

*Reconceptualizing household disaster readiness:
The “Get Ready” Pyramid*

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ABSTRACT

The terrorist events of September 11, 2001 were followed by a dramatic increase in public education and information efforts to improve preparations for disasters across our nation. Using the State of California as a case study, this article provides an overview of existing public education campaigns intended to enhance readiness; identifies shortcomings in current approaches; and presents a comprehensive public readiness typology, the “Get Ready” Pyramid, a framework organized along a continuum of cost, intended for use by any individual or entity wishing to promote or adopt readiness actions. Future research should evaluate the framework’s utility and impact on behavior.

Key words: disaster, emergency, mitigation, preparedness, readiness, information dissemination, public education, recommendations

It is no surprise that the terrorist events of September 11, 2001 were followed by a dramatic increase in efforts to enhance public readiness for disasters in the United States. Public education and other means of information dissemination has been the primary strategy used to accomplish this mission; targeted audiences have included individuals, households, and the workplace. Programs have both revised preexisting materials and developed new lists of things that the public can do to get ready. This article provides a brief overview of California earthquake-centric public education campaigns intended to enhance readiness; identifies shortcomings in current approaches; and presents a comprehensive public readiness typology that we believe, if adopted, would

enhance message consistency across programs and result in increased public engagement in readiness activities.

A wealth of disaster literature has shown that planning, coordination, and communication are critical elements in disaster preparedness, response, and recovery.¹⁻⁶ Historically, disaster researchers trained in the social sciences have been concerned with the applicability of social theory to the study of disasters and, in reverse, the contributions that disaster research can make to the development of (primarily sociological) theory focusing on knowledge, perceptions, and behaviors. First responders, on the other hand, have focused more attention on the emergency, disaster medicine, and first aid components of disaster readiness. Engineers have emphasized the role of structural mitigation in furthering disaster readiness.⁷ Public education campaigns, because of their audience, attempt to span these perspectives,⁸⁻¹⁰ with a focus on the transmission of information.

MYRIAD EFFORTS TO PREPARE THE PUBLIC

Public education and other information efforts can vary greatly in form. For example, public information can include the use of different channels (eg, brochures, Internet sites, television, and radio spots); messages that are promulgated as add-ons to other activities (eg, school coloring books and grocery bag messages); artifacts that communicate messages themselves (eg, museum displays and refrigerator magnets); and location-specific activities (eg, school, workplace, and neighborhood). Such efforts can be singular, one-shot events or long-lived campaigns.

Content may incorporate a range of information from different organizations in various formats.

In the United States, individual and household readiness activities have focused on mitigation, actions taken to prevent or limit the damage caused by future disasters, as well as preparedness, planning ahead for what to do during and after a disaster. The term “readiness” is used in this article to include both types of actions.

Using California as the primary case study, we examine the range of public readiness education efforts initiated across the country. California serves as an instructive case study because of the state’s vulnerability to natural disasters, diverse geographic and demographic features, and potential as a target for terrorist attack due to its large economy and media industry. We reviewed local, state, and national readiness efforts pertinent to residents of California to understand the range of programs and ways in which future efforts might be improved. A list of selected disaster readiness programs is provided in Table 1.

VARIETY OF FOCI

Readiness programs in California vary in target audience, content, and level and method of dissemination. These dimensions are discussed in the following section.

Target audiences

Although many public education programs are intended for the general public, some are tailored to specific audiences. The US Small Business Administration provides a disaster planning guide and other related resources specifically to help small business owners protect their businesses and recover quickly from disasters (www.sba.gov/services/disasterassistance/disasterpreparedness/index.html). The California Seismic Safety Commission distributes the *Homeowner’s Guide to Earthquake Safety*, partly to comply with California State Law which requires that the booklet be given to every buyer of a home built before 1960 (see Table 1).⁷ Large campaigns, such as *Ready.gov*, a national disaster readiness campaign led by the US Department of Homeland Security, may offer a core program for the general public with separate

modules tailored to specific groups, such as seniors, people with disabilities, children (*Ready Kids*), and business owners (*Ready Businesses*) (see Table 1).

