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ADDRESSING DISPARITIES IN EMERGENCY COMMUNICATION  
WITH THE DEAF AND HARD-OF-HEARING:  
CULTURAL COMPETENCE AND PREPAREDNESS  
FOR FIRST RESPONDERS

by

Alina Anna Engelman

A dissertation submitted in partial fulfillment of the  
requirements of the Doctor of Public Health degree by the

GRADUATE DIVISION

at the

UNIVERSITY OF CALIFORNIA AT BERKELEY

Committee in charge:  
Professor Julianna Deardorff, Chair  
Professor Meredith Minkler  
Professor Glynda Hull

Spring 2012

Addressing Disparities in Emergency Communication with the Deaf and Hard-of-Hearing:  
Cultural Competence and Preparedness for First Responders

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by

Alina Anna Engelman

## Abstract

### **Addressing Disparities in Emergency Communication with the Deaf and Hard-of-Hearing: Cultural Competence and Preparedness for First Responders**

by

Alina Anna Engelman

Doctor of Public Health

University of California, Berkeley

Professor Julianna Deardorff, Chair

It is critically important to foster a resilient Deaf and hard-of-hearing (Deaf/HH) population empowered to act in a pre-event phase before and respond during and after critical large-scale public health emergencies. Standard all-hazards emergency preparedness risk & response communication efforts don't always reach people with barriers relating to literacy, language, culture or disability. This is a significant problem given that there is a growing body of evidence of higher risk during disasters for injury, death, property loss for 32 million Deaf/HH Americans and for 90 million Americans with low-literacy skills.[2] It is beneficial to use a participatory, community-directed approach to improve all-hazards preparedness capacity for the Deaf/HH.

This dissertation is in a three-paper format. Part I, a literature review, systematically examines all-hazards emergency communication access for the Deaf/HH during large-scale disasters with an eye towards maximizing emergency preparedness capacity within the Deaf community.<sup>1</sup> Given that this literature review is the first systematic exploration, to my knowledge, of the intersection between emergency preparedness and the issues that Deaf/HH people face, I define all-hazard in the broadest sense of the word; including but not limited to general emergency preparedness, infectious diseases, terrorism, flooding, hurricanes, earthquakes, and chemical and nuclear events, as well as individual emergencies such as domestic violence. [4] The literature review does not simply examine lessons learned from any access issues that have been documented in previous disasters but also reviews the peer reviewed and gray literature (non-peer-reviewed literature, often non-published reports and materials) to determine the need for interventions or systemic change on a policy-level. By identifying the scope and magnitude of the problem, this literature review is a stepping stone for Parts II and III, which aim to develop best practices for educational outreach and training for first responders.

Part II is a program evaluation utilizing mixed methods of a training program for law enforcement officers at the scene of domestic violence (DV) emergencies involving the Deaf/HH. A program evaluation of cultural competency training for the Deaf/HH has never been published, to my knowledge, despite several available trainings for first responders or medical professionals and students nationally (Appendix 1). Once trainings are developed, standardized and shown to be

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<sup>1</sup> The upper case Deaf is used to indicate a cultural orientation denoting membership in a linguistic minority group, the lower case refers to Deafness as purely a medical condition.

beneficial, they can be distributed to Deaf/HH audiences and/or first responders, which can sustain longer-term development efforts that might mitigate the impact of future emergencies or improve the quality of life/infrastructure on broader levels.

Part III is a qualitative exploration of barriers, attitudes, perceptions, and knowledge of law enforcement and first responders regarding working with the Deaf/HH in an emergency. Specific abstracts for each Part can be found in the corresponding section.

The closing section provides a summary of policy and legislative developments on a national level that are informed by Deaf/HH experts in emergency communication; these developments have implications for further research and practice to address disparities in emergency preparedness communication for the Deaf/HH.

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## **Introduction**

Maximizing emergency preparedness communication access for the Deaf and Hard-of-Hearing (Deaf/HH) is critical. Despite advocacy on a grassroots level, there is a paucity of research on preparedness and emergency communications in, for and by the Deaf community.<sup>2</sup> One goal of my research is to assess and improve all-hazards preparedness education for the Deaf/HH community using a participatory, community-directed approach, with the aim of improving their resilience, capacity and ability to prepare for not only large-scale public health disasters but smaller-scale emergencies on an individual level. Additionally, my goal is to improve the ability of first responders to work effectively with this population.

According to a landmark report by Stout (2004), "a failing grade" was given to U.S. public warning and emergency communications systems for Deaf/HH post-9/11.[8] However, at the recent United Nations Convention on the Rights of Persons with Disabilities (2011), mainstreaming disability in humanitarian crises was seen as a priority for the Special Rapporteur's work plan from 2012 to 2014.[9] According to Drum (2011), if people with disabilities were considered a minority group, at 19% of the total population they would be the largest minority group in the United States.[11] It is essential to explore how Deaf/HH people can access critical information before emergencies and in the process, become more educated, health literate, empowered, and resilient in response to emergencies. Given that first responders often don't know how to communicate with Deaf/HH people, educating and empowering the Deaf community to take more action before emergencies arise can also foster resilience and can be a beneficial way to tackle the lack of communication access during an emergency. [13, 14]

Drawing from research on language learning among Deaf children [15-17] as well as theories on disability [18-24] and empowerment for linguistic minorities, [7, 25-28] it is critically important to foster a resilient Deaf/HH population empowered to act in a pre-event phase before and respond during and after critical large-scale public health emergencies and also to foster cultural competency for first responders working with the Deaf/HH.

Part I is a systematic literature review that examines all-hazards emergency communication access for the Deaf/HH during large-scale disasters with an eye towards maximizing emergency preparedness capacity in the Deaf community. [29-33]

Parts II and III inform the development of research methods for critiquing, assessing and improving the content, format and delivery of preparedness education targeted for Deaf/HH hearing people or first responders. For Part II, a pilot program evaluation was conducted for a training program for first responders; this evaluation involves both quantitative and qualitative components. (Appendices 3, 4, and 5)

Part III is a qualitative exploration of barriers, attitudes, perceptions, and knowledge of law enforcement and first responders regarding working with the Deaf/HH in an emergency. The closing section provides a summary of policy and legislative developments on a national level.

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<sup>2</sup> The upper case Deaf is used to indicate a cultural orientation denoting membership in a linguistic minority group, the lower case refers to Deafness as purely a medical condition. Some people find this preferable to "hearing/impaired" because this term has a negative connotation of disability and impairment.

My primary questions are:

- How can all-hazards emergency preparedness capability and communication access in the Deaf community be maximized?
- How can first responders be trained to work more effectively with deaf and hard-of-hearing people during emergencies?

My secondary questions are:

- What are the best practices for evaluating accessible emergency preparedness training tailored to benefit a Deaf/HH audience?
- How can creative communication techniques used by people who are Deaf/HH improve preparedness communication for all populations, not simply for low-literate members of society or non-native speakers of English?

This research is situated in light of Health Research for Action's (HRA) current CDC-funded research at the University of California at Berkeley on the capacity of community-based organizations (CBOs) to deal with emergencies.<sup>3</sup> In addition, it draws on preliminary results of a content analysis of state Emergency Operations Plan (EOP) along with key informant (KI) interviews of state officials for all fifty states and the territories to determine capacity on an institutional and governmental level to respond to the needs of Deaf/HH people during emergencies.

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<sup>3</sup> HRA (Health Research for Action) at the University of California, Berkeley works with public and private organizations to develop and evaluate innovative health initiatives, and explain complex health care issues in plain language. HRA conducted key informant (KI) interviews of state emergency management representatives from all 50 states and the territories. Questions were related to (1) barriers delivering emergency communication during emergency and barriers developing emergency operations plans (EOP); (2) strategies to improve emergency communication during disasters and strategies to improve EOPs; and (3) information about local government services to the Deaf/HH (Deaf and hard-of-hearing) in emergencies, whether or not information has been added to EOPs and date, where the information is to be found, the section of the EOPs wherein new information would be added, and their personal recommendation on adding new information about preparedness communication for the Deaf/HH in the state EOP.

**PART I:**  
**DEAF AND HARD-OF-HEARING ALL-HAZARDS EMERGENCY COMMUNICATION:  
A LITERATURE REVIEW**

**Abstract**

***Objectives:*** To conduct a systematic literature review of all-hazards emergency preparedness communications research for the Deaf/HH as well as for first responders working with this community.

***Methods:*** This is a formative literature review using a narrative synthesis approach. Inclusion criteria were peer-reviewed or gray literature (non-peer-reviewed literature, often non-published reports and materials) published in English from 1990 to 2011 that contained relevant keywords. A literature search of peer-reviewed publications was conducted using PubMed, ISI Web of Knowledge, PsychInfo, CINAHL, and Google Scholar. Seven peer-reviewed articles, 14 reports, and 3 theses or dissertations were found and included.

***Results:*** Findings indicated (1) significant barriers in the emergency response system have been reported by Deaf/HH individuals who have been through numerous disasters, such as 9/11 and Hurricane Katrina, including a lack of trust in the emergency management system, and (2) enormous potential for existing and developing emergency notification technology to mitigate communication barriers before and during emergencies. Policy and programmatic changes can be implemented based on demonstrated community preferences for receiving mass notification. Further, based on these findings, a wealth of practical policy recommendations were uncovered that could be valuable not only for Deaf/HH community members, but also for the emergency management officials and NGOs serving the Deaf/HH community.

***Conclusion:*** Despite the scope of the problem, the extensive search conducted on emergency or disaster preparedness communications and the Deaf/HH, and substantial literature on health education, healthcare system accessibility and doctor-patient communication for the Deaf/HH, there is a lack of peer-reviewed research on the topic of emergency communications. The most significant findings emerged from qualitative research in the gray literature, since most reports utilized interviews, focus groups, surveys and usability testing.

**Keywords:** all-hazards, Deaf, hard-of-hearing, first responders, emergency preparedness, cultural competence, training, communication skills, communications, disaster preparedness, safety management, fire, earthquake, flood, sign language, interpreters, language, literacy, translation

## **Problem Statement**

Standard all-hazards emergency preparedness risk & response communication efforts do not always reach people with barriers relating to literacy, language, culture or disability. This is a significant problem given that there is a growing body of evidence of higher risk during disasters for injury, death, and property loss for 32 million Deaf/HH Americans and for 90 million Americans with low-literacy skills.[2]

Despite the scope of the problem, there are significant research gaps: there is a paucity of peer-reviewed research on linguistic, cultural, and functional relevance of preparedness materials for the Deaf/HH as well as for first responders. On a policy level, multiple problems were found across states and major cities related to ensuring that the requirements of special needs populations could be met by state and metropolitan agencies during disasters. [34] [12] According to the Office of Homeland Security's 2006 Nationwide Plan Review of state EOPs in which over 1000 public safety and homeland security people were interviewed, the word Deaf appeared only 8 times in this report. Moreover, only 5% of states addressed requirements for special needs. [34, 35] In May of 2010, a lawsuit was filed by Deaf/HH California state employees claiming that they were left behind during emergency evacuations and denied interpreters[36].

Given the challenges, we need to undergo a rigorous examination of how emergency preparedness messages are created, delivered, transmitted, received, and assimilated for the Deaf/HH. Deaf individuals, like Limited English Proficient (LEP) immigrants, often encounter linguistic and cultural barriers to accessing preparedness materials in spoken and written English. The majority of public emergency information is auditory: sirens, radio, and TV announcements. Although FCC regulations require that emergency information be captioned on TV, such rules are not always followed or enforced.[30, 37] Once some communication barriers are addressed, emergency management will be in a better position to develop the logistics of providing transportation, evacuation services, and management of equipment in a recovery phase. At a later phase, emergency management will be able to go beyond communication delivery and consider building readiness, response, and capacity by strengthening the ICS (Incident Command System) infrastructure. <sup>4</sup>

Based on the personal experiences of Deaf people during major disasters, a common theme emerges: the small ways in which responses are not tailored to the Deaf community can have major repercussions or consequences. For example, a Deaf professional trying to access information after an ice storm when power lines went down was unable to do so. [36] Ironically enough, there was an interpreter at the press conference, but the T.V. camera was not focused on this individual and the important message was not transmitted. Marsha Brooks at NCAM (National Center for Accessible Media) reported that during a crisis in which nearly 2 million Boston residents lost access to clean water, her Deaf colleagues only noticed that something was amiss when they observed people buying massive quantities of water at local stores. [36]

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<sup>4</sup> ICS (Incident Command System) according to the United States Center for Excellence in Disaster Management & Humanitarian Assistance is "a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities." (Source: <http://coe-dmha.org>)

It is critically important to consider the experiences of the Deaf/HH in emergencies, particularly because it will not only shape emergency management policy, but also improve emergency response for other populations. International disaster-mitigation literature shows that people affected by disasters actually play a crucial role in disaster preparedness and mitigation, but their knowledge is often ignored by both international aid agencies and by their national and regional governments. The failure of relief aid following the 2004 tsunami, for example, is now being attributed to a general misunderstanding of people's needs and practices.[38]

While there is anecdotal documentation of the problems that the Deaf/HH face in disasters, the paucity of peer-reviewed research makes higher level policy and programmatic changes difficult to implement. In the weeks after the 9/11 attacks, Telecommunications for the Deaf/HH, Inc. (TDI) uncovered serious lapses in emergency communication systems around the country. In fact, the nation received a failing grade in a December 10, 2004 report. [8] Despite a FEMA report (2009) about accommodating individuals with disabilities in the provision of mass disaster care, a preliminary content analysis by Health Research for Action on a CDC-funded project on emergency preparedness in the Deaf/HH found very little in state EOPs referring to the Deaf/HH. [39, 40]

## **Methodology**

This formative literature review utilizes a narrative synthesis approach, which is defined by Popay (2006) as a way to explore relationships between and within various studies by compiling their evidence and presenting them in a cohesive way.[41] Given the paucity of peer-reviewed literature, the scope of this literature review was expanded to include reports, theses, and dissertations. Inclusion criteria included the most recent peer-reviewed or gray literature published in English from 1990 to 2011 that contained relevant keywords. The peer-reviewed literature on the topic was searched using PubMed, ISI Web of Knowledge, PsychInfo, CINAHL, and Google Scholar. The following search terms were used: "Deaf and emergency," "Deaf and disaster," and "Deaf and hurricane." Further keywords were tried: disaster preparedness, safety management, fire, earthquake, flood, health literacy, health/patient-provider communication, sign language, interpreters, language, literacy, translation, ESL/2nd language learners, and first responders.

Gray literature was identified by using existing public search engines. Google and Google Scholar typically yield a number of materials that are not identified by library databases. Using Google and Google Scholar, the following search terms were used: "Deaf and emergency responders," "hearing disaster," "hearing emergency," "emergency sign language," "hurricane sign language" and "Deaf emergency literacy." This yielded the discovery of 130+ video materials in ASL from various websites.

*Exclusion Criteria.* Written preparedness resources for the Deaf/HH or for first responders, as well as literature on healthcare system accessibility for the Deaf/HH, were excluded in order to focus on evidence-based research or policy specifically on emergency preparedness for the Deaf/HH. Reports or theses focusing on the needs of people with disabilities in general were largely excluded, unless they contained specific information relevant to Deaf/HH people. Weblogs, vlogs and other video materials were also excluded because they merit a separate analysis of the availability and effectiveness of the rapidly growing number of materials that have been developed in recent years.

Newspaper reports, informational blogs, conference presentations, and posters were excluded from this literature review because this literature review aims to generate a richer theoretical framework to improve research methods to critically evaluate communication tools (Appendices 2, 7, and 8). Nevertheless, these blogs provided anecdotal evidence of the problems that Deaf or hard-of hearing people face during specific emergencies. The preponderance of evidence shows that Deaf people themselves are documenting their experiences and providing written information to their community in the form of newspaper articles and website posts (Appendix 2). Additionally, four conference and poster presentations were found regarding communication, technology, first responder training and state policy (Appendix 7).

Also excluded were information about eight training workshops, two disaster simulation exercises and safety training courses available both nationally and internationally for (1) Deaf or Deaf-blind people, (2) sign language interpreters working in disaster sites, and (3) for emergency responders working with Deaf people. However, a complete list with descriptions of each can be found in Appendix 1.

## **Findings**

Despite a robust literature on communication challenges during an emergency or addressing the needs of vulnerable populations during disasters, only seven articles in the peer-reviewed literature were found that were Deaf-specific.[42] The gray literature, by contrast, is considerably larger. Fourteen reports and three theses or dissertations were found utilizing qualitative methods to document structural and attitudinal barriers and glean lessons learned from prior disasters in order to make specific policy recommendations. Additionally, six written emergency preparedness resources were found which were targeted to both Deaf and hearing audiences, but these were excluded (Appendix 8).

Findings were organized into four thematic areas, with subheadings indicating material type: (1) barriers and experiences of Deaf/HH in disasters; (2) emergency notification technology and community preferences; (3) policy recommendations based on lessons learned from previous disasters; and (4) qualitative reports. [43] Peer-reviewed literature included (1) qualitative work demonstrating barriers facing Deaf people during emergencies, (2) qualitative work studying the behavior, knowledge and attitudes of Deaf people in response to being left out before or during safety emergencies, (3) legal issues surrounding the ADA (Americans with Disabilities Act) and the need for accessible emergency response systems (4) how to communicate with a Deaf-blind person during an emergency and (5) facilitating phone access during an emergency.

Findings indicate that the richest and most comprehensive materials have not been peer-reviewed, but come from a number of policy reports that emerged after 9/11 and Hurricane Katrina such as Stout et al's (2004) report on lessons learned since 9/11 from the Deaf and Hard of Hearing Consumer Advocacy Network (DHHCAN). [8] These reports are powerful because they combine firsthand accounts of Deaf people who have been through emergencies with concrete policy recommendations.

The gray literature included (1) qualitative research since most reports utilized interviews, focus groups, surveys and usability testing; (2) usability testing of emergency technology; (3) reports utilizing qualitative methods to examine the barriers and experiences that Deaf/HH people have faced; and (4) the need for materials aimed at improving the cultural competency of medical providers and/or first responders.

Table I: Summary of Literature by Thematic Area and Material Type

Thematic Area	Peer-reviewed Literature (n=7)	Gray Literature	
		Reports (n=14)	Theses and Dissertations (n=3)
<b>Barriers and Experiences of Deaf/HH in Disasters</b>	<ul style="list-style-type: none"> <li>• White (2006)</li> <li>• Blanchard (2005)</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Dept. of Justice (2009)</li> <li>• Sullivan (2006)</li> <li>• National Organization on Disability (2005)</li> <li>• Stout et al (2004)</li> <li>• U.S Fire Administration (2002)</li> </ul>	
<b>Emergency Notification Technology and Community Preferences</b>	<ul style="list-style-type: none"> <li>• Harkins et al (2008)</li> <li>• Wood et al (2003)</li> <li>• Rubin (1995)</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency Access Advisory Committee (2011)</li> <li>• Rehabilitation Engineering Research Center for Wireless Technologies (2011)</li> <li>• Rehabilitation Engineering Research Center for Wireless Technologies (2011)</li> <li>• Rehabilitation Engineering Research Center for Wireless Technologies (2007-2009)</li> <li>• Brooks et al (2008)</li> <li>• Chelma (2006)</li> <li>• Heppner (2006)</li> <li>• <i>Stout et al (2004)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Flynn et al (2010)</li> <li>• Cairns et al (2008)</li> <li>• Ecker (2008)</li> </ul>
<b>Lessons Learned and Policy Recommendations</b>	<ul style="list-style-type: none"> <li>• Scott (1998)</li> <li>• Hagerty et al (1996)</li> </ul>	<ul style="list-style-type: none"> <li>• Stout (2004)</li> <li>• <i>Stout et al (2004)</i></li> <li>• McCampbell et al (2003)</li> </ul>	
<b>Qualitative Work</b>		<ul style="list-style-type: none"> <li>• Harkins et al (2006)</li> <li>• Harkins et al (2005): based on 2005 Gallaudet University conference</li> <li>• Stout et al (2004)</li> </ul>	

## Barriers and Experiences of Deaf/HH in Disasters

**Peer Reviewed Literature.** A valuable contribution to the peer-reviewed literature was qualitative work by White (2006) detailing how the federal government failed this population from the point of view of a mental health professional from Gallaudet University who worked in New Orleans during the response and recovery stage. According to White (2006), in the aftermath of Hurricane Katrina, the Deaf community network and its organizations were more effective than the organized relief agencies. This is a significant finding because when the needs of Deaf/HH were not met at shelters, deaf community members sprang into action. In fact, Deaf evacuees reported having to travel 165 miles to a "Deaf-friendly shelter" only to be turned away and to be referred to a high school where there were no "Deaf-friendly" services. When word spread that there were no beds at the shelter, Deaf community members brought mattresses and cots within hours. This reflects the "natural helping network" and the strong sense of affiliation that Deaf people sometimes feel for one another which was referred to by Shein (1989) as "at home among strangers" in his book of the same name. This article also discussed ongoing challenges for deaf organizations in disaster preparedness. [44]

Blanchard's (2005) contribution is unique because it illustrates that if emergency preparedness communication is not accessible, it erodes trust in the Deaf/HH community. Blanchard (2005) found that for Deaf postal workers exposed to anthrax without proper notification, participants' trust in public health agencies had eroded and that this erosion could threaten the effectiveness of communication during future public health emergencies. [45] This cautionary tale is useful for researchers and policy makers in designing and developing effective interventions.

