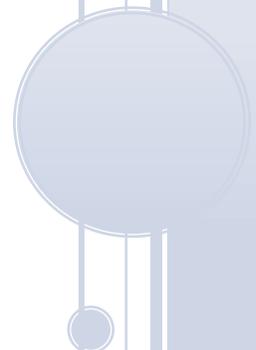


BARRIER-FREE EMERGENCY COMMUNICATION ACCESS AND ALERTING SYSTEM RESEARCH REPORT

Debra Russell, Ph.D
Joe McLaughlin, Ed.D.
Robin Demko, M.Ed.

March 27, 2018



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ACKNOWLEDGEMENTS

It has been a pleasure to complete this Barrier-Free Emergency Communication Access and Alerting System research project for the Canadian Hearing Society. We would like to thank all of the participants from the Deaf, hard of hearing and Deafblind communities for their active participation in this process. To those who took the time to complete the survey, participated in focus groups or individual interviews, or helped raise awareness of the project through their own social media, or by sharing links and articles with us, we appreciate your help. It is their perspectives that will help the Canadian Hearing Society and volunteer, government, and emergency management organizations with respect to the communication needs of the diverse Deaf, hard of hearing, and Deafblind communities in Canada.

The research team for this project has included Dr. Joe McLaughlin and Robin Demko, and their assistance has been invaluable in connecting to the Deaf, hard of hearing and Deafblind communities. Thank you also to the Canadian Hearing Society staff that has guided this research project through its multiple phases.

We wish the Canadian Hearing Society every success in addressing the recommendations stemming from this research project, as it partners with emergency services to ensure emergency notification systems and emergency preparedness information is accessible to all Deaf, hard of hearing, and Deafblind citizens of Canada.

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In the words of one research participant:

There needs to be greater effort to have captions and interpreters where there are disasters - around the world we see news channels have the interpreter stand next to the disaster response leader on TV screen - It is 2017. Why we don't have this in Canada is mind-boggling. It is time. I experienced emergency alerts while I was in the States with immediate response alerts multiple times overriding all my notifications, so I knew it was serious. Why not yet in Canada??

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EXECUTIVE SUMMARY

This report contains the findings and recommendations of a research project conducted by DLR Consulting for the Canadian Hearing Society (CHS). CHS applied and received funding for this project from the Broadcasting Accessibility Fund (BAF). The research was conducted between April 2017 and Nov 2017.

The first deliverable on the research project was to examine the experiences of Deaf, hard of hearing and Deafblind Canadians in terms of accessible emergency communications, to identify gaps and needs, and to provide recommendations to address the gaps and needs. An independent consultant, Dr. Debra Russell, was retained, and the work was completed with project assistance from Dr. Joe McLaughlin and Ms. Robin Demko.

This stage of the research project involved the following:

1. **Literature Review** which addressed the following questions:
 - What challenges exist for Deaf, hard of hearing, and Deafblind people in accessing crucial public announcements that public agencies and/or media deliver during emergencies and/or disasters?
 - What is the current best practice approach to providing communication access for Deaf, hard of hearing and Deafblind people during emergencies and/or disasters?
 - What recommendations can be made to support equitable communication access for Deaf, hard of hearing, and Deafblind people during times of emergencies/disasters?
2. **On-Line Surveys:** Targeted towards the Deaf, hard of hearing and Deafblind communities. These surveys were available in English, French, ASL and LSQ. A total of 213 Deaf, Deafblind, and hard of hearing members responded to the survey. The breakdown showed 204 Deaf and Deafblind, and hard of hearing responded to English or ASL survey and 8 Deaf and hard of hearing responded to French survey (Deaf and Deafblind, and hard of hearing n=199 ASL users; n = 5 LSQ users), Deafblind (n = 8 ASL users; n = 0 LSQ users). No emergency preparedness agencies responded to the survey.
3. **Focus Groups:** Ten (10) focus groups were conducted in both the Anglophone and Francophone Deaf communities. A total of fifty-two (52) people participated in the focus groups. Focus group participants were recruited through local/provincial organizations representing Deaf people. Local Deaf community facilitators were invited to host meetings, and these meetings took place in Edmonton, Halifax, Toronto, Vancouver, Montreal, Whitehorse, Edmundson, and Saint John.

4. **Individual Interviews:** Fifteen (15) interviews were conducted with selected participants from the Deaf, Deafblind, hard of hearing community, and emergency management organizations.

The findings reveal that there is awareness of the part of some Emergency Management Organizations (EMOs) about the need to improve access to broadcast communication during times of emergencies, however there are inconsistent municipal, provincial and federal policies for the provision of communication access for Deaf, hard of hearing, and Deafblind citizens.

Across the country, Deaf, hard of hearing, and Deafblind people report that they have experienced hurricanes, ice storms, floods, wildfires, tornados and extreme storms. Based on those lived experiences, there is evidence that Deaf, hard of hearing and Deafblind citizens in Canada do not have equitable access to communication during times of disaster or emergencies. While there have been rare occasions when the broadcasts have included captioning and sign language interpreters during a local or regional emergency, this is not the norm. This inconsistent access places Deaf, hard of hearing, and Deafblind Canadians at greater risk during an emergency or disaster.

The reported experiences of the Deaf, hard of hearing and Deafblind communities consistently reveal that EMOs have little or no working knowledge of how to communicate with Deaf, hard of hearing and Deafblind people during times of natural or man-made disasters.

In terms of disaster preparedness, there are no national websites that offer information in either ASL or LSQ. There are some initiatives to provide training via DVDs and workshops, however, there appears to be no coordinated or standardized approach to the information delivered. While workshops are useful, the use of a website with accessible training videos ensures the training is available on demand, broadening the potential audience to include families, Deaf, hard of hearing, and Deafblind communities. It also means that the websites can serve as a source of information for EMOs about equitable communication access for these citizens. There are models of best practices, such as the Australian National Emergency Management Project that has developed an up-to-date information kit in Auslan (Australian Sign Language) and English.

One of the strongest themes across all the data sets was the need for pro-active preparation via policy development and protocols at the municipal, provincial and federal levels of government. There is an opportunity for a national strategy and guidelines for training interpreters to effectively interpret live emergency-related broadcast information. There is also a need and opportunity to develop national guidelines for television and Internet broadcasters to facilitate interpretation of live emergency information. There are guidelines that are effective in other countries, such as Australia and the United Kingdom, which could serve to as models to be built upon in Canada.

While Canada now has access to a national Video Relay Service (SRV Canada VRS), in which emergency 911 calls receive priority in the lineup for a VRS interpreter, the Deaf Wireless Canada Committee (2017) states that there are issues with calling 911 via VRS including technological compatibility with older 911 call centres, and the lack of training 911 operators have regarding responding to VRS calls, including the use of Voice Carry Over (VCO) VRS calls.

The Associations of Deaf, hard of hearing, and Deafblind are ready to provide awareness training to those wishing to understand how to effectively communicate with them. However, those Associations are frequently managed by volunteers, and lack the needed funding to develop and deliver the training.

Based on the data, there appear to be five priorities:

1. **Strategic Planning Level:** Policy and guidelines within municipal, provincial, and federal government for accessible communication based on the use of captioning and sign language interpreters during live broadcasts of emergency information.
2. **Operational Planning Level:** Development of a website that can provide accessible information for ASL and LSQ users on how to prepare for a disaster, and offer current information for EMOs and broadcasters about the Deaf, hard of hearing and Deafblind communities.
3. **EMOs:** Training to help EMOs understand how to effectively communicate with Deaf, hard of hearing and Deafblind people during an emergency.
4. **Broadcasters:** Development of protocols and practices to ensure captioning and interpretation is effective when provided for live broadcasts of emergency information.
5. **Interpreters:** Training on strategies and practices that can ensure interpretation is effective during live broadcasts of emergency information.

Based on the data gathered in this research project, recommendations were made. The improvement opportunities noted in this review will be supported by the next two research activities, which included the development of an action kit to advise the federal, provincial and municipal emergency preparedness agencies on how to ensure their emergency messaging is accessible. As well, there will be a pilot test of best practice model of accessible emergency broadcast information and accessible emergency preparedness information.

CONTEXT

In the spring of 2017, Debra Russell and DLR Consulting were contracted to study the experiences and needs of Deaf, hard of hearing, and Deafblind citizens of Canada when accessing publicly available information to get prepared for, or react safely during a natural or human-induced disaster. The purpose of the study was to understand the myriad of issues impacting Deaf, hard of hearing, and Deafblind people during all phases of a disaster, where information is released by voluntary, government, and emergency management organizations.

The project has identified globally accepted best practices, including technology and platforms used to effectively communicate to all citizens. Through the data analysis stage, we have identified gaps and provided recommendations that can inform the development of a tool kit leading to accessible emergency preparedness information. The next stage of the research is to work with a broadcaster and/or an emergency management organization to pilot accessible emergency preparedness information that will serve as a model for other organizations and agencies to make their information accessible.

While it is clear that Canada has some outstanding resources to deal with a range of public disasters, there are a number of key areas that require attention and improvement. This includes ensuring that all people, including Deaf, hard of hearing, and Deafblind citizens, have equal access to information that is designed to ensure public safety. While the following quote is from a report issued ten years ago, the findings of this current study indicate that Canadian Deaf, hard of hearing, and Deafblind people do not have access to information in a way that is designed to survive a crisis.

“Disasters do not cause discrimination, they exacerbate it - and discrimination in an emergency setting can be life threatening. The most marginalized and vulnerable risk not surviving the crisis” (International Federation of Red Cross, *World Disasters Report 2007 - Focus on Discrimination*, 2007, Chapter 1)

It is hoped that the data and the recommendations contained in this report will be a catalyst for positive change based on a human rights model that supports access to information. Canada is a signatory to the United Nations Convention of the Rights of Persons with Disabilities, and as such, there is an obligation for governments at all levels to ensure the inclusion of people with disabilities by committing to accessible communication for all.

