# Title: Domestic application of lessons learned by Canadian healthcare professionals working in international disaster settings: a qualitative research study

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## Introduction

The potential for disasters and public health emergencies is increasing globally, requiring expertise and capacity to prevent, prepare for, respond to, and recover from these events. The critical importance of emergency planning has been made even more apparent by the COVID-19 pandemic (1). It has put healthcare workers in an unprecedented situation, having to make difficult decisions and work under extremely stressful and unpredictable conditions (2). Given the current pandemic and the inevitability of future disasters, it is important to consider opportunities for developing disaster and emergency response expertise within the Canadian health workforce. Canada has world-renowned international disaster expertise in health that partly resides within the Canadian Red Cross (CRC), a global leader in medical response during emergencies. In these settings, CRC specializes in deploying self-sufficient health Emergency Response Units (ERU) that consist of self-contained teams of healthcare professionals including surgical capacities, inpatient care, outbreak management, mental health services, and more. Beyond the primary humanitarian benefit of deploying teams internationally to respond to emergencies, there may also be domestic benefit that accrues when the emergency response capacity of local healthcare providers and the healthcare system is expanded through international deployments. The existing literature, along with anecdotal evidence, suggests that Canadian health professionals with experience in international disaster response teams such as the CRC-ERU might have developed skills and capacities that could be effectively utilized in emergency response in Canada (3, 4). The objective of this study was to explore the experiences of healthcare personnel who are involved as delegates in international emergency health response with CRC-ERU regarding their perceptions of the individual attributes and collective capacities of response, and how this may benefit disaster management in Canada.

#### Methods

Study Design

This is a descriptive qualitative research study (5) consisting of semi structured interviews with key informants who were delegates deployed as a part of the CRC medical response team acting in a clinical/technical (physicians, surgeons, nurses) or administrative role (team leaders, administrators) within the last 5 years.

Recruitment

Purposive and convenience recruitment strategies were used to access key informants with extensive international disaster response experience. Participants were informed by an email sent by CRC administration about the study in May 2018. A reminder email was sent in June 2018. Participants were able to opt in the study by contacting the research coordinator directly. We also asked participants to refer their colleagues to participate in the interview by forwarding them the study information.

Ethics Approval

Research ethics approval for this project was obtained from the Hamilton Integrated Research Ethics Board (Project #4492).

Data Collection

Before the interview, the purpose of the study, and participant's and interviewer's role in the study were explained and informed consent was administered to all participants. Interviews were conducted by the authors NA, AH, SS who are experienced in qualitative interviewing. Student research assistants observed the interviews on occasion for training purposes. Participant consent was acquired before student researchers were involved. Interviews were conducted over the phone or in person at the CRC headquarters in Ottawa. Interview guide with open-ended questions focusing on the experiences and expertise developed by delegates and teams involved in the

CRC/ERU was designed by the research team and pilot tested (Appendix 1). Field notes were also made by the interviewer. Interviews were audio recorded and transcribed verbatim. Participants were not asked to review their transcripts or participate in a follow up interview.

Data Analysis

Adhering to qualitative descriptive methodology, conventional content analysis was the method of analysis (6). A team of researchers inductively coded and analyzed the transcripts using NVivo 12 software. Five coders analyzed 2-3 the transcripts independently and developed an initial code list. The team then discussed, negotiated, and consolidated these codes until obtaining consensus. From this, a codebook was developed. Coders then used this codebook when individually and inductively coding transcripts, adding new codes as they arose. A recursive approach to data collection was used, where analysis was done alongside data collection to follow up on emerging lines of analysis. As coding was completed for each transcript, meetings were held for the whole team to discuss and merge codes, to ensure coding consistency, explore overarching themes and clarify meanings of concepts. Throughout this process of constant comparison, the coding structure was refined, and themes were developed by identifying patterns in the descriptions and ideas offered by individual respondents. In the final phase of analysis, coding structure was cleaned and refined to produce a descriptive summary that was most relevant to the research questions. Data collection was stopped when data saturation occurred and data reached 'informational redundancy' (7). To increase the credibility and usefulness of data, preliminary findings were shared with CRC leadership periodically.

