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Improving citizen preparedness through employee disaster preparedness promotion in the workplace

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THESIS

IMPROVING CITIZEN PREPAREDNESS THROUGH EMPLOYEE DISASTER PREPAREDNESS PROMOTION IN THE WORKPLACE

by

Kevin D. Ettrich

September 2014

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Citizen preparedness is a vital component of national preparedness, yet national surveys indicate only a small minority of citizens have completed basic individual and household preparedness actions. Workplace wellness promotion programs have made positive strides toward the influence of human behavior and are expanding in their scope of relevant issues. This study explores lessons learned from workplace wellness promotion programs through a review of relevant literature in citizen disaster preparedness promotion and workplace wellness promotion as related to four main sub-areas: 1) psycho-sociology of preparedness behavior and behavior change; 2) interrelationships among the workplace, employees, and the community; 3) rationale, motivation, and barriers to the concept of the workplace as a venue to impact behavior change; and 4) identification of promising practices that can be replicated in future strategies. Research results are synthesized in the creation of a framework that can be applied by organizations to integrate household disaster preparedness as an integral component of a workplace wellness promotion program. The overall conclusion of this study is that the workplace is a promising venue for the dissemination of citizen disaster preparedness messaging and the facilitation of household preparedness actions when identified smart practices are applied.

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IMPROVING CITIZEN PREPAREDNESS THROUGH EMPLOYEE DISASTER PREPAREDNESS PROMOTION IN THE WORKPLACE

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LIST OF ACRONYMS AND ABBREVIATIONS

BCP	Business Continuity Plan
BIA	Business Impact Analysis
CDC	Center for Disease Control
CERT	Community Emergency Response Teams
COOP	Continuity of Operations Plans
EAP	Employee Assistance Program
FEMA	Federal Emergency Management Agency
NACD	National Association of Chronic Disease
NFPA	National Fire Protection Association
NHCI	National Hazards Center, Institute of Behavioral Science at the University of Colorado
NIMS	National Incident Management System
NIOSH	National Institute for Occupational Safety and Health
PrE	Person-relative-to-event theory
ROI	Return on Investment
SCT	Social Cognitive Theory
SMART	Specific, Measurable, Achievable, Relevant, Time-based

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I. INTRODUCTION

A. PROBLEM STATEMENT

Disasters are often misperceived by the public to be rare occurrences. In fact, there has been a major disaster declared, on average, more than once per week in the United States for the last fifteen years.[1] Every region in the country is at risk of experiencing a variety of potentially significant hazards. The most common declarations result from natural hazards such as severe weather events (coastal storms, tornadoes, and blizzards), earthquakes, floods, wildfires. In addition to natural hazards, technological development has created new hazards and risks. Exposure to hazardous materials due to an accidental release can amplify an emergency into a disaster. Reliance on lifeline public utilities (including electricity, water, gas, sewage management, communications, and transportation systems) leads to greater vulnerability in the event of system failure. These vulnerabilities are further exacerbated by population shifts toward coastal and urban areas. Events in recent years have also illustrated the risks posed by pandemics and acts of terrorism.

The Federal Emergency Management Agency (FEMA) anticipates that "no municipality, from the smallest town to the most populated city, has the resources or personnel to come to the aid of every citizen [in the event of a disaster]."[2] Individuals and their communities are encouraged to accept a more active role in their own preparedness and depend less on emergency responders and the government. Preparing for self-reliance during a disaster will improve the ability of households, businesses, and communities to cope with the event as well as reduce the dependency on emergency response resources that will likely be overwhelmed during the immediate post-event period. This solution presents challenges as many individuals have developed an expectation that emergency

[1] Federal Emergency Management Agency, "Major Disaster Declaration Data, 1996–2014," U.S Department of Homeland Security, http://www.fema.gov/disasters/grid/year (accessed July 24, 2014).

[2] Federal Emergency Management Agency, "About Community Emergency Response Teams," U.S Department of Homeland Security, https://www.fema.gov/community-emergency-response-teams/about-community-emergency-response-team (accessed June 10, 2014).

responders and government will always be available when called.[3] Overcoming this challenge requires educating the public in a manner that is capable of achieving results beyond awareness and inspires action. Effective citizen disaster preparedness promotion can be the gateway that leads to a behavioral shift toward a culture of preparedness.

Despite more than ten years of numerous public awareness campaigns and a wealth of reference materials that offer guidance on disaster preparation, emergency preparedness assessment surveys continue to indicate that the majority of citizens in the U.S. are not prepared for a disaster that could impact their community. National surveys indicate current efforts are failing to substantially increase the number of individuals, households, and communities that can truly be considered resilient in the aftermath of an extreme event.[4] In fact, the National Center for Disaster Preparedness, who has monitored U.S. feelings toward preparedness for over a decade, states that the proportion of families who lack an emergency preparedness plan has actually declined.[5] Survey responses that do indicate adequate overall preparedness are often discredited as

[3] Federal Emergency Management Agency, *Personal Preparedness in America: Findings from the 2009 Citizen Corps National Survey* (Washington, DC: U.S. Department of Homeland Security, [rev. December 2009]); U.S. Government Accountability Office, *Emergency Preparedness FEMA Faces Challenges Integrating Community Preparedness Programs into its Strategic Approach: Report to Congressional Requesters* (Washington, DC: U.S. Govt. Accountability Office, 2010), 2.

[4] John Zogby, *Zogby Analytics Interactive Survey of U.S. Adults* (SUNYIT-Zogby Analytics,[2013]); Irwin E. Redlener et al., *Snapshot 2005: Where the American Public Stands on Terrorism and Preparedness Four Years After September 11* (New York: National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University,[2005]); Irwin E. Redlener et al., *Snapshot 2007: Where the American Public Stands in 2007 on Terrorism, Security, and Disaster Preparedness* (New York: National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University,[2007]); National Center for Disaster Preparedness, *The American Preparedness Project: Executive Summary: Where the U.S. Public Stands in 2011 on Terrorism, Security, and Disaster Preparedness* (New York: National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University,[2011]); Federal Emergency Management Agency, *Personal Preparedness in America: Findings from the 2009 Citizen Corps National Survey* (Washington, DC: U.S. Department of Homeland Security, [2009]); Federal Emergency Management Agency, *Personal Preparedness in America: Findings from the 2012 FEMA National Survey* (Washington, DC: U.S. Department of Homeland Security,[July 2013]).

[5] National Center for Disaster Preparedness, "Preparedness Attitudes and Behaviors," National Center for Disaster Preparedness, Columbia University, http://ncdp.columbia.edu/research/preparedness-attitudes-behaviors/ (accessed September 9, 2013).

reporting "perceived preparedness" as demonstrated by a much lower percentage of positive responses to follow-up questions about specific, key preparations.[6]

Interest remains at the federal, state, and local levels in finding ways to increase the prevalence of individual disaster preparedness programs that may translate to increased levels of community preparedness. An essential component of any viable solution is how to reach large percentages of the population in a practical way, at an affordable cost, and will actually affect increases in citizen disaster preparedness.

While current disaster preparedness education initiatives are stalling, workplace wellness promotion programs appear to be gaining momentum in their level and scope of influence on personal behavior change.[7] In many respects, the workplace is a well-suited setting for delivering hazards education and facilitating preparedness actions.[8] It provides opportunities for repeated access to a large segment of the population, the availability of existing personnel functions with means to educate employees and offers natural support groups, and the opportunity to support change through policies at the organizational level.[9]

Workplace wellness programs benefit from more than thirty years of experience. The connection between the workplace and employee wellness or betterment began in the 1970s. Prior to then, there was greater perceived separation between work and home life. Employees' well-being was primarily considered to be a personal issue and of little to no interest to a company. In 1976, the Office of Disease Prevention and Health Promotion

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[6] Deirdre T. Guion, Debra L. Scammon and Aberdeen Leila Borders, "Weathering the Storm: A Social Marketing Perspective on Disaster Preparedness and Response with Lessons from Hurricane Katrina," *Journal of Public Policy & Marketing* 26, no. 1 (Spring, 2007), 27; U.S. Government Accountability Office, *Emergency Preparedness FEMA Faces Challenges Integrating Community Preparedness Programs into its Strategic Approach: Report to Congressional Requesters*, 15.

[7] Workplace wellness promotion programs are further discussed in Chapter IV of this paper.

[8] "Hazards education" is defined as a form of social marketing that attempts to increase protective actions taken by people, households, and groups through the presentation of information about hazards, the risk they potentially pose, and the preparation that can mitigate the disruption caused by the hazard. Definition adapted from Mileti and Peek, "Understanding Individual and Social Characteristics in the Promotion of Household Disaster Preparedness." In *New Tools for Environmental Protection: Education, Information, and Voluntary Measures.*, edited by Dietz, Thomas and Paul C. Stern, 125: Washington, DC: National Academy Press, 2002.

[9] Russell E. Glasgow et al., "Take Heart: Results from the Initial Phase of a Work-Site Wellness Program," *American Journal of Public Health* 85, no. 2 (February, 1995), 209.

was created and spurred efforts to develop worksite wellness concepts and research. During the same period, employers began to recognize the negative impacts of poor employee health on job performance and an increase in health benefit costs. Over the course of three decades, numerous studies and trials have been conducted to determine if worksite wellness programs are effective at influencing employee health and behaviors. They have also been able to apply their findings to the process of continuous improvement.

Workplace wellness promotion programs have been shown to be an effective medium to provide educational activities and supportive policies, which lead to positive action.[10] Adapting and applying smart practices learned from initiatives in areas typically associated with workplace wellness promotion programs to disaster preparedness promotion may be valuable to bring positive gains to citizen preparedness levels.

B. HYPOTHESIS

There are lessons learned from workplace wellness promotion programs that could be applied to disaster preparedness promotion. Workplace wellness programs could be leveraged to integrate disaster preparedness promotion thereby providing an alternate avenue for hazards education to improve levels of citizen preparedness.

C. RESEARCH QUESTIONS

Is there anything to be learned from workplace wellness promotion programs that could be applied to citizen disaster preparedness promotion? Is the workplace conducive to the delivery of citizen disaster preparedness promotion?

- What are the interrelationships among the workplace, employees, and the community?
- What is a workplace wellness program?
- Does disaster preparedness promotion fit into a workplace wellness program?
- Why would an organization want to implement a disaster preparedness promotion program?

[10] Ron Z. Goetzel and Ronald J. Ozminkowski, "The Health and Cost Benefits of Work Site Health-Promotion Programs," *Annual Review of Public Health* 29 (2008), 306.

- What smart practices have been developed in workplace wellness promotion programs that could be applied to citizen disaster preparedness promotion programs?

D. RESEARCH METHOD

This thesis is written primarily for organizational leaders, human resources professionals, and hazards education practitioners to provide an exploration of the conceptual integration of citizen disaster preparedness promotion into workplace wellness programs. It gathers evidence from the literature related to both disaster preparedness and workplace wellness programs with the objective of identifying key success factors of workplace wellness promotion that may be applicable to disaster preparedness promotion.

The study begins with a review of the literature encompassing the foundational concepts including an overview of key disaster preparedness definitions, previous and current disaster preparedness promotional initiatives, and the socio-psychology of disaster preparedness adoption at both the individual and organizational levels. Next, the complex interrelationships between and among employers, employees, and the community are examined in context of how workplace wellness promotion and citizen employee disaster preparedness fit in. Key elements of the business case that influence employer adoption of as well as employee participation in such programs are also studied. Lastly, the study examines the evaluative processes used in the literature and identifies promising smart practices, as validated by existing studies, which may be applied to construct a framework for citizen disaster preparedness promotion programs as stand-alone workplace initiative or as an integral component of workplace wellness programs.

E. CHAPTER OVERVIEW

Chapter I presents the issue of how to reach large percentages of the U.S. population in a practical, affordable, and effective manner to increase citizen disaster preparedness levels. A hypothesis is offered that lessons could be learned from successful

workplace wellness promotion programs; and household disaster preparedness is an appropriate topic that can be integrated into workplace wellness promotion programs.

Chapter II provides a foundational background of citizen disaster preparedness standards and promotion initiatives. Some general definitions are provided from the literature and a definition of citizen disaster preparedness promotion is proposed. Previous and current citizen disaster preparedness promotion initiatives at the federal, state, and local levels are identified, which leads into a brief discussion of some causal factors of why these current efforts are not attaining objectives to the level or pace desired.

Chapter III discusses the findings in the literature regarding psycho-sociology aspects associated with preparedness behavior. It examines popular behavior change theories often utilized in wellness program initiatives in order to gain a solid understanding of the target audience. The chapter concludes with a discussion on the relevance of the *population health management approach* when addressing larger units. The population management approach and has become an accepted standard in workplace wellness programs as it recognizes that behavior change occurs at the individual level, aggregates to a population level, and can be impacted both positively and negatively by environmental conditions.

Chapter IV discusses the interrelationships among citizens, businesses, and the community. The chapter answers the questions: What is the potential role employers can play in the disaster preparedness of their employees?; Why would a private organization accept such a role (the business case)?; and What mechanisms are in place (wellness programs) that could facilitate disaster preparedness promotion?.

Chapter V begins with a discussion of the evaluation methods used in the literature to determine the effectiveness of specific components of workplace wellness promotion programs. Despite some unique challenges associated with the worksite setting, rigorous evidence-based methods have identified common attributes which have shown promise toward achieving behavior change objectives. The remainder of the

chapter discusses these “smart practices” learned from wellness programs and applies them to the context of a disaster preparedness promotion program.

Chapter VI presents a framework for a workplace citizen disaster preparedness promotion program. It is intended as a natural outcome and synthesis of information and evidence presented in earlier chapters. It includes the key take-aways and smart practices identified during the research process and applies them to a framework proven in the field of workplace wellness as adapted to workplace disaster preparedness promotion.

Lastly, Chapter VII serves as the conclusion of this research report and provides a brief summary of findings, the limitations of this research, and potential areas of future study.

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II. BACKGROUND

As a starting point of this thesis, two foundational topics are explored in order to provide context of the objective. First, it is crucial that the readers have a clear and consistent understanding of what is intended by the term, "citizen disaster preparedness promotion." Secondly, it is beneficial for the reader to be familiar with current and previous initiatives to improve citizen disaster preparedness.

A. WHAT IS CITIZEN DISASTER PREPAREDNESS PROMOTION?

Like many terms in vernacular, there are several different connotations of citizen disaster preparedness promotion, each with associated objectives subject to the individual interpretations of each stakeholder. In 2007, PricewaterhouseCoopers' Health Research Institute conducted an industry survey to define "preparedness;" only two statements on the subject received consensus: "1) there is currently no universally accepted definition of preparedness; and 2) we must continue getting 'better prepared.'"[11] Seven years later, in 2014, a review of the literature indicates that despite numerous efforts to address these issues, the two preceding statements remain accurate as evidenced by the variety of definitions for *disaster preparedness* discussed in the following paragraphs.

The absence of a universally accepted definition not only confuses perceptions but hinders the ability of programs to establish goals and objectives, develop benchmarks, and measure success. It is useful for the focus of this paper to develop and propose a novel definition of our objective, *citizen disaster preparedness promotion*. Valuable attributes of existing definitions can be collectively applied as the basis to formulate a proposed universal definition of *citizen disaster preparedness promotion*.

As the designated lead agency for national preparedness, any definition of citizen disaster preparedness promotion should encompass the U.S. Federal Emergency Management Agency definitions of the term's core components: disaster and preparedness.

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[11] PricewaterhouseCoopers Health Research Institute, *Closing the Seams*: Developing an Integrated Approach to Health System Disaster Preparedness* (n.p.: PricewaterhouseCoopers LLP, [2007]).

> Disaster: An occurrence of a natural catastrophe, technological accident, or human caused event that has resulted in severe property damage, deaths, and/or multiple injuries.[12]
>
> Preparedness: Actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk. Partners in preparedness include: All levels of government, organizational and community leaders, nonprofit organizations, the private sector, individuals and households.[13]

FEMA's definition of disaster, however, is so overly broad that a privately owned vehicle that is accidentally driven into a structure resulting in multiple casualties could by definition be categorized a disaster; though few would consider the incident anything more than a routine, albeit tragic, emergency. The preceding example presents the opportunity to differentiate the terms "emergency" and "disaster" which are commonly used interchangeably though somewhat erroneously throughout the preparedness discourse. Generally "emergency" refers to an immediate, distinct, and short-term event.[14] The term "disaster" is typically reserved for major incidents composed of multiple, interrelated emergencies that are significantly longer in scope and duration. Review of the World Health Organization's definition of a disaster adds the dimension of scale:

> The result of a vast ecological breakdown in the relations between man and his environment, a serious and sudden (or slow, as in drought) disruption on such a scale that the stricken community needs extraordinary efforts to cope with it, often with outside help or international aid.[15]

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12 Federal Emergency Management Agency, "Glossary," U.S Department of Homeland Security, https://www.training.fema.gov/EMIWeb/emischool/EL361Toolkit/glossary.htm#P (accessed July 7, 2014).

13 Federal Emergency Management Agency, "IS-1.a Emergency Manager: An Orientation to the Position," U.S Department of Homeland Security, http://emilms.fema.gov/is1a/EMOP0109000.htm (accessed July 7, 2014).

14 National Research Council (U.S.). Committee on Disaster Research in the Social Sciences: Future Challenges and Opportunities, National Research Council (U.S.) and Division on Earth and Life Studies, *Facing Hazards and Disasters Understanding Human Dimensions* (Washington, DC: National Academies Press, 2006).

15 S. William A. Gunn, "The Language of International Humanitarian Action: A Brief Terminology," in *Concepts and Practice of Humanitarian Medicine*, eds. S. William A. Gunn and Michele Masellis (New York: Springer, 2008), 144.

In addition to FEMA, other primary federal programs provide definitions of preparedness in various key documents:

The National Fire Protection Association (NFPA) in its Standard on Disaster/Emergency Management and Business Continuity Programs (NFPA 1600) defines preparedness as:

> Activities, tasks, programs, and systems developed and implemented prior to an emergency that are used to support the prevention of, mitigation of, response to, and recovery from emergencies.[16]

The National Incident Management System (NIMS) defines preparedness as:

> A continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response.[17]

Department of Homeland Security, National Infrastructure Protection Plan defines preparedness as:

> The range of deliberate critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, respond to, and recover from domestic incidents. Preparedness is a continuous process involving efforts at all levels of government and between government and private sector and nongovernmental organizations to identify threats, determine vulnerabilities, and identify required activities and resources to mitigate risk.[18]

The intent of the preceding definitions is not specifically focused on individual-level preparedness, but rather to provide perspectives on disaster preparedness. Though the primary audiences for the above definitions are public emergency and disaster management communities, the connecting link is FEMA's *Whole Community Approach to Emergency Management.* The whole of community concept recognizes citizens as an

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16 National Fire Protection Association, *NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity Programs* (Quincy, MA: National Fire Protection Association, 2007).

17 U.S. Department of Homeland Security, *National Incident Management System* (Washington, DC: U.S. Government Printing Office, December 2008).

18 U.S. Department of Homeland Security, *National Infrastructure Protection Plan* (Washington, DC: U.S. Government Printing Office, 2006).

essential component to the emergency/disaster management enterprise.[19] In that context, the above definitions provide valuable attributes that may be applied to the meaning of disaster preparedness at the citizen level. Key features that can be incorporated into the definition being proposed include: 1) preparedness is a continuous process, 2) preparedness builds capability, 3) preparedness involves knowledge of the threat and measures taken in advance to positively affect incident response and recovery, and 4) preparedness must be exercised.