DEFINITIONS

For the purpose of this report, the following definitions are used:

Disaster¹ is an incident that requires:

- 10 or more people killed
- 100 or more people affected/injured/infected/evacuated or homeless
- an appeal for national/international assistance
- significant damage/interruption of normal processes such that the community affected cannot recover on its own

A disaster can transpire from nature (a natural disaster) or be created by human beings (human-induced disasters).

Emergency is an incident that is smaller in scope than a disaster. Emergencies can transpire from nature or be created by human beings.

Deaf refers to those people with little or no functional hearing, who choose to be part of the Deaf Community, locally, provincially and/or nationally and typically use a signed language as their preferred language. The capitalized word reflects that the community has their own culture, referred to as Deaf culture.

Deaf culture is a social, communal, and creative force of, by, and for Deaf people based on American Sign Language (ASL) or langue des signes québécoise (LSQ). It encompasses communication, social protocol, art, entertainment, recreation (e.g., sports, travel, and Deaf clubs)²

Deaf culture is a positive term, indicative of pride and a communal identity, whereas terms like “hearing-impaired” and “deafness” do not connote any particular pride or sense of community.

Signed Languages are naturally evolving linguistic systems that are distinct and complete languages. There are over 138 documented signed languages in the world, and in Canada there are three signed languages: American Sign Language, used by Anglophones and langue des signes québécoise (LSQ) used by Francophones. In addition to the two major signed languages, the government of Nunavut has recognized Inuit Sign Language.

¹ <https://www.publicsafety.gc.ca/cnt/rsrscs/cndn-dsstr-dtbs/index-en.aspx>

² <http://www.Deafculture.com/definitions/>

Hard of hearing refers to a person with a mild to moderate hearing loss that may communicate with speech, or sign language, or both.

Deafblind refers to a person who is both Deaf and blind. A person can be Deaf and later become blind, or be born blind and later lose their hearing. There are many distinct ways of communicating with people who are Deafblind, depending on the nature of the hearing and vision loss. Some Deafblind people will use sign language in a modified way, others may use pro-tactile communication methods, which are based on touch, and provide greater access to communication. Others will use amplification and be able to see large print when using technology such as magnifiers.

Emergency Service Organizations (EMOs) are organizations that ensure public safety and health by addressing different emergencies and/or disasters. Some of these agencies exist solely for addressing certain types of emergencies, whilst others deal with ad hoc emergencies as part of their normal responsibilities. Many of these agencies engage in community awareness and prevention programs to help the public avoid, detect, and report emergencies effectively.

Broadcasters refer to radio, television, and Internet service providers in Canada.

LITERATURE REVIEW

The following review presents a summary of the crucial literature that shapes the provision of communication access for Deaf, hard of hearing, and Deafblind to public messages that alert the public during emergencies and/or disasters. The literature review attempts to answer the following questions by drawing on Canadian and other international publications, both government and peer-reviewed documents:

- What challenges exist for Deaf, hard of hearing, and Deafblind people in accessing crucial public announcements that public agencies and/or media deliver during emergencies and/or disasters?
- What is the current best practice approach to providing communication access for Deaf, hard of hearing, and Deafblind people during emergencies and/or disaster?
- What recommendations can be made to support equitable communication access for Deaf, hard of hearing, Deafblind people during times of emergencies/disasters?

While the review does not purport to be exhaustive, it represents the key evidenced and/or best practice documents that exist at the time of writing.

Introduction

Canada is the second largest country in the world, covering 9.98 million square kilometres. It has a diverse landscape consisting of high mountains, different types of forests, prairie grasslands, arctic tundra and numerous lakes and rivers. The temperatures vary from region to region, but some areas can occasionally exceed 40C in the summer and drop below -40C with extreme wind chill in the winter (Wikipedia, Government of Canada, 2017). The 2016 Canadian Census reported a population of over 35 million (2016 Census). Given its size, diverse landscape, and population, Canada is at risk to experience disasters on a yearly basis, ranging from natural disasters such as wildfires and avalanches, as well as of human-induced disasters such as train derailments and acts of terrorism.

When disasters take place, communication becomes essential for individuals and communities to receive information about the nature, severity, and location of the emergency. People need to be able to contact and communicate with all emergency personnel to learn what actions to take before, during, and after a disaster, as well as share information about their own and their families' location and safety. When individuals cannot fully access communication systems during times of disasters, discrimination issues arise, and people become endangered.

“Disasters do not cause discrimination: they exacerbate it -- and discrimination in an emergency setting can be life-threatening. The most marginalized and vulnerable risk not surviving the crisis.” (CHS, 2016, p. 4). Part of these marginalized and vulnerable populations consist of 3.15 million Canadians who are hard of hearing and 340,000 Canadians who are Deaf, including those who are Deafblind. The reasons that hard of hearing, Deaf, and Deafblind populations are marginalized and vulnerable during disasters are because the majority of notification systems used to disseminate information during a natural or human-induced disaster are not accessible for Deaf, and hard of hearing people.” (CHS, 2016, p. 4 & 7).

Communication access to emergency notifications systems through a signed language is important to the Deaf Community because,

“Members of the Deaf community do not see themselves as disabled but rather as members of a linguistic minority group centered on the use of sign language, which must be taken into account when designing training programs for both emergency responders and to enhance preparedness efforts by community-based organizations (CBOs) serving the Deaf community.” (Engelman, et al., 2013, p.2)

Many broadcasters believe that access for the Deaf community can be met through captioning of all messages. However, McKee (2014) examined communication access for the New Zealand Deaf community after the major earthquakes that hit that country, finding that:

“Captioning of TV broadcasts is not necessarily effective in communicating information to all Deaf people, due to the literacy demands of technical language that may be used during such events, and variability in the accuracy of real-time captioning. Information delivered in sign language is preferred by many Deaf people, as being more immediately accessible than speech represented imperfectly in print.” (p. 108)

Text messages can be more print accurate than real-time captioning, but these messages can also be challenging for members of the Deaf Community to understand due to literacy issues that exist for many Deaf Canadians. The Canadian Association of the Deaf (2017) attributes these literacy issues among Deaf Canadians to an inability to have full access to the surrounding communication environment, lack of early language access, and lack of education and training programs designed to create qualified Deaf professional and educators. This means that, while the use of text related information is useful, the use of the local signed languages of Canada is also imperative for communication access during a disaster.

We begin by examining the legislative tools that exist in Canada to support equitable communication access.

The Canadian Government and Its Responsibilities:

The Canadian Government is required, by the Canadian Charter of Rights and Freedoms to offer “equal protection and benefit under the law, without discrimination” (Government of Canada, 2017). In addition, Canada is a signatory to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), which further outlines the obligations of countries that have ratified the convention. There are seven Articles that outline the responsibilities towards Deaf people who require a signed language to access communication during emergencies. These are: Article 1 Purpose; Article 5 Equality and non-discrimination; Article 9 Accessibility; Article 11 Situations of risk and humanitarian emergencies; Article 19 Living independently and being included in the community; Article 21 Freedom of expression and opinion, and access to information; and Article 25 Health.

Specifically, “Article 11 of the Convention on the Rights of Persons with Disabilities (UNCRPD) specifies “...States’ obligations under International Humanitarian Law to ensure the protection and safety of persons with disabilities in situations of risk, including armed conflict, humanitarian emergencies and natural disasters, consistent with the approach adopted by the Convention.” (International Deaf Emergency, 2017)

Furthermore, the UNCRDP in Article 21, states Parties shall take all appropriate measures to ensure that persons with disabilities can exercise the right to freedom of expression and opinion, including the freedom to seek, receive and impart information and ideas on an equal basis with others and through all forms of communication of their choice, as defined in article 2 of the present Convention, including by:

- a) Providing information intended for the general public to persons with disabilities in accessible formats and technologies appropriate to different kinds of disabilities in a timely manner and without additional cost;
- b) Accepting and facilitating the use of sign languages, Braille, augmentative and alternative communication, and all other accessible means, modes and formats of communication of their choice by persons with disabilities in official interactions;
- c) Urging private entities that provide services to the general public, including through the Internet, to provide information and services in accessible and usable formats for persons with disabilities;
- d) Encouraging the mass media, including providers of information through the Internet, to make their services accessible to persons with disabilities;
- e) Recognizing and promoting the use of sign languages (United Nations: Division for Social Policy Development Disability, 2017).

On May 8, 2017, The United Nation's Committee on the Rights of Persons with Disabilities released a report on its *Concluding observations on the initial report of Canada*. The report has shown that the federal, provincial and territorial governments still have some work to do to implement sections of the UNCRDP. Of note, are Articles 11 and 21.

For Article 11, the Committee recommends that Canada include the needs of asylum seekers and refugees with disability when planning for comprehensive plans on preparedness and disaster risk management and reduction, including endorsing the Charter of Persons with Disabilities in Humanitarian Action.

For Article 21, the Committee recommends that Canada:

- a) Recognize, in consultation with organizations of deaf persons, American Sign Language and Quebec Sign Language (Langue des signes Québécoise) as official languages and their use in schools, and establish jointly with organizations of deaf persons a mechanism to certify the quality of interpretation services and ensure that opportunities for continuous training are provided for sign language interpreters;
- b) Promote and facilitate the use of easy-read and other accessible formats, modes and means of communication and grant persons with disabilities access to information and communications technology, including through the provision of software and assistive devices to all persons with disabilities;

- c) Redouble its efforts to ensure the accessibility of government websites and ensure that private entities providing services through the Internet do so in formats accessible to all persons with disabilities;
- d) Translate the Convention on the Rights of Persons with Disabilities into sign languages.

The Government of Canada is also required to follow the decisions of the 1997 Supreme Court *Eldridge* decision and the 2006 Federal Court decision on the *Canadian Association of the Deaf vs. Canada*. Both decisions state that it is fundamental to an inclusive society for deaf people to be able to interact with government agencies and that accommodations should be provided so that they can do so (Canadian Hearing Society, 2014).

