



Public Health
Preparedness
A RAND HEALTH INITIATIVE

Enhancing Public Health Emergency Preparedness for Special Needs Populations: A Toolkit for State and Local Planning and Response



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PREFACE

Experiences from recent emergencies, such as Hurricanes Katrina and Rita, have shown that current emergency preparedness plans are inadequate to address the unique issues of special needs populations. *Enhancing Public Health Emergency Preparedness for Special Needs Populations: A Toolkit for State and Local Planning and Response* distills the most relevant strategies, practices, and resources from a variety of sources, including peer-reviewed research, government reports, and the trade literature, to identify priority populations and critical strategies. This toolkit is meant to help state and local health agencies improve their current emergency preparedness activities. In addition, community-based and/or non-governmental organizations can use this toolkit to enhance their programming for these populations.

Accompanying this toolkit is a Web-based Geographic Information Systems (GIS) tool to identify and enumerate special needs in your community (<http://www.rand.org/health/projects/special-needs-populations-mapping/>). Taken together, the two are intended to provide a comprehensive resource to enable public health planners to account for special needs populations in their emergency preparedness efforts.

Funding for this toolkit was provided by the U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response (HHS ASPR) and was executed by the Center for Public Health Preparedness within RAND Health. A profile of the Center for Public Health Preparedness, abstracts of its publications, and ordering information can be found online (<http://www.rand.org/health/centers/preparedness/>).



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A NOTE ON TERMINOLOGY

Across organizations, disciplines, and research literatures, there is no agreed-upon terminology for describing populations that are at increased risk during a public health disaster. These populations are sometimes described as *vulnerable*, *at-risk*, or *special needs*. While each of these terms captures the notion that some populations will have greater difficulty accessing needed services in an emergency, none is perfect. We adopted the term “special needs,” to correspond to the CDC’s most recent definition of this group. However, we consider these terms to be equivalent and, at times, use them interchangeably throughout this document.



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STRATEGIES FOR SPECIAL NEEDS POPULATIONS AT A GLANCE

Click to go to Strategies	<i>Disabled Populations, the Elderly, and Others with Functional Limitations</i>
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SUMMARY

What Is the Purpose of This Toolkit?

Public health emergency preparedness planning for special needs populations (e.g., individuals with disabilities, children) is critical for public health departments because individuals who might need special attention are often the most difficult to reach before, during, and after an event. As we have learned from emergencies over the past few years, our current plans are inadequate to meet the needs of these populations, and often these populations are the most negatively affected.



Andrea Booher, FEMA

To help state and local public health departments develop emergency preparedness plans to address the unique issues of special needs populations living within the community, this toolkit¹ distills the most relevant strategies, practices, and resources from a variety of sources, including peer-reviewed research, government reports, and the trade literature, to identify priority populations and critical strategies for addressing their needs. The toolkit also highlights several practices that local public health agencies have found to be effective for enhancing preparedness planning and response for special needs populations, the challenges they have faced in implementing those practices, and the strategies they have employed to overcome those challenges. Many of the strategies, practices, and resources provided here could be useful to other emergency response agencies and applicable to any emergency response.

¹The focus of this toolkit is limited to emergency preparedness and response planning for non-institutionalized community residents.



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What Is in This Toolkit?

This toolkit contains the following:

- Background and context information for the importance of incorporating special needs populations into public health emergency planning, response, and recovery, with attention to populations that are often overlooked, such as children and people with disabilities
- Potential strategies to address special needs
- Summaries of promising practices implemented in communities across the country
- Information on how to select one or more practices that will work in a specific community
- Information on how to determine whether a practice is working (Appendix A)
- The RAND Web-based Geographic Information Systems (GIS) tool to identify and enumerate special needs in communities across the United States (<http://www.rand.org/health/projects/special-needs-populations-mapping/>). Used together, this toolkit and the GIS tool are intended to provide a comprehensive resource to enable public health planners to account for special needs populations in their emergency preparedness efforts
- A list of selected resources to enhance public health emergency preparedness for special needs populations is available at:
<http://www.rand.org/health/projects/special-needs-populations-mapping/promising-practices/>.



Win Henderson, FEMA



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STRATEGY, PRACTICE, RESOURCE: WHAT'S IN A NAME?

This toolkit presents program information on several different levels. First, it provides **information** on the specific vulnerabilities of the special needs populations included in the toolkit. It then provides **strategies** that local public health agencies might use to address these vulnerabilities. The strategies tend to be rather general. Therefore, where possible, it also presents information on specific **practices** that have been implemented in health departments across the country. The practices included in the toolkit were selected because we felt they best exemplified the tools necessary to address the specific vulnerabilities identified. In addition, the toolkit offers information on the wide range of **resources** available to local public health agencies. This information provides guidance for efforts to implement strategies and practices to better incorporate populations with special needs into their public health emergency preparedness planning and response activities. Resources include links to publications, organization Web sites, checklists, templates for memorandum of understanding (MOU), sample risk-communication messages, and many other items that public health agencies may find useful.



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Who Should Use This Toolkit?

This toolkit is meant to assist state and local public health agencies improve their current emergency preparedness activities. In addition, other emergency response agencies and community-based and/or non-governmental organizations can use this toolkit to enhance their programming for these populations.

How Is the Toolkit Organized?

This toolkit is organized into several sections to meet the needs of diverse audiences. It is designed to be modular and Web-based, so that users can read from start to finish or pull out the specific sections in which they are most interested. For example, local public health officials who are less familiar with preparedness for special needs populations may choose to read the whole toolkit to learn more about which populations have special needs, what contributes to their vulnerability, how to locate these populations in their community, and what the potential strategies are for addressing these vulnerabilities. On the other hand, to enhance existing programs or overcome challenges in current preparedness planning and response activities, local public health officials with greater expertise in preparedness for special needs populations can quickly access the information on strategies, practices, and resources for a particular population.





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The toolkit is divided into three sections:

SECTION I: Overview

- Chapter 1 introduces the toolkit.
- Chapter 2 identifies a set of core strategies that are applicable to enhancing preparedness planning and response with respect to a broad range of community groups.

SECTION II: Special Needs Populations

- Chapters 3 through 6 each focus on a specific population group typically considered to have special needs. For each group, we describe the special needs and challenges faced and how these needs can be addressed, then present general tips about planning and response, as well as some sample practices.

SECTION III: Tailoring Strategies and Evaluating Progress

- Chapter 7 describes how to identify, assess, select, and tailor a practice to meet the needs of a specific community. It also discusses common challenges to successful implementation of practices, with specific examples, a discussion of common barriers to sustainability, and suggestions for how to address those barriers.
- Chapter 8 discusses how to determine whether a strategy is working. This information includes tips and strategies for monitoring performance, choosing process and outcome measures, collecting and analyzing data, interpreting results, and using this information to support program improvements.



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CHAPTER 1. INTRODUCTION

The hurricanes of 2005 highlighted the many distinct populations with unique needs during an emergency that cannot be addressed with a one-size-fits-all approach and certainly cannot be confronted during an event without careful and appropriate pre-event planning. The events of 2005, along with the passage of the Pandemic and All-Hazards Preparedness Act (PAHPA) of 2006, have catalyzed public health emergency planning for special needs populations. Incorporating special needs populations into emergency preparedness planning is important because, during an emergency, valuable resources are often stretched beyond capacity, and without proper planning, the most vulnerable populations are least likely to receive what little aid is available [1]. Moreover, effective implementation of preparedness policies, programs, and plans requires participation and compliance from all populations.

Despite improvements in preparedness over the past decade, many public health departments still struggle with addressing the many needs of populations that are most at risk for poor outcomes in a public health emergency. Fortunately, local agencies do not have to “start from scratch” in their efforts to enhance preparedness for such populations. Many strategies, practices, and resources have already been developed. One of the primary goals of this toolkit is to collect and synthesize this information, thus making it easier for public health agencies to locate and implement these resources for use in their communities.



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What Does It Mean to Have Special Needs or Increased Vulnerability During a Public Health Emergency?



Ed Edahl, FEMA

[3], ... means children, pregnant women, senior citizens and other individuals who have special needs in the event of a public health emergency, as determined by the Secretary.

This broad definition captures the essence of vulnerability, but does not explain why some people are at greater risk than others. Several reasons can be given for this increased vulnerability. One reason is that life circumstances (such as a lack of economic, cultural, or social resources) prevent many people from identifying opportunities for aid and from using available support services [4]. Vulnerability also results from the complex interactions of a person's life challenges (e.g., functional limitations, health conditions) and environment [4]. The mix of factors that put people at risk during public health emergencies—individual characteristics, material resources, culture, social support, and the environment—are unique to each community.

Although everyone is at risk for harm during a disaster, some populations have special needs that increase their vulnerability during a public health emergency. These populations are least able to take advantage of disaster preparedness planning, response, and recovery resources and activities; thus, they are at greatest risk for harm both during and after a disaster [2]. A *special needs population*, as defined in PAPHA



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Vulnerability is further complicated by factors such as local context, type of disaster, and the preparedness activities of the local health department. A health department's choices about which preparedness activities to focus on are driven in part by the types of disasters it expects to face. For example, public health departments in the western United States, where earthquakes are more likely, might focus on ensuring that special needs populations have adequate resources to shelter in place. In contrast, health departments in the Gulf Coast region (where hurricanes are a primary concern) might focus on preparing for the evacuation of special needs populations, or strengthening of infrastructure so that evacuation is not necessary.

In many cases, local public health departments will have to address multiple vulnerabilities simultaneously for any given event. For example, to ensure that public health information is available to all populations, a communication campaign will have to find ways to provide information to people with limitations in vision and hearing, as well as to people with limited English proficiency. Furthermore, some populations may be vulnerable only to the immediate dangers of a disaster (e.g., because of inability to evacuate or seek shelter), whereas others may have a harder time recovering from the event (e.g. due to poverty, illness, misunderstanding about the availability of aid, and lack of trust in the government).

Given the complexities that place particular populations at risk during and after an event, identifying how these characteristics come into play for different special needs populations will help public health authorities define who is at greatest risk, illustrate why they are at risk, and aid in the development of appropriately targeted preparedness and response plans.



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What Groups Are Included in This Toolkit and What Makes Them Vulnerable?

In addition to the lack of an agreed-upon term to describe populations who are at increased risk during a public health emergency, there is also wide variation on which populations to include within the definition. In fact, a recent Association of State and Territorial Health Officials (ASTHO) review of government documents found little consistency in either the terms used to describe those at increased risk or the population groups included [5].

In response, some have shifted toward using a functional needs-based framework [5–7]. For example, in the January 2008 National Response Framework [8], the definition of *special needs* is as follows:

Populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to: maintaining independence, communication, transportation, supervision, and medical care. Individuals in need of additional response assistance may include those who have disabilities; who live in institutionalized settings; who are elderly; who are children; who are from diverse cultures; who have limited English proficiency or are non-English speaking; or who have limited transportation options (<http://www.fema.gov/emergency/nrf/glossary.htm>).



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In this toolkit, we organize the information by the specific population groups typically identified as special needs. The specific population groups we focus on in this toolkit include the following:

■ **Disabled Populations, the Elderly, and Others with Functional Limitations²** are vulnerable because of a reduced ability to see, hear, speak and understand, remember, move or walk independently, respond quickly [6], and/or cope with unusual or stressful situations. Such limitations may impede an individual's ability to recognize, understand, and independently escape from danger. These limitations are frequently from life-long conditions or injuries causing permanent disability. However, many people not typically considered disabled also experience functional limitations as a result of advanced age, chronic disease, acute illness or injury, mental health disorders, or other health conditions, such as pregnancy or obesity. We include the following population groups because their needs for assistance in an emergency are similar to those with disabilities:

- **Elderly, particularly the frail elderly**, are included because of their physical and cognitive function-based needs, as well as the challenges they face from chronic illnesses and, in many cases, social isolation.
- **People with chronic diseases, acute medical conditions, mental health disorders, or other health conditions** are at-risk from one or more factors, including, but not limited to: dependence on medications and/or medical care; one or more functional limitations; reduced stamina; and minimal tolerance for unfamiliar environments and chaotic situations.

²We use the term *functional limitations* broadly to include disabilities associated with acute medical conditions, chronic diseases, and other health conditions.



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- **Racial and Ethnic Minorities/Limited English Proficiency (LEP) Populations** are at-risk because they encounter a number of difficulties simultaneously. They are disproportionately represented among low socioeconomic status populations, those with poor health, and the linguistically and culturally isolated. They may have low trust in traditional sources of public health information [9–11]. Moreover, LEP populations may have trouble understanding and interpreting--and thus implementing--public health recommendations (e.g., to shelter in place).
- **Children** may be separated from caregivers, have difficulty understanding what is occurring, and may need more attention and explanation. Moreover, emergency operations (e.g., shelters) may lack pediatric supplies to address the unique health needs of children.
- **Rural** populations are spread out across a broad geographic area. As a result of this dispersion and low population density, standard resources and messages may not reach all people. In addition, rural populations have higher rates of other characteristics that contribute to vulnerability, including a high proportion of elderly, high poverty rates, and increased mistrust of government.

In the following chapters, the toolkit contains for each of these populations:

- Background and context information for why the population may need special assistance in an emergency
- Potential strategies for addressing the special needs of the population and (where available) associated resources
- Summaries of promising practices that exemplify these strategies and have been implemented in communities across the country.



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Other populations may also be vulnerable because their circumstances have increased their susceptibility to harm (e.g. homeless persons, people with mental illnesses); however, there is little information available on programs designed to meet their needs. Nevertheless, strategies discussed in sections of this toolkit may be applicable. For example, programs aimed at racial and ethnic minorities could be tailored to homeless persons or migrant workers. Similarly, many of the strategies, practices, and resources outlined in the section on populations with functional limitations are applicable to those with mental health disorders. We encourage readers to consider how the strategies and practices contained herein can be adapted to the unique needs of the populations they serve.

Because some public health agencies are using a functional needs–based approach to planning for special needs populations, we have developed a simple crosswalk for mapping the strategies, practices, and resources presented here by population onto the key functional areas outlined in the functional needs–based definition (i.e., maintaining independence, communication, transportation, supervision, and medical care).

Table 1.1: Crosswalk Between Special Needs Population Groups and Potential Functional Needs–Based Areas

Functional areas	Population Groups			
	Disabled & other functional limitations (Chap. 3)	Racial/ethnic minority & LEP (Chap. 4)	Rural (Chap. 5)	Children (Chap. 6)
Maintaining independence	x			
Communication	x	x	x	x
Transportation	x	x		x
Supervision	x			x
Medical care	x	x	x	x



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How Was This Toolkit Prepared?

The ideas and strategies presented in this toolkit and the review of practices were informed by a search of the peer-reviewed research literature and of federal and trade publications on identifying best practices, social inequalities in health, and vulnerability to public health disasters. The process for selecting the practices or programs involved several steps. First, we collected a set of practices illustrating a broad range of potential interventions from several sources, including reviews of the academic literature, Web searches, and conversations with stakeholders (e.g., representatives from NACCHO, ASTHO, Public Health Advanced Practice Centers). RAND staff reviewed these practices, using RAND-developed criteria to measure three primary dimensions of the practices--effectiveness, comprehensiveness, and ease of implementation (see Appendix A for a detailed summary of these criteria)--in the absence of formal evidence. RAND staff then identified a number of practices that scored high against these criteria. We then interviewed key staff responsible for implementing the selected practices to elicit further insights about factors to consider in replicating their experience, such as the challenges they have faced in implementation or in sustaining the practice over time.



