6 month monitoring period.

Wellness Clinics (WCs). In Manitoulin-Sudbury, WCs are now offered in the social housing buildings in a number of communities (Gore Bay, Manitowaning, Massey, Webbwood and Espanola), in collaboration with a CMHA Community Mental Health Worker.

In Cochrane District, the CP program is building on its initial success with WCs, and is now operating in all base communities except Kapuskasing. In addition, Cochrane EMS has become a participant in CP@Clinic (formerly CHAP-EMS), with services underway in Timmins and preparations to launch soon in Hearst. This program is part of a randomized controlled trial (RCT) led by Dr. Gina Agarwal and the Department of Family Medicine at McMaster University

(13). The participation in WC activities in Timmins has been monitored as part of the RTC. Three sites were enrolled in CP@Clinic, achieving a 32% participation rate of building residents. Among all participants, 71% returned for a third WC(14).

Home visits (HVs). The HV component is slowly growing in both districts. In Cochrane, collaboration with the Smooth Rock Falls Hospital has led to provider referrals. At present there are seven HV clients split between two paramedic platoons. Paramedics in the communities of Cochrane and Iroquois Falls are also providing some HVs. In Manitoulin-Sudbury, participation in the TeleHomeCare program has resulted in some paramedics taking the additional step of making ad-hoc HVs to these patients. HVs have also been facilitated by the creation of Paramedic Response Units (PRU) within the Sudbury-Manitoulin Paramedic Service. Finally, a very active CP program has developed in the community of Chapleau; with the Chapleau HealthLinks embracing CP, the community was described as becoming a “hotbed” of CP activity.

Table 7: Summary of program updates from 2016-2017 - Commander perspectives

	Manitoulin-Sudbury Paramedic Service	Cochrane District EMS
CP Services	<p>WCs – in Social Housing Buildings, in collaboration with a CMHA Community Mental Health Worker</p> <p>TeleHomeCare: Now service wide – equipment installations and demonstrations, patient engagement. All communities have had at least one tele-homecare installation. Some paramedics initiating HVs as a result</p> <p>Chapleau – very active CP program in collaboration with Chapleau HealthLinks</p> <p>Initial WCs held in Wikwemikong First Nation</p>	<p>WCs provided to Smooth Rock Falls and Fauquier residents monthly</p> <p>HVs in Smooth Rock Falls with approximately seven clients between two platoons. Cochrane, Iroquois Falls – some HVs</p> <p>Expansion of services beyond pilot communities; nearly all communities are now doing some form of CP</p> <p>Remote patient monitoring services implemented in Timmins and Smooth Rock Falls</p> <p>CP@Clinic (formerly CHAP-EMS) underway in Timmins, under preparation in Hearst</p> <p>Facilitate lab and radiological testing by bringing resident from home to hospital to get tests done where no other method is available</p> <p>Resource binder developed for paramedics in collaboration with the Porcupine Health Unit to support referrals and collaboration</p>
Training	<p>Completion of 6th module for online training (not yet launched)</p> <p>TeleHomeCare installation training, with CCAC</p> <p>Planned Spring training – will include a preventive and ongoing mental health component</p>	<p>All paramedics have completed the first 5 modules of the online CP training with Northern College</p> <p>Remote monitoring training done with all staff in Smooth Rock Falls, other part-time staff</p>
Collaboration	<p>CMHA on WCs</p> <p>CCAC on TeleHomeCare Remote Patient Monitoring</p> <p>Chapleau HealthLinks</p>	<p>Smooth Rock Falls Hospital / HealthLinks for Referrals, Remote Patient Monitoring, facilitation of patient tests; collaborate with physicians, clinic staff</p> <p>Networking with CCAC to provide paramedic assessments in the home and facilitate healthy living at home for prolonged timeframes</p> <p>Porcupine Health Unit (CP@Clinic)</p> <p>Collaborating with MICS HealthLinks on CP</p>

Program Management	<p>Created more how-to structure for paramedics by clarifying expectations, processes</p> <p>Improved documentation of CP activities, including informal CP</p> <p>Creation of Paramedic Response Units (PRU)</p>	<p>Improved communications for paramedic safety and accountability while performing CP</p> <p>Some paramedics are doing excellent documentation.</p>
Constraints, Challenges	<p>Lack of suitable and affordable documentation system for CP</p> <p>Additional education/training required; should include grief management</p> <p>Paramedic engagement</p>	<p>No dedicated staff to provide CP; If a 911 call comes in before or during WC, paramedics must respond</p> <p>Cost of InterDev system; lack of reliable Wi-Fi access is a barrier to good documentation; also discouraging to paramedics</p> <p>Additional education/training required; lack of funds for more CP training</p> <p>Lack of data management capacity/need for data analyst</p> <p>Paramedic engagement</p>
Successes	<p>WC – patients with unmet needs for primary care, mental health care identified and connected with appropriate care</p> <p>Some known cases of improved health outcomes (e.g. uncontrolled BP is controlled); improved social outcomes</p> <p>Paramedics having positive experiences, developing relationships, becoming more engaged in CP; increased engagement of paramedics at clinics</p> <p>Chapleau – strong Circle of Care Provider engagement leading to “hotbed” of CP activity, including referrals, discharge planning, Tele-HomeCare</p> <p>Paramedics initiating HVs as a result of doing TeleHomeCare installations</p> <p>Paramedics increasingly doing Circle of Care referrals – on the verge of major growth of referral activity</p>	<p>Decrease in 911 volumes, ED visits, and clinic visits resulting from CP</p> <p>In Smooth Rock Falls, six residents have been able to stay in their homes for extended time due to the decrease in anxiety over their health issues</p> <p>CHAP-EMS model is better than WC model at connecting patients with resources, but each patient encounter takes more time</p> <p>Some known cases of improved health outcomes</p> <p>Paramedics who are engaged and passionate about CP are performing very well</p> <p>Paramedics recognized by CCAC, Hospital, physician and staff in Smooth Rock Falls for their dedication to community paramedicine</p>

4.2 Follow-up on Recommendations from the 2016 *Final Evaluation Report*

The 2016 *Final Evaluation Report* included 11 recommendations for the CP program. In this section, we present the Commanders' responses as to how they have addressed the recommendations thus far (See **Appendix A** for the full text of the recommendations).

R1: Assist paramedics with identifying frequent 911 users and other patients for Paramedic-Initiated Home Visits

This recommendation was made to encourage the development of the HV component of CP, which was lagging behind the WC component. In Cochrane, the CP Program Manager has mapped out a process to identify frequent users and high risk patients, and assign them to paramedics for HVs. Lack of administrative capacity, as well as the lack of a dedicated CP team has impeded the program's ability to implement the plan.

Nonetheless, increased collaboration and other developments have contributed to growth of the HV component. The Cochrane CP program has developed a strong partnership with the Smooth Rock Falls Hospital, leading development of CP in the region. Additionally, two other communities in Cochrane District have joined the CP@Clinic program; this program has its own mechanism for identifying patients, at no cost to the EMS service. In Manitoulin-Sudbury, the program has seen an increase in the number of referrals from physicians and other Circle of Care providers, particularly in Chapleau. And as discussed above, paramedics participating in TeleHomeCare device installations have also initiated HVs with these patients.

Paramedic-initiated HVs have also presented some newly identified management challenges, such as verifying whether paramedics have performed the visits. This further led to the recognition of risks to paramedic safety, if the whereabouts of a paramedic are unknown. One solution implemented within Cochrane District was to have paramedics carry radios and sign-in with dispatch while out making CP HVs.

R2: Support paramedics practicing CP with additional training opportunities and modalities, including retraining on the revised PERIL tool.

The need for more CP training was highlighted in the 2016 report. This recommendation included having all paramedics complete the Northern College training modules, provide re-training on the use of the revised PERIL tool, and incorporate other training modalities, such as ride-alongs with community paramedics in established programs, and seek other CP-related experiential learning opportunities for paramedics.

For both services, training of paramedics using the online modules developed by Northern College has been completed. A sixth CP training module has also been developed and is expected to be offered in the near future. This module, entitled *The CP Home Visit*, serves to tie

together modules 1-5 by demonstrating application of the concepts and tools, and may potentially address some of the concerns paramedics may have regarding the objectives of the CP visit.