In sum, the safety of Deaf, hard of hearing, and Deafblind Canadian citizens require information via mass communication technologies such as emergency telecommunications, radio, television, and video during natural and human-induced disasters be offered in ways that are accessible, including the countries' national signed languages and text based communication (World Association Sign Language Interpreter and World Federation Deaf, 2015).

Many Deaf individuals eagerly adopt new information and communication technologies (ICT) such as smart phones and tablets because they offer access to information via alternative ways such as video and text, and allow interaction over the internet. While these technologies can create new opportunities for access, they also create new barriers. For example, YouTube videos that are not captioned/subtitled present a barrier. The World Federation of the Deaf (2014) promotes Universal Design principles (Design for All) when creating and utilizing new technologies. It is much easier and more cost-effective in the long term to create and utilize technologies that are accessible for all, rather than add in accessibility features as an afterthought. This means that Deaf, hard of hearing, and Deafblind individuals need to be involved of the development and creation of new technologies in order not to be left behind as new technologies develop within the 21st century.

An example of insufficient involvement of the Deaf, hard of hearing, and Deafblind in the development of new communication technologies is the recent development of the text with 911 system. The Deaf Wireless Canada Committee (2017) has stated that the system for accessing 911 via text messaging is flawed, in part because Deaf, Deafblind, and hard of hearing people need to first call via voice to gain access to text messaging, which requires Deaf and Deafblind individuals to pay for a voice plan for their cell phones that they never really use. Calling 911 via voice first and then switching to texting significantly slows down response times for emergency responders, which can lead to permanent impairments and/or death.

As well, all individuals wishing to access 911 via text messaging must first register for this service and the registration process has caused a great deal of confusion among Deaf

and Deafblind individuals. The Deaf Wireless Canada Committee survey, which had 601 respondents, showed that 30% of the respondents did not know they were required to register to gain access to 911 via text messaging. Twenty-seven percent of the respondents found the registration process confusing. Over half of the respondents (57%) stated that there were issues with text 911. The Deaf Wireless Canada Committee is working with the Canadian Radio-television and Telecommunications Commission (CRTC) to rectify this situation. They are seeking the following improvements:

1. Removal or clarification of voice-plan requirements to all ASL and LSQ users in Canada regards to Text with 9-1-1.
2. Voice minutes instead of voice plans.
3. Overhaul or removal of requirement for Text with 9-1-1 registration.
4. Reliable and direct access to Text 9-1-1 with the ability to attach photos and videos in text messages with dispatchers
5. Faster response time between 9-1-1 responders with DHHSI³ consumers.
6. App development including GPS location capability.
7. Improved information dissemination and distribution of Text with 9-1-1 updates to all consumers, including social media and community education for enhanced digital literacy (p7).

It is interesting to note, that while the CRTC is responsible for the regulation and supervision of broadcasting and telecommunications, they are not responsible for emergency alerts. These are the responsibility of the National Alert Aggregation and Dissemination system, which falls within the mandate of Public Safety Canada (G. Malkowski, personal communication, January 8, 2017).

An Emergency Management Framework for Canada (Second Edition), Public Safety Canada (2011) requires response to natural and human-induced disaster be strategically coordinated among the federal, provincial, and territorial governments, with the caveat that the federal government should respect the provincial and territorial laws and plans currently in place. This ensures coherency of action through the collaboration, coordination, and integration of all agencies involved. The policy on communications is:

Clear communications by appropriate authorities are a critical and continuous process before, during and after an emergency. Prior to an emergency, communication objectives focus on public education concerning emergency management to enhance awareness of hazards,

³ Deaf, Hard of Hearing and Speech Impaired

risks and vulnerabilities; strengthen prevention, mitigation and preparedness measures; and provide information on all aspects of

emergency management. Public alerting communicates warning messages that a disaster is imminent. Communications during and directly after a disaster explain and guide immediate response actions to minimize⁴ impacts and to maintain safety and security. These communications are instructive on the requirements for short, medium and long-term recovery (p.8).

Despite the coordination, collaboration, and integration of agencies the reality is that all emergency responses start at the local level. In the event of an emergency, the first responders are always members of the local community, such as local police, firefighters, and EMTs. As the scope of the emergency grows to become a disaster, as defined by this document, the scope of the agencies involved also grows. Local emergency providers will coordinate and collaborate with outside agencies to integrate their services to help manage the disaster. Depending on the scope of the disaster, the provincial government becomes involved. If needed, the federal government also becomes involved.

A review of the Government of Canada and its corresponding Provincial and Territorial Government Emergency Management Organization websites⁵ shows that they have documentation in place on public education that specifically address the needs of disabled populations, including Deaf, hard of hearing, and Deafblind individuals during disasters; however, it should be noted that no standards are consistently applied. For example, some documents on websites are outdated (British Columbia Government, 2017), referring to obsolete technologies such as teletype machines (TTYs). As well, all the information is directed towards the population of Deaf, hard of hearing, and Deafblind Canadians, not towards emergency managers and responders. An examination of training courses on the websites offered to Emergency Managers and Responders does not show if their training includes working with Deaf, hard of hearing, and Deafblind populations during a disaster.

For emergency notification, some provincial Emergency Organization websites have shortcuts on their home page for emergency alerts and recent news, which are heavily texted-based, with no sign language being provided. Other provincial Emergency Organization websites such as Alberta, have developed an app: Alberta Emergency Alert for smart phones and tablets; however, an examination of the reviews of the Alberta app in iTunes shows that people are disappointed with it, complaining that information not received in a timely manner and that the city of Edmonton is not covered. As well, all the information provided via the app is through maps or through text with no sign language access being provided (Government of Alberta, 2017).

⁴ <https://www.getprepared.gc.ca/cnt/rsrscs/mrgnc-mgmt-rgnztns-eng.aspx>

⁵ <https://www.getprepared.gc.ca/cnt/rsrscs/mrgnc-mgmt-rgnztns-eng.aspx>

As well, the documentation provided on Canadian Federal and Provincial websites do not show any information on policies and procedures regarding the use of sign language interpreters and subtitles/captioning during disaster notification and new broadcasts. Currently there is no federal policy for broadcasting emergency access that includes the needs of Deaf, Deafblind, and hard of hearing populations in Canada. This has caused disappointment among and complaints from the Deaf Community regarding lack of information access for disasters such as the Fort McMurray fires and the shooting at the Canadian Parliament in Ottawa. Deaf, Deafblind and hard of hearing people in Canada are often forced to create “work arounds” to find out more information. For example, they turn to social media and twitter feeds, where the information may not always be accurate.

Other Countries

The United States of America:

Researchers in the United States have conducted a number of studies on subjects such as the use of social media during emergencies by people with disabilities (Morris, J. et al. 2014), use of vibration signaling on mobile devices (Harkins, J. et al. 2010), and how much access Deaf, Deafblind, and hard of hearing populations have to notifications and information during disasters (Ivey, et al. 2014). Ivey, et al. (2014) found through a review of 55 Emergency Operation Plans (EOP) from various states and territories of the United States that 55% of the EOPs mentioned vulnerable populations, but only 31% of the EOPs specifically mentioned Deaf and hard of hearing populations. The researchers interviewed 50 Key Informants (KI) from the agencies that provided the EOPs and found that there was a significant association between a KIs understanding of Deaf and hard of hearing communication needs and the size of the Deaf and hard of hearing population in the state or territory. When the state had a larger population of Deaf and hard of hearing citizens, EOPs were more likely to be better prepared to serve its Deaf and hard of hearing citizens through inclusive emergency preparedness during a disaster. However, the researchers noted that there was still a need to focus on Deaf and hard of hearing communication needs when conducting training of state workers.

In 2010, the Federal Emergency Management Agency (FEMA) established its Office of Disability Integration and Coordination to provide guidance, training, and tools for facilitating disability-inclusive emergency preparedness, response, recovery and mitigation. In 5 years, they built a team of 70 Regional Disability Integration Specialists, 25 who are qualified sign language interpreters, and 5 who are Deaf interpreters who have been deployed to several incidents over the years, such as Hurricane Sandy in New York. As well FEMA has recently developed a Promising Practices in Inclusive Emergency Management webinar series (FEMA, 2017).

FEMA’s work is increasing awareness for inclusiveness in emergency preparedness within the United States. The United States Government has a website: *Prepare for Disasters and Emergencies* which has a section for Individuals with *Disabilities and Others with Access and Functional Needs*, which includes tips for Deaf or hard of hearing individuals, for example, having a pouch near the bed that contains the person’s hearing aid or cochlear implant, an extra battery charger, and extra batteries (Government

of United States 2017). Some American cities, such as Los Angeles, have taken this a step further by also creating documents on their websites on emergency preparedness to inform people with disabilities, including Deaf and hard of hearing city residents, what

they should do in order to prepare for an emergency situation, such as an earthquake (City of Los Angeles Department on Disability 2012).

Despite of FEMA's work, the most recent disasters in 2017 such as the California Wildfires, Hurricanes Maria and Irma, and a mass shooting in Las Vegas has shown that there are gaps and inconsistencies in the quality of communication access for Deaf, Deafblind and hard of hearing people in large scale emergencies from trusted news sources. A blog posting by Linda Callis (Nov. 1 2017) of LC Interpreting Services, summarizes the issues well. She states that "...information is often delivered infrequently, late, and often missing critical information" (para 2). She goes into detail to explain exactly what the gaps in information were, such as the inconsistent quality of sign language interpretation, poor quality captioning/and or lack of captioning which jeopardized the safety of many individuals.

A newscast from the Daily Moth (Oct. 12, 2017) of an interview with a Deaf woman whose family ranch burned down during the California fires depicts a harrowing tale of the family needing to be woken up and rescued at 3 a.m. by firefighters, because they were unaware of the extent of the threat of the fire. This is a clear example of members of the Deaf Community being in jeopardy due to a lack of communication.

Callis (2017) states that during emergencies, many members of the Deaf Community had to use workarounds such as the use of social media to gain access to information. Unfortunately, there were no guarantees that the information they received from other sources was accurate and up to date.

