



STANDARDS RESEARCH

Health Service Needs in the North: A Case Study on CSA Standard for Community Paramedicine

November 2019

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Contents

Glossary	4
Executive Summary	5
Introduction	6
Methods	7
Background	7
Community Consultations	7
Community Health Needs Assessment	8
Framework for Applicability of Standard	8
Results	8
Quantitative	8
Qualitative	9
Analysis and Discussion	12
Applicability of the Standard	13
Discussion	13
Recommendations	14
Evaluating and Measuring Impacts of a CP Program	14
Jurisdictional / Regulatory Frameworks	14
Collaboration, Partnerships, and Community Engagement	15
Conclusion	15
References	16
Appendix A - Model of Intergenerational Trauma	17
Appendix B - Concepts for the development of a community paramedicine program	18
Appendix C - Brochure for the community	23

Glossary

The following terms are used in the report but may require some explanation for the reader if they are not familiar with the Northwest Territories or health informatics.

Country food

Food obtained through local hunting, fishing or harvesting. Examples include caribou, ptarmigan, seal, Arctic char, shellfish and berries.

Hamlet

In the Northwest Territories, a hamlet is a municipal corporation governed under the Hamlets Act and is granted full by-law making authority under the relevant territorial legislation. At the request of a minimum 25 residents that are eligible electors, or at the initiative of the Minister of Municipal and Community Affairs, an application can be submitted to incorporate a community as a hamlet. Of the 11 hamlets in the Northwest Territories, Tuktoyaktuk is the largest by population.

Health disparities

Health disparities are differences in health status that occur among population groups defined by specific characteristics. They mostly result from inequalities in the distribution of the underlying determinants of health across populations. Socio-economic status (SES), Aboriginal identity, gender and geographic location are the important factors associated with health disparities in Canada.

Ambulatory care sensitive conditions

Acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital. This indicator is increasingly used as a measure of the effectiveness of primary care.

Most responsible diagnosis

This indicator is defined as the one diagnosis or condition that can be described as being most responsible for the patient's stay in a facility. If there is more than one such condition, this is the one held most responsible for the greatest portion of the length of stay or greatest use of resources.

Remote and isolated

These communities have infrequent flights, frequent phone or radio disruptions, and no roads in or out of the community.

Social determinants of health

These are a group of social and economic factors that relate to an individual's place in society and can include income, education, or employment. Experiences of discrimination, racism and historical trauma are important social determinants of health for certain groups such as Indigenous Peoples, LGBTQ (Lesbian, Gay, Bisexual, Transgender and Queer and/or Questioning), and Black Canadians.

Executive Summary

CSA Z1630, *Community Paramedicine: Framework for program development* is a new voluntary standard developed by a multi-stakeholder committee to provide a Canadian framework for the planning, implementation, and evaluation of a community paramedicine program [1]. It includes guidance for essential elements of a program including supports from appropriate resources, and a systematic approach for paramedic service organizations and their partners to establish these programs in areas where they are needed.

In a preliminary study for this project, it was noted that there are gaps in meeting the health access and service needs of remote and isolated Indigenous communities in the North [2]. This is acknowledged by the paramedic community along with various federal government agencies supporting these types of communities. The preliminary study addressed the health service needs that exist and identified opportunities where a community paramedicine program or service could solve some of the gaps in service delivery, monitoring, and prevention. Through stakeholder consultation and community dialogue, the study presented views on what a program or service could look like for remote and isolated Indigenous communities in the North. It helped to identify the needs that a community paramedicine program or service could help address. The preliminary study suggested that while establishment of community paramedicine could address many service gaps, a further examination of the applicability of CSA Z1630 in a pan-Canadian northern perspective was warranted.

This report summarizes the results of a follow-up case study to investigate the specific health service needs of a remote northern community. The study included a community health needs assessment to validate the findings of the preliminary study. This was followed by thematic analysis of field notes to assess the applicability of CSA Z1630 according to a predetermined framework. The community chosen was Tuktoyaktuk in the Northwest Territories (NWT), a primarily Indigenous hamlet of 900 people located on the shores of the Arctic Ocean that still follows a very traditional way of life.

This case study demonstrates that CSA Z1630 does provide useful guidance for the implementation of community paramedicine in a remote Indigenous community in the North. In the absence of an existing paramedic service, the findings of the study show that while specific aspects of the Standard are applicable, other elements would only be applicable once a paramedic service was established. The report identifies a number of areas where revisions to the Standard would make it more applicable to address the needs of remote Indigenous communities, such as relevant program indicators and broader stakeholder and partner participation in community paramedicine planning, and program and service delivery.

The recommendations provided in this report are limited to the feasible applicability of CSA Z1630 should the community pursue paramedic program or service implementation in the future. Recommendations regarding broader community health needs, health system issues, or social determinants of health are beyond the scope of this report.



“Canada’s North is a sparsely populated area that represents approximately 40% of Canada’s landmass, but accommodates fewer than 200,000 people.”

Introduction

Canada’s North is a sparsely populated area that represents approximately 40% of Canada’s landmass, but accommodates fewer than 200,000 people. The percentage of Peoples of Indigenous heritage is substantial in this area, including 86.3% in Nunavut, 52% in the NWT, and 23% in Yukon [3].

Community paramedicine is becoming increasingly recognized as an effective and efficient solution to meet the evolving health care needs of Canadians regardless of their geographic location. In many regions paramedics are expanding their roles from traditional emergency response to practicing increased levels of primary and preventive care where gaps in services exist. From working in clinics, to addressing primary care service shortages, to providing regular home support for chronic disease management, community paramedics are filling important roles to increase access to health care, including performing point-of-care testing, wound care, and immunizations.