### **Results**

Eighteen key informants were interviewed from May to Dec 2018. Based on the preference of the participants, thirteen interviews were done over the phone and 5 were done in person. One

interview was conducted and transcribed in French and translated to English before analysis. A typical interview lasted 45-60 mins.

Participants were currently working in 4 different provinces: Ontario (14), Quebec (2), Alberta (1) and British Columbia (1). Participants represented a mix of professional designations, roles within the CRC, and levels of experience (Table 1). Participant had experienced between 2 to 30 deployments internationally.

## **Emerging Themes**

Findings are organized around participants' experiences and perspectives related to the development and application of disaster response competencies. Through inductive analysis, three main themes were identified. The first two focus on individual and team capacities that participants viewed as being acquired and/or developed during international disaster deployments. The third theme relates to the application of these capacities to domestic emergency response in Canada. Figure 1 shows an overview of these themes and how they relate to each other and to the personal traits that an individual brings to their involvement in international disaster response initiatives. Our data suggest that personal traits play an active role in cultivating the attributes acquired by the workforce in the field. Participants emphasized the importance of these traits as the overarching qualities of an efficient disaster responder. Personality traits like adaptability, flexibility, motivation, and resilience were identified by the participants to be the basis of the attributes acquired or developed in the field and were discussed as the essential qualities to manage in a new environment where conditions might be complex and unpredictable. One participant summarized, "Being open, and ...not walking in with the preconceived notions of how it's going to happen." Our data also shows that individual attributes and team capacities also had shared characteristics and were not mutually exclusive. For example, understanding local context and awareness of local culture (individual attributes) were key components of collaborating with the community and local

disaster response agencies (Team capacity). One participant summarized this in their comments: "Listening to local persons, and then with the authorities that are involved... it could be government at different levels, but then it could also be, community leaders".

Sub-themes related to Individual and team capacities developed due to international disaster response experience and how these competencies relate to domestic disaster response context in Canada are presented below. Table 2 provides quotes associated with each Theme/sub-theme.

Theme 1. Individual attributes acquired during deployment

Agility in high stress environments: Participants noted that being deployed as a part of the disaster response team puts an individual in a very challenging environment and in such situations, its crucial to learn attributes like thinking quickly, assessing complex situations and reaching well considered decisions. Experiencing unstructured operations in disaster settings taught the participants to be flexible with their decisions and/ or be "able to think outside the box".

Understanding local context and community needs: According to the participants, understanding the aims and context of the local community is important to deal with the challenges of the work and is vital to address the problems effectively. Participants emphasized the importance of cultural sensitivity during international deployments; the desire to learn about other cultures, countries, and languages; and the importance of acceptance and curiosity. Participants also noted that when responding to a disaster or emergency in another country, engaging and truly partnering with the local community ensures an effective, culturally appropriate and sustainable response.

Stress management: Participants noted the importance of personal resiliency when deploying due to the high stress that accompanies unpredictable disaster situations and how stress management strategies serve as a vital tool for coping with the situation, to prevent a mental health crisis given the many sources of professional and personal stress that may affect a person's ability to carry out their duties. In addition to the stress due to the complexity of the situation, stressors can also be

related to "having to make tough decisions, ethical decisions about rationalizing the antibiotics you have, or not even having supplies, or (being) without technology", one participant remarked.

Theme 2. Team capacities developed during the deployment

Partnership and Teamwork: According to the participants, delegates within a team bring a unique and valuable set of skills and experiences to the dynamic, unfamiliar situations. Participants indicated that learning about the ideal team composition and communication within teams was very important because you may be working with people who don't speak the same language or are not from similar backgrounds. Communication and conflict resolution was also deemed very important as delegates sometimes need to engage in difficult conversations and be amenable to differing opinions.

<u>Collaboration and coordination</u>: Participants indicated that for an efficient response, engaging in successful partnerships between individuals, agencies, and governments are essential. Participants talked about gaining the ability to coordinate with various local organizations when deployed internationally.

Participants noted that these team competences facilitated creation of high functioning teams and built capacity for future disaster response operations.

