
CRITICAL ISSUES IN DISASTER SCIENCE AND MANAGEMENT:

A Dialogue Between Researchers and Practitioners

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Coeditors

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ACKNOWLEDGEMENTS

First and foremost, we must acknowledge the Federal Emergency Management Agency's Higher Education Program for providing the funding that made this project possible. This program provides a considerable service to the academic community and the profession of emergency management through its steadfast support of research, standards, and the lively exchange of ideas about what should be taught and trained when it comes to emergency management.

We would also like to thank our colleagues Mr. Lucien Canton, Dr. Jessica Jensen, Dr. David McEntire, Mr. Timothy Sevison, and Dr. Greg Shaw for serving on a focus group during the early weeks of this effort. Your guidance at that critical point in the development of this volume helped shape a number of dimensions of the project and provided us ideas that helped improve both our process and the final product.

As discussed in the introduction to this book, each substantive chapter was peer reviewed not only by the editors but also by one academic researcher and one practitioner professional. We would like to thank our peer reviewers for the time, effort, and service they provided for this volume. In the end, it was up to the authors and the coeditors to reconcile the comments and suggestions, but as the contributors will attest to, this group did not take anything for granted. They pushed and challenged our authors and in the end helped to make this a better book than it would have been otherwise. We appreciate your help and hope that you find that the final volume has improved in no small part due to your guidance.

Dr. Ami Abou-bakr
Dr. David Alexander
Ashley Battle
Dr. Tom Birkland
Gregory Brunelle
Lucien Canton
Andrea Davis
Steve Davis

Alexandra Enders
Daniel Hahn
Bobby Kagel
Dr. Naim Kapucu
Frank Kriz
Brock Long
Dr. David Mendonça
Marty Nevil

Dr. Sandra K. Schneider
Dr. Monica Schoch-Spana
JoAnn Scordino
Dr. Jeanette Sutton
Meghan Treber
Dr. Bill Waugh
Dr. Dennis Wenger

We also thank Anthony Cario, Cortney Flynn, and Lindsay Arndt for their work in re-formatting and double checking the citations and Laura Taylor for her work copyediting the volume. Daryl Yoder-Bontrager deserves special recognition for his work as our research assistant on this project. In that capacity, he helped to manage communications with our many authors and helped to organize all the individual pieces of content that led to what you see here. This was a huge undertaking that involved hundreds of e-mails and reminders. We appreciate all you did to help make this volume a success.

Finally, we want to thank our wives and families. Completing this book required many late nights, early mornings, and weekends away. We could not have completed this without your love, support, and understanding.

Despite the contributions of all these important individuals, the volume that follows does not necessarily represent their views and opinions nor does it represent those of the Federal Emergency Management Agency's Higher Education Program, the Federal Emergency Management Agency, the U.S. Department of Homeland Security, or the U.S. government. The editors and authors alone bear responsibility for the content found within.

FOREWORD

Henry (Hank) W. Fischer, III, PhD.

Historically, the interaction between academics and practitioners has been rather limited. Academics have tended to speak with one another about those issues determined to be of greatest interest to fellow researchers (i.e., those issues contributing to literature development, those most likely to receive research funding, and those likely to lead to publication). These outcomes facilitate career development for the academic researcher. Meanwhile, practitioners have tended to interact among themselves pursuant to their ongoing quest to meet the needs of their constituencies (i.e., the hierarchies in which they function during non-disaster time) and the various populations, (particularly the most vocal or influential, impacted during an emergency or disaster). Both of these directly impact upon the likelihood of the practitioner's ability to survive and thrive in his or her occupation.

To their great credit, both academic institutions and practitioner organizations have sought to facilitate interaction between academics and practitioners to enhance the emergency response capability of the nation. For example, the Natural Hazards Center of the University of Colorado hosts annual meetings in Boulder where researchers and practitioners consider the recent research findings of academics and the ongoing mitigation, preparation, planning, and response needs of practitioners. Similarly, the Federal Emergency Management Agency's Higher Education Project hosts an annual meeting in Emmitsburg, Maryland, where researchers and practitioners share findings and needs pursuant to enhancing the educational, professional, planning, and response posture of the nation.

Great strides in academic-practitioner interaction have resulted from these efforts. Nevertheless, a divide still needs to be bridged. Academics and practitioners continue to speak a different language, have different views of what most needs to be the focus of research, and have different perspectives on what is most necessary to learn in degree programs designed to train the next generation of both practitioners and researchers.

Granted, their professional and career goals appear to diverge in the short term. However, both the practitioner and the academic are ultimately the two bookends of the same story. The story is to be the answer to these questions: How can we combine our knowledge, experience, and efforts to develop the best possible disaster science and management? What does each mass emergency and disaster teach us toward how to better mitigate, plan, prepare, and respond? The academic researcher often interviews practitioners before, during, and after an event. The researcher is dependent upon the practitioner for much of his or her research. The practitioner seeks information from the researcher that is in a digestible form in order to incorporate best practices for a sustainable future. The researcher/teacher and the practitioner are, therefore, wedded to one another. Any other view is counterproductive.

The practitioner is hired by the public to serve it. Public institutions of higher learning remunerate faculty from student tuition and tax dollars. Grants are primarily funded by tax dollars. Each of us is therefore ethically called to contribute to the greater good. This is all the more necessary going forward. Why? U.S. and world population growth translates into an ever-increasing pool of potential victims contributing to an ever-greater urgency for enhanced mitigation and disaster management based upon the scientific method. An additional, perhaps even more salient issue is the changing earth's climate that is expected to result in ever-increasing challenges to those charged with mitigation, preparation, planning, and response.

The book you are reading is the quintessential model of practitioner-academic interaction. As you read each chapter, you will find a historically uncharacteristic partnership between practitioner and academic. This book is the next logical step in the science and practice of disaster management. This work is truly building not only a literature, but also a practice for the field.

It is with great pride and a deep sense of profound satisfaction for me that two of my former students are the editors of this work. Joe and Tony were both independent thinkers when they were my students and continue to be now that they are my teachers. I commend them. Each, in their own way, pushed me constantly as my students, often leaving me with smiles of satisfaction. Now they continue to give me that satisfaction as leaders in the discipline. Again, I commend and thank them.

I recognize some names in the list of chapter authors. I am also very proud of my former student Lauren Barsky and tip my hat to her good work. It is also a pleasure to read the valuable contributions of my former colleagues Carol Cwiak, Kay Goss, David McEntire, Claire Rubin, and Gary Webb. And, to the other authors, I thank you for your excellent contributions as well. I know many of you from reading other items you have written.

In closing, let me say that if no other contribution of mine has as great an impact as that which my many students have in the present and will in the future, then my legacy is safely intact. Thank you one and all for the opportunity.

CHAPTER 1: EXPLORING THE ACADEMIC/PRACTITIONER DIVIDE

Tony Subbio and Joseph E. Trainor

INTRODUCTION

This volume began as a simple conversation between the coeditors at the 2009 Pennsylvania Emergency Management Conference. At that time, Trainor was a new PhD who had just spent almost seven years working at the Disaster Research Center learning about disaster research literature and methods and working on federally funded research on disasters. Subbio had spent several years as an emergency planner for a county-level emergency management agency before joining the private sector as an emergency preparedness consultant. He had also just received his master's degree in emergency management. Both were at the meeting representing their respective organizations.