More training has focused on specific CP service components. Paramedics involved in their respective remote patient monitoring (RPM) programs and in CP@Clinic have undergone additional training for those components. For their annual spring training, Manitoulin-Sudbury paramedics will receive training on preventive and ongoing mental health care.

It appears that the programs have not yet been able to support peer-to-peer or other experiential learning opportunities for CP, despite the Commanders' belief in its value. In Cochrane, the cost of implementing this more intensive training was estimated at more than \$15,000, which was not in the budget. However, it is acknowledged that more training is needed, with a diversity of training methods, in order to initially engage paramedics, to maintain their interest, and to help individual paramedics with diverse learning styles to connect to the material and gain the skills and confidence to perform CP activities.

It is unclear whether paramedics have been re-trained on the revised PERIL tool for the "assessment and referral" to the CCAC component. However, in collaboration with the Porcupine Health Unit, Cochrane District EMS developed a resource binder to support paramedics in learning about referring patients to other health and social services. Although paramedics' awareness of community resources is improving, they are not yet using the resource binder to its full potential.

Another challenge identified is that when paramedics are infrequently performing CP, they lose the knowledge and skills and require retraining.

R3: Implement a regular program review process

A regular program review process was recommended to strengthen program management and support to paramedics throughout the very large and dispersed service areas. This has not yet been implemented by either program. However, with the recent MOHLTC announcement regarding future funding for CP, and the requirement for Health Service Provider (HSP) partnerships, it is anticipated (and recommended) that a program review processes will fit with the individual partner agencies as a collaborative program review process.

R4: Promotion and Branding of CP Services

During the first year of the pilot program, it was noted that lack of awareness about CP was a barrier to service delivery, among other service providers and with the general public. Enrolled patients lacked familiarity with the term "community paramedicine" and could not distinguish between EMS and CP. To date, promotional initiatives to communicate CP to the general public have been limited, however in Cochrane District there has been some reporting on the program

via newspaper and television. Instead, the Manitoulin-Sudbury Paramedic Service has been promoting CP to potential care partners through efforts to build partnerships. However, a new home safety checks program will be “going public” in the near future in Manitoulin-Sudbury, where patients and/or family members can request services.

Cochrane District EMS is moving towards a CP model using dedicated paramedics rather than regular duty paramedics, but has not done so yet due to a lack of funding; so a plan for program branding is not in place. In the meantime, the program has been working with a key partner, Smooth Rock Falls Hospital, to clarify expectations and identify appropriate patients for whom the paramedics are prepared to provide HVs. This step was important because the hospital was initially sending paramedics for HVs outside the scope of the program’s focus on seniors, based on frequent use of 911 and ED services. Despite acknowledgement of the potential of CP to expand beyond geriatric patients, current programming focuses on seniors and paramedics are not yet trained to attend to provide service to patients with special needs.

R5: Documentation and Reporting

Documentation and reporting is an area of ongoing challenge. A new CP reporting tool was developed and implemented, including reporting on informal CP, and both Commanders report improvements in reporting consistency. However, both Commanders cited the lack of a suitable and affordable documentation system for CP as a key constraint in being able to document and report on program outcomes and impacts.

With the recent launch of CP@Clinic in Cochrane District, data collection and reporting have necessarily become more standardized in participating communities, and the participating sites use the InterDev system. Meanwhile, other Cochrane paramedics continue to experience connectivity challenges with unreliable Wi-Fi, and can lose submitted data and/or be forced to fill out reports on paper at the station, and this discourages some paramedics from participating in CP activities. The InterDev system is viewed as ideal because paramedics can complete the data forms on site, and upload the data to a server later, when connectivity is established. This robust data collection system could save time, eliminate redundancies, and improve paramedic engagement. However, at \$12,000 per year, the system remains unaffordable.

Solving the problem of data collection is only one part of the challenge. The Cochrane District EMS also lacks the human resources to effectively manage, analyze and report on the available data.

R6: Informal CP

In the first report, informal CP was recognized as a valuable but undocumented form of CP; this appeared to be particularly true in the smallest communities (such as Gogama) where paramedics were well known by citizens in the community and opportunities to collaborate

with other providers were extremely limited. In the revised reporting tool, paramedics can report on informal CP activity. In the most recent CP Quarterly Report to the Ministry, Wolff indicated that 35 informal community paramedicine encounters had occurred (Quarterly Report, Jan 31, 2017). It is unknown what proportion of informal encounters may be reported, however; these data may provide a starting point for further study.

R7: Engaging Circle of Care Partners

Since the 2016 report, both projects have made significant advances in developing partnerships and collaborating with Circle of Care providers, aided in part by the emergence of the Health Links. These collaborations have helped both programs leverage additional resources and expand their reach.

In the fall of 2016, Commander Wolff travelled throughout the communities of the Manitoulin-Sudbury Districts in an effort to expand knowledge of and engagement with Circle of Care partners. Particularly in Chapleau, strong enthusiasm for CP from Circle of Care partners and the Chapleau HealthLinks has led to numerous referrals for HVs and a thriving local CP program. Further, WCs have now been established in Social Housing buildings on Manitoulin Island and on the North Shore. This activity has been facilitated with the engagement of a Canadian Mental Health Association (CMHA) community mental health worker, who not only provides support to patients with mental health issues, but is also able to continue scheduled clinics in the event that paramedics need to respond to a 911 call. Further, partnering with the CCAC has led not only to the implementation of remote monitoring services, but has increased engagement from paramedics in performing HVs.

In Cochrane District, collaborations are highlighted by activities with the Smooth Rock Falls Hospital and the Porcupine Health Unit. The successful delivery of health promotion services was attributed to a strong partnership with the Porcupine Health Unit, who up until January 2017 had a representative at each WC. The Health Unit also collaborated on the development of a resource binder for paramedics. The Cochrane DSSAB was also sending a housing support community relations worker to WCs up to January 2017 as well, but stopped due to time constraints.

As part of this recommendation, CRaNHR was to implement another planned evaluation component, a community consultation project. This project has moved forward in the design stage in collaboration with both services. However, with the recent announcement of future CP funding flowing through the LHINs and designated health service providers, the project is on hold to assess the implications of the new funding model.

R8: Collaborate with First Nations Communities

Collaboration with First Nations Communities remains an underdeveloped area of potential. Two WCs have been held within a First Nation community on Manitoulin Island. Further

Collaborating for Quality Improvement

The research team collaborated with Smooth Rock Falls Hospital on a quality improvement project. A retrospective review of patient records was conducted to identify patients who were frequent users of the ED, or who had frequent inpatient admissions, during the 15-month period of April 1, 2015 - May 31, 2016.

Frequent ED users were patients who were seen in the ED eleven or more times during the study period. Twenty-six patients (2% of all ED patients) met the criteria for repeat ED visits, accounting for 623 ED visits (18% of ED visits). The most common reason identified for frequent ED use was for dressing changes.

Frequently admitted patients were those admitted to hospital three or more times during the study period. Seventeen patients accounted for 28% of admissions and 582 inpatient days. The most frequent reason for repeat admission was COPD, while renal failure accounted for the greatest number of inpatient days.

As a result of these findings,

- (1) The Hospital consulted with the CCAC to address barriers and implement a contract to provide home nursing care for dressing changes and antibiotic treatments;
- (2) The Hospital collaborated with the Community Paramedicine (CP) program to launch a referral-based CP HV program;
- (3) Patients with COPD, congestive heart failure, and other chronic diseases were identified and referred to the CP remote patient monitoring program.

Ultimately, by helping patients avoid unnecessary trips to the ED, as well as hospitalization for ambulatory care sensitive conditions, the project is expected to contribute to appropriate use of resources as well as better services and care for patients. The Smooth Rock Falls Hospital continues to be an active partner in Community Paramedicine in Cochrane District.

engagement and clarification of community desire would be valuable. In Cochrane, a part-time dedicated CP position has been recommended to provide CP services, including to a First Nations community, however, this model has not yet been approved.