Theme 3. Application to Domestic Context

Participants noted that deploying internationally is like being part of a "real-life training setting". Participants summarized that this experiential learning is often more compressed and more intense due to the complexity of many international emergencies. According to one participant, "...it's much more, ... intense and rich in some of the emergencies overseas".

Participants stated that domestic emergencies generally require similar attributes such as adaptability and resilience to deal with dangerous and difficult situations. Agility, collaboration with the local community and cultural sensitivity were also noted to be very important in Canadian

context particularly because of Canada's diverse environments and populations. One participant gave the example of working with indigenous populations and the importance of cultural sensitivity while collaborating with them.

Overall, participants expressed strongly that expertise and skills honed through international disaster response can be applied in the Canadian context. As one participant summarized, "...especially working in Canada, especially considering the size of our country, we move people around (during emergencies), people who have the capacity to quickly adapt, quickly understand the new environment, function within a team of people that they don't know and that have different backgrounds."

# Interpretation

The aim of this study was to identify the attributes and capacities gained by disaster responders and to discuss how these experiences could be applied within Canada. Participants noted that international deployment acted as a real-life training setting and helped clinicians to acquire or refine specific skills, including agile decision making, communication and collaboration skills during high stress situations. There was an overarching presence of personal traits such as adaptability, flexibility and resilience within the three main themes. Collectively, our findings suggest that there is a clear link between international "lessons learned" and their application to disaster response in Canada. These internationally acquired attributes and capacities are interestingly synergistic with the Canadian CanMEDS/CanMEDS-FM roles of being a medical expert, communicator, collaborator, leader, health advocate and professional (8). The participants noted similar abilities that Canadian physicians require to effectively meet the health care needs of the people they serve, during international disaster response. The study thus indicates that

Canadian health teams responding to international disaster do indeed gain skills and knowledge that is very relevant domestically in Canada.

Few studies have outlined the important abilities in health professionals working in disaster relief and management. Research studies have identified the importance of competencies like adaptability and flexibility, communication, teamwork, interpersonal skills, and self-management skills from the perspectives of nurses working in disaster relief (9); emergency and disaster medical response personnel (10, 11); emergency response practitioners (12) and key emergency response leaders (4). These competencies demonstrate the distinction between effective versus ineffective disaster teams and help guide disaster planning and personnel selection, placement, training, and performance management (4). Canadian Disaster Medical Assistance Team members also reported similar non-technical core competencies as essential to interprofessional collaboration during disaster and emergency response (13). There is evidence that different disaster settings have some common characteristics like unpredictable and volatile nature of disasters regardless of the region, type of disaster or who is involved (10).

This study is one of the first to describe how these essential disaster response skills could be applied by healthcare personnel in Canadian context. Canada is a multi-cultural and multi-linguistic country and hence it is very important to establish true bi-directional partnerships and relationships to better understand needs in varied populations. For example, ways of knowing in Indigenous populations in Canada and understanding the role of self-governance during disaster response is crucial when working with Indigenous peoples (14). These findings also provide important insight regarding response to the COVID 19 pandemic where the skills of keeping nimble and making decisions 'on the fly' has been a reality.

The findings from this study can inform course design/training in disaster management and healthcare training programs in Canada. Disaster response training has long been accepted as an

integral part of disaster preparedness, especially for health care workers (15) and previous studies have indicated the need for considerably more training in disaster response for frontline workers (16). Similar need for training has been identified during the COVID-19 pandemic. Still there is a general lack of evidence-based training programs due to lack of background information to develop an evidence base (13). Evidence from this study could provide insights regarding essential skills needed by frontline workers and may provide initial evidence to design disaster response curriculum.

#### Limitations

This study had only 18 participants, but collectively, key informants who participated in the study had diverse experience gained from working internationally in various regions. This study only approached the disaster response workers who have been a part of the CRC-ERU for participation due to feasibility. Future work could include disaster response personnel affiliated to other teams or agencies. Due to minimal resources, French interview was not professionally translated. The interviewer who conducted the interviews, translated the interview and was a part of the data analysis team. Participants were not provided their transcripts for review and validation.