The coeditors shared an undergraduate alma mater, Millersville University, and had worked under the mentorship of Dr. Hank Fischer of the Center for Disaster Research and Education (CDRE) at different times. Those links were enough to get a conversation started. Among other things, we talked about our jobs and experiences in emergency management and ended up discussing the relationship between academic research and practitioner knowledge. We agreed that there had to be a way to get these groups together for a more meaningful conversation. There had to be a way to move past the “I know better” approaches and learn from each other. We knew that both groups could learn a great deal from each other and the emerging profession would be better off for it.

Over the course of an hour an idea began to emerge. Wouldn't it be interesting if the two of us, who emerged from similar roots but went in different directions professionally, could work together to create a space for researchers and practitioners to directly interact with each other focused on specific issues. This text is the result of that idea.

In the almost five years since our first conversation, we have had many more meetings, phone calls, e-mails, and text messages about how to implement this idea. With the help of the Federal Emergency Management Agency's (FEMA) Higher Education program, this book project developed. We hope that reading these exchanges will lead to more conversation about how to leverage our knowledge and improve our field.

Background and Vision

The profession of emergency management includes many stakeholders. Among these stakeholders are at least two types of experts: namely, “practitioners” and “researchers” or “academics.” The practitioners are those individuals who are directly responsible for implementing emergency management programs at the federal, state, regional, local, or facility level. They are the Emergency Management Directors/Coordinators, planners, trainers, exercise specialists, first responders, consultants, etc. The academics are those

individuals who focus on studying disasters and emergency management as a distinct discipline (e.g., Jensen, 2013b) or from any number of disciplinary perspectives (e.g., McEntire, 2006). Generally, but not always, academics are affiliated with an institution of higher education, national labs, consulting firms, or specific divisions within government. As such, these individuals are bound by complicated standards of rigor for their analyses (e.g., Jensen, 2013a).

While many still see these groups as distinct, there is a growing push toward integration and in some case even the convergence of these groups. As the field continues to mature, there are more and more reasons and opportunities for crossover. For practitioners, this crossover typically occurs when they complete coursework that reviews disaster research, through invitations to serve as guest speakers in classes or seminars, or when they are exposed to research through briefs or presentations at meetings and conferences. Since the 1990s, there has also been a growing number of practitioners who have pursued advanced degrees and entered the world of academia as a disaster researcher, intent on developing the body of knowledge about a field in which they spent a great deal of time and effort. This is common enough to have inspired the term *pracademic*, referring to a current or former practitioner who is now focused on academic instruction or research.

For academics, the crossover typically comes through contract work in service of emergency management agencies, through speaking engagements for agencies, and/or at conferences where practitioners meet, from interaction with practitioners who take classes, and to some extent in preparation for teaching courses that review emergency management policies and doctrine. Although less common, there are also cases of more traditional academics participating more directly in emergency management as practitioners, though they are much fewer in number.

This volume is far from the first to recognize these two stakeholder groups. In fact, many trade magazines, blogs, and even peer-reviewed journal articles have discussed the similarities and differences between these two kinds of stakeholders. Authors often suggest that the ideas and knowledge these groups have should be brought together. Actually making that happen is not easy for a number of reasons. In the conclusion to this book, we will review some of these prior ideas and will discuss some new insights on this divide that have emerged during this process. For now, it is sufficient to say that most of these works suggest that the major problems these communities face is a lack of opportunity for meaningful interaction (Kendra, 2007) or what Buika et al. (2004) calls a lack of robust participation between the groups. Kendra (2007) articulates the need for this type of exchange well in his insightful article on the divide:

The principal challenge [to bridging the academic practitioner divide] is to bring into conversation two distinct groups who need each other in some practical sense, but

who otherwise might have little cause for interaction, or who might even be antagonists. (p. 3)

Our goal in developing this project was to create a space where that exchange could happen and could be facilitated. The hope was that the exercise would (1) start a dialogue between practice and academia, (2) develop new ideas and directions for the future, (3) help us learn more about the underlying factors that divide us, and (4) hopefully provide some ideas on how to begin to bridge these two stakeholder groups more seamlessly. The discussions presented in this volume, and even the process by which each chapter was written, were designed to provide an opportunity to bring ideas together and strengthen the field of emergency management. The next section goes into detail on the process that guided our project.

ABOUT THE PROJECT (METHODOLOGY)

Given that the purpose of this volume was to start an exchange of ideas, our most important objective was to create dialogue. The most important “product” was an exchange of ideas. While each chapter varies in the degree to which the exchange resulted in new ideas, the process itself revealed many important insights. While the form, the foci, and even the writing styles vary considerably from chapter to chapter, those variations reflect reality. They are based on what actually evolved as the co-authors worked together. The project evolved in several distinct phases or stages each of which is described below.

Author and Issue Selection

The first phase of the project was author selection. We identified contributors in two ways. Our primary recruiting technique was open solicitation and our secondary approach was direct author recruitment.

During open recruiting, the editors issued a general call for contributors using a process designed to target both practitioners and academics. The calls for contributors included a brief description of the project, expected contribution, a list of twenty priority topics, and an invitation for individuals to propose other topics they felt should be addressed. Individuals who answered the open call (i.e., those interested in serving as contributors) were asked to identify the topic they wanted to write about, provide a brief description of their experience in the subject area, and provide a writing sample.

Practitioners were recruited through email forums and LISTSERVs such as those of the International Association of Emergency Managers (IAEM) and states’ emergency management professional associations (e.g., the Keystone Emergency Management Association [Pennsylvania], the Emergency Management Association of Ohio, etc.). Academics were recruited through the University of Colorado’s Natural Hazards Center’s “Natural Hazard Observer,” a call posted on the University of Delaware Disaster Research

Center Site, the FEMA in Higher education LISTSERV, and through the International Research Committee on Disasters list.

We received just fewer than 150 author proposals during the recruitment process. The editors reviewed each interested candidate's submission. Candidates were judged based on (1) their level of first-hand and/or special expertise related to the issue for which they would contribute, (2) the degree to which their work suggested they could describe and analyze complex issues and (3) quality of writing. We also gave preference to academic/practitioner teams that had worked together in the past or in cases where an academic and practitioner had proposed to address similar topics in separate proposals. In some instances, we actively searched for partners to match to a topic we felt was particularly strong. Based on this process, the following issues were selected for treatment in this volume:

- State, Local, and Federal Relationships
- Volunteers and Nonprofit Organizations
- Private-Sector Integration
- Access and Functional Needs Populations
- Public Health and Emergency Management
- Planning and Improvisation
- Reflections on the National Incident Management System (NIMS)
- Long-Term Recovery
- Exercises and Evaluation
- Social Media
- Evolution of Emergency Management as a Profession
- Neglected Issues in Emergency Management

Each of these issues has a chapter dedicated to its treatment. While these are not the only, or even the most important, issues facing the field of emergency management, they are each important to address. However, it must be recognized that the availability of qualified authors who were willing to serve on this project was a major factor in these selections.

Also, it should be recognized that single chapters cannot address every facet of these issues, particularly given the limited space we provided for each topic. Likewise, we knew that individual authors would not know every detail about his or her issue. As you read the volume, you should also realize that the position taken by each author is based on that author's experience and expertise. There is no guarantee that these positions are shared by all practitioners or researchers, but whenever possible we pushed the authors to at least give an overview of several perspectives.

Chapter Development

Once we had selected the author teams, we set out a process that would maximize the likelihood that practical and research views would be given equal treatment. To do so, we adopted a standardized process for each chapter to ensure that the content was useful to both academics and practitioners. That process included four steps: (1) Individual summaries, (2) Reaction Papers, (3) Bridging the Divide, and (4) Peer Review. Each step is described below.