Liz Roll, FEMA

The practices detailed in this toolkit provide a broad range of promising options for public health emergency preparedness programs aimed at special needs populations. However, the set presented here is not meant to be comprehensive. Many other practices are in use that may be effective that we did not identify through our searches. Moreover, new practices are continually being developed. As such, the toolkit includes a section (Section II, Chapter 1) that describes a process for identifying, assessing, and selecting practices that will meet the specific needs of your community.





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What Does the Toolkit *Not* Contain and Where Are More Practices Needed?

The majority of the practices and strategies shared in this toolkit focus on the planning and response phases of preparedness, with less attention to aiding special needs populations after incidents and during long-term recovery. Given that many of these populations have vulnerabilities that may require more intensive intervention for longer periods after events, the emergency response community needs to develop more strategies and practices that address these later phases. In particular, strategies that focus on medical assistance (e.g., disabled), supplies (e.g., low-income), and psychological assistance (e.g., children) are needed.

In addition, this toolkit focuses on community-based populations for which there are practices and strategies that we could review. We do not include strategies, practices, and resources for addressing the needs of those with mental illness, institutionalized populations (e.g., prisons, mental health treatment centers, long-term care facilities) or homeless populations in an emergency. Clearly, emergency preparedness efforts should acknowledge these populations' unique needs with respect to sheltering in place and evacuation, but these needs are beyond the scope of this toolkit. Further, we did not include them given the relative dearth of practices currently available to meet their needs. We hope that future work will focus on developing and testing strategies for these populations.



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CHAPTER 2. CORE STRATEGIES TO ENHANCE EMERGENCY PREPAREDNESS PLANNING AND RESPONSE FOR SPECIAL NEEDS POPULATIONS

Five core strategies must be included in any planning for special needs populations during a public health emergency. Although each population has specific needs requiring unique strategies (described in Section II), these four cross-cutting approaches are essential to ensuring successful emergency planning.

Strategy 1: Identify, Enumerate, and Locate Populations

Identifying, enumerating, and locating special populations living in the community require a set of critical initial steps in emergency preparedness planning and response. A variety of resources and tools is available to help public health agencies take these steps. For example, ASTHO and CDC developed planning guidance for at-risk populations during a pandemic (available at: <http://www.astho.org/Programs/Infectious-Disease/At-Risk-Populations/>). The guidance is focused on pandemic planning more generally; however, much of the information (e.g., sources of public data that can be used) can be applied to a wide range of planning scenarios.



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Other tools use Geographic Information System technology to locate particular populations. Such tools can help planners develop, for example, city maps highlighting neighborhoods with a high concentration of older people, as well as more-detailed neighborhood maps [12]. In conjunction with this toolkit, RAND has developed a Web-based mapping tool that public health agencies can use to locate vulnerable populations in their communities

(<http://www.rand.org/health/projects/special-needs-populations-mapping/>). The mapping tool provides information on the distribution of various special needs populations across a user-defined geographic area based on Census data. The information can be viewed at several different levels of aggregation, including the Census-tract, city, county, and state levels. In addition, the tool is flexible and allows the user to define a specific area of interest, such as a particular neighborhood or set of Census tracts. Both the ASTHO planning guidance and the RAND mapping tool provide information on resources and strategies for better addressing the needs of vulnerable populations once you have identified and located them.

Another important strategy for identifying and locating special needs populations is engaging the assistance of local advocacy, service, and health care organizations that work with special needs populations. In addition, there may be a number of other community resources for identifying people with special needs, such as cultural, civic and faith-based groups and businesses that supply goods and services to particular populations.

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Strategy 2: Involve Members of Special Needs Populations in Planning

It is widely accepted that building partnerships among local response organizations is essential to effective emergency response planning. Including representatives from special needs populations as planning partners is an important and widely recommended strategy for enhancing emergency response for special needs populations. Individuals and organizations that represent special needs populations can bring valuable resources to the planning process, such as (1) knowledge and insights about the needs of their population; (2) insights into common concerns of individuals with special needs; (3) advice regarding the appropriate content and format of preparedness materials and risk-communication messages and alerts; and (4) awareness of equipment and supplies needed by responders and shelter providers. For example, these individuals and organizations can be part of emergency support functions in the National Response Framework.

In addition, representatives of special needs populations add credibility to planning and response activities and are often linked to the social and information networks that others in these population groups turn to for information. Such links are particularly important for reaching populations that have been historically underrepresented or marginalized (such as racial/ethnic minorities, those with limited English proficiency, rural populations) and have little trust in government agencies. This low level of trust may stem from poor experiences with the health care or public health systems [11], communication gaps [13], or fears about citizenship status [14, 15]. As trusted messengers, representatives from these populations are a valuable resource for promoting preparedness and for disseminating messages and alerts.



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As with all partnerships, building relationships with representatives of special needs populations involves building trust and providing opportunities for active participation in emergency response planning. Public health planners can build relationships with representatives from special needs populations in a number of ways:

- Acknowledge the value of the knowledge and insights they bring to the planning process
- Assist organizations in identifying funding resources for preparedness planning
- Include them in all aspects of preparedness planning, exercises, and drills. For instance, physically disabled individuals can help plan and conduct training for emergency management personnel to recognize and respond appropriately to the needs of people with physical disabilities
- Include organizations in the local alert network and help them to develop systems for notifying and assisting their clients in an emergency
- Enlist help from organizations to identify and obtain special equipment (e.g., Braille writers) and supplies that first responders and shelter providers will require to adequately prepare for special needs populations
- Offer multiple options for involvement and participation; for example, consider developing a community advisory committee that includes staff and clients from multiple advocacy and service organizations; charge the advisory group with providing direction and guidance on developing and implementing preparedness plans responsive to special needs populations in various emergency situations



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- Provide preparedness materials to advocacy organizations, service agencies, and support groups that are specific to the population they serve and can be distributed freely. Numerous resources are available that provide special needs individuals and their families and caregivers with guidelines about emergency supplies they should have on hand and important things to remember. Many resources are population-specific, but some could be easily adapted for more-general use. Resources include:

- Templates for developing emergency plans
- Checklists on self/family preparedness to distribute to their clients or constituents
- Materials that are translated into relevant languages and use appropriate reading levels

- Develop a self-identified registry and request that organizations encourage their clients to enroll. For example, materials for existing registries include the Linn County, Iowa, Emergency Management Agency's special needs registration card (available at: <http://www.co.linn.ia.us/files/download.asp?type=Adobe&mode=view&l=4428>)



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Strategy 3: Involve the Community in Assisting Special Needs Populations

A variety of strategies can be used to encourage general community involvement in emergency planning and response for special needs populations. Potential strategies aimed at individuals, families, neighborhoods, and community groups and organizations include

- Develop and disseminate (e.g., through community-based newsletters, newspapers, radio) general-population messages encouraging community residents to identify their friends and neighbors who would need assistance in an emergency and help them to develop a preparedness plan. Provide ideas and have materials available for the public. Specific suggestions include
 - Establish a public hotline or Web link with information and free materials for guiding people in ways they can help their friends and neighbors.
 - See the Platte County (Missouri) Health Department's NEIGHBOR-TO-NEIGHBOR (N2N) NETWORK program (available at: <http://www.plattecountyhealthdept.com/crc/n2n.html>)
 - Sheltering in place: Suggest that people help the elderly, disabled, or those with medical conditions stockpile enough supplies of food, water, and medications to safely remain in their homes.
 - Evacuation: Include ideas for encouraging people to assist neighbors to evacuate safely. "Safely Out," is an example of an established community program focused on safe evacuation.



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SAFELY OUT™

SAFELY OUT™ is a project that encourages members of the public to assist their disabled and special needs neighbors in disasters. Citizen Voice, a nonprofit organization that motivates citizens to become involved on behalf of those who are vulnerable, developed SAFELY OUT in partnership with the American Red Cross chapter in Sacramento, California.

A major component of the project is the **SAFELY OUT KITS**, which contain practical items for ensuring that critical information is readily at hand. For example, a zip-close bag with a large green SAFELY OUT logo is included for medications and critical information. The kit also includes an erasable pen and a refrigerator magnet with a foldout section for writing in essential medical and contact information.

The other major component of the SAFELY OUT program is the “leave-behind” alert system, which consists of door hangers—one that is red, stating, “Need Help.” The other sign is bright green and states, “Safely Out”; in addition, the Safely Out sign has a place at the bottom to write in who was evacuated and where they were taken.

The SAFELY OUT project also includes community outreach efforts, online resources, and a speaker’s bureau for providing community education and training about the program.

For more information, please visit:
http://www.citizenvoice.org/safely_out_home.shtml



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- Encourage health care providers, home health agencies, and businesses that provide goods and services to special needs populations to promote preparedness among their clients and patients; provide materials that they can freely distribute. For example, The University of Louisville (Kentucky) Hospital, in association with the Kentucky Department for Public Health (DPH), developed materials to assist individuals with chronic disease and their family members and caregivers in preparing for disasters and managing chronic diseases in crisis situations. A patient resource manual, a participant manual, and materials for teaching patients and caregivers can be downloaded for free. ***Disaster Preparedness for Persons with Chronic Disease*** (available at: <http://www.chronicdiseasepreparedness.org/>)
- Engage established organizations (e.g., Neighborhood Watch); cultural, civic, and faith-based groups; and schools in broadly disseminating preparedness information and materials. Examples of freely available materials for facilitating community engagement include
 - ***Investigating Community Preparedness*** (available at: http://www.fema.gov/kids/tch_ex1.htm) is an exercise for middle- and high-school students that provides an opportunity to explore preparedness activities in their community.
 - ***Are You Ready? Facilitator Guide (IS-22FG)*** is a tool that can be used by individuals and community organizations (e.g., Community Emergency Response Teams [CERT], Medical Reserve Corps [MRC], faith-based groups) to present content from ***Are You Ready? An In-depth Guide to Citizen Preparedness*** (available at: http://www.fema.gov/pdf/areyouready/areyouready_full.pdf). The Facilitator Guide includes instruction modules for adults, older children, and younger children. A resource CD is also included and contains customizable presentation materials, sample training plans, and other disaster preparedness education resources. The Facilitator Guide is available through the FEMA publications warehouse (1.800.480.2520).



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Strategy 4: Coordinate Preparedness and Response Efforts with Relevant Organizations

In addition to engaging population representatives and organizations in preparedness planning, it is important to coordinate response plans among the relevant organizations that serve special needs populations. Such coordination includes drafting emergency plans directly with the facilities and community-based organizations (CBOs) that care for and support these populations (e.g., long-term care, day care, assisted living facilities). Coordinating response plans is essential to ensuring that multiple organizations are not all relying on the same resources, such as supplies and transportation services. Moreover, coordination may also increase communication among organizations and the development of partnerships. Planners can

- Establish a notification hotline or other mechanism to alert facilities to begin early evacuations
- Include plans for transporting emergency supplies during evacuation or shelter in place
- Plan for transportation of facility staff and truck rentals to get water, food, and medical supplies to facilities
- Plan for including personal caregivers and/or essential family members when transporting individuals who are disabled, elderly, or have functional limitations.

In addition to coordinating response plans among organizations, these plans must also be integrated into the larger jurisdictional plan (FEMA Guide). Working with other health departments in the area, as well as with first responders, community organizations, and businesses, is essential to developing integrated response plans for special needs populations. Developing and executing formal agreements, such as memoranda of understanding (MOUs), with other organizations can facilitate this collaboration. MOUs should clearly outline each party's respective roles and responsibilities. A variety of templates is available for developing MOUs. For one example, see Appendix B of *Partnering to Achieve Rural Emergency Preparedness: A Workbook for Healthcare Providers in Rural Communities*, developed by the USA Center for Rural Public Health Preparedness at Texas A&M University [16]. Finally, working with these organizations to provide a single, consistent message or set of messages about preparedness (i.e., risk communication) is critical.





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Strategy 5: Promote Community Resilience for Special Needs Populations as Part of Emergency Response Planning

Building *community resilience*, or the capability to rebound from a disaster [1], is a cornerstone of public health emergency preparedness. Enhancing resilience is considered critical to mitigating existing vulnerabilities, reducing negative consequences, and rapidly restoring community functioning. The need to improve the resilience of the population is particularly acute for special needs groups, who may not have adequate resources to support their daily functioning, much less functioning during emergencies.

As part of ongoing emergency planning, communities should consider how they are meeting the health needs of populations. All communities should implement strategies that will ensure that special needs populations have access to needed, quality health services during and after an emergency event. Communities should continue to improve access to quality health services at all times across all populations. Ensuring good quality and access to basic preventive and curative care, including essential drugs and vaccines for all, with special focus on those with special needs - the elderly, the very young, pregnant women, the disabled, and the chronically ill - is important.

In addition, communities should work on addressing chronic diseases, such as obesity, that can place populations at greater risk during an emergency. Further, helping those with chronic illness manage their conditions on a daily basis, plan for emergencies, and develop evacuation plans is critical.

All aspects of health vulnerability are worsened by poverty and inequality. Thus, it is also important to address social and economic inequities before an emergency occurs, so as to mitigate the negative impact of a disaster on the health of those with limited resources [17, 18].

For additional resources broadly applicable to special needs populations, please go to <http://www.rand.org/health/projects/special-needs-populations-mapping/promising-practices/common-strategies/>



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CHAPTER 3: DISABLED POPULATIONS, THE ELDERLY, AND OTHERS WITH FUNCTIONAL LIMITATIONS

There are various definitions of *disabled populations*. However most encompass multiple, diverse groups of people with different conditions that affect sensory, cognitive, or physical, capabilities [6, 19]. According to the Americans with Disabilities Act, *disability* is defined as, “a mental or physical impairment that substantially limits one or more major life activities” [20].

In the context of emergency preparedness and response, the term *disability* is misleading and should be considered more broadly [21]. Many individuals who could be characterized as disabled are highly independent, and they do not consider themselves disabled [6]. In an emergency situation, they may require little or no additional assistance beyond that provided to the general public. In contrast, countless people who are not typically considered disabled require additional assistance in various emergency situations. For example, people with a health condition, such as pregnancy or obesity, may have mobility limitations similar to those with physical disabilities. Those with acute medical conditions or chronic diseases may have multiple functional limitations. In addition, lack of essential medications and medical care substantially increases the risk for further deterioration in their health [22]. Thus, we include multiple subpopulations within this chapter to highlight the importance of recognizing that populations at-risk for needing additional assistance in an emergency include all individuals with function-based needs, regardless of whether they are considered disabled. We also include the elderly because of the increased prevalence of chronic diseases and functional limitations that are associated with aging. Specifically, this chapter addresses the following populations:

- Visually impaired
- Hearing impaired
- Cognitively impaired
- Physically limited and/or disabled
- Elderly
- Dependent upon medical care, equipment, and/or medications.



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Why Are These Populations Vulnerable in a Public Health Emergency?



Center for Universal Design

Visually Impaired. Individuals who are blind or visually impaired are vulnerable in emergency events as a result of their limited ability to perceive visual messages and to visually assess unfamiliar environments. Nearly 10 percent of non-institutionalized adults 18 and over report trouble with their vision [23]. Consequently, those with such impairments will miss visual cues, such as hand signals, colors, and flashing lights [24]. They may also be unaware of vital emergency information that is disseminated only in visual formats, such as signs and symbols, or that is unavailable in Braille. In dangerous environments or cluttered areas, visually impaired individuals are at increased risk of injuries, particularly if they become separated from their service animals or assistive devices (e.g., canes). Further, in unfamiliar surroundings such as emergency shelters, they may be unable to perform self-care activities unless properly oriented to the physical space.

