

BMJ Open Rural emergency care 360°: mobilising healthcare professionals, decision-makers, patients and citizens to improve rural emergency care in the province of Quebec, Canada: a qualitative study protocol

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ABSTRACT

Introduction Emergency departments (EDs) are an important safety net for rural populations. Results of our earlier studies suggest that rural Canadian hospitals have limited access to advanced imaging services and intensive care units and that patients are transferred over large distances. They also revealed significant geographical variations in rural services. In the absence of national standards, our studies raise questions about inequities in rural access to emergency services and the risks for citizens. Our goal is to build recommendations for improving services by mobilising stakeholders interested in rural emergency care. With help and full engagement of stakeholders, we will (1) identify solutions for improving quality and performance in rural EDs; (2) formulate and prioritise recommendations; (3) transfer knowledge of the recommendations to rural EDs and support operationalisation and (4) assess knowledge transfer and explore further impacts of this participatory action research project.

Methodology We will use a participatory action research approach. We will plan for a governance structure that includes all stakeholders'™ representatives, so throughout this project, stakeholders are fully engaged at every step. Our sample will be 26 EDs in rural Quebec. We will conduct semistructured individual and focus group interviews with relevant and representative participants, including patients and citizens (estimated n=200). Interviews will be thematically analysed to extract potential solutions and other qualitative information. An expert panel (n=15) will use an analysis grid to develop consensus recommendations from solutions suggested and will evaluate feasibility, impacts, costs, conditions for implementation and establish monitoring indicators. Recommendations will be transferred to stakeholders using tailored knowledge translation strategies (web platform, meetings and so on).

Discussion and expected results This study will result in a comprehensive consensus list of feasible and high-priority recommendations enabling decision-makers in emergency care to implement improvements in rural emergency care in Quebec.

Strengths and limitations of this study

- First research project to mobilise a diverse group of stakeholders to find solutions for improving care and services in Quebec rural emergency departments (EDs).
- Consensus on a comprehensive list of feasible and high-priority recommendations for improving the performance of Quebec rural EDs.
- Recommendations will be immediately applicable and we will explore their impact by evaluating and monitoring this knowledge mobilisation initiative.
- Participant selection not randomised but theoretically representative.
- Interviews and committee participation is time-consuming and participants with busy schedules may decline participation or may not continue to the end of the study.

Ethics and dissemination This protocol has been approved by the CSSS Alphonse-Desjardins research ethics committee (Project number: MP 2017-009). The qualitative material will be kept confidential and the data will be presented in a way that respects confidentiality. The dissemination plan for the study includes publications in scientific and professional journals. We will also use social media to disseminate our findings and activities such as communications in public conferences.

INTRODUCTION

Providing high-quality emergency care in rural areas poses specific challenges that are understudied. Rural emergency departments (EDs) treat four million patients per year in Canada, representing 30% of all emergency consultations, while those living in rural areas are only 20% of the whole population.¹⁻³ Compared with urban populations,

rural populations are older, in poorer health and more at risk of injury.⁴⁻⁸ Rural EDs represent an important safety net for rural populations, especially in contexts where there are few alternatives to hospital emergency services, many people are without a family doctor and recruiting and retaining physicians are difficult.⁹ Our previous work showed that access to care and services varies from one part of Canada to another (rural/urban, rural/rural).^{3,10} In fact, 74% of rural EDs in Quebec have 24/7 access to a general surgeon, intensive care unit and CT scans; elsewhere in the country, fewer than 20% of EDs have access to these services.^{3,10} These variations in access to care suggest inequities in accessibility, quality and effectiveness of ED care and services across rural and urban EDs and raise questions about Canada's universal healthcare system. Moreover, in the past decade, a wave of centralisation of healthcare services has taken place, largely because of budgetary constraints and a shortage of medical personnel. This has led to a reduction of services in rural areas and the closure of several small community hospitals, contributing to the wide variations in practice observed today.^{2,11,12} In the present context of growing needs and limited resources, policy-makers are reviewing emergency services and their place in the continuum of care. Policy-makers need evidence to inform their choices about allocation of emergency care and services for vulnerable populations in remote areas.^{2,13,14} In 1997, the Canadian Association of Emergency Physicians made several recommendations about improving medical practice in rural EDs across the country.¹⁵ However, the field of emergency medicine has evolved significantly over the past 15 years,¹⁶ and an update of these recommendations that is based on recent evidence is needed.