Phase One: Individual Summaries

During the first phase of the writing process, authors were asked to summarize, in plain language, the current state of emergency management in terms of the respective issues. Practitioners were asked to address the following questions:

- What is the essence or nature of the issue?
- How is the issue addressed at the local, county, regional, state, and/or federal levels?
- What federal policies/guidelines and/or industry standards (e.g., National Fire Protection Association [NFPA] standards, national frameworks) exist relative to the particular topic, and what guidance do they give?
- How does the regional variation in our country impact the issue?
- What is the future of the issue as it is addressed by the emergency management community?

Likewise, academics were asked to provide the following:

- A primer on the major and minor theoretical approaches
- A review of empirical research findings
- Discussion of patterns and variations in conclusions
- Trends and directions in the science related to that issue

The editors reviewed each individual summary and provided feedback to the authors. In some cases, the editors suggested additional material. In others, the editors posed questions to help the authors consider the issue from another angle. This feedback was intended to guide the authors in their discussions, not to prescribe what content the authors should include.

Phase Two: Reaction Papers

After both individual summaries for a given chapter were submitted and editorial comments were provided to the authors, each chapter's authors were asked to exchange summaries and provide a short reaction paper on each other's work. These reaction papers do not appear anywhere in this volume since they were designed to simply facilitate the dialogue between the authors. In some cases, the papers indicated that authors had very strong

reactions to their counterpart's perspectives. In others, teams found agreement. When possible, we as editors reinforced issues and ideas that emerged in these exchanges and asked that extended conversations be included in the Bridging the Divide section of the volume.

Phase Three: Bridging the Divide

In the third phase of the project, authors were asked to use the materials from their earlier efforts to come together and develop the Bridging the Divide section. In it, the authors were asked to discuss the following:

- Elements of the issue where agreement exists
- Elements of the issue where conflict exists
- What does research suggest should be maintained in the current state of practice?
- What can be learned from the research?
- How can practitioners and academics integrate each other's knowledge to strengthen the fields of disaster management and science?
- What are the fundamental questions that have not been addressed by research that future efforts should look into?

From the editors' point of view, this third section is the most important in each chapter. This entire volume could probably exist as only the "Bridging the Divide" sections from each chapter, and still be useful to both practice and academia. However, the editors felt that including the individual summaries was important, so that the readers could understand how the individual contributors saw the issues and how those views contributed to the final assessments.

Phase Four: Peer Review

It was also our intention to ensure that each chapter was developed with the same scientific rigor as a published journal article would be. In order to maintain that level of rigor, the authors' works were critiqued twice. First, the coeditors provided feedback on the individual summaries. Second, the editors and a set of external peer reviewers critiqued each final chapter. Peer reviews for each chapter were conducted by one academic and one practitioner, both of whom were experienced and/or had expertise relevant to the selected issues. Reviews were single blind, meaning that the reviewers knew the identities of the authors, but the authors did not know who would be providing a peer review of the chapters. While this approach is less common than double blind for academic review (where reviewers do not know the identity of the authors either) it is not completely abnormal. We chose this approach because practitioners often wanted to know more about the authors to help assess their views.

The peer reviewers' comments and changes were combined with the editors' reviews and provided to the authors. While the first round of reviews by the editors was more to guide the authors, the second round of peer reviews was far more direct regarding changes that the authors needed to make and additional information to include. Again, this process followed the scientific rigor of a peer-reviewed journal. Despite the fact that several of the practitioner authors were unaccustomed to this level of critique of their work and the fact that the critiques were very demanding, the author teams each addressed the comments and changes to the editors' satisfaction, after which each chapter was reviewed by a professional copy editor for consistency, tone, grammar, etc. Finally, the edited chapters were posted to FEMA's Higher Education website for public review. After the review period ended, the chapters were updated based on comments received, and then finalized into this volume.

FINAL THOUGHTS ON THE PROCESS

The editors hope that readers review this volume with an open mind but a critical eye. Some of the discussions presented may challenge ideas you hold dear. Many assertions made by the authors are supported by logical reasoning. Some are based on empirical evidence. Others are made based on an author's intrinsic understanding of an issue or phenomenon. The editors encourage the reader to challenge any assertion or viewpoint. Our goal was never to present the definitive view on these issues, but rather to facilitate an exchange of ideas. We wanted most to encourage an open dialogue among members of the practitioner and academic communities. For a practitioner or academic to reach out to a member of the other group to discuss, learn more about, or refute discussions in this volume would be the ultimate measure of the volume's success.

These chapters have a great deal of important insight and knowledge, and importantly, those ideas were developed in a way that leveraged both systematic research findings and lived experiences. The results are interesting not only for what they tell us about these problems, but also what they have helped us understand about how practitioners and researchers can work together and learn from each other. We hope every person who reads this volume learns something.

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CHAPTER 2: WHOLE COMMUNITY: LOCAL, STATE, AND FEDERAL
RELATIONSHIPS

Academic Contributor: Dr. Yvonne Rademacher

Practitioner Contributor: Amy Crabill

ABSTRACT

The implementation of FEMA's Whole Community initiative is an opportunity to engage the whole of societal capital in disaster management. While its policies are gradually being developed, questions are mounting about what implications this new strategy will have for the traditional intergovernmental management of disasters. Thus, as an emerging issue in disaster science and management, the following chapter examines what governance issues are likely to arise from the adoption of the Whole Community approach. To achieve this, an exchange between an academic and a practitioner provided unique perspectives, and a collaborative effort identified where there was agreement and where perspectives diverged. Any gaps between research and practice were addressed with ideas for the way forward.

The academic segment reviewed the literature on key theoretical concepts, which define government's legitimacy to engage in emergency management in the first place, identify boundaries of its mandate, and explain indicators that must be considered when evaluating a governance system. This section also reviewed the theory of governing by network, which from the initial policy documents appears to be the governance system preferred by the Whole Community. This was followed by a review of the findings of empirical research to date concerned with the intergovernmental relationship for emergency management and any issues of relevance for the Whole Community. The academic segment concluded that increasing delegation of responsibilities for disaster management to partners in a widespread network poses significant challenges for government. Moving toward a Whole Community of shared responsibilities by extending networks even further and maintaining network relationships for goods and services that are largely not contract-based and thus not enforceable, government will be increasingly challenged to fulfill its commitment of good governance in terms of displaying maximum predictability, transparency, and accountability. Clarifications are needed on concrete Whole Community policies to analyze these challenges further and for research to make contributions to the ongoing policy discussions.

The practitioner segment begins by discussing how the language of this new approach has been woven into federal emergency management doctrine. The ability of this language to actually affect shared responsibility is analyzed based on past similar programs, given that this segment concludes that the Whole Community approach has delivered nothing actionable that achieves devolution. Critical to shared responsibility is not only the relationships with nontraditional response partners, which are already evident in most

jurisdictions, but also in how the individual understands his/her role in emergency management. The past practice of federal government as the primary payer for disaster expenses has led to a sense of complacency on the part of states, localities, and individuals. Further, policy practices that sanction and subsidize individuals to live in high-risk areas do not send a message of urgency about their risk and do confuse other preparedness efforts. Thus, there is a mismatch between the feel-good language of Whole Community and the truth telling that must ensue about governmental limitations and risk. Surely if this effort does not go further than simply using the language of shared responsibility, there will be no measurable change to the current federal-centric approach.