R9: Activity Interruption

A key limitation of the regular duty or “discretionary time” model of delivering CP services was the potential for paramedics to receive an EMS call while performing CP, leading to the undesirable abandonment of their CP patients. Partnerships with other providers have helped address service interruptions at WCs. For example, partnering with the CMHA worker at the DSSAB buildings on Manitoulin Island has enabled the paramedics to participate in WCs without the concern of activity interruption. If the paramedics are required to respond to a call, then the clinic can continue with patients being seen by the CMHA worker. Manitoulin-Sudbury District has also been able to ensure that TeleHomeCare installation appointments are not interrupted, as the installations are paid by the CCAC and are not conducted during regular EMS shifts. In Cochrane, WCs are also held at CDSSAB residences, and if paramedics must leave to respond to a call, they are able to return the following day to complete the clinic. In Timmins, paramedics at WCs have other paramedics filling-in for them on emergency response, so there is no interruption of WC services for 911 response. However, in Cochrane District, there is a preference for having a designated CP team, which would eliminate potential issues with activity interruption.

R10: Expanding Geographic Coverage

In a related point, because paramedics might potentially need to respond to a 911 call, CP was limited to the immediate area near the EMS base; this was termed the “proximity paradox” because patients who live at more remote locations were potentially in greater need of HVs. One strategy used by Manitoulin-Sudbury to “untether” paramedics and expand the reach of CP is through partnerships. For example, as noted above in the partnership with the CCAC, the installations were performed by paramedics in addition to EMS coverage, which is not affected, so paramedics could travel further to any patient’s location.

As noted previously, the Cochrane District’s preferred approach to resolving this (and other) problems with the discretionary time model is to move to a dedicated CP model. Plans are to have a CP team based in Timmins that would cover the entire district.

R11: Scope of Practice

Awareness of services provided in other CP programs, along with preliminary findings from the patient survey, were the basis of the recommendation to explore opportunities to offer more services to patients. More recently, within the MOHLTC’s draft Community Paramedicine Framework (2), it appears that there is policy support for expanding paramedic scope of practice through delegated acts. Nonetheless, the two Commanders differ in their interest in expanding the scope of practice provided in community paramedicine.

In the Manitoulin-Sudbury program, the priority is to use CP to enhance and support the work of other programs and providers, and to avoid duplication. The program in Cochrane, however, is hoping to work with the base hospitals and potentially expand CP to include lab values and

urine tests; however, there would be costs associated with the additional paramedic training.

4.3 Challenges and Successes

Challenges

As discussed in the previous section (4.2), budgetary constraints have hampered the programs' ability to provide more training for paramedics, as well as a functional data collection and management platform. However, the program model of using regular duty paramedics, and expecting all paramedics to participate in CP in their discretionary time also creates significant challenges. Many of the challenges of the discretionary time model remain and uncertainty over funding and program continuity may have constrained program development.

Paramedic engagement. A distinct feature of these programs is that paramedics are expected to participate in CP in their discretionary time while on shift during regular EMS duty. This "discretionary time model" is unlike the more common model that makes use of dedicated community paramedics. While adapted for the circumstances of the north, with its typically lower call volume, the model contributed to challenges in generating paramedic buy-in. According to Wolff, one challenge is that a culture shift is required; whereas paramedicine is reactive to emergencies, community paramedicine is proactive and preventive by nature. This suggests that the challenge is not necessarily inherent to the model, but reflects a mismatch between the model and current culture which must adjust over time to be aligned to have a smoothly functioning system.

Even where a dedicated CP shift is available, such as for the CP@Clinic program, there are barriers to paramedics' volunteering. The Cochrane Commander suggests that the length of the CP shift, at 4-6 hours in length, is shorter than regular EMS shifts, and paramedics may worry that in accepting a CP shift, they lose the opportunity to work a regular shift.

Beyond culture change, other explanations for paramedics' resistance seem to include lacking a clear set of objectives that are sufficiently well-defined for community paramedicine, as suggested both by the paramedic responses (see Chapter 3) and the Commanders. Lack of feedback on CP performance is another management challenge. More clearly defined CP requirements/expectations and establishing a regular CP review process (see Recommendation 3 above) may provide structured opportunities for reducing paramedics' hesitancy to engage in CP

Over the past year, the Commanders have been working to increase paramedic engagement through several different mechanisms, from providing paramedics the opportunity to develop the CP crest for program branding, to running small contests for CP referrals. In Manitoulin-Sudbury, more efforts have been made to provide feedback to the paramedics, refining the

reporting mechanisms, and developing further training modules.

Maintaining patient trust. The relational nature of CP was identified as a key learning in the *Final Evaluative Report*, and it remains a priority to build this trust and avoid disrupting it. The Commanders report that the paramedics are provided a certain level of automatic trust by virtue of their roles as paramedics. However, structural features of the program or model – such as a constant rotation of different paramedics providing WCs or making HVs – could discourage patients, since they would be less willing to disclose their personal health information to several different paramedics, leading to a lower level of trust. It is important to continue monitoring patient perspectives to ensure that program design features do not become a barrier to patient needs and satisfaction.

Uncertainty. While both districts have made advancements in CP, uncertainty over funding and the continuation of the program potentially discouraged partnerships. It was thought that potentially there might have been more commitment to CP from external partners if the partners knew the program was going to continue; it is difficult to dedicate resources and time to a program with an uncertain future. With the recent announcement that funding would be available through the LHINs for CP programs that are developed with HSPs, some of these concerns may be allayed.

Successes

Despite the challenges, both Commanders remarked on what were for them notable successes. One of the keys is that some paramedics report feeling success within CP leading to increases in paramedic engagement; often this is related specifically to successes with patient outcomes.

Increase in paramedic engagement. Despite challenges with paramedic buy-in, there are also reports of paramedics who are enthusiastic about CP. These paramedics volunteer for WCs, provide thorough documentation of their CP encounters, or initiate ad-hoc HVs. In Manitoulin-Sudbury, engagement of paramedics has noticeably increased as they gain experience through WCs and TeleHomeCare, as evidenced by some spontaneous requests to engage in HV.

Patient outcomes. The Commanders shared stories of paramedics' successful identification of previously undiagnosed health conditions among CP patients, including potentially life-threatening conditions. Either through the paramedics' advice or through direct referral, these patients were able to obtain treatment for their conditions, potentially preventing a serious illness or emergency. While few in number, these exemplars of the life-saving impact of CP appeared to have a profound impact on the paramedics and the Commanders themselves.

The Commanders described how simply knowing the paramedics are coming for a WC has influenced patients. One serious example that occurred in Cochrane District involved a patient who described how, were it not for the paramedics' scheduled WC, he had planned to attempt

suicide. The paramedic quickly responded by contacting the patient's family doctor and scheduling an appointment, contacting the CCAC and other community programs, and lastly by taking time to provide social support to the patient. These steps were able to connect the patient with the care he needed.

Beyond health status outcomes, other benefits to patients have been noted. For example, in Smooth Rock Falls, six patients have been identified who were able to successfully continue living in their own homes for much longer through their involvement in CP.

4.3 Vision of the Future

The two paramedic services continue to pursue new initiatives and explore how to best manage CP within their contexts. With different visions of the way forward and goals for the near future, the programs are likely to continue to diverge, as each seeks to capitalize on local resources and partnerships. Despite this difference, both Commanders consider their CP programs to be financially sustainable, but more could be achieved with additional financial investments.

In particular, Manitoulin-Sudbury Paramedic Service remains committed to developing the "discretionary time" model, while Cochrane District looks forward to transitioning to a dedicated CP model; this would enable paramedics to self-select whether or not to practice CP and thereby join a dedicated CP team. A CP team based out of Timmins would have the capacity for delivering CP across all of Cochrane District. Despite the different visions for the two programs, both programs currently appear to have hybrid models of CP, with some activities delivered in a more "dedicated" model, and others under the discretionary time model, depending on funding and other program requirements.

In Manitoulin-Sudbury, planned future directions include building upon paramedic training and enhancing collaboration across agencies. In particular, collaboration with three Health Links will occur, along with further development of Remote Patient Monitoring and the TeleHomeCare installations with the CCAC. Areas for further exploration include unmet needs for mental health and palliative care, with the goal of developing services that complement or enhance the work of other providers. Manitoulin-Sudbury Paramedic Services will soon be launching a public referral option, where members of the public will be able to request Home Safety Checks for themselves or their loved ones. The service will be modelled on the Independent Living Guide from the Sudbury and District Health Unit. It is anticipated that the program will be able to accommodate requests for home safety checks within two business days.

Strengthening relationships with the CCAC, as well as, with the LHIN and family health teams were identified as future areas of development for the Cochrane District CP Program. Building

on its strong relationships, plans may include a potential trial of an Emergency Department Diversion program in collaboration with the Timmins and District Hospital and a local seniors' home, with one component related to influenza and the second to patient management after falls. According to Cremin, some future initiatives are readily possible due to existing infrastructure or equipment, such as remote patient monitoring, whereas others are constrained due to a lack of resources.

