ABSTRACT

The concept of the “whole community” involves including everyone in the community in preparing for emergencies, including members of often-overlooked groups. Deaf people who sign are one example of this type of group. An innovative model based on the whole community approach, Emergency Preparedness with People Who Sign (EPPS), is introduced in this article. This model focuses on members of the deaf community directly training first responders using a variety of techniques for effective communication and cultural understanding to achieve safety for all. This model was developed and field tested by a university Deaf Studies program through student service-learning activities and faculty involvement including on-site role-playing. Through the reciprocal awareness training for both professionals and community members, deaf individuals become actively empowered to participate in developing culturally and linguistically sensitive public safety services. Response to the concurrent training of first responders and deaf community members has been positive, and it is hoped that this model can be replicated with deaf people and first responders in other locations, as well as with other often-overlooked groups.

Key words: emergency preparedness, deaf people, service learning, first responder, sign language

In the United States, the concept of “whole community” has emerged in the area of emergency management. Essentially, the purpose of this concept is to include everyone from the community in preparing for emergencies, protecting the community from threats, mitigating potential damage from disasters, responding to emergencies, and recovering from those emergencies. The whole community concept offers the opportunity for providing accommodations and making adaptations to accommodate people with diverse backgrounds (eg, linguistic/ethnic minorities, low socioeconomics, aging, and disability) by involving all constituent groups from initial planning through execution of the plan. The incentives for this concept began largely as a result of the tragic situation of Hurricane Katrina in Louisiana in the summer of 2005. During this disaster incident, the first responders and emergency preparedness team overlooked and/or neglected several groups of underprivileged people. One of the primary reasons for this neglect and oversight was the lack of formal emergency management training regarding people from diverse backgrounds.

Deaf people, who do not hear sirens or public address announcements, represent diversity, as a subset of the whole community. As such, members of this group require visual information through American Sign Language (ASL), a complete language different from English with its own phonology, morphology, grammar, syntax, and pragmatics which is used in the United States and parts of Canada. Too frequently, lack of knowledge and misconceptions about deaf people’s life experiences and lack of understanding about the inequality of spoken and signed languages can lead to dangerous and harmful outcomes for this population.

The purpose of this article is to describe a model under the umbrella of the whole community approach for emergency preparedness. Emergency preparedness education previously overlooked groups that should not be neglected and should be included as part of the
whole community, who can be active participants from the initial stages of emergency preparedness planning. In support of these principles, the World Federation of the Deaf and the World Association of Sign Language Interpreters published a set of guidelines in January 2015 outlining a series of recommendations for including deaf people in communication during natural disasters and mass emergencies. The Emergency Preparedness with People Who Sign (EPPS) model introduced in this article provides suggestions for involving members of deaf community in emergency planning from the ground up and is a model that can be replicated for other diverse groups.

Implementation of the EPPS model emphasizes including deaf people as part of the whole community. This article will describe the emergence of the whole community concept, address communication issues between deaf and hearing people in emergency situations, and provide basic cultural information and signed language terminology for emergency management professionals who may encounter deaf people. The EPPS model, developed by a Deaf Studies program in a mid-Atlantic American university, addresses previous oversights and misconceptions and makes recommendations for emergency situations to provide an example for including groups with diverse needs in preparing for emergencies. Classroom and on-site instruction, community immersion experiences, and emergency preparedness simulations serve as a foundation for the whole community approach in this model. This model was developed and field tested, materials were prepared and distributed, and recommendations were implemented during actual outreach activities.

THE EMERGENCE OF THE WHOLE COMMUNITY

Understanding that the whole community concept was conceived as a direct result of the aftermath of Hurricane Katrina, FEMA created a national dialogue with professionals in emergency management and citizens from the community to prevent neglectful actions in emergency situations in the future. Based on participation in many emergency management meetings and conferences after the disaster, FEMA developed a document introducing the whole community preparedness concept as a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests.