AN ACADEMIC'S PERSPECTIVE

Introduction

In the face of ever more complex challenges in disaster management and steadily rising economic losses (Board on Natural Disasters, 1999; Cutter & Emrich, 2005; UN, 2011), the U.S. government has recognized its limitations and acknowledges that it cannot do it all alone; the engagement of the entire societal capacity is needed to confront these challenges, especially in times of large-scale and catastrophic events (DHS, 2009). In response, the Federal Emergency Management Agency (FEMA) has initiated a new philosophical approach to disaster management called “Whole Community.” This approach is still in its developmental stage and lacks a clearly defined policy framework. However, its terminology is already firmly embedded in government documents, such as FEMA’s Strategic Foresight Initiative Toward 2030 (FEMA, January, 2012). FEMA (December, 2011) explains:

As a concept, Whole Community is a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests. (p. 3)

Instead of a government-centric approach to disaster management that follows traditional hierarchical governance structures and processes, the terminology used for the Whole Community, as presented in initial policy documents, resembles an approach suggested by network theory, which favors a more relaxed horizontal system of coordinating activities among participants away from the use of command and control. As the Strategic Foresight Initiative elaborates, dynamic partnerships “must rise to a whole new level, involving new associations, broader and deeper interactions, and immense fluidity” (FEMA, January, 2012, p. 18) with the aim to more intensively engage the private sector, the military, international partners but, more fundamentally, individuals and local communities themselves so that they take on more responsibility (FEMA, December, 2011). This new vision of disaster management would be a move further away from the traditions of silo governance and the provision of government emergency assistance. Instead, it envisages emergency management programs to more deeply “connect to communities through the social, economic, and political structures that are part of daily life” (FEMA, January, 2012, p. 18). Under the current hierarchical governance structure, emergency management has already branched out to build networks with the private sector in order to meet the growing challenges. However, by moving further and further toward horizontal partnership networks, where each participant assumes certain responsibilities, one of the concerns is how government can remain in control of its mandate as primary bearer of responsibility for emergency management and being accountable to the public for protecting them from harm.

In order to investigate these governance developments and policies further, this chapter looks at what current governance relationships in disaster management are likely to be impacted by the adoption of the Whole Community approach, and what particular challenges can be anticipated in the transition process. This academic segment presents a review of the literature and addresses these questions by first examining key theoretical concepts that define government's legitimacy to engage in emergency management in the first place, including those that place boundaries around it. It also explains some principles that help us understand whether a particular governance structure is supportive of communicating to the public how that mandate is fulfilled and meets the public's expectations. This section is considered important for the later discussion of the current governance system and the proposed Whole Community initiative in understanding their differences. This is followed by a section on the focus and key findings of empirical research to date concerned with the intergovernmental relationship for emergency management. This section also includes a brief overview of what is currently known in academia about network theory and the relationship between government and its network partners. Crucial issues that emerge from these first two sections are then extracted for the discussion section that attempts to address the questions about the governance issues in disaster management that are likely to arise from the adoption of the Whole Community approach. The academic segment concludes with gaps and trends in disaster research.

Review of Key Theoretical Approaches

A discussion on policy developments of the Whole Community in relation to the current governance structure for emergency management can be examined from different angles. The approach chosen here for this brief summary focuses on those topics that have emerged from the literature review and that put forward fundamental considerations that would need to be addressed in any governance framework for emergency management. It seeks to frame this discussion by, first, understanding government legitimacy to govern in the realm of emergency management to begin with. This is followed by theoretical concepts defining the boundaries of government's obligation to engage and the responsibilities that different levels of government have in fulfilling that mandate. Furthermore, key principles used to monitor government performance are summarized. Finally, this section concludes with a brief review of network theory, which appears to be the underlying governance theory of the Whole Community.

Government legitimacy to govern for the public's welfare

In political science, the role of government is based on and defined by the concept of political legitimacy, that is: citizens' acceptance of the authority of a political system to govern them be it in democracy, communism, monarchy, fascism or other. Normally, the fundamental scope of such political legitimacy is laid out in a country's formative documents (e.g. a constitution) and further detailed in statutory and/or common law provisions and policies. As this review only looks at emergency management in the United States, it

focuses on those governance principles that apply to a federal democracy with a mixed-market economy.

Section 8 of the U.S. Constitution states that “the Congress shall have power to ... provide for the common Defense and general Welfare of the United States.” While common defense and general welfare are only two of a number of governance priorities listed, modern social scientists (Comfort, 2005; Henstra & McBean, 2004) insist that it is the quintessential role of government. Henstra and McBean (2004) emphasize:

Today, the protection of citizens remains one of the primary responsibilities of public officials. Where people are unwilling or unable to protect themselves from the hazards in their environment, governments have an obligation to take appropriate action in the public interest to reduce the risk of injury or property damage. (p. 6)

It gives government the mandate to legislate and act in the name of protecting its citizens from harm. At the same time, however, it is also the political testing ground for government legitimacy par excellence. Where government’s activities have succeeded in shielding citizens from harm, the system’s raison d’être has been reconfirmed. Where trust in government has been disappointed and performance is unsatisfactory in the perception of the public, a political crisis is likely to ensue. At best, the existing system is reformed and improved. In the extreme case, however, it might lead to the fall of the political system altogether (Ahrens & Rudolph, 2006; Abney & Hill, 1966; Rosenthal & Kouzmin, 1997). Internationally, this became apparent when the head of Chile’s National Emergency Office had to resign after intense criticism of government’s response to the February 2010 earthquake. In the United States, in 2005, Mike Brown, then Director of FEMA, became the most prominent government official to step down from his post because of his agency’s unsatisfactory performance in responding to Hurricane Katrina. In Wilmington, Vermont, the town manager offered his resignation due to the public’s perceived inadequate response to tropical storm Irene in 2011.

Consequently and naturally, large-scale disasters and catastrophes are inherently highly politicized events, as the political fallout for President George H.W. Bush from the stalled relief for Florida following Hurricane Andrew in 1992 and the chaotic response to Hurricane Katrina under George W. Bush in 2005 demonstrated. Superstorm Sandy in 2012 was another example that led to political wrangling over the response budget and produced unlikely alliances among Democrats and Republicans. Therefore, government’s mandate and its governance structure for emergency management have to be understood as being highly politicized.

Boundaries of government’s obligation to engage

Against this background of fundamental legitimacy for government to engage in emergency management for the welfare of the public, there are theoretical limitations in a mixed-market economy. The tug-of-war between proponents of more versus those advocating for

less government is notable in a system that is not entirely a free market economy but also believes in government-imposed market regulations, the provision of government-run welfare programs, and a range of different types of government subsidies. Theoretically, a mixed-market economy generally requires that government should only intervene when markets fail and are unable or unwilling to provide goods and services demanded by their citizens (Henstra & McBean, 2004). Moreover, government welfare programs are based on society's conclusion that, even where markets provide essential goods and services, there are vulnerable groups that do not have the socioeconomic power to access them. In this sense, government intervention is based on two criteria: (1) market failure to provide goods or services, and/or (2) citizens' inability to access those markets because of a lack of socioeconomic power.

U.S. disaster research well into the 1990s had a primary foundation in sociology that focused on nongovernmental phenomena (Rosenthal & Kouzmin, 1997). It was only with the intensifying government engagement in disaster management with the establishment of FEMA and the subsequent enactment of the Robert T. Stafford Disaster Relief and Emergency Assistance Act in 1988 – the cornerstone legislation on which today's U.S. disaster management system rests – that interdisciplinary research, notably political and economic science, started to take a more systematic interest in the field. Since then, a number of studies have been carried out to analyze the viability and effectiveness of specific disaster assistance programs and also the intergovernmental emergency management structure itself.