From the perspective of the Paramedic Commanders, valuable areas of future monitoring include the long-term impact on patient outcomes. However, the challenges with data collection and analysis persist because of a lack of resources. As previously noted, the purchase of a data platform, that would enable paramedics to complete patient records offline, is seen as a potential mechanism through which to enhance data collection and management (as well as paramedic buy-in). However, the ability to hire a data analyst is just as important.

Potential future areas for training and CP activity development include palliative care, pain management, and mental health. On the professional development side, the relationship of CP to quality of working life and operational stress injury should continue to be explored. While noting the potential positive benefits of developing relationships with patients on paramedics' quality of working life, the potential downside is that paramedics may have to learn to cope with the death of patients they have come to know well. Given that paramedics do not characteristically develop relationships with patients when performing their EMS role, training and other supports may be needed to assist paramedics in coping with inevitable loss in their new role as community paramedics. It remains to be seen whether community paramedicine can contribute to improved health and well-being outcomes for paramedics, but it is an important avenue of exploration.

Table 8: Summary of future plans for CP in Manitoulin-Sudbury and Cochrane

	Manitoulin-Sudbury Paramedic Service	Cochrane District EMS
Goals/Priorities for the future	<p>Collaborate with HealthLinks, expand Tele-HomeCare, implement home safety checks</p> <p>Get paramedics into the homes to identify people falling through the gaps</p> <p>Learn about how CP can engage with mental health, palliative care/pain management</p> <p>Study benefits of CP on paramedics' work-life, impact on OSI</p>	<p>Transition to a dedicated district-wide program that would address the needs of the communities that are covered by the Cochrane District EMS model. The model should include two full-time staff that would visit each community regularly and provide WCs, CP@Clinics and remote monitoring to allow residents of each community to thrive in their own homes for many years to come.</p> <p>Develop and pilot test, in collaboration with the Base Hospital and the district nursing homes: (a) a falls risk prevention program, and (b) an influenza bypass program, using two dedicated community paramedics.</p> <p>Provide more comprehensive hands-on training to show paramedics true life scenarios and increase comfort with assessment tools. This may raise the paramedic commitment to the program.</p> <p>Obtain data platform and administrative support.</p> <p>Continue to target frequent 911 callers with CP interventions.</p>

5. Conclusions

The primary purpose of this report was to explore the perspectives of three different groups of stakeholders regarding their experiences related to the recent Pilot CP programs launched in northern Ontario: patients, paramedics, and commanders. As we presented in Chapter 2, patients perceived that CP is acceptable and desirable, and CP seems consistent with the key elements of patient-centred care, according to the framework of Greene et al.(7). In Chapter 3, we presented how most paramedics perceived CP as a positive development in paramedicine. The paramedics who practice CP believed that it resulted in positive outcomes for patients and paramedics, however they also believed that CP could be improved in terms of organization and communication. In Chapter 4, we reviewed the progress of two CP programs and simultaneously shared the perspectives of two Commanders responsible for CP; they both believed CP was a valuable and growing field. However, the Commanders also recognized that there were challenges surrounding program implementation and paramedic engagement.

It appears that both patients and paramedics agree that more people could benefit from CP than who are currently eligible for services. Indeed, 88% of the patients agreed that CP programs should be expanded beyond the original programming. These benefits also seem to extend beyond the three clinic-based dimensions of Greene et al.'s(7) patient-centred care (interpersonal, clinical, structural) to include psychosocial benefits for patients related to the service itself as well as interactions with other patients at WCs. The number of participants in the patient survey was small but the results suggest that CP is something that patients find easy to access and that meets their needs.

However, it is important to remember that paramedic services that begin offering CP are entering into a substantive organizational culture change that is primarily characterized by a shift in responsibilities from being reactive to proactive; emergency response to emergency prevention; and a focus on package and transport to education and health promotion. By incorporating CP into northern and rural paramedics' regular duty we are observing promising achievements and yet there are still challenges.

The concerns that the paramedics expressed (See **Chapter 3**) are considered serious enough that they should be addressed as soon as possible to avoid entrenching the negative experiences surrounding CP. At the same time, anecdotal reports seem to indicate that some of the resistance to engaging in CP may come from a lack of exposure, understanding and training. Ultimately, engaging and consulting paramedics in the ongoing process of CP development and implementation is important to ensure: (1) they feel valued and are part of the change process; (2) they are contributing to the development of the CP system they will be working in; and (3) the CP system benefits from front-line work experiences and insights relevant to the geography, culture, and context of northern Ontario. Responses from the

Paramedic Survey suggest that there is openness to this engagement.

CP in northern Ontario continues to be dynamic, adaptable, and experimental. CP has potential to be synergistic when paired or included with other health services or initiatives such as Health Links or Remote Patient Monitoring. Both Commanders have embraced a long-term vision of CP as something that will yield positive results as the demographics shift within the population of the province of Ontario, and increased demand is placed on health care services. While there are still many challenges and anticipated changes to CP in northern Ontario, the Commanders' focus has been on building integrated structures of care that are sustainable, rather than rapidly applying temporary solutions. However, this focus has been hampered by the lack of information and uncertainty related to CP in terms of funding and departmental responsibility within the health system. It is worth noting that uncertainty over funding and program longevity has a negative impact on patients and paramedics. Yet, with the recent MOHLTC announcement regarding the provision of base funding for CP to the LHINs and the release of the draft CP framework by the MOHLTC, the responsibility for CP appears to be moving beyond the exclusive domain of EMS, and collaboration between paramedic services and Circle of Care partners will necessarily increase.

As described in the *2016 Final Evaluation Report*, challenges with data quality have persisted. Indeed, challenges with data quality, and the human resources for data analysis, remain primary roadblocks to developing effective CP into the future. More user-friendly, systematic, and long-term data collection tools are required in order to effectively record and track patient data, link and share patient data within the Circle of Care, and provide summary statistics that are valid and reliable in order to support ongoing evaluation of CP services.

5.1 Capacity Building and Knowledge Translation

The CRaNHR team became involved in CP-related research in the late fall of 2014. Since that time they have been involved in numerous capacity-building (CB) and knowledge translation (KT) activities as outlined in **Appendix F**. Furthermore, two Laurentian graduate students have been involved in this research, and it is anticipated they will defend their theses sometime in 2017. The results and findings presented in Chapter 2 and Chapter 3 were part of two research projects that were undertaken in partial fulfillment of the requirements for these students' degrees; a Master's degree in Human Kinetics and a Master's degree in Interdisciplinary Health. As a requirement of their degrees, the students are in the process of authoring papers on their findings and analyses which they intend to submit for consideration as peer-reviewed publications. These CP and KT activities are important contributions to the provincial evidence because they represent the rural and northern perspective related to CP.

5.2 Final Conclusions

There was a high level of satisfaction with community paramedicine among the patients, paramedics and commanders, and the majority of paramedics supported the continuation and expansion of CP. Although exposure to CP seems to reflect increasing interest across paramedic and patient populations, paramedic involvement and engagement in CP remains an important area on which to focus efforts in the near future. Ultimately, the effectiveness of CP in northern Ontario rests with the commitment and buy-in from frontline paramedics. Enhancing commitment and buy-in is one key element of the ongoing cycle of learning and improvement required in order to establish an effective model of CP for rural and remote communities in northern Ontario.

With continued improvement, through program refinement, education, and cross-agency collaboration, we anticipate that most of the challenges and barriers related to CP in northern Ontario can be overcome with time. We are confident in this assertion based on the compiled perspectives from patients, paramedics, and Commanders who participated in this evaluation process. (See **Table 8**).

