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Research

Domestic application of lessons learned by Canadian health care professionals working in international disaster settings: a qualitative research study

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Abstract

Background: Individuals with prior experience in international disaster response represent an essential source of expertise to support disaster response in their home countries. Our objective was to explore the experiences of personnel involved in international emergency health response regarding their perceptions of essential disaster response attributes and capacities and determine how these competencies apply to the Canadian context.

Methods: For this qualitative study, we conducted semistructured interviews with key informants in person or over the telephone from May to December 2018. Participants were delegates deployed as part of the Canadian Red Cross medical response team in a clinical or technical, or administrative role within the last 5 years. Interviews were audio-recorded and transcribed. Conventional content analysis was performed on the transcripts, and themes were developed.

Results: Eighteen key informants from 4 Canadian provinces provided perspectives on individual attributes acquired during international deployments, such as agility and stress management, and team capacities developed, including collaboration and conflict management. Key informants, including administrators (n = 5), technicians (n = 4), nurses (n = 4), physicians (n = 3) and psychosocial support workers (n = 2), described these experiences as highly relevant to the Canadian domestic context.

Interpretation: Canadian physicians and health care workers involved with international disaster response have already acquired essential capacities, and this experience can be vital to building efficient disaster response teams in Canada. These findings complement the Canadian Medical Education Directives for Specialists (CanMEDS) roles and can inform course design, competency and curriculum development for physician and professional training programs related to disaster response and preparedness.

The potential for disasters and public health emergencies is increasing globally,[1] requiring expertise and capacity to mitigate and manage such events. The critical importance of emergency planning has been made even more apparent by the COVID-19 pandemic.[2] In Canada, emergency preparedness and response is one of the core competencies of public health professionals.[3] To mitigate the threat of the pandemic, Canada implemented a "whole-of-government" approach that included simultaneous actions in economic, social and health sectors. Public health has led the collaborative decision-making within the different levels of government by placing measures to increase and protect health care capacity. Public health also progressively implemented strict physical distancing measures, masking, lockdowns, quarantine measures, travel restrictions and bans on nonessential travel.[4]

Despite these measures, the pandemic has put health care workers in an unprecedented situation, and they work under extremely stressful and unpredictable conditions.[5] 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. Thus, it is critical for the broader health care sector to collaborate with public health teams and effectively deliver medical services during emergencies.

Competing interests: Lynda Redwood-Campbell has acted as a contracted delegate with Canadian Red Cross. Lisa Schwartz declares COVID research support from the World Health Organization, consulting fees from the Ontario Regional Blood Coordinating Network (ORBCoN), payment for guest lectures from McMaster University and a salary award from the Arnold L. Johnson Chair in Health Care Ethics at McMaster University; she is a member of the Canadian Cancer Trials Group and of the Médecins Sans Frontières ethics review board. Salim Sohani is an employee of the Canadian Red Cross. No other competing interests were declared.

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Canada has extensive international disaster response expertise in health that partly resides within organizations like the Canadian Red Cross and Médecins Sans Frontières (also known as Doctors Without Borders), which specialize in deploying self-sufficient health emergency response teams (sometimes called emergency response units) of health care professionals and other team members. Beyond the primary humanitarian benefit of international emergency deployment, there may also be a domestic benefit that accrues when the emergency response capacity of local health care providers and the health care system is expanded. The existing literature, along with anecdotal evidence, suggests that Canadian health professionals with experience in international disaster response teams may have developed skills and capacities that could be effectively used in emergency response in Canada.[6,7]

The objective of this study was to explore the experiences of health care and other personnel involved as delegates in international emergency health response regarding their perceptions of the individual attributes and collective capacities of a team during disaster response and how this may benefit disaster management in Canada.

Methods

Study design and setting

This descriptive qualitative research study[8] consisted of semi-structured interviews with key informants who were delegates involved with the Canadian Red Cross medical response team, and who acted in a clinical or technical (e.g., physicians, surgeons and nurses) or administrative role (e.g., team leaders and administrators) from 2014 to 2018 inclusive. The study was reported using the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist.[9]

Role of the Canadian Red Cross in the study

The Canadian Red Cross was a funder of this study and facilitated participant recruitment; however, the research team was placed primarily at McMaster University (L.R.-C., N.A., M.V., L.S., A.H. and S. Sharma) and only research staff (N.A., A.H. and S. Sharma) were involved in data collection and had access to participant identifiers and raw data. S. Sohani, from the Canadian Red Cross, was involved in project conceptualization, and data interpretation once data were deidentified. S. Sohani also reviewed the interview guide to ensure that the questions reflected the context correctly.