In contrast to public education materials, some readiness information is produced for internal consumption within specific groups or organizations. Employers may distribute information to their employees about fire drills, evacuation procedures, the location of first aid kits, and other work site-specific issues. As another example, school officials may distribute information to prepare their students and parents for an emergency or disaster, such as where and how students and their parents will be reunited. Unlike information aimed at the general public, this type of information is not intended for distribution outside the group for which it was designed and may even contain personal information such as the names and contacts of group members that should be kept confidential.

Single-, multi-, or all-hazard approach

Information campaigns and other public programs take hazard-specific, multi-hazard, and all-hazards approaches. Regional programs often emphasize single local hazards, such as earthquakes in California, tornadoes in the Midwest, and hurricanes on the Gulf Coast. Other campaigns adopt an all-hazards focus, assuming that many readiness actions such as stockpiling supplies, having cash on hand, and knowing first aid, apply to any type of hazard. The all-hazards approach is both more efficient and inclusive; it consolidates information across hazards and makes emergency preparedness relevant to everyone, regardless of local hazard risk.

Level of dissemination

Public education and other information-based strategies are developed and disseminated at the national, state, regional, and local community level. Some regional and local programs have been adapted from state or national programs, and some have been developed independently. For example, in California, San Diego County developed *ReadySanDiego.org* in conjunction with the national *Ready.gov* campaign, while Los Angeles County developed the *Emergency Survival Program* (formerly known as *Earthquake*

Table 1. Major household disaster mitigation and preparedness campaigns in the State of California

Name of campaign	Agency/ Organization	Slogan/Key message	Audience	Major campaign components	Contact info
National campaigns	Ready.gov	<ul style="list-style-type: none"> • <i>Prepare</i> (Get an emergency supply kit) • <i>Plan</i> (Make a family communications plan) • <i>Stay informed</i> (Be informed about the different types of emergencies that could occur and their appropriate responses) 	<ul style="list-style-type: none"> • Individuals and families • Spanish-speakers • Older individuals • People with disabilities • Small- and medium-sized business owners and managers • Children (grades 4-5) • Parents and teachers • Military families • Pet owners 	<ul style="list-style-type: none"> • Campaign Web site in English and Spanish • Television, radio, print, outdoor, and Internet PSAs • Brochures • Instructional videos • Video blog • Downloadable publications • Strategic partnerships with Boy Scouts of America, Minor League Baseball, The Association of Directory Publishers, The Yellow Pages Integrated Media Association, Salvation Army, and National Association of Broadcasters • National Preparedness Month • Bilingual materials in English and Spanish • Materials and modules tailored to specific audiences (eg, children) • Local adaptations, eg, <i>ReadyOC</i>, <i>ReadySanDiego</i>, <i>ReadySOCAL</i> 	<p>Web site: www.ready.gov/ Address: Ready Campaign, US Department of Homeland Security, Washington, DC 20528 Phone: 1-800-BEREADY 202-282-8000 202-447-3543 TTY E-mail: ready@dhs.gov</p>
Get prepared	American Red Cross	<ul style="list-style-type: none"> • Get a kit • Make a plan • Be informed • Be Red Cross ready 	<ul style="list-style-type: none"> • Individuals and families • Spanish-speakers • Older individuals • People with disabilities • Children • Educators and parents 	<ul style="list-style-type: none"> • Campaign Web site in English and Spanish • Interactive preparedness training module on the Web site • Downloadable brochures • The "Readiness Quotient" • National Preparedness Month 	<p>Web site: www.redcross.org/services/prepare/0,1082,0_239_00.html Address: American Red Cross National Headquarters, 2025 E Street, NW Washington, DC 20006 Phone: 202-303-4498</p>

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Table 1. Major household disaster mitigation and preparedness campaigns in the State of California (continued)