Wireless Emergency Alerts (WEA) to mobile devices are available from some select wireless carriers in the United States. However, not all wireless carriers participate in this service and they are not required by the Federal Communications Commission (FCC) to do so. A WEA is useful because information can be sent via maps, video, and text. This would allow Deaf individuals to see a video in a signed language. Hurricane Harvey showed the need for WEA. Harris County, the home of Houston, Texas asked the FCC to implement mandatory WEA by all wireless providers 5 weeks before Hurricane Harvey arrived, but the FCC refused. As a result, 911 call centers became overloaded and emergency providers had to resort to the use of social media to keep people informed (Tom Wheeler, 2017).

How well a WEA works when cellular towers are down is not known. FCC stated that during Hurricane Harvey, 364 cellular towers reported outages. This left 189,487 subscribers without cable and wireless service (Jon Brodtkin, 2017).

The University of Alabama's Drs. Jason C. Senkbeil and Darrin Griffin have been awarded a grant of \$251,850 from the National Oceanic and Atmospheric Administration

to study how tornado warnings could be improved in terms of accessibility and comprehension by members of the Deaf, Blind and Deafblind communities. This grant will enable this team to build and test a system whereby Deaf people can view a local

weather broadcast in a split-screen format. Half of the screen will show a meteorologist and the other half will show an American Sign Language interpreter. (University of Alabama, 2017)

Bennet, Phillips, and Davis (2016) through their research into current and emerging technologies envision a totally inclusive emergency management cycle by examining how wireless technologies can transform the cycle of emergency management. They envision a world where, by 2050, everyone has wearable technology for communication and safety, drones are used to search by air, and robo-bugs are used to search in dangerous conditions on the ground. Deaf and hard of hearing individuals would be able to receive information via virtual sign language interpreters and through text on their wearable technologies and/or through holographic projections. The researchers examine how emergency management can make their vision a reality by leveraging transformative agents and conditions such as reverse socialization of technology through children as early adopters, creation of social conditions allowing disabled people to receive access to technology at little or no cost, and how people with disabilities could be much more active in planning emergency preparedness. They state that emergency management organizations and government would need to implement policy changes and legislation to ensure that the vision becomes reality.

Australia and New Zealand:

Rachel McKee (2014) examined the experiences of three sign language interpreters when interpreters were included in televised broadcasts for the very first time in 2011 during natural disasters in Queensland, Australia, and New Zealand. Between December 2010 and January 2011 Queensland, Australia experienced a series of major floods affecting 200,000 people and 70 towns. And in then in February 2011, Hurricane Yasli, a category 5 cyclone, struck, requiring tens of thousands of individuals to be evacuated from coastal areas. The floods and cyclone directly affected the Queensland Deaf citizens. When the flooding started in December 2010, newscasts on television were live-captioned, but this resulted in a series of complaints on the Queensland Police Facebook page from Deaf community members that the captioning was jumbled and hard to understand. These Deaf community members successfully lobbied for the inclusion of sign language interpreters during newscasts.

In Sept 2010, Christchurch was struck by an earthquake, which led to lobbying for the inclusion of sign language interpreters in televised newscasts by the National Deaf Association in New Zealand. An earthquake struck Christchurch again in January 2011, with a series of aftershocks, resulting in the significant loss of life. The resulting televised broadcasts included New Zealand sign language interpreters for the first time. Two other large quakes followed in June and December 2011, also requiring sign language interpreters to participate in newscasts.

The three sign language interpreters interviewed admit that the work was incredibly demanding and each of them had a very steep learning curve. They all experienced linguistic and paralinguistic demands, environmental demands, interpersonal demands, and intrapersonal demands that were out of the ordinary work they usually did as interpreters. Some of the demands they experienced were specialized vocabulary and technical descriptions; localized place references; choosing target language interpretations that best suited the message; crowded signing conditions; staying visible on camera; interacting with high status speakers; performance pressure from being in the spotlight; and coping with their own personal feelings of experiencing the natural disasters, to name a few. This required them to make choices such as paraphrasing information, using local signs for places, restricting their signing space, staying extremely close to the speaker, maintaining professionalism always, and focusing on the job at hand rather than their own personal anxieties from the resulting trauma.

McKee (2014) states that the public and reflexive media exposure, both positive and negative, promoted the awareness of sign language access and the Deaf community within the general population. These natural disasters stressed the need for access to signed languages for members of the Deaf Communities in Australia and New Zealand for safety reason and to increase their abilities to cope with the natural disasters by having access to the surrounding social context and community infrastructure.

Australia initiated an investigation, as a result of the experiences in Queensland, by funding research in New South Wales. In 2013, Calgaro and Dominey-Howes worked with the New South Wales State Government in Australia to conduct a research project to determine the amount of access the Deaf Community had during disasters involving natural hazards: *Increasing the resilience of the Deaf Community in NSW to natural hazards: Milestone 7 - Final Report*. They reported the following problems with supporting Deaf/deaf and disabled people before, during, and after disasters:

- Good intentions but no action
- Exclusion from planning and support mechanisms
- Limited access to knowledge
- Training of emergency respondents and staff is inadequate
- Difficulty in locating vulnerable populations
- Communication issues
- Inappropriate shelter facilities and services
- Limited provision of appropriate trauma counseling
- Failure of emergency management organisations to incorporate lessons learned into future strategies (2013 p. 12-14).

The research that went into the Australian report asked a very important question: *How well do the communication process and procedures that we currently have in place work for the Deaf Community and disabled populations before, during, and after a natural disaster?* The report's corresponding set of recommendations for implementing change to improve communication access for the Deaf Community and disabled populations before, during, and after natural disasters follows the guidelines for communication access during

natural disasters and mass emergencies as set forth by the World Association of Sign Language Interpreters and the World Federation of the Deaf (WASLI and WFD 2015). One of the changes resulting from the report has been the development of a website specifically for the Deaf and Deafblind entitled, *National Auslan Communications for Emergencies* (<http://auslanemergency.com.au>). Australia's success in revamping communication procedures for its Deaf Community has led to the recommendation to follow Calgaro and Dominey-Howes's research procedures, which took into account the cultural context and linguistic needs of the community when gathering data.

Israel:

Israeli researchers Tannenbaum-Baruchi, Feder-Bubis, Adini, and Aharonson-Daniel (2014) examined the experiences of Deaf people when missiles from the Gaza strip were aimed at the civilian population in Southern Israel during 2009. They noted that Deaf people did not have access to verbal commands and sirens during large-scale emergencies. While the authorities in Israel try to use sign language interpreters, they are scarce in Israel. This meant that Deaf individuals relied on family and friends to interpret for them. This is problematic because it creates a lack of privacy, many families do not know sign language, there can be conflicts of interest, inaccurate information, and dependency upon family members.

Their research led to a set of four conclusions and recommendations:

- a. The transmission of information should use multiple channels to be accessible to a larger proportion of the Deaf population.
- b. New technology, such as cellular phones, can be used to communicate risk and to receive and give information. It is important that new technology includes light and vibration.
- c. The translation to sign language on TV and Internet broadcasts should be enlarged, be presented in slow and simple language, and be present on all transmissions during emergency situations.
- d. Civil servants and persons who have direct contact with Deaf people in emergency situations should be familiar with the basic aspects of Deaf culture, and means of communication with Deaf people.

Japan:

Ito, Tsunoda, Fujii, et al. (2013) conducted research in Japan on the use of an information delivery system for Deaf people in the event of an earthquake. Deaf people would receive text messages on their smart phones and on LED displays in the local area. During testing the research team noted that there were flaws in the system that had to be addressed, including a lack of Wi-Fi access in the area and delays through the Internet Protocol (IP) system when messages had to be sent at a distance to outlying cities and islands. The researchers focused on one modality of communication: text messages. It did not address

Deaf people wanting or needing access to information through a signed language interpreter.

Applications to Canada

The Federal Government of Canada and its Provinces and Territories have information on its websites and notifications systems in place during a disaster; however, this literature review indicates that Canada needs to address some important issues to ensure that its Deaf, Deafblind and hard of hearing citizen are not put at risk before, during, and after natural and human-induced disasters. Based on Calgaro and Dominey-Howes (2013), it is recommended that the following questions be addressed during this research project:

1. The websites show that each province has good intentions but how well are these intentions put into action?
2. How should the needs of the Deaf, Deafblind, and hard of hearing populations be included when developing planning and support mechanisms?
3. How should increasing access to knowledge about disaster preparation and disaster recovery for Deaf, Deafblind, and hard of hearing populations be implemented?
4. How should training of emergency respondents and staff be conducted?
5. What policies and procedures should be implemented to address communication issues during a disaster?
6. What are appropriate shelter facilities and services and how should these be implemented?
7. How should access to appropriate trauma counseling for Deaf, Deafblind, and hard of hearing populations after a disaster be implemented?

Discussion and Conclusion

This review of the literature has examined the crucial literature that shapes the provision of communication access for Deaf, hard of hearing, and Deafblind to public messages that alert the public during emergencies and/or disasters.

Deaf, hard of hearing, and Deafblind experience challenges when accessing public communications during a natural or human-induced disaster, because these notifications are not accessible to them. Thus, these Canadian citizens are at a higher risk of not surviving the disaster compared to many other Canadians. Many Deaf Canadian citizens need access to public notifications through either ASL or LSQ. Even if news broadcasts are captioned, it is not sufficient because many Deaf, hard of hearing, and Deafblind Canadians struggle to comprehend complex language during newscasts and real-time

captioning can contain errors that also contribute to the incomprehensibility of the captioning. This can also hold true for text messages.