The preliminary study followed CSA Group’s published research report on ‘Canada’s North’ which examined the broad-based societal challenges and unique needs of people living in this region to determine opportunities to contribute to the sustainability of improved health outcomes for people who live in remote communities in the North, and the applicability of CSA Z1630, *Community paramedicine: Framework for program development* [4].

The preliminary study on Canada’s Indigenous Peoples living North of the 60th parallel and within Northern Ontario, including the Territory of Nishnawbe Aski Nation (NAN), found that essential services such as paramedic service are often absent, and that using core and expanded skill sets of paramedics could be an approach that is well suited for the North.

Following this study, discussions continued with community leaders and health authorities in the NWT to explore a closer examination of the health service gaps in remote northern communities lacking paramedic services that could be addressed by new and sustainable models of community-based health care.

CSA Z1630 states: “The overall goal of any program should be to promote the patient’s access to the right care, delivered by the right provider, at the right time, resulting in the best outcomes and the most effective and efficient use of resources. The foundation of any program will be dependent on stable and sustainable partnerships among numerous community-based agencies, teams and organizations.” This statement has powerful implications when considering program development in Canada’s North, particularly when the best of southern intentions has often proven incorrect, unsustainable, and injurious at times. Community paramedicine programs can provide seamless and integrated care pathways along and within a patient’s continuum of care and assist patients with navigating the health system. This involves the understanding

that there is a shared responsibility and accountability for that patient's care and it is the responsibility of all partners to ensure that optimum care is provided. Additionally, technology-enabled remote patient monitoring in homes by community paramedics is a promising practice and allows paramedics to manage and serve a larger population.

If community paramedicine programs are found to be a suitable and sustainable means of improving access to immediate or scheduled primary, urgent and/or specialized health care to patients in remote communities in the North, then implementation of such a program is a logical next step. The objective of this study was to investigate the specific health service needs of a remote Indigenous community in the North and assess the applicability of CSA Z1630 to determine suitability for implementation in the community.

Methods

Background

In 2017, the highway between Inuvik and Tuktoyaktuk was opened, altering the historical context for contact with the outside world. This meant that Tuktoyaktuk, previously accessible by ice road only 6 months a year now had a permanent year-round ground transportation link. When the road opened, community members began exploring the existing capacity of emergency services. During this process, they were made aware of the preliminary study and were supportive of the research team investigating the feasibility for community paramedicine to improve access to health care services in addition to the traditional role of emergency response.

A case study approach was selected as the method to assess the applicability of CSA Z1630 in Tuktoyaktuk — a remote northern community that does not have an existing paramedic service. Part of the case study involved a community health needs assessment to validate the findings from the preliminary study. This was followed by thematic analysis of field notes to assess the applicability of CSA Z1630 according to

a predetermined framework. For research involving human participants, research ethics board approval is required. This was received by the St. Lawrence College Research Ethics Board¹ prior to commencing the study. A mixed methods approach was used to conduct the health needs assessment, which included the use of both quantitative and qualitative data.

Community Consultations

Planning for the community consultations involved first securing a research license from the Aurora Research Institute² to conduct any form of scientific research taking place in the NWT. A series of open-ended questions to best suit the communication styles and culture of a broad spectrum of Tuktoyaktuk residents was developed within the concepts of health provided by the participants in the preliminary study. Relationships developed through the preliminary study were cultivated and expanded to include additional stakeholders such as the Inuvialuit Regional Corporation (IRC) representing Inuvialuit interests in economic self-reliance, and members of the regional nursing management team. These stakeholders were engaged for advice and support prior to conducting the health needs assessment, focus groups, and semi-structured interviews in Tuktoyaktuk. Participation from residents was promoted through a radio announcement and posters in public areas in the community. Representatives from the Tuktoyaktuk Community Corporation (TCC) made up of six elected directors and one chair, were directly invited through communications with a main liaison in the community, a councillor and former mayor.

Community members were invited to participate in the study through focus groups and semi-structured interviews. Participants represented the wider perspective of anyone who could be impacted by a potential community paramedicine program in Tuktoyaktuk. The focus groups and interviews provided an open forum for community members to articulate their ideas for exploring solutions for community-based health care decision-making and action.

¹ St. Lawrence College Research Ethics Board SLC-REB No. 2018-193ML, 2019.

² Aurora Research Institute Scientific Research Licence No. 16486, 2019.

The data collection process was designed to meet the following principles:

- focus on social determinants of health, self-care practices, and the potential benefits of community paramedicine within the community;
- driven by community member participation;
- dynamic — to allow the researchers to be sensitive to the desires and needs of the community; and
- flexible — questions varied depending on the nature of the group.

Community Health Needs Assessment

The qualitative data from the focus groups and semi-structured interviews were supplemented and compared with quantitative pan-territorial data from the Canadian Institute for Health Information (CIHI) and with regional health care utilization data from the Government of the NWT and Statistics Canada. Quantitative data was included to determine whether or not there was congruence with qualitative data in order to provide robust evidence that might make a case for adapting CSA Z1630 to help improve access to health care in the North, particularly in communities where no paramedic service currently exists.

Thematic analysis of findings of the community engagement process was performed through the lens of the social determinants of health to provide more holistic findings relevant for use by the community and stakeholders.

Framework for Applicability of the Standard

CSA Z1630 provides guidance to paramedic services and their health system partners in the planning, implementation, and evaluation of community paramedicine programs. It also includes information about models of care, education, training, and competency. The definitions within the Standard provide additional clarity around a relatively new and evolving scope of practice. In the past, community paramedicine was described under broad terms that encompassed almost all non-emergency roles that paramedics might undertake. CSA Z1630 defines a community paramedicine program as “a program that uses

paramedics to provide immediate or scheduled primary, urgent, and/or specialized health care to vulnerable patient populations by focusing on improving equity in health care access across the continuum of care.”