Hearing Impaired. Approximately 17 percent of non-institutionalized adults 18 years of age and over report trouble with their hearing [23]. People who are deaf or hearing impaired are limited in their ability to hear environmental sounds and, in some cases, to communicate verbally. Consequently, in a public health emergency, those with hearing impairments will be particularly vulnerable if they are unable to hear alarms or spoken announcements; unable to access and receive instructions and vital emergency information; or unable to call for help and communicate with first responders or search-and-rescue personnel. Most individuals with hearing impairments communicate using sign language or lip reading, in addition to using a communication assistive device, such as hearing aids and TTY/TDD.³ Thus, in emergency situations that result in limited use or loss of their communication aids, hearing-impaired individuals are particularly vulnerable.

³TTY/TDD: teletypewriter/telecommunication device for the deaf.



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Cognitively Impaired. Cognitively impaired individuals can be vulnerable in emergency events due to limitations in their ability to understand announcements and alerts, read or comprehend signs or written information, follow directions or respond to instructions from first responders or search-and-rescue personnel, express their needs, or interpret events. They may not understand what is happening or be able to cope with the event; they may become easily confused and upset in unfamiliar surroundings, with people they do not know, or in unusual situations, particularly those that are chaotic. Although many cognitively impaired individuals live independently or with minimal assistance, others require supervision and may depend on family members or caretakers for assistance with daily living activities. They are particularly vulnerable if they become separated from caregivers or are in mass shelters where others may take advantage of their limitations.

Physically Limited and/or Disabled. Populations with physical limitations include people with serious illnesses, chronic diseases (e.g., hypertension, diabetes), and other health conditions (e.g., pregnancy, obesity), as well as those that are physically disabled. Typically, preparedness planning and response assume that most adults are able-bodied and can walk independently and quickly for more than a short distance; navigate stairs and uneven terrain; stand for extended periods; and ride in a car, bus, or train [21]. Moreover, emergency plans assume that adults are capable of independently caring for themselves in a broad range of situations and under less than ideal, and often uncomfortable conditions. However, people with physical disabilities and limitations may be unable to perform one or more of these activities and often require mobility aids, such as wheelchairs or walkers, to enable them to move independently.



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Dependent on Medical Care, Equipment, and/or Medications. The number of people in the United States with chronic diseases (e.g., hypertension, diabetes, asthma) is substantial, and most depend on ongoing medical management and regular medications to stay well. This population is vulnerable in emergency events that interrupt their usual sources of medications, treatments, supplies, and health care. Without their essential medications and medical care, many could suffer a rapid deterioration in health. In addition, people with chronic diseases are also less able to tolerate physical stress from extremes in temperature or extended periods without adequate food and water, conditions that may follow an emergency event. At even higher risk in emergency situations are those with serious medical conditions (e.g., paralysis, kidney failure) that require specialized treatments (e.g., dialysis), around-the-clock skilled care, and life-sustaining equipment (e.g., ventilators, IV fluids, oxygen), which must have a constant power supply.

Elderly. Recent disasters, including Hurricanes Katrina and Rita and the heat waves in Chicago, were shocking illustrations of how vulnerable the elderly, particularly the frail elderly, are in disasters and the disproportionate effect disasters have on them [22, 25, 26]. Over 12 percent of people in the United States are aged 65 and older, and approximately half of that population is aged 75 or older [27]. Numerous physical, psychosocial and economic factors contribute to the increased vulnerability of the elderly in public health emergencies. Many elderly people have multiple functional limitations and chronic conditions that tend to be more severe with increased age. In addition, some older persons experience general “frailty” [26]. The characteristics of *frailty* can include muscle weakness, slow walking, exhaustion, low physical activity, and little tolerance for physical stress. The elderly are also more likely than others to be socially isolated, lacking families, friends, and neighbors who can provide assistance when an emergency occurs. Finally, the elderly often have difficulties with transportation, because they are more likely to have a disability, have limited income, or choose not to drive [28].



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Issues That Flow from These Vulnerabilities and Strategies for Addressing Them

The need for assistance within these populations varies with both the level of functional limitation and the nature and scope of the emergency.

Many people with functional limitations are completely independent under normal circumstances, and they may require assistance beyond that of the general population only in certain emergency situations. The type of assistance they are likely to require will differ according to their own level of functional limitation and the circumstances of the event and the emergency response. For example, individuals who are physically disabled and wheelchair-bound are likely to require special assistance if evacuation and transport are required. However, in a situation where sheltering in place is recommended, physically disabled individuals who live independently in the community will not necessarily require more assistance than that provided to the general public. Thus, the circumstances surrounding an event are a critical factor in determining what type of response will be necessary and who will most likely need assistance.

- *Identify the most likely emergency scenarios for the community and work through them to understand how disabled or other functionally limited populations will be affected.* Hazard and vulnerability risk assessments can be conducted at the state and local levels to identify the scenarios for which the community needs to plan. A number of resources are available to assist in conducting such assessments. In particular the University of California, Los Angeles, Center for Public Health and Disasters has developed a Hazard Risk Assessment Instrument (<http://www.cphd.ucla.edu/resources.html>) for use by state and local public health agencies. Once the planning scenarios have been selected, public health agencies should work through them with community-based organizations to understand how different populations would be affected and develop solutions.



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- *Engage community-based organizations that serve these populations.* Individuals who are disabled or face other functional limitations are expert in understanding their own capabilities, limitations, and challenges as well as those of others with similar characteristics [7]. Therefore, as we have noted in the common strategies, local public health agencies can improve their preparedness and planning activities by soliciting input from organizations that represent or support these populations.

Some people will require assistance to access and receive vital emergency information.

Communication raises challenges for populations that have visual, hearing, or cognitive impairments. Identifying and implementing strategies to address these challenges will facilitate a more effective and equitable response. Health departments will need to use a variety of strategies to ensure that all people have access to needed information.

Strategies for visually impaired populations

- *Coordinate with community organizations to develop calling trees.* Since the visually impaired may rely on the telephone for information, consider developing a calling tree, in which visually impaired people volunteer to call other visually impaired people in their community to relay important emergency messages.
- *Offer a telephone messaging service for the visually impaired.* Consider a blast calling service, such as those used in political campaigns, with a recorded public health message. The service could be targeted to the visually impaired. Participation in the program could be facilitated by working with community-based organizations that represent or serve the visually impaired population.
- *Translate all communications into Braille.* Any materials that are distributed before, during, or after an emergency should be made available in Braille. In addition, the public health agency should identify situations in which written instructions would be used, such as Points of Dispensing (PODs) for countermeasures and mass care shelters.



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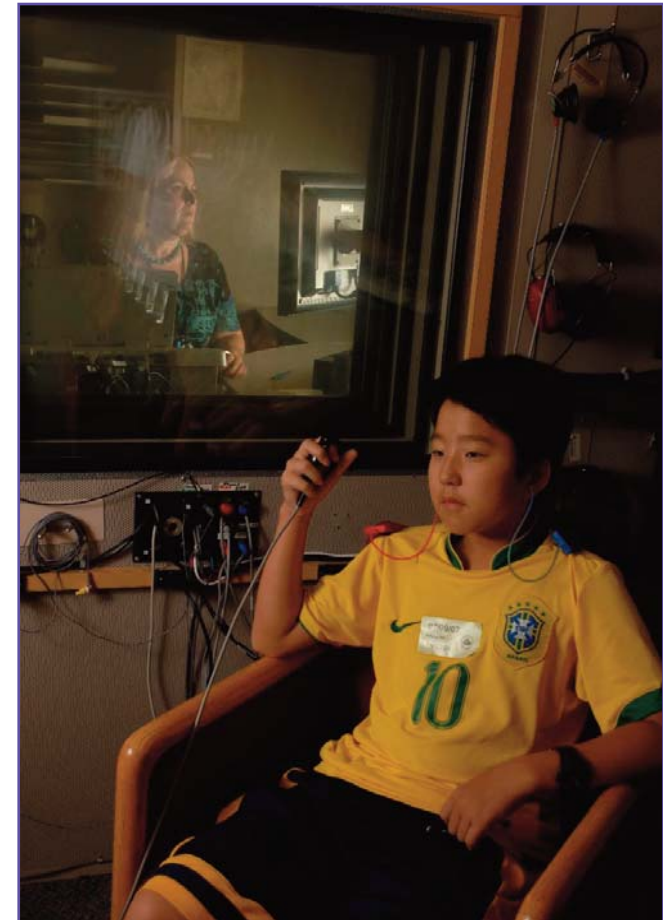
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Deaf, hard-of-hearing, and speech-impaired populations

- *Adapt risk-communication messages, announcements, and alerts into various non-auditory formats.* Using a variety of formats and technologies to disseminate a message can substantially increase its reach into the hearing-impaired community. CDC has developed a useful resource to assist communities in disseminating messages to the hearing impaired. The series of hurricane-preparedness videos in American Sign Language are available at: <http://emergency.cdc.gov/disasters/hurricanes/asl/>. In addition, the remote notification system, described below, which disseminates weather alert messages via email and pagers, could be adapted to distribute public health messages to the hearing-impaired population.



National Institute on Deafness and Other
Communication Disorders (NIDCD)



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OK-WARN: A Remote Notification Program for the Hearing Impaired

Remote Notification (OK-WARN [Oklahoma Weather Alert Remote Notification]) is a program developed in partnership with the Oklahoma Departments of Emergency Management and Rehabilitative Services, the National Weather Service, and other organizations to disseminate emergency messages via email and pagers to those who are deaf or hard-of-hearing. Interested individuals register themselves to participate in the program, and, in the event of a weather alert or an emergency, they are notified by the OK-WARN system. Message recipients must supply their own pager or other communication device, but the service is free.

For more information, please visit:

http://www.ok.gov/OEM/Programs_&_Services/OK-WARN/index.html



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Cognitively impaired populations

- *Adapt risk-communication messages, announcements, and alerts into simplified versions and formats; incorporate pictures, drawings, or objects when possible.* Ensuring that risk-communication messages are easily understood will increase the likelihood that recommended actions (e.g., washing hands frequently, evacuating an area) are taken, thus decreasing the morbidity and mortality associated with the emergency. It can be very helpful to prewrite messages for likely disaster scenarios. Doing so will allow time for development of the message in multiple formats, one of which could be targeted toward people with cognitive impairments. In addition, these messages can then be tested to ensure that they are easily understood by the targeted population.
- *Train first responders to communicate with people who are cognitively impaired.* Improving communication can help ensure that the needs and concerns of the cognitively impaired population are addressed. Moreover, it will save time for the first responders (e.g., avoid unnecessary medical assessments, increased cooperation) and improve outcomes for the affected individual. The Woodside Fire Protection District in California has developed a set of training tools, described below, that first responders can use to improve their ability to effectively communicate with people who are cognitively impaired.



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When Words Are Not Enough

The Woodside Fire Protection District in Woodside, California, developed a program to train first responders to communicate with individuals who have disabilities that may impair communication. The program includes a manual with information on various disabilities and associated communication difficulties, a video showing communication techniques, a communications booklet for hands-on use during a response, and a poster for schools and organizations to use, which depicts first responders as “friends” and shows them in action.

For more information, please visit:
<http://www.woodsidefire.org/words.shtml>



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Center for Universal Design

Services that people may rely on (e.g., home health care, food delivery) could be disrupted in an emergency.

Some people with functional limitations rely on a range of medical and human services on a day-to-day basis. In an emergency, many of these services may be limited or not available at all, thus increasing the vulnerability of this population.

- *Work with service organizations to ensure a continuation of services before, during, and after emergencies.* Public health agencies need to work with organizations that serve these populations to develop plans for the provision of essential services during an emergency. For example, the public health agency, prior to an event, could work with these organizations to develop and disseminate a list of alternative agencies and organizations that provide the services they need as part of preparedness. In addition, they could work together to identify ways to provide additional support and resources to organizations that provide essential services to the elderly, such as Meals on Wheels, in the wake of a disaster.

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- *Individuals should be encouraged to assess their needs before a disaster and take actions to prepare.* Public health agencies could work with community-based organizations that serve people with functional limitations to encourage them to prepare themselves for a disaster. A number of resources available to assist in these efforts. For example, the Red Cross provides a useful resource that lays out specific actions people with different types of limitations should take. For instance, the tip sheet for the hearing impaired includes a checklist of actions, such as storing extra hearing-aid batteries and making preprinted messages (e.g., “I speak American Sign Language (ASL)”). These resources could be used directly (<http://www.prepare.org/disabilities/disabilities.htm>) or adapted to fit the needs of a particular community. As another example, the Department of Homeland Security has posted a video on its Ready.gov site that provides information for people with disabilities and their families about how to prepare for a natural disaster (http://www.ready.gov/america/about/_flash/movie14.html). In addition, resources are available to assist these populations develop or obtain emergency-supply kits. The practice developed by the Aging Services Council of Central Texas, described in the following box, provides a good example of how this strategy can be implemented to increase individual preparedness within the elderly population. However, the strategy could easily be adapted to other populations with functional limitations.



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The Aging Services Council of Central Texas's Emergency Supply Kits for Homebound Elderly Residents

The emergency-supply kit is essential for disaster preparation; however, many homebound, ill, or low-income individuals are unable to assemble the items needed to weather a disaster. Recognizing this need, the Aging Services Council of Central Texas embarked on a 2-year project to plan, assemble, and distribute emergency-supply kits to Austin residents who were elderly and homebound. The kits provided sufficient food, supplies, and information for elderly residents to survive during a short-term emergency (72 hours). More than 750 kits were distributed by the program. The emergency-kit program also was an impressive collaborative effort. At least 22 nonprofit agencies participated in the program, in addition to local supermarkets and vendors who donated food and supplies.

Among the lessons learned from the project was insight into the unique needs of low-income elderly individuals. Program managers discovered that some of the individuals who received the kits ate the food before an emergency occurred. This highlighted the need for additional supportive services for the low-income elderly residents of Austin.

For more information, please visit:
<http://www.agingervicescouncil.org>



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- *Actively reach out to provide assistance in the wake of a disaster.* Social isolation limits the support network for some and thus their ability to respond effectively in an emergency. Moreover, it has been noted that, in particular, older people are slower to register for disaster assistance; when they do register, they more commonly have difficulty in effectively navigating the complicated processes [29]. For this reason, it is essential that the agencies that regularly provide financial, medical, food, and/or transportation assistance be proactive in offering assistance, rather than waiting for requests [28]. Public health agencies can reach out to these populations in a number of ways. For instance, they can target outreach efforts by using information from GIS mapping technologies such as the one RAND has developed, which is available at: <http://www.rand.org/health/projects/special-needs-populations-mapping/>.
- *Develop a community-based network to provide assistance to people with physical limitations.* Community networks will be particularly useful in providing services in an emergency to people with functional limitations. Not only are these networks made up of trusted messengers, their members are also likely to be located in greater proximity to the population in need. A good example of how this strategy can be implemented is the Neighbor to Neighbor (N2N) Network developed by the Platte County Health Department in Missouri. The N2N encourages neighbors to work together to organize themselves to provide support to each other in an emergency. The goal is to develop a local network to help ensure that everyone, particularly those people with special needs, is cared for in an emergency. For more information on the N2N please see <http://www.plattecountyhealthdept.com/crc/n2n.html>. Another option is to develop and disseminate (e.g., through community-based newsletters, newspapers, radio) general-population messages encouraging community residents to identify and assist their physically disabled friends and neighbors in an emergency. The SafelyOut™ program, described in Chapter 2, takes this approach to encourage people to assist their disabled neighbors in preparing for a possible evacuation.