A study of disaster preparedness conducted by the Natural Hazards Center Institute of Behavioral Science at the University of Colorado (NHCI) provides a thorough examination of the various dimensions of preparedness and associated activities stratified by various social units including households (to include individuals, family units, and co-residents), businesses, communities.[20] Though all of these units fall under the category of "citizen" (i.e., non-governmental and local) and the paper identifies select preparedness measures that are applicable across all the social units, the study also illustrates the point that disaster preparedness and associated actions will be interpreted differently depending on whose perspective is used. The NHCI report derives the following definition of disaster preparedness:

> Measures aimed at enhancing life safety when a disaster occurs, such as protective actions during an earthquake, hazardous materials spill, or terrorist attack. It also includes actions designed to enhance the ability to undertake emergency actions in order to protect property and contain disaster damage and disruption, as well as the ability to engage in post-disaster restoration and early recovery activities.[21]

An additional element of preparedness is raised by the NHCI research paper in its discussion of the role of disaster preparedness from the perspective of pre-impact

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[19] Federal Emergency Management Agency, *A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action* (Washington, DC: U.S Department of Homeland Security, December 2011).

[20] Jeannette Sutton and Kathleen Tierney, *Disaster Preparedness: Concepts, Guidance, and Research (Report Prepared for the Fritz Institute Assessing Disaster Preparedness Conference Sebastopol, California, November 3 and 4, 2006.)* (Boulder, CO: Natural Hazards Center Institute of Behavioral Science, University of Colorado, [2006]), 1.

[21] Ibid., 3.

(measures that ensure resources necessary to respond effectively are in place and that those who must respond know how to use those resources), impact (the mental fortitude to fulfill ones role during the response), and post-impact (the inclusion of recovery capabilities and preparing for the challenges associated with short- and longer-term recovery).[22] The Stafford Act, though directed more toward governmental agency disaster preparedness, further validates the view that preparedness includes actions that are implemented before, during, and after a disaster-level incident.[23]

The NHCI definition of disaster preparedness effectively captures many of the essential attributes listed in the various definitions provide by the key resource documents. An examination of the doctrinal citizen disaster preparedness *campaign*s assists in the refinement of the definition.

FEMA's Community Preparedness Division's "Ready Campaign" does not explicitly provide additional clarity to the pursuit of a definition of disaster preparedness. Instead, the Ready Campaign provides information on the purpose of preparedness, "[k]nowing what to do before, during and after an emergency," and basic preparedness actions, "Be Informed, Make a Plan, Build a Kit, Get Involved."[24] The National Center for Disaster Preparedness offers an iteration of the Ready Campaign message in a model that specifically adds the need for a deliberate communication plan to the four FEMA "ready" actions and arranges them in a continuous loop revolving around resilience thereby capturing the concept that preparedness is an ongoing process.[25]

In February 2013, the American Red Cross and the Federal Emergency Management Agency published a joint report based on a workshop on motivating the public to prepare. Workshop participants, who included almost one hundred emergency

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[22] Ibid., 3.

[23] Federal Emergency Management Agency, *Robert T. Stafford Disaster Relief and Emergency Assistance Act, as Amended, and Related Authorities, Title VI—Emergency Preparedness, Sec. 602. Definitions (42 U.S.C. 5195a)*, June 2007), 54–55.

[24] Federal Emergency Management Agency, "Be Informed," Federal Emergency Management Agency, http://www.ready.gov/be-informed (accessed July 25, 2014).

[25] National Center for Disaster Preparedness, "The NCDP Model for Disaster Preparedness," National Center for Disaster Preparedness, Columbia University, http://ncdp.columbia.edu/library/preparedness-tools/the-ncdp-model-for-disaster-preparedness (accessed September 9, 2013).

management practitioners and officials, concurred about the need for more clarity and consistency in what is meant by citizen preparedness. The most frequently identified features in a definition were: 1) "Learn the risks, know what steps to take, and know what resources to access before, during, and after an emergency," 2) "Learn the actions that enable survival," and 3) "Plan ahead, practice, and be ready for a disaster."[26]

A discussion during a separate, earlier research roundtable, "Increasing Citizen Preparedness through Applied Research," recognized the need to better define and frame what is meant by "preparedness" in order to develop and agree upon standards for evaluation. A recommendation captured from the roundtable is to shift the context of preparedness toward "insurance for peace of mind, economic responsibility, and care for loved ones" and away from "matters of life and death."[27] This recommendation is in-step with psychological motivators and de-motivators (later discussed in Chapter III) as matters that may cause the end of life tend to evoke unproductive levels of fear and futility among the public over time.

The common themes among the discourse and literature on citizen disaster preparedness promotion are simplifications, though consistent with many of the attributes previously identified in the national preparedness literature.

Based on the preceding factors and considerations, the following definition of *Citizen Disaster Preparedness Promotion* is proposed:

> An ongoing process of social marketing that attempts to sustain and improve the knowledge, capabilities, and readiness of people, households, and groups that can be applied before, during, and after an incident of extraordinary scale and duration; thereby enabling them to lessen the level of disruption and increase personal, household, organizational, and community resilience.

This definition is intended primarily to address the promotion of pre-incident disaster preparedness of individual and households that are foundational to any

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[26] American Red Cross and Federal Emergency Management Agency, *Summary Report on Awareness to Action: A Workshop on Motivating the Public to Prepare* (Washington, DC: U.S Department of Homeland Security, [2013]), 5.

[27] Citizen Corps, *Increasing Citizen Preparedness through Applied Research, Proceedings* (Washington, DC: Department of Homeland Security, [2007]), 15.

organization or community. This level of preparedness serves a purpose similar to that of knowing first aid/CPR or owning a fire extinguisher. It is not meant to replace or even augment the actions of professional emergency/disaster response community, but rather to enable citizens and organizations to mitigate the impact of the disaster and be self-reliant during the period when essential services may not be available. In addition, it addresses physical and mental preparedness actions that may be applied during and after the incident most likely at the organizational level to address immediate and long-term impacts of the disaster.

B. PREVIOUS AND CURRENT EFFORTS AT CITIZEN DISASTER PREPAREDNESS PROMOTION

The concept of citizen preparedness efforts has existed for more than a century in the United States beginning with the formation of the American Red Cross in the latter part of the 19th century, through the threats associated Cold War era, and has experienced its current resurgence of interest due to a perceived increase in threats from terrorism and natural disasters. The increased awareness of personal vulnerability is attributed to the personal experiences of both public officials and private citizens resulting from the September 11, 2001 attacks and impact of Hurricanes Katrina (2005), Rita (2005), and Sandy (2012). These recent events have been the catalyst to the development of the current national standards and preparedness promotion initiatives discussed in this section and are meant to improve awareness, collaboration, and to encourage action beyond the public sector.

1. Early Efforts

Dating back more than a century, the American Red Cross was one of the earliest formal organizations to address disaster preparedness. One of the five primary objectives listed in the founding charter (1881) and U.S. Congressional charter (1900) of the American Red Cross is to "organize a system of national relief and apply the same in mitigating the sufferings caused by war, pestilence, famine and other calamities."[28] Later,

[28] American Red Cross, "Federal Charter," American Red Cross, http://www.redcross.org/about-us/history/federal-charter (accessed July 10, 2014).

in 1942, DeWitt C. Smith penned in his essay, "Organizing for Disaster Preparedness" espousing the need for organizing communities for disaster preparedness.[29] Smith also recognized that disaster preparedness depended on local, regional, and national cooperation.[30]

In the World War II and Cold War eras, citizen preparedness initiatives at the national level were in response to foreign threats. Citizens were called upon to participate in the national defense by keeping watch of the horizon for enemy activity encroaching on our borders and prepare how to successfully survive a nuclear attack. During this time period, hazards education and individual preparedness for natural weather or seismic events were regionally based and led by state and local governments.[31] Interestingly, civil defense programs experienced results similar to current citizen preparedness efforts with only a minority of Americans subscribing to the recommended self-protective actions. Related preparedness training was disseminated via public service announcements, awareness campaigns in schools, and limited formalized training purposed for public officials that would likely be involved in managing the crisis. No evidence was found indicating workplaces were used as avenues of dissemination of preparedness training

2. Current Disaster Preparedness Standards and Promotion Efforts

National Fire Protection Association 1600 and Presidential Policy Directive 8 are two national level documents on the subject of disaster preparedness that specify their applicability to U.S. businesses and citizens, respectively. These standards are supported both directly and indirectly by national, state, and local level promotional efforts intended to encourage action among their target audience.

The U.S. Department of Homeland Security has adopted the NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs as a voluntary

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[29] DeWitt C. Smith, "Organizing for Disaster Preparedness," *Journal of Community Practice* 13, no. 4 (2005), 135.

[30] Ibid., 136.

[31] Irwin Redlener and David A. Berman, "National Preparedness Planning: The Historical Context and Current State of the U.S. Public's Readiness, 1940–2005," *Journal of International Affairs* 59, no. 2 (Spring/Summer, 2006), 96.

consensus standard for preparedness.[32] NFPA 1600 provides standardized methodologies and planning guidelines which address essential components of disaster preparedness and continuity programs including communications plans, management structures during crisis, and human continuity.[33] Business continuity and disaster preparedness planners consider the NFPA standard to be the benchmark for assessment of disaster preparedness programs in both the public and private sectors.

The NFPA identifies the following steps when developing a business risk assessment:

- Identify and monitor hazards.
- Assess probability of occurrence.
- Determine vulnerability of personnel, property, the environment, and the business operation.
- Consider all hazards including: natural, accidental and deliberate human-caused events, and technological events.

Presidential Policy Directive 8: National Preparedness (PPD-8) (2011); formerly Homeland Security Presidential Directive 8 (HSPD-8) (2003) provides guidance to the nation, from the federal level to private citizens, regarding actions toward the "threats that pose the greatest risk to the security of the Nation" including deliberate, accidental, and natural disasters. PPD-8 establishes that preparedness objectives are to be accomplished by subdividing emergency management components into a system of integrated planning frameworks.[34]

The Federal Emergency Management Agency is directed by PPD-8 and the Post-Katrina Emergency Management Reform Act of October 2006 to establish a National Preparedness Goal and a National Preparedness System. The Post-Katrina Act

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[32] National Fire Protection Association, "NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity Programs," National Fire Protection Association, http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=1600 (accessed July 17, 2014).

[33] Ibid.

[34] The White House, *Presidential Policy Directive/PPD-8,* 2011), 3.

also mandated the all-hazards approach within a risk-based framework. Subsequently, FEMA established a National Preparedness Directorate with the primary responsibility of overseeing a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.[35] During this period, FEMA also recognized the reality that "a government centric approach to disaster management will not be enough to meet the challenges posed by a catastrophic incident" and initiated the Whole of Community Approach, which emphasizes the importance of stakeholders at all levels including individuals, communities, private enterprise, and local, tribal, state, and federal governments.[36]

a. FEMA Initiatives

Within the National Preparedness Directorate, FEMA's Community Preparedness Division established two primary initiatives intended to involve citizens in all-hazards emergency preparedness and resilience: The Citizen Corps and the Ready Campaign.[37] A third initiative, The National Preparedness Community has a similar mission with focus on improving coordination and collaboration among units at the community level.

(1) Citizen Corps – The Citizen Corps is "a community-level program that brings government and private sector groups together and coordinates the emergency preparedness and response activities of community members. Through its network of community, tribal and State councils, the Citizen Corps increases community preparedness and response capabilities through public education, outreach, training and volunteer service."[38]

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[35] William O. Jenkins Jr., Emergency Management: Observations on DHS's Preparedness for Catastrophic Disasters: Testimony before the Subcommittee on Management, Investigations and Oversight, Committee on Homeland Security, House of Representatives (Washington, DC: United States Government Accountability Office, 2008), 6–7.

[36] Federal Emergency Management Agency, A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action.

[37] U.S. Government Accountability Office, Emergency Preparedness FEMA Faces Challenges Integrating Community Preparedness Programs into its Strategic Approach: Report to Congressional Requesters, 16.

[38] U.S. Department of Homeland Security, *National Response Framework (Draft)* (Washington, DC: U.S. Government Printing Office, 2007), 1–78.

The primary objective of the Citizen Corps program is to facilitate the collaboration between the local government and community leaders to promote citizen preparedness activities. The Citizen Corps is comprised of, among others, numerous locally organized Citizen Corps Councils and Community Emergency Response Teams (CERT). The goal of these programs is to provide localized public awareness and involvement in emergency preparedness, planning, mitigation, response, and recovery through traditional principles of community engagement.[39]

(2) Ready Campaign – The primary objective of the Ready Campaign is to raise awareness about the need for emergency preparedness and to motivate citizens to take action toward preparedness. Preparedness information is disseminated through public service announcements, printed material that can be ordered, and through both English and Spanish websites (www.ready.gov and www.listo.gov).

The combined budgets of these two programs account for a mere one tenth of one percent of FEMA's overall budget.[40] This level of spending brings to question the availability of federal resources that can be dedicated to achieving citizen preparedness; or from a more cynical view, it begs to question how serious the federal government is about its objective of achieving a culture of preparedness among the citizenry.

(3) National Preparedness Community – The National Preparedness Community, formerly the National Preparedness Coalition is a FEMA-sponsored initiative that coordinates regional and community awareness events to "connect, collaborate, and empower ourselves and the each other to fulfill our shared responsibility

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[39] U.S. Government Accountability Office, *Emergency Preparedness FEMA Faces Challenges Integrating Community Preparedness Programs into its Strategic Approach: Report to Congressional Requesters*, 9.

[40] In fiscal year 2009, FEMA's overall budget was approximately $7.9 billion; Citizen Corps and Ready.gov Campaign were approx. $5.8 million and $2.1 million, respectively.

to prepare."[41] Its membership is trending upward, but was listed as approximately 44,000 in July 2014.[42]

b. American Red Cross

The American Red Cross continues to be a major proponent of emergency and disaster preparedness. It maintains web-based initiatives focused toward individuals and households (*Be Red Cross Ready* campaign), businesses and organizations (*Ready Rating*™ campaign), and schools (*Masters of Disasters*®).

The *Be Red Cross Ready* program parallels the FEMA *Be Ready* program and simplifies preparedness to three actions: 1) Get a Kit, 2) Make a Plan, 3) Be Informed. Originating as a pilot program in 2008, the American Red Cross *Ready Rating* initiative is a self-guided program designed to help businesses, organizations and schools become better prepared for emergencies. Members complete a 123-point self-assessment of their level of preparedness and have access to tools, tips and best practices to help improve their level of preparedness. The "1-2-3 Assessment" has been aligned with the federal government's *Private Sector Preparedness* standards (*PS-Prep*) program. The assessment consists of five sections that score emergency preparedness efforts in terms of commitment, knowledge of hazard vulnerability, emergency planning, plan implementation and community resiliency, which are the five essentials of preparedness.[43] The program reports success among its participants as indicated by an average in members' Ready Rating assessment score of 14% the first year and 50% after two years.[44]

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[41] Federal Emergency Management Agency, "The National Preparedness Community: Community User Guide," U.S. Department of Homeland Security, http://www.community.fema.gov/connect.ti/readynpm/view?objectId=7384549&exp=e1 (accessed July 11, 2014).

[42] Ibid.

[43] American Red Cross, "How the Ready Rating Program Works," American Red Cross, http://www.readyrating.org/HowItWorks.aspx (accessed July 10, 2014).

[44] American Red Cross, "The History Of the Ready Rating Program," American Red Cross, http://www.readyrating.org/About/AbouttheProgram.aspx (accessed July 10, 2014).

Masters of Disaster® is a disaster education curriculum centered on a series of ready-to-go lesson plans to help youth learn disaster safety and preparedness information. The Masters of Disaster® Family Kit contains fun activities that help everyone in the home learn preparedness. The Masters of Disaster® Educator's Kit contains lessons, activities, and demonstrations on disaster-related topics that meet national educational standards and are specifically tailored for lower elementary (grades K–2), upper elementary (grades 3–5) and middle school (grades 6–8) classes.[45]

c. State and Local Programs (Examples)

(1) New York State Citizen Preparedness Corps Program – The stated goal of the New York State Citizen Preparedness Corps Training program is to provide citizens with the tools they need to be ready and able to help their families and neighbors during emergencies. The program consists of in-person presentations that aim to prepare citizens for emergencies and disasters, respond accordingly, and recover as quickly as possible to pre-disaster conditions. The training is designed to provide an introduction to citizens on how to properly prepare for any disaster, including developing a family emergency plan and stocking up on emergency supplies as well as information on what organizations may be available to provide additional support; how to register for the State's emergency alert system; and how to be aware of notifications from such sources as the Emergency Broadcast System. Participants are also be encouraged to get more involved in existing community-based emergency activities that may be organized through local schools, businesses or community-based organizations. A key component of this citizen preparedness effort is the distribution of emergency response kits that contain recommended items that may assist individuals in the immediate aftermath of a disaster.[46]

(2) Ready New York – Ready New York is a city-based emergency preparedness campaign initiated by the New York City Office of Emergency

[45] American Red Cross, "Preparedness Programs: Masters of Disaster," American Red Cross, http://www.redcross.org/take-a-class/program-highlights/preparedness-programs (accessed July 10, 2014).

[46] Governor's Press Office (NY), *State Announces Citizen Preparedness Corps Training Program in St. Lawrence County* (New York: Governor's Press Office (NY), April 3, 2014).

Management. Launched in 2003, it stresses an all-hazards approach and is delivered via website, multi-lingual print material, media advertising, speaker programs, and participation in community fairs.[47]

(3) 72hours.org – 72hours.org is the City of San Francisco's emergency preparedness campaign presented by the city's Office of Emergency Services. The program is primarily web-based and also attempts to disseminate simple, easily understood messaging using media and print advertising. Other City of San Francisco emergency preparedness initiatives include a Neighborhood Emergency Response Team (NERT) which is a city-sponsored version of the CERT teams, a Disaster Service Worker Program, Community Agencies Responding to Disaster (SFCARD), and emergency preparedness presentations via the city's Housing Authority.[48]

C. ANALYSIS OF CURRENT PROGRAMS

A 2012 article, "Citizen Preparedness for Disasters: Are Current Assumptions Valid?" / "Why Aren't Americans Listening to Disaster Preparedness Messages?" by Lori Uscher-Pines et al. simultaneously published in Disaster Medicine and Public Health Preparedness and by RAND.org questions the following assumptions related to citizen preparedness promotion:

- Preparedness messaging reaches every American (and therefore it is irrational not to prepare).
- Prepared citizens are the foundation of a resilient community.
- Promoting individual preparedness is constructive.
- Citizen preparedness campaigns are informed by evidence.
- Surveys are useful for gauging preparedness.

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[47] Judith Kane, *NYC Preparedness Education & Outreach* (Washington, DC: U.S. Department of Homeland Security.

[48] Amy Ramirez, *Citizen Disaster Preparedness* (Washington, DC: U.S. Department of Homeland Security.

The first listed of these assumptions relates to the delivery method of citizen preparedness messaging to Americans.[49] The goal of the aforementioned programs from the previous section is to provide public awareness and involvement in disaster preparedness, planning, mitigation, response, and recovery.[50] They offer an abundance of useful information and action items on the subject of citizen disaster preparedness. However, when applying proven social marketing concepts to existing approaches, a critical issue becomes apparent: they rely heavily on impersonal mediums such as websites, public service announcements, and mass mailings.