**Reports.** The National Organization on Disability (2005) significantly contributed to the discourse because they quantified specific ways in which the needs of the Deaf/HH were not being met in a larger report on *Special Needs Assessment for Katrina Evacuees*. [46] One major finding was that among the 30 shelters that were surveyed, the Deaf/HH were found to be the most underserved group in terms of accessibility. Less than 30% of shelters had access to American Sign Language interpreters, 80% did not have TTY's, and 60% did not have TVs with open caption capability. Only 56% of shelters had areas where oral announcements were posted so people who are deaf, hard of hearing or out of hearing range could go to a specified area to get or read the content of announcements. However, there were some exemplary shelters opened by community entities that provided certain interpreter services for the Deaf/HH among other services such as recreation rooms, libraries, movie theaters, ATMs, NA/AA meetings, and family reunification. [46]

Sullivan (2006) reinforced the findings of the National Organization on Disability (2005) by making the case that Deaf people faced unique barriers during Hurricane Katrina as part of a larger report about addressing barriers on disaster preparedness communication for vulnerable populations. At the Super Dome, Deaf individuals were "confined to an area designated as "Deaf Area" without adequate support for their information needs; their isolation was compounded by the lack of certified interpreters and the fact that public address announcements never reached them." [47]



However, unlike Sullivan (2006) and the National Organization on Disability (2005), a report from the U.S. Department of Justice (2009) provides specific training guidelines entitled, "Victims with Disabilities: Collaborative, Multidisciplinary First Response Techniques for First Responders Called to Help Crime Victims Who Have Disabilities Trainer's Guide." [48] This comprehensive trainer's guide encourages first responders to seek resources to help crime survivors who are deaf, provides alternative options for addressing communication barriers, discusses cultural differences, and provides tips for working with an interpreter. In particular it spells out the appropriate code of conduct provided by NAD-RID Code of Conduct. In addition, the guide includes scenarios that first responders must consider when working deaf/HH crime survivors:

When the victim is a deaf individual, audio recordings capture only the interpretation of the message and not the actual message. A videotape recording with both the victim and the interpreter visibly clear in frame will provide a complete record of the information gathered on the scene.

In a similar vein, the U.S. Fire Administration (2002) included a tip sheet for assisting deaf/HH individuals in the event of an evacuation.[49]

### Lessons Learned and Policy Recommendations

**Peer Reviewed Literature.** Two articles provide practical advice for communicating with the Deaf/HH or deaf-blind individuals in an emergency. Scott (1998) examined how to communicate with a Deaf-blind person in an emergency, providing practical tools that could be beneficial to training first responders. However, the experience of one individual cannot be generalized to the entire Deaf/HH community. [29] In addition, Hagerty et al (1996) explored the experiences of a Deaf medic, which is a useful perspective to consider when making policies or programmatic changes; this is an individual who not only has first-hand experience being Deaf, but it also a medical professional.[50] [51] Nevertheless, a sample size of one cannot begin to generalize or represent the experiences of Deaf/HH people with a wide range of communication backgrounds.

**Reports.** Stout et al (2004) wrote a seminal report, pointing out serious lapses in the federal emergency response system, entitled "Preparedness and Emergency Communication Access: Lessons Learned Since 9/11 and Recommendations" in which the nation was given a failing rating in emergency preparedness and response. Qualitative interviews with Deaf individuals during 9/11 and other large-scale emergencies demonstrated these lapses [8]. This report extrapolates training-related policy recommendations based on these experiences. One major recommendation in addition to technology and communication access at school, at home and in the workplace, and during air travel, is that individuals who are Deaf, hard-of-hearing, late-deafened and Deaf-blind should become more actively involved in community, regional, state, and federal emergency planning processes, equipment testing, disaster exercises, CERT trainings, Citizen Corps activities, training of public safety and security personnel, and other activities. Stout et al (2004) wrote that involvement of individuals who are Deaf, hard-of-hearing, late-Deafened and Deaf-blind will tap into their tremendous talents and quickly help to increase understanding of their needs. [8]

McC Campbell et al's (2003) report to the New Mexico Department of Health is valuable in that it identifies best practices to include the needs of people with disabilities, seniors, and

individuals with chronic mental illness in emergency preparedness and planning.[52] The report demonstrates lessons learned from previous disasters, including 9/11, the earthquake in Northridge (1994), the Grand Forks flood (North Dakota 1997), and the ice storm in Southeast Canada (1998). In particular, during 9/11, people who were Deaf/HH could not receive instructions on the stairwell after the power and lights went out; however, those with text pagers were able to receive more disaster and evacuation information. In addition, the report discussed principles that should guide disaster relief. In regards to evacuating Deaf/HH employees in an emergency, the report raises the question of how employees can be trained to assist the Deaf/HH. The report makes specific policy recommendations: (1) shelter personnel should know how to use the relay service to make and receive phone calls with the Deaf/HH, and (2) emergency response personnel should be trained to take extra time when communicating with the Deaf/HH. The report also includes an appendix with a tip sheet on assisting people with disabilities categorized by disability type.

### Emergency Notification Technology and Community Preferences

**Peer Reviewed Literature.** Qualitative work by Wood et al (2003) is a valuable contribution to the peer-reviewed literature in part because it is the earliest article that specifically documents barriers that Deaf people face in accessing alert systems. Wood et al (2003) surveyed 277 Deaf/HH people in Minnesota and Oklahoma and documented barriers Deaf/HH people experienced when attempting to access the weather warning systems. The following communication tools were inaccessible: civil defense sirens, local radio stations that are broadcasting emergency information through the Emergency Alert System, weather warnings through conventional National Oceanic and Atmospheric Administration (NOAA) Weather Radios. Often, problems were found in obtaining weather information from local television stations due to the lack of captioning. Eighty-one percent of survey respondents in the study had experienced a fear of being unprepared for weather emergencies.[32] This is significant because eight years later, the same issues and challenges remain unresolved or not sufficiently addressed.

Rubin (1995) explored legal issues surrounding the development of accessible technology for the Deaf by looking at the ADA (Americans with Disabilities Act) and Emergency Response Systems for the Deaf. A case study was presented of Denver's telephone emergency access system, and Rubin (1995) reported significant gaps in the provision of TTY services. While this is a relatively outdated form of technology by today's standards, Rubin makes a compelling argument for providing access by invoking the law. Rubin spells out the legal requirements that federal agencies are obligated to meet under the ADA, specifically Title II: "Public entities [must] conduct a self-evaluation of policies and practices to ensure that services for individuals with disabilities are accessible and as effective as those provided to others." [53]

Harkins et al (2008) updated Rubin's investigation (1995) with a more recent analysis of emergency telephone service access. The article contributes to emergency preparedness discourse by highlighting the gap between technologies currently being used by the Deaf/HH and technologies that are actually supported by policy. Harkins et al (2008) points out the need for coordination within the FCC as well, and recommendations are made for addressing key policy and technology challenges. [54]

**Reports.** The Emergency Access Advisory Committee (EAAC) presented a report (2011) on emergency calling for people with disabilities and included important survey results regarding experiences and technology used when calling 911, and functional preferences for future 911

calling by Deaf/HH. [55] Of the 3,149 survey takers, 1,210 (39.2%) were deaf and 649 (21%) were hard of hearing, and 158 (5.1%) were late-deafened. For example, 55% of sign language using survey takers expressed that they would like to have text alongside sign language when communicating with 911. [55] This report is useful because it allows policymakers and emergency managers to make accommodations based on quantitative information about demonstrated preferences and needs.

Although the sample size was smaller in Brooks et al's (2008) emergency management survey report from NCAM (National Center for Accessible Media), Brooks et al's (2008) report demonstrates the knowledge of emergency management responders about communication tools. [56] This survey of 200 stakeholders found low levels of knowledge of emergency management responders about delivery alerts and awareness of accessibility features and requirements. This confirms findings from Health Research for Action's KI interviews with state-level emergency management personnel. [56] However, the national web-based survey was in written English, so it is unclear whether Deaf/HH stakeholders with low-English proficiency were able to help develop the survey tool, since the tool from a literacy and functional standpoint may not have been accessible to a cross section of Deaf/HH individuals from different communication backgrounds. [56]

Given that the deaf-blind are not always included in the dialogue about emergency communications access for the Deaf/HH, Chelma (2006) filled a significant gap using qualitative methods. As part of a report prepared for NCAM (National Center for Accessible Media), Chelma conducted a focus group analysis of five Deaf-blind individuals concerning emergency alerts and aimed to find out how Deaf-blind people receive emergency information or communicate. Given this feedback, participants were asked to determine ways to improve the accessibility and quality of these alerts and to devise new methodologies for emergency alert and early warning systems in their home communities. Access to and knowledge of assistive and adaptive technologies which provide these messages were also discussed. Reactions to a series of varied hypothetical emergency and disaster scenarios were discussed. However, the very small size of the focus group limited the utility of findings and underscored the need for further research.[33]

A study by the Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC) on emergency notification technology may be useful for public health agencies and emergency management officials. Results indicated that, regardless of the initial form of notification, action was only taken after confirmation from a second source whether technology or family or friends. This has significance within the Deaf/HH community because its members may depend on each other for confirmation during emergencies, making it especially critical that they receive multiple forms of notification in accessible formats.[57]

A second study by the Wireless RERC (2011) including a survey on emergency communication and people with disabilities (n=1,150) regarding 9-1-1 communication, public alerts, and social media, has important implications for tailoring emergency alerts for the Deaf/HH. [58] One finding states that almost 2/3 (63%) of respondents with disabilities use social media, and 22% have received public alerts using platforms such as Facebook and Twitter. In addition, the survey found that Deaf/HH respondents (n=453 or 40% of respondents with a disability) most commonly used TV broadcasts to receive (33%) and verify (21%) public alerts, as well as email (30%) and text messaging (19%). For verifying alerts, Deaf/HH respondents were more likely to use the internet (15%) and direct observation (14%), than email (13%) or text messages (9%).

Heppner (2006) conducted two focus groups, which adds to the literature demonstrating the

barriers Deaf/HH people face in emergencies. Her research with 16 individuals included distributing pre-focus group surveys about emergency warning experiences, including the availability of devices and improving information in messages. [59] Focus group topics included communication preferences, personal experiences and different emergency scenarios. However, given that all focus group participants spoke into a microphone and utilized CART, there is a concern that results are not representative. Focus group respondents, by definition, are not necessarily representative of all Deaf/HH individuals, particularly those who do not communicate in spoken English. Furthermore, results may be particularly biased towards those more linked to pre-existing services due to recruitment strategies.

Additionally, accessible technology use was explored through usability testing, which helps shed light on best practices during an emergency. Wireless RERC (2009) conducted field testing of the Emergency Alert System (EAS) and Commercial Mobile Alert System (CMAS) and found that the majority of the Deaf/HH participants perceived the systems as an improvement. The technical skills of participants (n=120) ranged from high (savvy) to low (infrequent use). Deaf/HH focus group participants also agreed that video alerts in ASL would be useful. [60-62]

Two theses were focused on evaluating the usability of selected technologies in emergencies, which is helpful for research design for more usability testing. Ecker (2008) wrote a M.A. thesis at RIT on "Mobile Phones as a Social Medium for the Deaf: A Uses and Gratifications Study" and found an alerting system was tested in the Netherlands that warns registered Deaf users via a message sent to their mobile phones after an audible emergency siren is activated.[63] Cairns et al (2008) also did a feasibility study at University College London utilizing focus groups and interviews on designing a multi-modal alert device that can be useful for emergency situations. [64]

In addition, in 2010, a B.A. thesis by Flynn et al. entitled "Emergency Communication Effectiveness for Deaf and Hard of Hearing in Victoria, Australia," which was inspired by brush fires in Australia, contributes somewhat to the dialogue about emergency preparedness because it compares emergency communication systems in Australia with those of other countries, including the United States, Canada, South Africa, Spain, Greece and the United Kingdom. [65] However, since usability testing was not conducted on each system, findings are not useful as a basis of making policy changes in emergency management. Regardless, contacting important stakeholders through onsite interviews and surveys with the Deaf/HH of Victoria to get their perspective on their satisfaction with the current system are valuable. It included comments that an SMS-based system would be preferable, as well as a discussion about how Deaf/HH individuals can be motivated to educate themselves and how costs of improving or developing new systems would be managed. Comments from these stakeholders tended to mirror those in reports from Stout (2004), McCampbell et al (2003), Harkins et al (2005), and Sullivan (2006), adding credibility to these observations.

### Qualitative Reports

Stout et al's report (2004) is essential reading because it touches on all the three previous thematic areas: barriers and experiences of the Deaf/HH in emergencies; lessons learned and policy recommendations; and emergency notification technology and community preferences. Although not peer reviewed, Stout et al's report (2004) included results from a qualitative survey that the Northern Virginia Resource Center (NVRC) conducted with the Northern Virginia Community Resilience Project in the metropolitan area of Northern Virginia, Washington, D.C., and Maryland.

[56] [59] This metropolitan area, which had experienced an anthrax outbreak, the Fall 2002 sniper shootings, and a number of weather-related emergencies such as devastation by Hurricane Isabel in Fall 2003, was also keenly aware of the National Capital Area's status as a prime target for terrorists. The survey's goal was to gather more detailed information from Deaf, hard-of-hearing, late-Deafened, and Deaf-blind individuals about:

- How they learned about the September 11 terrorist attacks
- Where they were and when they heard about the September 11 attacks.
- What communication breakdowns they experienced on September 11
- Whether they felt they had the same access to emergency or disaster information as the hearing community
- How they would like to be informed of an emergency or disaster situation, if given a choice
- Which of the ways of receiving emergency information they would most like to see improved [56]

Results indicate that communication technology fell short on and after 9/11. The captioning error rate was much higher than usual due to long hours required of captioners and there were inconsistencies in captioned news coverage. Key information such as airport closures and new security requirements were sometimes not captioned. Missing from the NVRC survey was a qualitative analysis of pre-existing emergency preparedness knowledge. [59]

Research and policy recommendations made by Harkins et al (2005) during a conference held at Gallaudet University in 2005 are still relevant and applicable today. [31] Key points made by Harkins et al (2006) 4 years ago were recently echoed in 2010 by National Advisory Board members at an emergency preparedness communications conference. A recurring theme that came up at both Gallaudet University (2005) and University of California-Berkeley (2010) conferences was support for legislative change, such as the Pandemic and All-Hazards Preparedness Act, and stronger enforcement of requirements that emergency information posted on the Web be accessible by the DOJ (Department of Justice). However Harkins et al (2006) made an important consideration about the need for clarifying the role nonprofit relief organizations have in emergencies involving the Deaf/HH, and determining how they can best coordinate and work with disability specific groups. Harkins et al (2006) raised the important policy question of whether institutions serving specific groups effectively (e.g., state schools for Deaf children) have official roles as shelters. [31]

Both Harkins et al (2006) and conference participants at Gallaudet University (2005) and University of California-Berkeley (2010) addressed the need for research on further technological developments like the increasing use of broadband mobile services and support for legislative change, particularly the need for conducting lab and field tests of promising technologies for improved accessibility of emergency communications. Harkins et al (2006) specifically recommended sponsoring the participation of accessibility technical experts in emergency communications standards and guideline development, and in industry and government advisory groups. [31]

Both conferences recognized the need to research effective and accessible methods of communicating shelter instructions in buildings and building complexes. Harkins et al (2006) contributed to the discussion of emergency evacuation for people with disabilities:

There are basically two situations: one in which the person being alerted has some relationship to the building, such as an employee or a student, and the building management can to some degree control the situation; and one in which people are transient, such as stores, restaurants, rail stations, or airports. One concern is that with more threats of terrorism and biohazard incidents, we do not have ways to communicate directions to people with disabilities in an emergency whether to exit, shelter in place, or move to another area, etc. [31]

However Harkins et al's (2006) contribution is not limited to evacuation issues; rather, he also emphasized the need for identifying effective practices for peer-oriented communications and help. This report pointed out that networking and self-help within disability groups has been an important recovery tool during severe and widespread disasters such as Hurricanes Katrina and Rita. Recommendations to consider with regard to improving communication and media before and during an emergency include the use of social media tools such as Facebook and Twitter. [36]

Missing from both the peer-reviewed and gray literature appears to be any research on factors that promote or hinder preparedness communication capacity of CBOs and Deaf/HH individuals. On a system-wide level, there is a lack of information about national/state guidelines for emergency communication for Deaf/HH groups. Additionally, KI interviews of state-level representatives conducted by HRA researchers, demonstrate a general lack of knowledge about providing emergency services for Deaf/HH constituents.[36]

In addition, although some case studies have been written about the few health education programs that exist for the Deaf, most available emergency preparedness interventions for the Deaf have not been rigorously evaluated. [66] [67]

In addition, there's a lack of research on training materials for first responders and the Deaf/HH. Despite the fact that there are multiple national and local opportunities for both Deaf people and first-responders to become more prepared as well as a DRI (Disaster Relief Interpreting Program) in the state of California, it is decentralized and there has been a duplication of efforts and the trainings have not been standardized. See Appendix 1 for a comprehensive list of trainings offered both at a national and international level.

## Discussion

Given so few peer-reviewed articles and reports were available for analysis; it is useful to situate them in the context of larger research issues in the literature about health literacy in the Deaf/HH population. Despite this literature review, gaps in emergency preparedness knowledge have not been well-documented for Deaf people. Yet, gaps in health literacy knowledge in the Deaf community have been documented for HIV, other infectious diseases, cardiovascular diseases, metabolic syndrome, and cancer. [66, 68-72] [73-79]. Health literacy is defined in *Health People 2010* as: "The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."<sup>5</sup>

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<sup>5</sup> According to the U.S. Department of Health and Human Services, "health literacy includes the ability to understand instructions on prescription drug bottles, appointment slips, medical education brochures, doctor's directions and consent forms, and the ability to negotiate complex health care systems. Health literacy is not simply

[80-82] [81] Other health disparities between Deaf/HH and hearing people have also been found. Deaf/HH individuals are at a higher risk for obesity (Iezzoni, 2002), depression and potentially higher suicide rates (Turner, 2007) and interpersonal violence (IPV) (Brownridge, 2009).[83-85]

Given that Deaf/HH people have documented health disparities, they are uniquely vulnerable in an emergency situation. Findings from Steinberg (2002) and O'Hearn (2006) regarding Deaf women's health care access and knowledge indicate a need for linguistically accessible all-hazards emergency preparedness material[86] [87].

According to Deaf leaders in the field and members of the first PERRC (Prevention and Emergency Response Research Center) National Advisory Board (NAB) meeting in emergency preparedness communications for the Deaf/HH held on May 26, 2010, the major areas of concern are: 1) improving communication and media accessibility; 2) policies and regulation; and 3) standardizing training materials.[36]<sup>6</sup> Each of these represents a potential area for future research. For example, a need for research regarding the effectiveness of social media tools before and after an emergency was demonstrated by Harkins (2004) who pointed out the need for conducting lab and field tests of promising technologies for improved accessibility of emergency communications for the Deaf/HH. [31]

In order to improve how Deaf/HH persons can receive information regarding emergencies or forced evacuations while in public places, the NAB recommends further research. In the post-disaster response and recovery phase, improving access to shelters or temporary housing was also identified as a priority by NAB members. [36]

To investigate pathways to better enforce policies and regulations before an emergency, board members also recognized a need for a clear chain of command within Emergency Management Agencies (EMAs) to ensure that they effectively work with this population and provide and secure qualified interpreters. [36] This includes making websites regarding emergency preparedness from homeland Security, FEMA, and state agencies accessible to multiple non-English groups. There is a need to reevaluate the current policies for securing qualified interpreter services during an emergency. Additional discoveries that must be made include finding out what the standards are for interpreters during disaster situations, as well as who is responsible for making arrangements and ensuring that the interpreters are qualified. [36]

To improve training and knowledge both for first responders and Deaf community members, board members recommended standardizing current trainings that are available in order to avoid duplication of efforts. This includes research on how to improve communication between first responders and Deaf people before and after emergencies.[36] In order to involve Deaf/HH members in the emergency preparedness process, board members recommended teaching them about the Incident Command Systems (ICS). In addition members recommended employing Deaf/HH in emergency planning jobs within the emergency preparedness learning centers that are

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the ability to read. It requires a complex group of reading, listening, analytical, and decision-making skills, and the ability to apply these skills to health situations." In addition, "health literacy varies by context and setting and is not necessarily related to years of education or general reading ability. A person who functions adequately at home or work may have marginal or inadequate literacy in a health care environment. With the move towards a more "consumer-centric" health care system as part of an overall effort to improve the quality of health care and to reduce health care costs, individuals need to take an even more active role in health care related decisions. To accomplish this people need strong health information skills." [37]

<sup>6</sup> The University of California at Berkeley is one of nine CDC-funded Prevention and Emergency Response Research Centers (PERRC).

already set up by the CDC Preparedness and Emergency Response Learning Centers (PERLC).[36]

As of November 2010, the Pandemic and All-Hazards Preparedness Act sponsored by Senator Richard Burr in 2006, is up for renewal pending revision from various constituents from at-risk populations including the deaf and hard-of-hearing. At the second NAB meeting at the CDC, policy representatives expressed interest in partnering with the NAB board to make modifications to the bill. This federal legislation could have a far-reaching impact on national policy regarding the implementation of emergency response and planning tools that are tailor made to the deaf and hard-of-hearing. Provisions of the bill are not limited to, but include the requiring of the Secretary to:

Ensure that the contents of the strategic national stockpile take into account at-risk populations... [and] disseminate novel and best practices of outreach to, and care of, at-risk individuals before, during, and following public health emergencies. (Pandemic and All-Hazards Preparedness Act, Title 1: National Preparedness and Response, Leadership, Organization, and Planning, S. 3678, 109 Cong., Session 2006)

There is recognition on the federal level for the need for a National Advisory Committee on At-Risk Individuals to strengthen the National Disaster Medical System, including medical surge capacity. Additionally, there are provisions in the bill allowing the Secretary to:

Give priority to the advanced research and development of qualified countermeasures and qualified pandemic or epidemic products that are likely to be safe and effective with respect to children, pregnant women, the elderly, and other at-risk individuals. (Pandemic and All-Hazards Preparedness Act, Title 2: All-Hazards Medical Surge Capacity, S. 3678, 109 Cong., Session 2006)

Yet another area of inquiry is addressing literacy/education gaps for people who are Deaf/HH in order to tailor messages appropriately. In order to engage this population we need to standardize terms for emergency preparedness in American Sign Language (ASL), yet also account for regional difference. An example of this discrepancy is that some emergency related ASL signs are inconsistent: the term for "shelter" can be signed three different ways. Although UC San Diego is currently assessing cancer terms in ASL for consistency, the same has not been done for emergency preparedness. [36]

Another area of inquiry is how to improve communication between first responders and Deaf people before and after emergencies. For example, it is impossible for Deaf people to lip read firemen in full or Hazmat gear that also hinders sign communication.[36] Yet another area of inquiry is to improve how Deaf/HH persons can better receive information regarding emergencies or forced evacuations while in public places. Improving access to shelters or temporary housing is a priority. [36]



## **Conclusion**

On a larger scale, in spite of the rapidly growing body of disaster preparedness literature, there is sparse mention of epistemological problems confronting emergency management theory. [88] [89] Schneider notes: " An examination of emergency management literature suggests that, until quite recently, the strategic motivation for the emergency management profession arose from the challenges of responding or reacting to specific and immediate disasters rather than from the recognition of opportunities and the implementation of long term planning. [90]

Schneider also notes that more recent literature in the field indicates that emergency management is no longer confined to preparing for, responding to, or recovery from specific disasters. Increasingly, emergency management is seen as an integral part of a more comprehensive community decision-making process. Briton (1999) notes that it is increasingly connected to issues such as environmental stewardship, community planning, and sustainable development.[90] Beatley (1995) and Mileti (1999) show that the linkage of hazard mitigation, a new emphasis in the field, to the broader task of developing sustainable communities potentially places emergency management at the very heart of community planning.[90, 91]

There is a growing consensus that the limited, task oriented, technical, and disaster specific orientation of the old emergency management must be replaced with a new, broader more strategic framework for the profession [90-92]. According to a 2000 report from FEMA, the emphasis is on reducing the vulnerability of communities to natural and manmade disasters in the context of all other community goals such as reducing poverty, providing jobs, promoting a strong economy, and generally improving people's living conditions.[91]

As Schneider noted, emergency management has traditionally been disaster driven, narrow, and technical in its orientation. The peer-reviewed and gray literature demonstrates that research on emergency preparedness education and communication for Deaf/HH people needs to have a different conceptual orientation centered not simply on a practical emphasis on hazard mitigation but also using lay knowledge to improve disaster preparedness education and response capacity [91]. Spurgeon's (2006) report interviewed Deaf representatives of CBOs and defined 'special needs' in the context of a disaster. He wrote:

The term 'special needs' or 'vulnerable' populations are often used to characterize groups whose needs are not fully addressed by traditional service providers...vulnerable populations are people who feel that they cannot comfortably or safely access and use the standard resources offered in disaster preparedness, relief and recovery...[including] a reliance on non-traditional information sources within their communities. [93]

Although Deaf/HH people may not define themselves as disabled, special needs, or vulnerable, such individuals may rely on the Deaf community for support. Spurgeon (2006) found, overall, that lack of trust for government officials, money, time, poverty, and low literacy were barriers for people with disabilities. Bartlett et al (2008) found that Deaf patients with communication problems were three times more likely to experience a preventable adverse event than patients without such problems. [94] The most prominent suggestion for overcoming these barriers was to tailor preparedness messages specifically toward each target group, and to follow

up by training trusted messengers from within the community to present materials and demonstrate preparedness. Messengers from within the community could educate other members about preparedness using simplified, targeted messages in native languages. Other suggestions included holding focus groups, town hall meetings and conducting outreach into communities. [93]

According to Corburn (2008), street science has been called a process that emphasizes the need to open up both problem framing and subsequent methods of inquiry to community participation. [95] This literature review illustrates that all-hazards emergency preparedness communication challenges cannot be overcome without a co-production of knowledge between the lived experience of Deaf/HH people, EMS system practitioners, and emergency preparedness researchers.