With regard to the two criteria for government intervention required in a mixed-market economy, some studies have criticized and challenged government for not exploring market options first or further, or even stifling existing private-sector activities to meet disaster management needs. In this context, federally subsidized insurance programs, such as the flood and crop insurance, have drawn particularly strong fire (Harrington, 2000; Glauber & Collins, 2002). Harrington (2000, p. 45) concludes his analysis with the bottom line:

Government insurance programs fail to promote efficient risk management for at least three reasons: subsidization of premiums (especially premiums for high-risk properties), loose underwriting and risk classification rules, and continued availability of free disaster assistance. (p. 45)

Furthermore, the situation is blurred in terms of a clearly defined government mandate by a government system that increasingly does not supply disaster-related goods and services itself but outcontracts a substantial portion of its responsibilities to the private sector (Kettl, 2000; Rademacher, 2011). If the market actually can and does provide these services and products, is government's role then primarily one of a redistributive nature for all those who are unable to access them because of a lack of socioeconomic power? Thus,

in addition to those studies questioning the need for government to intervene with subsidies when market options are indeed available, outcontracting in disaster management is another area of research that not only highlights the availability of private-sector resources, but is also concerned with the implications for governance when government outsources its primary responsibilities.

In summary, the two requirements of the need to have a market failure or a lack of access for segments of the population constitute a useful basic test to determine the legitimacy for government to intervene in the first place and define the boundaries of its mandate. However, as the previous segment explained, there may be political circumstances where there is no market failure or affected populations are not socioeconomically disadvantaged – such as the affluent communities along the New Jersey shore hit by Superstorm Sandy in 2012 – when government may still feel politically compelled to assist. The same is the case of subsidy programs, which do not necessarily address a market failure or vulnerable populations, but serve other political purposes. Therefore, any examination of the disaster management system cannot only consider key theoretical concepts but must also understand them in the context of the intricate political dynamics at work. Against this backdrop of fundamental theoretical concepts defining government legitimacy and limitations, the following section reviews the intergovernmental relationship and specific responsibilities of different levels of government in carrying out that mandate.

Responsibilities of different levels of government

Federalism in the United States apportions jurisdiction to either federal, state, or local government. Some policy areas are the exclusive responsibility of one level – such as defense, duties, and excise at the federal level – while shared responsibility exists for others (e.g., education). Over time, U.S. history has seen a shift of power toward federal government after the American Civil War and a devolution of power back to the states since the Reagan administration. After the terrorist attacks of September 11, 2001, (9/11), there is evidence that, in the name of national security, the trend has reversed again with expanding federal mandates. Disaster researchers following the power relationship between federal, state, and local government note:

In U.S. emergency management, shared authority is not supposed to be a top-down command and control system. The Department of Homeland Security's FEMA cannot, and the previously independent FEMA before it could not, actually "command" state and local officials. However, many presidential and DHS initiatives in this homeland security era have reintroduced command and control strategies under which federal officials get to assume top-down leadership positions, and state and local authorities are expected to submit. (Sylves, 2008, pp. 134-35)

This seesaw relationship of a switch from bottom-up local leadership in emergency management to top-down federal coordination in disaster management is best illustrated in relation to the scale of an event. Under principles of federalism, states are expected to manage local emergencies based on the bottom-up principle. Only where the scale of the event overwhelms state capacity may a governor appeal to the President for federal assistance (42 U.S.C. 5121-5207, Title V). Once a federal disaster declaration is approved, federal government assumes leadership in terms of releasing federal financial assistance, carrying out assessments, administering assistance programs vis-à-vis local governments and individuals directly, deploying technical staff, and coordinating the overall response.

With increasing federal mandates and assistance programs in disaster management since the establishment of FEMA, this phenomenon of a seesaw relationship between federal and state government has not only received persistent media attention (O’Keefe, 2011; Rein & Markon, 2012) – as was prominently the case following Hurricane Katrina and Superstorm Sandy – but has also attracted interest in the research community that follows developments in the intergovernmental relationship and on governance issues in disaster management (Kettl & Walters, 2005; Rhodes & Carafano, 2006).

The section below on the results of empirical research provides a brief summary of a few key studies and their findings on this particular subject. Understanding the responsibilities of different levels of government and the hierarchical shift that takes place from everyday emergencies managed at the local level to federal leadership taking over in national disasters becomes important when examining the expectations of government as horizontal network coordinator. This is explored further in the discussion section.

Emergency management in the United States is traditionally based on a vertical intergovernmental approach. However, in order to meet the growing challenges of a post-9/11 world, the last decade has seen a proliferation of partnerships. Every level of government has been expected to build connections with private for-profit and not-for-profit sectors active in emergency management activities. Thus, the vertical relationships of government are now intertwined with a range of horizontal connections outside of government, which in turn individually may or may not also originate from a vertical system, such as national not-for-profit organizations like the Red Cross. Consequently, the responsibilities of government now have to be understood within this complex system of horizontal relationships with partner organizations and the vertical intergovernmental structure. As the literature referenced above points out, it already is a challenge for government to meet the public’s expectations and define its responsibilities in meeting its mandate as primary bearer of responsibility for protecting the public from harm, which politically is a highly charged issue. Expanding horizontal networks of partnerships add an additional challenge to control and accountability. The following section briefly examines what dimension may be helpful when examining the effectiveness and credibility of government executing its mandate.

Indicators of good governance

Ahrens and Rudolph (2006) explain that, in a mix-market economy that expects private-sector participation, four dimensions of effective and credible governance are expected at every single level of government: (1) predictability, (2) transparency, (3) participation, and (4) accountability. Ahrens and Rudolph (2006) believe that

[t]he better these principles are realized in a country's governance structure, the better the government is prepared to ensure a sound management of public resources, an enabling environment for emerging private-sector activities and a productive exchange of information between the public and the private sector. (p. 212)

The execution of responsibilities at various levels of government in carrying out their emergency management mandates should be reviewed against these four principles of governance in order to provide an indication of performance. This is not only useful when evaluating ongoing activities but also when deciding on new approaches and entering into non-governmental partnerships. With this in mind, the discussion section takes a closer look at these four indicators and debates any issues that may arise with a governance transition toward the Whole Community.

This section sought to provide a brief summary of key theoretical concepts that define government's mandate as well as theoretical boundaries of its responsibilities in emergency management. It also highlighted key concepts that underpin the execution of that mandate through the intergovernmental system and in relation to indicators for good governance in meeting the public's expectations. These key concepts are fundamental when evaluating government's legitimacy in assuming a role and analyzing its performance. With the introduction of the Whole Community initiative, however, it is indispensable to also examine the theory of governing by network to understand the difference in governance principles.

The theory of governing by network

Introducing a vision for the future of U.S. emergency management, Craig Fugate, FEMA's Administrator (FEMA, February, 2011), explains:

We need to move away from the mindset that Federal and State governments are always in the lead, and build upon the strengths of our local communities and, more importantly, our citizens. We must treat individuals and communities as key assets rather than liabilities. (p. 10)

This vision of the Whole Community — for the whole of society to share responsibility for disaster management — poses the question of whether the existing governance structure is the most appropriate model to support it. In fact, shared responsibilities with nongovernmental partners more closely resembles a model based on

governing by network, where the command and control structure of hierarchical governance makes way to a more relaxed system that coordinates activities among participants who operate with a degree of autonomy generally not tolerated in a command and control structure.