The majority of the current channels of distribution are either web-based or must be requested by those wishing to receive print material. Both of these channels of distribution demand citizens first become aware of the existence of these sources (a 2008 AdCouncil survey found that only 21% of those surveyed were aware of the Ready.gov website)[51] and secondly take the self-initiative to pursue the information, before they even contemplate taking the first FEMA preparedness action of "Be informed."[52] Additionally, web-based programs effectively reduce the audience to those that have access to the Internet.

The second assumption raised by Uscher-Pines et al. is the value relationship between individual citizen preparedness and community citizen preparedness.[53] Proponents of individual preparedness state the actions of individuals are reflected upon the readiness of the community. However, the authors of another study describe individual preparedness as counterproductive to the connections between individuals

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[49] Lori Uscher-Pines et al., "Citizen Preparedness for Disasters: Are Current Assumptions Valid?" *Disaster Medicine and Public Health Preparedness* 6, no. 2 (June, 2012), 171.

[50] U.S. Government Accountability Office, *Emergency Preparedness FEMA Faces Challenges Integrating Community Preparedness Programs into its Strategic Approach: Report to Congressional Requesters*, 9.

[51] Ibid., 15.

[52] Guion, Scammon and Aberdeen Leila Borders, *Weathering the Storm: A Social Marketing Perspective on Disaster Preparedness and Response with Lessons from Hurricane Katrina*, 27.

[53] Uscher-Pines et al., *Citizen Preparedness for Disasters: Are Current Assumptions Valid?*, 171.

deemed essential to community recovery and resilience.[54] The latter group purports that prepared *groups* rather than prepared *individuals* should be marketed.

The third assumption raises valid points about 1) the ability of households to prioritize preparedness activities when faced with other more immediate challenges and 2) the potential that the promotion of three days' worth of self-reliance may have the unintended consequence of misleading expectations if a longer duration is required. A third issue regarding the potential concern that non-professionals (citizens) may become overconfident and choose to "ride out" a disaster is dismissed on the basis similar to the perspective offered in the first section of this chapter, which offered a definition of citizen disaster preparedness promotion. This issue is as unfounded as demonstrated by similar *emergency* preparedness actions: for example knowing CPR or owning a fire extinguisher does not reduce 9–1-1 calls during an emergency, but rather provides immediate potentially life-saving measures that assist the professional emergency responder by mitigating the hazard.

The fourth and fifth assumptions are closely related as they both have to do with the dearth of evidence-based practices that are being promoted by citizen disaster preparedness initiatives. As will be discussed later in this thesis, numerous challenges exist in obtaining scientifically proven evidence due to the seemingly infinite number of variables that exist that influence personal behaviors. The use of expert panels and benchmarking will be validated as credible methods to determine smart practices when empirical evidence remains elusive.

The hypothesis that serves as the basis of this research paper may provide solutions that address the concerns raised in all five of the preceding assumptions: 1) A large percentage of Americans are employed. The workplace provides a venue that can reach the majority if not all of its employees 2) The workplace is a community of its own 3) Workplace wellness programs advocate employee betterment before, during, and after the occurrence of a hazard 4) Real-world experiences from organizations that have gone

[54] Monica Schoch-Spana et al., "Community Resilience Roundtable on the Implementation of Homeland Security Presidential Directive 21 (HSPD-21)," *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 6, no. 3 (September, 2008), 269.

through a disaster provide valuable lessons-learned for future preparedness 5) The challenge of gaining empirical evidence is also common to wellness programs; the issue has been addressed and alternatives have been developed.

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III. PSYCHO-SOCIOLOGY OF PREPAREDNESS BEHAVIOR

As demonstrated by the less than satisfactory results of current promotion efforts, increasing citizen disaster preparedness levels involves more than simply disseminating information about potential hazards and recommended actions to the general public. Why do some people act upon the information while others dismiss it? What are the relevant factors in an individual's determination of disaster preparedness to be in their best interest; and then furthermore act on what is in their best interest? A thorough understanding of employees and the influences on their behavior is a quality found frequently in successful workplace wellness promotion programs.[55] In this chapter, the psycho-sociology of preparedness behavior is examined in order to identify the potential influences that need to be considered during the development of workplace disaster preparedness promotion program.

A. THE PSYCHOLOGY OF PREPAREDNESS BEHAVIOR

Literature that attempts to understand and explain why humans act the way they do is abundant. One of the leading academic centers whose mission is to understand the psychology of preparedness in the general public is the National Center for Disaster Preparedness. The National Center for Disaster Preparedness has tracked U.S. attitudes on preparedness over the last ten years using routinely issued surveys.[56] Their 2011 survey found that more than half of Americans feel that their community does not have an adequate response plan for a no-notice disaster.[57] Ironically, of the same people surveyed, almost three quarters believe that first responders will be able to provide individual assistance within twenty-four hours.[58]

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[55] Karen Glanz, "Application of Behavior Change Theory in the Worksite Setting," in *ACSM's Worksite Health Workbook: A Guide to Building Healthy and Productive Companies*, ed. Nicolaas P. Pronk, 2nd ed. (Champaign, IL: Human Kinetics, 2009), 189.

[56] National Center for Disaster Preparedness, *Preparedness Attitudes and Behaviors*

[57] National Center for Disaster Preparedness, *The American Preparedness Project: Executive Summary: Where the U.S. Public Stands in 2011 on Terrorism, Security, and Disaster Preparedness*

[58] Ibid.

It is worthy of mention that most studies on the psychology of preparedness pre-date the elevated awareness of the impacts terrorism resulting from the 9/11 attacks. Overwhelmingly, studies direct attention to the threat of natural disasters that have a higher probability of occurrence and in majority of cases can be more devastating and widespread than a man-made incident or act of terrorism. Without delving into debate over the causal factors, the combined impact of climate change and the trend in population movement toward regions that are vulnerable to recurring natural disasters substantially increases the risk of exposure to a disaster during one's lifetime.[59] Dating back to a paper published in 1942, DeWitt Smith recognized the increasing frequency of natural disasters and greater risks due to higher densities in population and later in the paper asserts, "we [Americans] have become so accustomed to disasters in this country…that they no longer seem extraordinary or unexpected."[60] Yet, as clearly indicated by the previously cited national citizen preparedness surveys, this statement appears to be as valid today as it was in 1942. The urgency for citizen disaster preparedness is rarely realized by a majority of Americans until after a disaster has occurred.

Numerous factors, both internal (behaviors and attitudes) and external (organization and environment), have been studied by other researchers in an attempt to identify predictors and motivators of self-reliance and preparedness. A foundational understanding of these factors is critical first step in the development of an actionable program that will improve preparedness levels among individuals. The following paragraphs describe some of these factors and the studies that validate their influence on behaviors. The factors are listed in no particular order.

(1) Prior Experience

One of the strongest motivators to developing personal responsibility is personal experience in a prior disaster or a deeply embedded memory resulting from a shocking

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[59] David N. Sattler, Charles F. Kaiser and James B. Hittner, "Disaster Preparedness: Relationships among Prior Experience, Personal Characteristics, and Distress," *Journal of Applied Social Psychology* 30, no. 7 (2000), 1396.

[60] Smith, *Organizing for Disaster Preparedness*, 132.

event termed "flashbulb memories."[61] Separate research studies conducted by Greenberg et al. (2013) and Sattler et al. (2000) used focused surveys to test for a relationship between flashbulb memories or prior experiences, respectively and the level of preparation conducted by an individual to face future threats. Research indicates that not wanting to repeat the negative mental (fear, confusion, lack of control) or physical (cold/hot, hunger, pain) trauma experienced personally or by others during a previous incident leads to increases in resiliency and self-reliance as a coping mechanism.[62] However, research also shows that the strength of negative memories diminish over time and may reduce the previously mentioned response.[63]

(2) Perceived Risk – The converse to a prior personal experience with an incident is a lack of awareness of the potential threats and consequences that exist. Awareness of a vulnerability that has a high likelihood of having a negative impact will tend to shift the personal responsibility for preparedness to a higher priority.[64] The warning and response model suggests that the combination of factors listed in this review influence an individual's overall perception of threat.

(3) Social Capital – Social capital is indicated by strong social networks and trust within community circles.[65] These networks develop "norms" (referring to shared attitudes and behaviors) that establish perceptions to internal and external conditions as well as the expected response to those conditions.[66] Hausman et al. conclude in their study of the impact of social capital on preparedness conditions that community

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61 Michael Greenberg, Susannah Dyen and Stacey Elliot, "The Public's Preparedness: Self-Reliance, Flashbulb Memories, and Conservative Values," *American Journal of Public Health* 103, no. 6 (April 18, 2013), e86.

62 Sattler, Kaiser and Hittner, "Disaster Preparedness: Relationships among Prior Experience, Personal Characteristics, and Distress," 1416.

63 Ibid., 1414.

64 Ibid., 1398.

65 Alice J. Hausman, Alexandra Hanlon and Brenda Seals, "Social Capital as a Mediating Factor in Emergency Preparedness and Concerns about Terrorism," *Journal of Community Psychology* 35, no. 8 (2007), 1074.

66 Ibid.

perceptions in fact do have an influence on individual actions.[67] However, in terms of preparedness, there is a potential for social capital to be either a positive and negative influence. If there is an absence of perceived risk by the social network, individual preparation can viewed as extreme behavior ("disaster prepper").

(4) Resources – The more resources you have the more you want to protect. Sattler et al. (2000) raise the conservation of resources stress model (CRSM) as an additional motivator as applied to the psychology of preparedness behavior. In brief, the CRSM predicts that the threat of loss of valued resources (object possessions, social conditions, personal characteristics, or energy—inclusive of finances) leads to stress that lead to efforts to minimize resource loss.[68]

Some levels of preparedness require additional resources that are not accessible to all households without assistance (money for supplies, adequate space, and time). The Mulilis and Duval study (1997) considers person-relative-to-event theory (PrE), which states that a person will appraise his/her resources relative to the threat to determine sufficiency to produce a positive outcome.[69]

(5) Level of Distress – Further study on PrE is necessary to determine if a negative assessment of resources plays a positive influence on a person toward becoming sufficient or if it results in a feeling of futility and anxiety; a result that decreases preparedness as argued by Mishra et al. (2012) in a study on the effects of anxiety on preparedness.[70] Sattler et al. (2000) recognizes a similar question and hypothesizes that there is an optimal level of distress; too little distress degrades the perceived need to prepare while too much distress introduces a feeling of futility.[71]

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[67] Ibid., 1082.

[68] Sattler, Kaiser and Hittner, "Disaster Preparedness: Relationships among Prior Experience, Personal Characteristics, and Distress," 1398.

[69] John-Paul Mulilis and T. Shelley Duval, "The PrE Model of Coping and Tornado Preparedness: Moderating Effects of Responsibility," *Journal of Applied Social Psychology* 27, no. 19 (1997), 1763.

[70] Sasmita Mishra and Damodar Suar, "Effects of Anxiety, Disaster Education, and Resources on Disaster Preparedness Behavior," *Journal of Applied Social Psychology* 42, no. 5 (2012), 1070.

[71] Sattler, Kaiser and Hittner, "Disaster Preparedness: Relationships among Prior Experience, Personal Characteristics, and Distress," 1416.

(6) Free Choice (Perceived Control) – Mulilis and Duval conducted a focused survey of college students in attempt to predict "personal responsibility."[72] Results of this study indicated that both free choice and high commitment are required to generate personal responsibility. Brickman's compensatory model states "people are not responsible for the problem, but rather are responsible for the solution to the problem and therefore need to see themselves as in control to solve the problem."[73] Kiesler claims that commitment stems from self-responsibility and that a person that has freely chosen to act should feel more committed to the act.[74] However, this claim raises the counterpoint that free choice may lead to decreased commitment as the individual may feel free to disengage at will.

(7) Commitment – Commitment is best defined by Kiesler (1971) in that it "implies binding an act to one's self."[75] As noted in the previous paragraph on Free Choice, Mulilis et al. (2001) claim that commitment is a contributing factor to personal responsibility. However, there can be competition for commitment within an individual based on an individual's perception of priorities.[76] In order to achieve the benefit gained from an individual's commitment to preparedness activities, the individual must become convinced that self-reliance is a higher priority over other activities.

(8) Conservative Philosophy – Both the Mulilis et al. (2001) and Mishra et al. (2012) papers share the conclusion that a sense of personal responsibility is crucial in initiating preparedness. This point is furthered by Greenberg et al. in a 2013 paper that compares the attributes of individuals that are most prepared with those who are less prepared.[77] Though the paper devotes the majority of its text to discussing other external

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72 John-Paul Mulilis, T. Shelley Duval and Danielle Rombach, "Personal Responsibility for Tornado Preparedness: Commitment Or Choice?" *Journal of Applied Social Psychology* 31, no. 8 (2001), 1661.

73 Philip Brickman, Commitment, Conflict, and Caring (Englewood Cliffs, NJ: Prentice-Hall, 1987).

74 Charles A. Kiesler, The Psychology of Commitment (New York, NY: Academic Press, 1971).

75 Ibid.

76 Mulilis, Duval and Rombach, "Personal Responsibility for Tornado Preparedness: Commitment Or Choice?", 1663.

77 Greenberg, Dyen and Elliot, "The Public's Preparedness: Self-Reliance, Flashbulb Memories, and Conservative Values," e85.

factors (covered in the next section) beyond personal attributes, Greenberg et al. find a link connecting conservative values (as identified through response to demographic questions with a desire for smaller government and more self-reliance) with a proactive stance on preparedness.

(9) Age – Though not a controllable factor, age was indicated by the Sattler et al. (2000) study to have a direct relationship with self-reliance. This factor may be more attributable to the many characteristics mentioned previously (experience, resources, perceived risk) that are normally associated with age. Contrarily, some attributes that are typically associated with youth that may hinder preparedness include an absence of commitment due to optimistic bias, other developmental priorities, and an accustomed dependency or limited free choice due to parental control.[78]

The psychology of preparedness behavior is complex. The preceding factors are not exclusive and can be observed to act interdependently, such as in the Mulilis et al. (2001) study discussed previously that links the factors of free choice and commitment. Though the existence of these variables and resulting attitude occur on an intrapersonal level, they are formulated through interaction with one's external environment. Some of the listed psychological factors, social capital for example, explicitly cross the boundary into sociology. Taking a lesson from workplace wellness activities, the contemporary approach looks beyond individual factors to social influences on behavior.[79]

B. THE SOCIOLOGY OF PREPAREDNESS BEHAVIOR

Sociology is the study of social relations; therefore a sociological perspective of disaster preparedness should focus on the social relations that influence disaster preparedness at the individual-level. It is generally recognized by psychologists and sociologists that there is a complex interaction between personal characteristics and their

78 Mulilis, Duval and Rombach, "Personal Responsibility for Tornado Preparedness: Commitment Or Choice?", 1676.

79 James F. Sallis and Neville Owen, "Ecological Models," in *Health Behavior and Health Education: Theory, Research and Practice*, eds. Karen Glanz, Barbara K. Rimer and Frances Marcus Lewis, 3rd ed. (San Francisco: Jossey-Bass, 2002), 462.

environment.[80] Therefore, behavior change should target not only individuals, but the organizational culture that the employees are immersed in.[81] Organizational culture can be a major influence on participation and success rates in workplace programs as captured in the section on behavior change theories under the social ecological model. Wandersman and Florin examined variables that may typically describe organizational characteristics including structure (horizontal/vertical roles, specialization, and formalization), decision-making style (autocratic or democratic), and social climate to determine impact on levels of participation.[82] Their rigorous review of related studies indicated that participation increases in organizations that are more structured (as defined by setting clear roles, responsibilities, and procedures), involve members in decision-making, and possess a high-degree of camaraderie among participants.[83] Organizations that achieve these characteristics increase individual satisfaction, develop an increased positive attitude toward the group and fellow members, and increase a sense of community; thereby creating a full-circle effect that further encourages participation in a program. The term used for this type of mutual and continuous influence is "reciprocal determinism."[84] Simply put, success breeds success; however program managers must be wary of the fact that the converse is also true.

On a similar basis, Kathleen Tierney writes that social forces rather than individual-level interventions have the greatest influence on individuals' senses of efficacy, autonomy, and group membership.[85] Therefore, in order to improve the effectiveness of disaster preparedness messaging, initiatives should focus not only on the delivery to individuals, but also on encouragement of a culture of disaster preparedness among larger social units using participatory strategies. Participatory strategies begin

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80 Abraham Wandersman and Paul Florin, "Citizen Participation and Community Organizations," in *Handbook of Community Psychology*, eds. Julian Rappaport and Edward Seidman (New York: Kluwer Academic/Plenum, 2000), 254.

81 Kenneth R. McLeroy et al., "An Ecological Perspective on Health Promotion Programs," *Health Education Quarterly* 15, no. 4 (Winter, 1988), 351.

82 Wandersman and Florin, "Citizen Participation and Community Organizations," 254.

83 Ibid., 255.

84 Glanz, "Application of Behavior Change Theory in the Worksite Setting," 194.

85 Kathleen Tierney, "Sociology Report," 6–7.

with the identification of established social networks that possess pre-existing assets and advantages.[86] These could include availability of relevant information, organizational structure, extent of social support and social solidarity, access to resources; and capacity for collective action.[87]

C. BEHAVIOR-CHANGE THEORIES

The intent of behavior-change programs is to encourage lifestyle choices and develop habits that are not only beneficial to the individual but also to organizational performance, productivity, and in the case of hazard preparedness, resilience. Successful programs are often centered upon the assessment and solid understanding of individual behaviors and the influences on those behaviors.[88] Studies in the literature suggest that programs grounded by an explicit theoretical foundation are more likely to achieve their objectives.[89] Interventions intended to encourage disaster preparedness are best designed if there is an understanding of relevant theories of behavior change. This section introduces select theoretical bases for behavior change programs, highlights how the theories are used in various models and strategies, and discusses their application in developing current and future disaster preparedness promotion programs.

Due to the varying effects of numerous social, cultural, and economic factors on individual behavior, no single theory or model has proven to excel in its ability to predict behavior change and maintenance.[90] This paper selects some foundational theories that have been embraced by worksite health programs and may show applicability to a workplace disaster preparedness promotion as evidenced by their adaptation in subsequent preparedness explanation models. Each of the theories can be used to help explain why people act the way they do, which may assist in developing methods to

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[86] Ibid.

[87] Ibid.

[88] Glanz, "Application of Behavior Change Theory in the Worksite Setting," 189.

[89] Goetzel and Ozminkowski, "The Health and Cost Benefits of Work Site Health-Promotion Programs," 309.

[90] Harold W. Kohl III and Tinker D. Murray, *Foundations of Physical Activity and Public Health* (Champaign, IL: Human Kinetics, 2012).

influence change. The selected theories include: the social cognitive theory (Bandura), the theory of planned behavior (Azjen), the transtheoretical model (Prochaska and DiClemente), the social ecological model (Bronfenbrenner et al.) and the health action process approach (Schwarzer).