FEMA began working with community members to develop and plan effective disaster strategies, such as helping people transition from a disaster area to the locations of emergency medical services (EMS). As part of promoting the whole community approach in the area of emergency management, FEMA listed the following three principles for professionals.

1. “Understand and meet the actual needs of everyone in the community through the whole community” concept by
   - providing a deeper understanding of the unique and diverse needs of a population,
   - including demographics, values, norms, community structures, networks, and relationships,
   - enhancing professionals to understand real-life safety and survival needs better, and
   - motivating diverse populations to participate in emergency-management-related activities.

2. “Engage and empower all parts of the community” through involvement by
   - assisting stakeholders to plan for and meet the actual needs of a community,
   - strengthening the local capacity to deal with the consequences of all threats and hazards,
requiring all members of the community to be part of the emergency management team (diverse populations and various agencies), and

- providing engagement of authentic dialogue and empowerment to identify the needs in the community and using existing resources to address the needs.

3. “Strengthen what works well in communities on a daily basis”\(^{15}\) by

- building community resilience which allows for finding ways to support and strengthen the institutions, assets, and networks that already work well in communities and

- leveraging and empowering the existing structures and relationship that are present in the daily lives of individuals, families, business, and organizations before the incident occurs to act effectively during and after a disaster strikes.

Based on these three principles and their scope, FEMA clearly encourages professionals in emergency preparedness to work with diverse populations in the community, including deaf people. A working relationship between professionals and the community enhances everyone’s understanding of, and comfort level with, how to work together before, during, and after the disaster situations. Providing professionals with awareness trainings regarding different languages, cultural beliefs, and mental and physical needs is critical to reduce the misconceptions between all parties involved in various emergency circumstances.

**PROMOTING DEAF PEOPLE AS PART OF THE WHOLE COMMUNITY**

It is difficult to provide an exact number of people with hearing loss in the United States due to different definitions of hearing loss and varying ages of onset. It is believed that less than one out of every 20 people in the United States has a significant hearing loss, although more than half became deaf later in life. In round numbers, nearly 10,000,000 persons have mild or moderate hearing losses and close to 1,000,000 people have severe hearing loss in the United States.\(^{17}\) Despite what may seem to be a small percentage of the general population, people who are deaf exist in almost every community and must be included in planning for any emergency situation. Although responders may only encounter a few deaf people throughout their careers, each life is important. This tenet is manifest from ancient sayings like “Save one life, you save the world” (Torah) to popular cultural mottos like “All Lives Matter.”

Noting that the preferred language of deaf people is ASL, the professionals in emergency preparedness need to understand that not all individuals speak, and that some communicate in different modalities. While the use of pictorial charts and phrase cards may have limited success, these tools do not allow for expansion in a conversation. The users are limited to the word choices provided, which may not include the topics or specificity needed in a given situation. Thus, while these tools serve a purpose, it would be more efficient for first responders to learn enough about ASL to appreciate and apply some basic concepts in a real-life situation.

Deaf individuals who sign have developed and maintained a vibrant community over the years. Padden defined deaf community as

> “a group of people who . . . share the common goals of its members, and in various ways, work toward achieving these goals. A deaf community may include persons who are not themselves [d]eaf, but who actively support the goals of the community and work with [d]eaf people to achieve them.”\(^{18}\)

The deaf community is a sociolinguistic phenomenon where deaf individuals use signed language and are part of a cultural and linguistic minority.\(^{19-24}\) The apparent isolation of the deaf community is largely attributed to society’s ignorance of the needs of deaf people, and the subsequent lack of accommodation...
provided. Society’s heavy reliance on spoken language supports the myths that people can lip-read, and that writing notes is an effective form of communication with deaf people. Both of these methods of communication require a foundation of knowledge in English, which is not the primary language of many deaf people who sign.

Deaf people in the United States who sign typically use ASL, a language exhibiting significantly different grammar than English. Thus, consideration for including communication via signed language becomes necessary for emergency management. Unfortunately, a lack of understanding about deaf people and their communication needs in the field of emergency preparedness has prevented appropriate services, until now.