**PART II:**  
**FIRST RESPONDERS TO DOMESTIC VIOLENCE EMERGENCIES**  
**OF THE DEAF AND HARD-OF-HEARING:**  
**A MIXED-METHODS EVALUATION OF TRAINING**

**Abstract**

***Objective:*** To evaluate a pilot training workshop for law enforcement as first responders for the purpose of increasing officers' cultural competency in working with Deaf and hard-of-hearing people (Deaf/HH) during domestic and sexual violence (DV/SV) emergencies.

***Methods:*** This evaluation assesses the efficacy of a training workshop for law enforcement on how to best interface with the Deaf community as first responders at the scene of domestic violence (DV) emergencies. There are two assessment components: a pre-post survey and a semi-structured focus group with workshop participants.

***Results:*** There was a significant difference between pre-test and post-test results for the knowledge subscale and the perceived self-efficacy subscale of the attitudes items, as well as the communication strategies scale. Both survey and focus group results demonstrated that participants gained cultural competency skills post-training as indicated by items measuring attitudes towards the Deaf/HH, particularly perceived self-efficacy when working with the Deaf/HH both in a DV emergency and in a large scale emergency, as well as knowledge of communication and translation.

***Conclusion:*** Despite a significant difference between pre and post-test results in terms of knowledge and perceived self-efficacy, survey participants demonstrated a lack of knowledge about policy and the law, which can have serious implications at the time of an emergency. Findings also suggest that while a one-time training can improve the perceived self-efficacy of participants, shifting attitudes about the capabilities of the Deaf/HH may require different training strategies.

Keywords: domestic violence, sexual violence, Deaf, hard-of-hearing, law enforcement, first responders, emergency, emergencies, cultural competence, training, communication skills, self-efficacy, attitudes, police officers

## **Introduction**

Despite the fact that there is a robust literature about cultural competence training for health professionals and first responders working with ethnic and linguistic minorities, there is a paucity of research on all-hazards preparedness education for first responders, including police, firefighters and other emergency services personnel working with the Deaf/HH.<sup>7</sup> Some studies have examined cultural competency training for medical professionals working with the deaf, but not for first responders, and not for domestic violence (DV) emergencies. Boyd (2008) indicated that "agencies such as law enforcement and fire officials have little to no training with regard to the Deaf population and Deaf culture. As a result, they [Deaf/HH] feel unsafe and misinformed." [1]

Cultural competency training has the potential to help professionals working with the Deaf/HH population in DV emergencies. Although peer-reviewed research, to my knowledge, has not yet been conducted about Deaf DV or sexual violence (SV) survivors or the provision of services for this population, a literature review has shown that DV is a widespread problem. [96] According to the CDC, every year, 12 million men and women in the United States experience rape, physical violence, or stalking by a romantic partner. [97] [98] Survivors of violence are also more likely to experience a broad range of mental and physical health problems from post-traumatic stress disorder to depression, cardiovascular disease and diabetes. [98]

Deaf survivors of DV or SV are often uniquely vulnerable due to a lack of communication access. Language and cultural barriers mean hearing services (shelters, safe houses, legal and medical assistance) are difficult to obtain or not an option. According to Boyd (2008), Deaf DV and SV survivors have faced difficulty when interfacing with law enforcement, which has led to barriers accessing a wide array of legal and social services. Thus, the initial encounter between a deaf survivor and law enforcement can be critical to the provision of necessary services. [1]

*Theory of Change.* With the aim of improving first responders' resilience, capacity and ability to prepare for not only large-scale public health disasters but smaller-scale emergencies on an individual level, it is hypothesized that gaps in knowledge or a lack of training of law enforcement officers has negative repercussions before, during, and after an emergency. As a result of training, it is hypothesized that law enforcement members will become more culturally competent, more aware, and more effective in responding to the Deaf/HH population. Moreover, increased awareness among law enforcement officials and in the legal system about the needs of Deaf survivors may eventually lead to higher-level policy changes in the emergency management infrastructure, such as enforcing the widespread use of accessible communication technology or ASL interpreters and institutionalizing them as an integral part of operations during the first-response and recovery phases.

Research examining attitudes towards people with disabilities by medical professionals has demonstrated that having a background in disability influences attitudes and future behavior (Antonak (2000), Tervo et al (2004), Tervo et al (2002), Kottke (1987), and Mitchell et al (1984). Providers who have had more frequent contact with people with disabilities have more personal acceptance of Deaf/HH people and hold more favorable attitudes.[6, 99-101] [102] Shifts in attitudes in other arenas have been documented to lead to behavior change with minority groups;

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<sup>7</sup> The upper case Deaf is used to indicate a cultural orientation denoting membership in a linguistic minority group, the lower case refers to deafness as purely a medical condition. Some people find this preferable to "hearing/impaired" because this term has a negative connotation of disability and impairment.

some researchers believe that a change in racial attitudes will lead to behavioral change (Brown et al, 1996; Helms et al, 1990). [103] [104] Thus, in the current study, we hypothesized that exposure to a Deaf trainer as well as receiving training about working with the Deaf community would lead to improved attitudes, knowledge and skills.

### ***Rationale for Evaluation of Training of First Responders.***

Cultural competence training is particularly useful for first responders in emergencies, given that, according to disability studies scholars, there is a lack of widespread awareness of disability culture among the general population (Davis 2006, Barnes 2002, and Zames 2001).[18-20, 48] If people with disabilities were considered a minority group, at 19% they would be the largest minority group in the United States.[11] In addition, one out of every five people in the United States has a hearing loss of some kind. (Lin, 2011) [105] However, for Deaf/HH individuals that choose to self-identify not as disabled but as proud members of a linguistic minority group, the inclusion by Graves (2001) of the Deaf/HH as part of a larger cultural competency framework is critical, which also factors in the complexities of race, ethnicity, disability, socioeconomic status, sexual orientation, and gender. [106] According to a report from the U.S. Department of Justice (2009), most people, first-responders included, unconsciously subscribe to disability-negative attitudes.[48]

DeafHope, a non-profit organization that serves Deaf/HH survivors of DV/SA, in partnership with the Oakland Police Department, aims to collaborate and develop a model training framework in order to create access to safety for both law enforcement officers and Deaf/HH survivors. On a systemic level, governmental agencies, first responders and NGOs can benefit from the evaluation of a training program for first responders, which can lead to the development of best practices for first-responders to handle any communication barriers that may emerge after a disaster. The training included a discussion of the ways in which police culture and Deaf culture may or may not mix well, including cautionary tales of communication barriers that have emerged during emergencies (see Table II for training content).

## **Methods**

### ***Study Design***

This evaluation assesses the efficacy of a training workshop for law enforcement on how to best interface with the Deaf community as first responders at the scene of domestic violence (DV) emergencies. This evaluation measures the domains of a tripartite model widely used in cross-cultural education: knowledge, skills, and attitudes (Harris et al, 2008). [107]. The pre- and post-survey and focus group results maximizes the strength of a mixed methods approach, in which baseline and post-training measurements were collected. Question items were varied (true-false and Likert-type items, case study response questions, and open-ended questions). SPSS and Stata statistical software were used to analyze survey data. The researcher received feedback from community partners, including law enforcement officers, on the design and implementation of this evaluation based on results from pilot testing conducted in Spring 2010.

### ***Study Population***

***Recruitment Procedures.*** Any individual working in law enforcement in the San Francisco Bay Area was eligible for continuing education units (CEU) in order to receive P.O.S.T. (Peace Officer Standards Training) certification by the State of California. Initially, recruitment efforts

via mail, phone, email or social media were focused only in Oakland, but because of low enrollment the geographical area was expanded to include San Francisco, Contra Costa, Alameda and Sonoma counties.

*Training Participants.* A total of 41 training participants attended one of two available trainings. Sixteen participants attended the first training (6 female), and 25 participants attended the second training (9 female). Of the 34 survey respondents, 21 participants (62%) were male and 13 participants (38%) were female. Participants ranged in age from 24 to 51.

*Table 1: Demographic Information - Survey and Focus Group Respondents*

	Response	Survey Respondents (n=34)		Focus Group 1 Respondents (n=6)		Focus Group 2 Respondents (n=13)	
		#	%	#	%	#	%
Professional Experience	> 10 years	18	55%	4	80%	5	38.5%
	6-10 years	7	21%	1	20%	4	30.8%
	1-5 years	6	18%	0	0%	3	23.1%
	< 1 year	2	6%	0	0%	1	7.7%
Gender	Male	21	62%	3	50%	9	69.2%
	Female	13	38%	3	50%	4	30.8%
Ethnicity	Caucasian	17	50%	4	67%	6	46.2%
	Hispanic or Latino/a	5	15%	1	17%	2	15.4%
	African or African American	6	18%	0	0%	2	15.4%
	Asian or Pacific Islander	3	9%	0	0%	2	15.4%
	Other	3	9%	1	17%	1	7.7%
Stated Reason for Attendance	Professional Development	24	71%	3	50%	9	69.2%
	Interest in Learning More About the Deaf	24	71%	6	100%	10	76.9%
	Interest About DV or SA	15	44%	3	50%	7	53.8%
	Certification Credit (P.O.S.T.)	8	24%	0	0%	6	46.2%
	Prior experience working with Deaf/HH DV or SA survivors and would like to learn more	4	12%	3	50%	0	0%
Prior Experience	Experience with Deaf/HH	17	50%	5	83%	5	38.5%
	Experience with deaf DV/SA	7	21%	4	66.7%	0	0%
	Experience with Deaf/HH (work-related)	11	32.3%	5	83.3%	4	30.8%
	Experience with Deaf/HH family member	4	11.8%	0	0%	2	15.4%
	Experience with Deaf friend	1	2.9%	0	0%	1	7.7%
	Experience with DV/SA survivors	25	74%	6	100%	10	76.9%
	Taken an ASL class	1	2.9%	0	0%	0	0%

Title	Police Patrol Officer	11	32.4%	3	50%	3	23.1%
	Police Sergeant	3	8.8%	0	0%	2	15.4%
	Sheriff	3	8.8%	1	16.7%	1	7.8%
	Detective	6	17.6%	1	16.7%	4	30.8%
	Community Service Officer	5	14.7%	0	0%	2	15.4%
	Public Service Dispatcher	1	2.9%	0	0%	0	0%
	Police Service Technician/Police	1	2.9%	0	0%	0	0%
	Police Investigator, DV unit	1	2.9%	0	0%	0	0%
	Other	3	8.8%	1	16.7%	1	7.8%
Language fluency	English	30	88%	5	83%	11	85%
	Spanish	5	15%	3	50%	1	8%
	American Sign Language	4	12%	1	17%	2	15%
	Other	1	3%	0	0%	0	0%

### ***Procedures***

***Intervention Procedures.*** DeafHope provided two-hour training sessions to law enforcement officials for the purpose of increasing officers' cultural competency in working with Deaf survivors. The training was conducted using a combination of lecture, several interactive activities and a question/answer discussion format. The training was co-taught by one hearing instructor representing the law enforcement community at the Alameda County Family Justice Center and one Deaf instructor from DeafHope representing the Deaf community. Two ASL (American Sign Language) interpreters were present to facilitate communication with participants, as well as one CART (Computer Aided Real Time) transcriptionist.

*Table II: Sample Training Content*

<p>Topics</p> <ul style="list-style-type: none"> <li>• Legal requirements around the use of ASL interpreters</li> <li>• Deaf culture, Deafhood and self-identity</li> <li>• Audism or stereotyping about the capabilities of deaf people and its impact Deaf/HH survivors in domestic violence or large scale emergencies</li> <li>• Hearing privilege and forming partnerships with hearing allies in the law enforcement system</li> <li>• Communication technology</li> <li>• Dos and Don'ts when communicating with a Deaf/HH person</li> <li>• The intersection of police culture and the Deaf community</li> </ul>
<p>Exercises</p> <ul style="list-style-type: none"> <li>• Lipreading skills without voice</li> <li>• Interpreting ASL grammar from a real incident of a Deaf survivor who was a non-native English user</li> </ul>

***Research Procedures.*** IRB approval was obtained from the University of California at Berkeley. A mixed methods design was utilized; officers were invited to (1) take a 15-20 minute pre- and post-test survey before and after, and (2) participate in semi-structured focus groups (FG) after two 2-hour training certification workshops for law enforcement. Written consent was

obtained before the pre-survey. After the training, all officers that attended the workshop were invited to participate in a 1-hour focus group immediately following the workshop. The focus group was simultaneously transcribed by a CART transcriptionist.

The first author and PI on this project did not facilitate or observe the focus groups due to the sensitive nature of the topics and to ensure that participants felt comfortable and free to discuss their attitudes, knowledge, and beliefs about the Deaf/HH in an emergency context.

*Instrumentation.* Given that this is believed to be the first study of its kind, the questionnaire and focus group instrument were developed and pilot tested in consultation with Deaf Hope. Items were adapted from several extant instruments including those from: (1) The Office of Minority Health [108]; (2) American Association of People with Disabilities survey [109]; (3) the Cultural Competence and Linguistic Competence Policy Assessment (CLCPA) [110]; (4) the Course Evaluation Instrument from Peace Officer Standards and Training (POST) [111]; (5) the Community Emergency Response Team (CERT) evaluation form [112]; (6) the Self-Assessment of Cultural Competence [113]; and (7) the Self-Efficacy for Cultural Competence in Patient Counseling Scale [114]. (Appendices 6-8) Examples of adapted items are provided in the below Evaluation of Outcomes section.

*Evaluation of Outcomes.* Survey and focus group questions measured baseline and post-training knowledge and skills of best practices for first responders when communicating with a deaf person involved in a DV or large-scale emergency, as well as attitudes, which include: (1) beliefs about the competence of deaf people and (2) perceived self-efficacy measuring current and future behavior. The primary focus is on short-term proximal outcomes on an individual level: increased cultural competence as demonstrated by improved knowledge, skills and self-efficacy for first responders working with the Deaf/HH before and during emergencies.

Table III: Learning Objectives

Desired Outcomes
<p>Law enforcement officials will:</p> <ul style="list-style-type: none"> <li>• have better awareness of Deaf culture and the diversity of communication abilities that Deaf people have.</li> <li>• be able to integrate interpersonal communication skills, technology, and community resources to provide access to Deaf/HH individuals</li> <li>• be able to write DV/SV reports that include critical information from Deaf/HH survivors, with excellent accuracy of incident details.</li> </ul>

### Survey

Specific indicators in the quantitative and qualitative survey instrument measured, according to frequency: (1) **participant satisfaction** with the training (13); (2) **skills** in responding to a domestic violence emergency with a Deaf/HH individual(s) (2); (3) **attitudes** toward the Deaf/HH, including general perceptions, bias recognition, self-assessment of cultural competency, and perceived self-efficacy in relation to cultural competency when interfacing with the Deaf/HH (16); and (4) **knowledge** of working with the Deaf/HH (32), which includes seven question topic areas -- communication with the Deaf/HH (12), translation (ASL interpreters) (12), accessible technology (2), myths about deafness (4), rights that Deaf/HH individuals have under federal law (1), and language access and barriers (1).



Demographic Information. Demographic information regarding officers' gender, race/ethnicity, professional background, fluency in languages other than English, and experience with the Deaf/HH allowed for exploration of potential mediating and/or confounding variables.

Attitudes Scale. A 16-item Likert-type rating scale from Strongly Disagree (1) to Strongly Agree (5) was used in both pre and post-surveys to compare attitudes toward the Deaf/HH (16 points, minimum, 80 points maximum). Two subscales measured perceived *capabilities* of Deaf people with six items such as “Deaf people can make their own life decisions” and “Deaf people can have normal one-on-one interactions on a daily basis,” and *perceived self-efficacy* when working with the Deaf/HH with ten items such as “I feel confident I could figure out a way to communicate with Deaf people in an emergency.” Attitudes items exhibited good internal reliability (Cronbach’s alpha: 0.88 pre-test, 0.89 post-test). (See Table VII: Descriptive Statistics for Closed-Ended Results for the *Attitudes* items.) For this scale, based on the distribution, in order to determine whether participants changed from a low scoring group to a high scoring group post-training, attitude questions were also dichotomized into a high-scoring group reflecting more positive attitudes and a low-scoring group reflecting neutral to negative attitudes. The low scoring group strongly disagreed, disagreed or were neutral (1-3 pts); the high scoring group either agreed or strongly agreed (4-5 pts).

Communication Strategies Scale - Knowledge and Skills. A three-item dichotomous true-false response format was used to address some common myths about communication methods with Deaf people, such as the use of children as interpreters. Tetrachoric correlation on the Communication Strategies scale indicated good reliability. In addition, a case study of a domestic violence emergency scenario involving a deaf person with a hearing abuser was presented, and respondents were asked to consider what they would do in that situation using qualitative, open-ended questions about communication and language access.

Participant Satisfaction. Post-training, survey and focus group participants were asked to rate the quality of the training and any improvement in their knowledge, skills, and sense of self-efficacy or readiness to work with the Deaf/HH in an emergency. A combination of Likert-type scales and open-ended questions were used.

### Focus Groups

Focus groups were semi-structured with a total of 15 questions covering the following thematic areas: (1) prior experience with the Deaf/HH; (2) perceptions of the Deaf/HH; (3) perceived skills in working with the Deaf/HH; (4) knowledge about Deafness; (5) knowledge about communication with the Deaf/HH; (6) knowledge of language access and barriers; (7) knowledge of community resources; and (8) participant satisfaction with the training workshop (Appendix 3). There were a total of 19 focus group participants (6 for the first group, and 13 for the second). All participants that are quoted hereafter were given pseudonyms.

### Analysis

Pre and Post Surveys. Data were examined for normality and it was determined that parametric statistics should be used. Principal components analysis (PCA) was conducted on the Attitudes scale and the Communication Strategies scale. Based on statistical testing, the Attitudes items were split into two subscales: *capabilities* and *perceived self-efficacy*. Six items within the attitude scale were not only highly correlated, but also fit into logical thematic groupings. Six items were phrased in the third person or “other,” which touched on perceptions of independence and *capabilities* of Deaf people; the remaining ten items were phrased in the first person, therefore emphasizing *perceived self-efficacy* of respondents. Paired t-tests were run on these

two Attitudes groups separately to discern differences in the means of pre and post totals of each subset, and t-tests were run on the Communication Strategies scale. Stata software was used to conduct paired t-tests for all thirty-four participants. The open-ended questions were analyzed qualitatively and are reported separately.

*Focus Groups.* A content analysis of transcripts from both focus groups was conducted through an editing process, which included coding and concept mapping, as well as thematic analysis of the text (Lincoln & Guba, 1985) [115]. Literal and analytical codes were developed in an iterative and reflexive process, and sub-codes were developed for each in Microsoft Excel and quotes were linked to participants' demographic information (such as gender and title). Themes were extracted through descriptive, interpretive and analytical coding. At a later point, the immersion crystallization method was used to identify overriding themes. After data immersion, the crystallization process allowed the researcher to reflect on patterns that emerged (Borkan, 1999; Miller & Crabtree, 1994) [116, 117]. Transcripts were created in real time using CART (Computer Assisted Real Time Transcription). The nature of data collection utilizing real time technology lessened the need for qualitative software.

*Mixed Methods Design.* In order to ensure that the newly developed survey instrument is a reliable or valid instrument, we triangulated data by comparing participants' perceived self-efficacy in an emergency and satisfaction with the training from the survey data with focus group data. Mixed designs reflect the iterative process that all researchers employ, moving between induction and deduction at different stages to answer their research questions (Sosulski et al, 2008) [118].