Table 9: Summary of Key Findings in northern Ontario

Perspective	Findings
Patient Perspectives (n=60)	<ul style="list-style-type: none"> Patients were very complimentary about paramedics as caring, friendly, and professional service providers. HV and WC patients alike valued CP for the ease of access and the reassurance provided by the paramedics monitoring their health concerns. All HV patients and 83% of WC patients agreed that the CP program made them feel more supported and connected in the community. Self-reported physical and mental health status of HV patients was lower than WC patients, and HV patients were more likely to agree with statements about the benefits of CP. Nearly all (91.7%) patients were satisfied with the CP services they received, and 98.3% would recommend the CP program to others. Patient perspectives on CP suggest that the service model is consistent with a patient-centred framework that includes interpersonal, psychosocial, clinical, and structural dimensions.
Paramedic Perspectives (n=221)	<ul style="list-style-type: none"> Perspectives were elicited from 221 frontline paramedics in northern Ontario who completed an online survey about CP and quality of work life. Of these, 185 were working in areas with a CP program. More than one third (40.8%) of paramedics working in areas with CP programs reported some experience with CP, with significantly more rural (62.0%) than urban (15.5%) paramedics participating in some aspect of CP. Nearly all paramedics practicing CP believed that the services were acceptable, appreciated and well-received by patients. Nearly half of the paramedics who had not practised CP were interested in practicing CP, and 77.2% of all paramedics agreed that more paramedics should be allowed to practice CP across Ontario. As a whole, paramedics' quality of work life (QoWL) was average. However, preliminary results indicate a moderate association between higher QoWL and practicing CP. Paramedics practicing CP had better QoWL on two subscales (job-career satisfaction, stress at work) than paramedics without CP experience. Strengthening CP training and program management may increase paramedics' interest and satisfaction with CP.
Commander Perspectives (n=2)	<ul style="list-style-type: none"> Partnerships with other health and social service providers have enhanced the delivery of CP, including development of new CP activities. Paramedic engagement remains a challenge, however there have been successes related to increased paramedic interest, acceptance, and commitment. Improved paramedic training and the specification of CP expectations are important areas for future development. Data collection and reporting has improved, but acquiring a fully functional platform and capacity for data management and analysis remain goals for the future. Although core CP services remain similar, the service delivery models in the two districts appear to be diverging.

Note that the study area for each component is different. **Patient Perspectives** – patients of three CP programs participated: Cochrane District EMS, Rainy River EMS, and Superior North EMS. **Paramedic Perspectives**: Paramedics from eight services participated: Algoma EMS; Cochrane District EMS, Manitoulin-Sudbury Paramedic Services; North West EMS (Kenora District); Parry Sound EMS; Rainy River EMS, Sudbury Paramedic Services (City of Greater Sudbury); Superior North EMS (Thunder Bay City & District); **Commander Perspectives**: Cochrane District EMS and Manitoulin-Sudbury Paramedic Services.

Overall, CP in northern Ontario continues to offer promise. CP is evolving rapidly as emergency services and the health care system attempt to increase capacity, within fiscal constraints, in order to meet the needs of an aging population. Further engagement with some of the recommendations from the *2016 Final Evaluation Report*, such as collaboration with First Nations communities, is encouraged. Indeed, when considering the development and expansion of CP services, it is important to ensure that the services are aligned with community perception of need through needs assessment or based on the recommendation of community leaders. If there is a mismatch between the provision of services and the perception of need, then a well-developed program may not be effective. This is especially important in rural and northern communities that are diverse (geographically and culturally) and have limited access to the broad array of health care services (options and alternatives) available in southern Ontario.

References

1. Ritchie SD, Sherman J, Gallo K, Prevost C, Nixon J, Wolff D, et al. The Algoma, Cochrane, and Manitoulin-Sudbury Joint Community Paramedicine Program: Final Evaluation Report. Report Submitted to the Ministry of Health and Long-Term Care (MOHLTC) on June 30, 2016. Document is confidential. Funded by MOHLTC & Laurentian University. Sudbury, ON; 2016.
2. Ministry of Health and Long-Term Care. Community Paramedicine Framework for Planning, Implementation and Evaluation. Draft for Discussion. 2017.
3. Information and Privacy Commissioner of Ontario. Circle of Care: sharing personal health information for health-care purposes. 2015.
4. Sinha SK. Living Longer, Living Well. Report submitted to the Minister of Health and Long-Term Care and the Minister Responsible for Seniors on Recommendations to Inform and Seniors Strategy for Ontario. 2012.
5. Patterson GD, Coulthard C, Garberson LA, Wingrove G, Larson EH. What is the potential of community paramedicine to fill rural health gaps? *Journal of Health Care for the Poor and Underserved*. 2016;27(4):144-58.
6. Ministry of Health and Long-Term Care. Patients first a proposal to strengthen patient-centred health care in Ontario. Discussion Paper. ON: MOHLTC; 2015.
7. Greene SM, Tuzzio L, Cherkin D. A framework for making patient-centred care front and centre. *The Permanente Journal*. 2012;16(3):49-53.
8. Statistics Canada. Census Datasets 2016 [Available from: <http://www12.statcan.gc.ca/datasets/index-eng.cfm?Temporal=2011>].
9. Agarwal G, McDonough B, Angeles R, Pirrie M, Marzanek F, McLeod B, et al. Rationale and methods of a multicentre randomised controlled trial of the effectiveness of a Community Health Assessment Programme with Emergency Medical Services (CHAP-EMS) implemented on residents aged 55 years and older in subsidised seniors' housing buildings in Ontario, Canada. *Bmj Open*. 2015;5(6):e008110.
10. Reeve C, Pashen D, Mumme H, De La Rue S, Cheffins T. Expanding the role of paramedics in northern Queensland: an evaluation of population health training. *Aust J Rural Health*. 2008;16:370-5.
11. Van Laar DV, Edwards JA, Easton S. The Work-Related Quality of Life scale for healthcare workers. *Journal of Advanced Nursing*. 2007;60(3):325-33.
12. Easton SA, Van Laar DV. User Manual for the Work-Related Quality of Life (WRQoL) Scale: A Measure of Quality of Working Life. First Edition ed. Portsmouth, UK: University of Portsmouth; 2012.
13. Agarwal G, Angeles RN, McDonough B, McLeod B, Marzanek F, Pirrie M, et al. Development of a community health and wellness pilot in a subsidised seniors' apartment building in Hamilton, Ontario: Community Health Awareness Program delivered by Emergency Medical Services (CHAP-EMS). *BMC Res Notes*. 2015;8(113):6.
14. Agarwal G, McLeod B, Dolovich L, Angeles R, Marzanek F, Parascandalo J, et al. CHAP-EMS Community Health Assessment Program through Emergency Medical Services: Stakeholder Report May-June 2016. 2016.

Appendices

Appendix A: 2016 Final Evaluation Report Recommendations

1. Eligible Patient Identification. The initiation of Home Visits has been slow at each site. During the site visits, it seemed that some paramedics were hesitant and uncertain about who and how to identify those patients that could benefit from a Home Visit. ***We recommend that the Emergency Medical/Paramedic Service Providers support the sites practicing CP by supplying them a list (or help them develop a list) of potential patients (i.e. frequent 911 users) that could benefit from regular Home Visits.***

2. Paramedic Training. The CP program is in its infancy, and most paramedics at the four sites received less than a day of training. The skill set required for health education and promotion activities is substantively different than the skill set required for emergency response. Beyond “knowledge” focused training, learning from peers may be equally if not more effective, both in terms of applying CP concepts, approaches, and tools, and in supporting the culture change that is part of CP. This could involve having paramedics visit other services and perhaps observing other paramedics with more CP experience. Another possibility is supporting attendance at the Community Paramedicine Forum or other similar opportunities for CP knowledge exchange. Additionally, paramedics that completed training using the original PERIL tool must be retrained to use the revised version of the tool. ***We recommend that the Emergency Medical/Paramedic Service Providers support paramedics practicing CP with additional training opportunities, including retraining on the revised PERIL tool.***

3. Program Review Process. The CP program is relatively new and each site (community) has different contextual elements (geography, demographics, available health services, proximity to hospital, etc.). Additionally, the expectations related to engaging in CP activities are a substantive shift in organizational culture from the lights and sirens of a 911 dispatch call. This requires an accountability mechanism for ongoing surveillance, dialogue, and program adaptability and improvement. ***We recommend that the Emergency Medical/Paramedic Service Providers implement a regular CP Program Review process, at an appropriate frequency (i.e. monthly or quarterly), with each site engaged in CP activities.***

4. Promotion and Branding. Observations during site visits with paramedics and comments on the patient survey suggest that there is often a misunderstanding or misconception surrounding CP activities that are performed by paramedics who are usually associated with ambulance-based emergency services. Although this confusion could be expected with the launch of a new program, it can be mitigated through public information

and communication activities. *We recommend that the Emergency Medical/Paramedic Service Providers focus on developing more promotional material and branding CP so it is clearly differentiated from emergency response.*