Social cognitive theory (SCT) is based on the assumption that that learning, behavior, and environment have a dynamic and three-way reciprocal relationship and continuously, though not necessarily simultaneously, interact.[91] Key concepts of SCT that are relevant to worksite emergency preparedness programs include observational learning through self and others, outcome expectancies, self-efficacy, goal-setting, and reinforcement. Under SCT, behaviors are attributed to lessons learned from one's own experiences and also by observing the actions of others and the subsequent results. From these observations, there is an expectation that similar actions will have similar results. However, one should consider that lessons learned are not necessarily indicative of behavior change; a person may know an activity is beneficial or harmful, but may not readily adopt that activity or may continue to engage in existing habits.[92] A variation of outcome expectancy relates specifically to behavior change. For example, the belief that having a household emergency plan will provide specific information (such as a rendezvous point), but will also improve the family's ability to get through a disaster together.

Self-efficacy is the confidence that one possesses the capability to perform an action as well as successfully deal with any adversity encountered along the way in order to achieve a desired outcome.[93] The use of goal setting and reinforcement activities can assist in increasing self-efficacy if the program promotes the setting of specific, measurable, achievable, relevant, and time-based (SMART) goals and a support system is established to reinforce and encourage the desirable actions. Social support is the level of

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91 Albert Bandura, *Social Foundations of Thought and Action: A Social Cognitive Theory* (Englewood Cliffs, NJ: Prentice-Hall, 1986), 617.

92 Jeanne Ormrod, *Human Learning*, 5th ed. (Upper Saddle River, NJ: Pearson/Merrill Prentice Hall, 2008).

93 Albert Bandura, "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," *Psychological Review* 84, no. 2 (1977), 191.

assistance people perceive that they are receiving toward achieving goals. It is a key element of the reinforcement process introduced previously under SCT and is directly related to behavior change. Support can come from co-workers, workplace programs, family, and/or social networks. There are three basic types of social support: perceived, received, and connected.[94] Perceived support refers to the belief that an adequate support network is available. With regard to disaster preparedness, an example would be the knowledge that a friend or colleague would be available if asked to review a draft household emergency plan or a list of proposed emergency stockpile items. Received support refers to direct and measureable support such as a formal group at work or employer coordinated service that is established to assist in the immediate recovery or alternate means to provide essential familial needs. Connected support refers to social integration that is derived from participation with a larger group. People with shared experiences and goals benefit from the support they receive from others. However, the human desire to affiliate can also lead to negative affects if the group fails to behave in a manner consistent with preparedness objectives.[95]

SCT and its two core components, outcome expectancies and self-efficacy expectancies are recognized as key factors in determining intentions for behavior change and are included as foundational concepts in numerous other behavioral change theories.[96] Paton, Smith, and Johnson use SCT as a basis of a model to predict behaviors toward natural hazard preparedness.[97] According to Paton, the model argues that preparedness represents the outcome of a three-stage reasoning process: motivation to prepare, forming intentions to prepare, and their conversion into actual preparation.[98]

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94 Manuel Barrera, "Distinctions between Social Support Concepts, Measures, and Models," *American Journal of Community Psychology* 14, no. 4 (August, 1986), 414.

95 Nancy T. Vineburgh, Robert J. Ursano and Carol S. Fullerton, "Disaster Consequence Management: An Integrated Approach for Fostering Human Continuity in the Workplace," *Journal of Workplace Behavioral Health* 20, no. 1–2 (2004), 164.

96 Ralf Schwarzer, "Self-Efficacy in the Adoption and Maintenance of Health Behaviors: Theoretical Approaches and a New Model," in *Self-Efficacy: Thought Control of Action* (Washington, DC, US: Hemisphere Publishing Corp, Washington, DC, 1992), 219.

97 Douglas Paton, Leigh Smith and David M. Johnston, "When Good Intentions Turn Bad; Promoting Natural Hazard Preparedness," *Australian Journal of Emergency Management* 20, no. 1 (2005), 25.

98 Douglas Paton, "Disaster Preparedness: A Social-Cognitive Perspective," *Disaster Prevention and Management* 12, no. 3 (2003), 211.

One result from testing this model is that outcome expectancy precedes self-efficacy expectancy as people form their intentions.[99] Therefore, one must be convinced to believe there is value of preparing prior to a self-evaluation of one's capability to prepare. To create perceived value, a program could utilize effective hazards education messaging containing vivid descriptions of experiences from people who were not adequately prepared or who have positive disaster recovery stories where success can be attributable to preparation. Messaging should be presented by role models with whom the target audience can identify. Alternately, perceived value can also be created through the use of an incentives program as studies have found people to be motivated by the experience of past rewards and the prospect of future rewards.[100]

Closely related to SCT is the *theory of planned behavior*. This theory is premised upon the idea that humans are expected to behave deliberately in accordance with their intentions and therefore, a strongly intended behavior has a higher likelihood of action. Intention is composed of three determinants including personal attitude toward a behavior (positive or negative feelings about engaging in a behavior), subjective norms (the perception of social pressure to engage in a behavior), and perceived behavioral control (real or perceived opportunities or obstacles to action). The theory of planned behavior is so closely related to SCT that a study by Schwarzer directly associates the two theories simply through word substitution (personal attitude = behavioral beliefs = outcome expectancies; and perceived behavioral control = self-efficacy expectancies).[101]

The *transtheoretical model*, also referred to as the *stages of change model*, introduces a behavioral continuum that consists of five stages on the path to behavioral change: precontemplation (no recognition for need or interest in change), contemplation (considering making a change), preparation (demonstrates intention and plans to change), action (adoption of new behaviors), and maintenance (new behavior is routine and

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99 Paton, Smith and Johnston, "When Good Intentions Turn Bad; Promoting Natural Hazard Preparedness," 29.

100 Kevin G. Volpp et al., "Financial Incentive-Based Approaches for Weight Loss: A Randomized Trial," JAMA: *Journal of the American Medical Association* 300, no. 22 (December 10, 2008), 2631.

101 Schwarzer, *Self-Efficacy in the Adoption and Maintenance of Health Behaviors: Theoretical Approaches and a New Model*, 228.

actions are practiced to prevent relapse). The concept of stages of change has been studied extensively in research of workplace wellness programs and has proven its utility in explaining and predicting changes in smoking, nutrition, and fitness interventions.[102] It has also been applied to hazards preparation models such as the Strengthening Systems 4R (Risk Reduction, Readiness, Response, Recovery) Prevention Model.[103]

Awareness of the stage a person is at along the continuum of behavior change should theoretically make it easier to understand and select various motivators to apply in order to be most effective. Individuals within the same group or organization may be at different stages on the continuum. Some members of a target audience may not have ever considered personal emergency preparedness, while others may have already accomplished various types of preparedness activity. Additionally, individuals may transit the continuum in a non-linear fashion and may for a number of reasons regress to an earlier stage and or repeat previously completed stages prior to advancing to a further stage. For these reasons, a one-size-fits-all message when marketing emergency preparedness would typically be ineffective since its message may reach only those audience members at one particular stage while missing those that are currently within one of the four other stages. The use of this model places emphasis on the importance of conducting pre-intervention evaluations to develop more effective messaging and programming that addresses the needs specific to a particular stage.

The *social ecological model* considers multiple levels of influence (individual, interpersonal, organizational, community, and policy) and the concept that individual behaviors are impacted by and can also impact the social environment.[104] The premise of social ecological models is consistent with social cognitive theory concepts that suggest creating a conducive environment is a critical factor in the process of encouraging

[102] Glanz, "Application of Behavior Change Theory in the Worksite Setting," 191–192.

[103] Kevin R. Ronan et al., "Promoting Child and Family Resilience to Disasters: Effects, Interventions and Prevention Effectiveness," *Children, Youth and Environments* 18, no. 1 (2008), 340.

[104] McLeroy et al., "An Ecological Perspective on Health Promotion Programs," 351.

desirable behaviors.[105] Given the potential influence of the workplace on employee behaviors, attention to the physical, social, and political environment is warranted.

As indicated by its name, the *health action process approach* was developed to address health behavior predictions. The theory (illustrated in Figure 1) may also be especially applicable to hazards preparedness behavior predictions in its distinction between a motivation stage and an action stage.[106] The responses in numerous hazards preparedness surveys show the transition between intention and implementation to be wide and is therefore a critical area to address in any hazards education program.

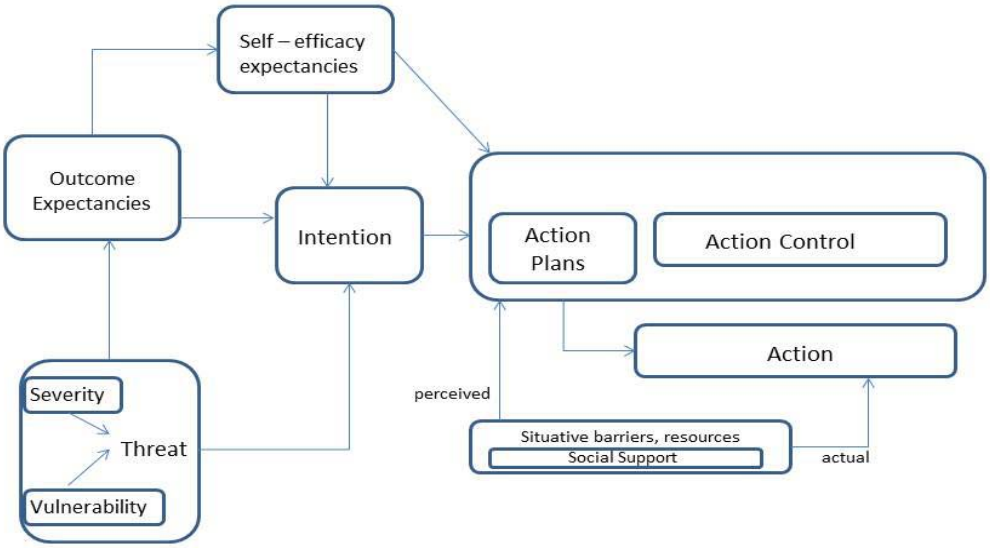

Figure 1. Health Action Process Approach (from Schwarzer, 1992)[107]

D. APPLICATION OF BEHAVIOR CHANGE THEORY

The aforementioned theories have provided a foundational basis for numerous subsequent theories, models, and strategies applied to behavior change. Some have been used in the context of hazards preparedness such as person-relative-to-event (PrE) which centers on self-efficacy; and the warning and response model, which centers on the

105 Bandura, "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," 191.

106 Schwarzer, "Self-Efficacy in the Adoption and Maintenance of Health Behaviors: Theoretical Approaches and a New Model," 232.

107 Ibid.

influence of situational factors, personal characteristics, and social contextual variables on protective actions.[108] In his Naval Postgraduate School thesis, Nicholas Campasano's research focused on the psychology of preparedness with his findings supportive of the increased application of behavior change theories to preparedness initiatives to more effectively reach citizens and communities.[109]

Workplace programs will have a greater likelihood of success if selected theories are applied depending on the specific problem or goal being targeted. For instance, if addressing an employee's personal barriers to disaster preparedness, applying the theory of planned behavior may be appropriate. If the current goal is to encourage employees to engage in basic preparedness actions, the stages of change model may be most useful. Theories and research in behavior change as applied to comprehensive programs and specifically to disaster preparedness suggest it is essential to use multiple strategies in order for interventions to be effective.[110] Behavior change interventions must be sensitive to audience and contextual factors. Differences in people's readiness to change have implications to risk communication and strategies for preparedness programs.

A (and perhaps, *the*) central premise in the application of behavior change theory is that there is no "one-size-fits-all" approach. Behavior change theories can be utilized to gain an understanding of each individual's current level of awareness, knowledge, attitude, readiness, self-efficacy, etc., in order to tailor the message in a manner that will be most readily received and accepted. An assessment of the audience and the organization should be completed as part of the program development process and should be routinely reexamined throughout the implementation of the program.

Of course, tailoring programs at an individual level is typically not a feasible option due to limited resources of time and money. One potentially viable option is the

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[108] Mulilis and Duval, "The PrE Model of Coping and Tornado Preparedness: Moderating Effects of Responsibility," 1750–1766; Michael K. Lindell and Ronald W. Perry, *Behavioral Foundations of Community Emergency Planning* (Washington, D.C: Hemisphere Pub, 1992), 309.

[109] Nicholas Campasano, "Community Preparedness: Creating a Model for Change" (Master's thesis, Naval Postgraduate School), 52.

[110] Alice S. Ammerman et al., "The Efficacy of Behavioral Interventions to Modify Dietary Fat and Fruit and Vegetable Intake: A Review of the Evidence," *Preventive Medicine: An International Journal Devoted to Practice and Theory* 35, no. 1 (2002), 25.

adoption of a population level framework. The "population health management approach" is a recognized standard often applied in workplace wellness programs.[111] The premise of population management is that the most effective way to address the entirety of a defined population is through recognition of the unique needs and beliefs of the individuals that comprise that population.[112] The identification and stratification of population segments is accomplished through the use of a two-step process. First, the larger population is segmented based on distinguishing characteristics such existing behaviors and/or conditions as determined through the use of evidence-based data (i.e., survey). Second, an analysis of each subpopulation incorporating behavior theories such as the stages of change model is conducted to stratify each segment based primarily on beliefs and attitudes. The combined process allows the application of targeted marketing strategies and interventions.

In summary, the formation of a person's attitudes and beliefs are dynamic and result from a wide spectrum of personal and social influences, all of which must be considered when implementing a citizen preparedness promotion program. The existence of multiple, interdependent psycho-social variables as opposed to a simple action/reaction qualify disaster preparedness as a complex behavior. Therefore, it is a sound assumption that the application of behavior change theories that have evolved over time in the field of health and wellness are similarly applicable to disaster preparedness. The primary outcome of these theories is a better understanding of the audience, which can be further applied to the design of disaster preparedness promotion programs to target specific segments of a population in a more effective manner.

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111 David H. Chenoweth, *Worksite Health Promotion*, 3rd ed. (Champaign, IL: Human Kinetics, 2011), 234.

112 Nicholass Pronk, "Population Health Management at the Worksite," in *ACSM's Worksite Health Workbook: A Guide to Building Healthy and Productive Companies,* ed. Nicolaas P. Pronk, 2nd ed. (Champaign, IL: Human Kinetics, 2009), 4.

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IV. THE WORKPLACE AS AN AVENUE OF INFLUENCE

The previous chapter concluded that disaster preparedness promotion can be categorized as a complex behavioral change and that interventions should not only be tailored to the individual, but should also address the creation of a culture of preparedness in individuals' larger social environment. This chapter examines the interrelationship of households, workplaces and the community and looks at the potential of leveraging the workplace in its role as a social environment. It also reviews how the workplace is currently being used to influence behavioral change among its employees through the introduction of workplace wellness programs.

A. INTERRELATIONSHIPS OF THE WORKPLACE, EMPLOYEES, AND THE COMMUNITY

Few would disagree that the workplace, the employees that work there, and the surrounding community are interdependent. Employed citizens are the essential building blocks of neighborhoods, businesses, and organizations. The collective of neighborhoods, businesses, and organizations create a community. The condition of the community, indicated by the resources and infrastructure available, is a primary influence on who chooses to reside there. Simply put, businesses play a role in the prosperity and quality of life for everyone in the community; likewise, if the community prospers, then so do businesses. Lindell et al. provide a well-articulated discussion on these interrelationships, illustrating the complex interdependencies of social units within a community, and portraying individual households and businesses as central to the relationship (see Figure 2).[113]

In Figure 2, the relationship between business and households is based on an exchange of labor for money. Households use money to pay for essential goods and services including basic needs such as food, shelter, and safety (medical and public services such as police and fire). Households also interact with peers in their community

[113] Michael K. Lindell et al., *Fundamentals of Emergency Management* (Washington, DC: FEMA, Emergency Management Institute, 2006), 485.

as a source of material and emotional support. If businesses are unable to effectively provide goods and services to customers, an opportunity is created for competitors who are able to fill the gap. If no competitor exists, the need remains unfulfilled and there is scarcity.

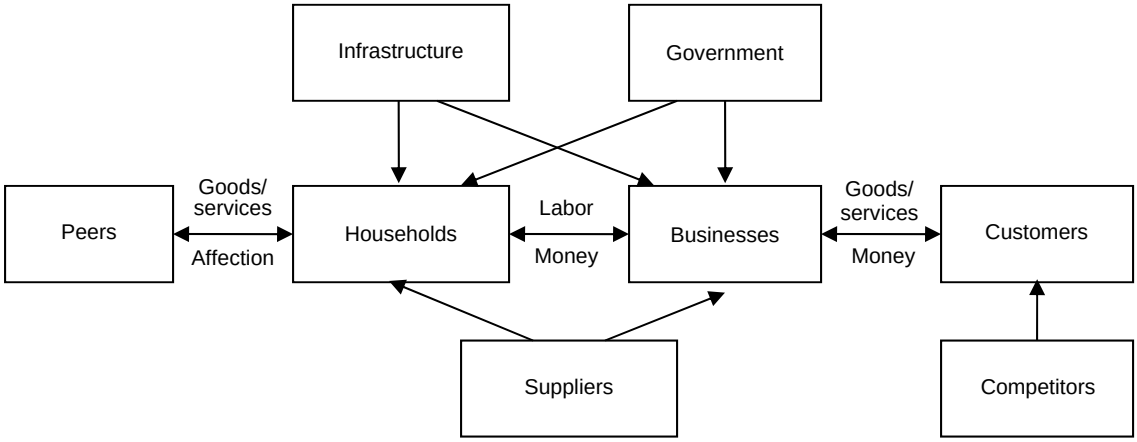

Figure 2. Routine Relationships among Social Units (from Lindell et al., 2006)[114]

Do these interdependencies continue to hold true in the context of disaster preparedness? What impact does an employee's level of household preparedness have on the continued operation of the business? What impact does the continuity of the business have on the community? What influence could the workplace have on an employee's level of household preparedness? The answers to these questions become clear when portrayed in the following hypothetical, though very realistic scenario: A disaster causes employees of a childcare center to be unable to report to work, therefore making childcare services unavailable. Parents employed by other businesses and organizations such as utility companies, home improvement stores, and even first responders[115] that play a critical role in the response and recovery process may be forced to stay home as

[114] Ibid.

[115] Additional information regarding the topic of the continuity of operations of emergency responders affected by disaster can be read in an article by Mark Landahl and Cynthia Cox, "Beyond the Plan: Individual Responder and Family Preparedness in the Resilient Organization." *Homeland Security Affairs* 5, no. 3 (September, 2009). http://www.hsaj.org/?article=5.3.4 and in Chris Kelenske's Naval Postgraduate Thesis, "Emergency Responder Personal Preparedness." Master's thesis, Naval Postgraduate School, 2011, https://www.hsdl.org/?view&did=699702.

their first priority will be toward addressing their immediate household needs.[116] The absence of essential employees from these critical organizations hinders the implementation of continuity plans, consequently delaying the restoration of the essential services required by the childcare employees and other members of the community to stabilize their households and return to work. It is a vicious circle that does not end until the arrival of external element; but until that time, suffering continues. There is mutual benefit realized by community stakeholders and businesses realized from organizations like the child care center facilitating the disaster preparedness actions of its employees and improving the chance that business operations will continue. Of the questions posed at the beginning of this scenario, one question remains, what influence could the workplace have on an employee's level of household preparedness?