The Quebec Ministry of Health and Social Services (MSSS) published an ED management guide (*Guide de gestion de l'urgence*, 2000, updated 2006),¹⁷ but it is clear that its use is not widespread in rural EDs.¹⁶ In spite of appeals for change, there is thus an urgent need for standards for rural EDs that managers of these EDs can turn to.^{2,12,13}

The main objective of this innovative participatory action research project is therefore to address these practice variations and the absence of standards applied in the context of Quebec's rural EDs. In collaboration with more than 200 rural emergency stakeholders and citizens, we plan to coproduce recommendations for improving the performance of EDs that are both evidence-based and respectful of the constraints of real world concerns. We use the MSSS definition of performance which includes access, quality and optimisation dimensions. This definition is in accordance with the conceptual framework and the needs of the majority of the stakeholders of the research who are members of the Québec Health System.¹⁸ Collaboration among stakeholders will identify promising interventions, especially in the continuum of care, based on best evidence and on best practices in similar situations. This process will bring existing solutions to light and adapt them to the realities of rural

contexts, increasing likelihood of the implementation of the recommendations. We use the knowledge transfer (KT) framework developed by the National Public Health Institute of Québec,¹⁹ which allows us to focus on the different steps from coproduction to use of knowledge. It also highlights the multiple KT strategies from dissemination to appropriation of knowledge. This framework justifies the participatory research approach used in this project and gives us guidelines to evaluate the KT process.

Potential solutions for improving accessibility, quality and effectiveness of rural EDs

Through our literature review and the results of our earlier research, the expertise of our multidisciplinary team and the experience of our partners, we have already identified the following solutions that could improve accessibility, quality and cost-effectiveness in rural emergency care and services: improvement of emergency prehospital care (eg, optimisation of transfers); use of new technologies (eg, telemedicine, Point of Care Ultrasound); optimal use of resources (eg, access to medical specialists and facilities); training (eg, simulation-based learning) and improved management procedures (eg, facilitating the implementation of the ED management guide (*'Guide de gestion de l'urgence'*); standardise databases for better measurement of quality indicators). These solutions will be proposed to participants of our study in order to validate the potential usefulness and applicability.

Improving emergency prehospital care using remote monitoring

The distances between tertiary care hospitals and rural residents limit their access to specialist services and facilities. Our data suggest that most rural EDs are more than 300 km from tertiary and secondary care trauma units and an average of 300 interhospital transfers are required per year in each rural ED.^{3,16} The quality of emergency care in rural areas thus depends on the capacity to perform procedures locally and transfer patients who require it to the nearest referral centre after stabilising them.^{20,21} This process must be both timely and safe. Interhospital transfers, however, are expensive and expose patients to complications (eg, road accidents).^{22,23} Moreover, many patients who are in pain or have not been stabilised require a medical or nursing escort, which can cause staff shortages in the emergency room and is very expensive.²⁴ One promising solution is prehospital remote monitoring, whereby ambulance personnel and nurses can be supported from a distance.²⁵

Training medical personnel

Compared with emergency medicine professionals in urban areas, those in rural areas are proportionally less exposed to various medical situations, including managing trauma-related injuries²⁶ and other serious clinical conditions. In addition, according to our data, one-third of rural physicians have less than 5 years of

practice experience and only 6% have had extra emergency medicine training—CCFP (EM) Canadian College of Family Medicine certification of special competency in emergency medicine) (total of 3 years postgraduate (MD) training) or Fellowship of the Royal College of Physicians specialty in emergency medicine (FRCP) (5 years postgraduate (MD) training). Rural physicians are requesting additional training.²⁷ Simulation-based learning or clinical immersion programs are promising innovations in medical education that could meet the educational needs of rural emergency physicians.^{28 29}

Quality improvement through standardisation

The use of care protocols or guidelines in treating some emergency conditions, such as sepsis,³⁰ strokes,³¹ cardiovascular problems as well as trauma could improve the quality of care.^{30 32} This would be a relevant and evidence-based approach to reducing practice variations. However, the actual use of care protocols in both rural and urban contexts and their respective impacts on patient-care and health are unknown.

OBJECTIVES

The main objectives of this study are therefore to:

1. identify solutions for improving quality and performance in rural EDs by mobilising stakeholders (decision-makers, professionals, patients and citizens);
2. formulate and prioritise recommendations based on solutions identified;
3. transfer knowledge of recommendations to improve quality and performance in rural EDs and support the implementation of the recommendations and identified solutions;
4. assess KT and explore further impacts of the participatory action research project.