Name of campaign	Agency/Organization	Slogan/Key message	Audience	Major campaign components	Contact info
Prepare.org	American Red Cross and other community-based organizations	Prepare yourself and your family for natural and human-caused disasters	<ul style="list-style-type: none"> Business and industry managers 	<ul style="list-style-type: none"> Bilingual materials in English and Spanish Materials and modules tailored to specific audiences Local adaptations, eg., Bay Area (www.redcrossbayarea.org/pba/index.htm) 	
Prepare.org	American Red Cross and other community-based organizations	Prepare yourself and your family for natural and human-caused disasters	<ul style="list-style-type: none"> Individuals and families with a focus on vulnerable populations Older individuals Children Educators and parents People with special medical needs Animal/pet owners Non-English speakers 	<ul style="list-style-type: none"> Campaign Web site Downloadable brochures Multilingual materials in 14 languages Materials and modules tailored to specific audiences Linked up with American Red Cross' Get Prepared campaign 	Web site: www.prepare.org Address: American Red Cross National Headquarters, 2025 E Street, NW Washington, DC 20006 Phone: 202-303-4498
State campaigns					
Be smart, be responsible, be prepared. Get ready!	Governor's Office of Emergency Services*	<ul style="list-style-type: none"> Be smart, be responsible, be prepared. Get ready! Get involved, volunteer, bear responsibility 	<ul style="list-style-type: none"> Individuals and families Schools Children and parents 	<ul style="list-style-type: none"> First Lady Maria Shriver as Honorary Chairperson Proclamation of May as Disaster Preparedness Month and September 20 as Day of Preparedness Multilingual print/audio brochure: <i>10 Ways You Can Be Disaster Prepared</i> Disaster preparedness coloring book for children Kick-off event with celebrities and representatives from private sector partners 	Web site: www.oes.ca.gov/ Address: Governor's Office of Emergency Services, 3650 Schriever Ave, Mather, CA 95655 Phone: 916-845-8510

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Table 1. Major household disaster mitigation and preparedness campaigns in the State of California (continued)

Name of campaign	Agency/Organization	Slogan/Key message	Audience	Major campaign components	Contact info
California Seismic Safety Commission: Public information and education	California Seismic Safety Commission	<ul style="list-style-type: none"> The mission of the SSC is to provide decision makers and the general public with cost effective recommendations to reduce earthquake losses and speed recovery 	<ul style="list-style-type: none"> Individuals and families Southern California residents San Francisco Bay region residents Home-owners Commercial property owners 	<ul style="list-style-type: none"> Print, TV, and billboard/bus sign PSAs Public-private partnership: eg. Safeway/Vons/Pavillions and Home Depot sold disaster kits; also Viacom, SBC Communications, Enterprise, All State Insurance, Citicorp, Target, etc Preparedness information in English and Spanish <i>Protecting Your Family From Earthquakes: The Seven Steps to Earthquake Safety</i> (hard copy and PDF) available in 5 languages <i>Putting Down Roots in Earthquake Country</i> (hard copy and PDF) available in English and Spanish, and in two regional versions (southern California and San Francisco Bay area) <i>Homeowner's Guide to Earthquake Safety</i> (hard copy and PDF) <i>Commercial Property Owner's Guide to Earthquake Safety</i> (hard copy and PDF) 	<p>Web site: www.seismic.ca.gov/prepare.html Address: Seismic Safety Commission, 1755 Creekside Oaks Drive, Suite 100, Sacramento, California 95833-3637 Phone: 916-263-5506</p>
Be prepared California	California Department of Public Health	<ul style="list-style-type: none"> Be prepared Be informed Develop a disaster plan Prepare an emergency kit Talk to children about crisis events 	<ul style="list-style-type: none"> Individuals and families Healthcare providers People with disabilities Pet and livestock owners Schools Businesses Community organizations 	<ul style="list-style-type: none"> Focus on public health emergencies Campaign Web site Fact sheets Ethnic Media Roundtable Multilingual fact sheets Materials and modules tailored to specific audiences 	<p>Web site: http://bepreparedcalifornia.ca.gov/ Phone: 916-650-6416</p>

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Table 1. Major household disaster mitigation and preparedness campaigns in the State of California (continued)