Table IV: Outcome Measures by Construct

Skills	Reflections	Attitudes	Knowledge
Skills in responding to a DV emergency with a Deaf/HH individual(s) (S, FG)	Satisfaction with the training (Post S, FG)	General attitudes toward Deaf/HH (S, FG)	Translation, including interpreter policies (S)
Skills responding to a large-scale emergency with a Deaf/HH individual(s) (FG)	Perceived self-efficacy (Post S, FG)	Cultural competency and perceived self-efficacy (S, FG)	Accessible technology (S, FG)
		Self-assessment of cultural competency (S, FG)	Communication with the Deaf/HH (S, FG)
		Bias recognition (S, FG)	Myths about deafness (S, FG)
			Legal rights of Deaf/HH (S)
			Language access and barriers (FG)
			Community resources (FG)

**KEY:**

1. Pre- and post-surveys (S)
2. Focus groups (FG)

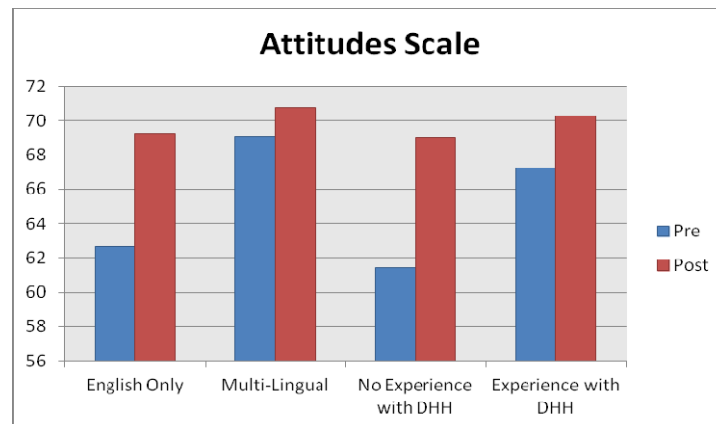
## Results

### Quantitative Survey Results.

*Attitudes.* Both those who were multilingual ( $M=40.39$ ,  $t(32) = -2.33$ ,  $p=0.03$ ) or had prior experience with the Deaf/HH ( $M=39.59$ ,  $SD=6.24$ ,  $t(30) = -2.95$ ,  $p<0.01$ ) had greater perceived self-efficacy at baseline when compared with monolinguals ( $M=35.51$ ,  $SD=6.02$ ) or those without prior experience ( $M=34.02$ ,  $SD=4.69$ ). The training had a positive impact on *perceived self-efficacy* ( $t(33) = -5.02$ ,  $p<0.01$ ), which, in this case, is partly a reflection of cultural competence, but not on *capabilities* ( $t(33) = -0.34$ ,  $p=0.74$ ) (See Table V). Following the training, the differences noted at pre-test between those who were multi-lingual or had prior experience with the Deaf/HH with the rest of the participants narrowed to a nonsignificant margin, indicating that the training was beneficial.

Attitude questions were also dichotomized in a high-scoring group, reflecting more positive attitudes, and a low-scoring group. Six participants (17.6%) went from the low scoring group to the high scoring group post-test.

Figure 1: Mean Attitudes Scale Results by Languages Known and Prior Experience with the Deaf

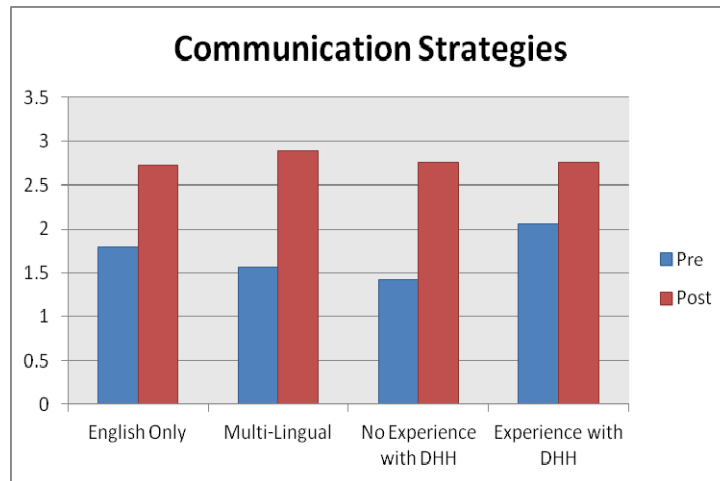


*Communication Strategies.* There was a significant difference between correct response scores for True/False measures evaluating knowledge of communication with the Deaf/HH pre and post-training ( $t(33) = -6.01$ ,  $p<.01$ ). Those who had prior experience with the Deaf/HH ( $M= 2.06$ ,  $SD=0.75$ ,  $t(30) = -2.13$ ,  $p= 0.04$ ) had more correct responses at baseline when compared with those without prior experience ( $M= 1.41$ ,  $SD=1.00$ ).

Table V: Survey Results

	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	t-Value	p Value
<i>Attitudes Scale</i>	63.24	8.19	69.44	7.64	-3.99	.00
<i>Perceived self-efficacy</i>	36.80	6.12	41.97	4.67	-5.02	<0.0001
<i>Capabilities</i>	27.53	3.19	27.68	3.51	-0.34	0.74
<i>Communication Strategies</i>	1.76	.93	2.77	.65	-6.01	<.0000

Figure 2: Mean Communication Strategies Scale Results by Languages Known and Prior Experience with the Deaf



### Qualitative Survey Results

**Knowledge- Translation.** Pre-training, several respondents were misinformed about how a deaf person would be able to call 911 in a domestic violence or large-scale emergency. For example, a male officer, said that the Deaf could "call 911 just like anybody else, they won't be able to hear." Post-training, participants were more likely to know appropriate channels of communication. A male sheriff lieutenant, answered, "E911 - use videophone." Nevertheless, several participants were still either confused or misinformed about technology.

After the training, I was still a little unsure of the technology that is commonly used by deaf people to call 911. I have responded to many calls in which the victim (hearing) dials the phone secretly and leaves it lying where the dispatcher can quickly tell what is going on. (Male Officer)

**Knowledge - Policy and the Law.** Participants were asked to list two to three rights that the Deaf/HH have under federal law. Before the training, only three respondents out of the 25 that responded to the pre-survey question (12%) mentioned interpreters. Post-training, 24 participants out of the 32 that responded to the question (75%) mentioned interpreters. However, post-training, only three participants (9.4%) were able to mention 2 laws by name: The Americans with Disabilities Act (ADA), and Section 504 of the Rehabilitation Act of 1973. despite the fact that they were informed of these laws during the training.

**Perceived self-efficacy in an emergency.** Two open-ended questions measured perceived self-efficacy when working with the deaf/HH in a DV emergency and in a large-scale emergency based on the training. Respondents described how they would respond to a Deaf/HH individual in a domestic violence emergency now compared to before they had the training:

[I will create a] space bubble for victim, - [and know] who to call for interpreters, - [I will] separate parties involved. (Male Police Academy Graduate)

[I will] slow down [and] evaluate the scene in its entirety. (Male Officer)

[I will be] more sensitive to difficulty in communicating. (Male Officer)

Resources, not known before, are now available to me. (Male Sheriff Lieutenant)

However, a male officer felt he came already prepared:

I consider myself to be well experienced in handling domestic violence incidents, and as someone who has personal experiences with deaf people, I believe that I would handle the situation essentially the same as every other situation. [But] I learned a new resource that I can refer victims to, and I am more familiar with the differences between a regular interpreter and a legal interpreter.

In response to the open-ended question, "In what ways do you think this training will help you communicate with a Deaf or hard-of-hearing person in a large-scale disaster (i.e. such as during an earthquake, hurricane, or terrorist attack)?" participants responded:

I would be better prepared than before I took this training. (Female Child Interview Specialist)

I am now more sensitive to the gaps in communication between hearing and deaf, which will help me in my approach to communication. (Male Officer)

*Participant Satisfaction.* Before the training, very few participants felt knowledgeable about working with the Deaf/HH in an emergency. However, despite the high satisfaction ratings for the course, only 6 participants (17.6%) reported feeling extremely confident that they could demonstrate what they learned in the class to colleagues although 14 participants (41.2%) were confident and 13 participants (38.2%) were somewhat confident.

Table VI: Reflections on the Training

Question	Poor	Poor/Satisfactory	Satisfactory	Satisfactory /Excellent	Excellent	Mean
How would you rate this training overall?	0	0	3	15	16	4.38
How would you rate your knowledge of working with the Deaf/hard-of-hearing in an emergency before taking this training?	7	9	14	4	0	2.44
How would you rate your knowledge of working with the Deaf/hard-of-hearing in an emergency after taking this training?	0	1	10	20	3	3.74
How would you rate the usefulness of training aids (e.g. handouts, videos, flip charts, white boards) in helping you understand the material?	0	0	7	16	11	4.12
How likely would you recommend this course to members of your department or to another agency?	0	0	3	12	19	4.47
How well did this course equip you with practical skills that you can use in your job?	0	1	5	19	9	4.06
How well could you demonstrate what you learned in this class to other department members?	0	0	13	14	6	3.79

*Self-Reported Change in Attitudes.* Based on responses to the question, "Did this training help you reflect on your own views about people with disabilities, including those who are Deaf/HH? Please explain." The majority of respondents, 20 out of 31 (64.52%), answered in the

affirmative.

Yes. Some of my preconceptions were wrong, especially about using children (as interpreters). (Male Public Safety Dispatcher)

Yes, I thought I had an idea of the obstacles deaf people had. I found I greatly underestimated their obstacles. (Male Officer)

Yes, I thought deaf people should only be the ones responsible to learn how communicate with police. (Male Detective)

However, this was not the case for six respondents (19.35%).

I don't believe my personal opinions have changed, but I feel I have always been sensitive to persons w/ disabilities. (Male Officer)

Table VII: Descriptive Statistics for Closed-Ended Results

TABLE OF ATTITUDE SUBSCALE Statements	Pre-test		Pos-Test		Percent Score Change						t test	
	Mean	SD	Mean2	SD3	n ↑	% ↑	n no change	% no change	n ↓	% ↓		n total
Deaf people have the ability to make their own life decisions. <sup>1</sup>	4.50	0.86	4.59	0.78	3	8.82	29	85.29	2	5.88	34	-0.68
Deaf people can choose where they reside. <sup>1</sup>	4.53	0.79	4.53	0.83	4	11.76	26	76.47	4	11.76	34	0.00
Deaf people can pursue higher education to adequately prepare them for life (have the life skills to live independently). <sup>1</sup>	4.68	0.54	4.59	0.74	3	8.82	27	79.41	4	11.76	34	0.83
Deaf people are financially secure. <sup>1</sup>	4.64	0.49	4.70	0.47	2	6.06	31	93.93	0	0.00	33	-1.44
<b>My community benefits from the contribution of deaf people.</b> <sup>1</sup>	4.21	1.11	4.55	0.79	10	30.30	20	60.60	3	9.09	33	-2.07
Deaf people can be good parents. <sup>4</sup>	4.76	0.43	4.82	0.39	4	11.80	28	82.35	2	5.90	34	-0.81
Deaf people can have normal one-on-one interactions on a daily basis. <sup>4</sup>	4.44	0.82	4.44	0.82	5	14.70	23	67.65	6	17.65	34	0.00
I feel comfortable interacting with deaf people. <sup>4</sup>	4.32	0.84	4.38	0.65	6	17.65	6	17.65	22	64.71	34	-0.47
<b>I feel confident I could figure out a way to communicate with deaf people in an emergency.</b> <sup>4</sup>	4.00	1.12	4.39	0.61	9	27.27	21	63.64	3	9.09	33	-2.27
I intervene, in an appropriate manner, when I observe other staff engaging in behaviors that appear culturally insensitive or reflect prejudice towards deaf people. <sup>2</sup>	4.09	0.88	4.36	0.60	11	34.38	17	53.13	4	12.50	32	-1.60
<b>I am mindful of cultural factors that may be influencing the behaviors of deaf people.</b> <sup>2</sup>	3.94	0.78	4.59	0.50	16	47.06	17	50.00	1	2.90	34	-4.45
<b>I always utilize interpreters when I encounter deaf people whose language is one for which I am not fluent.</b> <sup>2</sup>	3.39	1.14	3.94	0.85	14	45.16	12	38.71	5	16.13	31	-2.42
<b>I attempt to learn and use key words and slang of the language used by deaf people.</b> <sup>2</sup>	3.00	1.17	3.79	0.96	18	54.55	14	42.42	1	3.03	33	-4.56
<b>I can accurately describe and define the difference between American Sign Language and English.</b> <sup>3</sup>	2.71	1.12	3.85	1.02	20	58.82	11	32.35	3	8.82	34	-4.95
I am able to identify the influence of stereotypes on my thoughts, feelings and behaviors toward deaf and hard-of-hearing people while providing services. <sup>3</sup>	3.88	0.79	4.19	0.64	12	37.50	16	50.00	4	12.50	32	-1.90
<b>I am capable of eliciting a deaf person's perspective about a domestic violence emergency.</b> <sup>3</sup>	3.24	0.94	4.06	0.56	18	54.55	13	39.39	2	6.06	33	-4.64

<sup>1</sup> Adapted from American Association of People with Disabilities survey. <sup>2</sup> "Self Assessment of Cultural Competence" developed by the AUCD Multicultural Council, adapted from Promoting Cultural Diversity and Cultural Competency Self-Assessment Checklist for Personnel Providing Services and Support to Children with Special Health Needs and Their Families by Tawara Goode, Georgetown University Child Development Center.) <sup>3</sup> Adapted from Assemi et. al. (2006), "Psychometric Analysis of a Scale Assessing Self-Efficacy for Cultural Competence in Patient Counseling" <sup>4</sup> Developed and pilot tested by Engelman (2010)

## ***Focus Group Results***

Ten interpretive codes emerged from both focus groups, in combined order of frequency: *attitudes* towards working with the Deaf/HH (66), *cultural issues* surrounding law enforcement and their work with the Deaf/HH (59), *reflections (participant satisfaction)* about the training (59), *knowledge* on working with the Deaf/HH(40), *potential solutions* for communication challenges in an emergency (26), beliefs about the *responsibility* of stakeholders in an emergency (16), *field experience* or the lack thereof (13), *barriers* in emergency response (11), *involvement of the Deaf/HH* (6), and demonstrated *skills/self-efficacy* (2). Responses mirrored survey responses in terms of improved awareness regarding how the pernicious effects of stereotypes may affect communication in an emergency. For instance, a female detective discussed the potential for miscommunication: "I can see that if an officer does not know some of the stereotypes about lipreading and that stuff, an officer assumes they could and should take that as resistance or not wanting help. Just not cooperating with the system."

*Praise.* Several officers voiced enthusiastic praise for the training with some suggesting that all officers go through the training and envisioned a bright future:

This could be a big jumping point for Deaf Hope working more with law enforcement. This is just the tip of the iceberg... There's a lot of officers that don't [understand the Deaf community]. Having more classes to address these issues and address the stereotypes and address like culturally. (Female Officer)

Now having this is huge to me, first a revelation. This is phenomenal. That gives me more choices to send people to and get them for help. (Female Officer)

I actually think it was brilliant. I didn't have many expectations coming into the class. To attend a course led by a deaf person was amazing. I thought that really had an impact on me. Because here I'm, it's been a while since I've had that much contact with a deaf person and it was amazing... (Male Officer)

[The training] made me more aware of how ill-prepared I am, and things to work on. (Female Detective)

*Areas of Improvement.* Several participants (Training 2) expressed concern that the trainers should have framed conflicts that sometimes emerge between the Deaf/HH and law enforcement differently. An image from Hurricane Katrina was shown during the training in which two African American Deaf men were lying face down on the ground on a highway overpass struggling to communicate with two law enforcement officers standing with large rifles. The trainer pointed out that the standard practice of hand-cuffing can lead to communication barriers.

Please try to understand that we are on your side. We have a very dangerous job and many people disrespect and ignore us all the time. It's rare we meet deaf people. Please be patient and try to understand that we have a promise and obligation to come home to our families every day and if we don't respond on alert our chances of going home are greatly diminished. (Female Sheriff)



Cops exercise safety first! We don't just grab someone and physically assault them. Most bad guys when confronted ignore police commands. (Male Detective)

I thought it was interesting at the beginning when she was showing the pictures of the different scenarios. Everybody with a law enforcement background looking at the two guys on the ground [thinking], 'Okay, they are detained.' ... [But to the training facilitator] it was this shocking image. And to me it was okay. They had for whatever reason they had to place them on the ground. [The detained men] don't look injured. [The officers] are investigating. (Female Evidence Technician)

These comments were met with nods of agreement from the rest of the focus group participants. The training facilitator was trying to explain that the Deaf/HH people depicted were struggling to communicate with the officers; their hand movements could potentially be perceived as aggressive and resistant to officer direction, rather than attempts to communicate and de-escalate the situation. Police officers may handcuff or command Deaf/HH detainees to restrict their hand movement, resulting in, at best, miscommunication, and at worst, a dangerous situation wherein unnecessary force is used. However, the focus group's strong agreement with the female evidence technician's comment illustrated that, when developing future trainings, situations need to be carefully selected or introduced so that officers do not feel defensive. Officers made it clear that what may seem unsafe to an outsider or to a Deaf/HH individual could really be police officers following protocol. In the same focus group, a similar point was raised by a female community service officer with no prior experience with the Deaf/HH in response to Reflections Question 3; she suggested not starting off "a seminar like this with [examples wherein police are] shooting [Deaf/HH] victims that shouldn't have been shot... It will turn all our ears off immediately. We get abused by the media all the time. Great. They are going to bash us now."

The second focus group had a more defensive stance about communication between law enforcement and the Deaf community. Most felt that law enforcement faced pressure to do more to help communities and felt that goodwill from and education for the Deaf should occur first, or in tandem with their communication efforts. As a whole, participants in both focus groups had assumptions that the effort should come from the minority community.

Furthermore, while one participant rated himself highly on knowledge gained regarding Deaf culture as a result of training, he rated himself significantly lower on practical knowledge gained.

If the goal of the class was to teach me to better communicate with deaf folks, a one [on a scale of 1-5]. It did not teach me any communication skills. Although there [were] a couple, [like] to get their attention. It did not teach me anything I can go out and use today... It gave me no new skills. I'm going to be flying by the seat of my pants as I would after I walk out of here. (Male Sheriff)

A male community service officer, echoed the male sheriff's sentiments, saying that if a large-scale emergency were to happen "within this week, [he] would feel comfortable enough to get by, but not professionally."

Several participants expressed feelings of inadequacy, and a desire for a more substantial, in-depth course with more scenario-based activities that would improve their skill set. As the male community service officer stated, "I think there's still more training needed. An hour or two is just

not going to cut it." A male sheriff, who has had extensive experience with training programs, had several concrete recommendations, as did a female detective.

It should be part of cultural diversity. I had that not that long ago. We covered all the different other languages we do encounter. It should be part of the requirements. [Female Detective]

Participants also recommended specific, concrete ways to improve the training. A male sheriff recommended shifting the tone of the training, which may go against the grain of the culture of advocacy groups working with minority populations but may ultimately improve the effectiveness of training: "The word I use is stay away from advocacy. If you are going to train, don't advocate. That's what these folks are. By nature they are advocates for domestic violence victims. That's their focus. When you are going to train, don't advocate." His statement was met by enthusiastic nods of approval from the rest of the focus group.

*Perceived Self-Efficacy.* Participants in both focus groups, when prompted about what they would do during a large-scale emergency, expressed high levels of uncertainty about whether they could respond to the needs of the Deaf community. Despite the fact that she had prior experience with the Deaf/HH, a female child interview specialist said, "Goodness gracious! I don't know." When a female detective who had an interest in but no prior experience working with the Deaf/HH, was asked to rate her sense of preparedness post-training from 1 to 5, she was uncertain:

It's still going to be tough. I still don't know if they are going to be able to communicate with me by writing. I still know I can't use children. Not only may they be witnesses. You don't use witnesses to interpret for someone else either. That changes the dynamics of the story. Then what are you going to rely on? Again, I can't sign. I don't know anything about signing. I know they can't read lips. I definitely cannot read lips. You are like where am I at? Where do I go from here? At 3 or 4 in the morning when I get called out, what do I do?

The female detective expressed uncertainty despite the fact that she demonstrated knowledge gained from the training (such as the fact that she could not use children as interpreters). A male detective expressed uncertainty about being able to communicate effectively: "How do I communicate real quick? If you are triaging down a disaster, how do you get people going using the least amount of communication?" Two colleagues, a male officer and a female detective, both of whom had no prior experience and were required to attend the training, had a brief exchange that demonstrated their uncertainty:

Male Officer: In terms of actual communication, I think I would be able to get by. I think it would look hideous. I think there would be stick figures and charades and grabbing people and moving them.

Female Detective: I think I could do it [communicate with a Deaf/HH person in an emergency], but yeah, it would be ugly.

Male Officer: Even hideous?

Female Detective: Perhaps even hideous.

Although this exchange was about serious communication barriers, participants found the banter humorous. A male officer with two Deaf/HH family members said that, despite the fact that he had prior experience, "I started off with like a 5 or 4. Now I'm down to a 2." This demonstrates that there is a need for training even for those who think that they have extensive knowledge or experience with the Deaf/HH. He elaborates, "I have two family members that were Deaf.... We didn't think about what difficulties they may have had. It was just part of the family -- figure it out." He may have overestimated what he knew originally, but he may also be underestimating the skills that the training gave him. A male community service officer with prior experience with the Deaf/HH, related, "If you are saying [an emergency] is going to happen within this week, I would feel comfortable enough to get by, but not professionally." Similarly, a female community service officer with interest but no prior experience with the Deaf/HH, said, she was "not super confident [she] could take care of [the Deaf community's] needs right now." The complexity of the issues that emerged precludes easy answers; these responses illustrate that the training might have provoked its participants to realize these challenges, rather than illustrating their knowledge or lack of knowledge. As a male sheriff with no prior experience with the Deaf/HH, when rating his sense of preparedness in an emergency, said:

I thought I was coming in as a four [out of five, with five being excellent]. There's stuff you learn that sets you back a bit. Getting interpreters there is paramount there. The thing is with a stressful situation, emotions begin to unwind a little bit and communication becomes a lot more difficult. Coming in a four you have to set yourself back. There's going to be complications. Probably closer to a two.