5. Documentation and Reporting. Feedback from the paramedics during the site visits was clear and consistent about the difficulties of documenting CP activities; and there were additional challenges related to compiling the data in preparation for this Final Evaluation Report. High quality administrative data related to CP activities is critical to being able to evaluate the effectiveness of the CP program, especially with respect to linking with hospital data through ICES to assess the impact of the program on the health system. *We recommend that the Emergency Medical/Paramedic Service Providers review the administrative data acquisition system to ensure that all CP activities are documented with minimal errors and omissions.*

6. Informal CP. One insight that emerged from the site visits was that many paramedics living in small communities often have dual relationships with the patients they are serving. In other words, the paramedics often have both a paramedic-patient relationship and a friend/neighbour relationship. This leads to many informal conversations and interactions in the community, and many of these interactions involve health-related conversations. These informal conversations often lead to insights on a patient's condition or outcome in regards to their previous diseases/hospital admission. *We recommend that the Emergency Medical/Paramedic Service Providers seek to better understand, manage, and document these informal encounters with community members as CP activities.*

7. Engaging Circle of Care Partners. Numerous Circle of Care partners and organizations provided letters of support prior to the launch of the CP program, but the system of referrals, communication, and collaboration at each site has been slow to develop. *We recommend that the Emergency Medical/Paramedic Service Providers collaborate with the CRaNHR research team to engage Circle of Care Partners and collectively identify and implement methods to strengthen CP referrals and health services integration that meets the unique needs of each community.*

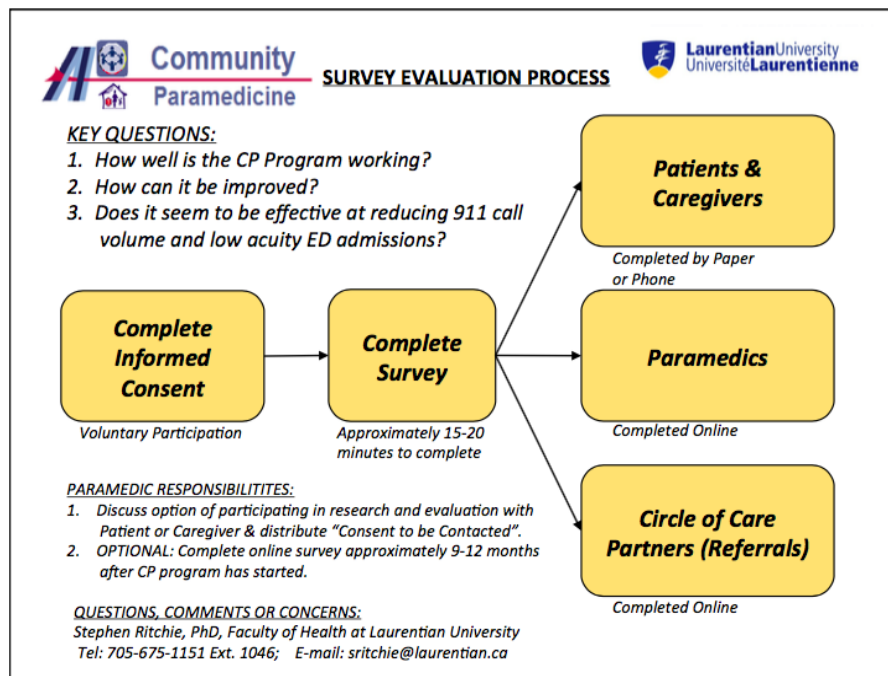
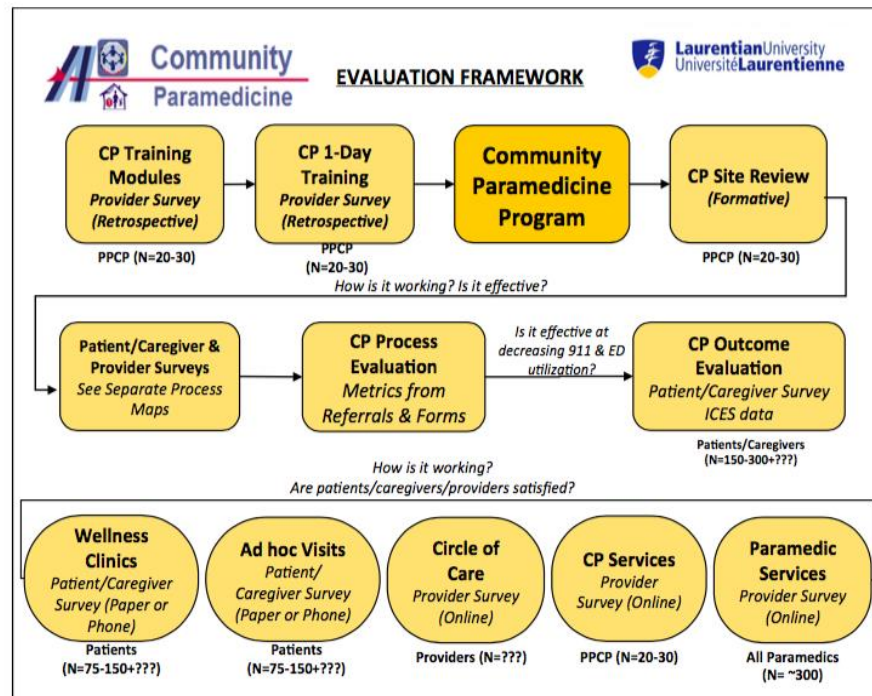
8. Collaborate with First Nations Communities. In both service areas there are EMS bases that have high 911 call volume and dispatch to First Nations communities that are in close proximity. In particular, Mattagami First Nation is close to Gogama, Constance Lake First Nation is close to Hearst, and there are several First Nations communities on Manitoulin Island in close proximity to Gore Bay. *We recommend that the Emergency Medical/Paramedic Service Providers consider collaborating with appropriate First Nations community leaders to explore the possibility of implementing relevant CP services to these communities.*

9. Activity Interruption. Paramedics are sometimes reluctant to schedule Wellness Clinics or Home Visits because of the risk of disappointing patients, if they have to respond to a 911 call. Given that patients might line up for a Wellness Clinic and wait for service, or might be expectantly waiting for a paramedic to visit them at home, the potential harm of losing a patient's (or a community's) trust is real. ***We recommend that the Emergency Medical/Paramedic Service Providers develop a plan to address CP activity interruption by 911 calls so that paramedics and patients can effectively manage the uncertainty related to providing potentially unreliable CP services.***

10. Geographic Coverage. Although rural and northern EMS services cover very large service areas, CP services are mostly limited to the local community surrounding the ambulance base. This is to ensure that CP duties do not cause any delays in response should the paramedics receive a 911 call. While this means that often the largest community in the service area receive CP services, many other outlying communities and patients do not benefit. ***We recommend that the Emergency Medical/Paramedic Service Providers develop a plan to provide equitable CP services to patients throughout the geographic coverage area for EMS bases engaged in CP activities.***

11. Scope of Practice. Some paramedics and program staff had a broad sense of the potential of CP to fill gaps in care in their community, but under the current "on duty" model, felt constrained in what they were permitted to do. Paramedics must operate within the legislated scope of practice prescribed for PCPs under the Ambulance Act. ***We recommend that the Emergency Medical/Paramedic Service Providers consult with the Base Hospital Director and the MOHLTC to explore the possibility of extending the scope of practice for PCPs to include CP***

Appendix B: Evaluation Framework



Appendix C: ICES Confirmation of Feasibility



Tuesday, April 07, 2015

Dr. Stephen Ritchie
Assistant Professor, School of Human Kinetics/Faculty of Health
Laurentian University and the Centre for Rural and Northern Health
935 Ramsey Lake Road
Sudbury, ON, P3E 6H9

Institute for Clinical Evaluative Sciences
Data & Analytic Services
G1 06, 2075 Bayview Avenue
Toronto, Ontario M4N 3M5
✉ das@ices.on.ca
www.ices.on.ca

Dear Dr. Ritchie,

Re: Confirmation of Feasibility

The Institute for Clinical Evaluative Sciences (ICES) and ICES Data & Analytic Services (DAS) is pleased to provide conditional confirmation of feasibility for the research submitted by you and your colleagues, entitled "**Evaluation of a Community Paramedicine program in Algoma, Cochrane, and Sudbury-Manitoulin Districts of Northern Ontario**" and the associated data and analytic services as outlined in Appendix A ("Research Plan").