B. RATIONALE FOR THE EXAMINING THE WORKPLACE AS AN AVENUE FOR DISASTER PREPAREDNESS PROMOTION

1. Workplaces Offer a Practical Setting

The U.S. Department of Health and Human Services identified work sites as, "ideal settings for health preventive activities to improve the nation's health."[117] The same attributes that make employers a practical setting for health promotion could also apply to the promotion of disaster preparedness. Though the use of the workplace as a delivery mechanism will not reach every person in the United States, the U.S. labor force is forecasted to reach 163.5 million by 2022 and represents approximately 60% of the U.S. population.[118] Additionally, according to a policy statement by the American Heart Association, the influence of successful worksite programs tends to reach "beyond the individual workers to immediate family members, who are often exposed to their

116 National Center for Disaster Preparedness, *How Americans Feel about Terrorism and Security: Two Years After 9/11* (New York: National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University in collaboration with The Children's Health Fund,[2003]).

117 U.S. Department of Health and Human Services, *Healthy People 2010: Understanding and Improving Health*, 2nd ed. (Washington, DC: U.S. Government Printing Office, 2000).

118 U.S. Bureau of Labor Statistics, "Employment Projections: 2012–2022 Summary," *Economic News Release*, sec. USDL-13-2393, December 19, 2013.

favorable lifestyle changes."[119] Thereby, based on the percentage of households that have at least one employed, focusing preparedness promotion on the workplace translates to the potential of reaching 80% of U.S. households.[120]

The workplace also provides significant opportunity to routinely interact with the target audience. The majority of those employed spend nearly one third or more of their day in an occupational setting, which leads to the job environment playing a significant role in employees' lives.[121] The workplace serves not only as a source of income and economic well-being, but also plays central to the areas of individual identity and social interaction; and therefore could be an effective source influence on personal behaviors.[122] Employees also tend to exhibit higher degrees of commitment to their workplace as compared to when they participate as members of volunteer organizations where they may choose to reduce their level of participation or withdraw altogether without significant consequence.[123]

2. Workplaces Provide Structure

Wandersman and Florin conducted a thorough review of the literature in order to discover which attributes of volunteer organizations encourage member participation. Despite its focus on volunteer groups, this study is relevant to the discussion because participation in workplace programs is also most often voluntary. In their analysis, they determined groups with the highest sustained participation rates tended to possess the following attributes in common: a formalized structure with strong leadership, be task-

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119 Mercedes Carnethon et al., "Worksite Wellness Programs for Cardiovascular Disease Prevention: A Policy Statement from the American Heart Association," *Circulation*, no. 120 (2009), 1725.

120 U.S. Bureau of Labor Statistics, "Employment Characteristics of Families Summary," *Economic News Release*, sec. USDL-14-0658, April 25, 2014.

121 Institute of Medicine (U.S.) and Committee on Assuring the Health of the Public in the 21st Century, *The Future of the Public's Health in the 21st Century* (Washington, DC: National Academies Press, 2003).

122 Wellness Council of America, *Healthy, Wealthy, and Wise: Fundamentals of Workplace Health Promotion* (Omaha, NE: Wellness Council of America, [1995]).

123 Frederick Miller D., G. Malia and S. Tsembersis, *Community Activism and the Maintenance of Urban Neighborhoods.* 1979).

oriented, have a cohesive team spirit, and be firmly established.[124] These characteristics are often inherent to the workplace. Whether vertical or flat, businesses tend to have a well-defined organizational structure. Though a [decentralized] leadership style that empowers employees to become more involved in decision-making has been shown to be more effective at increasing participation than a centralized authoritarian style, the existence of any formal structure provides role clarity, task responsibility, and predictability.[125] The workplace as compared to a singly-purposed community group exudes a higher degree of permanence, which may add credibility and sustainability to programs and further lead to people's willingness to invest their time and energy. Goetzel et al. identifies another similar set of conducive attributes characteristic of the workplace as, "a concentrated group of people, usually located at a finite number of geographic sites, who share a common purpose and common culture. Communication and information exchange with and among workers is relatively straight forward."[126]

3. Symbiotic Relationship between Employer and Employee

The use of the workplace as a channel to provide disaster preparedness promotion to employees provides a symbiotic relationship between employer and employee. The two primary barriers to households not completing the core components of disaster preparedness such as having a family emergency plan are: "no time" (26.4%) and "not sure what to do" (22.4%).[127] By providing guidance, instruction, and opportunity during the course of the workday, the reasons that account for almost half of the lack of key preparedness activities disappear. The third most frequently cited barrier, "[having a family emergency plan] will not make a difference" (13.6%) may also be addressed through education programs that provide awareness and knowledge that preparedness actions can mitigate the disruptive effects of a disaster. Employer investment in the improvement of the disaster preparedness of its employees also provides a critical

[124] Wandersman and Florin, "Citizen Participation and Community Organizations," 256.

[125] Ibid., 255.

[126] Goetzel and Ozminkowski, "The Health and Cost Benefits of Work Site Health-Promotion Programs," 306.

[127] David Abramson, *Preparedness as a Complex Phenomenon: Modeling Behavioral, Psychological, Attitudinal, and Cognitive Elements*, 2007).

element, protection of human capital, toward the improvement in the level of disaster preparedness of the overall organization. This topic is covered in more depth in the section "the business case" found later in this chapter.

4. Established Support Systems

The connection between the workplace and employee wellness has a long history because there is recognition that a healthy employee is a more productive employee.[128] Many early companies, among which include such names as National Cash Register, Sears, Roebuck, and Co., and Hershey Foods, adopted employee physical fitness programs in the late 1800s. In the 1950s, it became more prevalent for employers to include health insurance as an employee benefit and employee assistance programs (EAP) were developed to support employees dealing with personal problems; though their existence was often hindered by a perceived separation between work and home life. In the 1970s, the Occupational Safety and Health Act was created to improve employees' well-being through the regulation of the health and safety of the work environment. In 1976, the U.S. Office of Disease Prevention and Health Promotion was created and spurred efforts to develop worksite wellness concepts and research. These two initiatives along with a trend of increasing health care costs spurred a resurgence of employer focus on workplace wellness over the last thirty plus years.

Today's workplace is likely to have established systems of social and organizational support available. It is the norm for businesses to have human resources departments to sustain the workforce by addressing employee needs; or in the case of many small businesses, a person may be designated to fulfill human resource roles as a collateral duty. These support services have developed into an employee expectation or have achieved the status of a must-have company benefit that encourages employee loyalty. More than twice as many individuals experiencing persistent distress after the 9/11 attacks accessed information at work rather than from a medical practitioner; and over three times as many sought info and counseling at work rather than from a mental

128 Adam Smith, *Wealth of Nations* (Raleigh, NC: Hayes Barton Press, 1956); Christopher H. Coulter, "The Employer's Case for Health Management," *Benefits Quarterly* 22, no. 1 (First Quarter, 2006), 23.

health provider.[129] Workplaces also possess numerous management tools such as organizational policies and social norms that can help guide certain behaviors and discourage others; various forms of incentive programs may also be more readily available to encourage participation in programs. As part of these support systems, existing administrative data collection and analysis systems may assist in the development and application of metrics to determine program effectiveness and potential areas of improvement.[130]

Employers have capitalized on the workplace as a conducive environment in their efforts to favorably influence employee behaviors, predominantly in the areas of health and safety. The literature in these areas suggests that formal programs, termed "workplace wellness promotion" have demonstrated positive results in employee health and subsequently, employee productivity.

C. WORKPLACE WELLNESS PROMOTION PROGRAMS

Workplace wellness promotion programs are organized, employer-sponsored initiatives designed to support employees (and in some cases their families) in the adoption and sustainment of behaviors that reduce risk, improve quality of life, enhance employee availability and productivity, and ultimately benefit the organization's bottom line.[131] According to an Institute of Medicine report, "there is increasing evidence that workplace health promotion activities and programs can change behavior and psychosocial risk factors for individual employees and the collective risk profile of the employee population."[132]

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[129] Bradley D. Stein et al., "A National Longitudinal Study of the Psychological Consequences of the September 11, 2001 Terrorist Attacks: Reactions, Impairment, and Help-Seeking," *Psychiatry* 67, no. 2 (July, 2004), 105.

[130] Goetzel and Ozminkowski, "The Health and Cost Benefits of Work Site Health-Promotion Programs," 306.

[131] Leonard Berry, Ann Mirabato and William Baun, "What's the Hard Return on Employee Wellness Programs?" *Harvard Business Review* (December, 2010), July 8, 2014.

[132] Institute of Medicine (U.S.) and Committee on Assuring the Health of the Public in the 21st Century, *The Future of the Public's Health in the 21st Century*.

In order to address the above objectives, wellness promotion is commonly structured to support primary, secondary, and tertiary stages of betterment. Primary efforts are proactive and are intended to promote healthy behaviors that reduce the potential for increased risk. Secondary efforts are mitigative, aimed at reducing risk that is already elevated. Tertiary efforts are reactive and are meant to manage existing issues. The breadth and depth of workplace wellness promotion can vary from its simplest (most passive) form of providing issue awareness to much more inclusive and comprehensive programming. In 1987, a Pew report on work site wellness programs recognized the challenge of changing human behaviors. The report identified that workplace wellness programs would only succeed if they "address underlying attitudes, values and beliefs, social supports, and economic pressures, not just risk factors themselves."[133] Comprehensive workplace wellness promotion programs typically feature employee assessment with follow-up, formalized educational opportunities, supportive environments, integration into the organization's culture, and links to related services.

The term comprehensive is also used within the topic to refer to the breadth of program offerings. Though an overwhelming majority of wellness initiatives are directed toward employee health and the reduction of health care costs, worksite wellness programs have been evolving to become more encompassing. Dr. Don Ardell, a recognized innovator of workplace wellness concepts, suggested that "[wellness] is comprehensive, not just about fitness, nutrition, and managing stress…[i]t is also a mindset or philosophy founded on personal responsibility and accountability."[134] From this perspective, elements of a comprehensive program can be added to address any issue that may impact employee attendance and/or productivity such as financial well-being, family special needs care, and emergency/disaster preparedness planning.

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[133] Diana Chapman Walsh and Richard H. Egdahl, "Corporate Perspectives on Work Site Wellness Programs: A Report on the Seventh Pew Fellows Conference," *Journal of Occupational Medicine* 31, no. 6 (June, 1989), 552.

[134] R. William Whitmer, "Employee Health Promotion, a Historical Perspective," in *ACSM's Worksite Health Workbook: A Guide to Building Healthy and Productive Companies*, ed. Nicolaas P. Pronk, 2nd ed. (Champaign, IL: Human Kinetics, 2009), 11.

The inclusion of disaster preparedness promotion as a component offering of wellness programs is plausible and is advocated by many leading groups. The Society for Human Resources Management lists the need for improving organizational resilience management as number five in their top ten key trends in employee health, safety, and security for 2014.[135] The Institute of Medicine report, "Integrating Employee Health: A Model Program for NASA," references the World Health Organization definition of health and reports that organizations and their employees need to address the following attributes in order to be successful in the modern world: healthy, productive, *ready*, and *resilient*.[136] The third and fourth characteristics can be directly applied to disaster preparedness. The report defines 'ready' as "able to respond to changing demands of an increasing work pace and unpredictable circumstances" and 'resilient' as "prepared for setbacks, changing demands, and challenges and able to regain optimal well-being and performance without severe detriment to functionality."[137] These attributes are in-line with the guidance provided by the aforementioned Pew report. Effective wellness programs include strategies that encourage healthy behaviors and develop employees' psychological skills; both features are essential components of disaster resilience.[138]

Resilience, as the expected outcome of disaster, bridges the health and continuity of the organization and its employees.[139] The interrelationship of workplace wellness promotion and disaster preparedness remains applicable during post-incident recovery. Direct or indirect exposure to a disaster may lead to employee health and wellness issues (mental stress, anxiety, changes in perceived safety [fear], and/or depression), which may further become root cause for negative health behaviors such as the abuse of alcohol and

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135 Society for Human Resources Management, *Future Insights: The Top Trends for 2014 According to HRM's HR Subject Matter Expert Panels* (Alexandria, VA: Society for Human Resource Management, [2014]), 4.

136 Institute of Medicine (U.S.) and Committee to Assess Worksite Preventive Health Program Needs for NASA Employees, *Integrating Employee Health: A Model Program for NASA* (Washington, DC: National Academies Press, 2005), 184.

137 Ibid.

138 Ann Yaktine and Mike Parkinson, "The Case for Change: From Segregated to Integrated Employee Health Management," in *ACSM's Worksite Health Workbook: A Guide to Building Healthy and Productive Companies*, ed. Nicolaas P. Pronk, 2nd ed. (Champaign, IL: Human Kinetics, 2009), 66.

139 Diane Coutu, "How Resilience Works," *Harvard Business Review* (May, 2002), July 8, 2014.

drugs as a coping mechanism.[140] An article by Vineburgh et al. further discusses the linkage between disaster preparedness and workplace wellness in the context of the potential physical and psychological trauma that can result from experiencing a natural or manmade disaster. The paper supports the "integration of workplace preparedness into the larger sphere of population health interventions for the 21st century."[141] Vineburgh et al. conflates ideas from two additional Institute of Medicine of the National Academies reports stating, "Employers are important health population health partners with resources and established relationships that can foster terrorism and disaster preparedness."[142] The integration of traditionally silo-ed organizational functions intended to support the productivity and continuity of the workplace (such as human resources, employee assistance programs, security, facilities, occupational health and wellness) can play an essential role in equipping employees to prepare for a disaster in the workplace and at home.[143]

D. PERCEIVED BARRIERS TO THE IMPLEMENTATION OF WORKPLACE PROMOTION PROGRAMS

A series of National Worksite Health Promotion Surveys conducted in 1985, 1992, 1999, and 2004 indicate approximately 90% of businesses currently have implemented components of a workplace wellness program.[144] Significantly fewer organizations (6.9%) have evolved their program to a level that it can be considered comprehensive per the standards and goals set forth by the *Healthy People 2010* initiative.[145] The assumption that the percentage decreases even further when examining

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140 Stein et al., *A National Longitudinal Study of the Psychological Consequences of the September 11, 2001 Terrorist Attacks: Reactions, Impairment, and Help-Seeking*, 105.

141 Vineburgh, Ursano and Fullerton, *Disaster Consequence Management: An Integrated Approach for Fostering Human Continuity in the Workplace*, 159.

142 Ibid., 168.

143 Ibid., 176.

144 Laura Linnan et al., "Results from the 2004 National Worksite Health Promotion Survey," *American Journal of Public Health* 98, no. 8 (August, 2008), 1503–1509; Walsh and Egdahl, *Corporate Perspectives on Work Site Wellness Programs: A Report on the Seventh Pew Fellows Conference*, 551.

145 U.S. Department of Health and Human Services, *Healthy People 2010 : Understanding and Improving Health*.

businesses that include disaster preparedness in their workplace wellness program is plausible, if not likely.

The literature cites the common reasons given for not supporting workplace wellness programs as:[146]

- Philosophical opposition to interfering in employee's private lives (big brother perception)
- Considered to be luxuries beyond the organization's core business purpose
- Distraction from employees' core duties and negatively affect productivity
- Lack of support (disinterest) from employees demonstrated by low participation rates
- "Feel" like workplace wellness promotion programs are good initiatives, but hindered by a lack of empirical data to support
- Cannot wait for 'long term' results (no immediate gratification)
- Insufficient resources (small businesses)

Literature specific to workplace disaster preparedness initiatives cite barriers similar to those above and additionally include: a focus on operational versus human continuity and organizational silos of job function and departments that prevent collaboration and coordination. The reasons listed above that are related to employer and employee resistance are further evidenced by a 2011 report published by FEMA's Citizen Corps identifying the three general reasons provided by organizations on why they fail to have a workplace preparedness program: 1) perceptions of high cost, 2) a lack of information and staff resources, and 3) disaster preparedness is often perceived as a low priority.[147]

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[146] Goetzel and Ozminkowski, "The Health and Cost Benefits of Work Site Health-Promotion Programs," 305.

[147] Citizen Corps, "Business Continuity and Disaster Preparedness Planning Patterns and Findings from Current Research," *Citizen Preparedness Review*, no. 7 (Winter 2011, 2011), 14.

1. High Perceived Cost

According to a 2006 survey of corporate level executives and IT professionals, cost was listed as the primary limiting factor for not instituting business continuity or disaster preparedness plans.[148] Many employers may be reluctant to offer workplace preparedness programs because they are perceive that it will be an expensive undertaking that may not be able deliver a sufficient risk reduction to justify what may be believed to be a substantial investment in time and capital.

The perception of the high cost of a preparedness program is even more prevalent in smaller and medium sized businesses according to surveys conducted by Office Depot and the California Center for Population Research/Israeli Center for Emergency Preparedness/ American Red Cross of Greater New York.[149] In this case, however, perception does not seem to mirror reality. The same Office Depot study captured that a majority (61%) of respondents that have already implemented a disaster preparedness program indicated support of the statement "disaster preparedness didn't have to cost a lot of money or time."[150]

2. Limited Staff Resources

Similarly, there may be a greater divide between larger and small businesses with regard to the availability of staff resources. Large businesses may have dedicated staff to address continuity planning and human resources, while smaller organizations are likely to assign those functions to existing personnel as collateral duties. Ironically, small business often are more vulnerable to the impact of a disaster as they may have fewer reserve resources, be located in less expensive (older, infrequently maintained) buildings, and operate at a single location.[151] Although more vulnerable, small businesses may

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148 SteelEye Technology Inc., *SteelEye Technology 2006 Business Continuity Survey Results*SteelEye Technology, Inc., [2006]).

149 Citizen Corps, *Business Continuity and Disaster Preparedness Planning Patterns and Findings from Current Research*, 14.

150 Ibid.

151 Lindell et al., *Fundamentals of Emergency Management*, 485.

benefit from their size as they tend to be more flexible and are able to more easily implement change.

3. Preparedness is a Low Priority

Organizations, especially for-profit businesses in the private sector, tend to place a priority on other business functions ahead of disaster preparedness; many enterprises may experience psychological barriers to preparedness similar to individuals as described in the literature review. According to a 2009 Lloyd's of London survey, the concern and level of preparation over this risk of natural and man-made disasters ranked far below disruptions caused by financial and operational supply chain risks.[152] Timing may have had an impact of this survey however as the U.S. and global economies were experiencing a significant downturn in 2008 and going into 2009. The current perception of disaster preparedness as a priority for businesses may be trending in a positive direction as indicated by the previously mentioned Society for Human Resources Management report, which includes disaster preparedness ranked fifth in their top ten trends for 2014.[153]

Organizations are becoming increasingly aware of what appears to be a greater prevalence of natural and man-made disasters that translate into increased risk and uncertainty for the enterprise. Developing a strong business case that identifies the risk factors (local and regional hazards) that the organization may be exposed to, the impact those hazards may have on the business operation, and how they may be mitigated through disaster preparedness promotion may address remaining barriers to the implementation of workplace disaster promotion programs.

E. BUSINESS CASE

A critical prerequisite for a workplace program to be considered is that it must make sense to the business. Few organizations will devote resources and backing to a

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[152] Citzen Corps, *Business Continuity and Disaster Preparedness Planning Patterns and Findings from Current Research*, 15.

[153] Society for Human Resources Management, *Future Insights: The Top Trends for 2014 According to HRM's HR Subject Matter Expert Panels*, 4.

new initiative without a clear understanding of the program's objectives as well as sufficient evidence of its ability to achieve those objectives. A well formulated business case that outlines the potential exposure to risks, program implementation costs, and the associated benefits including business continuity, return on investment, and social responsibility greatly improve the probability that the initiative will be adopted by organization leaders.