*Participant Satisfaction.* Participants expressed insights gained and lessons learned from the training about how to communicate with Deaf/HH individuals during domestic violence emergencies.

*On using hearing children as interpreters:* Or when you are going to a hearing child or somebody else who is hearing, can you interpret for me? That's insulting. (Female Officer)

*On the methods of communication (lip-reading and writing):* Now I thought they could read my lips or they all can understand my writing and they can communicate with me by writing. Not necessarily. (Female Detective)

*On knowledge learned during the training:* The writing was one of the biggest for me... I remember taking notes and [Deaf individuals] writing and me writing. It never came into my mind thinking they may have never really learned English and how to learn how to write English... We assume they should know. That was a big mistake (Female Detective)

*On getting interpreters for first responders:* We just got training on that. That's where there's this huge difference. Gesture, wait a minute, follow me. I can call my dispatch or call a number we've been given and get an interpreter. (Female Community Service Officer)

*On the Deaf/HH community's reluctance to report domestic violence emergencies:* Either they [don't] have [domestic violence or they're] definitely not reporting it. I don't believe it's not happening. You know, that's kind of scary. They are just going and dealing with it on their own. We are not providing those resources or help (Female Detective)

Participants also recognized the potential for miscommunication to occur between law enforcement and Deaf/HH individuals. A female detective said, "I can see, that if an officer does not know some of the stereotypes about lipreading and that stuff, an officer assumes they could and should take that as resistance or not wanting help. Just not cooperating with the system."

Participants also recognized that they lacked knowledge about the Deaf/HH. One participant recognized how misinformed he might have been about lipreading. A male sergeant who had no prior experience who was required to attend the training recalled: "a lot of my perception was based off TV. They are deaf. They should be able to lip read. Everyone can do it on TV. You know, so, I think the last two hours kind of just, you know, eliminated a lot of the myths or falsehoods." Another male officer who had prior experience with the Deaf/HH recognized his own perceptions of the Deaf/HH as segregated: "I think that woke me up to the general ignorance of I think people think the deaf communities are segregated on some island. Really they are not. They are part of our community and we are going to run across them and be involved with them in one instance or another."

However, the training was not enough to successfully educate the police officers. During the focus groups, several participants demonstrated misinformation:

I'm aware there are methods for and I want to say TTY. There are methods for the deaf to access 911. Through TTY machine or whatever current now. (Male Sheriff) *\*Note: TTY is a soon-to-be obsolete form of communication.*

[Reaching Deaf/HH individuals during in an emergency] is not that much different from the general community. What does everyone do? They'll go to whatever media. Radio or TV or talk to their neighbors. (Male Officer) *\*Note: Deaf/HH individuals are unable to access radios.*

If we're going down the disaster [as] an earthquake path, then officers are going to have so many different issues to deal with, rather than banging on doors to make sure all the deaf people are okay. To centralize that answer, there's going to have to be a lot of prep work beforehand to make sure they all come to a certain spot and get information. (Male Police Academy Graduate) *\*Note: Banging on doors would not get a Deaf/HH individual's attention. However, his response indicates that he is thinking seriously about the difficulties involved by emphasizing "prep work beforehand" in terms of emergency preparedness.*

Interpreters. Several participants in the focus group demonstrated a renewed desire to provide communication access to the Deaf/HH population. A female evidence technician showed a commitment to and recognized the importance of creating awareness within the department about the need for interpreters at the scene. "[We need to start] educating everybody in my department -- educating my sergeant and lieutenant and [explaining] why it's a legal issue to get an interpreter and not blow it off and go, 'There's none available.'" However, a male sheriff described the difficulty of getting certified interpreters during time-sensitive emergencies.

*Need for Training.* Several officers recognized that this training could have the potential to save lives. During the training, the facilitator gave several examples of situations that turned out badly -- for example, she shared one story in particular in which a police officer shot a Deaf/HH individual due to serious miscommunication. A female detective sympathized with both individuals in the story, recognizing that it could happen to her in her capacity as a police officer: "That officer has to live with that for the rest of their lives. If we could prevent one incident like that because of miscommunication... [it would be worthwhile]."

Several officers also expressed the lack of exposure to the Deaf/HH, as well as the lack of training, despite being in areas with relatively large populations of Deaf/HH individuals.

Going back to my own experience, I've only dealt with specifically two different [Deaf/HH] persons in the 12 years...[I've never] heard anybody communicating about...a deaf person or saying negative [things] or making fun...It really is kind of a far removed subject for us... (Female Detective)

Our agents or officers have no clue how to assist even though we're in the middle of the hub of the [Deaf/HH] community. (Female Community Service Officer)

## **Discussion**

Research measuring attitudes towards people with disabilities by medical professionals has demonstrated that having a background in disability influences attitudes; people who have had more frequent contact with people with disabilities hold more favorable attitudes.[6, 99-101] Thus, the fact that law enforcement officers received training by a Deaf individual could have improved attitudes by itself, apart from any information retained by the training. Despite the fact that there was an even mix of survey respondents having prior exposure to or contact with the deaf, the majority of respondents ( $n=26$ ; 79%) reported no prior responder training (including law enforcement, fire or EMS) that included information about working with the Deaf/HH, indicating the need for training in this area. However, the majority ( $n=21$ ; 64%) of those surveyed did report receiving prior responder training on working with people with other disabilities, which indicates that there is a specific gap in training for working with the Deaf/HH compared to other disabilities.

Overall, survey findings demonstrated that after the training, participants improved their scores on the Attitudes and Communication Strategies subscales. Participants' improvement in the self-efficacy subscale of the Attitudes scale indicates the potential for positive behavior change. When law enforcement participants encounter Deaf/HH individuals in the future, officials may be more likely to take action and attempt to respond in a culturally appropriate way. However, the fact that there was no significant improvement in the items measuring perceived capabilities of the Deaf may indicate some combination of one or more of the following: (1) that participants had initially relatively high scores, and therefore, not much room for improvement, (2) self-report bias, wherein participants rate themselves in a more socially favorable light, and (3) that training participants may not have improved their attitudes about the independence of Deaf people. It may take more extensive training or more exposure to the Deaf/HH to change deep-seated beliefs about the capabilities of the Deaf/HH. Those without prior experience increased their mean self-efficacy score by a greater margin compared to those with experience, indicating the training was most beneficial to those without prior experience.

The majority of respondents, 20 out of 31 (64.52%) answered in the affirmative, when asked whether the training helped them reflect on their view about people with disabilities, including the Deaf/HH. This mirrors the Attitude subscale items as well as focus group participants' reflections on the training, particularly their response to the hypothetical scenario involving law enforcement individuals who were mocking a Deaf person. Focus group participants displayed sensitivity and empathy, reflecting improved attitudes.

Nevertheless, participants had conflicted attitudes and frustration about their responsibilities towards the Deaf/HH in an emergency. Despite the fact that officers are trained to protect and serve, ingrained in some is the notion that each individual's needs are his or her own responsibility. This sense of individual responsibility is deeply ingrained in American society [119].

*Policy Challenges.* Post-training, the vast majority of respondents 20 out of 31 (64.52%) were unable to answer an open-ended question regarding their departmental policy on communicating with deaf people, particularly standard practices around the use of sign language interpreters. However, post-training, a higher percentage of officers mentioned the use of interpreters. This indicates officers learned about the critical importance of interpreters but didn't necessarily understand the need for a trained or certified interpreter or the specific laws behind communication access for the Deaf/HH. In addition, this may be an indication that figuring out the right way to communicate at the time of an emergency is not always straightforward.

This is critical given that the general legal standard for all police departments is to provide effective communication pursuant to Title II of the Americans with Disabilities Act (ADA). [120] More explicit policies are needed on a local level to enforce the ADA. Despite Title VI of the Civil Rights Act of 1964 and the Executive Order 13166 (2000), which both mandate access to services for people with limited English proficiency, a nationwide survey by the city of Lorain, Ohio Police Department found that 84% of law enforcement organizations had no interpreting policy or procedure. Only eight out of forty-nine states had a policy for providing ASL interpretation. [121]

*Triangulation of Focus Group Data with Survey Data.* Due to self-report bias among participants, before training they may have over-rated their knowledge and perceived self-efficacy of working with the Deaf/HH in an emergency. Due to social desirability bias, participants may over-rate their positive attitudes towards the Deaf/HH in the survey. However, in the focus group, participants who had originally rated themselves highly rated themselves lower after having received the training. One possible explanation is that, after the focus group discussing the complexities and challenges of working with the Deaf/HH in emergencies at length, participants felt they could admit their shortcomings or knew enough to understand them better.

*Perceived Self-Efficacy.* Neither focus group felt adequately prepared to communicate with the Deaf/HH in real life, let alone in an emergency situation. Both groups verbally and nonverbally agreed that in an impending large-scale disaster, effective communication with the Deaf/HH is not feasible but probably can be done in queue while serving the needs of other populations. However, the first group seemed to have more knowledge of resources at their disposal that they utilized to critically-think their way through the disaster scenario. By contrast, the second group seemed unable to communicate an appropriate action plan for a large-scale disaster. The loudest voice asserted that in an emergency of that size, it is not first responders' responsibility to find people; it is incumbent on Deaf/HH people to be prepared.

### *Strengths and Limitations*

To my knowledge, this is the first documented evaluation of law enforcement training in domestic violence emergencies involving the Deaf/HH. We used mixed quantitative and qualitative methodologies to better understand the efficacy of this training, which is a marked strength of this research. This allowed for triangulation of survey and focus group results. Data validation was made possible by comparing the notes from the focus group scribe to the verbatim transcript, and also by comparing the focus group facilitator and note-taker's observations, both within each focus group and between focus groups. In addition, the focus group facilitator and note-taker reviewed both transcripts separately to identify any errors.

Although the survey instrument was new and there was no control group, we went to great lengths to ensure the reliability and validity of the instrument; for example, we used a theory-based approach, the tripartite model, to target specific concepts/themes, drew on documented measures in related fields to generate survey items; had experts review the instrument before administration; and pilot tested the instrument with the target population in order to provide further refinement. Scale, concept, and item development were all done in consultation with Deaf Hope staff and Oakland Police Department officials, which maximized the strength of a culturally based approach to item and measurement development. In addition, question types in the survey were varied and adjustment was made for variables that may be different at baseline (such as prior experience with the Deaf/HH and fluency in languages other than English).

In addition, we conducted PCA and reliability testing on our scales, which exhibited strong internal reliability. Findings support prior research about the benefits of cultural competence training for health professionals working with minorities or people with disabilities and adds an evidence-based research component to the small but burgeoning literature on emergency preparedness and disability. Nevertheless, it is difficult to determine the long term impact of this training, as longitudinal data was not collected. The predictive validity of attitudes on future behavior is not well-established in the literature (Ajzen & Fishbein, 2005). [122] However, direct experience with the attitudes object, such as a Deaf/HH trainer, was found to be a moderating factor that could help predict future behavior.

Due to resource limitations, this study only measures short-term outcomes. There are no longitudinal follow-ups or historical comparisons. We will be unable to determine whether the material is retained or applied in the field. Because the training provides continuing education and certification credits, the attendees may already be more motivated at baseline and thus more likely to have increased knowledge or sensitivity about Deaf issues. In addition, there could be a testing bias; the fact that participants were told they would be completing surveys before and after the training may have influenced their attentiveness during the training. Regardless, this research is an important first step in determining whether this law enforcement training was delivered with fidelity or whether trainees were satisfied with the workshop. These findings also help determine what aspects of the training better address challenges faced by law enforcement when working with underserved populations.

The fact that there were different interpreters voicing for the Deaf/HH trainer could be a moderator or confounding variable. The first team of interpreters had a pragmatic, engaging tone of voice that was conducive to learning. An interpreter at the second training had a more abrasive and dogmatic tone. Focus group participants in the second group were more defensive about their responsibilities toward the deaf community, but they also showed improved attitudes and increased sensitivity. Thus, it is especially important to consider the long history of tension between the police and minority communities when developing and implementing training.

## **Conclusion**

Improving communication between law enforcement and deaf and hard-of-hearing populations during emergencies has the potential to improve disaster response and recovery for all populations; findings may have particular relevance for other populations that face communication barriers, such as linguistic minorities. There has been a paucity of research regarding the provision of services benefiting Deaf/HH individuals during emergencies in general, but particularly for survivors of domestic and/or sexual violence. This research can begin an overdue discussion about best practices in addressing disparities in emergency preparedness communication for this population in order to facilitate their empowerment.



**PART III:**  
**LAW ENFORCEMENT PERSPECTIVES ON EMERGENCY PREPAREDNESS FOR  
THE DEAF AND HARD-OF-HEARING: A QUALITATIVE ANALYSIS OF BARRIERS,  
ATTITUDES AND PERCEPTIONS**

**Abstract**

**Objectives:** This is a qualitative exploration of knowledge, barriers, attitudes and perceptions of law enforcement personnel towards working with Deaf and hard-of-hearing people (Deaf/HH) during domestic and sexual violence (DV/SV) emergencies.

**Methods:** Two semi-structured focus groups were held after two 2-hour educational outreach/training certification workshops for law enforcement officers and affiliated personnel in the San Francisco Bay Area. The focus group elicited responses about (1) skills in responding to a domestic violence or a large scale emergency with a Deaf/HH individual(s); (2) attitudes toward the Deaf/HH, including general perceptions, self-assessment of cultural competency, and perceived self-efficacy in relation to cultural competency; (3) reflections on the training; and (4) knowledge of working with the Deaf/HH, which includes questions about communication with the Deaf/HH, language access and barriers, community resources, and myths about deafness.

**Results:** Ten interpretive codes emerged from both focus groups: *attitudes* towards working with the Deaf/HH; *cultural issues* surrounding law enforcement and their work with the Deaf/HH; *reflections* on the training; *knowledge* on working with the Deaf/HH; *potential solutions* for communication challenges in an emergency; beliefs about the *responsibility* of stakeholders in an emergency; *field experience* or the lack thereof; *barriers* in emergency response; *involvement of the Deaf/HH*; and demonstrated *skills/self-efficacy*. (See Table III)

**Conclusion:** Focus group results demonstrate that participants expressed fear, frustration and uncertainty about both their skills as well as their responsibilities when working with the Deaf/HH population. Findings suggest the need for standardized and evidence-based emergency preparedness, response and training for first responders working with the Deaf/HH population.

Keywords: domestic violence, sexual violence, Deaf, hard-of-hearing, law enforcement, first responders, emergency, emergencies, cultural competence, training, communication skills, self-efficacy, attitudes, police officers

## **Introduction**

According to a CDC report defining national standards for state and local emergency preparedness planning (2011), responder safety and health is a priority. Deaf people in emergencies are often uniquely vulnerable due to a lack of communication access. Due to language and cultural barriers, hearing services (shelters, safe houses, legal and medical assistance) are difficult to obtain or simply not an option. In particular, Deaf /HH people have faced difficulty when interfacing with law enforcement during Hurricane Katrina and other disasters, which has led to barriers accessing a wide array of legal and social services. Thus, the initial encounter between Deaf/HH people and law enforcement can be critical to the provision of necessary services during and after an emergency.

On a systemic level, governmental agencies, first responders and NGOs can benefit from a qualitative exploration of the barriers, attitudes and perceptions of first responders about working with the Deaf/HH, which can inform best practices for first-responder training to handle communication barriers that may emerge after a disaster. Despite the fact that there are multiple national and local opportunities for both first responders and Deaf individuals to become more prepared as well as a DRI (Disaster Relief Interpreting Program) in the state of California, it is decentralized and there has been a duplication of efforts. Further, the trainings have not been standardized (see Appendix 1 for a complete list of trainings offered both at a national and international level). [123]

Foucault, in *Discipline and Punish*, in his discussion of panopticism, alludes to the enormous symbolic power of the police in the public imagination. [124] Police have been variously viewed as: upholders of social values and patriotic heroes in the aftermath of 9/11; perpetrators of racial profiling of African Americans, Muslims and Latinos/Latinas; members of a hierarchical culture; and unwelcome impediments to peaceful protest during various social movements such as the Civil Rights Movement and the Occupy Wall Street Movement. [125-129] These broad strokes in the news media often fail to capture the nuances of police work; further, they often lack the perspectives and beliefs of police officers about the communities they serve and their roles and responsibilities. According to Tang et al. (1992), police work is a well-known high-stress occupation, which the public may not understand fully. [130] Therefore, gathering the perceptions, attitudes, and experiences of first responders will help inform any future preparedness efforts geared toward working with the Deaf/HH.

## **Methods**

***Participants.*** Participants were from police jurisdictions in the San Francisco Bay Area, including Alameda, Contra Costa, and Sonoma Counties. See Table I for Demographic Information. There were a total of 19 focus group participants ranging in age from 24 to 51 (6 who attended the first of two available two-hour trainings, and 13 from the second).

Compared to the first focus group, the second focus group was more mixed in terms of prior experience. At the time of the second focus group, 8 out of 13 respondents (61.5%) reported no prior experience with Deaf/HH people. However, several participants who mentioned not having prior experience, did, in fact, reveal experience during the focus group.

Table I: Demographic Information - Focus Group Respondents

	Response	Focus Group 1 Respondents (n=6)		Focus Group 2 Respondents (n=13)		Total Focus Group Respondents (n=19)	
		#	%	#	%	#	%
Professional Experience	> 10 years	4	80%	5	38.5%	9	47.4%
	6-10 years	1	20%	4	30.8%	5	26.3%
	1-5 years	0	0%	3	23.1%	3	15.8%
	< 1 year	0	0%	1	7.7%	1	5.3%
Gender	Male	3	50%	9	69.2%	12	63.2%
	Female	3	50%	4	30.8%	7	36.8%
Ethnicity	Caucasian	4	67%	6	46.2%	10	52.6%
	Hispanic or Latino/a	1	17%	2	15.4%	3	15.8%
	African or African American	0	0%	2	15.4%	2	10.5%
	Asian or Pacific Islander	0	0%	2	15.4%	2	10.5%
	Other	1	17%	1	7.7%	2	10.5%
Stated Reason for Attendance	Professional Development	3	50%	9	69.2%	12	63.2%
	Interest in Learning More About the Deaf	6	100%	10	76.9%	14	73.7%
	Interest About DV or SA	3	50%	7	53.8%	10	52.6%
	Certification Credit (P.O.S.T.)	0	0%	6	46.2%	6	31.6%
	Prior experience working with Deaf/HH DV or SA survivors and would like to learn more	3	50%	0	0%	3	15.8%
Prior Experience	Experience with Deaf/HH	5	83%	5	38.5%	10	52.6%
	Experience with deaf DV/SA	4	66.7%	0	0%	4	21.1%
	Experience with Deaf/HH (work-related)	5	83.3%	4	30.8%	9	47.4%
	Experience with Deaf/HH family member	0	0%	2	15.4%	2	10.5%
	Experience with Deaf friend	0	0%	1	7.7%	1	5.3%
	Experience with DV/SA survivors	6	100%	10	76.9%	16	84.2%
	Taken an ASL class	0	0%	0	0%	0	0%
Title	Police Patrol Officer	3	50%	3	23.1%	6	31.6%

	Police Sergeant	0	0%	2	15.4%	2	10.5%
	Sheriff	1	16.7%	1	7.8%	2	10.5%
	Detective	1	16.7%	4	30.8%	5	26.3%
	Community Service Officer	0	0%	2	15.4%	2	10.5%
	Public Service Dispatcher	0	0%	0	0%	0	0%
	Police Service Technician/Police	0	0%	0	0%	0	0%
	Police Investigator, DV unit	0	0%	0	0%	0	0%
	Other	1	16.7%	1	7.8%	2	10.5%
Language fluency	English	5	83%	11	85%	16	84.2%
	Spanish	3	50%	1	8%	4	21.1%
	American Sign Language	1	17%	2	15%	3	15.8%
	Other	0	0%	0	0%	0	0%

**Procedure.** The domestic violence training was co-taught by one hearing instructor representing the law enforcement community at the Alameda County Family Justice Center and one Deaf instructor from DeafHope representing the deaf community. Deaf Hope is a non-profit organization that serves deaf and hard-of-hearing survivors of domestic and/or sexual violence. Also in attendance were 2 ASL (American Sign Language) interpreters to facilitate communication between the deaf instructor and participants and one CART (Computer Aided Real Time) transcriptionist. After the training, all officers who attended the workshop were invited to participate in a 1-hour semi-structured focus group immediately following the workshop. The focus group was simultaneously transcribed by a CART transcriptionist.

The first author (and PI on this project) did not facilitate or observe the focus groups due to the sensitive nature of the topics and to ensure that participants felt comfortable and free to discuss their attitudes, knowledge, and beliefs about the Deaf/HH. In addition to the facilitator, there was a note-taker present at both focus groups who took notes on key non-verbal details, such as participants' moods, tones, body language, and points of emphasis. After the focus group, the focus group facilitator and note-taker debriefed the researcher.

Although focus group questions were developed in part to answer practical questions about the efficacy of the training (which is the central aim of Part II: Emergency Preparedness Training for First Responders working with the Deaf & Hard-of-Hearing), the present study reports only themes related to barriers, attitudes, and perceptions. Each focus group was semi-structured with a total of 15 questions covering the following areas: (1) prior experience with the Deaf/HH; (2) knowledge about Deafness; (3) perceptions of the Deaf/HH; (4) knowledge about communication with the Deaf/HH; (5) skills; (6) knowledge of language access and barriers; (7) knowledge of community resources; and (8) reflections about the training workshop (see Appendix 3 for the focus group guide).

**Data Analysis.** A grounded theory approach from a public health perspective was used (Glaser & Strauss, 1967; Hubermann & Miles, 2002; Patton, 2002; Ulin et al. 2005) [131-134]: "Grounded theory typically implies the essential features of qualitative research, including observing from a cultural perspective, building flexibility and iteration into the data collection process, and being reflexive- or examining the influence of one's own attributes and assumptions on the research process" (Ulin et al., 2005, p. 31). This provides information that is grounded in

participants' own perspectives, not constrained by predetermined categories of analysis (Secker et al, 1995) [135].