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Evacuation can raise a number of challenges for people with functional limitations.

People with functional limitations, particularly those with limited mobility, may need special assistance to escape from danger or evacuate their homes.



Andrea Booher, FEMA

- *Develop plans for identifying, ahead of time if possible, people needing assistance to evacuate.* To effectively plan for the evacuation of people requiring special assistance, public health agencies need information on how many people will need help and what they will need. GIS tools, such as the one developed by RAND (available at: <http://www.rand.org/health/projects/special-needs-populations-mapping/>), can provide information on the number of people. Another option is to ask people to self-identify through a special needs registry, although the information will not be comprehensive, because not all people with special needs will choose to participate in the program for a variety of reasons (e.g., lack of trust that the information will be used appropriately). The Special Needs Assistance Program (SNAP) is one example of how a registry can be implemented.



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The Special Needs Assistance Program (SNAP)

Since 1980, the Special Needs Assistance Program (SNAP) has provided the Fort Worth–Tarrant County Office of Emergency Management with information on residents in Tarrant County, Texas, who have permanent disabilities. SNAP has recently moved the registry online and added a Geographic Information System (GIS) component.

The SNAP registry encourages residents to annually register with the Office of Emergency Management and provide disability-specific information, such as the need for life-support systems or mobility aids to help emergency responders better prepare for disasters. The registry is linked to a GIS mapping tool that allows emergency planners to visualize the location of residents with special needs. To encourage people to use the registry, SNAP has formed strong partnerships with community organizations, such as Meals on Wheels.

SNAP program managers have learned a number of lessons as they continue to grow and refine the program, including how to balance overarching program goals with realistic outcomes when resources are limited. The program employs interns to update the registry, and it partners with community organizations. In addition, SNAP works with local utility companies to promote the program. Residents recently received information on the SNAP registry in their monthly water bills.

For more information, please visit:
www.snapforyou.org



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- *Develop evacuation plans that ensure access to special equipment (e.g., portable oxygen tanks, devices to secure wheelchairs) needed to evacuate people with physical limitations and serious medical conditions.* Disabled individuals who are wheelchair-dependent, bedridden, or have significant physical limitations may require special equipment, such as ramps, hydraulic lifts, or extra-large stretchers, to safely move them out of their homes. The transport vehicles must also be equipped with portable oxygen tanks, uninterrupted power supplies, and devices to secure wheelchairs, stretchers, and medical equipment. Caretakers or family members who provide essential care and support may need to be transported as well (Transportation Research Board). In addition, physically disabled individuals depend upon mobility aids to maintain their independence; it is critical that these aids accompany them in transit and to shelters. To have a good sense of what equipment will be needed, it is important to know how many people in the community will need assistance. Several tools for obtaining this information are described above. Once information about the potential need for assistance and special equipment is obtained, evacuation plans can be updated. It is important during this process to communicate with public health agencies in surrounding jurisdictions to ensure that multiple agencies are not counting on the same resources (e.g., ambulances).
- *Train first responders to assist people with visual impairments.* The visually impaired could have difficulties safely navigating unfamiliar surroundings. People with visual impairments will benefit from efforts to alert them to their physical surroundings, particularly stairs and uneven surfaces. Providing information to first responders on the special needs and concerns of the visually impaired will improve responders' ability to assist this population in an evacuation. The Office on Disability within the U.S. Department of Health and Human Services (HHS) has compiled a set of tips for first responders, which includes a section on the visually impaired (<http://www.hhs.gov/od/tips.html>), that could be used in training sessions and/or disseminated to first responders throughout the community.



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Staying in mass care shelters can raise challenges for people with functional limitations.

Navigating unfamiliar, crowded, and chaotic environments can be difficult for people with functional limitations. Such problems can be mitigated by a planning process that considers the special needs of populations with functional limitations:

- *Use intake assessments to identify functional-independence needs.* As people enter a mass care shelter, they are typically assessed for health conditions. Those intake assessments should seek to identify functional-independence needs. The Initial Intake Assessment form developed by the Red Cross and the U.S. Department of Health and Human Services (http://www.acf.hhs.gov/ohsepr/snp/docs/disaster_shelter_initial_intake_tool.pdf) includes such questions and serves as a useful resource for local public health agencies. The assessment form can be used to determine whether an individual's needs exceed what the shelter is able to provide. If so, they can be triaged to a special needs shelter that is better equipped to address the person's needs.
- *Develop a plan for addressing the needs of the elderly in mass care shelters.* The trauma of unfamiliar settings or separation from family and/or caregivers may determine how many elderly individuals respond to disaster situations. For older individuals, the effects of intense situations, such as a disaster, are often compounded by the cumulative effect of the multiple losses that are likely to occur in the later years, such as the deaths of relatives or friends, or the loss of income or housing. Many experience "transfer trauma," which can result in illness or even death, after being moved from their homes or from nursing facilities [30]. The Seniors Without Families Triage tool is one option that public health agencies might consider adapting to fit their specific needs.



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The Seniors Without Families Triage (SWiFT)

Often in the case of evacuation, family members are separated. Whereas services exist to reunite children with their caregivers, similar services are largely unavailable for frail older adults. It is important to have a system in place to screen and reunite these individuals with their families or caregivers. The Seniors Without Families Triage (SWiFT) is an assessment tool for frail elders in a mass shelter. The triage tool was developed for victims of Hurricane Katrina who were housed in the Reliant Astrodome Complex (RAC) in Houston, Texas.

As Katrina evacuees arrived at the RAC, it became clear that a special triage was needed for older individuals who were separated from their families or caregivers. Medical personnel working at the RAC, including nurses, gerontological social workers, physicians from a number of disciplines, pharmacists, physical therapists, phlebotomists and other health care professionals were deployed to the facility to address the medical and social needs of the shelters' residents. The Baylor College of Medicine faculty worked with the Harris County Health Department and the Harris County Hospital District to provide leadership and physician infrastructure.

SWiFT workers were able to successfully triage the elderly Katrina evacuees in the Astrodome. The tool is now used by agencies and organizations throughout the state of Texas.

For more information, please visit:
<http://www.bcm.edu/pdf/bestpractices.pdf>





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- *Ensure that mass care plans address the special needs of people with physical limitations and chronic diseases.* Without proper planning, mass care sheltering can be very difficult for people with physical and mobility limitations. For instance, plans should ensure that the shelter or receiving facility is accessible⁴ to individuals with limited mobility and can accommodate their mobility aids and caretakers. In addition, the shelter needs to have staff present who understand the needs of those with physical limitations and medical conditions and who have the knowledge and experience to provide the appropriate level of assistance or medical care. The Federal Emergency Management Agency (FEMA) has put together a reference guide for accommodating people with disabilities in mass care shelters. The guide (available at <http://www.fema.gov/oer/reference/index.shtm>), focuses on the equal- access requirements for people with disabilities and can inform local planning efforts.

For resources available to assist in enhancing public health emergency preparedness among the disabled and others with functional limitations, please go to <http://www.rand.org/health/projects/special-needs-populations-mapping/promising-practices/disabled-populations/>.

⁴Accessible is defined in the National Response Framework as: "having the legally required features and/or qualities that ensure entrance, participation, and usability of places, programs, services, and activities by individuals with a wide variety of disabilities." The NRF Glossary is available at: <http://www.fema.gov/emergency/nrf/glossary.htm>



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CHAPTER 4: RACE, ETHNICITY, AND LIMITED ENGLISH PROFICIENCY (LEP)

Why Are Minorities and LEP Populations Vulnerable in a Public Health Emergency?

Racial and ethnic minorities and LEP populations are vulnerable to harm during a public health emergency for several reasons: They are more likely to be among those with less income and less education and those who lack the material resources needed to navigate a disaster [17, 18]. Minorities often have higher rates of disability and poor health [4, 31]; and they are more likely to be culturally or linguistically isolated [17, 18]. Low trust in traditional sources of public health information may also serve as a barrier to successful navigation of public health emergencies by some of these groups [9–11]. Because racial and ethnic minorities and LEP populations are likely to encounter multiple difficulties simultaneously, they are not only vulnerable to the immediate impact of an emergency but are also less able to rebound after the threat has passed and are at greater risk for longer-term ill effects [17, 18, 32, 33].

Issues That Flow from These Vulnerabilities and Strategies for Addressing Them

To overcome the challenges posed by the complex interactions of these vulnerabilities, local public health agencies should consider how best to integrate factors related to resources, race, culture, health, and language into public health emergency planning and preparedness efforts [17]. The challenges that minorities face in public health emergencies, as well as some strategies that local health departments can implement to address these needs, are discussed in more detail in the remainder of this chapter. Additional strategies can also be found among the chapters of this toolkit that focus on other special needs populations (e.g., disabled). Moreover, all of the common strategies described earlier in this toolkit (e.g., involving members of the special needs population in planning, coordinating efforts with relevant organizations, and identifying and locating special needs populations) are relevant to minority and LEP populations.



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In addition to consulting the practices illustrated in this toolkit, public health departments can identify additional resources through organizations such as the National Resource Center on Advancing Cultural Preparedness for Diverse Populations at www.diversitypreparedness.org.

Low levels of income, education, and wealth reduce the capacity of minority and LEP populations to prepare and respond to public health emergencies.

One of the key challenges that minorities face is that they are more likely to be found among groups that lack the resources to navigate an emergency. For example, the poverty rates of both African Americans and Latinos are more than twice that of whites and Asians. African Americans and Latinos also have the lowest educational attainment of all race groups [34]. As a result, public health departments might consider some of the following strategies:

- *Create evacuation plans that do not rely on individual resources.* Low-income populations may not own cars or have access to extra cash for temporary housing. The city of New Orleans, Louisiana recently provided an example of how to address such shortages. In 2008, the city set up temporary shelters in locations away from the oncoming danger of Hurricane Gustav. Residents needing the shelters were taken from the city on buses and Amtrak trains. Seventeen locations across the city were identified as loading sites where residents without cars could gather to board local buses that would take them to the Amtrak Terminal.
- *Provide premade home disaster kits for low-income populations.* Without financial resources, people are less able to stockpile resources to prepare for an emergency. Although the makeup of disaster kits will differ by region, potential disaster, and individual needs, FEMA offers information on what their most important contents are: http://www.fema.gov/areyouready/assemble_disaster_supplies_kit.shtm



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Adam Dubrowa, FEMA



Liz Roll, FEMA

- *Plan for longer-term food, shelter, clothing, and medical needs of recovering low- income minority populations.* Because of higher poverty, members of minority groups are more likely to reside in dense neighborhoods with poorer-quality housing, which places them at increased risk for losing their homes during a physical disaster, such as a hurricane, tornado, or earthquake [18]. Reduced access to resources also hampers individuals' ability to find jobs and housing after the immediate effects of a disaster have passed [18].
- *Communicate information about legitimate disaster-related resources.* There is some evidence to suggest that minority and LEP populations are at risk of falling victim to fraudulent recovery services [18].

One way to bolster the availability of resources for these populations is to improve the public health emergency preparedness capacity of the local nonprofit community. This is the goal of the Seattle King County Vulnerable Action Team (VPAT) which is described in more detail below.

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Vulnerable Populations Action Team

Seattle King County Public Health has partnered with various community-based organizations (CBOs) to create the Vulnerable Populations Action Team (VPAT). VPAT is a collaborative community-based network focusing on the public health preparedness needs of populations with special needs. At its core, VPAT builds on the established relationships that CBOs have with their clients so that in the event of an emergency, VPAT contacts the CBOs and they, in turn, ensure that vulnerable populations receive real time critical health alerts and instructions. One of the strengths of VPAT, however, is that it is not merely a communication tool, but it also works to build the capacity of local nonprofits to serve the overall public health preparedness needs of these groups. Since 2006 they've provided small grants to CBOs to develop emergency plans and have partnered with Community Agencies Responding to Disaster--a nonprofit organization based in Oakland, CA--to provide technical assistance and conduct trainings.

VPAT is also strengthened by its use of some of the other promising practices discussed in this report. For example, it identifies its vulnerable populations and their needs through the use of GIS technology and by fielding community surveys. For example, focus groups were conducted with African Americans, Mexican Americans, and Vietnamese Americans to help the public health department craft public health messages targeted toward these populations. VPAT also works with relevant public health and community based experts to identify the specific populations that are in need and the organizations that are best equipped to serve them.

Evidence of the success of VPAT came in 2006 when an immigrant population in the community began burning charcoal to keep warm. A local hospital reported an increase in the incidence of carbon monoxide poisoning to the health department, which activated the VPAT. Other vulnerable populations were promptly informed of the dangers of carbon monoxide poisoning, thus avoiding additional harm.

For more information, please visit:

<http://www.kingcounty.gov/healthservices/health/preparedness/VPAT.aspx>



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Health, disability, and health insurance are also critical determinants of vulnerability among minority populations.

Minorities and LEP populations have the highest rates of disability [31], suffer disproportionately from disease and injuries [35–36], and have the lowest rates of insurance [37]. Poor health and inadequate health insurance coverage among minorities also mean that they may be more likely to rely on informal networks or patchworks of supports and services [4]. This increased dependence on others means that, as populations evacuate, shelter in place, or respond to personal needs, the availability of these networks may diminish [4]. Multipronged efforts are needed to address these concerns. As a result, local health departments should consider strategies recommended in the disabled chapter (Chapter 3) of this toolkit, including *creating registries of disabled persons within the minority and LEP populations to facilitate advance planning for their needs; and equipping shelters with appropriate medications, medical supplies, and facilities to address their short-term needs*. In the longer term, it will also be necessary to

- *Coordinate efforts with relevant organizations.* For example, conducting tabletop and other training exercises with scenarios focused on minority disabled or chronically ill patients can address concerns over whether emergency responders and public health agencies are adequately prepared to cope with their unique mobility or health care needs [25]. A number of organizations can help identify how to conduct such exercises. For example, the NICOS Chinese Health Coalition sponsors community-wide disaster drills in San Francisco's Chinatown neighborhood. More information on these exercises can be found on their Web site at: <http://www.nicoschc.org/cdrp.html>. The nonprofit organization Collaborating Agencies Responding to Disaster (CARD) also works with public health agencies to conduct such exercises with minority and other special needs populations. For more information, see CARD's Web site at <http://www.FirstVictims.org>
- *Seek out information on the special needs and concerns of the minority and LEP populations.* The North Carolina Pandemic Flu Program provides a good example of how a public health agency can reach out to minority populations to identify and address their unique needs and concerns.



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North Carolina Pandemic Flu Program Old North State Medical Society

To ensure that special needs populations in North Carolina received timely and accurate information on pandemic flu, the Old North State Medical Society and the Department of Public Health embarked on a campaign to identify gaps in pandemic flu information and services. This pandemic flu outreach and education campaign targeted the three main racial and ethnic minority groups in North Carolina: African Americans, Hispanics, and American Indians. Identification of gaps was accomplished through (1) a survey of the state's minority populations' needs in the case of pandemic flu, (2) a disparities-prevention action plan developed to guide health efforts that engage racial and ethnic minority groups, and (3) pilot projects to reach residents with critical information through the development of local partnerships and population-tailored communication strategies.