An examination of Canada's federal, provincial, and territorial and municipal websites⁶ and documents shows that Disaster Management Organizations are thinking about the needs of Deaf and hard hearing Canadians by posting information on tips to prepare for a public emergency and/or disaster; however, this information shows that Disaster Management Organizations employees do not fully comprehend the true nature of communicating with Deaf, hard of hearing, and Deafblind individuals before, during, and after a disaster. There are good intentions by the Canadian federal, provincial, and territorial governments, but no provisions of planning, training, and communication supports have been put into place to support its Deaf, hard of hearing, and Deafblind citizens in the event of a natural or human-induced disaster.

An examination of other countries' policies and procedures such as the United States, Australia, New Zealand, Israel, and Japan, gives an overview of lessons-learned through the experiences that these countries had while trying to support the communication needs of its Deaf citizens during natural disasters.

The United States has experienced several natural disasters over the last 15 years, which has resulted in the establishment of the Office of Disability Integration and Coordination within FEMA in 2010. FEMA now employs several Regional Disability Integration Specialists with many of them being qualified sign language interpreters and Deaf interpreters.

However, the most recent disasters of 2017 showed that communication procedures for access for Deaf, Deafblind, and hard of hearing people still need to be improved because information was often infrequent, late, and missing critical information. This was often due to the inconsistent quality of sign language interpretation, poor quality captioning/and or lack of captioning. As well, FCC does not require all wireless providers to participate in Wireless Emergency Alerts (WEA) to mobile devices, which led 911 centers being overwhelmed during the Houston flooding.

Australia and New Zealand experiences with using signed language interpreters during the Queensland's floods, cyclone Yasli, and Christchurch's earthquakes in 2010 and 2011 led to McKee's (2014) research that shows providing signed language interpreters during a natural disaster for newscasts is not an easy process. The work is challenging and takes a professional and personal toll on the interpreter. McKee's (2014) research makes it clear that if interpreters are going to be providing sign language services during natural disasters, then specialized training for these interpreters should be provided and that interpreters should be from the local area due to the localization signs used by the Deaf community. In addition, the research conducted in New South Wales in 2013 led to the

⁶ <https://www.getprepared.gc.ca/cnt/rsrscs/mrgnc-mgmt-rgnztms-eng.aspx>

development of a website specifically designed for the Deaf and Deafblind on communicating during emergencies.

In Israel, the research shows the drawbacks of having an insufficient number of sign language interpreters available during a public emergency and the problems caused by the dependency Deaf people experience if they rely on friends and family members for communication access: a lack of privacy, conflicts of interest, inaccurate information, and dependency issues.

The researchers in Israel recommended that information should be transmitted through multiple channels including technologies such as smart phones, signed language access to newscasts should be improved, and civil servants encountering Deaf people during emergency situations should be trained to recognize and communicate with Deaf people.

The research in Japan about communicating with its Deaf population in the event of an earthquake shows that using text messages to smartphones and public LED screens is problematic. There were Wi-Fi access issues and delays in receiving information if the information had to travel large distances to outlying towns and islands. The research also did not address the need for communication access through a signed language.

The lessons learned from other countries is that if Canada wants to provide equitable access to communication for its Deaf, hard of hearing, and Deafblind populations during a public emergency and/or disaster, it needs to make some changes in its communication policies and procedures. It is recommended that information be provided through multiple channels, not just through television. Communication alerting systems should utilize current social media such as FaceBook and Twitter, and develop apps which can be accessed by technologies such as computers, smart phones, and tablets. Newscasts should contain captioning and/or subtitles along with signed language interpreters from the local area who are trained to deal with disasters.

Signed language interpreters who wish to provide interpreting during natural and human-induced disasters should receive training to effectively manage the professional and person demands placed upon them while working during a disaster. Training should be provided to employees of Emergency Management Organizations and Emergency Service providers to help them recognize and effectively communicate with Deaf, hard of hearing, and Deafblind people in the event of a disaster. As well, awareness training needs to be provided to Canada's Deaf, hard of hearing, and Deafblind population so that they can effectively respond to and cope with a public emergency and/or disaster.

Bennet et al. (2016) envisioned a totally inclusive emergency management cycle. With research, changes to Emergency Management Organization communication processes and procedures, as well as leveraging current technologies, Bennet's vision can become Canada's future reality.

RESEARCH RESULTS

Methodology

From June 2017 to September 2017, data were gathered via several on-line surveys, focus groups and individual interviews.

In the first phase of the study, members of the Canadian Deaf community and emergency management organizations were sent an email announcement and invited to complete an online survey, available in English, French, ASL or LSQ. To increase the response rate, the research team send out six reminders to the Deaf and hard of hearing members and emergency management organizations at regular intervals over the five months after the first posting of the survey. A total of 213 Deaf, Deafblind, and hard of hearing members responded to the survey. It showed 204 Deaf and Deafblind, and hard of hearing responding to English survey and 8 Deaf and hard of hearing responding to French survey (n=199 Deaf and hard of hearing; n = 5 LSQ), Deafblind (n = 8 ASL users; n = 1 LSQ users). No emergency management organizations responded to the survey.

We also conducted ten (10) focus groups in both the Anglophone and Francophone Deaf communities. A total of fifty-two (52) people participated in focus groups. Focus group participants were recruits through local/provincial organizations representing Deaf people. Local Deaf community facilitators were invited to host meetings, and these meetings took place in Edmonton, Halifax, Toronto, Vancouver, Montreal, Whitehorse, Edmundson, and Saint John.

In addition to focus groups, fifteen (15) interviews were conducted with selected participants from the Deaf, Deafblind, hard of hearing community and emergency management organizations.

Summary of Deaf and Hard of Hearing Survey Results (English and ASL)

A total of 131 females and 48 males completed the surveys, with 3 respondents indicating that they preferred not to identify gender, 2 respondents indicating other, and 15 respondents chose not to answer the question. The age range of participants (n =183) was as follows:

Table 1: Age Range of Respondents

Age Range	18-24	25-29	30-39	40-49	50-59	60-69	70+
Number of Participants	11	10	21	39	47	37	18

Participants (184) represented the following provinces and territories: 47 (26%) of respondents were from Alberta, 14 (8 %) from British Columbia, 13 (7%) from Manitoba, 5 from New Brunswick (3%), 8 from Newfoundland and Labrador (4%), 12 from Nova Scotia (6%), 66 from Ontario (39%), 10 from Saskatchewan (5%), 3 from QB

(1%) and 6 from the Yukon (3%). There were no respondents from Nunavut or the Northwest Territories.

Disaster Emergencies Experienced

One hundred and thirty-two (132) or 66% of all respondents had experienced one or more emergency contexts, with the most cited as blizzards/ice storms and severe storms, followed by flood and tornadoes. Earthquakes and hurricanes had also been experienced by the respondents as had wildfires.

Table 2: Disasters Experienced by Respondents

Emergency	Number of Respondents	Percentage of Participants
Blizzard/Ice Storm	56	42.42
Severe Storm	41	31
Flood	33	25
Tornado	22	16.67
Hurricane	13	9.85
Wildfire	13	9.85
Earthquake	12	9.09
Avalanche	4	3.03
Landslide/Mudslide	3	2.27
Tsunami	2	1.52

Public Alert Information Accessed

Participants were asked to indicate the ways in which they access public alert information. Fifty-five percent (55%) of all respondents received the most recent public alert information via television, followed by internet news, social media via Facebook and Twitter, text message, direct contract with someone nearby, and Email.

Table 3: Public Alert Information Accessed by the Respondents

Public Alert Information	Number of Respondents	Percentage of Participants
Television	70	55.5
Internet news	49	38.8
Social Media via Facebook and Twitter	38	30.1
Social Media via personal network	38	30.1
Text message	33	26.2
Direct contract with someone nearby	25	19.8
Email	22	17.4
App installed on smartphone or tablet	10	7.9

However, despite information being available, one hundred and twenty-five respondents or forty-two percent (42%) reported the public information via television or social media that was not captioned or subtitled and was inaccessible for them. When asked if there were broadcasts with ASL interpreters, 71% of participants reported there were no signed versions of any of the public alert information, either in ASL or LSQ.

Public Alert Information Verification by the Respondents

The majority of participants (75%) felt the need to verify the information they were accessing, in order to determine if the information was factual. This involved searching reliable websites, such as Environment Canada for weather information, viewing multiple television channels, or conducting an Internet search via Google to determine if the information was widespread. Some participants relied on others, including family, friends, and neighbours to determine the reliability of the information. However, like the concerns on the lack of captioned and ASL versions of the news, participants indicated that it was equally difficult to verify information on the Internet as very little information was captioned or interpreted. This meant relying on the English or French written information, and for those for whom English and/or French is not their first language, this was a huge challenge.

Text to 911

Thirty percent (30%) of respondents (n=94) reported they were not satisfied when accessing 911 via text, while the majority of participants were unsure if texting 911 was even an option in their region. Nor had any respondents received emergency alerts via text in Canada, however five participants indicated that they received texts when travelling in the United States, which provided them with relevant information about an impending hurricane.

Evacuation Experiences

There were 14 respondents who had experienced an order to evacuate their homes and/or places of work.

Of note, forty-seven respondents (76%) reported that they did not have an emergency kit packed. If ordered to leave a work site the respondents evacuated to their own homes, or took shelter with a family or friend. Ten respondents had taken shelter at a hotel or a Red Cross shelter and four respondents had no place to go and stayed on the street.

Table 4: Shelter Options Accessed during Evacuations

Temporary Shelter Options	Number of Respondents	Percentage of Participants
Family's home	22	38.6
Respondents' home	19	33.3
Friend's home	13	22.8
Hotel/Motel	8	14
Red Cross shelter	6	10.5
On the street	4	7

Returning Home Safely

Respondents were asked to comment on how they knew it was safe to return home after an evacuation order. The participants combined multiple ways of accessing information to determine if they could return home, including relying on others, accessing television and text messages. The respondents reported that none of the information to return home was relayed via sign language interpreters on broadcasts.