Because English is a second language for many deaf people, it cannot be assumed that using written English to communicate is effective. Deaf people are not the exception, other diverse groups also experience issues with health literacy. For example, the ability to read, write, and comprehend the English language affects how a person is able to access proper care, understand healthcare and pharmacy directions, and more. When healthcare providers are not able to communicate effectively at all levels of interaction with patients, optimal patient care is not possible and communication in emergency situations is especially at risk. Communication needs to be possible at the point of entry into the healthcare system, which affects the community, emergency management, and public safety elements (e.g., EMS, fire, and police). Instruction in signed language must be provided to emergency management personnel, to enable effective two-way communication with deaf people.

Two major issues exist regarding implementation of emergency preparedness services for deaf people. The first is the lack of a pre-existing relationship between the professionals and the deaf community, often exemplified by not knowing how to work with deaf people in emergency situations. Education at EMS practice levels may be minimal or nonexistent. For example, Limmer and O’Keefe developed an emergency care text that is used to prepare emergency medical technicians for practice. Information is limited to proper position of the provider so that the patient is able to read lips. ASL is not likely to be taught in nursing curricula. Communication with deaf patients also includes the need to interpret and share test results, provide accurate information, and facilitate the privacy of the deaf person.

The second issue is the need for members of the deaf community to participate in emergency preparedness training and serve on emergency management teams at individual, community, and organizational levels. Support for both of these issues can be seen in the observation of one well-known Deaf Studies scholar, Harlan Lane, who said that deaf people and their community need to provide more a meaningful political agendas in society as follows:

“Such associations need an explicit political agenda and a plan for implementing it. Such an agenda might include, illustratively, building a greater awareness of the difference between hearing-impaired and cultural [d]eafness; greater acceptance of the national sign language; removal or reduction of language barriers; improving culturally sensitive health care. Nowhere I know of are such agendas made explicit—given priorities, implementation, a time plan.”

BUILDING THE EPPS MODEL

Based on Lane’s discussion and the whole community concept promoted by FEMA, the first author of this article, who is deaf, developed a model for building the relationship between deaf people and professionals. The EPPS model embodies the whole community approach, recognizing that the deaf community need not be an isolated, or self-contained, community and is a part of the larger society, equal to other groups with diverse backgrounds.

First step. While many options exist, one critical building block of this proposal is to provide awareness training regarding the deaf community/signed language to first responders and emergency response teams. In the initial implementation of the model, leaders in the deaf community, working in conjunction
with Deaf Studies faculty and students in service-learning situations, provided this training to first responders such as firefighters and police officers at no cost, other than the provision of sign language interpreters for the training sessions.

Second step. A second, and critical, step is to provide concurrent training to representatives from all aspects of the deaf community, explaining what has been taught to the first responders and encouraging deaf community members to take active roles in local, county, state, and national committees. In the initial implementation of the EPPS model, a group of three Deaf Studies majors provided a series of three workshops to approximately 30 firefighters. In the first session, the students provided a foundation of knowledge about the deaf community; in the second session, the students invited approximately 20 members of the deaf community to learn about the roles and responsibilities of first responders and a variety of available resources in the community; in the third session, the students taught basic emergency sign language vocabulary followed by deaf community leaders engaging in role-playing activities to train first responders how to respond in a variety of situations.

The model described above demonstrates the key to the whole community concept. As a result of the two-tiered awareness training for both professionals and community members, deaf individuals become actively empowered to participate in developing culturally and linguistically sensitive public safety services. Consequently, the training promotes the proliferation of signed language by introducing the use of ASL to reduce communication barriers and exemplifies the use of the universal design concept, where everyone can communicate via signed language regardless of hearing abilities. Encouraging more people (e.g., first responders) to learn sign language can add additional options for communication by any signing person who might be in a position where spoken language is not accessible (medical emergency, hostage situation, etc.). Thus, this model supports alternative modes of communication for other signers such as hearing children of deaf adults (CODAs), interpreters, and other signing allies (e.g., second language learners) that can benefit the whole community.