Funding for ICES DAS comes in part through support from the Ontario Ministry of Health and Long Term Care, the Ministry of Research and Innovation, and the Canadian Institutes for Health Research. ICES DAS provides in-kind support for upfront consultation required to determine feasibility and ongoing administrative services associated with managing your research. An estimate of the total cost for providing your research team with virtual access to ICES data and the analytic consultation and support for ICES to provide data cut and analytic services is attached. These figures are included in Appendix B ("Services Quote") and are intended to aid in applying for research funding. Please note that this Services Quote is subject to change if there are any changes to the scope, funding or feasibility at any point during your engagement with ICES Data & Analytic Services.

While the research meets the eligibility criteria for accessing ICES DAS, research initiation will only occur upon receipt of an approval letter from a valid Research Ethics Board (REB) (see Appendix C) and corresponding application. It is the responsibility of the Principal Investigator to complete the Research Plan in its entirety prior to submission. The REB application must include this document as supporting documentation in order to ensure that the REB is authorizing the intended research.

ICES policy will require that the Principal Investigator confirms how and when the funds are used to support this research are derived from public or publicly-funded sources, that your interest in the disclosure of the data for your research purpose will not result in actual, perceived or potential conflict of interest. If you have any questions please contact das@ices.on.ca or 416-480-4092 (toll-free 1-844-848-9855).

Once you provide all conditional requirements ICES will provide you with an ICES Data & Analytic Services Agreement that governs the research and, upon execution allows the research to be activated.

We look forward to working with you and your colleagues.

Yours sincerely,

Refik Saskin
Staff Scientist

Appendix D: Summary of Responses to the Patient Survey

Table 10: Summary of Home Visit patients' responses to Quantitative Survey Questions

Question	Agree/ Strongly Agree % (n)	Disagree/ Strongly Disagree % (n)	Do Not Know/Not Applicable % (n)
The paramedic(s) helped me learn how to better manage my own health. (n=18)	83.3 (15)	0.0 (0)	16.7 (3)
I am more confident that I can manage my health at home because of the community paramedicine program. (n=18)	94.4 (17)	0.0 (0)	5.6 (1)
I learned about other health and social services in my area from the paramedic(s). (n=18)	77.8 (14)	0.0 (0)	22.2 (4)
The paramedic(s) helped refer me to another health or social service that I needed. (n=18)	33.3 (6)	16.7 (3)	50.0 (9)
The paramedic(s) listened to my concerns. (n=18)	94.4 (17)	0.0 (0)	5.6 (1)
The paramedic(s) took the time to answer my questions. (n=18)	94.4 (17)	0.0 (0)	5.6 (1)
I understood the paramedic(s) answers and explanations. (n=18)	61.1 (11)	11.1 (2)	27.8 (5)
The paramedic(s) treated me with respect, dignity, and compassion. (n=18)	100.0 (18)	0.0 (0)	0.0 (0)
I get more frequent medical follow-ups now, because of the paramedics at the Wellness Clinic or the paramedics who visit me at home. (n=17)	52.9 (9)	23.5 (4)	23.5 (4)
I do not need to go to the doctor or hospital as often now, because of the community paramedicine program. (n=18)	72.2 (13)	16.7 (3)	11.1 (2)
The community paramedicine program makes me feel more supported and connected in my community. (n=18)	100.0 (18)	0.0 (0)	0.0 (0)
The community paramedicine program is addressing a gap in health care services in my community. (n=18)	94.4 (17)	0.0 (0)	5.6 (1)
Right now, community paramedicine is a pilot project in this region with only a few paramedics involved. Do you agree that more paramedics should be allowed to make Home Visits and offer Wellness Clinics in other regions across Ontario? (n=18)	94.4 (17)	0.0 (0)	5.6 (1)
	Very Satisfied/ Satisfied % (n)	Very Dissatisfied/D issatisfied % (n)	Do Not Know/Not Applicable % (n)
Overall, how satisfied are you with the services and care provided by the community paramedic(s)? (n=18)	100.0 (18)	0.0 (0)	0.0 (0)
	Yes % (n)	No % (n)	
Would you recommend this community paramedicine service to others? (n=18)	100.0 (18)	0.0 (0)	

Table 11: Summary of Wellness Clinic patients' responses to Quantitative Survey Questions

Question	Agree/ Strongly Agree % (n)	Disagree/ Strongly Disagree % (n)	Do Not Know/Not Applicable % (n)
The paramedic(s) helped me learn how to better manage my own health. (n=38)	68.4 (26)	2.6 (1)	28.9 (11)
I am more confident that I can manage my health at home because of the community paramedicine program. (n=38)	57.9 (22)	13.2 (5)	28.9 (11)
I learned about other health and social services in my area from the paramedic(s). (n=37)	37.8 (14)	16.2 (6)	45.9 (17)
The paramedic(s) helped refer me to another health or social service that I needed. (n=37)	18.9 (7)	10.8 (4)	70.3 (26)
The paramedic(s) listened to my concerns. (n=37)	54.1 (20)	2.7 (1)	43.2 (16)
The paramedic(s) took the time to answer my questions. (n=37)	78.4 (29)	0.0 (0)	21.6 (8)
I understood the paramedic(s) answers and explanations. (n=37)	51.4 (19)	13.5 (5)	35.1 (13)
The paramedic(s) treated me with respect, dignity, and compassion. (n=38)	100.0 (38)	0.0 (0)	0.0 (0)
I get more frequent medical follow-ups now, because of the paramedics at the Wellness Clinic or the paramedics who visit me at home. (n=36)	41.7 (15)	13.9 (5)	44.4 (16)
I do not need to go to the doctor or hospital as often now, because of the community paramedicine program. (n=36)	30.6 (11)	27.8 (10)	41.7 (15)
The community paramedicine program makes me feel more supported and connected in my community. (n=39)	82.1 (32)	0.0 (0)	17.9 (7)
The community paramedicine program is addressing a gap in health care services in my community. (n=39)	69.2 (27)	15.4 (6)	15.4 (6)
Right now, community paramedicine is a pilot project in this region with only a few paramedics involved. Do you agree that more paramedics should be allowed to make Home Visits and offer Wellness Clinics in other regions across Ontario? (n=38)	84.2 (32)	2.6 (1)	13.2 (5)
	Very Satisfied/ Satisfied % (n)	Very Dissatisfied/D issatisfied % (n)	Do Not Know/Not Applicable % (n)
Overall, how satisfied are you with the services and care provided by the community paramedic(s)? (n=39)	87.2 (34)	0.0 (0)	12.8 (5)
	Yes % (n)	No % (n)	
Would you recommend this community paramedicine service to others? (n=37)	97.3 (36)	2.7 (1)	

Appendix E: Summary of Responses to the Paramedic Survey

Table 12: Perceptions of paramedics practicing CP in northern Ontario

	Agree/ Strongly Agree % (n)	Disagree/ Strongly Disagree % (n)	Do not Know/Not Applicable % (n)
Wellness Clinics (n=45)			
The wellness clinics were acceptable to patients/clients.	86.7 (39)	6.7 (3)	6.7 (3)
The home visits were effective at improving the well-being of patients/clients. (n=44)	61.4 (27)	15.9 (7)	22.7 (10)
The wellness clinics were an effective way to reduce the non-emergency use of 911 services and emergency department visits by patients/clients.	46.7 (21)	24.4 (11)	28.9 (13)
Home Visits (n=54)			
The home visits were acceptable to patients/clients	92.6 (50)	3.7 (2)	3.7 (2)
The home visits were effective at improving the well-being of patients/clients	75.9 (41)	13.0 (7)	11.1 (6)
The home visits were an effective way to reduce non-emergency use of 911/EMS services and emergency department visits by patients/clients. (n=57)	56.9 (33)	22.0 (14)	17.1 (10)
Community Paramedicine Overall (n=73)			
I found the patients/clients in the community paramedicine program receptive and appreciative of the care and services I provided.	97.3 (71)	0.0 (0)	2.7 (2)
I found the community paramedicine program tasks interfered with my regular work duties; it was difficult to accommodate them and balance my workload effectively.	32.9 (24)	54.8 (40)	12.3 (9)
The community paramedicine program has improved my sense of belonging in the community where I work.	54.3 (40)	20.6 (15)	24.7 (18)
I believe community paramedicine helped in improving camaraderie with my fellow paramedic colleagues.	26.0 (19)	43.8 (32)	30.1 (22)
I believe community paramedicine helped to keep me updated on my clinical skills. (n=72)	26.4 (19)	62.5 (45)	11.1 (8)
Satisfaction with CP	Yes (%)	No (%)	Maybe (%)
Overall, from your experience and participation with Community Paramedicine, are you satisfied with the outcomes and impacts of the program? (n=73)	67.1 (49)	21.9 (16)	11.0 (8)
Would you recommend community paramedicine to other paramedic services? (n=73)	86.3 (63)	13.7 (10)	-