Preliminary themes were shared periodically with leadership at the Canadian Red Cross to understand their technical and operational context, such as clarifying how the deployment procedure worked. Based on the feedback, we made changes to interview questions and added appropriate probes to the questions. Before the interviews, participants were informed about the distinct roles of the Canadian Red Cross and the McMaster team. Interview transcripts and participant identifiers were not shared with the Canadian Red Cross administration. Canadian Red Cross administration had no role in the study conceptualization, study design, data collection, data analysis and interpretation, writing of the report or manuscript or the decision to submit this manuscript for publication.

Recruitment

Purposive and convenience recruitment strategies were used to access key informants with disaster response experience. The Canadian Red Cross administration identified rostered delegates who deployed with an emergency response unit in the past 5 years and sent a blanket email to these delegates in May 2018, followed by a reminder in June 2018. The Canadian Red Cross administration also identified and emailed delegates purposively based on their role in the emergency response unit and years of involvement. Participants were requested to refer their colleagues to participate and forward them the study information. All interested delegates could opt in to the study by directly contacting the research coordinator (N.A.) at McMaster. Delegates were invited to participate in the interview, irrespective of their occupation or region of deployment.

Delegates who could not converse in English or French, or were unavailable to meet virtually or not based at the Canadian Red Cross headquarters in Ottawa were excluded from the study.

Data collection

Before the interview, the purpose of the study and roles of participants and interviewers in the study were explained to all participants, and informed consent was obtained. Interviews were conducted by N.A., A.H. and S. Sharma; they had no previous relationship with the participants or experience with disaster management and the Canadian Red Cross. French interviews were conducted by a student assistant, supervised by N.A. N.A. has more than 10 years of experience in qualitative methods. A.H. and S. Sharma had some prior experience with qualitative interviewing and were trained by N.A. for consistency within the interviewers.

The research team designed a semistructured interview guide with open-ended questions based on the experiences of L.R.-C. as a Canadian Red Cross delegate and S. Sohani as a Canadian Red Cross leader. N.A. pilot-tested the interview guide (Appendix 1, available at www.cmajopen.ca/content/10/1/E213/suppl/DC1) with 2 Canadian Red Cross delegates. Based on this testing, the interview guide was updated by reframing the questions for clarity and adding probes.

Interviews were conducted over the telephone or in person at Canadian Red Cross headquarters in Ottawa, from May to December 2018. Interviews were audio-recorded and transcribed verbatim. For interviews conducted in French, a student assistant provided translation into English for data analysis (supervised by N.A.). Participants did not review their transcripts or participate in a follow-up interview.

Data analysis

Adhering to the qualitative descriptive methodology, conventional content analysis was conducted.[10] A team of coders (N.A., A.H., S. Sharma and 2 student assistants) inductively

coded the transcripts using NVivo 12. Coders had varying levels of experience and were trained by N.A. Each member of the coding team analyzed 2 to 3 transcripts independently; the team then discussed and consolidated the initial codes until consensus was obtained. The team developed a codebook that was used to code the transcripts individually, adding new codes as they arose. A recursive approach to data collection was used to follow up on emerging lines of analysis. Data collection was stopped when data saturation occurred and data reached "informational redundancy."[11]

Lastly, all authors reviewed the emerging themes and supporting quotes to draw interpretations from the study findings and to discuss "reflexivity" to consider how the authors' roles, positions, perspectives and the relationship with the Canadian Red Cross affected the analysis.[12]

Ethics approval

The Hamilton Integrated Research Ethics Board approved this project (project no. 4492).

Results

Eighteen key informants were interviewed; a typical interview lasted 45 to 60 minutes. Participants were from 4 provinces across Canada: Ontario (n = 14), Quebec (n = 2), Alberta (n = 1) and British Columbia (n = 1). They represented a mix of professional designations, roles within the Canadian Red Cross and experience levels (Table 1). Participants had experienced between 2 and 30 deployments internationally, except 1 who had never physically deployed internationally but had been a part of planning international deployments.

Table 1: Characteristics and profiles of the key informants

Characteristic	No. (%) n = 18
Years of experience with the Canadian Red Cross	
< 5	2 (11)
5 to 9	12 (67)
> 10	2 (11)
Missing	2 (11)
Professional role	
Administration	5 (28)
Technician or logistician	4 (22)
Nurse	4 (22)
Medical doctor	3 (17)
Psychosocial support worker	2 (11)
In a leadership role	6 (33)
Deployment area	
International only	9 (50)
Domestic only but remotely supported international missions	1 (5)
Both international and domestic	8 (44)

Emerging themes

Three main themes were identified. The first 2 themes focus on individual and team capacities that participants viewed as being acquired 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.

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).

We present below subthemes related to individual and team capacities developed from international disaster response experience and how these competencies relate to the domestic disaster response context in Canada. Table 2 provides quotes associated with each theme and subtheme.