Name of campaign	Agency/Organization	Slogan/Key message	Audience	Major campaign components	Contact info
Regional/Local campaigns					
<ul style="list-style-type: none"> Dare to prepare 	Earthquake Country Alliance (a public-private partnership of leading earthquake professionals, emergency managers, government officials, business and community leaders, and others)	<ul style="list-style-type: none"> "Shift Happens" If you "Secure Your Space" you can protect yourself, your family, and your property from earthquakes 	<ul style="list-style-type: none"> Focus on Southern California residents Extends to the entire state Individuals and families Schools, colleges, and universities Businesses Community-based organizations Faith-based organizations Medical centers Local governments CERT groups 	Campaign Web site in English (<i>Daretoprepare.org</i>) and in Spanish (<i>Terremotos.org</i>) <ul style="list-style-type: none"> <i>First Friday Focus</i>: Monthly media distributions <i>Movers and Shakers</i>: Leadership group of prominent Southern California elected officials, business and community leaders, and others Local activities: Public events throughout the region (presentations, preparedness fairs, etc), including demonstrations of <i>Big Shaker</i>, a large portable earthquake simulator Television, radio, and print advertising, PSAs, on-air interviews, etc <i>Putting Down Roots in Earthquake Country</i>: Distribution of millions of copies of this comprehensive earthquake science and preparedness handbook Multilingual materials DVD: <i>Earthquake Country Los Angeles</i> <i>Great Southern California Shakeout</i>, the largest earthquake drill in US history conducted on November 13, 2008 (<i>www.shakeout.org</i>) Refrigerator magnets and bumper stickers 	Web site: <i>www.daretoprepare.org</i>

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Table 1. Major household disaster mitigation and preparedness campaigns in the State of California (continued)

Name of campaign	Agency/Organization	Slogan/Key message	Audience	Major campaign components	Contact info
Emergency Survival Program (ESP) (Formerly known as Earthquake Survival Program)	Los Angeles County Office of Emergency Management	New theme each year "Tow the preparedness line in 2009!" (2009)	<ul style="list-style-type: none"> Focus on Los Angeles County residents: Homes, neighborhoods, businesses, and schools 	<ul style="list-style-type: none"> Campaign Web site Print brochures, posters, calendars Downloadable bulletins, focus sheets, and other special publications Multilingual publications PSAs, eg, bus signs Local news and PBS programming Materials tailored to families, children, neighborhoods, people with special healthcare needs, pet owners Hazard-specific information New theme/suggestions each year 	Web site: http://lacoa.org/esp.htm E-mail: espinfo@lacoec.org Phone: 323-980-2260
Just be ready: Prepare together!	Los Angeles County Department of Health Services, Public Health	Just be ready: Prepare together	<ul style="list-style-type: none"> Los Angeles County residents Individuals and families People with disabilities or special needs 	<ul style="list-style-type: none"> Campaign Web site Radio, TV, and print PSAs in 12 languages, all accessible via Web site Multilingual brochures Materials tailored to people with disabilities Outreach through health fairs and community events Outreach to special populations, schools, and businesses 	Web site: http://publichealth.lacounty.gov/eprp/media/index.htm Phone: 213-240-7941 Public Health Emergency Preparedness Hotline: 1-866-999-LABT (5228)
You can prepare for disaster	13 Northern California Health Departments that comprise OES Region II, spearheaded by Glenn County Health Services	<ul style="list-style-type: none"> Disasters know no boundaries You can prepare for disaster 	All Californians with a focus on Northern California (OES Region III) residents	<ul style="list-style-type: none"> Mass media PSAs Campaign Web site Online information, downloadable brochures Emergency guidelines in English and Spanish 	Web site: www.norcalbt.com/CountyGlenn/prepare1.htm Address: Glenn County Health Services Public Health Office, 240 North Villa Avenue, Willows, CA 95988