In 2000, commenting on evidence of challenges to traditional hierarchical governance, Kettl noted: “In many ways, however, globalization has sparked an emerging system of governance without government, management, or control. Shared values, which shaped governmental policies in the past, have yet to emerge” (p. 492). Goldsmith and Eggers (2004) believe challenges to the traditional vertical governance structure include

(1) the rise in the use of private firms and nonprofits to do government’s work, (2) efforts to “join up” governments horizontally and vertically to streamline processes from the perspective of the customer-citizen, (3) technological breakthroughs that dramatically reduce the costs of partnering, and (4) increased citizen demands for more choices in public services. (p. 24)

The following presents different types of governing by network as they have been identified by the literature so far and explains where government has employed them to date. This is followed by a brief review of the advantages and disadvantages of this governance approach. The section concludes with a discussion on whether the key theoretical concepts underpinning government’s mandate to engage in disaster management, as laid out in the sections above, can be maintained when governing by network.

The area in network science concerned with governmental relationships has thus far mainly focused on the role of government in a network, which has crystallized into three categories. Goldsmith and Eggers (2004) explain that the first option is government as the network administrator and integrator, where government manages the network directly, such as the housing projects managed by the Department of Housing and Urban Development (HUD). The second option uses delegated authority to a prime contractor as the network manager. This prime contractor provides services directly and also manages a network of subcontractors. For example, the Coast Guard and Transportation Security Administration (TSA) have used this model for their information technology (IT) services. The third option goes further. Here, government hires a third party who does not provide direct services but functions solely as the network integrator and broker. One example is the State of Texas, which hires an outside organization to manage the state’s childcare system (Goldsmith & Eggers, 2004). Application examples of different governance models illustrate how government already uses different horizontal network models to fulfill its role as the provider of public goods and services. This is intertwined with a traditional vertical government structure at national, state, and local levels and also at the international level

(Kettl, 2000). It creates an ever more highly complex framework for the coordination, oversight, and provision of common services and goods.

Research exploring the advantages and disadvantages of these different models is still scant. However, some general observations of government's participation in networks with external stakeholders have been made. Failing to align goals and compatible partners in a network and, more prominently, creating a system away from hierarchical authority, where no one is in charge and accountable, have thus far been cited as the most important challenges for governing by network (Kettl 2000; Goldsmith & Eggers, 2004). Moreover, a system that is not directed by command and control has propensities to be more fragmented in coordination, especially when expedited decision-making is critical. Although it is claimed that governing by network is more flexible and can, thus, also respond with greater speed (Goldsmith & Eggers, 2004), a more fragmented coordination poses some questions about the quality and scope of public goods and services at the expense of speed. Being able to encourage innovative processes and finding a range of alternative solutions, also or particularly in complex situations, is one of the main strengths attributed to this approach to governance.

In light of the type of networks that government currently manages, and the general advantages and disadvantages that have been identified so far when governing by network, another issue that needs to be addressed is whether the key theoretical concepts underpinning government's mandate to engage in disaster management, as laid out in the sections above, can be maintained and to what degree government can uphold its duty for accountability toward its citizens in fulfilling its constitutional obligations to protect its citizens from harm. The answer to these questions clearly depends on government's role in the network and how its relationship with other network members is defined. Arguably, government can only fulfill its mandate where it remains in control of activities. When it functions as network administrator and integrator, it clearly remains in control. However, when using delegated authority or hiring a third party to manage the network on its behalf, the position of government is less clear. When government outsources activities, as it already does now, it ultimately remains accountable for the results. In the discussion section, this issue is investigated in more detail in relation to the performance indicators of predictability, transparency, participation and accountability. It is unlikely that, in an extended network, government can be held responsible for the actions of everyone else in the system, especially those with whom it has no contractual relationship. This raises the question of whether government can maintain political legitimacy in the long run when governing by network in any other capacity than network administrator and integrator. An entirely different perspective would have to examine why and under what conditions Whole Community members would accept reporting to the authority of government as administrator.

With regard to the two criteria of government only getting involved when the market cannot provide goods or services, or when segments of the population lack access to them, the mere existence of a network of other goods and services providers poses another interesting question: if there are others in the market who can provide goods and services, why would government need to be involved? Maybe these are providers new to the market or, for some reason, they are not recognized as providers by the current emergency management system, or they only cater to parts of the population, in which case government's redistributive role should be activated. Whatever the reason, a periodical analysis of the evolving market environment in emergency management could offer an opportunity to recalibrate where government intervention is indeed required.

The above section offers a short summary of key theoretical concepts relevant to analyzing any governance structure for emergency management, including the Whole Community. Supplementing this, the following section looks at the findings of empirical research to help shed further light on the issues. Insights from these two sections are then used for a discussion on what governance issues in disaster management are likely to arise from the adoption of the Whole Community approach.

Review of Empirical Research Findings

In terms of empirical research, a number of studies have been carried out that closely investigate the relationship between federal, state, and local government in emergency management, and the services provided by various offices entrusted with fulfilling government's mandate through intergovernmental relationships and also through the vast network of contractors and partnerships. For instance, Wolensky and Miller (1981) focus on the management challenges of local government to switch from everyday emergencies to larger disasters and the impact this switch has on the relationship between the public and government. Another popular research topic is the challenge of communication and coordination in federalism (e.g., Schneider, 1990; Schneider, 2005; Griffin, 2006; Birkland & Waterman, 2008).

Carrying out various studies on the breakdown of the intergovernmental framework in the disaster management response to Hurricane Katrina in 2005 and how the public expects government to work, Schneider (2008) examines the intended bottom-up disaster response system based on the mechanism of pulling resources from higher levels as needed. She identifies breakdowns at all levels of government, but specifically the local and state levels being overwhelmed to a degree that

[s]ome federal officials in the field immediately realized the severity of the situation and the need for a more proactive stance by the national government and took it upon themselves to initiate a top-down, push system as quickly as possible. But, this required working outside the normal channels. (p. 724)

Schneider (2008) further explains that some of the confusion of roles and responsibilities resulted because elements of the new National Response Plan introduced in early 2005 had not been tested before. Although the scale and severity of the event should have triggered a federal lead, “many federal officials continued to act as if the bottom-up system were still in place – even after it was superseded by the push process for an incident of national significance” (Schneider, 2008, p. 725). Schneider also points out the public’s expectation that federal government would step in and take leadership in such an event, as is reflected in the new provisions of the National Response Plan.

Birkland and Watermann (2008) follow up on this and further examine whether federalism itself or other factors were the primary reason for failure during the Hurricane Katrina response. They come to the conclusion that not federalism per se but the style of federalism was responsible. They also predict that the replacement of the National Response Plan with the National Response Framework (NRF), and with this also the removal of the terminology of “an incident of national significance,” would not be helpful in clarifying roles and responsibilities. At the same time, the NRF reaffirms the federal centralization of disaster management under the umbrella of homeland security. Birkland and Waterman (2008) are concerned that

[i]f the federal government continues to dominate, state and local capacity could very well be eroded, as it was in Katrina, where capacity to plan for and respond to a Katrina-sized storm was not built in large part because of the federal government’s reassignment of resources from natural disaster preparedness to homeland security “needs.” (p. 710)

These studies on the intergovernmental relationship in disaster management expose fundamental issues of constitutionality, the need for clarity of roles and responsibilities, as well as a greater understanding of capacity limitations at different levels. Precisely because local capacities are overwhelmed as per the definition of a disaster, the necessary shift from a bottom-up management needs to be understood in the context of the trend of federal centralization to meet the challenges.