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, it is 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 to 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 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.

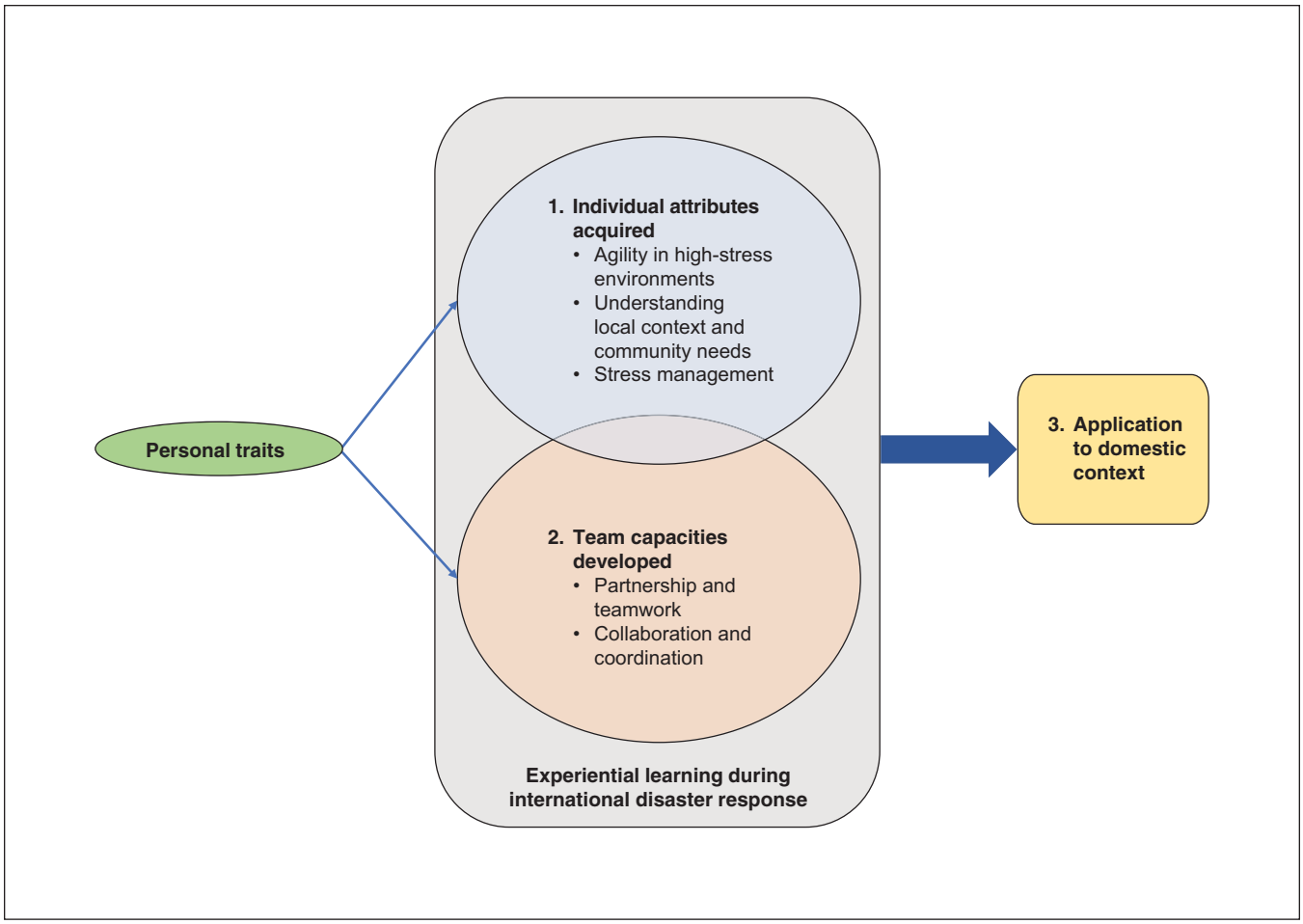

Figure 1: Overview of emerging themes.

Stress management

Participants noted the importance of personal resiliency when deploying because of the high stress that accompanies unpredictable disaster situations. They emphasized 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.

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 dynamic and unfamiliar situations. Participants indicated that learning about the ideal team composition and communication within teams was very important because team members may be working with people who do not speak the same language or are not from similar backgrounds. Communication and conflict resolution were also deemed necessary as delegates sometimes need to engage in difficult conversations and be amenable to differing opinions.

Collaboration and coordination

Participants indicated that for efficient response, engaging in successful partnerships among individuals, agencies and governments is essential. Participants talked about gaining the ability to coordinate with various local organizations when deployed internationally.