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Table 1. Major household disaster mitigation and preparedness campaigns in the State of California (continued)						
Name of campaign	Agency/ Organization	Slogan/Key message	Audience	Major campaign components	Contact info	
Are you prepared? 72hours.org	San Francisco Department of Emergency Management, Division of Emergency Services	<ul style="list-style-type: none"> • Make a plan • Build a kit • Get involved 	<ul style="list-style-type: none"> • San Francisco area residents • Individuals and families • Children • Older individuals • People with special medical needs • Pet owners 	<ul style="list-style-type: none"> • Hazard-specific information • Materials tailored to older individuals, people with special needs, and people with pets • Web resource directory • Links to other Web sites and foreign language resources • Links to relevant County Web sites 	Phone: 530-934-6588 Additional contact information is provided for each county health department/bioterrorism coordinator	
				<ul style="list-style-type: none"> • Campaign Web site in English, Spanish, Chinese, Russian, and Vietnamese • Downloadable materials • Materials tailored to specific audiences • Hazard-specific information • Online <i>QuakeQuiz</i> (http://quakequizsf.org/) • Bus and shelter ads • AlertsF: 24/7 text-based emergency notification system 	Web site: www.72hours.org E-mail: contactus.oes@sfgov.org Phone: 415-558-2700	

*As of January 1, 2009, the California Governor's Offices of Emergency Services and Homeland Security combined to create the California Emergency Management Agency.

Survival Program) before *Ready.gov* and more recent programs were developed. Ideally, these programs should reinforce each other by providing consistent or complementary information.

Mode of dissemination

Many disaster readiness campaigns use more than one mode of dissemination to increase reach. Such programs use multiple languages and media outlets, including print material, the Internet, television, radio, and billboards, to achieve wide coverage and repeated exposure to messages. Repeated exposure to information¹¹ provided across multiple channels or formats⁵ has been shown to increase the likelihood of taking action.¹² Campaigns involving public-private partnerships or alliances with multiple groups may have greater success because of their use of more diverse media outlets. In 2005, California State Governor Arnold Schwarzenegger signed Senate Bill (SB) 546 to expand public-private partnerships and formalize the role of the private sector in government emergency management efforts.¹³

The mode of dissemination can be passive or active. Programs using Web sites as a primary means of disseminating information, such as *Prepare.org*, for example (see Table 1), are passive in that they provide information only when it is sought by the public. In contrast, active dissemination involves engaging the intended audience and providing information on a sustained basis. Programs that distribute brochures (like those created by *Prepare.org*) in an ongoing active information dissemination campaign can be considered active. Regardless of how preparedness information is provided, prompting individuals to discuss the information with others is essential—the more people talk with other people about doing something, the more likely they are to actually do it.¹²

The *Dare to Prepare* campaign in Southern California, for example, uses a combination of strategies to disseminate preparedness information. Organized by the Earthquake Country Alliance, the campaign is a public-private partnership of leading earthquake professionals, emergency managers, government officials, business and community leaders, scientists, and others. The campaign hosts Web sites in English and Spanish,

provides print materials in multiple languages, and disseminates public service announcements via multiple outlets. The handbook, *Putting Down Roots in Earthquake Country*, has been distributed widely throughout the state, along with an instructional DVD and other items. A focal event of this campaign is the *Great Southern California ShakeOut*, the largest disaster drill ever attempted in the United States. This event, involving government, businesses, schools, and the general public, was designed to provide an interactive learning opportunity to many people in Southern California and prompt active discussions about what everyone can do to prepare for “the big one.”¹⁴

PROBLEMS IDENTIFIED

The recent focus on readiness promotion has been a useful step forward in helping people in the nation prepare for the unexpected and many excellent lists of readiness recommendations have been developed; however, our review identified two major problems associated with public education and other information dissemination campaigns. The first problem is related to inconsistency across messages. Although the recommendations provide needed information to the public, no two sets are the same. Some lists focus on different actions, while others use different language to describe the *same* actions. Information is presented in different ways, and a unifying theme for rendering the information consistent does not exist. Inconsistent presentation of messages, even useful messages, may confuse users. The second problem identified is the fact that there currently does not exist a way to engage users. There needs to be a sufficiently powerful means of engaging people in disaster and emergency readiness that can overcome the inertia of the status quo. Many public health examples, such as smoking cessation and child vaccinations, have demonstrated that information alone is insufficient for prompting behavior change; the topic must be presented such that it is salient to and resonates with the intended audience.¹⁵

NEXT STEPS

Two next steps are needed to advance these education efforts: (1) a means of increasing the recognizability and perceived consistency of messages across

the various programs, sometimes called “branding” and (2) a mechanism for eliciting public engagement in initiating the process of disaster readiness.