METHODOLOGY

We chose to use a participatory action research approach for this multipronged project.³³ Our hypothesis is that this process of knowledge co-construction will facilitate implementation of the recommendations.

Selection of EDs and study participants

Participating rural EDs will mostly be the same as in our earlier projects and represent 100% of Quebec rural EDs (n=26). Ongoing changes, including mergers, in the Quebec hospital system may slightly affect our selection criteria at the time of the study's onset. Briefly, these are hospitals that offer 24/7 emergency coverage, including inpatient beds and are situated in 'rural or small towns' according to the Statistics Canada's³⁴ definition (population more than 10 000 but density of less than 400 people per km², population less than 10 000 but density of more than 400 people per km² or population less than 10 000 and density of less than 400 people per km² (we are revising as per changes in recent census)). Two principles will

guide the recruitment of participants: participant's characteristics which are susceptible to give rise to different viewpoints (eg, years of experience, shift work, profession and so on) and data saturation.³⁵ Respect for representativity of the different types of EDs under study will take precedent over a statistically based representativity in recruiting all stakeholders. Patient/citizens selection will follow a research approach that emphasises public involvement.³⁶ For healthcare professionals, recruitment will focus on relevant professions/positions best suited to answer our ED specific questions: physicians, nurses, head nurses, administrators, diagnostic technicians, laboratory technicians, psychosocial professionals, prehospital emergency professionals. Local media and snowballing will be used for recruitment purposes. In addition, a 'champion' will be identified in each rural ED. The criteria for the recruitment of the champions go as follows: (1) the champions must be familiar with the ED and (2) they may occupy any function as long as they have good knowledge of the ED and its staff. The champion approach is often used in projects where the researchers are far away from the study site. Champions are people who know the culture of the site and its particular concerns.^{37 38} They will collaborate with the research team throughout the project, especially as recruitment facilitators and knowledge brokers.

DATA COLLECTION

Objective 1: Mobilise stakeholders to propose solutions for improving quality and performance in rural EDs

In the first phase of the project, the multiple stakeholders will be invited to participate in semistructured focus groups³⁹ or individual interviews⁴⁰ to discuss potential solutions for improving accessibility, quality and effectiveness in rural EDs. The interview guide will address topics relating to the particularities of each rural region (eg, the health and social care services available, the current situation of emergency services, the roles of the various emergency professionals, potential solutions for improving services and barriers and facilitators to implementing these solutions).

Interviews will be planned as follows: (1) ±40 individual interviews with decision makers at all levels or the health system: 'Ministère de la Santé et des Services sociaux (MSSS)', regional health and social care centres, local point of care; (2) ±4 focus groups (±7 participants each), one for each profession identified (physicians, nurses, prehospital emergency services, psychosocial care); (3) ±4 focus groups with patients and citizens, one for each of the following categories: patient committee members, mayors, community workers, concerned citizens. The number of interviews will be increased until data saturation is reached. They will be led by a research professional with experience in qualitative research and will be recorded and transcribed verbatim.

Thematic analysis of data using NVivo software will generate a coding tree (themes and subthemes) of

solutions for improving performance in rural EDs. Qualitative information about these solutions (context, feasibility) will also be extracted.⁴¹ The robustness and clarity of the categories will also be assessed through discussion with the research team.⁴² We will provide the COREQ checklist for the reporting of qualitative studies with the manuscript that will present the qualitative results.

Objective 2: Formulate and prioritise recommendations based on solutions identified

In the second phase of the project, the solutions identified through mobilising stakeholders (Objective 1) will be submitted to a panel of experts. This panel will formulate consensual recommendations based on the solutions extracted and will evaluate their feasibility, impacts, costs and conditions for their implementation. The expert panel (± 12) will include members of the research team, academia, university hospitals, professional associations and colleges as well as our rural champions and partners.⁴³ Selection criteria will be based on peer recognition and individual credibility. This panel will also establish monitoring indicators for implementing the recommendations.

A two-phase process will be used to establish the consensual recommendations. First, an anonymous by email process will be implemented and, second, a nominal face-to-face process will be used to generate those consensual recommendations.