A content analysis of transcripts from both focus groups was conducted through an editing process, which included coding and concept mapping, as well as thematic analysis of the text (Lincoln & Guba, 1985) [115]. Literal and analytical codes were developed in an iterative and reflexive process, and sub-codes were developed for each (See Table III for codes and subcodes). In the editing process, the researcher entered the text without a coding scheme, but developed one by identifying codes and categories through direct interactions with text; coding categories were revised based on ongoing interactions with the text. The researcher, as an editor, was the initial organizing system that segmented data by identifying information relevant to the research and then categorizing, cutting, and splicing the text. Themes were extracted through descriptive, interpretive and analytical coding. At a later point, the immersion crystallization method was used to identify overriding themes. After data immersion, the crystallization process allowed the researcher to reflect on patterns that emerged (Borkan, 1999; Miller & Crabtree, 1994) [116, 117]. An inductive approach helped the researcher develop new questions based on patterns that emerged. Transcripts were created in real time using CART (Computer Assisted Real Time transcription). The nature of data collection utilizing real time technology lessened the need for Atlas T1 qualitative software.

*Table II: Focus Group Questions Organized by Construct*

Prior experience	<ol style="list-style-type: none"> <li>1. Why did you decide to participate in the focus group?</li> <li>2. What's your experience with the Deaf population, if any?</li> </ol>
Attitudes	<ol style="list-style-type: none"> <li>1. What misconceptions do you think Deaf people have about police officers?</li> <li>2. How would a person respond if they overheard two people making fun of a Deaf person?</li> </ol>
Knowledge	<ol style="list-style-type: none"> <li>1. Deafness: What did you learn from the training that was unexpected?</li> <li>2. Language access and barriers: What tools would you use to talk to someone who became deaf later in life?</li> <li>3. Law: How well informed do you think your departments are about Deaf culture?</li> <li>4. Communication: How would helping a Deaf person be different from helping a linguistic minority?</li> <li>5. Language access and barriers: What tools did you use to communicate in a past experience with a Deaf person?</li> <li>6. Community resources: What resources do you know about for the Deaf?</li> </ol>
Skills	<ol style="list-style-type: none"> <li>1. Communication: What tools did you learn that would help you communicate to the Deaf community during a large-scale emergency?</li> </ol>
Reflections	<ol style="list-style-type: none"> <li>1. Do you have any suggestions or insights about the training?</li> <li>2. Rate your sense of preparedness from 1 to 5.</li> <li>3. What do you think the class needs to teach you practical skills?</li> </ol>

Non-verbal tones of voice and body language that emerged in the notes and in the debriefing were compared with the transcript. This allowed for triangulation and data validation; not only were the notes compared to the verbatim transcript, but also were compared to the focus group facilitator and note-taker's observations, both within each focus group and between focus groups. In addition, when both transcripts were completed, the focus group facilitator and note-taker reviewed them separately to identify any errors. In addition, the focus group facilitator and note-taker compared the notes with the transcript to identify any discrepancies.

## **Results**

Ten interpretive codes emerged from both focus groups, in combined order of frequency (indicated by parentheses): *attitudes* towards working with the Deaf/HH (66), *cultural issues* surrounding law enforcement and their work with the Deaf/HH (59), *reflections* on the training (59), *knowledge* on working with the Deaf/HH(40), *potential solutions* for communication challenges in an emergency (26), beliefs about the *responsibility* of stakeholders in an emergency (16), *field experience* or the lack thereof (13), *barriers* in emergency response (11), *involvement of the Deaf/HH* (6), and demonstrated *skills/self-efficacy* (2). (See Table III)

The present study found that law enforcement officials perceived significant barriers in communicating with Deaf/HH individuals in an emergency. In discussing this topic, they expressed attitudes surrounding police culture, safety issues, cultural gaps, frustration and fear, responsibility, uncertainty, and questions about the use of interpreters. Participants also discussed skills applicable to emergencies. A table of sample responses from focus group participants illustrates the most important codes (see Table IV).

*Table III: Results from Focus Groups based on Interpretive Codes and Sub-codes*

<b>Interpretive Code</b>	<b>FG1</b>	<b>FG2</b>	<b>Total</b>
<b>Subcode</b>			
<b>Attitudes</b>	<b>30</b>	<b>36</b>	<b>66</b>
Anger	0	2	2
Awkward	0	1	1
Beliefs about the Deaf/HH	0	11	11
Empathy	0	2	2
Fairness	2		2
Fear	2	2	4
Frustration	5	3	8
Perceptions of the Deaf/HH	2		2
Resentment	0	1	1
Sadness	1		1
Sensitivity	8	6	14
Trust	7		7
Uncertainty	3	8	11
<b>Barriers</b>	<b>6</b>	<b>5</b>	<b>11</b>

Emergency response	3	2	5
Resources	2		2
Time constraints	1	3	4
<b>Cultural issues</b>	<b>28</b>	<b>31</b>	<b>59</b>
Cultural competence	22	21	43
Cultural gap	1	4	5
Police culture	2	5	7
Police safety	3	1	4
<b>Field experience</b>	<b>7</b>	<b>7</b>	<b>14</b>
Lack of exposure	3	1	4
Lack of reporting	2		2
Miscommunication	1	2	3
Need for training	1	3	4
Success		1	1
<b>Involvement of D/HH</b>	<b>2</b>	<b>4</b>	<b>6</b>
Community outreach	2	1	3
Empowerment		1	1
Preparedness education		2	2
<b>Knowledge</b>	<b>23</b>	<b>16</b>	<b>39</b>
Acknowledged lack	1	2	3
Community resources	6	1	7
Deafness	3		3
Learned	5	6	11
Miscommunication	1		1
Misinformed	4	6	10
Recognition of bias	1	1	2
Technology	3		3
<b>Reflection</b>	<b>27</b>	<b>32</b>	<b>59</b>
Challenges/barriers	2		2
Commitment	3	2	5
Critique	2	9	11
Inadequacy	4	4	8
Praise	3	3	6
Self-rating	8	2	10
Tools for improvement	5	12	17
<b>Responsibility</b>	<b>1</b>	<b>15</b>	<b>16</b>
D/HH		4	4

Collaboration		7	7
Community at large	1	2	3
Law enforcement		2	2
<b>Skills/self-efficacy</b>	<b>1</b>	<b>1</b>	<b>2</b>
Application	1	1	2
<b>Potential solutions</b>	<b>11</b>	<b>15</b>	<b>26</b>
Education of first responders and Deaf/HH		2	2
Emergency preparedness	2	2	4
Involvement of D/HH	1		1
Interpreters		3	3
Language	1	2	3
Liaisons	1	2	3
Role-play	2	1	3
Technology	2	3	5
Tools	2		2
<b>TOTAL</b>	<b>136</b>	<b>162</b>	<b>298</b>

Table IV: Sample Responses from Focus Group Participants

I couldn't find a happy medium of how to not only communicate, but also earn their trust to be able to help them in this specific situation. (Female Detective)
I think because it's a closed community and there's so much distrust between hearing and non-hearing people they only call us if they need us. It has to be severe at that point. (Male Detective)
<i>In response to a question regarding actions to be taken after large-scale emergencies with the Deaf/HH: Goodness gracious. I don't know. (Female Child Interview Specialist)</i>
<i>On first responder cases in which the cause of the individual's behavior is uncertain: You really don't know if it's going to be an officer safety issue. Or just miscommunication. (Female Detective)</i>
<i>On communicating with the Deaf/HH in an emergency: I may get by. But it's not going to be, you know, possibly the best outcome. (Female Detective)</i>
They, the deaf culture wants to be treated like anybody else in this word wants to be treated and I want to treat them that way. But I have a problem communicating with them. And I need to be able to overcome that problem. (Male Sheriff)
We need to look through their eyes as well and try to find a little common ground to accommodate each other. (Female Evidence Technician)
I don't think we can ever completely bridge that gap. (Female Evidence Technician)
As law enforcement there is always going to be the gap between our perspective and the general public. It may be deeper with the Deaf community because we don't have as much experience either way. There's a few more issues. But we're always going to do things that look ugly to people on the outside. There's always going to be things that we do that they don't understand and can't understand. Because they haven't done the training we've done or had the experiences we've had. We have to accept that to a certain extent.(Female Evidence Technician)



You are trying to get the information to find out what's what. You also have a duty to get back out on the street. You are trying to get this thing done. Depending on the agency you are at it might be more hurried and others. To wait for an interpreter to get there and try to get that information it gets more frustrating. (Male Officer)
Donovan mentioned it when you first start on a traffic stop your first thought is I'm going home tonight. It's all about officer safety. (Male Sergeant)
Our agents or officers have no clue how to assist even though we're in the middle of the hub of the [Deaf/HH] community. (Female Community Service Officer)
There needs to be community outreach prior to the disaster for the disaster preparedness... When it hits it isn't us coming to save you. We will if we can. It's the people having the ability, skills knowledge and awareness to get out themselves. That's all incumbent on good pre-disaster preparedness that we teach our folks. (Male Sheriff)
But it's one of the things it made me more aware of how ill prepared I am and things to work on. (Female Detective)

### Attitudes

**Police Culture.** One exchange between the facilitator and a male sheriff lieutenant with prior experience with the Deaf/HH, illustrates the sense of solidarity that officers share with one another. The focus group facilitator set up the following hypothetical scenario in an indirect way, such that participants would feel comfortable openly responding with their own personal beliefs and attitudes.

Facilitator: Person A and B were two police officers back at the station after just sort of talking about their day. They had an instance where they came across a deaf situation where they had to communicate. And so they are just laughing with one another and making fun of how that deaf person sounded. Person C is over here, just overhearing what's happening. So, the question is, what do you think person C is thinking when he's or she's overhearing this conversation between the other two officers? Or to make it a little bit better, how would person C respond typically to what's been said over there.

Male Sheriff Lieutenant: It really depends. It depends on the background of this person C. If they are aware of the deaf culture they'll find it very demeaning. If they tend to have the cop mentality and listening to the two other guys and they share the beliefs they become part of the culture of this ambiguity between the two cultures. It all depends on the background here.

Participants supported this statement with nods and murmurs of affirmation. The overall atmosphere was lighthearted despite the serious nature of the conversation. In both focus groups, the tones of voice, body language and camaraderie indicated a sense of solidarity within the law enforcement community. According to notes from the focus group and debriefings with the focus group facilitator, participants tended to agree with each other more often than not.

**Trust.** Participants also indirectly referred to police culture when they expressed that trust was a major issue between police officers and the Deaf/HH, and that there is a general public distrust of the police. A male officer commented:

In the field, I think the [Deaf] distrust [of law enforcement] goes hand-in-hand with the general public distrust of law enforcement. It's exacerbated by the fact here's this deaf person going through a stressful situation. Now the [Deaf person's] inability to express to the responding officers what happened and that just exacerbates the problem. And the problem to a great extent is the disinterest, almost, of some officers that respond or the lack of sensitivity or however you want to explain it.

A female detective reflected on a work-related experience: "I couldn't find a happy medium of how to not only communicate, but also to earn their trust to be able to help them in this specific situation." A male sheriff lieutenant reported a similar experience with a sexual crime concerning a family with Deaf parents: "I found out [that the daughter] could speak. She had refused to. She had to shun police officers as a whole because she doesn't trust them, because her family has never trusted them." He provided his perspective, saying, "I think because [the Deaf community] is a closed community and there's so much distrust between hearing and non-hearing people, [that] they only call us if they need us. It has to be severe at that point." A female evidence technician summarized the sentiments of the group:

As law enforcement, there is always going to be the gap between our perspective and the general public. It may be deeper with the Deaf community because we don't have as much experience either way. There's a few more issues. But we're always going to do things that look ugly to people on the outside... We have to accept that to a certain extent.

This statement was met with nods of affirmation and agreement from her peers, illustrating that there is the perception that the general public harbors distrust for the police. This illustrates that it is important that training workshops are sensitive to the tricky lines that police officers often cross when navigating cultural issues in minority communities as well as in dominant culture.

**Safety issues.** Participants described a tension between officer safety and making an extra effort to serve the Deaf/HH, which would possibly make the officers vulnerable in certain situations. The officers did not want to be perceived as unwilling to accommodate others or as apathetic, but they emphasized the practicality and necessity of protecting themselves and fellow police officers over possibly endangering themselves in an unpredictable situation.

A male sergeant emphasized that the first priority is always safety: "When you first start on a traffic stop, your first thought is, 'I'm going home tonight.' It's all about officer safety." A female detective indicated that it may be difficult to balance the priority of officer safety with the need to consider that the person with whom they are interacting is potentially Deaf/HH:

I think the [lack of] training to be able to communicate and deal with situations [with the Deaf/HH] raises the concerns, because in the back of my mind I still have to keep my officer safety... At the same token [I want to] have an open mind [and realize that] this may be a situation where the person is not communicating with me, or we're not exchanging communication properly, because they are Deaf or hearing impaired -- not because they are not obeying my rules and commands.

A female community service officer with no prior experience with the Deaf/HH briefly discussed a hypothetical emergency situation involving an armed Deaf/HH person with a male sheriff with prior experience with the Deaf/HH.

CSO: If [officers] can sign, 'Are you Deaf?' then if they [deaf people] respond, you [the officer] are going to know [whether or not they are deaf]. Only a Deaf person would respond to you. I know it's scary for you guys.

Sheriff: The responsibility is on both sides.

CSO: At least learn to ask them. This person is not ignoring me. He's Deaf.

Sheriff: (in disbelief) Somebody with a gun?

CSO: I'm saying the [armed Deaf person]... He's not showing [his firearm] at anybody. That quick [ASL] motion could change the whole thing -- like the other [Deaf individual] who got shot because he had a knife [and did not respond to verbal police orders]...

Sheriff: That's why I say responsibility.

CSO: If you were yelling at a Spanish person and they didn't respond, it's the same thing.

Sheriff: [The armed person] is in danger. I've got a gun on them. I'm pointing a gun on them, and at that point a lot of the onus is on them to get themselves out of danger...

There was clearly a tension between preserving officer safety and accommodating the needs of the Deaf/HH. Once the discussion touches upon a rapidly escalating situation, the male officer prioritizes protecting officer safety and places more responsibility on the Deaf/HH individual.

Given the potential for situations to escalate due to miscommunication, a female officer reinforced the need for practical training by saying, "I think that [having a safe environment to practice communicating with a Deaf/HH individual] is a great idea. It's a sterile environment. You feel safe doing it. You don't have to worry about officer safety. This person isn't going to hurt you. You are trying to solicit information from them."

***Frustration and fear.*** Given underlying trust issues, focus group participants also expressed *frustration* in dealing with communication barriers when interfacing with the Deaf/HH:

I know as a police officer I have, I try to exercise as much tolerance as I can in these situations. There are situations where you do get frustrated. (Female Detective)

Things get lost in communication. Frustration does happen. [The Deaf individual's] frustration was pretty high just filling out a form. (Female Officer)

I had a DV call years ago... Both the victim and the suspect were Deaf but the suspect...had some speaking ability. So I'm getting his story and not being able to figure out what's going on... Just remembered...being really frustrated with how I couldn't get my investigation conducted. (Male Sheriff)

Yet another factor which exacerbates the frustration that police officers face is the time constraints officers may feel. A male officer with prior experience with the Deaf/HH summarized that when responding, "You [the officer] are trying to get the information to find out what's what. You also have a duty to get back out on the street. You are trying to get this thing done. Depending on the agency you are at, it might be more hurried than others. To wait for an

interpreter to get there and try to get that information [makes the situation] more frustrating." Similarly, a female detective pointed out that, in a large-scale emergency: "You can't possibly reach every single community of the different languages. It's going to be really difficult. But in a time of emergency you may not be able to do that in a reasonable amount of time."

While focus group participants recognized frustration both in themselves and in the Deaf people they worked with, a male police academy graduate with prior experience with the Deaf/HH, recognized the fear that Deaf/HH people might also feel. "For the Deaf people I've spoken to that have been in situations interacting with the police, our side is more frustration and their side has been an underlying fear or hesitance." Furthermore, officers recognized their own fears when working with the Deaf/HH:

It could be a fear of the officer not being able to serve that person the way they should. For example, the interview I did of a deaf child. I didn't know what to expect. It was scary. Am I going to be able to communicate effectively and vice versa? (Female Child Interview Specialist)

Sometimes, it was simply awkward. A male detective shared one encounter: "I had one experience dealing with a subject on the street who was Deaf. I felt really awkward. It was difficult and I didn't really know how to communicate." Given the challenges, empathy is important, as two participants noted. A male police academy graduate stated, "I think empathy needs to be something that our side needs to be able to know how to communicate -- to bring victim[s] back, [and to let them know] we're back on the same page." A female evidence technician said, "We need to look through their [the Deaf/HH individual's] eyes as well and try to find a little common ground to accommodate each other." Police officers throughout both focus groups demonstrated *sensitivity*, which is a measure of cultural competence.

They, the Deaf culture, want to be treated like anybody else in this world wants to be treated and I want to treat them that way. But I have a problem communicating with them. And I need to be able to overcome that problem. (Male Sheriff)

He [the Deaf man who was shot by a police officer due to miscommunication] wasn't disobeying the commands. He wasn't hearing them... But one of the hardest situations that you'll ever have to deal with is trying to communicate with a deaf person. (Male Officer)

**Responsibility.** There was a divide between officers who believed they had the responsibility in an emergency situation and those who believed that the Deaf/HH should show more responsibility. Focus group participants felt unsure or uncomfortable with the notion that additional steps need to be taken to ensure that the access needs of the Deaf/HH are being met. A male sheriff expressed his frustration with a potential additional burden of responsibility:

I may not be saying it politically correct, but I didn't have that understanding [that Deafness was a culture] until today, for the class. But when you say to them, when you say to anybody who feels that they are being treated differently, 'You need to do something to help conform so that we better understand you.' Why should I have to do that? Why should I have to be the one that has to write it out? Why can't you do something to make, make it easier for me to deal with you as opposed to why do I always have to give?

This male sheriff's frustration around disability may stem from his expectation of equal abilities. Despite the fact that he is an officer trained to protect and serve, ingrained in him is the notion that each individual's concerns are limited to his or her own needs.

However, some participants also expressed that Deaf/HH individuals are capable of preparing for emergencies. In response to Skills Question 1, a male sergeant discussed empowerment: "Albany could be 3 or 4 days before police and fire get to their block. That's the whole point -- is to give them [the community and Deaf/HH] the tools to empower themselves." A male sheriff put more responsibility on the Deaf/HH to be prepared and educated in the event of a large-scale emergency because he was doubtful that officers could respond in a timely manner.

When [the next big earthquake] hits, it isn't us coming to save you. We will if we can. It's the people having the ability, skills knowledge and awareness to get out themselves. That's all incumbent on good pre-disaster preparedness that we teach our folks...

A female detective with an interest but no prior experience with the Deaf/HH, expressed concern that the Deaf community is unaware of the perspective of the law enforcement community: "I don't think that the Deaf community is being educated on our standpoint." Conversely, a male service officer described the tendency of individuals to place responsibility on minority populations.

There's no sensitivity to a person not knowing a certain language whether it be Spanish, Tagalog... anything else. The responsibility, sometimes you want to put it on that person. [People think,] You've been in the United States for 20 years. You should know the language... Maybe they weren't in an environment to learn the language. It could be the same with the people in sign language.

A female child interview specialist recalled her own experience as a linguistic minority and confirmed the male community service officer's statement.

Within those communities there's people who speak English. I translate for my mom for example. That's how it spreads, really. You depend on others in the community.

A male sergeant emphasized the need for collaboration from both the Deaf/HH and law enforcement communities.

I think it should be more of a two pronged approach in terms of we are working on part of it today and educating ourselves about this is what we don't know about it. But at the same time, you know, I would like to see maybe a little bit from the Deaf community side saying, okay, well, this is the issue that we have. And this is the way that we'd like you to address it. Can you meet us halfway and we'll deal with that together.

However, a male detective who had no prior experience with the Deaf/HH, expressed that law enforcement had a responsibility to the Deaf community. "I had a bias and felt it's the responsibility to the Deaf person to be able to communicate effectively at first with law enforcement at a critical incident. Until today and towards the end. [I thought,] wait a minute, you

know, we have just as much responsibility too to be able to communicate at least to the basics like we are trained in CPR, AED.... We owe it to them to that community."

***Skills Applicable to Emergencies.*** Many participants brainstormed potential solutions to communication challenges before and during emergencies. Several participants suggested utilizing liaisons:

A little community policing and, you know, swing by. Do a little beat check... Hopefully have an interpreter. And you'd at least have a baseline to begin from. (Male Police Academy Graduate)

Hopefully we have community awareness or neighborhood watch committees that have something in place. (Male Detective)

I think a big plus would be...[Deaf/HH people going on] ride-alongs with the police department. Get in the car, go into these calls.

Regarding communication with the Deaf/HH during a large-scale emergency, a female officer identified a major problem (reverse 911 would not reach everyone) but also suggested a solution: locating and disseminating information through contacts within the community.

Participants from both focus groups discussed using technology as a form of communication during large-scale emergencies. A male officer was particularly positive about the WarnMe system utilized by the UC system, which can be accessed by the Deaf/HH via email and text messaging.

I would agree with the technology aspect. UC Berkeley uses WarnMe. You can sign up and be e-mailed, texted and called with an automated message... Anything, earthquake, active shooter. Any major event. (Male Officer)

The male officer expressed that he would be more likely to use technology with a Deaf/HH individual: "With technology now I would go straight to a mobile device or my iPhone which is nice and big. We can pass it back and forth and type...especially if they [deaf/HH people] lost their hearing later in life-- they probably have a good grasp [of English]."

Several participants also suggested an increased focus on emergency preparedness communication for the Deaf/HH. A male sergeant recommended: "You could prep and identify the Deaf community you have in your city and tell them in a major disaster." However, participants also recognized barriers during emergencies:

It might be tough... If the power is out you can't use the technology. (Male Sheriff Lieutenant)

You have issues with resources. Mass communication with the least amount of personnel... So, I don't see, you can't possibly reach every single community of the different languages...In a time of emergency you may not be able to do that in a reasonable amount of time. (Female Detective)

## **Discussion**

This study contributes to the literature on domestic violence and emergency preparedness in the Deaf/HH community by exploring barriers, attitudes, and perceptions from the perspectives of law enforcement personnel. Issues of frustration, fear, and questions about the roles or responsibilities of personnel in meeting the needs of the Deaf/HH population in emergencies emerged during focus group discussions. These themes are echoed by Modell and Cropp (2007), who found that officers express feelings of fear, anxiety, and apprehension in regards to physical disability and mental illness, which can result in poor judgment, indiscretion, and complacency. Modell and Cropp (2007) describe the problematic nature of the "*warrior mindset*," which tends to make some police officers feel they are constantly in a battle zone, as opposed to a more community-oriented policing mindset which goes beyond crime prevention and fosters social service and community development. [136]

However, participants also demonstrated cultural competence, empathy, and sensitivity to the challenges faced by this population. Research examining attitudes towards people with disabilities by medical professionals has demonstrated that having a background in disability influences attitudes and future behavior (Antonak (2000), Tervo et al (2004), Tervo et al (2002), Kottke (1987), and Mitchell et al (1984). [6, 99-101] [102] Yunker (1986) demonstrated that attitudes of police officers towards people with disabilities are directly related to education. [137] Given this research, participants' experiences are likely to be valuable in improving emergency preparedness and response training for other populations with communication barriers or other access or functional needs.