SOME INSIGHTS FOR PUBLIC AWARENESS OUTREACH FROM DEAF STUDIES

Deaf Studies as a field is typically defined as the study of signed language, history, literature, community, and culture of deaf people through the considerations of sociological, anthropological, and ethnographic perspectives. The first two authors are Deaf Studies professors who promote public awareness outreach to agencies through conference presentations and academic courses with different types of pedagogies and support incorporating deaf people through the whole community approach. To date, these authors have provided training to a variety of firefighting organizations, police organizations, campus safety departments, and university health professions students. The proactive approach builds a reciprocal relationship between deaf people and society. By encouraging deaf people to become active participants in the teaching/learning process, deaf people add value to the community, allowing the opportunity to build mutual respect and equality between deaf and hearing constituencies.

The Deaf Studies program provides community service through both service-learning and internship courses; however, only the service-learning experience will be discussed here because that is where emergency preparedness outreach has taken place to date. Service learning is an innovative pedagogy in which the students experience both attending didactic classes and participating in community service and has been offered in this Deaf Studies program since the Fall of 2009. Through service-learning experiences, approximately 35 Deaf Studies students have interacted face-to-face with deaf people in the community each semester, for a total of more than 210 students, in dozens of private and public social service agencies, state and local government agencies, and educational organizations. The second author teaches a 15-week course where students participate in two unique 7-week experiences. During the first 7 weeks, students develop working relationships with deaf individuals in the community arranged through agencies serving deaf people, and during the second 7 weeks they provide Deaf Awareness and signed language training to service agencies in the general
While most of the Deaf Awareness training is provided by students, a critical aspect of this program has been the inclusion of deaf people from the community to teach signed language, and to ensure that on-site role-playing provides realistic situations and appropriate responses.

One ongoing service-learning experience that Deaf Studies students perform has been providing Deaf Awareness training to several local fire departments. To date, approximately 10 groups of Deaf Studies students have provided this type of training to 10 local fire department units. The training has been very well received, and more are planned for the near future. Students attempt to reduce communication barriers by providing information about effective communication methods and basic signed vocabulary to local firefighters and EMS personnel. The training also highlights misconceptions about speech and lip reading, and attempts to diminish dependence on these ineffective methods of communication. Students provide specific suggestions for how fire departments can provide more “deaf/signed language-friendly” services. Deaf faculty members volunteer their time to role-play several different emergency situations to give the firefighters realistic opportunities for interaction, where firefighters can learn from their successful and unsuccessful attempts at communication.

At the university, the Deaf Studies program resides under the College of Health Professions where collaboration with other disciplines is strongly encouraged. The first author, from the field of Deaf Studies, collaborated with the third author, a Nursing faculty member who teaches emergency preparedness seminars and coordinates an annual emergency preparedness simulation activity for the entire campus. The first author developed the EPPS model of emergency preparedness involving deaf people, which was initiated during the Fall of 2013 as a training seminar for nursing students. This led to a second presentation, where the first two authors introduced the EPPS model along with the whole community emergency preparedness concept, as applied to deaf people, to first responders at 2013 Mid-Atlantic Life Safety Conference. Both of these presentations were well received and elicited stimulating discussion regarding new perspectives on service provision. Whole community involvement is an innovative and effective approach that should be pursued nationwide and globally.

A MODEL OF EMERGENCY PREPAREDNESS TRAINING

By applying the whole community philosophy and implementing the model of reciprocity, it is possible to enhance first responders’ awareness of deaf people and their use of signed language, and to make their communication with deaf people more efficient in emergency situations. Some topics to be covered in training for first responders include:

1. General facts about deaf people and signed language. To begin, first responders need to know some general facts about deaf people and signed language to remove misconceptions. Basic information can be covered such as (a) who uses ASL as their primary means of communication? and (b) what are the benefits of using signed language? Each question can be discussed between the presenter and the first responders.