Ward et al. (2000) carried out a study of FEMA in 2000, which examined the development and use of IT in relation to organizational and network theories. They concluded, “While upper management’s priorities changed, and led to changes in both IT and network development, the changes that occurred were grounded on upper management’s retention of centralization of decision making, and maintenance of existing hierarchical control” (Ward et al., 2000, p. 1030). So, rather than being driven forward by the network’s own internal dynamics and possibly challenging the old hierarchical command and control system, the organization appears to be able to maintain that organizational structure while, at the same time, building and expanding extensive horizontal networks and managing to integrate both.

Others who have reviewed FEMA's network relationships have come to a different conclusion. Notably, studies on FEMA's use of contractors (Lakoff, 2010; Roberts, 2010; Rademacher, 2011) have concluded with findings of receding government control and mounting evidence of a hollow state. Milward and Provan (2000) describe the hollow state as follows:

In a general sense, the hollow state refers to any joint production situation where a governmental agency relies on others (firms, nonprofits, or other government agencies) to jointly deliver public services. Carried to extreme, it refers to a government that as a matter of public policy has chosen to contract out all its production capability to third parties, perhaps retaining only a systems integration function that is responsible for negotiating, monitoring, and evaluating contracts. Obviously, a great deal of territory is between these two extremes, but while hollowness varies from case to case, the central task of the hollow state does not – this is to arrange networks rather than to carry out the traditional task of government, which is to manage hierarchies. (p. 362)

As FEMA is adapting to a range of new challenges with new policy maneuvers, whose implementation depends on expanded networks, its internal system seems – despite repeated concerns of the Office of the Inspector General (DHS, 2009) – to increasingly rely on actors in its network to also carry out core government functions (Rademacher, 2011). This appears to indicate a step back from a function of network administrator and integrator with unequivocal command and control, toward increasing delegated authority to other network partners. Kettl (2000) found that, with government increasingly managing contractors instead of delivering services directly, profound issues of oversight and accountability arise. In the context of this discussion on the Whole Community, one could argue that what was observed in terms of creating a hollow state in those studies is at the same time evidence of an evolution toward governing by network. Further empirical research is needed to better understand FEMA's organizational development, specifically on the question of whether command and control can be sustained as governing by network expands.

All of these empirical studies are pieces in a mosaic that, altogether, are starting to create a picture of the complex and constantly evolving structure of government in delivering disaster management services and goods. They confirm theories of the traditional vertical intergovernmental system for disaster management but, at the same time, also evince government now employing various strategies of governing by network, be it through private contractors or partnerships with not-for-profit organizations. An area of research, which is still unexplored, are studies on if and how these horizontal networks are affected when government switches from the bottom-up approach of coping with every-day local emergencies to the top-down management of national disasters.

The first part of this academic segment offered a brief summary of key theoretical concepts and findings of empirical research relevant to analyzing any governance structure for emergency management and included some considerations for governing by network specifically. Insights gained from this review are used below for a discussion on what governance issues are likely to arise from the adoption of the Whole Community approach.

Discussion

How can these theories and findings of empirical research inform the policy process that is currently ongoing with the inception of the Whole Community, especially in relation to the traditional federalist principles of governance? What is the proposed governance structure of the Whole Community and what issues, if any, can be anticipated in its implementation?

In essence, the Whole Community approach is an initiative to intensify and expand society's active participation in emergency management. There is no indication in the initial policy document (FEMA, December, 2011) that this approach seeks to fundamentally alter current mechanics of governance, vertically or horizontally, as they are employed today. Rather, it suggests a significant broader participation of every individual and every group in society. However, the role of the "emergency manager" is far less clear. On the one hand, it considers the Whole Community a resource to emergency managers who are in charge of managing it. On the other hand, it demands that the public is being nurtured to eventually "lead, not follow, in identifying priorities, organizing support, implementing programs, and evaluating outcomes" (FEMA, December, 2011, p. 15). This suggests shared leadership responsibilities and areas of more delegated authority in the long term.

Horizontal versus vertical governance

While the scope and details of some of these changes are unclear, it is certain that activities through the Whole Community will place emphasis on horizontal network governance. Networks will be intensely intricate — more so than they are now — and, if plans succeed, eventually span the whole of society. To date, FEMA's networks encompass those who are part of the emergency management community (e.g., government offices, non-for-profits, and businesses that carry out emergency-related activities). The new concept foresees deeper and more active participation of individual citizens, other government offices such as schools, businesses and private associations. It will be an enormous challenge and an unprecedented task for government to manage a network at this scale and remain accountable for the implementation of government policies. It will require a different set of leadership skills, notably diplomacy, consensus building, and conflict resolution.

All levels of government will be engaged in both implementation as well as policy-shaping. This is not much different from the situation now. Policies are created at federal and state levels. As the hope of the Whole Community is to make individuals and communities more disaster-resilient, the key question is whether this will affect the governance flow from the bottom-up for everyday emergencies and top-down for national

disasters. One indicator of success for the Whole Community initiative may be if bottom-up governance can be maintained for longer, that is, if communities will be able to manage larger-scale disasters better, longer, and with less federal involvement.

One argument for the establishment of the Whole Community is that today's challenges of disaster management are such that government cannot meet them alone. In essence, it is an acknowledgement that there are limitations to government capacity. However, this is unlikely to change citizens' expectations that government should take measures to protect them from harm and provide services to marginalized populations. It also does not change how citizens will look for predictability, transparency, participation, and accountability in judging government performance. How much a move toward building the Whole Community is likely to impact those four performance indicators of good governance and, with this, citizens' expectations, is explored next.

Requirement for predictability

Predictability of government intervention is generally ensured through a system of laws and regulations (Ahrens & Rudolph, 2006). These are intended to provide information on where and how government will take responsibility. This indicator of good governance is critical in meeting the public's expectations of government assistance.

Government reports on its own activities through budgets, strategic documents, progress reports and so forth. Predictability of additional capacity that it recruits through contractors and other partners is ensured through memoranda of understanding (MOUs) or regular contracts. Information on those is publicly available. For instance, the Central Contractor Registry¹ provides information on the legal parameters to work for the government and its agencies, such as FEMA, and information on the vendors it employs. For other partnerships that are not governed by contract law, MOUs serve as a framework for cooperation at both federal and regional levels and have included other government bodies, not-for-profits, educational institutions, and a range of organizations and associations, such as the Nuclear Regulatory Commission, the Red Cross, the National Animal Health Emergency Response Corps (NAHERC), National Weather Service, Hawaii State Civil Defense, and the Hispanic Association of Colleges and Universities (HACU), to mention a few. They define a variety of relationships, from carrying out joint disaster preparedness and planning and providing training and education platforms, to the actual provision of services such as, for instance, shelters for emergency workers and animals. An MOU is generally seen as a starting point for cooperation but may also contain legally enforceable provisions, if they are equivalent and specific to those contained in a formal contract. Consequently, their enforceability varies. In this sense, the predictability of government intervention through such partnerships becomes significantly more diffused.

It appears that the move toward a Whole Community, by extending networks even further and maintaining network relationships that are largely not contract-based,

government will be increasingly challenged to fulfill its commitment of good governance in terms of displaying maximum predictability of the services it coordinates for the welfare of the public.

Requirement for transparency

Transparency is the degree of openness and information that is publicly available about government activities. Government offices at all administrative levels have statutory obligations of transparency and accountability. In terms of budgets and funding, FEMA, like any other federal office, is required to comply with provisions of the Federal Funding Accountability and Transparency Act of 2006, and disclose to the public information on federal awards of financial assistance and expenditures². There are other statutes that require government offices to report on their activities, such as the Government Performance and Results Act (GPRA). States have similar statutes for reporting requirements.