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

Theme 3: Application to domestic context

Participants noted that international deployments are like being part of a real-life training setting. Participants summarized that this experiential learning is often more compressed and more intense because of the complexity of many international emergencies.

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 the Canadian context, mainly because of Canada's diverse environments and populations. One participant gave the example of working

Table 2: Main themes, subthemes and illustrative quotes from participants

Theme and subtheme	Quotation
Theme 1: Individual attributes 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 things … that 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 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 coordination	"I've gained through the emergency response unit … the ability to 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 and ... also 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)	

Note: IV = intravenous line.

with Indigenous Peoples and the importance of cultural sensitivity while collaborating with them.

Overall, participants expressed that expertise and skills honed through international disaster response can be applied in the Canadian context.

Interpretation

The results of this study suggest that international deployment acted as a real-life training setting for the participants, by helping clinicians 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 like adaptability, flexibility and resilience within the main themes. The participants provided examples of how these skills were directly applicable in a disaster setting within Canada. Thus, these findings suggest a clear link between international lessons learned and their application to disaster response in Canada.

The attributes and capacities that arose in the main themes like communication, collaboration and leadership are synergistic with the Canadian Medical Education Directives for Specialists (CanMEDS) and CanMEDS–Family Medicine (CanMEDS-FM) roles of being a medical expert, communicator, collaborator, leader, health advocate and professional.[13,14] This further supports the concept that Canadian disaster response teams gain skills that are relevant domestically in Canada.

Previous studies have outlined the essential abilities in health professionals working in disaster relief and 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,[15] emergency and disaster medical response personnel,[16,17] emergency response practitioners[18] and key emergency response leaders.[7] These competencies demonstrate the distinction between effective and ineffective disaster teams and help guide disaster planning and personnel selection, placement, training and performance management.[7] Canadian disaster medical assistance team members reported similar nontechnical core competencies essential to interprofessional collaboration during the emergency response.[19] There is evidence that different disaster settings have some common characteristics, such as the unpredictable and volatile nature of disasters regardless of the region, the type of disaster or the people involved.[16] The skills mentioned above are similar to the skills highlighted in the current study, and these findings provide important insight regarding the COVID-19 pandemic response, in which the skills of making decisions quickly have been a reality.

Canada is multicultural and multilinguistic, and hence it is imperative to establish true bidirectional partnerships to understand the needs of varied populations. Previous studies have highlighted the role of cultural competency in disaster response.[20–22] For example, the Indigenous ways of knowing and the role of self-governance during a disaster response are crucial when working with Indigenous Peoples.[23]

Disaster response training has long been accepted as an integral part of disaster preparedness, especially for health care workers.[24] Previous studies have indicated the need for considerably more disaster response training for front-line workers.[25] Still, there is a general lack of evidence-based training programs because of insufficient information to develop an evidence base.[19] The findings from this study can inform course design or training in disaster management graduate programs and health care training programs in medical schools and nursing schools in Canada.

Limitations

Like all qualitative studies, the findings of this study are grounded in the geopolitical and sociohistorical context in which the study took place. When transferring findings to other contexts, caution should be taken. The involvement of the Canadian Red Cross was a strength in improving the policy relevance of the research, but also a limitation. Despite efforts to maintain participant confidentiality from the Canadian Red Cross, involvement of this organization in the funding and conduct of the study may have increased social desirability bias during interviews.

We approached only disaster response workers who had been a part of the Canadian Red Cross emergency response unit for participation, owing to feasibility issues. However, many respondents who were on the Canadian Red Cross roster of delegates were not Canadian Red Cross employees, which is a mitigating factor. Most of the participants were from Ontario, which represents the general distribution of emergency response unit delegates. Future work could include disaster response personnel affiliated with other teams or agencies.

Because of minimal resources, French interviews were not professionally translated. Instead, the student assistant conducted these interviews and served as a translator and participated in data analysis. Participants were not provided with their transcripts for review and validation.

Conclusion

This study illustrates that these Canadian physicians and health care workers have acquired individual skills and team capacities internationally that could be used for effective disaster response domestically. 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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Contributors: Lynda Redwood-Campbell contributed to study conception and design, data collection, analysis and interpretation of data, manuscript drafting, editing and review. Neha Arora contributed to study design, data collection, data management, data analysis, manuscript drafting, editing and review. Matthew Hunt, Lisa Schwartz and Meredith Vanstone contributed to study design, manuscript editing, revising and review. Alex Hildebrand and Simran Sharma contributed to data collection, analysis, manuscript editing, revising and review. Salim Sohani contributed to study design, data analysis, manuscript editing, revising and review. All authors gave final approval of the version to be published and agree to be accountable for all aspects of the work.

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