Risk includes not only the type and probability that various hazards will occur, but also the potential impact the hazard may have on the business. This is represented by the standard formula for risk as a function of probability x consequence. Organizations have varying tolerance for risk; a pre-existing indicator of risk tolerance might include company positions on other types of insurance policies. Under the traditional wellness program areas, organizations associate poor health as a causal factor of reduced employee performance, safety, and morale. In addition to reduced performance, real costs such as high medical, disability, worker's comp, absenteeism, and employee turnover put employee wellness in the employer's best financial interest. In terms of promoting preparedness, organizations should consider the prevalence of disasters, the cost of delays to re-establish business operations, and how advance planning and preparations by both the organization and its employees can potentially reduce downtime and expedite recovery should a disaster occur.

1. Business Continuity Goals

One of the leading potential consequences to a business experiencing a disaster is the inability to continue operations temporarily or indefinitely. Industry reports indicate that 25%-43% of businesses that suspend operations due to a catastrophic event are unable to re-open.[154] The National Federation of Independent Businesses reported in a 2010 study that thirty percent of small businesses go out-of-business following a

[154] Insurance Institute for Business & Home Safety, "Every Business should Consider a Risk and Vulnerability Assessment," Insurance Institute for Business & Home Safety, https://www.disastersafety.org/commercial_maintenance/commercial-vulnerability-assessment_ibhs (accessed June 19, 2014); *Gulf Coast Back to Business Act of 2007*, S. 537, 110th Congress, 1st sess., (Feb. 8, 2007): 1.

presidentially-declared disaster.[155] Employee preparedness has the potential to enhance business continuity and help achieve other organizational goals. Charles Pizzo, a subject matter expert in crisis communications candidly states that ensuring individual employee preparedness for a disaster is in a business's self-interest.[156] It is primarily about increasing the probability that employees will return to work during a crisis in order to recover and restore business operations.

One of the most critical, yet most neglected resources of an organization's continuity of operations plan (COOP) is their human capital.[157] Human capital is defined in *The Human Resources Glossary, Second Edition* as:

> Contrasted with financial capital or equipment capital. The assets of wealth of an organization embodied in or represented by the hand, minds, and talents of its employees. Also describes what an organization gains from the loyalty, creativity, effort, accomplishments, and productivity of its employees. Said to contribute more than one-half of an organization's productive capacity. It equates to, and may actually exceed, the productive capacity of machine capital and investment in research and development.[158]

During disaster preparation and response, business organizations have tended to focus first on physical assets and facilities, network systems, core business applications, protection of critical records, and minimizing operational downtime rather than their human capital.[159] The opening line of a 2009 essay published in Homeland Security Affairs addresses the obvious but often forgotten consequence of discounting the importance of human capital, "The level of preparedness and capability [of an

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155 Senate Committee on Small Business and Entrepreneurship, *Disaster Recovery: Evaluating the Role of America's Small Business in Rebuilding their Communities*, 2011.

156 Kathryn McKee and Liz Guthridge, *Leading People through Disasters : An Action Guide : Preparing for and Dealing with the Human Side of Crises*, 1st ed. (San Francisco: Berrett-Koehler, 2006), 46.

157 Lawrence D. Mankin and Ronald W. Perry, "Commentary: Terrorism Challenges for Human Resource Management," *Review of Public Personnel Administration* 24, no. 1 (March, 2004), 4; Rallie McAllister and Craig E. Broeder, "Wellness Strategies Help Workers Adopt Healthy Habits in Lifestyles," *Occupational Health & Safety* 62, no. 8 (08, 1993), 50.

158 William Tracey, *The Human Resources Glossary, Third Edition: The Complete Desk Reference for HR Executives, Managers, and Practioners*, 3rd ed. (Boca Raton, FL: CRC Press, 2004), 840.

159 Mankin and Perry, *Commentary: Terrorism Challenges for Human Resource Management*, 3.

organization]…rests upon the assumption that the human element, essential employees, will be ready and able to carry out the functions that have been planned…"[160] Though emergency first responders are the primary subject of the aforementioned essay, this sentiment is echoed by the American Red Cross *Ready Rating* program for businesses and organizations, which shows employees how to be prepared at work and at home so that they are "better equipped to help the business respond and recover."[161] The physical and/or mental unavailability of a private sector organization's employees will seriously jeopardize the implementation of its business continuity plan. First responders in emergency management may be accustomed to an on-call mentality, but when in the realm of the private sector the interests of the organization may be the furthest thing from the employee's mind due to more pressing personal needs.

In a disaster environment, personal and family security is ranked as the highest priority to employees. According to a 2003 study, the need to account for the whereabouts and safety of family members following a disaster ranks as the number one concern.[162] An employee that is concerned about the whereabouts and/or safety of their family or home will likely be of little use to the recovery of business operations. Following a disaster, employees whose personal needs are not met will likely remain absent from the workplace. Basic services that an employee relies on such as transportation and childcare may not be available. If employees are physically in attendance but are not settled at home, there is likelihood that he/she will be in a relatively unproductive mental state, a condition referred to as *presenteeism*. Employees that have a plan to communicate with, account for, and ensure the well-being of their loved ones are more likely to return to work and contribute to recovery efforts.

Employees that have undertaken disaster preparedness actions at the household level tend to gain confidence, increase their sense of self-efficacy, and simultaneously

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160 Mark Landahl and Cynthia Cox, "Beyond the Plan: Individual Responder and Family Preparedness in the Resilient Organization," *Homeland Security Affairs* 5, no. 3 (September, 2009).

161 American Red Cross, "Ready Rating Program," American Red Cross, http://www.readyrating.org (accessed July 10, 2014).

162 National Center for Disaster Preparedness, *How Americans Feel about Terrorism and Security: Two Years After 9/11*, 7.

reduce stress. They are comforted knowing that their families and households are better prepared to survive an unexpected event, even when an important member of the household (the employee) may not be able to be home because of his/her presence at work. When disaster strikes, the prepared employee through his/her advance planning and actions is better positioned to mitigate the impact of the event and may also be better physically and mentally equipped to adapt to a post-disaster environment and initiate recovery. In simpler terms, household preparedness may avert personal crisis and expedite the start of business recovery.

2. Return on Investment (ROI)

Return on investment is a standard metric to determine the relationship between the financial benefit in return for the resources invested. The determination of ROI requires a defined calculation of what may be included in terms of both the investment as well what may be included in the calculation of the return. Though accounting for the investment in a workplace promotion program may include a number of variables, it is relatively straight forward as compared to determining the return.

To estimate the investment of an employee emergency preparedness program, costs in terms of both "soft dollars" and "hard dollars" should be considered. Soft dollars include the working hours expended to develop, train, and prepare employees that would otherwise be used for normal business operations while hard dollars are the actual expenses incurred from offering reward incentives and/or procuring supplies, off-site facilities, and/or external providers to improve plan implementation.[163]

Unlike health-related wellness programs which are able to consistently capture data and document trends on employee absence, productivity, and health-care costs over time, the tangible benefits of disaster preparedness are typically not realized until after an organization is impacted by a disaster, which itself is subject to an overwhelming number of variables. Research of other countries found that some areas proactively recognize preparedness efforts, for instance businesses in New Zealand that integrate disaster

163 McKee and Guthridge, *Leading People through Disasters : An Action Guide : Preparing for and Dealing with the Human Side of Crises*, 125.

preparedness into their workplace programs are awarded substantial discounts on insurance premiums.[164] No evidence of similar incentives for disaster preparation, however, was found in the United States. Ironically, if a business is fortunate enough to not ever be impacted by disaster, its ROI of preparedness registers as a dismal zero. An interesting area of research not covered would be an examination of how the ROI of insurance premiums is measured by organizations and individuals.

One method to determine return for the purposes of presenting a business case would be based on an estimation of the number of days earlier the business would anticipate being able to re-open multiplied by the daily revenue earned.[165] According to FEMA's Ready.gov website, a business impact analysis (BIA) includes developing a prediction of the consequences resulting from the disruption of business function and process.[166] A BIA considers impacts from lost or delayed sales, increased expenses, resource scarcity, contractual penalties, and customer dissatisfaction or defection among others.

In terms of total value to the organization, intangible benefits such as the business reputation with customers, employees, and investors may also be considered. Studies indicate there is a value associated with a business's ability to recover from a disaster as indicated by its stock price.[167] A research study of a small sample of publicly traded firms that had been recognized by the American College of Occupational and Environmental Medicine as exemplar organizations for their comprehensive wellness programs indicated that 100% of those firms exceeded the S&P 500 over the course of fifteen years (1997-2012).[168] This study has a caveat. Superior performance may have

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164 Sharyn Devereux-Blum, "Is Your Business Really Prepared for an Emergency?" *Human Resources Magazine* 14, no. 2 (June/July, 2009), 8–9.

165 McKee and Guthridge, *Leading People through Disasters : An Action Guide : Preparing for and Dealing with the Human Side of Crises*, 125.

166 Federal Emergency Management Agency, "Business Impact Analysis," U.S Department of Homeland Security, http://www.ready.gov/business-impact-analysis (accessed April 19, 2014).

167 William Raisch, Matt Statler and Peter Burgi, *Mobilizing Corporate Resources to Disasters: Toward a Program for Action* (New York: InterCEP of New York University, [2007]).

168 Raymond Fabius et al., "The Link between Workforce Health and Safety and the Health of the Bottom Line—Tracking Market Performance of Companies that Nurture a "Culture of Health,"" *Journal of Occupational and Environmental Medicine* 55, no. 9 (2013), 998.

just as likely been the cause rather than the result of the firms' wellness plans since firms that are performing well tend to have additional resources that can be allocated to programs beyond its core business function. Disaster preparedness promotion programs focused on human capital can also perceived as an employee benefit that improves employee retention, morale, and enhance loyalty; all of which are typically favorable attributes to business and management's objectives.

3. Social Responsibility

Empathy and compassion for employee well-being is viewed by most private sector organizations as more of a value-added, though secondary benefit as related to business continuity. Some organizations believe that disaster preparedness program interventions may not realize an actual cost savings, but may improve the organization's and its employees' levels of disaster preparedness at a reasonable expense. Still others view their institution and maintenance of workplace wellness programs as a reflection of corporate responsibility and leads to mutual benefit for the individual, the community, and the organization.[169]

Prepared citizens can better serve their households, neighborhoods, workplaces, and their communities, and reduce demands on first responders. A business's capability to continue operations will be degraded resulting from the absence of one or more employees that must attend to personal crisis. The impact is exponentially compounded when viewed from the perspective of community which is composed of multiple businesses and organizations experiencing similar issues in the response and recovery process.

Workplace wellness promotion programs have proven to be effective in generating favorable behavior change in other areas of personal betterment. These changes are not only beneficial to the individual, but also provide positive returns to the employer. The inclusion of disaster preparedness promotion into existing wellness programs is a viable avenue to improve the marketing and reach of disaster preparedness

[169] Mikael Holmqvist, "Corporate Social Responsibility as Corporate Social Control: The Case of Work-Site Health Promotion," *Scandinavian Journal of Management* 25, no. 1 (2009), 69.

efforts. In the next chapter, smart practices that have improved the effectiveness of worksite wellness promotion are identified.

V. IDENTIFIED SMART PRACTICES APPLIED TO DISASTER PREPAREDNESS PROMOTION PROGRAMS

In order to realize the expected outcomes presented in the business case, this chapter identifies elements involved with the design, implementation, and evaluation of workplace programs shown to contribute to the achievement of program goals and that can be replicated. These "smart practices" are evidence-based as supported by systematic reviews found in the literature. It should be recognized in advance that program elements identified as smart practices will likely need to be adapted to the unique situation and goals specific to the organization.[170]

A. EVALUATION METHODS

Over the last three decades, there have been numerous studies of workplace health and wellness promotion programs. Most studies either attempt to identify specific predictive behaviors that could be applied to the design of programs or they examine the effectiveness of various components of existing wellness programs. Reviews of existing studies help identify common approaches that have demonstrated success in building awareness, encouraging long-term behavior change, motivating action, and maintaining desirable behaviors. All of these attributes are applicable to the objective of increasing the levels of disaster preparedness among individuals and organizations.

Although the body of knowledge continues to grow and improve, workplace wellness promotion programs can pose significant challenges to traditional evaluation practices. The first challenge is that human behavior is complex. There are a multitude of interdependent personal and environmental influences as discussed earlier in Chapter III. These influences converge in a seemingly infinite number of combinations thereby making their ultimate impact on behavior less predictable. Secondly, well-designed trials conducted in a strictly controlled test setting are typically not applicable to the worksite environment; and conversely, the workplace setting presents a challenge in creating

170 Lawrence Green, "From Research to 'Best Practices' in Other Settings and Populations," *American Journal of Health Behavior* 25, no. 3 (2001), 165.

conditions that satisfy the rigor of randomized controlled trials (Table 1). The challenges surrounding the workplace as a setting for controlled trials were validated in a series of studies by Glasgow et al. in which he attempted to address many of the common methodological issues inherent in previous studies in order to more accurately reflect the many realities of the workplace setting. Despite the conscious attempt to counter these issues, it was determined that the results of study continued to be impacted by many of the same limitations.[171]

Issue	Description
Self-Selection	Study sample set is composed of volunteers that may arrive more highly motivated than the general population. Results may overestimate impact of the intervention.
Limited Worksites	As previously discussed, the culture, policies, etc., of a specific workplace create a unique environment of influence to the intervention. Results may not translate equally to other worksites.
Limited Duration	Studies of less than one year are common, however researchers suggest that permanent behavior change requires more than one year.
No Baseline or Control Group	Studies that do not collect metrics on a population not exposed to the intervention are unable to determine if the intervention was a causal or coincidental to the result.
Hawthorne Effect	Behaviors are impacted as a result of being the focus of attention rather than due to the intervention.
Confounding Factors	A workplace cannot be a controlled environment that restricts outside variables form influencing behaviors.

Table 1. Common Methodological and Practical Issues.

171 Glasgow et al., *Take Heart: Results from the Initial Phase of a Work-Site Wellness Program*, 209.

As an alternate approach to randomized controlled trials, the use of in-depth case studies and benchmarking is supported by the literature as an accepted method to gather evidence on the specific interventions and attributes that result in successful workplace programs.[172] Benchmarking is loosely defined as the process of identifying, understanding, and adapting outstanding practices exhibited by others. Though an accepted practice, benchmarking is also not immune to methodological imperfections. The review of a small sample set of organizations is not necessarily germane to predicting the effectiveness in all or even a majority of other organizations. Biases similar to scientific studies may still exist due to a set of factors unique to a particular to one organization, region, or industry. Any of these units may have had significant causal or associative influences such as recent experience with an emergency or disaster or an economic downturn that may have realigned business priorities. Additionally, companies that are self-reporting are more likely to report and publish what they perceive to be success. However, by studying and comparing multiple published benchmarking studies that have been conducted over time, a list of commonly identified attributes can be generated that can be considered practice-based smart practices.

The smart practices identified in the following section have been derived from recommendations offered by a combination of published benchmarking reports developed through the rigorous evaluation case studies found in the literature.[173] The selected references include the National Institute for Occupational Safety and Health (NIOSH) WorkLife Initiative, the Centers for Disease Control and Prevention (CDC), in alliance with the National Association of Chronic Disease Directors Health and Productivity Management Benchmarking Project, and the Institute of Medicine's Committee to Assess Preventative Health Program Needs for NASA. A brief description of each reference study is provided below:

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172 Pronk, *Population Health Management at the Worksite*, 7.

173 There is an abundance of study that has been conducted on health, safety, and wellness in the workplace and a relatively diminutive existence of works concerning disaster preparedness promotion. For the purposes of this research paper, an assumption is made that complex, long term behavior change associated with adopting a culture of preparedness is similar to that of other health related complex behavior changes.

(1) NIOSH WorkLife Initiative (2008) – NIOSH WorkLife Initiative (2008): The Essential Elements of Effective Workplace Programs and Policies for Improving Worker Health and Wellbeing is a resource document developed by the National Institute for Occupational Safety and Health with substantial input from experts and interested individuals. The document identifies twenty components of a comprehensive work-based health protection and health promotion program and includes both guiding principles and practical direction for organizations seeking to develop effective workplace programs. The twenty components, based on scientific research and practical experience in the field, are divided into four areas: Organizational Culture and Leadership; Program Design; Program Implementation and Resources; and Program Evaluation. The document is a framework intended to assist in the design and implementation of workplace programs and offer specific examples of best and promising practices.[174]

(2) CDC/NACD Benchmarking Project (2007) – In the Centers for Disease Control (CDC)/National Association of Chronic Disease (NACD) Directors Health and Productivity Management Benchmarking Project (2007), data regarding promising practices in health and productivity management in the workplace were gathered via literature review, discussions with subject matter experts, online inventory, and site visits in order to identify key success factors.[175]

(3) Institute of Medicine: *Integrating Employee Health* (2005) – The Institute of Medicine, Committee to Assess Workplace Preventive Health Program Needs for NASA (2005) has also provided key data. The National Aeronautics and Science Administration (NASA) is a pioneer federal agency in its recognition of the impact workplace wellness programs have on the well-being of its employees. The Institute of Medicine was commissioned to review and assess existing preventive health programs as

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[174] National Institute for Occupational Safety and Health, *Essential Elements of Effective Workplace Programs and Policies for Improving Worker Health and Wellbeing* (Washington, DC: U.S. Department of Health and Human Services, Center for Disease Control and Prevention, [2008]).

[175] Ron Z. Goetzel et al., "Promising Practices in Employer Health and Productivity Management Efforts: Findings from a Benchmarking Study," *Journal of Occupational and Environmental Medicine* 49, no. 2 (February, 2007), 111.

well as evaluate and recommend specific options for future comprehensive wellness programs.[176]

On May 22, 2014, the Institute of Medicine also conducted *Total Worker Health*™, a public workshop focused on identifying smart practices in workplace wellness promotion.[177] Workshop participants included representatives from stakeholder groups including large, medium, and small businesses, government agencies, and academia. Although at the time of this writing the summary report from this workshop was yet not available, information offered by the individual speaker presentations was reviewed and considered as a current source of reference.

B. SMART PRACTICES

A comparison of the findings from the above reports presents numerous recurring themes and very few discrepancies among successful workplace wellness promotion initiatives. The reports can therefore be considered generally supportive of each other. Utilizing the framework introduced in the NIOSH WorkLife document as a basis, the smart practices identified across the studies are consolidated and categorized into four areas: Organizational Culture and Leadership, Program Design, Program Implementation and Resources, and Program Evaluation. The applicability of the recommended smart practices to workplace disaster preparedness is explained through the use of actual or hypothetical examples of each element. The identified components are then further applied to a population management framework to illustrate the process put into practice.

1. Organizational Culture and Leadership

a. Link Program to Business Objectives

Programs and policies aimed at disaster preparedness through the promotion of established practices prescribed by FEMA and the American Red Cross at the workplace

176 Institute of Medicine (U.S.) and Committee to Assess Worksite Preventive Health Program Needs for NASA Employees, *Integrating Employee Health: A Model Program for NASA*, 2.