2. Obstacles that deaf people frequently face. Deaf people frequently face obstacles in different situations, and first responders need a clear picture of the struggles that deaf people experience. Harmer lists several common obstacles:

   “Deaf and hard of hearing . . . individuals in the United States must often cope with extraordinary communication barriers when working with their health care providers; receive health care service that are inadequate, inappropriate for their needs, and unethical due to the interplay of numerous complex individual, interpersonal, and systemic factors.”

3. Misconceptions about deaf people. People typically have misconceptions about deaf people and their lives. Two examples of
misconceptions of communication strategies with deaf people can be seen in the North Carolina Office on Disability and Health’s guidebook.

“Look directly at the person and speak clearly, slowly and expressively to establish if the person can read your lips. Not all persons with hearing impairments can lip read. Those who can rely on facial expressions and other body language to help in understanding.”

and,

“Show consideration by placing yourself facing the light source and keeping your hands and food away from your mouth when speaking. Keep mustaches well-trimmed.”

The recommendations by the North Carolina Office on Disability and Health indicate that spoken language is to be used in case of emergency with deaf people and fails to mention the benefit of signed language or the ineffectiveness of lipreading. This implies that spoken language is superior to signed language, and that it can be used effectively by all people.

4. Errors and inadequate information about emergency service for deaf people. First responders and the emergency management team need to know that there may be errors or oversights in published guidelines provided for emergency services for deaf people. For example, the disaster preparedness and the deaf community guidebook written in English developed by the American Red Cross and National Technical Institute for the Deaf is admirable but fails to provide emergency guidelines in ASL format which would make this information accessible to deaf people. Researchers have found that the average reading level in English for deaf people upon graduating from high school is fourth grade. Deaf people from the community do not have the opportunity to fully engage in emergency preparedness training when materials are presented that exceed their reading and comprehension ability. What is missing is two-way interaction between the emergency preparedness and response team and individuals in the deaf community. For example, deaf people can become more involved in taking responsibility for themselves by viewing training in the format of ASL videos online, or even better, by participating in live interactive training with signing presenters and the opportunity to ask questions and receive clarification.

Deaf people’s difficulty with reading English is a well-documented issue. In addition to the limitations with understanding print brochures, reliance on text messaging or other forms of English-based communication can also lead to misunderstandings or lack of understanding. Problems arise from vocabulary, idioms that are unfamiliar to the deaf reader, and from grammatical structure that can be confusing or misleading (e.g., double negatives or passive tense) which may not exist in both ASL and English.

Two other issues often discussed in the deaf community that need to be resolved are frustration with human connections being replaced by technology. For example, the “virtual” presence of a sign language interpreter on a computer screen removes the human connection between a deaf person and a first responder or healthcare provider. Additionally, the lack of understanding on the part of the media regarding how to use interpreters by selecting unqualified interpreters, not showing full face and hands of interpreters on-screen in training videos or emergency announcements, and failing to keep the interpreters on-screen at all times, deprives the deaf community of access to the complete message.

5. Introduction of ASL signs related to emergency situations. There are insufficient materials available nationwide for
teaching first responders targeted signed language vocabulary and sentences. In response to these concerning issues, the EPPS model includes a brief lesson for first responders to learn basic ASL signs and sentences related to disaster and emergency settings. Some signed vocabulary and sentences relevant to emergency situations can be found in Appendix A.

First responders need to learn how to interact with deaf victims properly. With this EPPS model, first responders are encouraged to follow the list below when interacting with deaf individuals:

I. If no response to voice prompts, tap shoulder.

II. Make sure you are in the person’s line of sight.

III. Ask if the person is okay by using signs.

IV. If no response to signed communication, use gestures (or written notes as a last resort).

V. Rather than giving verbal explanation of emergency evacuation procedures, accompany the person to the emergency facility. First responders should notify the receiving facility during transport so that the facility will have time to contact an interpreter if needed. Advance notice would be helpful whenever possible.

VI. Provide someone who can sign in each emergency facility so that deaf people can have access to communication. While it is always advisable to hire certified interpreters in hospitals and other emergency facilities, front-line staff can be taught basic sign vocabulary. As first responders cannot be expected to personally escort each deaf person to safety, other people in the community who sign (deaf employees in other departments, children of deaf parents, sign language students, and other friends and relatives of deaf people in the community) can be recruited to facilitate basic emergency communication with deaf patients.