Provide a unifying dimension

A comprehensive framework that organizes existing recommendations would help emergency managers and others promote consistent messages about what people should do to become prepared. Greater message consistency or branding would not only help to reduce confusion, but also would help members of the general public recognize that the information received about disaster readiness does, in fact, repeat the same underlying message. This is critical because consistency and frequency of educational messages have been shown to increase the likelihood of people acting on them.¹²

Engage the public

The second step that would help propel public preparedness efforts is a means of engaging the public. The issue of cost may provide an ideal way to capture people’s attention because of its high salience. Resources, including time and money, limit ways in which people are able to “get ready.” Not everyone can afford every recommendation, but everyone can take steps to become better prepared. Social cognitive theory emphasizes the importance of identifying achievable goals to avoid discouragement and promote progressive improvement toward targeted behaviors.¹⁶ By this reasoning, people may be more likely to adopt additional recommendations once they have taken initial steps. Thus, increasing self-efficacy by helping people realize that they do, in fact, have sufficient resources to engage in preparedness activities, may provide an essential trigger for action.

THE “GET READY” PYRAMID

The “Get Ready” Pyramid provides a framework within which readiness recommendations can be made. The layers are organized along a continuum of cost and presented as a stacked pyramid with seven mutually exclusive and exhaustive layers; each recommended action is categorized into one of the pyramid’s readiness layers (see Figure 1). The general cost of “getting ready” increases as one moves up the pyramid, to the

extent that households must pay for training, supplies, equipment, etc. Actions toward the base of the pyramid are intended to engage people further by attuning them to actions they can perform at little or no financial cost, and to things they already know or have, most likely for other reasons, but have not previously recognized as useful for disasters. With the exception of Layer 1, which involves learning about how to be ready, actions need not be initiated starting at the bottom of the pyramid; they can be completed in any order.

Layer 1: Learn how to be ready

Learning how to be ready involves finding out how to be safe before, during, and after a disaster. This includes obtaining information about what individuals can do to become better prepared, how they can protect themselves, and the cost of various readiness actions. In California, school children are taught to “duck, cover, and hold on” during an earthquake. Similarly, in “tornado alley,” people are taught how to protect themselves during a tornado. Such knowledge typically requires minimal cost to the user and provides a foundation for future action.

Layer 2: Plan and organize

Learning how to get ready for a disaster facilitates making plans and organizing important personal items and information that may be useful in an emergency. Individuals and households should develop plans for what to do in an emergency in their own home, at work, at school, or in other settings, including immediate self-protective actions, where and how to evacuate, and whom to contact. Personal documents, such as government identification and insurance policies, may facilitate receipt of disaster relief and recovery services. Organizing and duplicating these documents are essential in preparing for disasters. Other such activities include making lists of emergency telephone numbers, preparing medical consent forms for dependents, and identifying safe locations in each room. Planning and organizing activities require forethought, but very little cost.

Layer 3: Train and practice

This group of activities includes learning and practicing skills that may be useful during an emergency.