One of the primary strengths of this program is that it is directly measuring the needs of area minorities through a survey and focus groups conducted by a trusted community partner, the Old North State Medical Society—which primarily serves African American physicians. Through these surveying efforts, the state has been able to pinpoint the specific needs of these groups for their pandemic preparedness planning activities and develop appropriate strategies.

For more information, please visit:
<http://www.oldnorthstatemedicalsociety.org/index.html>



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Cultural and linguistic isolation can shape communication and meaning, perceptions of risk, and the capacity to understand public health messages [13–15, 17].

Preparing for the unique needs of culturally and linguistically isolated populations includes implementing the common strategies of identifying and locating special needs populations and coordinating efforts with the community-based organizations that care for and support these populations. Coordination with CBOs can help to inform local health departments about cultural nuances that are important to effective communication and program development. Such coordination efforts may also lead to partnerships for other public health activities. For example, CBOs can serve as critical components in community-based public health communication strategies, since they have the capacity to share public health information with the populations they serve and they can communicate back to local health departments about the needs of their constituency. Other strategies include the following:

- *Construct preparedness and response programs in a manner that is consistent with cultural differences in living arrangements, family structure, and behavioral norms.* Cultural norms can affect how racial and ethnic minorities perceive public health services and programs; if services are offered in ways that ignore these norms, these groups may not use them or benefit from them. A review of failures in responding to the needs of racial and ethnic minority populations in past disasters identified several problems. For example, relief workers preparing meals after the Loma Prieta earthquake used ingredients unfamiliar to Latino residents, which made them ill; Haitian families displaced by Hurricane Andrew in Florida were forced to live in housing designed for nuclear families, even though their family structures tended to include many more members. Similarly, in Alaska, the Bureau of Indian Affairs provided temporary housing relief for Alaskan Native survivors of an earthquake and tsunami. However, this housing inappropriately emphasized living room areas over the kitchen (the primary gathering spot in the home for these families) [18].



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- *Translate materials into the languages spoken in the local community; help culturally or linguistically isolated populations understand the steps they must take to protect themselves in an emergency.* Although many public health departments are working toward translating emergency information into appropriate languages, even these messages may be misunderstood when the literal translations fail to capture critical differences in how the underlying concepts are understood in other languages and cultures. One way to overcome such misunderstanding is through the use of audio and visual tools and pictograms to represent the appropriate steps to be taken [17].
- *Communicate in more than one medium.* Translate TV and radio messages, as well as written information, to ensure that important messages are available wherever and however people access them.
- *Tailor messages to persons with low literacy by using audio and visual aids and use multiple media to convey public health information, including radio, television, print, and the Internet.* This practice will help address the difficulty that low education, low literacy, and limited English proficiency make for communicating risk [14, 15, 17, 18]. For further information and access to relevant communication tools, see the National Resource Center on Advancing Emergency Preparedness for Culturally Diverse Communities at: <http://www.diversitypreparedness.org/>

The Emergency and Community Health Outreach (ECHO) program in Minnesota employs many of the strategies described above. ECHO provides information on how to coordinate with local nonprofits to improve the communication of public health information to diverse communities.



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Emergency and Community Health Outreach (ECHO) Association of Minnesota Counties

Emergency and Community Health Outreach (ECHO) is a risk-communication program created by the Minnesota Department of Public Health targeted toward LEP populations. ECHO provides ongoing public health information on public television. They've produced a series of 20-minute programs in several different languages, including Hmong, Khmer, Lao, Somali, Spanish, Vietnamese, and English, covering a range of topics, such as Lyme disease, severe weather warnings, and pandemic influenza. They also have the capacity to transmit information during an emergency. During such a scenario, ECHO would receive, translate, and distribute health and safety information through a network of community partners and via television, phone, and the Internet.

One of ECHO's critical successes has been in forging a positive response among a diverse population. It has done this by customizing each topic for each language and featuring native-speaking on-air personalities and expert guests. These offerings are possible because ECHO has worked diligently to develop a coalition of a wide range of organizations from state, county, and local health and service agencies, many of which serve the populations they are attempting to reach.

For more information, please visit:
<http://www.echominnesota.org/>



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Because of cultural and linguistic isolation, minority and LEP populations are also more likely to rely on alternative sources of information, such as family, friends, and neighbors who are of the same racial or ethnic background or speak the same language [13, 14]. As a result, local health departments might also consider the following strategies:



CDC

■ *Rely on existing communication/social networks and people to convey critical public health information.* For example, many Vietnamese survivors of Hurricane Katrina sought shelter provided by various Vietnamese American religious organizations in the community. According to survivors, doing so was beneficial because these shelters always provided information in Vietnamese and gave them a sense of continued community [14].

■ *Develop programs to train and deploy health promotores and medical interpreters as messengers of public health information.* Doing so can increase the capacity of the local public health department to communicate information in a culturally competent manner and may also aid in other key tasks, such as disease surveillance [15]. For more information on a novel program to train health *promotores* for public health purposes, see the description of the El Paso *Promotores* program below.

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Public Health Promotores

City of El Paso Department of Public Health

In 2006, the city of El Paso, Texas, experienced significant flooding. To address the growing needs of limited English proficiency populations, the health department engaged in a multistep program. First, they used GIS technology to map areas with high concentrations of LEP persons within the flooded regions. Next, they enlisted the services of lay promotores at El Paso Community College and professional *promotores* at Texas A&M University to go into communities with larger numbers of LEP populations and communicate critical public health and security information about the dangers of flooding. *Promotores* used bilingual, written and spoken information to communicate with residents about West Nile virus, fraudulent repair contractors, cleaning the mess left by the flood, and mold and mildew concerns. Promotores also provided a list of the resources that were available, including links to organizations providing aid and instructions on registering with FEMA.

Although the program was never formally evaluated, anecdotal evidence suggested that the Promotores were well received and trusted in these communities. As a result, participants were much more likely to take advantage of the available resources.

Additional information may be obtained by contacting:
Joanne Bates, MPA, MPH, Training Specialist
City of El Paso Department of Public Health.
joanne.e.bates@tmo.blackberry.net





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Even the most effective public health departments may not be trusted by minority populations.

Although distrust is not universal or unique among race groups and LEP populations, it can shape responses to public health messages for some. Low trust may stem from poor experiences with the health care or public health systems [11]; communication gaps [13]; or fears about citizenship status [14, 15]. As a result, public health departments should consider the following common strategies for coordinating efforts with relevant organizations and including representatives of minority populations in planning sessions to build trust and to open a dialog for exchanging critical information:

- *Clarify when and how citizenship affects access to aid and develop communication strategies on this point.*
- *Identify trusted messengers and information networks, and use them to convey public health warnings and directives.* Using trusted messengers is a critical component of communicating to populations low in public health trust. The Public Health *Promotores* program demonstrates how these local resources were successfully used in an emergency situation to communicate with low-income, limited English proficiency populations who were affected by flooding.

For resources available to assist in enhancing public health emergency preparedness among racial and ethnic minorities and LEP populations, please go to <http://www.rand.org/health/projects/special-needs-populations-mapping/promising-practices/limited-english-proficiencies/>.



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CHAPTER 5. RURAL POPULATIONS

Why Are Rural Populations Vulnerable in a Public Health Emergency?

Although rural populations vary considerably according to the regions where they live, they share some individual- and community-level characteristics that make them particularly vulnerable in a public health emergency.

Rural populations have high rates of other characteristics that contribute to vulnerability, such as advanced age, poverty, and lack of insurance. In addition, some individuals living in rural areas, particularly those that are the most isolated, may have a very independent nature and tend to view government with some skepticism, making them less likely to cooperate in an emergency by heeding public health warnings or complying with public health orders or recommendations (e.g., to become vaccinated, to evacuate, to shelter in place).

Community factors also play a role. First, rural populations are at-risk because of their proximity to a range of potential terrorist targets, such as nuclear facilities, chemical plants, military bases, and agriculture. However, many people living in rural communities may not be fully aware of the range of public health threats they face. As a result, they may not feel an urgent need to prepare for public health emergencies, which contributes to their vulnerability. Second, geographic dispersion of the rural population creates challenges for an effective public health response—in particular, making it difficult to provide any home-based services (e.g., delivery of countermeasures, assistance with evacuation, door-to-door delivery of information). Third, many rural communities face barriers to communication among their members, particularly those that are most geographically isolated: Internet, television, and telephone service coverage can be sparse. Finally, the limited public health and medical infrastructure in rural areas constrains the ability of these systems to meet the increased demand for services in an emergency, thus making the populations they serve more vulnerable.



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Issues That Flow from These Vulnerabilities and Strategies for Addressing Them

In this section, we highlight a set of strategies, practices, and resources that could help to address the characteristics of rural populations that make them vulnerable in a public health emergency. We organize the information by the individual- and community-level factors described above that contribute to the vulnerability of rural populations.

Rural populations have high rates of people with characteristics such as advanced age, poverty, and lack of insurance that exacerbate their vulnerability.

Strategies to address these vulnerabilities include two of the common strategies noted in Chapter 2:

- *Identifying and locating individuals in the community with additional special needs (e.g., elderly, chronically ill, low-income, limited English proficiency;*
- *Building relationships with community- and faith-based organizations to reach out to, learn about, and communicate with the special needs populations in the rural community.*



Bob McMillan, FEMA



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Rural populations can be independent by nature and skeptical of government interventions.

As such, they may be less likely to heed public health warnings, comply with public health orders or recommendations (e.g., to become vaccinated, to evacuate, to shelter in place), and to access resources, potentially making them more vulnerable.

- *Use community- and faith-based organizations as liaisons to communicate important public health messages.* Community- and faith-based organizations that serve populations that may distrust the government can act as liaisons and trusted messengers to such groups in an emergency. It is important to develop relationships with these organizations now, because it will be extremely difficult, if not impossible, to do so during an emergency. The ECHO program (<http://www.echominnesota.org/>) described in Chapter 4, uses community partners to help disseminate messages.



Leif Skoogfors, FEMA

On a related note, tribal organizations and authorities play a critical role in public health emergency preparedness. Working with these entities to plan for emergencies will facilitate greater preparedness for everyone. The example below from New Mexico describes the strategy the state Department of Health used to engage the tribal population in pandemic preparedness. Additional resources and strategies for engaging community- and faith-based organizations were provided in Chapter 4.



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New Mexico Tribal Outreach for Pandemic Planning

In New Mexico, the Department of Health developed a tribal outreach project to assist tribes with pandemic planning. Department staff developed a train-the-trainer manual on pandemic influenza. They then conducted training sessions in a number of locations throughout the state, including four on reservations. The training session comprised two main parts: presentations by health department staff and time for attendees to practice presenting the materials. The objective of the outreach project was to empower tribes to improve their pandemic preparedness.

The train-the-trainer model has been an effective way of providing pandemic preparedness information to a hard-to-reach population. The tribal members who participate in the training serve as trusted messengers and are best able to convey important public health messages to the tribal population.

For more information, please visit:
<http://pandemicpractices.org/practices/resource.do?resource-id=153&-id>



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- *Study how people in the community are likely to respond to potential public health orders or recommendations.* It is important to have an understanding of how the people in the community are likely to react to different public health interventions or recommendations. The effectiveness of a public health response is substantially affected by the extent to which the public follows recommendations and complies with public health orders. Understanding the unique concerns of the community will help to develop response plans that address those concerns and increase adherence to public health recommendations and participation in response activities [38]. Having good relationships with the community- and faith-based organizations that serve these groups and engaging them in the planning process can help identify and address these concerns. In addition, public health agencies can conduct community focus groups to gain a better understanding of their concerns.
- *Take advantage of rural populations' independent nature and promote individual preparedness.* The independent nature of the rural population provides some advantages for this population in an emergency in that they are typically better prepared to shelter in place and care for themselves. Health departments serving rural communities should take advantage of competence and foster greater individual preparedness. One option for doing so is to conduct information campaigns about the importance of individual preparedness and what can be done to become prepared. A number of resources are available that can be shared with your community to promote individual preparedness. Ready.gov contains extensive information on individual and family preparedness, including materials that can be downloaded and distributed. Similarly, RAND developed a reference card that can be distributed that describes what people might experience as a result of a chemical, radiological, or biological terrorist attack, as well as what actions can be taken now to prepare (http://www.rand.org/pubs/monograph_reports/MR1731.2/).



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Rural populations may have a false sense of safety, believing that only urban centers will be affected by terrorist attacks.

People in rural areas may believe that only urban centers will be targeted by terrorists; consequently, they may not be willing to invest time and resources in preparing for an emergency. However, even if an attack or natural disaster occurred in a city, rural areas could be significantly affected as the urban population evacuates the city and flows into the rural areas, stressing their public health and medical systems. Moreover, rural populations could be directly affected by natural disasters or terrorist attacks. For instance, many nuclear power facilities and chemical plants are located in rural areas and are potential terrorist targets [38]. In addition, the agricultural industry is primarily rural and susceptible to agri-terrorism. Therefore, complacency on the part of rural populations can inhibit preparedness activities needed to respond to the wide range of threats they face:

- *Communicate about potential threats.* To gain a better understanding of the risks a particular community faces, public health agencies, in conjunction with emergency management and law enforcement, should conduct hazard vulnerability and risk assessments on a regular basis. The UCLA Center for Public Health and Disasters has developed a hazard-risk-assessment tool that state and local public health agencies can use to identify the most likely disaster scenarios for their community (<http://www.cphd.ucla.edu/resources.html>). To the extent possible, the results of such assessments should be communicated to the public, along with information about what they can do to prepare (see the individual preparedness resources described above). Public communication could be done through town hall and township meetings, risk-communication campaigns, and by working with community-based organizations.



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- *Engage the rural community in preparedness-planning activities, including exercises covering the most likely scenarios.* Getting community members involved in preparedness planning has a number of benefits. For example, it will help them gain an understanding of the risks that the community faces and what will be needed to conduct an effective response. In addition, it provides an opportunity for the public health agency to learn more about the community's perceptions of risk, concerns about potential public health interventions, and specific needs in an emergency. Most importantly, engaging the community in planning will give community members greater ownership of the plan and help to better define the role of the public in a response, thus fostering greater community participation in the development of a preparedness plan and its execution when an emergency occurs.

Rural populations are spread across a large geographic area, making some response activities more difficult.

By definition, rural populations are small and spread out across a large geographical area. This dispersion and low density create a number of challenges for public health preparedness and response. For example, many people live long distances from towns and face other transportation barriers (e.g., weather-related isolation) that restrict their ability to participate in some public health emergency response activities. Dispersion also makes any home-based services difficult to provide (e.g., delivery of countermeasures, assistance with evacuation, door-to-door delivery of information).