Within CSA Z1630, the guiding principles outline general objectives for any community paramedicine program. These guiding principles are reflected in subsequent clauses of the Standard. For example, specialized education should align with needs that have been identified for which the program is designed. In general, models of care should consider response, integrated care, and coordination. Planning should follow a structured format that includes a myriad of factors that must be addressed to support effective program implementation. Implementation of a community paramedicine program needs to consider the safety of the patient, their caregivers, the paramedic, and other health care providers. Finally, evaluation of the program should relate back to the guiding principles and benchmarks that were identified throughout the planning and implementation process.

CSA Z1630 includes a checklist that “is intended to assist paramedic services and their partners in considering key factors required when developing or implementing a community paramedicine program.” This checklist was applied in this case study to determine first if requirements within the Standard were applicable and second, where they were not applicable, what the recommended changes to the Standard should be.

Results

Quantitative

Community profile

Tuktoyaktuk is a small Inuvialuit community located on the shores of the Arctic Ocean at the eastern tip of the Mackenzie River Delta with a population of approximately 900 people. The community is over 90% Indigenous, primarily Inuvialuit (88%) with Dene, Metis, and Non-Indigenous minorities. The languages spoken are Inuvialuktun and English. The 2016 Census reported 245 community members under the age of 14 years, 600 people from age 15 to 64 (evenly distributed across age decades) and 65 persons over the age of 65 [3].

Health disparities identified in the NWT include:

- 2% higher rates of emergency room visits and hospitalizations for ambulatory care sensitive conditions compared to other jurisdictions, indicating decreased access to quality primary care [5].
- 70% of all deaths and more than 50% of the number of days spent in hospital were related to chronic conditions in 2011.
- Cancers and cardiovascular disease were the leading causes of death, followed by injuries and respiratory diseases between 2005 and 2007.
- Approximately 200 new cases of diabetes are diagnosed each year.
- 46% of people in the Beaufort Delta region report cigarette smoking (the Canadian average is 21%) [6].
- 64% of the population rated their mental health as excellent or very good compared to 73% of other Canadians.

Examples of territorial indicator data from CIHI regarding hospitalizations according to the most responsible diagnosis is included in Table 1.

Qualitative

Community needs

Groups involved in the community engagement included:

- Elders;
- Royal Canadian Mounted Police (RCMP) detachment;
- members of the business community;
- youth;
- community support workers;
- Inuvialuit Regional Corporation;
- nursing and hospital leadership,
- mothers and caregivers;
- community leadership, including the Senior Administrative Officer of the Incorporated Hamlet of Tuktoyaktuk;

- members of the Tuktoyaktuk Community Corporation; and
- members of the general public.

Themes identified through the community health needs assessment are outlined below and listed under the following nine social determinants of health.

Income and social status

"We are a subsistence community," (Elder, Tuktoyaktuk).

It was reported through the focus groups that 95% of Tuktoyaktuk residents are on social assistance and that this support is inadequate to meet basic dietary and housing needs. No evidence of food insecurity was reported due to an abundance of country food, which is hunted and stored in an organized manner so that an adequate food supply always exists for the community. This should be interpreted from a cultural point of view; historically, the Inuvialuit of Tuktoyaktuk have lived their lives as hunters and gatherers and have not looked to conventional employment for their food. It was mentioned numerous times through the consultations that the Tuktoyaktuk residents consider themselves to have a self-sustaining and self-sufficient community based on the availability and organization of abundant of country food.

Employment and working conditions

Tuktoyaktuk residents still hold strongly to the traditional way of life. Regular employment is sporadic and unstable for the most part and is a means of supplementing social assistance. Working conditions are often harsh due to climate and geography, yet are performed in compliance with Worker's Safety & Compensation Commission (WSCC) guidelines.

Education and literacy

English is spoken and written by almost all residents. A school exists for those from junior kindergarten to Grade 12 and many innovative attempts are made to ensure good attendance, including financial incentives and rewards. A record number of students are graduating

Table 1 – CIHI territorial indicator data regarding hospitalizations according to most responsible diagnosis compared to Canadian data [7]

Province/ Territory		Most responsible diagnosis for inpatient hospitalizations in 2017–2018	# inpatient hospitalizations in 2017–2018	# per 1000 of inpatient hospitalizations in 2017–2018	Average acute length of stay of inpatient hospitalizations in 2017–2018
CANADA	1	Giving birth	362,700	9.8	2.2
	2	COPD and bronchitis	93,353	2.5	7.2
	3	Acute myocardial infarction	71,192	1.9	4.9
	4	Pneumonia	70,149	1.9	6.7
	5	Heart failure	68,972	1.9	8.9
	6	Osteoarthritis of the knee	65,778	1.8	3.2
	7	Mood (affective) disorders	52,531	1.4	14.4
	8	Other medical care (e.g., palliative care, chemotherapy)	51,863	1.4	9.3
	9	Substance use disorders	43,874	1.2	5.7
	10	Schizophrenia, schizotypal and delusional disorders	40,207	1.1	20.7
NWT	1	Giving birth	709	16.9	2.7
	2	Substance use disorders	291	6.9	3.8
	3	COPD and bronchitis	136	3.2	5.6
	4	Other mental health disorders	124	3.0	3.5
	5	Convalescence, typically following treatments / procedures	111	2.6	12.0
	6	Pneumonia	104	2.5	4.7
	7	Mood (affective) disorders	96	2.3	6.8
	8	Schizophrenia, schizotypal and delusional disorders	83	2.0	11.8
	9	Diseases of the appendix	69	1.6	2.0
	10	Care involving use of rehabilitation procedures	64	1.5	8.4



“Tuktoyaktuk residents still hold strongly to the traditional way of life.”