Table 5: Information Accessed before Returning Home

Information Source	Number of Respondents	Percentage of Participants
A person told me	41	39.1
Text message	37	35.9
Television	36	34.9
Direct observation of your surroundings	30	29.1
Internet news	27	26.2
Social media via Facebook/Twitter	27	26.2
Social media via personal network	20	19.4
Email	16	15.5
Phone call	9	8.7

Expressing Concerns on Lack of Accessible Communication

After the disaster thirty-four (34) of the respondents (36%) contacted the emergency management organizations, governments, and television broadcasters about their ability to access emergency information. Only 32 of the respondents (34%) felt that they had full access to all emergency information, and participants consistently commented that it was difficult to find details about where to express a concern or complaint. Some respondents used social media options to express concern, including Twitter and Facebook. In terms of how the concerns were addressed by those responsible for communicating emergency information, the following quotes represent the themes of meeting with resistance from the broadcaster and/or organizations and government departments.

The Alberta government's Communication Department did not respond to our initial letter of concern from the Deaf Association.

I am part of the Manitoba Disaster Management Network and they are trying to improve access via text message alerts and ASL interpreters on TV, but we are not there yet.

The government told me to use TTY, so I did, and they didn't know how to reply. The radio was quick to reply to my concern, and the television took 6 hours to get sign language interpreters on the broadcast. That took family and friends calling the TV station as they didn't respond to emails.

Anytime a government declares an emergency they should automatically provide sign language interpreters on TV.

Summary of Deafblind Survey Results (English and ASL)

A total of 5 females and 1 male responded to the survey, with 2 respondents indicating that they preferred not to identify gender. The age range of participants was as follows:

Table 5: Age Range of Respondents

Age Range	18-24	25-29	30-39	40-49	50-59	60-69	70+
Number of Participants	0	0	1	4	1	0	0

Participants (6) represented the following provinces and territories: 3 (50%) of respondents were from Alberta, 2 (33.3 %) from British Columbia and 1 (16.6%) from Ontario. There were no respondents from Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Newfoundland and Labrador, Yukon, Nunavut or the Northwest Territories.

Three respondents had experienced one or more emergency contexts, with the most cited as blizzards/ice storms (3), followed by flood (1), tornado (1), earthquake (1), hurricane (1), and wildfire (1).

Three respondents reported that they had accessed recent public alert information. The majority of respondents received information from social media via Facebook, and Twitter, followed by accessing his or her personal network, watching television, internet news, text message, and an App installed on smart phone or tablet.

Table 6: Public Alert Information Accessed by the Respondents

Public Alert Information	Number of Respondents	Percentage of Participants
Social Media via Facebook and Twitter	3	100
Social Media via personal network	2	66.6
Television	2	66.6
Text message	1	33.3
Internet news	1	33.3
App installed on smartphone or tablet	1	33.3

Two respondents received the public alert information via television or social media and it was captioned or subtitled. When asked if there were broadcasts with ASL interpreters, all participants reported there were no signed versions of any of the public alert information in ASL.

All respondents felt the need to verify the information they were accessing to determine if the information was factual.

Table 7: Public Alert Information Verifying by the Respondents

Public Alert Information	Number of Respondents	Percentage of Participants
Social Media via Facebook and Twitter	3	100
Social Media via personal network	2	66.6
Television	2	66.6
Internet news	2	66.6
Text message	1	33.3

Two respondents were able to use television or video footage (e.g. on social media) that was captioned or subtitled to verify the information. All participants reported there was no ASL interpretation on the television or video footage (e.g. social media).

All of the responded shared relevant emergency information with others via social media from Facebook and Twitter, and two participants sent information to their personal networks using text messages or sending links to Internet news.

Text to 911

Two of the respondents had experience with text to 911 with one consumer rating the experience as unsatisfactory and the other respondent reporting the experience as neutral. The others did not answer this question, which may be because texting is accessible to them based on the degree of personal vision loss.

Evacuation Experiences

None of the respondents were evacuated from the disaster area and they all of them acknowledged that they did not have an emergency kit packed. If order to leave a work site, the respondents indicated that they had a safe place to go, be it with family or friends. However, this quote raises the safety concern in times of storms where there is no electricity:

worry that if I had to be evacuated, and there was no electricity to see TV then how will I know to leave? It is a safety issue...

Expressing Concerns on Lack of Accessible Communication

After the disaster three (3) respondents contacted the emergency management agencies, governments, and television broadcasters about their ability to access broadcast

information during an emergency. None of the respondents felt that they had full access to all emergency information, and similar to the ASL survey respondents, the Deafblind participants consistently commented that it was difficult to find details about where to express a concern or complaint.

In terms of how the concerns were addressed by those responsible for communicating emergency information, the following quote represent the theme of broadcaster and/or organizations and government departments not responding at all to concerns, even when consumers report the concern.

I complained to Global TV about the lack of closed captioning, but they didn't respond to me at all.

Summary of Deaf and Deafblind Survey Results (French and LSQ)

There were no LSQ completed surveys, from either the Deafblind community or the Deaf community. The researchers contacted two LSQ leaders in the Montreal community who provided feedback that was useful in explaining that lack of responses. With language there is a political overlay, and the CHS appointed LSQ translator on the videos was based in ON, not from Quebec, and as such there were errors in the LSQ translation. We also received similar feedback about the quality of the English to French written translation, in that there were grammatical errors that revealed the translation was completed outside of Quebec. The agreement reached was that the Deaf leaders would host a focus group in Montreal in order to gather input in that manner.

Focus Group and Interview Research Results

The following section summarized the findings from the focus groups and interviews. The data were analyzed for themes and common patterns, as well as recommendations that came from the participants.

Focus Groups and Interviews with Deaf, hard of hearing, and Deafblind:

Deaf community leaders, known and trusted in the local community, facilitated the focus group meetings. The meetings were conducted in either ASL or LSQ, allowing participants to respond in their first and preferred language. The facilitators summarized the responses and returned the reports to the research team, who then analyzed the themes and recommendations. The research team conducted the individual interviews, using the preferred communication approach of the person.

Emergency Preparedness: What has worked well?

The participants noted examples of aspects of communication access related to emergency preparedness or emergency management that worked well. These included:

- Nova Scotia has had a project where the Deaf community produced a series of DVD's in ASL with Deaf presenters offering information about disaster preparedness. These videos have been very well received, as the information is a form that is accessible and the direct instruction in ASL from an experienced Deaf

educator, so that the information is produced in a linguistically and culturally appropriate manner. This approach is preferred over having sign language interpreters on videos where the information is fast-paced and may lack sufficient context to be understood.

- Deaf community organizations that have alerted Deaf members about a disaster and or have offered disaster preparedness workshops; however, many of the associations are non-profit organizations and do not have the staff resources who can immediately get information out to the community, thus it is not a reliable solution
- Emergency alert apps in Alberta and BC appear to be working well, as well as some municipal alerts, for example, the Strathcona County Alert System. During the summer 2017 BC wildfires, Deaf people received two different text messages used by the BC EMO managing the forest fires with the first alerting them to warnings of danger and then different texts were used for evacuation notices.
- Regular TV Captioned News worked well, however there are some broadcasters that use a very fast captioning speed, which makes it difficult to read for many viewers
- A British Columbia EMO, in collaboration with the Red Cross, hired an ASL interpreter who provided the service remotely through Skype at the relief shelter
- Quebec Police came prepared to write notes with Deaf citizens when coming door to door to reach people
- Technology such as a vibrating pager that alerts Deafblind person of fire, doorbell, etc. Also, JAWS allows for websites that have been designed with universal access design principles to be read easily for Deafblind citizens
- Ultra-portable Braille app on phone (Freedom Scientific – the downside, however, is the cost at \$2000)

Barriers to Accessible Communication Prior to, During and After a Disaster or Emergency

The primary barriers that were identified across all focus groups was that the communication delivered by EMOs prior to, during and after a disaster or emergency is not made accessible to Deaf, hard of hearing or Deafblind citizens. Across Canada, participants consistently reported that there is:

- Limited or no captioning and limited or no signed language translation of videos that may be designed to help prepare on for a disaster.

What is a muster point? How do I make a 72-hour kit?

- Limited or no captioning and signed language interpretation of live broadcast information during a disaster or emergency.
- No consistent approach to receiving text alerts during disasters or emergencies.
- Limited or no communication access while at evacuation sites.

During the Calgary floods, we saw daily updates on TV but not once was anything provided in ASL - we really had no information at all, despite City of Calgary claiming to be accessible to all citizens...and this was true during the Fort MacMurray Fires as well. Daily town hall meetings were broadcast on radio, so nothing was accessible.

I was at the shelter for two weeks and daily there was an update, but I couldn't understand one word of it. I missed all the information about where we were moving to at the time of transition.....

- Limited or no communication access when dealing with government and/or insurance processes after experiencing a disaster or emergency

Government provided emergency funding and when I had questions about the forms and what to do, but they said they couldn't afford to hire interpreters, but I think the government has Duty to Accommodate policy?

In addition to access to communication, the focus group participants also identified that Text to 911 is a challenge for them. Many of the Deaf community are either unaware of the service, or they are struggling to register with the cumbersome process. Only ten percent of those Deaf people who have used it are satisfied, citing that the operators have no training about how to deal with a Deaf caller. The Yukon Deaf community members continue to express frustration that there is no Text to 911 in that region. The Deaf community believes that the registration process would ensure EMOs and First Responders would know that they are dealing with a Deaf citizen, eliminating miscommunication.

Emergency Preparedness: What is not working well?

In addition to the barriers of communication access, the following aspects were noted as not working well for the Deaf, hard of hearing, and Deafblind community:

- Broadcasters who ignore or discount the importance of communication access for Deaf, hard of hearing, and Deafblind people.

The TV station agreed to an Interpreter, after an emergency, using a cameo, which makes it too small to even see - that isn't accessible and nor is it best practice.

There needs to be greater effort to have captions and interpreters where there are disasters - around the world we see news channels have the interpreter stand next to the disaster response leader on TV screen - it is 2017. Why we don't have this in Canada is mind-boggling. It is time. I experienced emergency alerts while I was in the states with immediate response alerts multiple times overriding all my notifications, so I knew it was serious. Why not yet in Canada??