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- *Promote individual preparedness in the community.* It can be challenging to deliver services to a population that is spread out across a large geographic area, and some people may have to wait to receive services. Promoting individual preparedness (e.g., ability to shelter in place, care for one's self and family) will be helpful in mitigating the effect of any delay. Resources are available that can be used to promote individual preparedness, and there are resources to assist people in providing care at home in the event of an emergency that overwhelms the health care system. For example, the county public health department in Santa Clara, California, has developed a guidebook for providing care at home during a pandemic. The guide, which can be found at http://pandemicpractices.org/files/187/187_handbook.pdf, includes information on how to prepare your home (e.g. what supplies to keep on hand), how to provide care (e.g., signs of dehydration and how to give liquids), and when to seek medical treatment. The Lincoln County Public Health Department in Wyoming has developed a DVD that teaches people about providing care at home. The topics covered include infection control, personal protective equipment, basic nursing skills, and management of death, dying, and grief. A flash version of the DVD can be accessed online at <https://umconnect.umn.edu/sickathomemovie1hr10min>.
- *Develop community networks to assist in gathering and delivering information or services in an emergency.* Because it can be difficult for a small rural health department to reach all members of the community quickly in an emergency, some rural areas have developed community networks that can be used to help assess community needs and deliver information and services. Such networks can improve the effectiveness of an emergency response, but also day-to-day public health practice. The example below describes a successful effort in Kentucky to build this type of community network. Although it focuses on communicating with hard-to-reach special needs populations, the approach is applicable to the challenge of reaching rural populations.



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Kentucky Outreach and Information Network (KOIN)

The KOIN is a network of community-based organizations that has been formed to help distribute information in an emergency to hard-to-reach populations. The resource people included in the network serve as liaisons between the emergency responders and the special needs populations. They are trusted messengers, which increases the likelihood that emergency messages are received, believed, and acted upon. The network, which was formed in 2004, has grown to over 400 members.

The development of KOIN was informed by a survey of special needs populations in Kentucky. The survey found that, for these populations, local sources of information, such as pastors, caseworkers, and community-based organizations were more trusted than outside sources, such as the state Department of Health. From this finding, KOIN was developed to be a network of such local sources to serve as conduits of information in an emergency. To maintain the network, KOIN distributes newsletters and holds yearly workshops to raise awareness among network members about disaster preparedness and to hear from members about how best to reach the populations with whom they work.

For more information, please visit:
<http://chfs.ky.gov/dph/epi/preparedness/KOIN.htm>



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Rural communities face a variety of communication challenges.

Rural populations can be vulnerable in a public health emergency because of the many communication challenges rural public health agencies face. While nearly all local health departments provide staff with computers and access to the Internet, the proportion of small health departments (i.e., those serving less than 25,000 people) that do not have a Web site remains relatively large, at nearly 50 percent [40]. The challenge is compounded by the sparseness of coverage in many rural communities of Internet access, television reception, and telephone (both cell and landline), thus limiting the usefulness of these media for transmitting crisis and emergency risk-communication messages.

- *Conduct an assessment of communication needs and capabilities in the community.* Some rural residents may not have access to traditional modes of communication, such as television and telephone. Consequently, to develop an effective emergency communication plan, rural communities must conduct an assessment of their communication needs and capabilities. In many cases, multiple modes of communication will be needed to reach the entire community. A number of strategies can be used to gather information from the community regarding the types of communication to which they have access, including surveys or working with community- or faith-based organizations that serve the community.



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- *Develop community networks to assist in gathering and delivering information or services in an emergency.* Community networks will be particularly useful in delivering information to rural communities in an emergency. Not only are such networks made up of trusted messengers, their members are also likely to be located closer to the population in need, and they are in a better position to

assess the needs of the population and deliver important messages, in person. The KOIN, described above, provides one good example of how this type of strategy can be designed and implemented. Another good example that uses a somewhat different approach is the Neighbor to Neighbor (N2N) Network developed by the Platte County Health Department in Missouri. The N2N encourages neighbors to work together to organize themselves to provide support to each other in an emergency. The goal is to develop a local network to help ensure that everyone, particularly those people with special needs, are cared for in an emergency. For more information on the N2N, please see <http://www.plattecountyhealthdept.com/crc/n2n.html>.



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Rural communities have limited public health and medical infrastructure.

In general, rural public health departments and medical care providers have less capacity and fewer resources than their urban counterparts [39]. In many cases, rural communities face a shortage of public health practitioners and health care providers, and thus lack the capacity to meet the surge in demand for health care and public health services that would arise from a public health emergency. Moreover, it is common in rural communities for people to play multiple roles (e.g., the mayor is also the fire chief), which can limit capacity in an emergency. Another factor that contributes to this problem is that rural communities often lack trained experts in a variety of fields, including epidemiology, trauma care, and emergency management, that would be needed in an emergency. Finally, rural health departments and medical providers often lack the resources to purchase and implement technological improvements that would facilitate an effective public health and medical response (e.g., interoperable communication systems, electronic syndromic surveillance systems). The lack of infrastructure and resources in rural communities limits the ability of the public health and medical care systems to respond in a public health emergency, thus contributing to the vulnerability of their rural populations.

- *Develop and execute agreements with other health departments in the region to share resources in an emergency.* Working together with the other health departments in the area can help expand resources and services available to the community. Formal memoranda of understanding (MOUs) should be developed to clearly outline each party's respective roles and responsibilities. A variety of templates for writing MOUs is available. For one example see Appendix B of *Partnering to Achieve Rural Emergency Preparedness: A Workbook for Healthcare Providers in Rural Communities*, developed by the USA Center for Rural Public Health Preparedness at Texas A&M University [16].





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- *Train nonmedical personnel and community volunteers to assist with a public health and medical response.* Given that the public health and medical care systems in rural communities are often stretched by conducting routine, day-to-day activities, fulfilling the surge in demand for their services during a public health emergency can be very challenging. One option for mitigating this problem is to train non-public health personnel to assist with a public health and medical response. Toward that end, the Montgomery County, Maryland, health department, in conjunction with the Center for Public Health Preparedness at the Johns Hopkins University Bloomberg School of Public Health, developed a training guide for local health departments to use to prepare non-public health workers to assist in a response. The training guide [41] provides a series of presentations with speaker's notes on a range of topics, including, among others, an introduction to public health preparedness, radiological agents, risk communication, and personal and family preparedness. The presentations serve as a starting point and can be adapted to fit the needs of a particular community. For more information on the training guide, please see <http://www.montgomerycountymd.gov/content/hhs/phs/APC/jhmmanual.pdf>.

- *Develop policies and protocols for triaging people seeking care in an emergency.* Effective triaging ensures that scarce medical resources are used in the most effective way possible. A number of communities have developed triage strategies and made them available through the Internet. The Promising Practices for Pandemic Influenza Web site, developed and maintained by the Center for Infectious Disease Research and Policy at the University of Minnesota, provides a range of examples of triage strategies for pandemic influenza (<http://pandemicpractices.org/practices/list.do?topic-id=5>).

For resources available to assist in enhancing public health emergency preparedness among rural populations, please go to

<http://www.rand.org/health/projects/special-needs-populations-mapping/promising-practices/rural-populations/>.



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CHAPTER 6. CHILDREN

Why Are Children Vulnerable in a Public Health Emergency?

Children are often overlooked in public health emergency planning, but they can have special needs that should be considered before, during, and after an event. These needs are biophysical and emotional, and they also can vary considerably by developmental age. In addition, since children can be separated from their family during an event, schools and child care facilities are integral in any preparedness plans addressing pediatric needs.

First, children are uniquely susceptible to many man-made disasters (e.g., chemical or biological attack) because of their physical characteristics. For instance, children have rapid respiratory rates compared with adults, thus increasing their absorption of aerosolized chemical or biological agents [42]. In addition, children have greater surface area relative to their body mass, and particularly young children (less than 6 months) absorb more through the skin, potentially increasing their exposure to higher doses of an agent. Further, children with special health care needs may be more susceptible to such agents, particularly if they are reliant on specific medical equipment to maintain their daily functioning [43].

Second, children can experience an array of psychological consequences during and after an emergency [44]. They have their own anxieties, which may be exacerbated by their parents' anxious response. Children also may be separated from parents or other family members, increasing their potential anxiety or fear during an emergency. Children may also have difficulty understanding what is occurring and may need more attention and explanation.



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Issues That Flow from These Vulnerabilities and Strategies for Addressing Them

Children may physically experience an attack differently

As described, children have distinct physical features that may render them more vulnerable in an emergency, particularly those that are chemical, biological, or radiological. It is critical to consider these features when planning for supplies needed at shelters, child care facilities, schools, or other evacuation sites. Some strategies that are useful to consider include

- *Ensure that adequate decontamination equipment suitable for pediatric populations is available.* Children have more surface area relative to body mass, and thus they may dehydrate more quickly in decontamination showers.
- *Account for differential dosing requirements.* Children also require different dosages of medication because of their weight and the way that they metabolize agents. It is critical that those providing prophylaxis or antibiotics to children are aware of proper dosing algorithms. Children may also have difficulty swallowing tablets or capsules and often reject medications that taste bad. Mixing medications with fruit juice or semi-soft foods such as applesauce often make medications more palatable and easier to swallow; thus, it is important to have such items on hand. See Pediatric Terrorism Preparedness National Guidelines for dosing charts [45].



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- *Use appropriate pediatric triaging methods.* The Pediatric Terrorism Preparedness National Guidelines [45] suggest that all first responders use a common pediatric triage process, such as JumpSTART Pediatric Multiple Casualty Incident Triage <http://www.jumpstarttriage.com/>. JumpSTART was developed in 1995 to parallel the structure of the START system, the adult mass-casualty-incident triage tool most commonly used in the United States and adopted in many countries around the world. These guidelines also suggest engaging in a pediatric-specific disaster risk assessment involving all sectors--child care, schools, emergency management services (EMS), health care, etc.



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- *Ensure that children with special health care needs have adequate home health care plans.* Some children with special health care needs rely on electrically powered medical equipment and/or home health workers. It is critical to have backup plans in the event of a power outage and uninterrupted power supplies. Further, if a home health aide is incapacitated or there is a call to shelter in place, parents or other family members must be trained to assist. Maintenance of medication regimens is also critical, so arrangements for an additional supply need to be established with the assistance of pediatricians and pharmacies. As part of an article on emergency preparedness for pediatric populations, the American Academy of Pediatrics has forms to help develop emergency plans for children with special health care needs (<http://pediatrics.aappublications.org/cgi/content/full/104/4/e53>).



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Children may experience immediate and long-term emotional reactions to an event and need opportunities to express their feelings.

In most instances, children recover from a disaster or traumatic event without the need of intervention. However, some children may not process these events so well. For example, children who are more sensitive or empathetic might struggle with events more. Plus, children can be disconnected from parents if an event starts while they are at school or in child care settings, and they may need to rely on other adults to evacuate them or shelter them in place, which can raise anxieties. In the acute phase of an event and immediately following an event, children may be fearful, have trouble sleeping, or be more irritable. Their response often varies by developmental age; therefore, strategies that are appropriate for them differ by age group as well (see Table 6.1). This experience may be more prolonged for some or result in greater impairment, ultimately requiring formal psychological intervention [46].



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Table 6.1: Children's Response to and Needs During an Emergency, by Age

Age group	How might they experience an emergency/?	What do they need during an emergency?
Infants and toddlers (younger than 3 years)	irritability crying changes in their regular habits	peaceful environment if available reassuring adults normal routines limited exposure to media accounts of the emergency
Young children (3–5 years)	confuse reality with fantasy fear of abandonment clingy behavior	peaceful environment if available reassuring adults normal routines limited exposure to media accounts of the emergency time to play and express thoughts
Elementary-age children (6–12 years)	irritability regressive behaviors trying to identify with adult roles	routines opportunities for guided media exposure use of drama and art to express themselves help with safety measures help from community members
Teenagers (13–18 years)	overwhelmed by emotion (either very involved or detached) take family responsibilities	need to talk about what is occurring serve actively in response with adults but have time to not be involved too



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Other strategies to help children cope with the stress of an event include the following:



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- *Provide children with a way to express their feelings via play or writing.* Have toys, journals, and coloring books for these activities on hand.
- *Provide constant reassurance and a chance to resume normal routines as quickly as possible.* Children need to feel optimistic about the response and feel that adults are calm in the event. They take their emotional cues from adults; thus, reassuring them throughout the emergency is important.
- *Engage children in the event response-and-recovery efforts* (e.g., handing out supplies). Such participation can be a useful way to boost their sense of self-efficacy and help them regain some power or control.

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To the extent possible, children should be encouraged to prepare so that they know what to expect during an event, particularly if they are away from home. Strategies may include the following:

- *Consider engaging children in creating safety kits as part of school projects.* Emergency preparedness can be included as a part of a homework assignment and will help children to feel more empowered if an emergency occurs. Plus, these activities often motivate families to develop and practice their emergency protocols. Check out the FEMA for Kids Web site for more information: <http://www.fema.gov/kids/>.
- *Ensure that school leaders, child care staff members, and other adults who work with children have training in how children may react during an event.* Such training may include skills, such as how to address the immediate needs of children and the possible short- and long-term psychological consequences (see NC Child Care Training Program below). For instance, school nurses play a critical role in addressing the needs of children. According to the National Association of School Nurses (NASN), school nurses can establish safety programs to mitigate the effect of a disaster, develop the school's response capabilities, and provide a source for first aid. Counselors who are appropriately trained often can provide the mental health services following the emergency.



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NC Child Care Training Program

In North Carolina, the Department of Health and Human Services, in collaboration with the School of Public Health at the University of North Carolina, developed a training program for child care providers. The goal of the training is to build supports to ensure the safety and well-being of children in regulated child care facilities in the state. The training includes a curriculum focused on how to plan for emergencies, determine risks to the community, prepare children and staff for what an emergency may entail, and respond appropriately during an event. The model employs a “train the trainer” approach, whereby a corps of individuals is trained to subsequently conduct trainings with staff at child care facilities. The training provides in-service credits for child care providers, a strategy that enhances the potential reach of the program. One challenge is that it can be difficult to work with providers in child care facilities that are not traditionally center-based (e.g., home care), but children in such facilities is an important population to reach, given the numbers of families choosing them as a child care option.

For more information, please visit:
<http://www.childcarehealthtraining.org/>



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Children need to obtain information about the event in ways that they can understand. In addition to helping children to express their feelings about an event, it is also critical to remember that risk-communication materials need to be tailored to the developmental needs of children. Most materials that are created use language that is more appropriate for adults; yet, children--and particularly school-age children--may benefit from some information about what is occurring and what they can expect. Materials that are most useful are those that use engaging graphics or pictures and simple language. The American Academy of Child and Adolescent Psychiatry has some helpful guidelines (<http://aacap.org/page.do?name=Helping+Children+After+a+Disaster§ion=Facts+for+Families>).

Many children may be at school or in a child care facility during an emergency event, and thus families need to be aware of emergency procedures if their child must shelter in place or evacuate.

- *Institutions that serve children (schools, child care facilities) must share emergency plans with parents/caregivers well in advance of an event.* In a major disaster, parents seeking to pick up their child from a facility may contribute to more chaos or disorder for emergency responders.
- *School and child care agencies should outline how their plans may differ by type of event and offer multiple contact methods for parents (e.g., during a power outage).* These sites may also be well served by including parents/caregivers on emergency planning committees so that their needs and concerns are adequately addressed. It can be challenging to communicate with parents during an event. It is critical to prepare parents early about possible communication challenges and how they should respond if their child's school or child care facility closes.
- *Public health agencies should develop strong partnerships with facilities that will provide resources during an event.* Without these partnerships, it is difficult to evacuate or maintain usual operations if the need is to shelter in place or evacuate. For example, developing memoranda of understanding/agreement (MOU/MOA) with transportation companies that can be used if children need to be evacuated from schools or child care facilities is a useful strategy.