Grade 12 in 2019. Prior to moving on to post-secondary education, an upgrading year is required to address certain gaps in their local education compared to that in larger centres. Jobs requiring higher education, save and except certain trades, are scarce in the community. The students did not seem to have concerns what their future would hold due to the ability to lead a mainly traditional way of life in Tuktoyaktuk.

Childhood experiences

Virtually all Elders went through the residential school system and very few will speak of it. Evidence of intergenerational trauma (IGT) does exist. IGT is a theory describing the transmission of trauma and its negative impacts experienced from the first generation of survivors to subsequent generations via complex post-traumatic stress disorder mechanisms. Its main methods of transfer manifest through mental illness, substance use disorder, and domestic neglect or violence. As an example, there is considerable reluctance to seek help from institutions such as hospitals and health centres as this often sparks traumatic memories of the residential school institutional process. The RCMP and home support workers shared stories of incidents of domestic violence or threatened domestic violence, often attributed to mental health problems, thought in many ways to be a by-product of IGT which can have far-reaching effects for an individual, family, community, and nation (see Appendix A) [8].

Physical environment

Tuktoyaktuk has one of the most challenging climates in the world and it was remarked that it seems to be getting colder with more snow. Shoreline erosion is becoming a major problem threatening the viability of some houses that are close to shore. While housing is at capacity, regular building of new residences happens each year. Overcrowding or building degradation were not expressed as housing issues.

Social supports and coping skills

“We feel isolated. Elders and young used to be together all the time.” (Elder, Tuktoyaktuk)

Social isolation for some Elders is problematic. The historical gathering of Elders with youth for story telling is virtually non-existent today. This is worrisome to many in terms of cultural preservation and generational transmission of the teachings of the land.

Healthy behaviours

“We all need courage, it’s (health) our responsibility” (Elder, Tuktoyaktuk)

Country food remains the preference for all Inuvialuit. Community members seem to adapt to a lack of primary care services and stay active throughout the year by walking, swimming, games outside for children and youth, partaking in crafts, and sewing.

The prevalence of smoking cigarettes in the region (46%) is virtually double that of Yellowknife (23%) and Canada overall (21%) [6]. Although Tuktoyaktuk is supposed to be a 'dry town,' both RCMP and home support workers indicate that drug and alcohol abuse are significant problems in the community.

Access to health care services

Primary care through the nursing station is the only health care service available in Tuktoyaktuk. Residents noted that the station was closed on a frequent basis and many find it inconvenient to have to call the station in advance to arrange for an appointment. This situation is reportedly worse after hours. It was noted that nurses very rarely leave the station to do a home visit regardless of a person's ability to make it to the station.

Paramedic services are not currently available. The RCMP are fulfilling the role of urgent patient transport. They are concerned about liability nonetheless as this response falls outside their mandate and scope of practice.

Formal home care services, including nursing assessment, individual care planning, service delivery, and patient monitoring does not exist. Supportive care is provided through the Inuvialuit Regional Corporation by personal support workers and volunteers who assist with helping to provide the basics of life such as food and safe shelter. They also act as crisis workers to assist in addressing domestic violence issues caused by mental health problems and substance use disorders on a continuously available basis. Any other chronic medical issues need to be addressed through visitation to the nursing station. For health issues beyond the scope of primary care, residents are sent to the Inuvik, Yellowknife, and Edmonton regional hospitals for more specialized care and rehabilitation. Regular ongoing care can be scheduled, but requires travel by ground transportation or scheduled flights to Inuvik. Acute exacerbations of chronic disease are transported by air through medical evacuation services. Some clients, for example those on hemodialysis, have to leave the community due to the difficulty in arranging for regular travel to larger care centres.

Culture

Despite modern technological influences such as the internet and cell phones, the culture of Tuktoyaktuk remains strong as a community. They take pride in their ability to rally to help each other. Their culture of sharing food is still very strong.

Analysis and Discussion

The quantitative and qualitative data match in two major areas:

Access to primary care

Difficulties in accessing the primary care services of the nursing station was a common theme throughout this exercise. During the consultations, the lack of formal home care and ambulance service, let alone a service such as community paramedicine, were frequently raised. This issue of access is also reflected in the quantitative data with an increased rate of hospitalizations for ambulatory care sensitive conditions as well for pneumonia (e.g., COPD is an ambulatory care sensitive condition).

Increased prevalence of mental health and addictions issues

Across the territory, mental health and substance use disorders dominate the most responsible diagnoses for hospitalizations. Substance use disorder, next to giving birth, is the most responsible diagnosis for 291 hospital admissions. This is approximately six times the national average [9].

In the early phases of this project, the Manager of Mental Health at IRC in Inuvik provided information about the prevalence and impact of IGT in Tuktoyaktuk. While this was only verified through one key informant interview, it was expressed that people will not readily talk about the trauma of residential schools, which was the main cause of IGT, and the literature speaks of a 'deep silence' in this regard. There was a collective reluctance to speak about these past experiences that was later validated by the Manager of Mental Health at IRC.

Applicability of CSA Z1630

Based on the findings of the community's health needs, opportunity exists for planning, implementation, and evaluation of a community paramedic program in Tuktoyaktuk according to the guidance included in CSA Z1630. The minimal presence of primary and urgent care and the general absence of specialized care, presents an opportunity where paramedics could be used to improve health care access to underserved populations including the community of Tuktoyaktuk, who face challenges or barriers to accessing the health care that is available.