Several participants' statements about their own responsibilities in an emergency towards the Deaf/HH expresses a distinctly American mentality of personal responsibility born out of the Horatio Alger myth, a mentality structured around individualism that promotes a notion of fully autonomous individuals and rejects any necessity for social interdependence. [119] However, training may help officers realize that Deaf/HH people or DV/SV survivors can help contribute to their own safety and help them in their duties as officers.

*Limitations.* This is, to my knowledge, the first documented evaluation of law enforcement training in domestic and/or sexual violence emergencies involving the Deaf/HH. Consideration should be taken to the fact that focus group participants were drawn from a training workshop leading to professional development and certification, so the focus group members will differ from a random sampling of police officers. Because the training provides continuing education and certification credits, the attendees may already be more motivated at baseline and thus more likely to have increased knowledge or sensitivity about Deaf issues.

In order to mitigate the lack of focus group data on this topic available from external sources, the new focus group instrument was reviewed by experts, both in the law enforcement and Deaf community, before administration. (See Part II for details on how methodological triangulation was done with survey and focus group data.) This research can begin a discussion about best practices and policy challenges for the provision of services to this population in order to facilitate their empowerment.

*Implications.* Given the paucity of research data on deaf-oriented emergency preparedness and domestic and/or sexual violence services, in the long term, increased awareness among law enforcement officials and in the legal system about the needs of Deaf/HH individuals may lead to higher-level policy change. Due to improved communication with law enforcement,

Deaf/HH individuals may be more likely to reach out to law enforcement for assistance as indicated by increased utilization of services. On an individual level, better communication access with law enforcement may lead to behavioral change among Deaf/HH individuals such as improved overall psychological health, well-being, independence, confidence, and the maintenance of healthier relationships.

## **Conclusion**

Understanding and responding to the needs of law enforcement personnel that interface with some of the 36 million Deaf/HH Americans has enormous potential to advance emergency preparedness education for first responders working with the general public. Lessons learned about how to better address communication barriers faced by the Deaf/HH when interacting with law enforcement may be applicable to the 57 million Americans that face other communication barriers: low-literate members of society (27 million) and non-native speakers of English (30 million). [138] This evaluation is an important first step in promoting a culture of preparedness and response for at-risk populations.

Additionally, this research addresses the Pandemic and All-Hazards Preparedness Act, which has a provision supporting the development of "best practices of outreach to, and care of, at-risk individuals (sic) before, during, and following public health emergencies." [139] On a systemic level, governmental agencies, first responders and NGOs can benefit from the evaluation of a training program for first responders, which can aid in the development of best practices for first-responders to handle any communication barriers that may emerge after a disaster.



## **Final Remarks**

There are significant research gaps on linguistic, cultural, and functional relevance of preparedness materials for Deaf/HH and for first responders. Given the paucity of peer-reviewed literature on emergency preparedness for the Deaf/HH and the fact there is no agreed-upon standard for evaluating health-related tools, this evaluation can further research on the development of accessible educational materials. There is also a lack of research on factors that promote or hinder preparedness communication capacity of CBOs and Deaf/HH individuals. Nevertheless, preliminary results reported at the third National Advisory Board meeting on Emergency Preparedness Communication (September 2011) indicate that there is a need for first-responder training given a lack of CBO capacity. According to 14 KI interviews at local Deaf/HH-serving CBO's in Alameda County, only 14.3% of Deaf/HH surveying CBO's provided emergency preparedness prevention services, only 21.4% provided evacuation services, and only 14.3% provided recovery assistance.[140] Furthermore, out of the staff members at the 14 Deaf/HH serving CBO's, only 36.4% provided specific information on emergency preparedness to their constituents and only 35.7% attended other trainings about serving Deaf/HH populations during emergencies or disasters. Additionally, only half of the CBO's provided classes or trainings about emergency preparedness to clients or caregivers, and only 43% provided education materials to clients. [140]

On a system-wide level, there is a lack of information about national/state guidelines for emergency communication for Deaf and hard of hearing groups. This gap exists despite the fact that President Obama recently recommitted to enforcing and protecting the civil rights of people with disabilities on the 21st anniversary of the Americans with Disabilities Act (1990): "The promise of the ADA was that all Americans should have equal access and equal opportunity, including Americans with disabilities," said President Obama. "The ADA was about independence and the freedom to make of our lives what we will. We celebrate that today, and we recommit ourselves to ending discrimination in all its forms." [141] While there is anecdotal documentation of the problems the Deaf/HH face in emergencies, it is not empirically driven.

Despite significant research and policy gaps, video phone technology is currently revolutionizing the way Deaf/HH people are communicating with each other and how they interface with society at large, with implications for all-hazards emergency preparedness communication with first responders. This evaluation of the law enforcement training in Oakland is timely and situated in the context of emerging technologies. In 2010, the Washington D.C. Police Department became the first department in the country to begin using video phone technology in their dealings with the Deaf/HH, whether in the station or in police cars. [142] According to one key informant (KI) interview (from State 41) conducted at Health Research for Action (2011), the use of emerging technologies in law enforcement has enormous potential: "Working with volunteer organizations and police and fire departments, we know the best asset is the local law enforcement and the tools that they have. We have equipped vehicles with video relay technology." [10]

This evaluation took place in the context of multiple decentralized national and local opportunities for both Deaf/HH and first responders to become more prepared. The state of California currently works with NorCal Center on Deafness to provide DRI (Disaster Relief Interpreting Program) and FAST Training: Functional Assessment Shelter Team. [143, 144] This mixed method evaluation was an opportunity for various trainings to become more standardized;

the training can serve as a model for other trainings across the country. In addition, the former program director of CEPIN (Community Emergency Preparedness Information Network) wrote that in the past five years, since 2007, CEPIN has delivered over 65 workshops nationwide to over 1,800 people, some of which included meeting the needs of the deaf/HH.[145] In 2011, he recommended several strategies for improvement. [146]

- 1) Accessible, centralized repository for directing interested parties to available Deaf/HH related emergency training.
- 2) Individuals involved in the development and implementation of training who are not expressly involved in the deaf/HH community often don't know how to make their training accessible to this population. Guidelines should clearly help a training provider understand how to make their products accessible to the Deaf/HH. This includes captioning videos, interpreters and CART during in-person training.
- 3) Related to #2; a similar or companion set of guidelines showing financial and planning considerations for making training programs accessible to Deaf/HH people.
- 4) Finally, an instructor's guide to Deaf/HH people should be developed to introduce instructors to Deaf/HH considerations for all training activities, not just specialized ones focusing on our population. For example, rather than create specialized classes, it makes sense to remind firefighter cadets that their masks will prevent hard of hearing people from lip-reading them, teach police cadets that ASL can be misinterpreted as aggressive gestures toward them and remind first responders wearing Hazmat gear that it is impossible for Deaf/HH people to lipread them.[146] [36]

This has policy and pragmatic implications for the way first responders communicate with deaf people during an emergency. Of course, training a sample of first responders will not directly create large-scale systemic policy changes that would impact communications before, during, and after a large-scale disaster. However, given the dearth of existing research in this area, evidence-based research based on priorities identified by the PERRC NAB could support the development of best practices on a federal level.

As of November 2010, the Pandemic and All-Hazards Preparedness Act sponsored by Senator Richard Burr in 2006 is up for renewal pending revision from various constituents from at-risk populations including the deaf and hard-of-hearing. This act currently has a provision supporting research by allowing the Secretary to:

*Give priority to the advanced research and development of qualified countermeasures (sic) and qualified pandemic or epidemic products that are likely to be safe and effective with respect to children, pregnant women, the elderly, and other at-risk individuals. [139]*

Further provisions of the bill are also not limited to, but include the requiring of the Secretary to support the development of best practices:

Ensure that the contents of the strategic national stockpile take into account at-risk populations... [and] *disseminate novel and best practices of outreach to, and care of, at-risk individuals* (sic) before, during, and following public health emergencies. [139]

Additional provisions of this act also illustrate recent recognition on the federal level for the need for a National Advisory Committee on At-Risk Individuals to strengthen the National Disaster Medical System, including medical surge capacity. At the second PERRC NAB meeting at the CDC in which I participated, policy representatives expressed interest in partnering with the NAB board, which includes researchers and community-based practitioners, to make modifications to the bill. [147] In May 2010, NAB board members identified evaluation of first responder training as the first priority for current and future research. [36] This research could allow NAB members and other constituents to base their recommendations for modifications to the bill based on solid empirical research.

This federal legislation could have a far-reaching impact on national policy regarding the implementation of emergency response and planning tools that are tailor made to the deaf and hard-of-hearing. The timing of this is fortuitous, as input from the Deaf/HH and people with disabilities is increasingly being acknowledged. In emergency management there is a recent trend toward *whole community planning*, which is defined by Kailes (2011) as an emerging community-oriented approach to models for practice of emergency management that recognizes how "in large scale disasters, the needs of survivors outweigh collective resources and capabilities of government... it really looks beyond traditional governments approach and all thinking government can solve disaster management challenges on its own. And it's really acknowledging that even small and medium sized events can be helped when government expands its reach and delivers services more efficiently by partnering with the community. " [148] Acknowledging government limitations in a large scale disaster, whole community planning approaches involve 1) NGO's, 2) business, and 3) government.[148]

The better prepared first responders are at meeting the needs of Deaf/HH individuals in emergencies, the better prepared they will be one serving other vulnerable populations such as linguistic minorities. In the long term, increased awareness among law enforcement officials and in the legal system about the needs of deaf survivors may lead to higher-level policy change. Currently, the Oakland Police Department does not have any explicit policy about working with the Deaf/HH, although the general legal standard for all police departments is to provide effective communication pursuant to Title II of the Americans with Disabilities Act (ADA). [120] An evaluation of training could contribute to changes in policies and procedures in the Oakland Police Department about responding to and working with the Deaf/HH.

Given the complexity of emergency preparedness and response, providers and educators can benefit from a greater understanding of barriers to access for first responders and the best ways to target preparedness messages for deaf individuals before emergency situations. Additionally, on a systemic level, governmental agencies, first responders and NGOs can benefit from the evaluation of a training program for first responders, which can aid in the development of best practices for first-responders to handle any communication barriers that may emerge after a disaster.

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## **Appendix 1: Training Workshops and Disaster Simulation Exercises**

1. In Karachi, Pakistan, a disaster risk-reduction workshop was held in August of 2009. The workshop was organized by Deaf/HH adults to educate other people with disabilities on how to protect themselves during natural calamities. A Deaf leader from Indonesia gave the keynote address, and issues surrounding Deaf students during earthquakes and various drills were discussed.[149]
2. In 2006, the Helen Keller National Center provided a training workshop on emergency and disaster preparation for Deaf-blind people. The 12-hour session curriculum focused on vocabulary, disasters that affect different areas of the country, how to set up a personal support network, emergency bag and disaster kit preparation, expectations in an evacuation situation, communication with first responders, use of personal and emergency alert systems, rental and homeowner's insurance and different aspects of water and food safety. [150]
3. CEPIN provides a training course for both first responders and the Deaf community entitled "Emergency Responders and the Deaf/HH Community: Taking the First Steps to Disaster Preparedness." [151] (The first training module is in video format, entitled \_CEPIN Training Module 1: ERDHHHC Video "Emergency Responders and the Deaf/HH Community: Taking the First Steps to Disaster Preparedness"[151].\_CEPIN is also developing a free internet based training entitled "Collaboration Works: Inclusion in the Disaster Preparedness Cycle."[152]
4. NorCal Center on Deafness provides FAST Training: Functional Assessment Shelter Team. In addition, NorCal partners with CalEMA's Office for Access and Functional Needs (OAFN) to provide a DRI (Disaster Relief Interpreting) training course leading to certification for certified ASL interpreters to work as first responders in disaster sites. It is the first one of its kind in the country.[143, 144]
5. COPE (Citizens Organized to Prepare for Emergencies) and Sign Language People (Santa Rosa) provided a workshop in April of 2010 about Emergency Preparedness for the Deaf Community. [153]
6. The Red Cross Greater Rochester Part has safety training courses in ASL on the following subjects: Adult CPR/AED, Child & Infant CPR, First Aid, and First Aid with Adult CPR/AED. [154]
7. At an emergency preparedness conference on July 17, 2010, the Illinois Department of Health held a workshop on collaborating with the Deaf/HH in an emergency [155].
8. "Riverside Disaster Exercise and Faribault Disaster Exercise. [156, 157] There is a disaster simulation video of a collision between a gas tanker and a fire truck involving students at a school for the Deaf. [157]

## **Appendix 2: Relevant News Coverage from 2000-2010**

- 1. News about communication barriers that Deaf/HH individuals faced during emergencies:**
  - 1.1. In 2005, a newspaper article refers to the lack of communication access during the 1991 ice storm which cut off power to parts of Monroe County for more than a week. Rochester, NY has the highest per-capita population of deaf people in the nation. NTID (National Technical Institute for the Deaf) in collaboration with the American Red Cross, Greater Rochester Part, announced the release of a 14-disaster preparedness guide for the Deaf/Hard-of-hearing Community [49][158, 159]
  - 1.2. In 2007, anecdotal information about communication barriers during a tornado in Greensboro, Kansas was recounted on the *Healthy Hearing* website [160].
  - 1.3. In 2010, a magazine article about Hurricane and Hearing Loss gave anecdotal evidence of communication barriers during Hurricane Ike along with written tips for better preparedness [161]
  - 1.4. More news reports can be found in Stout's 2004 report on *Emergency Preparedness and Emergency Communication Access: Lessons Learned Since 9/11*. [8]
- 2. News or tips about preparedness education for deaf people**
  - 2.1. In 2003, an online letter from the Northern Virginia Resource Center with information about preparedness was posted on *Hearing Loss Web* [162]
  - 2.2. A 2006 newspaper article discussed a burgeoning national effort post-Katrina to educate both the disabled and first responders in a disaster through CEPIN and other efforts.[163]
  - 2.3. In 2008, 2009 and 2010, blog posts were written about winter storm preparedness and safety tips for the deaf and disabled as well as about law enforcement communication with the deaf.[164-166].
  - 2.4. In 2010, a magazine article about Hurricane and Hearing Loss had written tips for better preparedness [161].
  - 2.5. A 2005 CEPIN article asks deaf people if they are ready for an emergency.[167]
- 3. Specific, localized efforts to increase accessibility for deaf people before and during emergencies.**
  - 3.1. During Hurricane Katrina, a website provided information and assistance to displaced deaf/HH victims.[168]
  - 3.2. Three blog posts in 2010 from Tokyo, Japan, report the development of text messages on vending machines, distribution of a bandana to be worn by deaf people identifying them as deaf and sign language users, and the formation of a volunteer team of sign language interpreters that can be dispatched during an emergency. [169-171]
  - 3.3. In May of 2009, a blog in response to an EF2 tornado in Eastern Kentucky discussed resources and information sharing for the deaf. [172].
  - 3.4. In 2010, Hawaii's Department of Emergency Management (DEM) began a text messaging/e-mail notification system for all its residents, including the deaf/HH [173].
  - 3.5. In 2010, it is possible to text message 911 in Marion County, Florida [174]
  - 3.6. In 2010, Washington, D.C. *Police Department is the first in the nation to use portable videophones to help officers serve the deaf/HH in 14 police stations and in 15 squad cars allowing deaf people to sign into a video camera to an interpreter.* [175]
  - 3.7. In a 2003 conference for system engineers in Japan, one man proposed developing an emergency notification system for the deaf and/or blind [176].
  - 3.8. In January 2010, reverse 911 was implemented nationwide, allowing deaf people to make relay calls for emergencies.

### **Appendix 3: Post-training Focus Group Protocol**

Semi-structured discussion of the following:

#### **INTRODUCTION**

Thank you for your time today. I'm a graduate student at University of California at Berkeley School of Public Health. Before we begin, I first need to go over the consent form with you. Do you have any questions about the study before we begin?

**PURPOSE:** The purpose of the focus group is further evaluation of this training module regarding how law enforcement can better address the needs of deaf and hard-of-hearing survivors of domestic violence and sexual assault. The purpose of the study is to better understand how to maximize communication between law enforcement and the deaf and hard-of-hearing during times of emergency. This evaluation will help Deaf Hope improve the delivery of the intervention to make sure it best meets the needs of the law enforcement community.

**PROCEDURE:** If you decide to take part, you will be participating in a discussion group, called a focus group. At this focus group, you will sit with 6-12 other people in a room where you will be asked to discuss your experiences in the training module. A member of the UC Berkeley research team will lead the focus group. The total time for the interview and focus group will be less than 1½ hours.

When you signed the consent form you gave us permission to have a transcriptionist. For your privacy, we will remove all names from the document.

**CONFIDENTIALITY:** Focus group participants are expected to keep what is said in the focus group confidential. Participants' confidentiality could be compromised if information is shared outside of the focus group.

#### **GROUND RULES:**

1. Everything we talk about is confidential.
2. One person speaks at a time.
3. Sometimes I may look around the room while you are talking, or ask someone to speak first. This does not mean I'm not interested in what you have to say, I just want to ensure everyone has a chance to speak.
4. Turn off cell phones.
5. Help yourself to snacks and drinks at any time.

**WARM UP:** Tell me your first name, why you decided to participate in this training and this focus group, and your favorite cartoon TV show you watched when you were a kid.

#### **Prior Experience:**

1. Host: **Let's start talking about your personal experiences working with deaf people in an emergency situation.** What have your experiences, if any, been like?

1. PROMPT: Specify the circumstances.



2. PROMPT: What has worked in terms of communication? [When you were communicating, what seemed to work?]
  3. PROMPT: What challenges have you faced? [What was difficult about communication?]
  4. PROMPT: Do you think there's anything interesting that you've learned that would be useful in future emergencies? [What were some interesting things you learned back then that would be useful in emergency situations?]
- Please give us a circumstance or scenario.
  - Tell us about an applicable circumstance.

Knowledge about deafness:

**2. What did you know about deafness prior to this training?**

**3. What did you learn?** [What were some unexpected things you learned about deafness in the training?]

- PROMPT: How would your interpersonal communication tools differ when interacting with a deaf person or a hard-of-hearing person whose primary mode of communication is ASL vs. someone who became deaf later in life?
- [What tools would you use to communicate with a deaf person who primarily speaks ASL? What tools would you use to communicate with a deaf person who became deaf later in life?]

Perceptions

**5. Was there anything in this training that helped you reflect on your own views about people with disabilities, including those who are Deaf/HH?** Tell me about something in this training that made you rethink your views about people with disabilities, including those who are Deaf and/or Hard of Hearing.

**6. Can you think of any situation in which people around you might engage in insensitive behavior toward people who are Deaf/HH? If so, how might you react?**

When do you think people around you might engage in insensitive behavior toward the Deaf and/or Hard of Hearing? How might you react?

How about this? Refer to the Bubble Figure Activity from the Focus Group Training--> By acting indirectly on neutral objects, you create a space where people are one stepped removed and able to give you more rich data since they are not outwardly asked to state the quality of their character. Set up a situation on the board. Person A and Person B are making fun of how a Hard of Hearing person sounds. Person C is overhearing. What's C thinking? What would C say?

Knowledge about communication with the Deaf/HH

7. How would helping a deaf or hard-of-hearing person in an emergency be different than helping someone from a linguistic minority group? Or other people with disabilities?:

Skills

**8. Referring to the case study, how does the fact that Lori is deaf change the way you would respond to this incident?**

- PROMPT: What did you learn about the difference between responding to a domestic violence/sexual assault emergency with the deaf and hard-of-hearing as opposed to hearing?

**9. What do you think are the most effective ways to address an emergency situation where deaf people are involved, such as in a domestic violence emergency?**

10. [PROMPT: If an earthquake in the Bay Area has disrupted the infrastructure in much of Alameda County and public transportation would not be available due to disrupted water and power lines, in what ways might this training help you communicate with a deaf or hard-of hearing person? ]

**In what ways might this training help you communicate with a deaf or hard-of-hearing person in a large-scale disaster, such as during an earthquake, hurricane, or a terrorist attack?**

**11. Do you think this training has given you tools to better serve Deaf and hard of hearing people? If yes, please provide a specific example.**

- PROMPT: in what ways do you think it might help you adapt to their needs? [How adequately prepared do you feel to better serve Deaf and Hard-of-Hearing people?]
- Who feels differently than this? Please tell us why.
- What training instructions did you feel were impractical?

**12. If you were to encounter a deaf or hard of hearing person during an emergency, what factors would you be mindful of based on what you've learned in this training?**

Knowledge of Language Access and Barriers

**13. What specific technological tools would help your communication?**

Knowledge of Community Resources

**14. How would you tap into community resources such as an interpreting agency, deaf community center, or deaf non-profit at the development of an emergency?**

Reflections about the Training Workshop:

**15. Do you have any suggestions or insights about the format or content of this training that can inform future trainings?**

- PROMPT: Are there other topics the training could have addressed that it did not?
- PROMPT: What worked and what didn't?

**This was all very useful information. Thank you so much for your time and for sharing your thoughts with us today. We've learned a lot that will be very helpful to us. Again, all of your comments will be kept completely confidential, and we also ask that if you talk to any of your friends or family members about today's discussion, that you don't mention anyone's name that was here today. Please feel free to finish up the snacks. When you're ready to go, we have an envelope for each of you with your payment and a receipt for you to sign. Thank you again.**

## Appendix 4: Pre-Workshop Survey



# CONSENT FORM

**INTRODUCTION:** My name is Alina Engelman. I am doctoral student at the University of California, Berkeley working with my faculty advisors, Professors Aragón and Deardorff in the School of Public Health. I would like to invite you to take part in my research study, which is designed to better understand how to maximize communication between law enforcement and the deaf and hard-of-hearing (Deaf/HH) during times of emergency. I will be asking you to participate in a survey directly before and after this training.