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Contra Costa School Action Planning

In Contra Costa County, California, local public health leaders developed a school action kit that includes tools on how schools should plan for pandemic flu. The toolkit includes materials on how to identify and report signs and symptoms, and on how and when to dismiss school; templates on communicating with parents and the media; and strategies on how to prevent the spread of germs. The planning process highlighted how important it is to include a diverse set of stakeholders in planning for how schools will respond to the needs of students and families. Ensuring that these individuals are included early in the process will help to identify places in which these school plans are not logistically practical.

For more information, please visit:

http://www.cchealth.org/topics/pandemic_flu/school_action_kit/

For resources available to assist in enhancing public health emergency preparedness among children and families, please go to <http://www.rand.org/health/projects/special-needs-populations-mapping/promising-practices/children/>.



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CHAPTER 7. CHOOSING PRACTICES THAT WILL WORK FOR A SPECIFIC COMMUNITY

Choosing a program or practice to implement in a specific community can be daunting. However, it can be made easier by breaking the process down into basic steps. Through our review of the literature on vulnerability and the interviews we conducted with staff involved in designing and implementing programs for special needs populations, we have identified several steps that local public health agencies can take to inform their decisions regarding which programs and/or practices are a good match for their community:

1. Specify the population group(s).
2. Determine the size of the group(s) and its geographic distribution within the community.
3. Identify potential programs and practices (where a practice is based on a body of professional research).
4. Assess the options and make a selection.
5. Tailor the program or practice to your community.

The objective of this chapter is to help local agencies walk through these basic steps and to provide a wide range of resources they might access along the way. In each section, we describe the critical questions that should be considered, offer suggestions for addressing those questions, present information on the choices that peer organizations have made, and provide links to additional resources.



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Specify the Population Group(s)

Some local public health agencies will come into the process knowing exactly which population groups they want to incorporate into their public health emergency preparedness planning and response activities. Others, however, may not have such definite information. In the latter case, the agency should use local data (e.g., Census data, administrative data from human service agencies) to gain a better understanding of the different special needs populations in its community and their relative sizes. This type of information will help guide decisions regarding the types of programs that will be most relevant and useful in their community. For example, addressing the needs of disabled persons may require greater focus on mobility, whereas racial and ethnic minorities and LEP populations may require greater attention to building and sustaining trust.

In addition to this toolkit, local public health agencies have at their disposal a number of resources they can use to identify who their special needs populations are. Web sites maintained by both the Centers for Disease Control and Prevention (CDC) (<http://www.bt.cdc.gov/>) and the Association of State and Territorial Health Officials (ASTHO) (<http://www.astho.org/Programs/Infectious-Disease/At-Risk-Populations/>) contain resources that highlight several additional steps that staff can walk through to identify their most at-risk populations. Of particular interest may be the CDC's draft Workbook to Define, Locate and Reach Special, Vulnerable, and At-Risk Populations in an Emergency (Draft) (<http://www.bt.cdc.gov/workbook/>).



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Determine the Size and Geographic Distribution of the Group(s)

Once the agency has decided which population group or groups to focus on, it is important to geographically map the distribution of each group throughout the community. Many health departments use Geographic Information Systems technology for this mapping. GIS tools have the capacity to reveal locations of special needs populations, assess geographic vulnerabilities, and identify local resources that local public health agencies might lean on in their efforts to target appropriate services. Examples of the use of these tools are found among several of the programs highlighted in this toolkit.

To facilitate the use of GIS for all public health agencies, RAND has created a new publicly accessible tool that maps the locations of five special needs groups (e.g., frail elderly, children, disabled, racial and ethnic minorities, and those who are resource-poor) at the Census-tract level for every community in the country. Using this tool, public health practitioners will be able to identify hot spots of higher-than-average concentrations of special needs populations, compare relative population sizes of vulnerable populations, access additional data on selected geographic areas, and view information on the practices highlighted in this report. For information about how to access the RAND GIS mapping tool, go to <http://www.rand.org/health/projects/special-needs-populations-mapping/>.



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Identify Potential Practices

After selecting a population group, local public health agencies will need to look for programs or practices that address the needs of that population. Most of the practices that we identified through our searches are designed to improve communication with the population of interest. However, an agency may be interested in finding programs addressing other public health functions, such as countermeasure dispensing (e.g., making Strategic National Stockpile (SNS) Points of Dispensing accessible to people with mobility impairments) or evacuation (e.g., identifying and assisting people who require assistance in evacuating). A number of resources are available to identify potential programs or practices for consideration. In the population-specific chapters of this toolkit, we highlight a number of practices that have been used in other jurisdictions. Other resources include

- *ASTHO's At-Risk Populations in Emergencies: A Review of State and Local Stories, Tools, and Practices* (accessible at <http://www.astho.org/Programs/Infectious-Disease/At-Risk-Populations/ARPP-State---Local-Review,-April-2008/>) is a report that highlights a number of peer-reviewed practices largely related to pandemic flu.
- The Center for Infectious Disease Research and Policy (CIDRAP) Web site titled *Promising Practices: Pandemic Preparedness Tools* (accessible at www.pandemicpractices.org) provides a wide range of practices targeted at special needs or at-risk populations. The focus is on practices for pandemic influenza preparedness; however, many are relevant to other types of public health emergencies.



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- The National Association of County and City Health Officers (NACCHO) Model Practices site (accessible at <http://www.naccho.org/topics/modelpractices/index.cfm>) is an online, searchable collection of practices across public health areas, including those addressing emergency preparedness. In addition, NACCHO sponsors the Advanced Practice Centers (APC), a network of local health departments that help to develop resources and training on related topics, such as

- Biosurveillance
- Vulnerable populations
- Risk communication
- Countermeasure distribution
- Workforce development.

The APC Web site can be accessed at: <http://www.naccho.org/topics/emergency/APC/index.cfm>



Ashley Andujar, FEMA

- The Lessons Learned Information Sharing (LLIS) highlights bioterrorism practices for homeland security responders, planners, and healthcare professionals. It can be accessed at <https://www.llis.gov>

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Assess the Potential Practices and Make a Selection

Once a set of possible programs has been compiled, the local public health agency will need to assess the relative merits of the different options and make a selection. To guide this selection, the agency should consider several important factors, including the effectiveness, comprehensiveness, feasibility, and cost of implementation of each practice. We considered these factors in choosing which practices to highlight in this toolkit and defined them as follows:

- *Effective practices* are supported by one or all of the following: current standards of practice; a body of professional research; or a clearly articulated theoretical understanding of vulnerability. Effectiveness also encompasses the extent to which practices have achieved their intended outcomes in other jurisdictions.
- *Comprehensive practices* adequately cover all aspects of the special needs they are designed to address and all of the populations affected, and they incorporate community partnerships.
- The *feasibility of implementation* depends in large part on community-specific geographic, program, and cost constraints. Local characteristics that might serve as barriers or facilitators to implementing a particular strategy include budget, organizational structure, staff, and the strength of existing relationships with local, community-based organizations.
- *Cost* is also a critical factor in determining whether a practice can be implemented in a local community. A number of practice characteristics affect cost, such as the size of any up-front investments (e.g., new equipment) that are needed. It is also important to consider the amount of resources needed to sustain the practice over time (e.g., personnel, equipment). In some cases, the costs of a program can be defrayed by leveraging existing resources (e.g., existing relationships, equipment, day-to-day practices) to implement the practice.



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Of these factors, effectiveness is perhaps the hardest one to assess. Very few, if any, of the practices being considered will have been formally evaluated. Therefore, local public health agencies will have to rely on less-formal evidence of effectiveness, such as that outlined above in the definition of effectiveness (e.g., practice is based on a body of professional research). To assist in this endeavor, a number of the resources described above for finding practices also conduct a preliminary screening to identify the most promising practices for dissemination. For example, the practices included in the *Promising Practices: Pandemic Preparedness Tools* Web site described above have been reviewed by at least two experts and deemed to be worthy of posting. Similarly, RAND assessed a wide range of practices before selecting the ones included here.

The feasibility and effectiveness of a practice will depend in part on developing effective partnerships with community-based organizations. Therefore, it is a good idea to engage these organizations in the process of selecting a practice. They will have important information about the practices that will be most acceptable to, and thus effective for, the populations they serve.

Once all of the information has been gathered, the local public health agency will need to assess the potential practices and consider the trade-offs between them. The importance that an agency puts on each factor will depend on specific goals, the funding mechanisms, and a variety of other local circumstances. For example, those considering more-comprehensive programs will have to consider the added difficulty of sustaining such programs over those that are smaller or aimed at a single public health task or special needs population. Comprehensive practices require greater departmental staff time and financial resources.



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Tailor the Program to the Community

In most cases, the practice will need to be adapted to meet the needs of your community. Some of the adaptations may include the following:

- Specifying the target population
- Focusing on the specific needs of the population being served
- Identifying means of financing
- Partnering with different organizations.

Specifying the target population. Many of the practices described in this toolkit are general and are applicable to multiple special needs populations. For example, a program that engages community-based organizations to serve as trusted messengers and improve compliance with public health recommendations in minority populations may also be effective for rural populations. Therefore, local public health agencies may need to focus the program more specifically on the target population.

Focusing on the specific needs of the population. The needs of the population may differ across geographic areas. For example, suppose an agency located in California selects a program that concentrates on the needs of linguistically isolated populations that was developed in Minnesota. The geographic and demographic differences between these states will require a focus on different languages, cultures, and, potentially, public health concerns, and the practice must be adapted accordingly.



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Identifying means of financing. Each public health agency is organized differently and has different sources of funds. Moreover, the overall cost of implementing the practice will be different, depending on the size of the jurisdiction, the size of the targeted population group, and the prevailing prices of inputs (e.g., wages).



Marvin Nauman, FEMA

Partnering with different organizations. The set of community- and faith-based organizations in each community will be different. Local public health agencies will need to identify and develop partnerships with the appropriate organizations in their community.

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Common Challenges to Implementation

A number of barriers or challenges to implementation are common across local public health agencies. In this section, we describe some of these challenges and provide examples of the steps that some agencies have taken to overcome them. Regardless of the population, location, or strategy, the agency should consider how the following challenges alter the strategies they might choose.

Establishing and managing effective partnerships. Many of the strategies in this toolkit rely on developing relationships with appropriate community-based organizations and supporting these organizations to engage in public health preparedness activities. Some agencies have had difficulty identifying who the appropriate organizations are, whereas others may have difficulty engaging non-public health entities as equal partners in this work. To address these concerns, several agencies have contracted with outside organizations, such as Collaborating Agencies Responding to Disasters (CARD), to help them develop strategies for integrating outside community-based organizations into public preparedness activities. CARD provides disaster preparedness/response support to community-based organizations serving special needs populations. *Training* includes information on developing an emergency action plan tailored to the agency and the populations served, engaging in tabletop exercises and drills, communicating critical information in a crisis, and the development of relationships among organizations for mutual support during a catastrophe. (For more information on CARD, please see <http://www.cardcanhelp.org/>).



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Working with community-based organizations sometimes involves identifying funding sources that support public health emergency preparedness activities. Some local public health agencies may find dedicating additional resources to outside organizations to cover these expenses difficult. In such cases, it might be possible to find outside funding from local charities and foundations, or other local government agencies. When no outside funding is available, other incentives might make the collaboration/partnership more attractive to the community-based organizations. For example, offering opportunities for making connections with other such organizations and local government agencies, or extending the partnership to include activities related to the core mission of the organization, in addition to the preparedness activities.

Sustainability. One of the most difficult challenges to overcome is sustainability. In El Paso, Texas, the Public Health *Promotores* program was successfully implemented to address a single concern under unique circumstances. Although developing a permanent *Promotores* program to provide public health information on an ongoing basis is a goal of the department, it has not found the resources to do so. ECHO has also found sustainability difficult to achieve. Because ECHO is still, in part, a component of a government agency, it has problems raising money from charitable organizations, despite the enthusiasm of area funders. To address this concern, ECHO is currently taking steps to become a nonprofit organization separate and distinct from the Department of Health—a step that should open the door to private grants.





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Vulnerability needs assessments. Local information is critical for planning and response. For example, research on message development has found that identifying and communicating around themes most salient to local populations (e.g. staying alive, family, helping others, increased knowledge) might be more effective [13]. However, some public health departments do not have the capacity to collect and interpret data. One way to capacities these capacities is by partnering with local, community-based organizations that have the capacities and are familiar with the populations of concern.

Determining whether a program is working. Assessing performance during a disaster and evaluating the effectiveness of implemented programs can also be very challenging for local public health agencies. However, performance measurement is very important for a number of reasons. First, it is an essential component of a quality improvement (QI) approach in that it helps the agency gauge progress toward its preparedness goals. RAND has developed an interactive QI toolkit that provides information on using QI in public health emergency preparedness (http://www.rand.org/pubs/technical_reports/TR598/). Second, performance measurement can be used to improve accountability. It will be much easier to support requests for additional funding if you can demonstrate that the practice has been effective. The next chapter describes how to collect the data needed to determine whether a practice is working.



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CHAPTER 8. DETERMINING WHETHER THE PRACTICE IS WORKING: EVALUATION

Given limited resources and many competing priorities, understanding whether a program is working as intended is critical to informing difficult allocation decisions. Health departments and other organizations need to be able to conduct evaluations to identify which practices work and make better resource-allocation decisions.

What is program evaluation?

*Using research methods to systematically
investigate the effectiveness of a program [47]*

The prospect of conducting a formal evaluation can be daunting. There are, however, a number of things that a health department can do to make it easier.

First, as a practice is being developed, it is important to think about how it will be evaluated, which will help ensure that the data needed to assess performance are collected from the beginning. Too often, the evaluation is first considered after the practice has been implemented and it is too late to collect baseline data. Baseline (initial) data are needed before the program is put in place to help measure whether the program made a difference.



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Second, it is important to include members of the special needs population in the evaluation. Understanding and incorporating their perspectives will improve the evaluation. For example, members of a special needs population can assist in the identification of data sources and how they should be interpreted.

Third, it is important to understand that there is no need to measure everything related to a practice. Instead, the evaluation should focus on a few indicators of success, such as the most important outcomes that the practice is intended to achieve.



Greg Henshall, FEMA

Finally, evaluation can be made easier by breaking the process into several manageable steps:

1. Define the goals and objectives of the practice.
2. Select measures related to the goals and objectives.
3. Determine how the data for each measure will be collected.
4. Collect and review the data.



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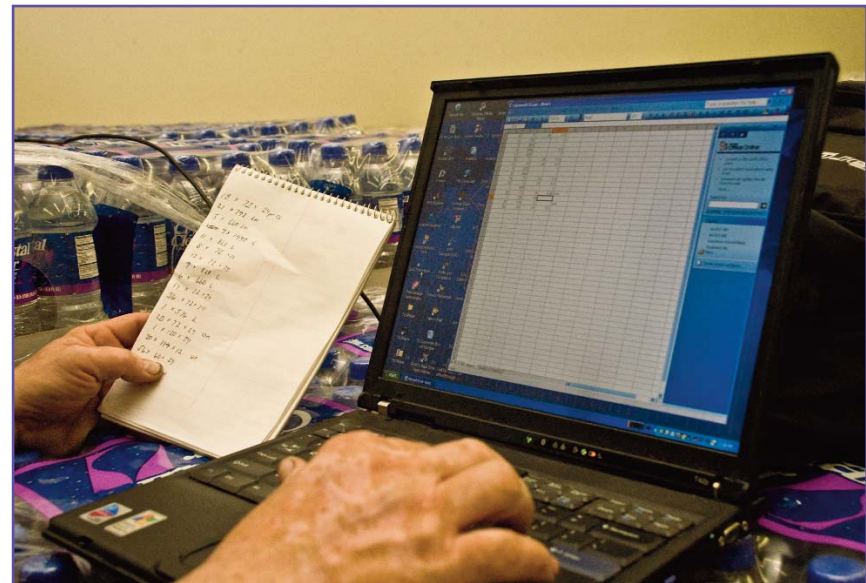
Basic Steps for Developing and Implementing an Evaluation Plan

In this section, we describe each of these steps in more detail and provide examples to illustrate the concepts.