In the absence of an existing paramedic service, specific aspects of CSA Z1630 could be considered to be applicable, whereas other elements would only be applicable once a paramedic service was established. No aspects of the Standard were found to not be applicable. Some aspects of CSA Z1630 may require modification. Appendix B provides a summary of how the Standard can be applied to the community health needs identified in Tuktoyaktuk. This table was adapted from a checklist provided in CSA Z1630 that is not a mandatory part of the Standard but is designed to assist in the development and implementation of a community paramedicine program. Appendix B highlights specific aspects of the Standard to assess applicability and provides additional rationale.

Where references are made to integrated care, community linkages, partnerships, and stakeholder engagement, it is important not to be limited to only these connections within the community. The patient care continuum includes care providers located outside of Tuktoyaktuk. Any collaboration needs to acknowledge this reality.

Where references are made to regulatory requirements, it is important to note that these may not exist for paramedic services or may not be directly applicable to community paramedicine programs.

CSA Z1630 suggests that a community paramedicine program may impact the health care system through decreased utilization of emergency paramedic response or decreased utilization of other aspects of the health

system. However, in isolated communities such as Tuktoyaktuk, the implementation of a community paramedicine program can potentially result in increased utilization of health care services due to this improved access to care.

In summary, no elements of the Standard were found to be not applicable in this case. However, specific aspects of CSA Z1630 may require modification to meet the needs of remote communities.

Discussion

Limitations

This case study reflects one remote Indigenous community in the North where year-round road access has recently created opportunities to access the broader health care system for community residents. Other remote Indigenous communities in the North may share similar characteristics and needs. An opportunity exists to replicate the process undertaken in this case study across more communities located above Canada's 60th parallel.

In conducting this study, community participation was limited by the amount of time the research team could spend in the community. Travel constraints affected the planning of community engagement events including focus groups and interviews. Some interviews happened without prior scheduling simply because individuals were available and happened to pass by the venue, while others who were scheduled did not participate because they were not available.

Despite the limitations for community participation, input from many of the key informants identified in the planning process was obtained. As reported in the preliminary study, differing perspectives about health were reflected by the participants. This consideration required framing focus group discussions and interviews within the concepts of health provided by the participants in the preliminary study. While the results provide a summary of individual opinions about the current state of access to health care, the opinions cannot be separated from the beliefs and opinions about what health means to community members.

In a community that presently does not have a paramedic service, the role of paramedicine and out-of-hospital (or nursing station) care was not clear for all participants. The understanding of health should be nuanced against the context of access to health care services in emergency situations. In this regard, the remoteness of the community meant that residents are very aware that “help” is not readily or immediately available, and they continue to plan their lifestyle and activities accordingly.

Recommendations

The recommendations provided in this report are limited to the applicability of CSA Z1630 and the feasibility of the Standard as a means to provide helpful direction for the community should they pursue paramedic service implementation in the future. Recommendations addressing broader community health needs, health system issues, or social determinants of health are beyond the scope of this report.

Based on the findings of this case study, the following recommendations summarize how CSA Z1630 could be expanded to address the needs of remote Indigenous communities in the North:

1. CSA Z1630 should provide further guidance that program indicators/evaluation should be aligned with program objectives.
2. CSA Z1630 should include reference to the presence of existing paramedic services and provide additional information regarding opportunities for implementation in the absence of existing services. In the absence of an existing paramedic service, the Standard should be used to direct implementation of a paramedic service insofar as the regulatory framework of each jurisdiction permits.
3. CSA Z1630 should clarify aspects of collaboration, partnership, and community engagement to ensure that regional, territorial, or inter-provincial stakeholders are included when partners are not located in the immediate community.

1. Evaluating and Measuring Impacts of a CP Program – aligning program indicators/evaluation with program objectives.

In communities with existing paramedic services and specialist health care providers, the aims of community paramedicine programs are to support care in place and reduce utilization of other parts of the health care system. In a setting like Tuktoyaktuk, increased utilization of health care services could be expected by the very nature of initiating a service that did not previously exist. However, measuring days spent at home may provide an indicator of successful delivery of care in place. Other appropriate indicators could include stabilization of chronic conditions (e.g., avoidance of hypo or hyperglycaemic events for patients with diabetes, avoidance of hypoxia for patients with chronic obstructive pulmonary disease or congestive heart failure, or decreased blood pressure for patients with hypertension, etc.). CSA Z1630 should be updated to reflect that program evaluation and measurement should be aligned with community needs and program objectives.

2. Jurisdictional / Regulatory Frameworks for Paramedic Services

Regulatory frameworks for paramedic services in the NWT are limited to emergency highway rescue functions and fall within the Department of Municipal and Community Affairs. CSA Z1630 recognizes the role of paramedics in differentiated practice with aspects of health education, clinical assessment and monitoring, point of care diagnostics, and out-of-hospital treatment and care plans supplementing the traditional emergency care and transport role of paramedics. To be applicable in remote and isolated communities in the North, CSA Z1630 should include reference to the presence of existing paramedic services and provide additional information regarding opportunities for implementation in the absence of existing services. CSA Z1630 should be used to provide direction for implementation of a paramedic service insofar as the regulatory framework of each jurisdiction permits.



“...program evaluation and measurement should be aligned with community needs and program objectives”

3. Collaboration, Partnership, and Community Engagement

CSA Z1630 indicates that collaboration with other care providers across the continuum of care is an essential component of community paramedicine program planning, implementation, and review. The Standard assumes that other care providers are within the same region as the paramedic service to enable collaborative or integrated care. For remote Indigenous communities in the North, this may not be the case. In Tuktoyaktuk, collaborative care may include care providers located outside of the community and even outside of the Territories. To be applicable in remote communities, terminology around “community engagement” in CSA Z1630 needs to be broadened to recognize the role of care providers throughout the entire health system, including those outside of the local geographic area. CSA Z1630 should clarify aspects of collaboration, partnership, and community engagement to ensure that regional, territorial, or inter-provincial stakeholders are included as partners.