**PURPOSE:** The purpose of this survey is further evaluation of this training module regarding how law enforcement can better address the needs of deaf and hard-of-hearing survivors of domestic violence and sexual assault. The purpose of the study is to better understand how to maximize communication between law enforcement and the deaf and hard-of-hearing during times of emergency. This evaluation will help Deaf Hope improve the delivery of the intervention to make sure it best meets the needs of the law enforcement community.

**PROCEDURES:** If you decide to take part, you will respond to a short 15-minute survey both before and after the training.

**RISKS:** There are no known risks to completing the survey. The information you provide will be used to improve training workshops for law enforcement and to foster improved communication between law enforcement and the deaf and hard-of-hearing during an emergency.

Your answers will remain confidential. That is, your name will not be associated with the survey; an ID number will be given to identify your responses. Your name will never be used in any reports for the project; the data reported will be . Additionally, data will be stored in a locked office file cabinet at Health Research for Action.

**ALTERNATIVES/RIGHT TO REFUSE OR WITHDRAW:** Participation is voluntary. You can choose not to take part in the survey. If you decide not to participate, there will be no penalty to you.

**COMPENSATION:** You will be compensated \$25.00 for participation in the survey.

**QUESTIONS:** If you have any questions about your rights or treatment as a research participant in this study, please contact the University of California at Berkeley's Committee for Protection of Human Subjects at 510-642-7461, or e-mail [subjects@berkeley.edu](mailto:subjects@berkeley.edu). If you have any questions directed at Alina Engelman about the research, you can email her at [engelman@berkeley.edu](mailto:engelman@berkeley.edu), or leave a message at 347.625.0115.

Your time and assistance are much appreciated!

**Q.** Do you agree to participate in this survey?

YES → SIGN AND DATE BELOW

NO

The purpose of the surveys has been explained to me to my satisfaction. I have had the opportunity to ask questions and have my questions answered.

I voluntarily agree to participate in this survey.

**Name of Participant:** \_\_\_\_\_

**Signature of Participant:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Thank you very much for your participation in this study!**

## DEMOGRAPHICS

### A. Please answer a few questions about your background.

#### 1. What is your job title?

- <sup>1</sup> Police Patrol Officer  
<sup>2</sup> Police Sergeant  
<sup>3</sup> Sheriff  
<sup>4</sup> Other: \_\_\_\_\_

#### 2. How many years have you been working in law enforcement?

- <sup>1</sup> Less than 1 year  
<sup>2</sup> 1 to 5 years  
<sup>3</sup> 6 to 10 years  
<sup>4</sup> Greater than 10 years

#### 3. Gender: What is your sex?

- <sup>1</sup> Male  
<sup>2</sup> Female

#### 4. Do you identify yourself as.... (Please check all that apply)

- <sup>1</sup> African or African-American  
<sup>2</sup> White, not Hispanic  
<sup>3</sup> Hispanic or Latina/Latino  
<sup>4</sup> Asian or Pacific Islander  
<sup>5</sup> American Indian  
<sup>6</sup> Other: \_\_\_\_\_

#### 5. What languages are you fluent in? (Check all that apply)

- <sup>1</sup> English  
<sup>2</sup> Spanish  
<sup>3</sup> Cantonese  
<sup>4</sup> American Sign Language  
<sup>5</sup> Tagalog  
<sup>6</sup> Other: \_\_\_\_\_

#### 6. Have you had any prior experience with deaf and hard-of-hearing (HH) people?

- <sup>1</sup> Yes  
<sup>2</sup> No

##### 6a. If yes, in what capacity?

- <sup>1</sup> Deaf/ HH Co-worker  
<sup>2</sup> Deaf/ HH Family Member  
<sup>3</sup> Deaf/ HH Spouse  
<sup>4</sup> Other: \_\_\_\_\_

##### 6b. Did any of your prior responder (law enforcement, fire/EMS) training include information on deaf or hard-of-hearing?

- <sup>1</sup> Yes.

<sup>2</sup> No

If yes, briefly explain:

---

**6c. Did any of your prior responder (law enforcement, fire/EMS) training include information on people with other disabilities?**

<sup>1</sup> Yes.

<sup>2</sup> No

If yes, briefly explain:

---

**7. Have you had any prior experience working with domestic violence or sexual assault survivors?**

<sup>1</sup> Yes

<sup>2</sup> No

If yes, briefly explain:

---

**8. Have you had any prior experience working with deaf domestic violence or sexual assault survivors?**

<sup>1</sup> Yes

<sup>2</sup> No

If yes, briefly explain:

---

**9. Why did you sign up for this training? (Check all that apply)**

<sup>1</sup> Certification Credit

<sup>2</sup> Professional Development

<sup>3</sup> Interested in learning more about the deaf/hard-of-hearing (Deaf/HH)

<sup>4</sup> Interested in learning more about domestic violence (DV) or sexual assault (SA)

<sup>5</sup> Prior experience with deaf DV or SA survivors, would like to learn more

<sup>6</sup> Other: \_\_\_\_\_

**10. Where are you stationed?**

<sup>1</sup> Oakland

<sup>2</sup> Berkeley

<sup>3</sup> Fremont

<sup>4</sup> San Francisco

<sup>5</sup> Vallejo

<sup>6</sup> Walnut Creek

<sup>7</sup> Other (Please Specify): \_\_\_\_\_

## DEAF PEOPLE IN THE COMMUNITY

B. Please check the one box that comes closest to what you think. [177]

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1. Deaf people have the ability to make their own life decisions. [109]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
2. Deaf people can choose where they reside.[109]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3. Deaf people can pursue higher education to adequately prepare them for life (have the life skills to live independently). [109]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
4. Deaf people can be financially secure. [109]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
5. My community benefits from the contributions of deaf people. [109]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
6. Deaf people can be good parents.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
7. Deaf people can have normal one-on-one interactions on a daily basis.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
8. I feel comfortable around deaf people.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
9. I feel confident I could figure out a way to communicate with deaf people in an emergency.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
10. I intervene, in an appropriate manner, when I observe other staff engaging in behaviors that appear culturally insensitive or reflect prejudice towards deaf people.[113]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
11. I am mindful of cultural factors that may be influencing the behaviors of deaf people. [113]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
12. I always utilize interpreters when I encounter deaf people whose language is one for which I am not fluent.[113]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
13. I attempt to learn and use key words or slang of the language used by deaf people we serve.[113]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
14. I can accurately describe and define the difference between American Sign Language and English.[114]	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

<b>15. I am able to identify the influence of stereotypes on my thoughts, feelings and behaviors toward deaf and hard-of-hearing people while providing services.[114]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>16. I am capable of eliciting a deaf person's perspective about a domestic violence emergency.[114]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

## CASE STUDY

### C. After reading this case study, you will be asked several questions. [178]

Lori and Matt have been married for five years. Lori is Deaf and prefers to communicate in American Sign Language (ASL); Matt is hearing, which means that he can hear and speak. He is well connected with the Deaf community and is fluent in ASL. They have two young hearing children together.

From the beginning, Matt has been verbally abusive saying that Lori is incompetent and does not know English well. He tells her that her voice sounds funny and she should not use it in public. Matt tells her that since she can't even hear the children crying, she is a horrible mother. He takes her cell away from her. He tells her that if she doesn't comply, he'll take their children. Matt told her that if she seeks help, they will discriminate against her because she is Deaf.

One night, Matt blows up in a violent rage because dinner is not cooked to his specifications. He corners her, and calls her a stupid bitch, pulls her hair and drags her to the table. He then grabs the knife and threatens her with it. In defense, she fights back and inadvertently scratches his cheek. A neighbor calls 911.

When the police officers arrive, Matt answers the door and appears to be calm. However, the police see that Lori appears hysterical. With his back to Lori, Matt speaks to the police officers. He tells the police officers that they had an argument and she scratched him. Lori shows the police officers a paper that says "PLS YOU LISTEN I SCARED HIM".

### **18. What strategies would you use to communicate with Lori, the deaf woman? Check all that might apply.**

<input type="checkbox"/> <sup>1</sup> Lip-reading
<input type="checkbox"/> <sup>2</sup> Pen/Paper
<input type="checkbox"/> <sup>3</sup> Fingerspelling
<input type="checkbox"/> <sup>5</sup> Gestures
<input type="checkbox"/> <sup>4</sup> Any sign-language that is known
<input type="checkbox"/> <sup>6</sup> Requesting an ASL interpreter
<input type="checkbox"/> <sup>7</sup> Requesting a CDI (Certified Deaf Interpreter)
<input type="checkbox"/> <sup>8</sup> Using a family member or partner as an interpreter
<input type="checkbox"/> <sup>9</sup> Other (please specify)



19. Based on the information gathered in this unique situation, how would you proceed with the investigation?

20. How do you think this interaction could have gone differently had Lori been hearing?

21. How can a deaf person call 911?

22. Can you describe your departmental policy on communicating with deaf people, particularly standard practices around the use of sign language interpreters? [3]

### TRUE OR FALSE

D. Please check one.	True	False
23. All deaf people read lips	1 <input type="checkbox"/>	2 <input type="checkbox"/>
24. Deaf people can't speak	1 <input type="checkbox"/>	2 <input type="checkbox"/>
25. If a hearing child or family member is present, they can be used as interpreters.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
26. If a deaf person tells you he or she can lip-read, he or she does not need an interpreter.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
27. If a deaf/ hard of hearing person can use their voice, he/ she still needs an interpreter.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
28. If you know finger spelling, an interpreter is not needed.	1 <input type="checkbox"/>	2 <input type="checkbox"/>

29. Writing is usually the best way to communicate if there is no interpreter available.

## COMMUNICATION

E. Please check as indicated.

30. What percent of spoken English is visible on the lips? (check one)

- <sup>1</sup> 10%
- <sup>2</sup> 30%
- <sup>3</sup> 60%
- <sup>4</sup> 90%

31. In a disaster response setting affecting a deaf or hard-of-hearing person (Deaf/HH), the three individuals who should be involved in the interview are: Check three. [108]

- <sup>1</sup> Emergency Response Personnel
- <sup>2</sup> Deaf or hard-of-hearing Individual
- <sup>3</sup> Disaster Personnel Colleague who has taken courses in American Sign Language
- <sup>4</sup> Family member in that Individual's household who is bilingual
- <sup>5</sup> Trained Interpreter

32. What are two differences between ASL (American Sign Language) and English?

33. Describe one technology or tool that might help facilitate communication with deaf or hard-of-hearing people. How does this technology or tool work?

## **SOCIAL EXPERIENCES OF DEAF PEOPLE**

**E. Respond in brief.**

**34. Please list two social problems Deaf/HH people face in your area. [179]**

**35. Please list two social strengths of Deaf/HH people in your area. [180]**

**36. Please describe one situation in which people around you might engage in insensitive behavior toward people who are Deaf/HH.**

**37. List 2-3 rights that Deaf and/or hard-of-hearing people have under the federal law.**

Appendix 5: Post-Workshop Survey

**DEAF PEOPLE IN THE COMMUNITY**

A. Please check the one box that comes closest to what you think. [177]

**Strongly Disagree   Disagree   Neither   Agree   Strongly Agree**

<b>1. Deaf people have the ability to make their own life decisions. [109]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>2. Deaf people can choose where they reside.[109]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>3. Deaf people can pursue higher education to adequately prepare them for life (have the life skills to live independently). [109]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>4. Deaf people can be financially secure. [109]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>5. My community benefits from the contributions of deaf people. [109]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>6. Deaf people can be good parents.</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>7. Deaf people can have normal one-on-one interactions on a daily basis.</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>8. I feel comfortable around deaf people.</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>9. I feel confident I could figure out a way to communicate with deaf people in an emergency.</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>10. I intervene, in an appropriate manner, when I observe other staff engaging in behaviors that appear culturally insensitive or reflect prejudice towards deaf people.[113]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>11. I am mindful of cultural factors that may be influencing the behaviors of deaf people. [113]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>12. I always utilize interpreters when I encounter deaf people whose language is one for which I am not fluent.[113]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>13. I attempt to learn and use key words or slang of the language used by deaf people we serve.[113]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

<b>14. I can accurately describe and define the difference between American Sign Language and English.[114]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>15. I am able to identify the influence of stereotypes on my thoughts, feelings and behaviors toward deaf and hard-of-hearing people while providing services.[114]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>16. I am capable of eliciting a deaf person's perspective about a domestic violence emergency.[114]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>17. I have developed skills to utilize a sign language interpreter effectively.[113]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

## CASE STUDY

**B. This case study is the same one from the pre-workshop survey. Based on the workshop how might you respond?[178]**

Lori and Matt have been married for five years. Lori is Deaf and prefers to communicate in American Sign Language (ASL); Matt is hearing, which means that he can hear and speak. He is well connected with the Deaf community and is fluent in ASL. They have two young hearing children together.

From the beginning, Matt has been verbally abusive saying that Lori is incompetent and does not know English well. He tells her that her voice sounds funny and she should not use it in public. Matt tells her that since she can't even hear the children crying, she is a horrible mother. He takes her cell away from her. He tells her that if she doesn't comply, he'll take their children. Matt told her that if she seeks help, they will discriminate against her because she is Deaf.

One night, Matt blows up in a violent rage because dinner is not cooked to his specifications. He corners her and calls her a stupid bitch, pulls her hair and drags her to the table. He then grabs the knife and threatens her with it. In defense, she fights back and inadvertently scratches his cheek. A neighbor calls 911.

When the police officers arrive, Matt answers the door and appears to be calm. However, the police see that Lori appears hysterical. With his back to Lori, Matt speaks to the police officers. He tells the police officers that they had an argument and she scratched him. Lori shows the police officers a paper that says "PLS YOU LISTEN I SCARED HIM".

**18. What strategies would you use to communicate with Lori, the deaf woman? Check all that might apply and indicate the relative benefits or drawbacks of each method.**

<input type="checkbox"/> <sup>1</sup> Lip-reading
<input type="checkbox"/> <sup>2</sup> Pen/Paper
<input type="checkbox"/> <sup>3</sup> Fingerspelling
<input type="checkbox"/> <sup>5</sup> Gestures
<input type="checkbox"/> <sup>4</sup> Any sign-language that is known
<input type="checkbox"/> <sup>6</sup> Requesting an ASL interpreter
<input type="checkbox"/> <sup>7</sup> Requesting a CDI (Certified Deaf Interpreter)
<input type="checkbox"/> <sup>8</sup> Using a family member or partner as an interpreter
<input type="checkbox"/> <sup>9</sup> Other (please specify)

**19. Based on the information gathered in this unique situation, how would you proceed with the investigation?**

20. How do you think this interaction could have gone differently had Lori been hearing?

21. How can a deaf person call 911?

22. Can you describe your departmental policy, if any, on communicating with deaf people, particularly standard practices around the use of sign language interpreters?[3]

## TRUE OR FALSE

C. Please check one.

	True	False
23. All deaf people read lips	1 <input type="checkbox"/>	2 <input type="checkbox"/>
24. Deaf people can't speak	1 <input type="checkbox"/>	2 <input type="checkbox"/>
25. If a hearing child or family member is present, they can be used as interpreters.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
26. If a deaf person tells you he or she can lip-read, he or she does not need an interpreter.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
27. If a deaf/ hard of hearing person can use their voice, he/ she still needs an interpreter.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
28. If you know finger spelling, an interpreter is not needed.	1 <input type="checkbox"/>	2 <input type="checkbox"/>
29. Writing is usually the best way to communicate if there is no interpreter available.	1 <input type="checkbox"/>	2 <input type="checkbox"/>

## COMMUNICATION

**D. Please check as indicated.**

**30. What percent of spoken English is visible on the lips? (check one)**

- <sup>1</sup> 10%
- <sup>2</sup> 30%
- <sup>3</sup> 60%
- <sup>4</sup> 90%

**31. In a disaster response setting affecting a deaf or hard-of-hearing (Deaf/HH) person, the three individuals who should be involved in interview are: Check three.[108]**

- <sup>1</sup> Emergency Response Personnel
- <sup>2</sup> Deaf or hard-of-hearing Individual
- <sup>3</sup> Disaster Personnel Colleague who has taken courses in American Sign Language
- <sup>4</sup> Family member in that Individual's household who is bilingual
- <sup>5</sup> Trained Interpreter

**32. What are two differences between ASL (American Sign Language) and English?**

**33. Describe one technology or tool that might help facilitate communication with deaf or hard-of-hearing people. How does this tool or technology work?**



## **SOCIAL EXPERIENCES OF DEAF PEOPLE**

**E. Respond in brief.**

**34. Please list two social problems Deaf/HH people face in your area. [179, 181]**

**35. Please list two social strengths of Deaf/HH people in your area. [110, 180]**

**36. Please describe one situation in which people around you might engage in insensitive behavior toward people who are Deaf/HH.**

**37. List two rights that Deaf and/or hard-of-hearing people have under the federal law.**

## FEEDBACK

F. Please check one.

**Poor      Satisfactory      Excellent**

<b>38. How would you rate the training overall?</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>39. How would you rate your knowledge of working with the Deaf/hard-of-hearing in an emergency <u>before</u> taking this training?</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>40. How would you rate your knowledge of working with the Deaf/hard-of-hearing in an emergency <u>after</u> taking this training?</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>41. How would you rate the usefulness of training aids (e.g., handouts, videos, flip charts, white boards) in helping you understand the material? [182]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>42. How likely would you recommend this course to members of your department or to another agency? [182]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>43. How well did this course equip you with practical skills that you can use in your job? [182]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>44. How well could you demonstrate what you learned in this class to other department members? [182]</b>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

G. Respond in brief.

**45. Did this training help you reflect on your own views about people with disabilities, including those who are Deaf/HH? Please explain.**

**46. In what ways do you think this training will help you communicate with a deaf or hard of hearing person in a domestic violence emergency?**

**47. In what ways do you think this training will help you communicate with a deaf or hard-of-hearing person in a large-scale disaster (i.e. such as during an earthquake, hurricane, or a terrorist attack)?**

**48. Do you have any suggestions about how the training can be improved?**

## **Appendix 6: Developments in Technology 2009-2012**

1. A 2009 report from WirelessRERC also described the development of TTYPhone, a software-based system, as an alternative to carrying around a mobile TTY. [183] However, this report does not mention the availability of text-based 911 relay calls that can be made from any smartphone through software-based downloads such as AIM and from various internet relay service providers such as Sorenson, ATT, and IPRelay.
2. In 2010, D.C. Police Department is the first in the nation to use portable videophones to help officers serve the Deaf/HH in 14 police stations and in 15 squad cars allowing Deaf people to sign into a video camera to an interpreter. [175]
3. In May 2010, the Sheriff's office in Marion County, Florida created a new text system for 911 benefiting all users of cell phones, not just the Deaf.[174]
4. An alerting system was tested in the Netherlands that warns registered Deaf users via a message sent to their mobile phones after an audible emergency siren is activated.[63]
5. In 2010, Hawaii's Department of Emergency Management (DEM) began a text messaging/e-mail notification system for all its residents, including the Deaf/HH [173].
6. Commercial mobile alerting system allowing users to receive alerts on their mobile phones was well received by users with a sensory impairment in a 2006 study. [184]
7. Until January 2010, Deaf or hard-of-hearing people were not even able to make direct 911 calls on their own, through the phone relay system. Due to an intense lobbying effort, e911 calls have finally been implemented nationwide, allowing Deaf/HH people to call 911. Such calls can be done in a variety of ways: calling a video relay operator in ASL (American Sign Language), which can be accessed via webcams or videophones, or by calling a text-based relay operator which can be accessed through PDAs like Blackberries (by downloading AIM or other software from various relay companies such as Sorenson, Sprint, AT&T), or through laptop computers using an internet connection.

## **Appendix 7: Conference Papers or Presentations.**

1. Starr (2010) presented at the Society for Public Health Education and Prevention Research Centers about how to reach out to Deaf Americans during public health emergencies via the internet. [185]
2. In 2005, Gallaudet University held a conference on "Accessible Emergency Notification and Information: State of the Science." [186]
3. Harkins et al (2005) wrote policy recommendations based on this conference, including making mainstream technologies for notification and communication usable for people with disabilities. [31]
4. Bennett (2008) gave a conference paper on "Using State Emergency Plans and the NRF to Determine Whether Vulnerable Populations Are Appropriately Included," noting that Deaf/HH populations are not given appropriate consideration in these plans. [187]
5. Community Emergency Preparedness Information Network (CEPIN) gave a power-point presentation at the National Association for the Deaf (NAD) in 2008 entitled "Interacting with Law Enforcements for Positive Outcomes." [188] The objective was to help prevent misunderstandings with negative consequences between law enforcement and the Deaf/HH. Presenters recommend using role-play scenarios when educating law enforcement, but do not recommend talking about specific situations or using negative stereotypes. Presenters emphasize that law enforcement officers prioritize life safety, including their own safety and the safety of the general public. By contrast, Deaf/HH individuals often prioritize communication. In addition, the presentation discussed how several police jurisdictions are dealing with this issue. Illinois State Police provides cadet training, and the Metropolitan Police Department has a Deaf/HH Liaison Unit.

## **Appendix 8: Written Preparedness Resources**

1. Gallaudet University wrote a report in 2005 for Gallaudet students, faculty and staff about what to do in an emergency. [189].
2. A 1999 FEMA report includes fire safety tips for both Deaf/HH people and for fire service professionals.[190]
3. Written preparedness materials for hearing people include a fact-sheet entitled: "*Disaster Preparedness Tips For Emergency Management Personnel: Communication Access for People with Limited Speech*" from the Augmentative and Alternative Communication- Rehabilitation Engineering Research Center (AAC-RERC) although it doesn't necessarily focus on Deaf or hard-of-hearing people. [191]
4. Cross (2002) wrote a report on assisting people with disabilities and there is an appendix with sign language vocabulary for emergency situations [192].
5. Additionally, there is one American Sign Language Medical Dictionary.
6. A fact sheet entitled "Tips for First Responders" was developed by the Center for Development and Disability, provide recommendations about how to communicate with people with disabilities, categorized by disability type. For example, recommendations for working with a deaf/HH individual in an emergency include: recognizing that hearing aids do not necessarily mean that the individual can understand speech. [193]