## Conclusion

Overall, this study illustrates that many Canadian physicians and healthcare workers have acquired individual skills and team capacities essential for effective disaster response. This experience can be vital to build efficient disaster response teams and inform competency and curriculum development for professional training programs especially as Canada responds to a global pandemic.

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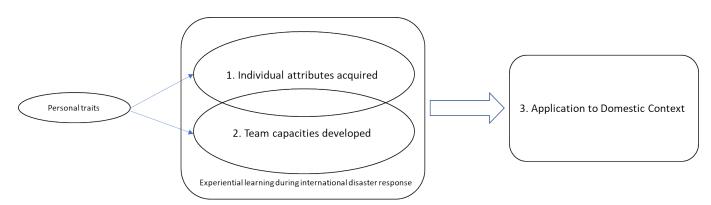


Figure 1: Overview of Emerging Themes



Characteristic	N (%)
Sex:	
Female	8 (44%)
Male	10 (55%)
Years of experience with CRC:*	
< 5	2 (11%)
5 to 9	12 (78%)
>10	2 (11%)
Key Informant Professional Role:	
Administration	5 (28%)
Technicians or Logisticians	4 (22%)
Nurses	4 (22%)
Medical Doctors	3 (17%)
Psychosocial Support Workers	2 (11%)
Key Informants in Leadership Roles	6 (33%)
Deployment Area:	
Medical Doctors  Psychosocial Support Workers  Key Informants in Leadership Roles  Deployment Area:  International only	9 (50%)
Domestic only	1 (5%)
Both international and domestic	8 (44%)

\* N= 16 due to incomplete data

Table 1: Characteristics and Profiles of the Key Informants

	b themes and illustrative quotes from participants				
Theme 1: Individual attrib	outes acquired during deployment				
Agility in high stress environments	"It's the ability to adapt quickly, be agile, be in,, high-stress environments, not be getting breaks, not sleeping well; dealing with very difficult things; dealing with things that sometimes are outside their job it's more the personal attributes than the technical skills, often". P4				
	"I've learned to change my plans every half day, every day, because, those situations, are so dynamic so rapidly changing, and you learn, new things about the context of what that disaster, what that event has brought to you, that forces you to change your plan. You have to be, an agile thinker; flexible in mind, able to abandon assumptions" P13				
Understanding local context and community needs	"The success of a deployment, it's linked to a mix of understanding of the organizational culture, and the context." P5				
	"those (delegates) that are more curious about other countries, other cultures/traditions/customs, those ones are more likely to be successful on missions." P2				
	"One thing (delegates) have to learn is working with local counterparts and making sure the local counterparts are stronger when they leave than when they got there." P1				
Stress management	"having to make tough decisions, ethical decisions about rationalizing the antibiotics you have, or not even having supplies, or (being) without technology. These are things that can stress professional(s), and there are the thingsthat can stress people at a very personal level." P13				
	"I think able to work very long hours in difficult conditions not the best of conditions, I think those personally resilience characteristics are important." P2				
Theme 2: Team capacities	s developed during the deployment				
Partnership and Teamwork	"For the medical team, people come from varied backgrounds somebody might be really current on their neonatal resuscitation skills, somebody else might be really good at starting IVs, somebody else might be able to put casts on and they can, actually, teach the local staff how to do it It's like finding out what everybody else is good at and pooling all their resources." P16				
	"Understanding that not everyone will have the same level of English or French in a team, and adapting to that, working through translators, adapting to a different vocabulary, way of working with the local team." P14				
	"The ability to realize that the relationships that you have on the team are more important than any one issue the ability to let go of things and move on, and the ability to work constructively with people, adapt to changing situations, sort of a loyalty to the team" P9				

Collaboration and	"I've gained through the emergency response unit the ability to
coordination	coordinate. Coordinate with the local population to make sure the assistance
	we're providing is appropriate and timely. Coordinate with the local
	authorities, government officials, to make sure that the assistance we're
	providing is appropriate and coordinated andalso coordinate with any
	humanitarian agencies and other "P7