Conclusion

The community of Tuktoyaktuk represents new terrain to consider the potential implementation of a community paramedicine program or service.

As part of the sharing of study results back to Tuktoyaktuk, a summary of the report was developed as a brochure as per the community’s request (see Appendix C). The study findings can be used by Tuktoyaktuk and many remote communities in the North to build a business case for using paramedics to improve access to health care through scheduled and on-call services, in addition to providing emergency response.

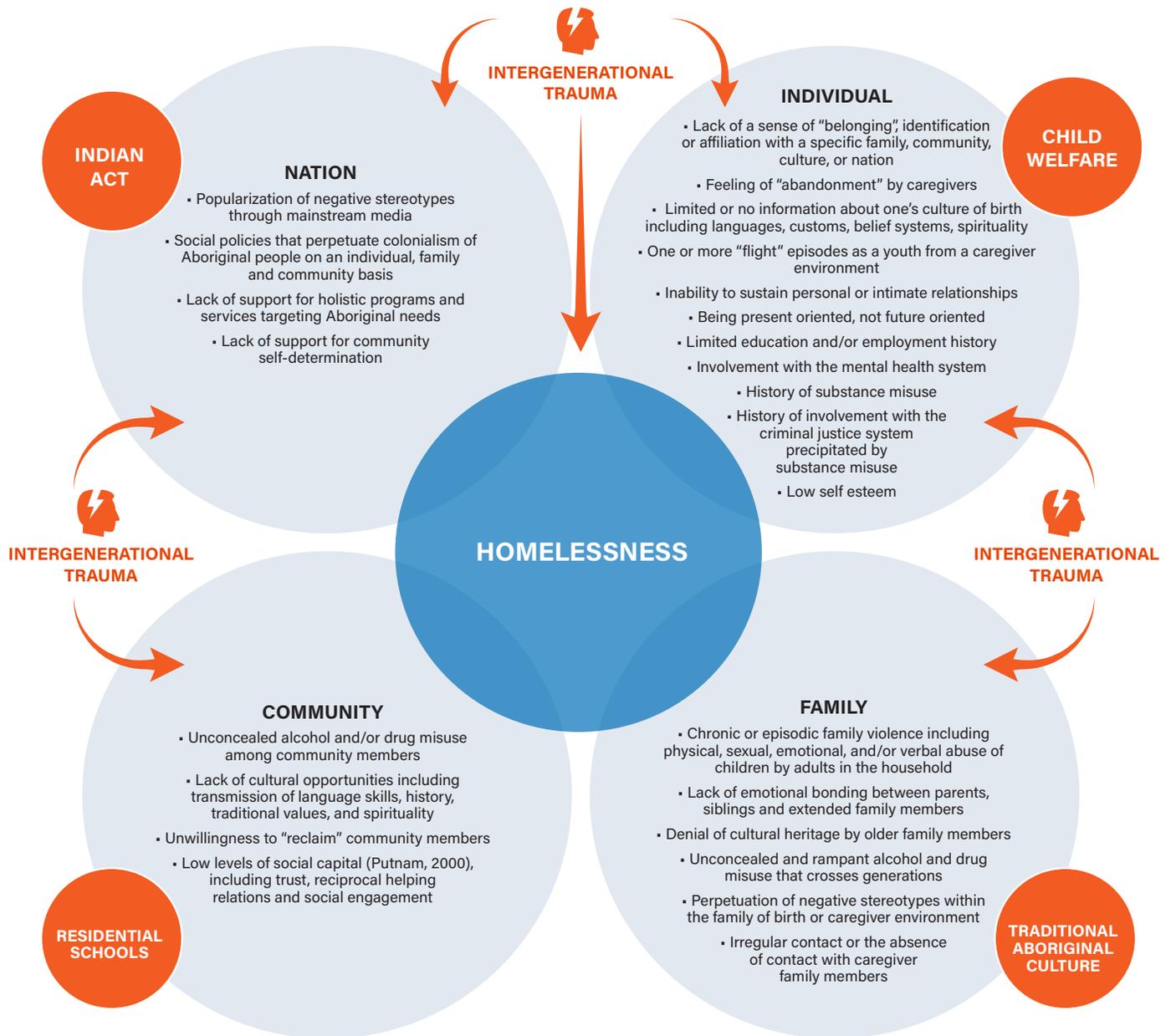
Analysis of the data identified a number of challenges and barriers that would need to be addressed should the community pursue implementation. There are obvious health service gaps and limitations to the accessibility of health care services that a community paramedicine program could help address. Many of the guiding principles that are outlined in CSA Z1630 are relevant for real-world application in a community such as Tuktoyaktuk, and the Standard provides useful foundational guidance for implementation of community paramedicine program. Recommendations from this study should be considered as part of the updates to the next edition of CSA Z1630.

Reference

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Appendix A

Model of Intergenerational Trauma (IGT)



P. Menzies, “Intergenerational Trauma from a mental health perspective,” *Native Social Work Journal*, vol. 7, 2010. Used with permission.