1. Define the goals of the practice

Clearly defining the goals of the practice will help frame the evaluation by identifying the most important outcomes that the practice is intended to effect. For instance, is the strategy intended to

- Increase the knowledge of a special needs population on how to prepare for a public health emergency?
- Improve the ability of service providers to meet the needs of special populations during an event?
- Ensure that supplies are distributed to a special needs population in advance of an emergency?
- The process of clearly articulating what it is you are hoping to achieve will provide a framework for your evaluation.



Patsy Lynch, FEMA



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2. Select measures related to the goals

Once the goals and objectives of the practice have been defined, measures related to those goals can be identified. The measures will serve as the basis for evaluating whether the practice is working. In many cases, a practice will be designed to achieve multiple goals; the set of measures chosen should reflect this fact.

As noted, it is not necessary to measure all aspects of a program. The goal is to select a small number of measures that will provide information that the health department or other organization can use to understand and improve its performance. The set of measures should include both process and outcome measures. **Process measures** focus on the implementation of a practice, whereas **outcome measures** focus on the effect of a practice. We are ultimately interested in the outcome; however, measures of process can provide important information about why a practice is or is not working. In addition, it is often useful to measure both short- and long-term outcomes. Some general characteristics should be kept in mind when selecting measures. Measures are thought to be of higher quality if they

- Represent something important
- Are easy to interpret
- Are relevant to stakeholders.

Finally, in selecting measures, think about possible data sources. Clearly, if no data are available to inform the measure, then the measure will not be useful for assessing performance.

The following table lists some possible measures that could be used to describe how a practice is implemented and whether it is working in the short term and in the long term to improve preparedness for a special needs population. We have organized some potential measures using the sample strategies offered in this report.



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Table 8.1: Sample Measures

TYPE OF PRACTICE	MEASURES		
	<i>Process</i>	<i>Short-Term Outcome</i>	<i>Long-Term Outcome</i>
<i>Registry</i>	A reference to registry in all communication materials (Y/N) No. of community sessions that discuss registry benefits	Online registration of the special needs population is available (Y/N) No. of people registered	Registry used for distributing supplies to the population prior to an event (Y/N) % of registered people located and served during an event
<i>Training session for service providers</i>	No. of sessions provided to service providers	Knowledge of providers on how to serve special needs population in an emergency Knowledge of service providers on how to outfit facility to prepare for special needs population	Quality (e.g., cultural appropriateness) of services provided to the population in an event
<i>Educational campaign for a special needs population</i>	Educational materials distributed to the population via outreach sessions (Y/N)	Attitudes about personal preparedness among the population	% of population prepared (i.e., have taken a set of recommended actions)
<i>Preparedness kits for a special needs population</i>	Kits distributed to partner community-based organizations that represent population (Y/N)	Knowledge about content and use of kit among the population	% of people that use the kit in an emergency
<i>Identification of special needs population areas in a community</i>	Special needs populations in the community identified and located using GIS (Y/N)	Plans developed to allocate resources based on population numbers (Y/N)	Resource distribution plans are implemented (Y/N)



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Note that **measures** provide the categories of information to be gathered to determine whether a practice is working. It is up to specific organizations to figure out what your benchmarks are and what period should be measured. For example, one goal might be to improve the knowledge about preparedness by 25 percent among the special needs population within 6 months of implementation.

A recently released quality-improvement toolkit developed by RAND provides additional information on identifying measures to assess performance. The toolkit can be found online at http://www.rand.org/pubs/technical_reports/TR598/. Although the toolkit is focused on pandemic influenza practices, the quality-improvement approach is applicable more generally and provides a systematic way for health departments to assess and improve their performance.

3. Determine how the data for each measure will be collected

Once the practice goals and measures are identified, the next step is to determine how data for the measures should be collected and how often. Ideally, the data sources will have been identified ahead of time so that baseline data can be collected before implementing the practice.

Identifying the data sources for process measures is often relatively straightforward, because such sources focus on the implementation of the program and the activities undertaken by the organization. For process measures, the following are examples of possible data sources:

- Activity logs of educational sessions delivered
- Participant logs for numbers of population group who participate in an educational session
- Interviews or focus groups with participants.



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Outcome measures, on the other hand, pose a greater challenge because public health emergencies are, thankfully, relatively rare. This rarity can make it difficult to assess the effect of the practice. Exercises and drills, however, can provide insight into the likelihood of whether the program will be effective in an actual event. In addition, it is sometimes possible to use routine, day-to-day activities to assess public health emergency practices. For example, suppose an agency created a checklist of steps for urgent communications to reduce the time required to get an emergency message out to the public. The agency could then test this checklist and measure the time required for sending out “routine” urgent messages, such as a beach closure or weather-related advisory.

Some additional sources of data for outcome measures include

- Written surveys of providers or members of a population group
- Interviews or focus groups with members of a population group
- After action reports of an exercise or event.

It is important to note that practices focusing on special needs populations may face additional challenges in identifying high-quality data sources. By definition, many of these populations are hard to reach and, thus, data collection can be difficult. Working with community-based organizations that serve the population of interest can help to mitigate this problem.



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4. Collect and review the data



Bill Koplitz, FEMA

Once the objectives, measures, and data sources have been identified, it is time to start collecting the data and tracking progress over time on the selected measures. For process measures, the data are typically used to determine whether the measures have been achieved. For example, from Table 8.1 above, the data would be used to determine how many community sessions discussing the benefits of registry participation have been held. For the measures of short-

and long-term outcomes, the data are used to compare the outcome over time, beginning with baseline data, to identify any progress toward the practice goals and objectives.

The data gathered on the process and outcome measures should be continuously fed back into program improvement. The information about how well a practice is being implemented (i.e., the process measures) can highlight areas in which the strategy is simply not feasible, given local contextual issues or resources, or where improvements in process are needed to achieve the practice objectives.



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Outcomes data can help in making decisions about whether a program should be continued. If a practice does not lead to improvements in the outcomes of interest, the organization should think very carefully about whether it should continue to allocate resources to the practice. Moreover, even if the data show improvements in the outcome measures, the public health agency must think critically about whether those changes can and should be attributed to the practice. It is possible that other factors besides the practice (e.g., other policy or programmatic changes) explain the observed changes, and this possibility must be considered. For example, suppose a health department implements an educational campaign for reaching the elderly by distributing materials about preparedness to nursing homes. At the same time, the local news station runs a series on emergency preparedness that is geared toward the elderly. Improvements in preparedness knowledge among the elderly may be difficult to attribute to the health department program. Although increased preparedness knowledge among the elderly is the outcome in which the public health agency is ultimately interested, for resource-allocation decisions, it is important to understand the source of any changes in the outcome of interest.

These are the key steps for evaluating your practice. Here is a hypothetical example to make these points clearer.



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Reaching Latino Residents Through Bodegas: A Hypothetical Example

Description: To improve emergency preparedness awareness and knowledge among recent Latino immigrants in the La Rosa community, the La Rosa Health Department has developed Spanish-language brochures that are distributed with each purchase at local bodegas (stores). In addition, each bodega has a series of informational posters about how to prepare your family in an emergency.

Goal: To increase awareness and knowledge about household emergency preparedness among Latino residents living in the La Rosa community.

Measures and Data Sources:

	Measures	Data Sources
Process	Brochures distributed at local <i>bodegas</i>	Number of brochures distributed by health department to each <i>bodega</i> and number of times supply is replenished
Short-term outcome	Awareness about how to prepare household in an emergency	Latino resident community survey with questions about emergency preparedness knowledge
Long-term outcome	Use of external resources in an emergency	Number of Latino residents using government services that could have been avoided by use of household preparedness kit

Reviewing the Data: The La Rosa Health Department collected the data described above to determine whether the educational campaign was working. The short-term outcome data obtained from the community survey aided the health department in making decisions about whether the cost and time to distribute the brochures resulted in increased awareness about emergency preparedness among Latino residents within a specified period, such as 6 months. There was no marked improvement, and the campaign determined that it needed a longer period to see results. Alternatively, the health department could have decided to replace the campaign with another practice.





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Los Angeles County Department of Public Health

Finally, once the practice has been evaluated, the information can be used to inform resource- allocation decisions, justify requests for additional funding, and demonstrate to the public that their tax dollars are being spent effectively.

In addition, after the evaluation is complete, it is important to share information about the practice with colleagues in other jurisdictions and contribute to the knowledge base in public health emergency preparedness. The type of information that is most

useful includes what worked well, what did not work well, the challenges that arose in implementation and how those were addressed, and how to sustain the practice over time. Presentations at professional meetings, such as the Public Health Preparedness Summit, the NACCHO Annual Conference, and the American Public Health Association annual meeting, provide an opportunity to disseminate information on successful strategies and practices to a large audience. In addition, public health agencies can submit information on the practice to the various organizations, such as NACCHO and the Center for Infectious Disease Research and Policy, which maintain collections of promising practices for public health agencies.



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The information below describes the criteria that were used to select practices for inclusion in the toolkit.

Special Needs Populations Promising Practices Scoring Guidelines

Unless otherwise noted, each criterion is evaluated on a 6-point scale:

- 0** - No data available.
- 1** - Practice (or program) does not address or meet the criterion at all.
- 2** - Practice (or program) attempts to address the criterion (e.g., has some language in plan, includes some mention in materials), but the extent of development of the idea is limited.
- 3** - Practice (or program) addresses the criterion with some discussion or idea development (e.g., for the criterion about community partnerships—"Plan has identified the groups to partner with" has not been met consistently).
- 4** - Practice (or program) addresses the criterion adequately (e.g., using the example in point 3, the local health department [LHD] collaborates with relevant community-based organizations [CBOs] for preparedness plans, but there are no outcomes to evaluate).
- 5** - Practice (or program) addresses the criterion well (LHD and CBOs are planning together, have plans that have shown some effect on the special needs population of interest).



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EFFECTIVENESS

Effectiveness—the program is supported by one or all of the following: current standards of practice; a body of professional research; or a clearly articulated theoretical understanding of vulnerability. Effective programs are also assessed by the extent to which they achieve their intended outcomes (as outlined in the mission/objective statement or as determined by internal/external expert opinion).

Program objectives can be measured to assess whether the program is meeting its goal.

Measurability suggests that the objectives are both achievable and specific. The objectives are measurable if they include some combination of the following:

- indicators or benchmarks for evaluating progress toward the ultimate program goal (e.g., the program will increase the percentage of a special needs population that has preparedness kit; the program will increase the number of CBOs representing the special needs population of interest in the preparedness plan)
- reasonable outcomes that can be achieved in a given period (year, 5 years, etc.) given the demographics of the population in a given community (e.g., ensuring that 100% of the special needs population is identified via GIS in one year may not be reasonably attainable)

The success of the program at reaching these goals should not affect the score here. Lower scores are most often given for objectives that are difficult to evaluate or measure, or are unrealistic.



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EFFECTIVENESS (CONT.)

Program activities match stated objectives.

This item measures whether the activities of the program are designed to address each of the objectives. Once again, this item does not measure whether the program is successfully meeting its objectives. Lower scores are given for programs that have activities addressing only part of their objectives. For example, a program could say that it wants to increase the number of disabled citizens who have a plan to shelter in place (from 15% to at least 80%), but their activities include only a plan for communicating the need for preparedness to the disabled population without actual working to craft those plans (e.g., via a CBO) with the citizens. This activity is not complete enough to meet the objective.

The program resulted in a plan to serve the specified special needs population.

A *plan* is a clearly articulated set of activities designed to reach a particular population. Partial credit would be given to programs that provide information to make it easier to create such plans. Full credit given only for the actual creation of such plans.

The program increases reach to specified special needs population.

The number or citizens reached or the quality of the plan to serve such populations is improved with the implementation of the program. This item is measuring both the potential of the program to serve the special needs populations, and actual outcomes. However, programs that actually document improvements in outcomes would receive a "5"; those that improve reach would receive a "4."

Activities of the program are appropriate (or align with) current standards of practice and the literature on the underlying vulnerabilities addressed.

This criterion has two components. The first is that the activities of the program align with public health standards of care, protocols, etc. The second is that the program has components that illustrate an understanding of the needs of the vulnerable population. Partial points are awarded for meeting one or the other of these goals.



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COMPREHENSIVENESS

Comprehensiveness—the practice adequately addresses all aspects of the vulnerability it focuses on and all of the populations affected, and incorporates community partnerships.

All aspects of vulnerability (i.e., individual, social, and environmental) for a particular population have been addressed.

Vulnerability often involves individual, social, and environmental aspects. To adequately address the needs of a population, program designers should give thoughtful consideration to what these might be (e.g., linguistically isolated may need more than translated materials to respond to public health messages). Close to full credit can be given to programs that have selected a single component of vulnerability to address and are working to address multiple dimension of that vulnerability.

The program engages representatives of all relevant special needs populations and includes them in multiple stages of design and implementation.

Successful partnerships are a cornerstone of reaching special needs populations. This item measures the quality of such relationships. Full credit would be awarded to programs that incorporate partnerships at all levels of planning and implementation of the program.

The program monitors progress toward goals and incorporates lessons learned.

Full credit will be given for programs that demonstrate that information gathered on its successes and failures from the planning process and actual emergencies have been fed back into program development. Partial credit can be given for programs that collect data that could be useful for this effort, but do not have a feedback loop.





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EASE OF IMPLEMENTATION

***Ease of Implementation*—the program is feasible to implement, given geographic, program, and cost constraints; it is suitable for use in other locations; and it has relevance beyond the jurisdiction that created it.**

Program is not unique to local jurisdiction in terms of leadership required, populations served, stakeholders included, or availability of resources.

Each facet of the program is clearly replicable with additional staff or defined tasks. In other words, the program could reasonably be implemented with comparable staff in another jurisdiction (e.g., a practice that engages the public information officer [PIO] and nursing homes) would work in other communities, since both entities are available. Tasks must be flexible enough to respond to local needs. Item is not measuring whether the potential hazard or populations are unique, but whether the program can be tailored to a new group, and that the available resources are not unique to jurisdiction.

Practice has replicable materials that are transferrable to or relatively easy to adapt by other agencies/stakeholders

Statement of objectives, descriptions of resources used, and other materials are clearly presented. Partial credit is given for some program materials being more useful than others. Programs that have materials that document implementation challenges for others planning to adopt/adapt them, would receive a “5.”

Practice has been replicated successfully for other populations and/or in other jurisdictions.

Data on successful replication are made available, including some evidence of outcomes and/or successful implementation

Scoring range is 0–1, where 0 = no data provided, 1= replication has occurred.



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