# Theme 3: Application to Domestic Context

- "Canada's not immune to mass disruptive events, ... And all those require some of the same attributes, in terms of dealing with the international side. Unfortunately, the international side is a great training setting, as well, a real training setting, for events that we may or may not see in Canada." P3
- "...it's much more, ... intense and rich in some of the emergencies overseas, ... when we're able to apply them to very big and complex emergencies in Canada, it's very evident that these are transferable skills" P11
- "(With) First Nations, there are some very strong similarities, in terms of dealing with a different cultural setting". P7
- "Coordinate with the local population to make sure the assistance we're providing is appropriate and timely... So, I think having this skill internationally, how to interact with local authorities understand their mandate, their resources available and respond to the gaps, this is something that I've also been able to use in Canada." P2
- "...especially working in Canada, especially considering the size of our country, we move people around (during emergencies), people who have the capacity to quickly adapt, quickly understand the new environment, function within a team of people that they don't know and that have different backgrounds." P8

#### **Interview Guide**

From international to domestic health disaster response: How skills, knowledge, capacities and experiences of an international emergency response organization could be relevant to the Canadian context.

**Principal Investigator:** Dr. Lynda Redwood-Campbell

Co-investigators: Drs. Salim Sohani, Meredith Vanstone, Matthew Hunt, Lisa

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# **Qualitative Interview Guide**

## **Information for Interviewer**

Venue: Interviews will be conducted by telephone.

<u>Duration</u>: As long as it takes for the participants to complete, we anticipate it being between 30-

90 minutes

Things to have: Voice recorder, extra batteries, pens and paper for notetaking, timer

# Before the interview

- Introduce yourself and the purpose of the interview
- Review the key points in the consent form (e.g., privacy and confidentiality, the participant's right to withdraw).
- Consent for audio-recording
- Remind to send written consent electronically (if not done so already)

## **Preamble**

Thank you for agreeing to be interviewed. The reason we are doing this interview is to help gain insight into the experiences and expertise developed by delegates and teams involved in an international emergency response to inform domestic response. We appreciate your expertise in both international and/or domestic responses.

We will be asking a series of open ended questions. There are no right or wrong answers. We are here to listen to your experience and suggestions on how government and community agencies can effectively plan domestic response. We intend the interview to be quite informal and relaxed.

#### Introduction

To begin, tell us about your role with Canadian Red Cross.

Your background and how you came to be affiliated with CRC and emergency response unit?

Name and Position with Red Cross

Where they are situated in Canada?

Length of time with CRC

Working Background/scope

Deployed to.... Or involved in Deployment to.... (How many times? What regions?)

# **Interview Questions** (and prompts)

# A. Narrative of experience as a delegate

i. Describe to me your experience with CRC's emergency response?? (Prompts: How does the deployment process works? Onset, preparation; What steps do you need to take to make sure your deployment doesn't affect your current work/personal life?)

# B. Attributes/ knowledge/skills

i. What are some of the essential traits people doing this kind of work need to have? Personal or professional? (What skills are used during deployment?)

ii. In your experiences with the ERU, I imagine you have a learned a lot. Could you please describe what new attributes, knowledge, and skills CRC delegates acquire through ERU work and brought back home? We're interested in hearing about attributes that you might not have gained if you weren't working as part of the ERU.

111.	These attri	butes you	just descri	bed [re-i	iterate]-	how do	o you d	elegates j	potentially	use it? If
the	y are deplo	yed dome	stically (in	Canadia	an conte	ext) and	or in tl	heir curre	ent work?	

iv. From a management perspective, what attributes do you think management teams learn specifically through this work? How is this applicable in Canada?

# C. Disaster preparedness

i. What does excellent preparation looks like? Personal and organizationally CRC Considering emergency deployment is such a complex task, often there are challenges with predeparture readiness. How would you say CRC deals with that?

ii. Can you give me an example of certain problems faces as a part of your experience with emergency response? (Prompts: Ethical dilemmas, logistical challenges, warehouse issues, custom issues, security issues, resource allocation) Examples of things that stick out. What have you learnt from this? How would you say its applicable to Canadian context?

iii. Based on your experience what advice would you give to the Canadian government to effectively plan for domestic emergency preparedness/response? To reduce the gap between CRC's capacity to deal with emergency response and domestic preparedness in Canada?

iv. Any other comments or things you can think off that might relate to our study?