Appendix B

Concepts for the development of a community paramedicine program

Notes:

- 1) Each concept may be considered in either a present state or future state.
- 2) "CP" is used in the table for Community Paramedicine

	Existing checklist concept	Applicable Y/N	Rationale/Comments
OVERARCHING PRINCIPLES	The overall goal of any program should be to promote the patient's access to the right care, delivered by the right provider, at the right time, resulting in the best outcomes and the most effective and efficient use of resources.	Y	As an overarching principle, this is applicable, albeit with significant challenges and barriers to its achievement. As an example, patients that require specialist care and hospital admission in Edmonton are usually kept in hospital or are required to stay in Edmonton for extended periods of time to ensure full recovery and prevent possible future medevacs. There are differing perspectives about whether this aligns with "right care, right time, right place." As such, could a Community Paramedicine (CP) program provide the right care to help facilitate earlier (right time) return home (to right place) for patients who had to leave the community for specialist care?
STAGE I: GUIDING PRINCIPLES – FOR USE AT THE CONCEPTUAL STAGE	Patient and family centred – The patient and carers' needs, the patient's personal circumstances, their overall health history, the social and cultural context, and factors associated with the location and environment of patient encounter will be considered.	Y	Tuktoyaktuk is a tight knit community with evidence of patient and family supports in place. Challenges around medical transportation and access to specialist care have impacts on patients and families because of amount of travel involved and requirement of family escorts. Also, patients can have extended periods of time away from the community, separated from family members while receiving specialist care.
	Needs and evidence based – Community needs and gaps between the services and resources available can be identified.		Our community health needs assessment identified gaps that a CP could fill. Community leadership can draw from the identified gaps that would be best suited for a CP program to address.
	Goal-directed and outcome based – Ongoing and rigorous evaluation and improvement can be implemented.	Y	Goals for care can be integrated into program planning and implementation. Community members expressed a desire for timely access, safe transportation, and more opportunity for "at-home" care.
	Integrated collaborative care – The program will build on existing and established community linkages and partnerships and supplement health care provision by other providers.	Y	Partnerships are achievable with ongoing engagement of stakeholders. The concept of community paramedicine is new and requires stakeholders to be educated about it.
	Patient and provider safety – Patient and community paramedic safety will be considered.	Y	This is achievable because it is a new delivery of care and such considerations can be built into implementation.

	Existing checklist concept	Applicable Y/N	Rationale/Comments
STAGE I: GUIDING PRINCIPLES – FOR USE AT THE CONCEPTUAL STAGE	Stakeholder engagement – Engagement of stakeholders will be reinforced during the planning stages and implementation of the program.	Y	Establishing a planning and implementation committee will provide the means for stakeholder contribution
	Governance and policy – Strong governance and leadership, policies, protocols, and assessment tools will be developed.	Y	Consideration needs to be given to the degree to which planning, implementation, and oversight is led locally in the absence of an established paramedic service. It is our impression that local leadership will be critical to program success but that such leadership cannot be expected to be in place at the very beginning of the process. The community’s first step may be a requirement to recruit an outsider for this role—which is likely a less than ideal scenario for sustainability. Educational and mentorship opportunities for local leaders to learn governance and policy responsibilities would be an asset.
	Sustainability – The community paramedicine programs will be evaluated based on uniform and validated measures.	Y	Without leadership, accountability and reporting doesn’t exist. Processes, training, and supports need to be established to ensure program sustainability. This does not render this aspect of the standard inapplicable.
COMPETENCY, EDUCATION, AND TRAINING – FOR USE WHEN DEFINING STAFF ROLES	Ideal and minimal competencies required of community paramedics could be defined.	Y	Program planning needs to include the recruitment, training, and certification of new employees. At the outset of program establishment, required CP competencies can dictate these processes.
	Competence to carry out all aspects of the unique role and responsibilities could be ensured.	Y	Supervision of staff will also require recruitment and training as above.
	Roles, scopes of practice, and competencies could be clarified and formalized.	Y	Existing health system integration with Alberta Health Services means that AHS EMS would be a logical support for defining and formalizing competencies.
	Specialized education and continuing professional development could be provided.	Y	Leveraging partnerships with AHS EMS would be important. Professional development resources in Alberta and British Columbia should be considered.
STAGE II: PROGRAM PLANNING – FOR USE AT THE PLANNING STAGE	A comprehensive, collaborative strategic plan for the development of the community paramedicine program, with executive buy-in and sponsorship could be planned by the organization.	Y	Leadership of the CP program is required.
	Specific measurement strategies, implementation milestones, a communication plan that includes engagement with local and regional stakeholders, and a financial sustainability plan could be developed.	Y	The Tuktoyaktuk Community Corporation has produced a community strategic plan that includes a number of stakeholders with a good level of engagement. A similar process could be followed for the planning and implementation of CP
	The program plan could be integrated into, or would be compatible with, the other management systems in the organization.	Y	See comment above regarding strategic planning.

	Existing checklist concept	Applicable Y/N	Rationale/Comments
COMMUNITY PARAMEDICINE PROGRAM GOVERNANCE AND ACCOUNTABILITY	Senior management level commitment and support would be provided.	Y	There is not an existing paramedic service which would provide this commitment. In its absence, a local municipal leader is required to provide commitment to getting the program started.
	The program manager would report directly to senior management.	Y	This could be achieved with the implementation of the service.
	Health care partners are engaged to develop leadership for the planning and implementation of the program.	Y	Education of care partners about the role of a paramedic service and of a community paramedicine program is required.
	The organizational executive level commitment for the human, financial, capital, and equipment has been identified that is necessary to develop, implement, and manage the community paramedicine program both clinically and administratively.	Y	The hamlet would be the first party needed to demonstrate this commitment.
COMMUNITY HEALTH NEEDS ASSESSMENT	A community health needs assessment has been conducted.	Y	The details of this report reflect a community health needs assessment.
	A program strategic plan defining how best to incorporate existing community resources, services, and personnel into a program has been developed.	Y	Following the community health needs assessment, a strategic plan for program development and implementation can be created that draws on our findings to include existing community resources.
	The assessment has identified gaps and was performed using a multi-disciplinary process.	Y	The details of this report reflect a multi-disciplinary process.
	Ongoing evaluation based on defined performance measures with quantifiable clinical significance and feedback from stakeholders has been built in.	Y	Performance measures would need to be identified through the planning process.
COMMUNITY RESOURCE CAPACITY ASSESSMENT	A comprehensive inventory that identifies the availability and distribution of current capabilities and resources from many partners and organizations was completed.	Y	Due to the small size of the community, an inventory of available resources would be easy to generate.
	The program addresses concrete and specific community health care gaps relevant to local circumstances and conditions.	Y	The planning process can take gaps identified in this report into account.