- Insurance processes and documents are at a literacy level that makes it very challenging for the Deaf community to understand.
- During times with no electricity, radio alerts are offered which are not accessible to the Deaf community.
- Language politics, where Quebec disadvantages Anglophones by having information in French only (for example, Amber Alerts are only in French), or the text in English will come much later.
- Having to rely on co-workers and/or family and friends to share emergency information, which can mean delays, inaccurate information, and so on.

My work had a routine fire drill and ironically none of the Deaf employees had any notice that it was going on – not very safe if it were a real emergency!

- Emergency personnel with no understanding of how to communicate with Deaf, hard of hearing, or Deafblind people.

I had no idea what the police officer was trying to tell me when they broke down my door – even if they knew one sign “emergency” I would have understood and been less frightened...

As a Deafblind person, if the first responder knows to draw an X on my back, then I know it's an emergency and I must leave – that would be a simple thing for them to learn... ”

- Old buildings do not meet provincial building codes; tenants must pay for own emergency equipment like flashing fire alarms, which is a financial hardship.

- The majority of respondents have no 72-Hour Emergency Kit and no knowledge of why it is needed.
- Captioning – sometimes too fast, or with white background, so inaccessible; numerous typos make it difficult to understand.
- Lack of intervening/support service personnel services for Deafblind people leave them very vulnerable in an emergency
 - Cost of equipment is a barrier for Deafblind to have safety alerts in their home – flashing fire alarms, strobes, etc.
 - New HDTV – captioning not accessible to some Deafblind – need older technology

Recommendations

The following recommendations emerged from the focus group conversations.

- Need for policies across all levels of governments to ensure Deaf, hard of hearing and Deafblind citizens are protected in the same way as all Canadians.
- There is a need for Emergency Preparedness Training delivered in fully accessible ways, via a national and/or provincial website; All training materials must be written in plain language and at a literacy level that is inclusive of the vast majority of citizens. Training videos need to be captioned and/or be provided with signed language instruction by a Deaf person. There is a best practice model that exists in Australia that could serve to guide Canada in this area. (See National Auslan Communications for Emergencies <http://auslanemergency.com.au>) There is a need for the website to be accessible to JAWS for Deafblind people to have access to it, and Braille print literature would also be useful for some Deafblind people.
- Facebook is a very accessible way to get information – use Facebook LIVE with interpreter and create Emergency Pages that people can join.
- Text alerts work well, and we encourage the use of visual symbols and simple language to increase comprehension of the message.
- Need for a national Deaf anchored news hour; encourage one of the major broadcasters to pick up on this innovative idea that would be viewed by Deaf people across the country.
- Provide ASL and LSQ interpretation during emergencies, working with Deaf-hearing teams of interpreters; this works most effectively for the Deaf community; captions do not show the seriousness of the situation and for those who struggle with literacy, the captions are a barrier.

- Government subsidy for the technology that is required to be safe (visual fire alarms, flashing doorbell signals, basic internet, and basic cellular coverage)
- Vulnerable Persons Registry used by the Calgary Police Service is an excellent model of how to register as a Deaf or Deafblind person; then should an emergency occur, and one called 911, it is linked to this registry that shares that key information with all first responders. The registration process needs to one that is easy to use, and coordinates all EMOs.

Interviews with Emergency Management Organizations:

In a review of all of the provincial and territorial government websites, the research team were unable to locate any policies and/or clear procedures that explicitly outlined the approach to communication access for Deaf, hard of hearing and Deafblind citizens, which may be due to the fact that multiple ministries are responsible, depending on the type of disaster.

Emails were sent to multiple EMOs and Broadcasters to encourage them to complete the survey, however there was no response. The research team was able to complete four targeted interviews with personnel who had experience of providing accessible communications⁷, and the following summarizes the data.

Across all the interviews there was strong agreement that access for persons with disabilities is on the agenda and they believe that they are responsive to the needs of the Deaf community. However, all of them acknowledged that it has come with a number of challenges, for example, in Alberta during the fires in Fort MacMurray, the Alberta Association of the Deaf raised the lack of access to the department responsible for communication. The government believes they responded quickly to provide interpreters on the video updates released, however they link provided to the research team that was to show an interpreter being used did not actually have an interpreter visible. Daily radio town hall meetings provided updated information, however these were not accessible to Deaf and hard of hearing people. Despite these challenges, the government now has service agreements in place with an interpreter referral service and a captioning company so that in future emergencies, interpreters can be accessible quickly. It also took time to do a careful post-incident analysis and revisions were made to the management plan.

The British Columbia Fire Management Director and the Fire Captain also acknowledged that there were several aspects of communication that require improvement, for example, having interpreters present for all announcements, captioning of those broadcasts, and the use of text message alerts. The Director praised one Deaf couple that was very proactive in meeting with firefighters, showing them the alerting systems in their home, and working with the EMO to ensure they could receive text alerts. Once the couple was

⁷ Provincial Public Affairs Bureau Director; Fire Management Director; Municipal Government Spokesperson; Accessibility Director with a major Broadcaster

evacuated, attempts were made to access interpreting services locally. When the EMO was unsuccessful, they worked with the couple to secure remote interpreting services on an iPad at the emergency evacuation centre. As a result of the experience, the EMO is interested in doing presentations for the Deaf and hard of hearing community to raise awareness of disaster preparedness and to seek input about what can be done more effectively during future emergencies. They have been in touch with the regional Deaf Association and want to make connections with the other Deaf Associations in the province.

Finally, an interview was conducted with an Internet broadcaster who is working on making their tutorial videos accessible in ASL, using a team of Deaf-hearing interpreters to do the translation of the videos. They have had very positive feedback about the quality of translation and the fact that they have highlighted a Deaf interpreter, ensuring the public face of ASL is a Deaf person. They are in the process of hiring an accessibility coordinator and hope to work with advisory committee that has a number of consumers from the Deaf and hard of hearing community.

Top 5 Themes Across Surveys, Focus Groups and Interviews

1. No pro-active preparation for communication access for Deaf, hard of hearing, and Deaf blind people via policy and practices at municipal, provincial and federal levels.
2. Inconsistent access at all stages – preparedness, alerts, evacuation, reintegration which puts Deaf, hard of hearing, and Deafblind people at greater risk than other citizens.
3. Deaf, hard of hearing, Deafblind people are not satisfied with access to communication during emergencies.
4. EMOs have little to no working knowledge of how to effectively communicate with Deaf, hard of hearing, and Deafblind people during times of natural or man-made disasters.
5. There are models of access that work well in other countries (for example, the UK and USA), which could be implemented in Canada.

Discussion of Findings

The following section provides a discussion of the common themes and needs that emerged within this study. This includes the themes of the online surveys, the focus groups and individual interviews.

There is awareness of the part of some Emergency Management Organizations (EMOs) about the need to improve access to broadcast communication during times of emergencies, however there is inconsistent municipal, provincial and federal policy development that takes in account the need for communication access for Deaf, hard of hearing, and Deafblind citizens.

Across the country, Deaf, hard of hearing, and Deafblind people report that they have experienced hurricanes, ice storms, floods, wildfires, tornados and extreme storms. Based on those lived experiences, there is clear evidence that Deaf, hard of hearing, and Deafblind citizens in Canada do not have equitable access to communication during times of disaster or emergencies. While there have been rare occasions when the broadcasts have included captioning and sign language interpreters during a local or regional emergency, this is not the norm. This inconsistent access places Deaf, hard of hearing, and Deafblind Canadians at greater risk during an emergency.

The reported experiences of the Deaf, hard of hearing, and Deafblind communities reveal that EMOs have little or no working knowledge of how to communicate with Deaf, hard of hearing, and Deafblind people during times of natural or man-made disasters.

In terms of disaster preparedness, the Nova Scotia Council for Persons with Disabilities has worked with the Deaf community to produce a training DVD, with Deaf trainers, presented in ASL, but there are no national websites that offer information in either ASL or LSQ. In British Columbia, after the most recent fire season, there is a desire on the part of the EMOs to meet with the Deaf and hard of hearing communities, to improve access to communication, and to host disaster preparedness workshops. While workshops are useful, the use of a website with accessible training videos ensures the training is available on demand, broadening the potential audience to include families, Deaf, hard of hearing, and Deafblind communities. It also means that the websites can serve as a source of information for EMOs about equitable communication access for these citizens. There are models of best practices, such as the Australian National Emergency Management Project that has developed an up-to-date information kit in Auslan (Australian Sign Language) and English.

One of the strongest themes across all the data sets was the need for pro-active preparation via policy development and protocols at the municipal, provincial and federal levels of government. There is an opportunity for a national strategy and guidelines for training interpreters to effectively interpret live emergency-related broadcast information. There is also a need and opportunity to develop national guidelines for television and

Internet broadcasters to facilitate interpretation of live emergency information. There are guidelines that are effective in other countries, such as Australia and the United Kingdom, which could serve to as models to be built upon in Canada.

While Canada now has access to a national Video Relay Service the hours of service are limited. This means that should a Deaf person experience an emergency during non-peak business hours, they must rely on others to contact emergency services, or use Text to

911. Text to 911 is also a relatively new service and it is not available in all places in Canada. The Deaf respondents also indicated that the 911 operators require more training to effectively respond to a Deaf caller.

The Associations of Deaf, hard of hearing, and Deafblind are ready to provide awareness training to those wishing to understand how to effectively communicate with them. However, those associations are frequently managed by volunteers, and lack the needed funding to develop the training.

Based on the data, there appear to be five priorities:

1. **Strategic Planning Level:** policy and guidelines within municipal, provincial and federal government for accessible communication based on the use of captioning and sign language interpreters during live broadcasts of emergency information.
2. **Operational Planning Level:** development of a website that can provide accessible information for ASL and LSQ users on how to prepare for a disaster, and offer current information for EMOs and broadcasters about the Deaf, hard of hearing, and Deafblind communities.
3. **EMOs:** training to help EMOs understand how to effectively communicate with Deaf, hard of hearing, and Deafblind people during an emergency.
4. **Broadcasters:** development of protocols and practices to ensure captioning and interpretation provided for live broadcasts of emergency information are effective.
5. **Interpreters:** training on strategies and practices that can ensure interpretation is effective during live broadcasts of emergency information.