The anonymous by email process will use a multidimensional analysis grid that will be sent to the experts so that they will be able to evaluate each of the solutions identified in Phase 1 of the study. The data collection tool will contain a 5-point Likert scale used to rate the solutions and open-ended spaces to comment on each measure. They will assign a priority to each measure based on their assessment of (1) effectiveness, (2) security or negative externalities, (3) costs and (4) organisational impact (implementation). They will also be asked to comment on the conditions for its implementation and indicate relevant monitoring indicators. Finally, in order to compare solutions, the research team in collaboration with the expert panel will determine the weight of each criterion (eg, Efficiency 30%, Security 30%, Costs 20%, Organisational impact 20%).

Data from this analysis grid will be used to guide discussions during the second face-to-face nominal process with the experts which will take place in person during a 2-day meeting. Through this nominal process, they will reach a consensus about the priority of the identified solutions and their feasibility, with help from a facilitator with expertise in consensus activities. The consensus recommendations (detailed descriptions, priority, feasibility, cost estimates and so on) will be compiled in a document that will be the main deliverable at this stage. The document will also mention other suggestions raised during Phase 1 but that were not part of the final consensus.

Objective 3: Transfer recommendations to improve quality and performance in rural EDs and support their implementation

In Phase 3, the consensus recommendations produced in Phase 2 will be presented to all stakeholders involved in Phases 1 and 2 and to others stakeholders from the EDs involved in the research. A variety of strategies will be implemented to connect with stakeholders and accompany them in understanding, adapting and, eventually, adopting the recommendations. The possible strategies (conferences, videoconferences, websites, social media, communities of practice and so on) will be defined according to the nature of the recommendations that emerge from the research process and through discussions with the stakeholders (our partners, site champions and so on). As researchers, we will have a key role in coproducing, presenting and adapting the knowledge. We will also support the reception, adoption and appropriation of knowledge by acting as a networking hub for participating EDs and members of our expert panel and by suggesting tools to implement some solutions. Our collaborators and coresearchers will all contribute to accompany the rural sites depending of the needs expressed in each case, in a spirit of fostering partnership between central and remote locations so that each can understand the situation of the others.

Objective 4: Assess knowledge transfer and explore further impacts of the participatory action research project

We will assess the KT and implementation in the targeted local sites with a questionnaire validated beforehand that uses a Likert scale followed by open questions. The survey will assess (1) knowledge of the recommendations; (2) implementation of solutions to address identified barriers and facilitators; (3) intention to adopt proposed solutions; (4) barriers and facilitators experienced on site by those implementing the recommendations and (5) satisfaction with the project/its relevance.

This online survey will take place at the end of Phase 3 (Period 0) and then again 5 and 8 months later. This survey will also enable us to measure the extent of stakeholders' participation in the project and retention rates and to identify characteristics of sites that adopted (or not) some of the solutions and characteristics of the solutions that had the most impact.

The second part of our evaluation will be an exploratory assessment of the impacts of the changes initiated. Given that adopting recommendations takes time, the real impact of resulting changes on the performance of EDs could occur later, perhaps outside the project timetable. However, we will conduct an exploratory quantitative analysis of the associations between adoption of the recommendations and performance measures in emergency using the indicators determined by the expert panel in Phase 2. These indicators will be based mostly on those of the MSSS, the 'Direction des soins urgents, de la traumatologie et du continuum clinique (DSUTCC)' and the Canadian Institute for Health Information as well as quality of care indicators proposed by Schull *et al*,⁴⁴ which

we validated in earlier studies.⁴⁵ Some of the recommendations (training, telemedicine and so on) may have an immediate impact on certain performance and quality of care indicators and these will be measured (eg, number of transfers, duration of transfers, treatment of specific conditions and so on).

Discussion and expected results

This study is based on a participatory action research approach that fosters the application of scientific knowledge in practice and management.^{46 47} Our research should therefore result in relevant recommendations that are likely to be adopted. The recommendations resulting from this project could be added to a new version of the Quebec emergency management guide (MSSS, 2006) and piloted by the DSUTCC, which is one of the knowledge users in this study. The results are also eagerly awaited by other emergency medicine associations and representatives in other provinces. This research experience, involving large-scale mobilisation, will hopefully serve as a model for improving performance in all areas of our health and social care system.

Finally, we will be contributing to the science of knowledge translation. We will document knowledge translation strategies that are effective in this context, which is currently a gap in the literature.⁴⁸

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