177 Institute of Medicine (U.S.), "Total Worker Health: Promising and Best Practices in the Integration of Occupational Safety and Health Protection with Health Promotion in the Workplace" (Workshop held May 22, 2014. Washington, DC, Institute of Medicine (U.S.), Washington, DC, May 22, 2014).

may be strengthened when supportive of business objectives, both with respect to the impact to the organization as well as to the organization's employees. Businesses increasingly recognize the importance of workplace preparedness and realize the essential role of human capital in business continuity. Likewise, each employee should understand that he or she is a contributing factor to the resilience of the organization. The promotion of employee disaster preparedness is viewed as a strategic initiative to strengthen business continuity plans. An organization's commitment to the well-being of its employees prior to an incident sets the tone should an incident actually occur. Employees that believe the organization cares about them are also more likely to trust and follow management's lead during the response and recovery.[178]

b. Engage Multi-Level Leadership

Successful programs have shown to have buy-in from all levels of management; line managers and up through corporate executives have been engaged in disaster preparedness and continuity management. Demonstrated commitment from company leaders complements program initiatives by providing legitimacy and necessary resources. It is recommended that senior leaders show support of the program not only through communiqués such as tone-from-the-top memorandums, but by visibly participating in program initiatives and by taking action toward the improvement of their own personal level of disaster preparedness. Middle managers interact with and relay organizational priorities to employees. Line level management's support and involvement may encourage participation in the program. Conversely, managers that do not support or do not participate in program initiatives may counteract program promotion efforts by establishing perceived norms that cause employees to shy away from participation.

178 Pat Burton, Jeff Gorter and Rich Paul, "Recovering from Workplace Traumatic Events," *Journal of Employee Assistance* (2nd Quarter, 2009), 10–11.

c. Create Supportive Policies and Environments

According to studies by Goetzel et al., workplace programs embedded with a corresponding company culture are more likely to succeed.[179] A supportive culture allows for the use of company resources and policies to support desirable behaviors. Companies that promote social support and a "culture of preparedness" can improve participation rates and encourage long-term engagement among employees.

However, developing or changing an organization's culture is a resultant outcome, not a specified objective. A culture evolves as a result of the adoption of individual factors that shape the culture over time toward the values associated with those factors. John Kotter of Harvard Business School states, "A culture truly changes only when a new way of operating has been shown to succeed over some minimum period of time." The probability of program success decreases if shifting the norms and values of the organization is attempted before creating the new way of operating. In other words, desired behaviors need to become norms which develop into values over time, and the collective values form the new organizational culture.

As described in the previous chapters, both the physical and social characteristics of the workplace environment can affect individual behavioral choices. Organizational plans that clarify and convey the level of support employees can expect to receive in case of disaster response and recovery provide introspect of where disaster preparedness falls on the organization's priority scale. Examples of the physical environment include implementing steps to better prepare the workplace such as installing back-up generators, developing an emergency communications plan, or establishing child care or other essential personal service agreements that would remain available during a disaster. Social norms and social support discussed in Chapter III are two factors in the social

179 Goetzel et al., *Promising Practices in Employer Health and Productivity Management Efforts: Findings from a Benchmarking Study*, 120.

context that will significantly influence behavior.[180] A successful workplace program encourages the belief that personal disaster preparedness is an accepted practice and a support system is available to affirm positive actions and assist employees in achieving program goals.

2. Program Design

a. Conduct Population Needs Assessments

Most effective programs begin with the administration of a population risk assessment, which can be conducted in the form of a well-designed employee survey. The purpose of the assessment is twofold. First, it provides a population-level appraisal of the organization's human capital to that can be applied to risk calculations. Survey responses are also used to develop population segmentation strategies to assist in tailoring future interventions. Needs assessments are low-cost tools that serve as an economical method to determine the span of existing behaviors, level of knowledge, and level of interest among the population. Responses provide a baseline and are used to guide the direction of the program. As discussed later, tailoring messaging and interventions increases their efficiency and efficacy by targeting specific interests and needs of program participants.

The 2011 FEMA Personal Preparedness survey provides relevant and validated questions that categorize respondents based on their answers into four segments: the Least Informed, Least Prepared – "It's not on their radar;" the More Concerned, Less Prepared – "It's on their mind;" the Some Information, Some Preparation – "They're working on it;" and the Informed and Prepared – "It's part of their life." A workplace disaster preparedness needs assessment can use similar categories to stratify its population according to levels of awareness, knowledge, and readiness. It can also be used to identify specific barriers that may vary among demographic groups that need to

[180] Megan Lewis, Brenda DeVellis and Betsy Sleath, "Social Influence and Interpersonal Communication in Health Behavior," in *Health Behavior and Health Education: Theory, Research, and Practice*, eds. Karen Glanz, Barbara K. Rimer and Frances Lewis, 3rd ed. (San Francisco: Jossey-Bass, 2002), 240-; Catherine Heany and Barbara Israel, "Social Networks and Social Support," in *Health Behavior and Health Education: Theory, Research, and Practice*, eds. Karen Glanz, Barbara K. Rimer and Frances Lewis, 3rd ed. (San Francisco: Jossey-Bass, 2002), 185.

be addressed distinctly. For instance, white-collar employees may cite a lack of adequate time as a primary barrier to household preparedness, while blue-collar workers may indicate that the perceived cost of putting together a disaster preparedness kit is the primary hurdle.

b. Clearly Define Goals and Objectives

The identification of clearly defined goals and objectives of the workplace program has been shown to positively impact program results. Explicitly stating the desired end-state aids in the focus of program components toward that objective. The overarching business objective of a workplace disaster preparedness program may be to ensure human continuity in order to re-establish business operations with minimal downtime. However, program objectives need to be more specific to the desired outcome of the target population segment. For example, a valid objective of disaster preparedness promotion for the Least Informed, Least Prepared segment is to develop beliefs about the probability of disaster, an understanding that in major disasters there may be significant delays in the arrival of emergency services, that the immediate and short-term response may be up to them, and that preparedness helps. The objective for the More Concerned, Less Prepared segment is the completion of the Ready program's basic preparedness actions, "Be Informed, Make a Plan, Build a Kit, Get Involved."[181]

Objectives of workplace programs describe a desired behavior or outcome. Goal setting can be an individual or organizational level tool that can be incorporated into workplace disaster preparedness promotion activities to motivate performance and evaluate progress of specific actions that lead toward achieving an objective. Goal-setting enhances compliance and motivates behavior change. Lovato and Green found that goal setting as the most effective method to maintain employee participation in wellness programs. They further noted that goal setting was most effective when goals are realistic, short-term, flexible, and set by the individual rather than imposed by program

[181] Federal Emergency Management Agency, "Homepage," Federal Emergency Management Agency, http://www.ready.gov/ (accessed July 25, 2014).

staff."[182] A study by Blessman et al. concludes that preparedness efforts that only emphasize what should be done and why are likely to have limited impact on changing behavior.[183] In order to stimulate action, goals should be designed using the SMART acronym, which states goals should be specific, measurable, achievable, relevant, and time-based. Building programs that incorporate strategies that ensure small steps are taken are likely to be more successful.[184]

c. Integrate Programs

Effective program designs consider existing programs and policies to determine potential connections and synergies.[185] As discussed in Chapter IV, numerous interdependencies exist within workplace functions that can be leveraged such as human resources, employee assistance programs, occupational safety and health. As an organization gets larger, these functions tend to address issues specific to their specialty even though they are all related to fostering the organization's human capital. An integrated approach to employee preparedness aims to link programs ranging from hazards education initiatives to health and safety to business continuity to Employee Assistance Programs (EAP) and wellness programs. For example, the link between human resources and employee assistance can facilitate the creation of family communication plans.[186] The *integrated workplace resiliency model* proposed by Vineburgh et al. applies this concept to disaster preparedness through the integration of 1) mental health to manage the psychological implications of experiencing a disaster; 2)

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[182] Chris Y. Lovato and Lawrence W. Green, "Maintaining Employee Participation in Workplace Health Promotion Programs," *Health Education Quarterly* 17, no. 1 (Spring, 1990), 73.

[183] James Blessman et al., "Barriers to at-Home-Preparedness in Public Health Employees: Implications for Disaster Preparedness Training," *Journal of Occupational and Environmental Medicine* 49, no. 3 (March, 2007), 325.

[184] Ibid.

[185] National Institute for Occupational Safety and Health, *Essential Elements of Effective Workplace Programs and Policies for Improving Worker Health and Wellbeing*, 2.

[186] Vineburgh, Ursano and Fullerton, *Disaster Consequence Management: An Integrated Approach for Fostering Human Continuity in the Workplace*, 170.

business continuity planning with human continuity resources; and 3) workplace preparedness with health and wellness interventions.[187]

d. Involve Stakeholders

One of the consistent findings across the studies is to actively involve stakeholders of the program in every step of the process including program design, implementation, and evaluation. Engaging employees and management in program design and implementation addresses population variables such as employee's needs, readiness for change, perceived priorities, and cultural backgrounds. A study by Mileti et al. found that people generally will be more apt to "buy-in" to the concepts given the opportunity to participate in interactive discussions and perceive themselves as part of the solution.[188] Though a "champion" of the program that is highly motivated and knowledgeable is desirable, it is recommended that workplace program is managed by a group or committee in order to protect the continuity of the program due to the inevitability of natural attrition of an individual.[189] The use of diverse teams has been shown to influence subsequent employee participation in workplace promotion program activities.[190] A committee should be comprised of a cross-sectional representation of the diversity of the workplace from numerous perspectives (management level, demographic, organizational function, etc.). One must also be cognizant however of the possibility of stifling employee willingness to contribute due to management presence on the committee.[191]

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187 Ibid., 169.

188 Dennis S. Mileti and Lori A. Peek, "Understanding Individual and Social Characteristics in the Promotion of Household Disaster Preparedness," in *New Tools for Environmental Protection: Education, Information, and Voluntary Measures.*, eds. Thomas Dietz and Paul C. SternWashington, DC: National Academy Press, 2002), 135.

189 David Hunnicutt and Brittanie Leffelman, "WELCOA's Seven Benchmarks of Success," *Absolute Advantage,* 2006, 2.

190 Beti Thompson et al., "Factors Related to Participatory Employee Advisory Boards in Small, Blue-Collar Worksites," *American Journal of Health Promotion* 19, no. 6 (2005), 430.

191 National Institute for Occupational Safety and Health, *Work, Smoking, and Health, a NIOSH Scientific Workshop* (Washington, DC: U.S. Department of Health and Human Services, Center for Disease Control and Prevention, [2000]).

The use of contracted services is an option available to organizations with financial resources that may be considered due to staffing concerns and the perception of the superior knowledge of subject matter experts. However, the use of outside sources may undermine essential integration of departmental functions as well as reduce the feeling of personal ownership and awareness of preparedness program and disaster plans.[192]

Lehman Brothers Inc. increased focus on disaster preparedness as a result of the lessons learned from the impact of the September 11, 2001 attacks on the World Trade Center.[193] The company recognized the importance of its human capital and therefore converted its previously highly centralized business continuity plan to include every employee. With every employee involved and assigned to the plan and the planning, managers and employees could not shed the responsibility for business continuity to others.

e. Offer Multiple Avenues of Engagement

Programs that offer employees the opportunity to select the activity to pursue from a list of relevant issues increase the effectiveness as participants can choose which steps to engage in first. Employees can select activities that have a high probability of successful achievement based on their particular situation. This approach is based on the assumption that achieving success in even a minor activity may generate an increased sense of self-efficacy and continued motivation to change additional behaviors. Tying this practice back into SMART goal setting, it is preferred to divide an objective into smaller goals that can be accomplished more easily. The FEMA preparedness objective "to build readiness" serves as a simple example: the objective is defined by four tangible goals: be informed, make a plan, build a kit, and get involved. Taken together, someone that is just starting to plan may perceive the combination of the four steps as too much

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192 Vineburgh, Ursano and Fullerton, *Disaster Consequence Management: An Integrated Approach for Fostering Human Continuity in the Workplace*, 171.

193 Patrick Alesi, "Building Enterprise-Wide Resilience by Integrating Business Continuity Capability into Day-to-Day Business Culture and Technology," *Journal of Business Continuity & Emergency Planning* 2, no. 3 (March, 2008), 215.

work or too time consuming. Given the choice to pursue each goal individually, the task seems more manageable. Completion of that task may generate enthusiasm to then pursue one of the remaining two goals. Choice of the order of the goals also plays a role. An employee that is financially struggling may become disheartened if a centralized decision was made that this first goal of the program is to build a kit, while making a plan could be accomplished with zero financial investment. Similarly, an employee that is looking forward to an upcoming camping vacation, may view purchasing many of the supplies for a disaster preparedness kit as dual purpose and therefore a worthy investment, but views the time needed to develop a plan to interfere with getting ready for the vacation.

Program coordinators should remain cognizant of the number of preparedness activities that are "required" to complete an objective. Several studies cited by Strecher et al. suggest a need to change behaviors one at a time so to avoid overwhelming individuals faced with a lengthy list of necessary change activities.[194] It is recommended that workgroups be aware of this possibility throughout the design process and remain cautious about recommending too much too quickly.

f. Tailor Programs to the Specific Workplace

A premise carried throughout the body of literature is that there are no universal, one-size-fits all answers to the design of workplace promotion programs. One of the reasons of conducting the aforementioned risk assessment is to develop an awareness of population strengths and weaknesses in order to customize program components to the specific audience. Programs can be designed to match segment needs and also various learning styles.[195] A study comparing the effects of tailored programming based on a risk assessment versus generic programming resulted in the tailored group to be 18% more likely to change at least one behavioral factor.[196] This finding was confirmed in a

194 Victor Strecher et al., "Tailored Interventions for Multiple Risk Behaviors," *Health Education Research* 17, no. 5 (October, 2002), 619.

195 Goetzel et al., *Promising Practices in Employer Health and Productivity Management Efforts: Findings from a Benchmarking Study*, 120.

196 Matthew W. Kreuter and Victor J. Strecher, "Do Tailored Behavior Change Messages Enhance the Effectiveness of Health Risk Appraisal? Results from a Randomized Trial," *Health Education Research* 11, no. 1 (March, 1996), 97.

behavioral study by Peterson and Aldana, which found that participants receiving information tailored to their stage of change (see the transtheoretical model in Chapter III) demonstrated a 13% increase in desirable activity while participants receiving generic information only demonstrated a 1% increase.[197]

Tailored programs also reduce the possibility of wasted resources on unnecessary interventions. A "hazards awareness" and "benefits of disaster preparedness" class are expected to be core components of a disaster preparedness promotion program; but if the subject organization is in the emergency response industry, these efforts would likely be redundant and therefore wasted.

An often neglected issue specific to disaster preparedness that programs must be tailored to address is that of preparing the human resources and/or EAP practitioners for their likely role immediately following a disaster. Human resources and EAP professionals may not be accustomed to seeing and dealing with that level of trauma especially all at once. Specialized disaster preparedness training should be considered for this segment of employees.

g. Make Programs Convenient

Ease of access to programs is a critical component to recruiting and maintaining participation. Erfurt et al. found that although half of employees indicated interest in betterment classes, less than 1% enrolled when offered off-site, compared to 8–12% when offered on-site.[198] Lovato and Green cite studies based on surveys of employees who dropped out of wellness programs and identify logistical barriers (time and location) as the most often cited reasons for discontinuing the program.[199]

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[197] Travis R. Peterson and Steven G. Aldana, "Improving Exercise Behavior: An Application of the Stages of Change Model in a Worksite Setting," *American Journal of Health Promotion* 13, no. 4 (1999), 229.

[198] John C. Erfurt and Andrea Foote, "Maintenance of Blood Pressure Treatment and Control After Discontinuation of Work Site Follow-Up," *Journal of Occupational Medicine* 32, no. 6 (June, 1990), 513-.

[199] Lovato and Green, *Maintaining Employee Participation in Workplace Health Promotion Programs*, 73.

Since the disaster preparedness of its employees plays a critical role in the business's own continuity (see the Business Case in Chapter IV), it is reasonable to expect organizations to allocate time and resources towards those efforts. Program activities that occur during the workday however should be cognizant of work schedules and should accommodate employees that do not have flexible schedules such as line workers or may spend a significant amount of time travelling away from the office.

h. Incorporate Incentives

Although the term 'incentive' is formally defined by Merriam-Webster as "something that encourages a person to do something" and can technically be interpreted as a perceived benefit that is offered in advance to induce the start of an activity; the term can also be used as a synonym of the term "reward" provided contingent upon the achievement of a pre-established objective. The perceived benefit may be the receipt of something of value or it may be the avoidance of a penalty. Studies conducted on the effectiveness of the "carrot vs. stick" approach to incentives have concluded that when managed correctly there is potential benefit in reward programs ("carrots"). However, the use of recruiting incentives *in advance* of performance and/or the use of negative reinforcement ("sticks" such as financial penalties or poor individual appraisals) have been considered ineffective.[200]

A performance-based rewards incentive program provides employees immediate gratification for accomplishing a specified goal and the employer benefits from increased compliance to organizational policy. The use of incentives is resource-intensive and should be carefully managed. Incentive programs that are either haphazardly established or do not consider the potential impact of the eventual removal of incentives may provide a contrary result to the overall objective.

According to A.C. Daniels, author of *Bringing Out the Best in People*, value is considered to be a "central tenet of a good incentive program."[201] One of the difficulties

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[200] Gerald M. Rosen and Edward Lichtenstein, "An Employee Incentive Program to Reduce Cigarette Smoking," *Journal of Consulting and Clinical Psychology* 45, no. 5 (1977), 957.

[201] Aubrey C. Daniels, *Bringing Out the Best in People : How to Apply the Astonishing Power of Positive Reinforcement*, New & updated ed. (New York: McGraw-Hill, 2000), 245.

of establishing an organization-wide incentive program is the diversity of the audience in relation to the value of a particular incentive. In order to determine what is valuable to an audience, Daniels recommends looking at incentives that have been effective in past programs; or directly asking employees through opinion polls and testing popular responses to evaluate their respective levels of effectiveness among the population.[202] Incentives that address typical barriers to achieving program goals such as awarding higher-cost items (weather radio) that supplement a disaster preparedness kit provide an incentive while continuing to emphasize the importance of the program.

In addition to determining the "what," one must also determine the "how much" (magnitude) and the "when" (timing and frequency) on the impact of the perceived value of incentives.[203] Whether it is a dollar amount, additional time-off, or other incentive, the appropriate magnitude requires knowledge of the scarcity of the resource; the less a person has of it, the more valuable it will be perceived to be. Incentives can be expected to have an effect, assuming the utility that the employee gains from the incentive outweighs the personal effort expended on attaining the criteria necessary to earn the incentive.[204] Incentives must also be administratively feasible and financially scaled to within a specified budget.

Although household disaster preparedness has its own rewards, these rewards may not be tangible enough or satiate the need for short-term gratification of efforts. External incentives that reward completion of stepped achievements (be informed, make a plan, build a kit) toward a defined overarching objective appear to offer the best chance for success. A 2009 study by Volpp et al. established financial incentives at six month intervals for members of a relatively large workplace-based test group that successfully

202 Ibid.

203 R. Vance Hall and Marilyn C. Hall, *How to Select Reinforcers*, 2nd ed. (Austin, TX: Pro-Ed, 1998), 38.

204 Adam Oliver and Lawrence D. Brown, "Politics of Prevention: A Consideration of User Financial Incentives to Address Health Inequalities," *Journal of Health Politics, Policy and Law* 37, no. 2 (April, 2012), 206.

maintained the desired behavior.[205] In this study, the incentive-based group sustained the desirable behavior at a rate of almost three times that of the non-incentive baseline group.

In order to avoid perceptions of inequity or excessive competition among employees, incentives-based programs should be tied to well-defined achievement criteria and be directed toward organization achievement rather than individual achievement. These two features have the dual benefits of allowing the potential for an unlimited number of 'winners' while also gaining management buy-in because individual success and organizational success are directly related. This second feature, organizational success can be closely linked to managerial success and is critical to the survival of the initiative.