Table 13: Paramedic attitudes towards CP (all paramedics)

	Yes % (n)	No % (n)	Not sure % (n)	
I believe that expanding the paramedic scope of practice to include community paramedicine duties will help reduce operational stress injury or other injuries (n=162)	48.8 (79)	27.2 (44)	24.1 (39)	*
CP experience (n=73)	38.4 (28)	35.6 (26)	26.0 (19)	p=0.033
No CP experience (n=89)	57.3 (51)	20.2 (18)	22.5 (20)	
Right now, community paramedicine is a pilot project in northern Ontario with only a certain number of paramedics involved. Do you agree more paramedics should be allowed to practice community paramedicine across Ontario? (n=162)	77.2 (125)	10.5 (17)	12.4 (20)	n.s.
CP experience (n=73)	76.7 (56)	11.0 (8)	12.3 (9)	p=1.000
No CP experience (n=89)	77.5 (69)	10.1 (9)	12.4 (11)	
	EMS Only % (n)	CP Only % (n)	EMS & CP % (n)	
If you had your choice in work duties, which one of the following would you choose? (n=160)	38.1 (61)	3.8 (6)	58.1 (93)	*
CP experience (n=72)	27.8 (20)	5.6 (4)	66.7 (48)	p=0.039
No CP experience (n=88)	46.6 (41)	2.3 (2)	51.1 (45)	

Table 14: Interest in practicing CP, among paramedics reporting no CP experience

	Yes % (n)	No % (n)	Maybe % (n)
Would you consider practicing Community Paramedicine? (n=84)	47.6 (40)	22.6 (19)	26.8 (25)

Appendix F: Knowledge Translation Activities Undertaken by the CRaNHR Team

Research Reports & Evaluations (Non-Refereed)

Ritchie, S.D., Sherman, J., Gallo, K., Prévost, C., Nixon, J., Wolff, D., & Cremin, D. (2016). The Algoma, Cochrane, and Manitoulin-Sudbury Joint Community Paramedicine Program: Final Evaluation Report. Report submitted to the Ministry of Health and Long-term Care (MOHLTC) on June 30, 2016. Document is confidential. Funded by MOHLTC & Laurentian University.

Ritchie SD, Sherman J, Gallo K, Prévost C, Nixon J. (2016). The Algoma, Cochrane, and Manitoulin-Sudbury Community Paramedicine Program: An Interim Evaluation Report. Report submitted to the Manitoulin-Sudbury and Cochrane Emergency Medical Services on February 22, 2016. Document is confidential. Funded by MOHLTC & Laurentian University.

Presentations

Prévost C, Ritchie SD, Wenghofer EF, VanderBurgh D, Nowrouzi B, Sherman J. (2016). Experiences of Patients and Caregivers Involved in a Community Paramedicine Program in Northeastern Ontario. Poster presentation at the Northern Health Research Conference in Sault Ste. Marie ON. June 24-25, 2016. Funded by MOHLTC.

Sherman J, Prévost C, Nixon J, Wolff D, Cremin D, Ritchie SD. (2016). Developing a sustainable model of community paramedicine for northeastern Ontario: Lessons learned. Oral presentation at the Transforming Health Care in Remote Communities Conference in Edmonton AB. April 28-30, 2016, Funded by MOHLTC.

Prévost, C. Experiences of Patients Involved in Community Paramedicine Programs in Northern Ontario (Oral Presentation) Graduate Research Symposium, Sudbury, ON. February 28 2017

Prévost, C. A Study of Repeat Emergency Department Visits and Admissions in a Small Rural Hospital in Northern Ontario (Poster Presentation) Faculty of Health Conference, Sudbury, ON. December 6 – 7, 2016

Prévost, C. Experiences of Patients and Caregivers Involved in a Community Paramedicine Program in Northern Ontario (Poster Presentation) Faculty of Health Conference, Sudbury, ON. December 6 – 7, 2016

Sherman, J.E., Ritchie, S.D., Prévost, C., Nixon, J., Wolff, D., Cremin, D., Black, D., Greenaway, J., and Listenmaa, M. Developing a Sustainable Model of Community Paramedicine for Northern Ontario, CANADA: Lessons Learned (Poster Presentation) Community Paramedicine Forum, Toronto, ON. September 13 – 14, 2016.

Prévost, C. Experiences of Patients and Caregivers Involved in a Community Paramedicine Program in Northern Ontario (Poster Presentation) Community Paramedicine Forum, Toronto, ON. September 13 – 14, 2016

Prévost C, Ritchie SD, Wenghofer EF, VanderBurgh D, Gauthier AP, Sherman J. Experiences of Patients and Caregivers Involved in a Community Paramedicine Program in Northern Ontario (Poster Presentation) Northern Health Research Conference, Sault Ste. Marie ON. June 25, 2016

Presentations (Non-Refereed)

Sherman, J, Nixon J, Prévost, C, Wolff D, Cremin D, Black D, Greenaway J, Ritchie, SD. (2016). Community paramedicine in rural northern Ontario: Lessons learned. Oral Presentation at the 12th Annual International Roundtable on Community Paramedicine Conference in Saskatoon SK. June 3-4, 2016. Funded by MOHLTC.

Sherman, JE and Wolff, D. (2016). Developing a sustainable model of community paramedicine for northern Ontario, Canada: lessons learned. Oral presentation at the Faculty of Health Conference, Laurentian University, Sudbury, ON. December 7, 2016.

Nixon J, Ritchie SD, Wenghofer EF, VanderBurgh D, Nowrouzi B, Sherman J. (2016). An examination of paramedic perspectives and quality of work life related to practicing community paramedicine in rural communities in northeastern Ontario. Poster Presentation at the 12th Annual International Roundtable on Community Paramedicine Conference in Saskatoon SK. June 3-4, 2016. Funded by MOHLTC.

Nixon J, Ritchie SD, Wenghofer EF, VanderBurgh D, Nowrouzi B, Sherman J. (2016). An examination of paramedic perspectives and quality of work life related to practicing community paramedicine in rural communities in northeastern Ontario. Oral Presentation at the School of Human Kinetics Research Seminar Series in Sudbury ON. March 17th, 2016. Funded by MOHLTC & LU.

Prévost C, Ritchie SD, Wenghofer EF, VanderBurgh D, Gauthier AP, Sherman J. (2016). Experiences of Patients and Caregivers Involved in a Community Paramedicine Program in Northeastern Ontario. Poster Presentation at the 12th Annual International Roundtable on Community Paramedicine Conference in Saskatoon SK. June 3-4, 2016. Funded by MOHLTC.

Community/Professional Contributions

Planned and facilitated Community Paramedicine Pilot Program Review Meetings in Gogama, Hearst, Gore Bay, and Smooth Rock Falls (November-December, 2015).

Articles in Preparation

Sherman J, Russell J, Nixon J, Prévost C, Wolff D, Cremin D, Black D, Greenaway J, Ritchie, SD.. (2017) *Developing a Sustainable Model of Community Paramedicine for Northern Ontario, Canada: Lessons Learned* (In preparation)

Prévost C (lead author). Utilization of a rural hospital in Ontario, Canada: Understanding reasons for repeat emergency department visits and multiple admissions over a fifteen-month period. Manuscript under preparation for submission to the *Journal of Rural and Remote Health*.

Capacity Developed

Research Intern for Community-Based Paramedicine and Emergency Care (CBPEC) Research Projects in First Nations Communities in Northern Ontario. (2016-2017). NOHFC (Northern Ontario Heritage Fund Corporation) Internship Program – NOI - \$35,500

Two graduate students conducted their master's thesis research using data collected (see Chapters 2 and 3 of this report).