	Existing checklist concept	Applicable Y/N	Rationale/Comments
COMMUNITY ENGAGEMENT PLAN	Community stakeholders (individuals, community groups, political leaders, or other organizations that have a vested interest in the program's outcomes) have been identified and involved appropriately.	Y	Ongoing engagement and communication with stakeholders will be required about roles and expectations.
PROGRAM SCOPE, OBJECTIVES, AND TARGETS	Community paramedic programs should meet the needs of populations by providing community-focused support using innovative means.	Y	
	Utilizing of the Institute of Healthcare Improvement (IHI) "Triple Aim" approach to optimizing health system performance has been considered. (Patient Experience, Population Health, System Cost, and for Quadruple Aim, Provider Well-being).	Y	Program planning should consider all of these aspects as they emerged in different ways during community consultation.
COMMUNICATIONS	Accurate and timely communication is a priority to promote continuity of care and help to prevent adverse events.	Y	Communication processes would need to be established
	Policies and procedures for communication and public education to promote health and prevent injuries have been established. Communications will include both internal and external communications.	Y	
	There is ongoing communication about the role of the program both within and outside the organization to help ensure the sustainability of the program.	Y	Communication processes would need to be established.
DOCUMENTATION & CLINICAL INFORMATION SYSTEMS	The program should create and maintain the documents and records required for the program services. Documentation should be written clearly and be easily understood.	Y	In the absence of anyone else operating in this arena, the CP program could control record keeping. Opportunity for integration with the Health Centre and GNWT capabilities for system integration need to be determined.
IMPLEMENTATION COMMITTEE	A program implementation committee should be established. The success of a program depends not only on leadership but high-level coordination.	Y	An implementation committee needs to be established.
	The organization should determine, provide, and maintain the infrastructure and resources needed to implement the program.	Y	In the absence of a paramedic service, opportunity exists for clearly articulating how resources would be controlled.

	Existing checklist concept	Applicable Y/N	Rationale/Comments
SAFETY MEASURES	Safeguards have been adopted and efforts made to assure that the program operates safely and provides the highest quality health services.	Y	Safe practices would need to be established
	Procedures ensure that decisions remain focused on the safety and welfare of the patient.	Y	
	Carer safety and support has been considered.	Y	
	Community paramedicine program evaluation tools have been adapted to local context and jurisdictional requirements.	Y	Safety evaluation practices would need to be established
	System-specific health status benchmarks and performance indicators have been defined.	Y	
MONITORING & MEASURING	A set of measures have been established to monitor, measure, and record the performance and effectiveness of the program on a regular basis.	Y	Outcome measures need to be determined in order to establish timeframes and reporting structures.
HEALTH CARE SYSTEM IMPACT	Planned evaluation shows the value of community paramedicine as part of an integrated health care system.	Y	Opportunity exists to define how value can be measured at the outset of program development. Outcome measures need to be determined in order to demonstrate value.
MANAGEMENT REVIEW AND CONTINUAL IMPROVEMENT	Senior management and the implementation committee review the program at planned intervals to ensure its continuing suitability, adequacy, sustainability, and effectiveness.	Y	Leadership needs to be established.
	The review includes assessment of opportunities for continual improvement, the need for changes to the program, including the overall strategies, policies, and objectives.	Y	Leadership needs to be established. Opportunities for improvement need to be defined.

Appendix C

Brochure for the community





The Standard sets forth guidance for how to establish a community paramedicine program where a paramedic service already exists.

The purpose of this study was to assess the applicability of the foundational guidance set forth in the standard to a remote northern community where there was no paramedic service. Tuktoyaktuk was selected as a site for this project based on continuing discussions and support from community leaders and health authorities in the Northwest Territories to take a closer look into the health service gaps in remote northern communities that could be addressed by the expansion of the paramedic role and new models of care.

APPROACH

A project team traveled to Tuktoyaktuk for one week in February 2020 to find out what a community paramedicine program could look like. Radio announcements, programs could bring town at the local grocery stores and around town to let residents know about the focus group sessions that were planned at the Katy Hall. Community members openly shared their thoughts and feelings on the health care needs that a community paramedicine program could help address. What we heard was that improving access to doctors, nurses and specialized care was at the top of the list. In addition, getting to the hospital and regular home visits were all important aspects of improving the health of the community and something that a paramedic service could help provide.

SUMMARY

The community seemed to be accepting of establishing a community paramedicine program and services in Tuktoyaktuk to help address their health service needs. The project demonstrated that the standard does provide useful guiding principles for the establishment and implementation of community paramedicine in a remote northern community. Tuktoyaktuk however, an understanding of the regulatory framework that exist in the Northwest Territories are needed, as the role of paramedics is different across each jurisdiction. In addition, ongoing dialogue with the community is fully engaged and ensure that the community is fully planning and involved in the paramedic program. other health care providers and integration with services will help keep community members at the focus of this care.

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CSA Group Research

In order to encourage the use of consensus-based standards solutions to promote safety and encourage innovation, CSA Group supports and conducts research in areas that address new or emerging industries, as well as topics and issues that impact a broad base of current and potential stakeholders. The output of our research programs will support the development of future standards solutions, provide interim guidance to industries on the development and adoption of new technologies, and help to demonstrate our on-going commitment to building a better, safer, more sustainable world.