3. Program Implementation and Resources

Benchmarking studies indicate that a high participation rate is a key element of any successful risk reduction program. A 2010 survey of barriers to workplace wellness programs, however, indicated "lack of employee engagement" as the number one challenge.[206] The terms participation and engagement are related but distinct with the primary difference relating to the level of action taken by an individual as induced by the intervention. Participation could be counted "just for showing up" to read an educational flyer as compared to engagement which implies an expression of interest, the pursuit to accomplish and sustain program goals.[207] In other words, participation must be active and meaningful to be used synonymously with engagement.

a. Achieve a High Employee Engagement Rate

The primary purpose of many of the elements of effective workplace promotion program design is to improve level of engagement in program activities. Workplace wellness program experts estimate programs should set goals to achieve a 60%-80%

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[205] Kevin G. Volpp et al., "A Randomized, Controlled Trial of Financial Incentives for Smoking Cessation," *The New England Journal of Medicine* 360, no. 7 (February 12, 2009), 699.

[206] Institute of Medicine (U.S.), *Total Worker Health: Promising and Best Practices in the Integration of Occupational Safety and Health Protection with Health Promotion in the Workplace.*

[207] Goetzel and Ozminkowski, "The Health and Cost Benefits of Work Site Health-Promotion Programs," 311.

"active participation" (engagement) rate in workplace programs in order to ensure the program reaches more than just the employees that are already motivated to conduct disaster preparedness. Organizations with successful programs indicate seeing additional value in expanding efforts to include spouses, dependents, and recent retirees.[208]

b. Communicate Strategically

The topic of strategic communications encompasses numerous factors that are critical to the successful implementation of workplace program. Disaster preparedness promotion programs need to be marketed like a product/service to employees like they are the customer. The message content as well as the mode and the frequency of delivery need to be well planned in order to motivate people to participate. The Wellness Council of America recommends a communication plan that provides program awareness at least one month in advance of the start of the activity, provides at least four communiqués to each employee with at least one originating from the senior executive level, and is transparent including program purpose, details, goals, and results to all stakeholders.[209]

New Zealand's Ministry of Defense and Emergency Management has documented success with its Public Education Program as evidenced by a consistently upward trend in household preparedness since its inception in 2006.[210] Much of the credit is given to the themes of the program's message. The design of the message is intended penetrate the target audience by conveying personal relevance; rather than using fear-based messaging, the theme of the message revolves around people's own empowerment and the satisfaction that you've done everything you can to be prepared and resilient.[211]

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208 Goetzel et al., *Promising Practices in Employer Health and Productivity Management Efforts: Findings from a Benchmarking Study*, 120.

209 David Hunnicutt, *Systematically Increasing Participation Checklist* (Omaha, NE: Wellness Council of America, [2011]).

210 Colmar Brunton, *Ministry of Civil Defence & Emergency Management: Campaign Monitoring Research 2012 Survey* (Wellington, NZ: Ministry of Civil Defence & Emergency Management (NZ), [July 2013]).

211 Ministry of Defence and Emergency Management (NZ), *The Way Forward: Strategic Framework for the National CDEM Public Education Programme 2006–2015* (Wellington, NZ: Ministry of Civil Defence & Emergency Management (NZ), [2007]).

Similar to tailored programming, tailored messaging allows promotion programs to reach specific population segments by targeting various stages of change. A workplace wellness promotion study conducted by de Bourdeauhuij used a computer program to tailor messaging content to deliver broad awareness for audiences in early stages of change and more directive content to those in later stages of change.[212]

Comprehensive workplace promotion programs that offer a variety of dissemination modes tend to reach a larger audience. Campaigns that use multiple mediums such as print brochures, websites, posters, preparedness fairs, newsletters or regular columns in well-read publications to deliver a consistent message have a higher likelihood of being seen regardless of unique employee circumstance. It cannot be assumed that every employee has access to or routinely monitors technology-based messaging. Two preparedness surveys conducted by the American Red Cross in Gulf Coast States and in Colorado indicated that receiving preparedness information from more sources correlated with an increased number of preparedness steps taken.[213]

Employees also have diverse learning styles that require various engagement modes to be effective. Some people prefer to work on behavior change on their own while others prefer a team atmosphere and/or would benefit from the availability of social support. Erfurt et al. found that offering a menu, including self-help, one-to-one, mini group, and full-group interventions, is more successful than offering only didactic sessions."[214] Many of the worksite programs reviewed offered a variety of messaging avenues, including printed education materials, individualized counseling, group classes, and work site-wide promotion activities.

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[212] Ilse De Bourdeaudhuij et al., "Evaluation of an Interactive Computer-Tailored Nutrition Intervention in a Real-Life Setting," *Annals of Behavioral Medicine* 33, no. 1 (February, 2007), 41.

[213] American Red Cross and Federal Emergency Management Agency, *Summary Report on Awareness to Action: A Workshop on Motivating the Public to Prepare.*

[214] Erfurt and Foote, *Maintenance of Blood Pressure Treatment and Control After Discontinuation of Work Site Follow-Up,* 513.

4. Program Evaluation

After workplace disaster preparedness promotion programs have been designed and implemented, it is essential to assess the efficacy of the interventions. Evaluations should examine overall program effectiveness as well as the effectiveness of specific program activities. Did the strategies employed achieve progress toward objectives? Which components worked and which ones failed? What can be done differently in future interventions? Proper program evaluation is comprised of three components: measure and analyze, communicate results to stakeholders, and apply lessons learned to continuously improve the program.

(1) Use Metrics – Identifying key metrics relevant to the program is necessary to determine if program is achieving stated goals and objectives. Metrics in successful programs included process oriented and outcome oriented measurements. Process oriented metrics track factors related to program design or implementation such as effectiveness of dissemination modes, participation levels or suitability of population segmentation. Outcome metrics track performance toward the achievement of stated goals such as improvements in knowledge, attitudes, and behaviors.

Reports noted that successful programs applied data collected to confirm its association with initiatives.[215] Jeannette Sutton and Kathleen Tierney identify common metrics utilized in surveys pertaining to household preparedness. Notable metrics across surveys include the level of awareness of specific risks and of potentially mitigating actions (hazard knowledge); existence of household emergency plans (formal and informal response plans and agreements); preparation of disaster supply kits (life safety protection); structural mitigation (property protection); and hazard insurance and contingency plans (initiation of recovery).[216]

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215 Goetzel et al., *Promising Practices in Employer Health and Productivity Management Efforts: Findings from a Benchmarking Study*, 120.

216 Sutton and Tierney, *Disaster Preparedness: Concepts, Guidance, and Research (Report Prepared for the Fritz Institute Assessing Disaster Preparedness Conference Sebastopol, California, November 3 and 4, 2006.).*

(2) Share Results – As stakeholders in the program, validated evaluation results should be shared with both employees and management. Stakeholders offer a valuable source of feedback that provides insight about possible causes for both positive and negative results. These "lessons learned" can be further applied to improve the program for the future.

(3) Implement a Cycle of Continuous Improvement – No plan or program is perfect from the start. Programs that attempt to design the perfect program are prone to never get started and suffer from "analysis paralysis." The same thing can be said about disaster preparedness. One does not go from unaware to ready and resilient in one sweeping step. Disaster preparedness is a process that involves ongoing repetition of the steps of assessment, design, implementation, evaluation.[217]

C. CHAPTER SUMMARY

The methodological challenges of randomized controlled studies and benchmarking discussed in the introduction of this chapter limit any definitive conclusions of the general applicability of the aforementioned smart practices. However, these program elements have been documented in the literature as showing the most promise toward achievement of expected outcomes.

[217] Institute of Medicine (U.S.) and Committee to Assess Worksite Preventive Health Program Needs for NASA Employees, *Integrating Employee Health: A Model Program for NASA*, 184.

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VI. A POPULATION MANAGEMENT FRAMEWORK FOR DISASTER PREPAREDNESS PROMOTION

The population health management approach introduced in Chapter III is a proven standard in workplace wellness programs.[218] It is premised on the concept that the most effective way to achieve population level objectives is by addressing behavior change in a supportive environment as close to the individual level as feasible.[219] Adapting this approach to workplace disaster preparedness promotion provides a framework (see Figure 3) that incorporates the identified smart practices discussed in the previous section.

[218] Chenoweth, *Worksite Health Promotion*, 234.

[219] Pronk, *Population Health Management at the Worksite*, 5.

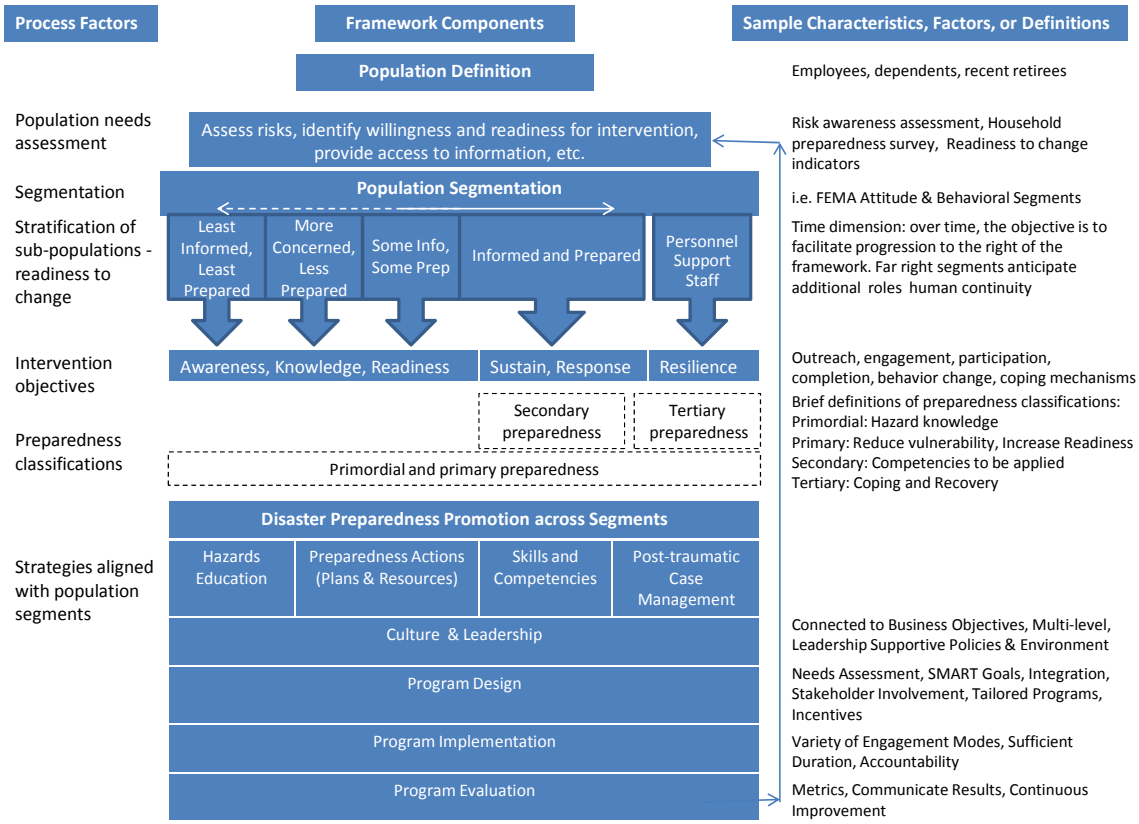

Figure 3. Employee Disaster Preparedness Population Management Framework (after Pronk, 2009).

The overarching goal of a workplace disaster preparedness promotion program is to create a more resilient workforce. The target population needs to be clearly defined at the start. An organization may choose to focus on personnel that are essential to the business's core capabilities as a starting point or it may assume the attitude that all employees are mission essential (this belief supports the desired organizational culture). The population can also be further expanded to include spouses and dependents recognizing the very influential role this population plays especially in a crisis.

Once the target population is defined, the framework includes population needs assessments and the subsequent identification of segments to which program objectives and strategies can be tailored. Population needs assessments can be accomplished in various ways, but a method commonly used is a well-designed survey composed of

questions regarding the existing disaster preparedness knowledge, conditions, behaviors, and attitudes of the defined population. Surveys can also contain questions that provide insight to perceptions of the workplace environment, policies, and social norms that may positively or negatively influence the effectiveness of behavior change interventions. Citizen preparedness surveys prepared by FEMA or the American Red Cross are good sources of standardized questions regarding household preparedness.

The completed assessment provides the identification of population segments with distinguishing characteristics. In term of disaster preparedness, segments can be categorized by individual's current level of awareness, behavior, and condition (number of preparedness actions already taken). In Chapter V, the option was suggested to use the same four classifications utilized by FEMA's national level Personal Preparedness survey: the Least Informed, Least Prepared—"It's not on their radar;" the More Concerned, Less Prepared—"It's on their mind;" the Some Information, Some Preparation—"They're working on it;" and the Informed and Prepared—"It's part of their life." An additional population segment is included on this framework to account for the additional disaster preparedness roles that will be undertaken by personnel support staff such as human resources and employee assistance programs. Employees in these roles still need to be assessed as a part of the defined population; they must also be assessed in their preparedness to cope with the increased demand on these job functions in a post-incident environment.

Categorization by current level of preparedness is only one layer of segmentation. Within each segment, employees are likely to be at various stages of change based on the transtheoretical model. Each segment can be further stratified by individual beliefs and attitudes toward disaster preparation and their readiness to change. Program effectiveness benefits from more specific tailoring of message content and delivery to these subpopulations. The population segments form a continuum with the objective of disaster preparedness promotion programs to facilitate movement to the right of the continuum toward conditions of pre-incident readiness (primary preparedness), ability to respond during an incident (secondary preparedness), and post-incident resilience (post-incident preparedness).

The strategies and tactics (smart practices) to improve the disaster preparedness of each population segment form the lower portion of the framework. Strategies are generally aligned with the objectives of a specific segment or group of segments. The four critical components of the promotion program (culture/leadership, design, implementation, and evaluation) and the associated smart practices identified in Chapter V and listed on the right side of the framework are applied across segments.

Disaster preparedness promotion is a continuous process. The purpose of program evaluation is to determine if efforts are achieving progress toward objectives and also to identify areas of the program that can be improved. The continual improvement process revolves back to a current assessment of population needs, re-statement of defined objectives, corresponding design and implementation.

VII. CONCLUSION AND RECOMMENDATIONS

Citizen preparedness is a vital component of national preparedness, yet national surveys indicate only a small minority of citizens have completed the basic individual and household preparedness actions recommended by the Federal Emergency Management Agency and the American Red Cross. Interest remains at the federal, state, and local level to identify new strategies to augment current citizen disaster preparedness promotion efforts to aid in the further development of citizen preparedness levels.

Numerous previous studies have sought to identify what "citizen preparedness" actually means and why current promotion efforts are not achieving the desired effect of "moving the needle" toward increasing levels of citizen disaster preparedness. Other studies have examined the psycho-sociology of why some people prepare and why others do not. Although these studies are not able to conclusively pinpoint a specific cause or solution, they provide valuable insight that can be applied to future strategies.

Among the key findings corroborated by these studies, it has been shown:

1) Preparedness needs to be addressed as a complex human behavior.

2) In order to have an effect on a population, programs must consider the individuals that compose that population. There is no one-size-fits-all solution.

3) Preparedness promotion is more effectively received at the local level.

One potential strategy positioned to apply all three of the above factors is the use of the workplace as a venue to conduct citizen disaster preparedness promotion. The workplace has an extensive history of being used as an avenue to promote positive employee behaviors, predominately in the area of health and wellness. This study examined whether anything could be learned from existing workplace wellness promotion initiatives that can be applied to citizen disaster preparedness promotion. Research also sought to determine the viability of incorporating disaster preparedness promotion as a component of workplace wellness programs.

The goal of this study was to conflate the areas of citizen disaster preparedness and workplace wellness promotion. This was accomplished by a thorough review of the relevant literature in each of these two overarching topics, as related to three main sub-areas: 1) the interrelationships among the workplace, employees, and the community; 2) the rationale, motivation, and barriers to the concept of the workplace as venue to impact behavior change; and 3) the identification of promising practices that can be replicated in future strategies. The product of this research further integrates wellness promotion with disaster preparedness through the adaptation of a population health management framework to a citizen disaster preparedness promotion framework that can be applied as a component of a workplace wellness program.

The findings of this study suggest the workplace is recognized as a viable venue for programs designed to influence positive employee behaviors. Household disaster preparedness and an associated preparedness mindset qualify as positive employee behaviors due to their potential impact workplace productivity and continuity of operations. Studies in the emergent literature are unable to provide conclusive empirical evidence regarding the causal relationship of specific components of workplace wellness programs. However, there is growing evidence, as reported in rigorous literature reviews, that certain components of program design, implementation, evaluation and environment are consistent among effective workplace programs in practice; with effective being defined as having demonstrated improvement in population-based behavior change objectives. These “smart practices” that were described in Chapter V should be considered during the development of future strategies.

In light of limitations associated with existing research, namely the lack of conclusive evidence from primary studies and the need to rely on practice-based studies regarding the impact of workplace wellness promotion programs on employee behavior; the considerable variation in characteristics among small, medium, and large sized employers; and insufficient published evidence of the impact employee preparedness has on business continuity following a disaster to validate the business case assumptions, additional research is needed to more conclusively determine the viability and

effectiveness of incorporating citizen disaster preparedness efforts into the workplace. The field of research should continue and expand to include:

1) Surveys of organizations that have implemented employee disaster preparedness promotion programs that include results-oriented evaluations and cost data. Two surveys reported that one third of their respondents had activated their plans, learning from these organizations may prove to be the most beneficial as experience of what components of their plan may have worked and/or they may have identified gaps in their preparations. Learning from these experiences would prove the most useful.[220]

2) If available, organizations (including those unable to recover) that had employee disaster preparedness promotion programs and experienced a disaster should be identified and interviewed.

3) An in-depth analysis should be conducted of the similarities and differences between large, medium, and small sized organizations in terms of workplace wellness programs and of disaster preparedness. Different sized employers possess distinguishing attributes that present both challenges and opportunities, which must be considered in citizen disaster preparedness programming for employees.

4) An examination of methods to encourage employers to implement disaster preparedness promotion in the workplace. One of the criticisms of existing promotion efforts is the requirement that people must become aware of and voluntarily pursue the wealth of preparedness information that is currently available. Although the concept of workplace preparedness promotion potentially addresses this issue, a similar quandary arises at the employer level. Further effort needs to focus on ways to disseminate the mutual benefit of employee disaster preparedness to employers so that they adopt such programs. One potential solution, the Federal Emergency

220 Stephanie Balaouras, "The State of DR Preparedness," *Disaster Recovery Journal* (December 27, 2008).

> Management Agency's Office of External Affairs – Private Sector Division, conducts outreach to a wide range of non-government partners, including small, medium, and large business about its role in emergency management.[221]

The overall conclusion of this study is that the workplace is a promising venue for the dissemination of citizen disaster preparedness messaging and the facilitation of household preparedness actions, but additional research is needed to more conclusively determine the extent of the viability and effectiveness of the concept.

[221] U.S. Senate Committee on Homeland Security and Governmental Affairs, *Role of Private Sector in Preparedness and Emergency Response*, One Hundred Thirteenth Congress, First sess., 2013, 2.

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