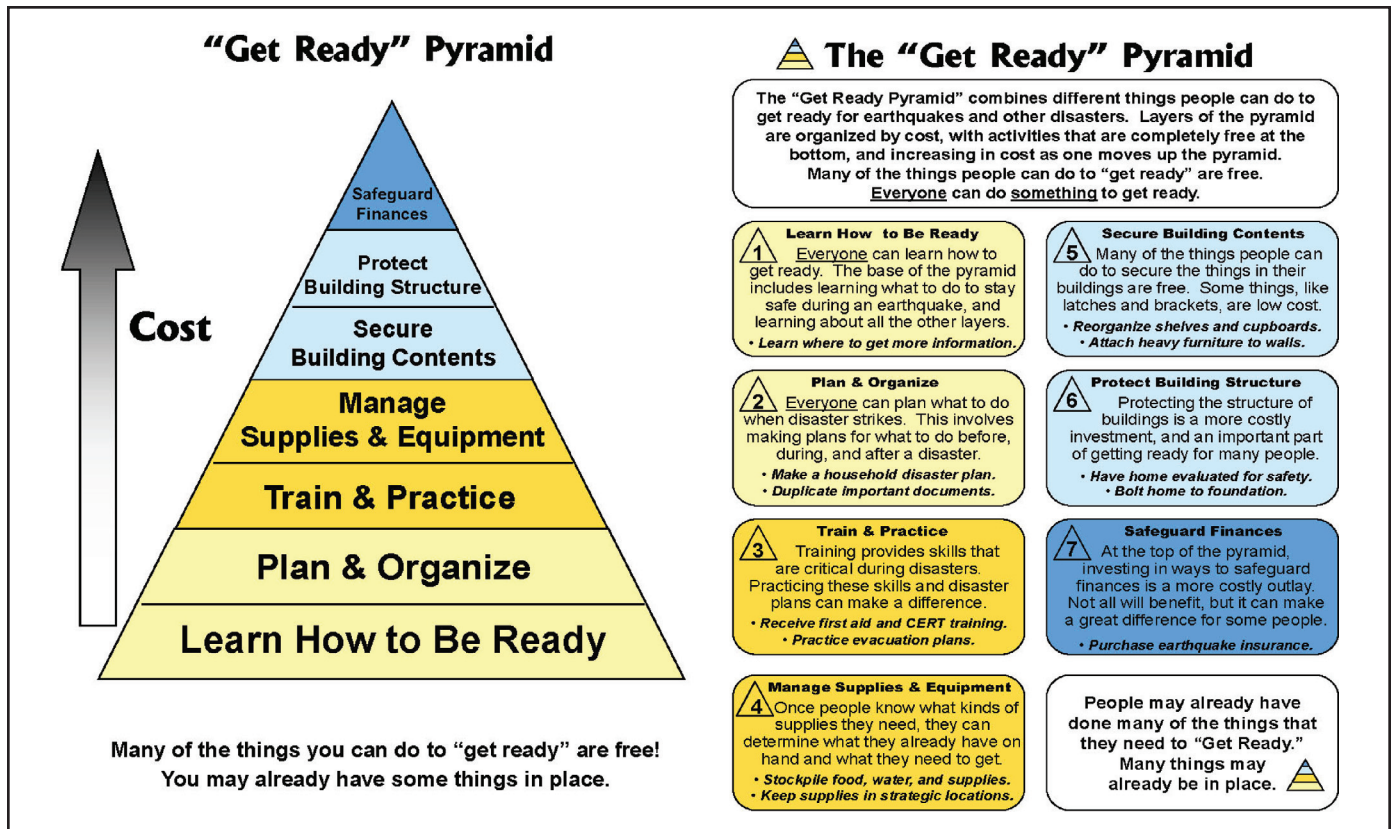


Figure 1. The “Get Ready” Pyramid is a comprehensive typology of things that people can do to get ready for earthquakes and other disasters.

Such activities include practicing “drop, cover, and hold on,” practicing household evacuation plans, and learning how to assist special needs populations such as infants, elderly individuals, and those with disabilities. Civilians able to perform basic tasks such as fire suppression or first aid can reduce damage, especially during the initial phase of community-wide disasters, when official first responders are likely to be overwhelmed.¹⁷ Red Cross agencies, fire departments, and other local organizations often provide basic first response trainings to the public at minimal or no cost. Volunteer organizations, such as the *Community Emergency Response Teams*, also provide training in search and rescue and other related skills. Public training programs require time commitment, but typically are inexpensive.

Layer 4: Manage supplies and equipment

Promoting acquisition, storage, and maintenance of disaster survival items is often the focal activity in

preparedness campaigns (see Table 1). Lists of essential supplies and equipment are available from several sources, including the *Red Cross* and government agencies. A frequent misconception is that all or most of the items must be newly purchased. In fact, many are common household items. Although some households may have fewer items than others, most households have supplies and equipment that can be useful in a disaster. Encouraging individuals to identify items they already have at home is the key. This assessment should reduce the perceived cost of acquiring preparedness supplies and may help people overcome a perceived barrier to becoming better prepared.