RECOMMENDATIONS

The following recommendations stem out of the findings of the surveys, focus groups, and individual interviews. The recommendations are not meant as criticism of any institution or government department, but are designed to address the gaps within the system that were identified through this research project.

The recommendations have been organized in sections and themes. The grouping of recommendations is system based and would improve communication access to emergency preparedness information and real-time information during times of emergencies for Deaf, hard of hearing and Deafblind Canadians.

The findings of the research project confirm that for hard of hearing people, the access method required is captioning and text. For Deaf people, the access method is via sign language interpreters, with a preference for Deaf Interpreters, and visual aids such as

maps/diagrams. For Deafblind people the accommodation depends on the nature of the visual and hearing loss, so it can be a combination of tactile or low vision interpreting services, Support Service Personnel/Intervenors, and/or braille.

System: Government EMO's – Municipal, Provincial, and Federal Governments

1. **Government EMOs:** design policies and protocols that are consistent with international conventions such as the United Nations Convention on the Rights of Persons with Disabilities, and national and provincial human rights legislation to address communication access for Deaf, hard of hearing, and Deafblind people. These policies must be guided by Deaf, hard of hearing, and Deafblind representatives for them to be effective, along with accessibility experts. The WASLI and WFD (2015) recommendations guidelines may serve as an excellent starting place for guidance on the following aspects:

- Access to emergency telecommunications/broadcasting
- Access to emergency preparedness information
- Access to emergency information during natural disasters or other mass emergencies
- Communication with emergency workers
- Access to emergency centres
- Community consultation
- Access to recovery communications

2. **Training:**

2.1 **For EMOs:** Canadian Hearing Society partner with other organizations representing Deaf, hard of hearing, and Deafblind people to provide in-service training for EMOs about the specific communication access rights of the Deaf, hard of hearing, and Deafblind community, and how best to communicate during times of national disasters. This can take the form of in-service workshops, webinars, websites etc.

2.1.1 Provide a basic ASL and LSQ course targeted for Firefighters, Paramedics, and Emergency Medical Technicians on the kinds of survival signs that may be needed in an emergency.

2.2 **For Deaf, hard of hearing, and Deafblind:** Working with community partners to provide emergency preparedness information (for example, how to build a 72-hour kit) delivered by Deaf instructors in ASL and LSQ. This training needs to be accessible to the broadest reach within the community, which may mean video clips on a EMOs website, a dedicated website for the community, DVDs and community presentations.

3. **EMOs Funding:** Ensure funding is in place to cover the live streaming of sign language interpreting and text-based captioning services required during televised and telephone town hall emergency briefings. This funding could come from Public Affairs or Access to Information areas of each level of government, and in bilingual provinces services needs to be provided in English, French, ASL and LSQ.
4. **EMOs:** Ensure contracts are in place for interpreting and captioning services coverage by either having a roster of trained and appropriate interpreters and captioning services willing to work during emergencies, and/or having a contract for services in place should services be needed.
5. **EMOs providing web-based information:**
 - Collaborate with Deaf technology consultants to develop an app that is accessible for Deaf, hard of hearing and Deafblind
 - Adapt websites so they are accessible for those with vision impairment, so that the information can be read by accessibility software such as JAWS.
 - Ensure all videos on websites are accessible by provide captioned information, and in Quebec and New Brunswick, captioning in English and French (for example, currently in Quebec, Amber Alerts are only in French). Ensure captioning is white on a black background for regular information, and has a red background for emergency messages. Ensure captioning speed is such that it does not prohibit readability.
 - Ensure all videos are also accessible via an ASL or LSQ translation.
6. **EMOs and volunteer training:** Extend training to Deaf volunteers who can be available to help other Deaf people affected by an emergency with insurance forms, accessing government emergency funds, providing emotional support, etc.
7. **EMOs:** Collaborate with housing organizations and senior facilities to ensure that security box that is used by the EMS personnel identifies people with disabilities living in the building, and has a specific designation to identify a Deafblind or Deaf resident.
8. **EMOs:** In smaller communities such as Whitehorse, use a group text alert for the Deaf community (14 persons) with a muster point to meet the Yukon Government Interpreter.
9. **Barriers for Low Income Citizens:** This review has identified that Deaf and Deafblind citizens are often also unemployed or under-employed, so often have no internet access which then limits their ability to receive emergency alerts.

Consider strategies for basic Internet coverage for Deaf and Deafblind living at or near the poverty line.

10. **Training for Evacuation Centres:** CHS and Deaf organizations partner to develop and implement a training program for those organizations tasked with managing evacuation centres. When centres receive Deaf, hard of hearing or Deafblind persons, there needs to be awareness among the Shelter Personnel about how to communicate with them, which can mean the use of remote interpreting, remote captioning for large group announcements, iPads with speech to text apps, etc. If shelter evacuees are to be offered trauma support, again this needs to be accessible, via captioning for hard of hearing, sign language interpretation for Deaf people, and support service providers for Deafblind people. In some provinces there are specialized services that provide counseling for the Deaf, hard of hearing, and Deaf blind communities that can be accessed (For example, the Coastal Health Well-Being Program for Deaf, hard of hearing, and Deafblind in BC).

System: Emergency Training for Interpreters and Support Service Providers (SSPs)

11. Create partnership opportunities between EMOs and professional associations and post-secondary institutions to provide the additional disaster training necessary for Deafblind support service providers ⁸(SSPs, also called intervenors) and interpreters to work during natural or man-made disasters. This training could easily be adapted from the training program offered by FEMA in the US.
12. SSPs and Interpreters working with Deafblind people require specialized training, which is in short supply in Canada. Recommended that Ministry of Education in British Columbia, Alberta, Manitoba, Ontario, Quebec and Nova Scotia work with the six interpreter education programs and consumer organizations such as the Canadian Deafblind Association, to determine the most effective way to produce a specialized program for working with Deafblind people.
13. Funding for SSPs and Interpreters working with Deafblind people: Those who provide communication access for Deaf and Deafblind people are working professionals and as such need to be remunerated for their services. Government funding for access provision must include communication access for Deafblind citizens, provided by trained and qualified support service personnel and interpreters. Volunteers or service providers who lack the appropriate training and experience compromises access to information and exacerbates risk for the Deafblind person.

⁸ The preferred term of many Deafblind citizens, as they do not see themselves in need of “intervention”, but rather communication support.

System: Media Broadcasters

14. **Media Guidelines:** Media Broadcasters, in consultation with EMOs, Interpreter Associations and Provincial Interpreter Services to develop and implement best practice media guidelines for the use of sign language interpreters for emergency briefings, including specifications for:
- the preferred use of teams with native (Deaf) signers;
 - camera views for optimum access to complete information (not using a cameo);
 - remote captioning options for English and French (Remote captioning is currently used across Canada and provides an appropriate level of communication access and may be more cost effective);
 - the use of colour coding of captions to identify the person speaking, etc.

NOTE: This research project confirmed that all participants supported the use of the best practices model of linguistic access provided by the British Broadcast Corporation (BBC) in terms of regular access to the news in British Sign Language (BSL) performed by teams of hearing and Deaf interpreters, with the full body image of the interpreter and the newscaster in the smaller cameo shot, and their approach to emergency coverage with sign language interpreters.

15. **Service Contracts with Interpreters and Captionists:** Ensure sign language interpreting services coverage in the event of an emergency by having a roster of trained and appropriate interpreters from the local area and captioning services willing to work during emergencies, and by having a contract for services in place should services be needed.
16. **Contact Information:** Broadcasters need to provide a contact address on their websites for consumers wishing to express a concern or offer constructive feedback about accessibility. Respond to inquiries in a timely manner and in a way that respects the human right to communication access.

CONCLUSION

This report has provided an overview of the first four phases of the Barriers-Free Emergency Communication Access and Alerting System research project. This project was designed to provide a picture of the current state of accessible emergency communications, identify gaps in service, and highlight recommendations to close the gap. The research has also identified global best practices that Canada could adopt.

The research project was completed in phases, and included the following activities:

Phase One:

Define project tasks; develop on-line surveys; provide bilingual versions by translating the English survey tools into French, ASL and LSQ; develop interview and focus group protocols; conduct a literature review.

Phase Two:

Gather data via the on-line surveys; conduct focus groups and interviews with appropriate stakeholders to identify strengths and gaps.

Phase Three:

Analyze all data collected.

Phase Four:

Produce research report.

The research has identified the gaps and needs from the varied perspectives on consumers: Deaf, hard of hearing, and Deafblind, and from both Francophone and Anglophone Deaf communities. It has also encouraged Emergency Management Organizations to share their perspectives and experiences.

It is clear that the stakeholders who participated in this research want to see all levels of government and broadcasters to take bold steps to provide equitable communication access for Deaf, hard of hearing, and Deafblind Canadians at all stages of disaster

management, from emergency preparedness, to being in a disaster, to recovery after a disaster. There are service providers who offer captioning and interpreting services that are prepared to deliver the communication services necessary for Deaf, hard of hearing, and Deafblind citizens to have equitable access to live emergency broadcasts.

The next stage of the research project is to develop an action kit designed to advise the federal, provincial, and municipal emergency management agencies on how to ensure their emergency messaging is accessible, followed by a presentation to the Canadian Association of Broadcasters. Finally, the research project will conclude with a partnership with at least one of the government agencies and a broadcaster to pilot best practices in offering effective communication access during a live emergency broadcast.

Canada is a signatory to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). Planning for, and providing communication access for Deaf, hard of hearing, and Deafblind Canadians at all stages of disaster management would ensure compliance with the tenets of the charter.

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