6. Hands-on experience in mock crisis situations with deaf people. Once the first responders have been introduced to ASL signs and sentences and the process of interacting with deaf people, they should participate in hands-on mock crisis situations with deaf people from the community. In these activities, groups of participants are assigned to different disaster circumstances like hurricanes, flooding, power outages, and more. They will apply what they have learned in interaction with deaf people in these situations. It is expected that the first responders will experience reduced fear or anxiety while interacting with deaf people based on the knowledge and skills they obtained during the preceding training, and that the practice during this training will make real disaster experiences less stressful as well.

7. Additional recommendations. The EPPS model includes the discussion of what needs to be done with the whole community approach and its relationship with deaf people in the near future. Considerations for local communities include:

- Studying Basic Medical ASL (California Department of Social Services Office of Deaf Access’ Basic Medical Sign Language pamphlet, see http://www.cdss.ca.gov/cdss/web/entres/forms/english/pub391.pdf).
- Taking ASL courses at colleges, universities, or agencies working with deaf people.
Providing at least two or three professionals who know ASL and are aware of deaf people wherever EMS are available.

Knowing when and how to use ASL interpreters (knowing some ASL signs does not mean the individual has adequate expertise to discuss serious medical issues with deaf people).

Including ASL into emergency care courses for EMS and other healthcare professionals.

Providing an emergency videophone hotline accessible that deaf people can call to receive information through signed communication.

Including deaf people from the community as participants in emergency preparedness simulations as both patients and providers.

FUTURE DIRECTIONS

The whole community concept can serve as a model for access and integration of deaf persons into communitywide experiences. The EPPS model can provide improved emergency management capabilities and the inclusion of deaf persons as an example of how to involve other diverse groups. Deaf people’s safety and well-being will improve with a better understanding and increased cultural sensitivity from professionals who work in emergency management. Providing awareness of deaf people, using signed language with the public, and including deaf people in various roles with emergency preparedness training are important steps toward supporting the whole community concept.

More exploration in the area of emergency preparedness involving the whole community holds the promise for a safe and inclusive future. Activities should include the application and evaluation of ASL instruction as part of the whole community approach in nursing, EMS, and other emergency preparedness curricula. Emergency preparedness experts could also explore and develop ASL materials for use on emergency vehicles and other medical settings. For example, laminated protocol sheets including English vocabulary with equivalent signed illustrations can be used for quick reference. Interprofessional courses and emergency preparedness exercises that include deaf persons would add new knowledge and expertise to both deaf persons and those who are called to respond in challenging life-threatening situations. Additional research and suggestions are needed to provide accommodations for deaf individuals with special needs (eg, deafblind people, and deaf people with cognitive and physical differences). The proliferation of emergency preparedness training in developed societies, combined with increased awareness and availability of signed language and the inclusion of deaf people can lead to enhanced equality and safety for the whole community.

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REFERENCES


APPENDIX A
ADDITIONAL SAMPLES OF ASL VOCABULARY AND SENTENCES

<table>
<thead>
<tr>
<th>Basic vocabulary: Disaster</th>
<th>HELP</th>
<th>HURRICANE</th>
<th>SICK</th>
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<tr>
<td>WATER</td>
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<td>DOCTOR</td>
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<td>EARTHQUAKE</td>
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<td>POLICE</td>
<td>ME</td>
<td>BLIZZARD</td>
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<tr>
<td>TORNADO</td>
<td>BREATHING-MASK</td>
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Basic ASL sentences
YOU OK?
NEED WATER/BREATHING-MASK?
ME NURSE, HELP YOU.
FOLLOW ME.
TORNADO COME SOON/NOW.
HOUSE OVER-THERE.
SEE DOCTOR.
POLICE/FIREPERSON HERE.
Author Query

AQ1: Please note that article title should be sentence case per journal style.