Layer 5: Secure building contents

The next level, “Secure Building Contents,” includes actions to protect the things inside homes and other buildings. Another common misconception is that building collapse is the main cause of injury in many earthquakes.^{7,10,18} Most injuries occurring in

minor or moderate earthquakes, especially in areas that have relatively good building standards, are caused by loose objects, appliances, or furniture that fall or break during the shaking. Securing furniture and appliances to walls and rearranging contents of cupboards and bookshelves are important mitigation actions. Some adjustments require tools and equipment that may need to be purchased, but these are relatively inexpensive.

Layer 6: Protect building structure

In addition to protecting building contents, actions also may be taken to protect the buildings themselves. These include bolting one's house to the foundation, strapping hot water heaters, and installing gas appliance shut-off valves for protection from earthquakes. For hurricane and tornado hazards, such actions include installing hurricane shutters and safe rooms. Although some of these activities can incur substantial cost, there is a wide cost range associated with measures to reinforce building structures and mitigate damage. Other barriers, such as lack of home ownership, may further prevent people from making structural adjustments.

Layer 7: Safeguard finances

The top of the pyramid refers to measures taken to protect personal finances following a disaster. This action requires the most direct monetary investment and includes purchasing insurance and setting aside an emergency fund. A low perception of personal risk¹⁹ and limited financial resources are two main barriers to this action.

CONCLUSIONS

The "Get Ready" Pyramid is intended for use by any individual or entity wishing to promote or adopt readiness actions. Its seven categories of recommended actions capture every specific individual or household action that could be taken and provide a comprehensive typology of these actions. This new framework does not replace existing public education campaigns; rather, it integrates various programs and their messages, highlighting the consistency across them. Although developed in the context of

earthquake readiness, the typology is applicable to all types of hazards.

A key feature of the pyramid is that it is designed to maximize public engagement in disaster preparedness. Recognizing that affordability is often the biggest barrier for taking recommended actions, the seven readiness categories were generally ordered by cost, emphasizing the plethora of activities that are of low cost or cost free. The explicit focus on the affordability of many of the recommended activities may facilitate initial engagement in preparedness activities, thereby increasing the likelihood of further participation, particularly among those with fewer resources.

According to social cognitive theory, increasing the salience of a health threat can trigger initial steps to action, and initial steps can prompt further progress. The Transtheoretical Model of Change,²⁰ for example, integrates a number of different behavioral theories to explain the process by which people intentionally change health behaviors, with a focus on triggers to action. The model emphasizes the importance of engaging those who may be uninformed or simply overwhelmed by the prospect of change, and have little or no intention of adopting protective behaviors such as disaster readiness actions.

Community-based vulnerability approaches to disaster readiness have evolved from "a checklist of the helpless and problematic" to providing conceptual frameworks for including *everyone* who may be affected by disaster, with a focus on capacities as well as on vulnerabilities.²¹ Given the cost associated with many recommended readiness activities, highlighting activities that are of low cost or cost free while emphasizing the fact that *everyone* can get ready for disasters is socially inclusive and may help empower people by involving them as creative actors rather than treating them as passive recipients, beneficiaries, or victims.²² Engaging the broadest possible spectrum of the public in disaster readiness activities can help increase the capacity of communities, as well as households.

The "Get Ready" Pyramid represents a step forward in communicating public education for disaster and emergency preparedness and may be particularly useful to those who design public preparedness campaigns. The need for coordination of these efforts is

reflected in the lack of standardization in public education campaigns and messages. The “Get Ready” Pyramid provides a means of message branding that can facilitate integration of bottom-up approaches from community-based organizations, with top-down approaches from federal and state-level agencies. Should this new cost-based framework be adopted, future research should evaluate the pyramid’s impact on preparedness behavior and determine whether factors that impact adoption of readiness actions vary by pyramid layer, to validate the cost dimension used to order readiness actions.

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