Various studies carried out by the Government Accountability Office (GAO) have found challenges in information sharing among federal, state, and local participants in the implementation of FEMA's public assistance programs and the tracking of the status of projects (GAO, 2008). Given these intergovernmental issues of information sharing, the question then arises in how far it will and can be the responsibility of government as network administrator to ensure transparency throughout the Whole Community network. For example, will FEMA or other state and local offices of emergency management be required to report on the progress of schools in their jurisdiction to integrate emergency management topics into their curricula, or does FEMA need to ensure that the public receives information on the relief assistance of faith-based organizations? If it is agreed that government does not carry direct responsibility for the information flow among its network partners and the public at large and for any activities that it does not carry out itself, how can transparent governance in emergency management be guaranteed? Could social network sites fill that gap? Who vets the accuracy of information posted there? Could the self-reporting of all network partners be sufficient to meet the requirement of transparency? Can there be a reporting requirement when it does not involve the spending of taxpayers' dollars? These are critical policy questions, which will need to be answered to ensure that government can meet its obligations in relation to transparency of government activities toward the public.

At the moment, government has statutory obligations to comply with specific transparency rules and regulations for its own activities. This encompasses those activities it performs through contractors and vendors. However, these laws do not apply to other relationships in an "informal" network. Therefore, the Whole Community concept will require a careful review to satisfy the public's right to transparency and the government's obligation to comply with transparency laws.

Requirement for participation

Broad participation is the bedrock of democratic governance. In the field of disaster management, federal government has progressively expanded its partnerships and opportunities for the public to participate. Initially confined to the emergency management community, it now increasingly engages private businesses and educational institutes. All these partners have different motivations and different organizational cultures. The Whole Community approach envisages broad participation to produce trust, local ownership, and responsibility for disaster management (FEMA, December, 2011), which the imposition of policy directives cannot (Ahrens & Rudolph, 2006). The more diverse and extensive a group is, the more challenges arise in coordinating activities. In this context, Ahrens and Rudolph (2006), comment:

[h]owever, in order to be truly responsive to the needs of local populations, including marginalized groups, it must involve some kind of decentralization. Decentralization is to be understood as devolution, i.e. a transfer of decision-making authority from central to local governments and must not be confused with deconcentration, merely referring to a transfer of authority within central administrative structures. (p. 215)

In essence, U.S. federalism already offers the infrastructure for decentralization required for broad societal participation that would be needed to implement participation of the Whole Community. However, local and state governments would have to take on significantly more responsibility. What capacity building would have to take place at local and state levels to enable governments to take on that role, and how would stakeholders have to be prepared to engage in this process? A number of models already exist that have been used to engage broad community participation. For instance, extensive research and best practices are available, especially in the field of community economic development, that could be drawn on. DeFilippis and Saegert's (2012) *The Community Development Reader* as well as Green and Haines's (2012) *Asset Building and Community Development* offer a wonderful collection of experiences and lessons learned with regard to community participation.

In relation to the direction of flow of governance, it really is the degree of participation that acts as the switch to change direction. The more participation and self-sufficiency there is at lower levels, the longer it will take for the governance lever to turn to the other direction, when local resources are exhausted and higher levels of government need to step in and take over, and where actors then turn into recipients of assistance.

Another key question is whether broad participation does not hinder prompt decision making, which is needed in the critical stages right before and after disaster strikes. The traditional command and control structure is designed to ensure prompt decision-making. Rosenthal (1997) concludes,

Democratic systems in particular have not been designed for this purpose. Rather, they are noted for their emphasis on formal consultations, deliberations, and sometimes-complex accountability procedures. (p. 293)

Clarification of the intended scope and mechanics for participation of the Whole Community is needed, especially vis-à-vis the function of the emergency manager in the command and control system.

Requirement for accountability

Government legitimacy derives from providing accountability to the public. Kettl (2000, pp. 494-95) raises the following questions: “How can government ensure accountability in extended service networks where administrative responsibility is widely shared and where no one is truly in charge? And how can government strengthen its ability to govern and manage while maintaining democratic accountability?” Since its creation and with its increasing use of outsourcing, FEMA has received criticism that accountability improvements are needed (DHS, 2009). This is likely to become more acute as the network it manages expands even further. Moreover, as the discussion above illustrates, predictability, transparency, and participation are indispensable prerequisites for establishing accountable government. Where those are compromised, it will be difficult to produce evidence of accountability. Inevitably and necessarily, this situation then will have to lead to the fundamental question in political science: if government cannot be accountable in this field, then what is its role and legitimacy?

In conclusion, this academic segment endeavored to provide a succinct overview of key theoretical concepts and findings of empirical research with the intent to help inform policy discussion surrounding the implementation of the Whole Community initiative. It found that increasing the delegation of responsibilities for disaster management to partners in a widespread network poses significant challenges for government. It already faces criticism for a lack of accountable government in fulfilling its mandate in emergency management. Since these issues are now identifiable and future challenges can be anticipated, as a next step it would be important to seek clarifications on concrete policy intentions for the Whole Community, particularly with respect to the expected role of government in such a network. These clarifications will be helpful in order for the community of research to be able to make focused and timely contributions to the policy discussions.

Trends and Direction in Research

As noted above, in the United States, political scientists only started showing interest in the field of disaster management some twenty years ago, following the establishment of FEMA. Since then, however, it has become a rapidly evolving interdisciplinary field. Developments on the policy front are fast moving. As explained, theoretical frameworks exist to analyze and understand the current system as well as an alternative and possibly more appropriate

governance structure for the proposed Whole Community. There is an opportunity now to provide a comprehensive analysis of these different governance models for policy makers. These could focus on where challenges in a possible transition from one system to another can be anticipated and what, if any, solutions are potentially available to alleviate these. Such an analysis would make a timely contribution to the ongoing national dialogue on the Whole Community.

Moreover, recent disasters such as Hurricane Katrina and Superstorm Sandy have brought to the attention of the public and also the research community some intricacies of the intergovernmental relationship in emergency management in terms of the process of local and state governments seeking federal assistance, the administration of direct federal assistance programs to those in need, and the introduction of new federal regulations for home owners and insurances policies and their effect on different localities, to mention a few. In a prevailing divisive climate on the role of government, and with the public paying close attention to how tax dollars are being spent, more recent and currently ongoing studies look at how local and state governments themselves can help facilitate more locally sustainable disaster management and what the effect is of federal financial assistance, including subsidies, in building long-term local disaster resilience. The findings of these studies will offer more detailed insights into current challenges and possible entry points where the Whole Community can assist and help address government limitations.

In order to meet the growing challenges, government has to find ways to access unused or underused disaster management resources, including those that may be outside its direct control such as those in a network of partnerships. As such, the policy goals of the Whole Community are moving in the right direction. What clearly needs to take place, though, is a careful review of the emergency management governance structure and processes to support this policy. If government is not and cannot be entirely in control, it also cannot be held accountable. This has fundamental implications for government's legitimacy and mandate. Evidently, this affects the basic contract citizens have with their government. Who will be the go-to entity for the public to demand answers on efforts to protect them from harm and when a disaster response is not meeting expectations? The public will have to be more educated on who in that Whole Community network is responsible for what activity, because if the Whole Community initiative proceeds as intended, "where is FEMA?" will no longer be a fitting question to ask.

Endnotes

1 www.sam.gov

2 www.USAspending.gov

A PRACTITIONER'S PERSPECTIVE

Introduction

Emergency management is a growing field, made more prominent by recent large-scale disasters across the globe. Several examples including the attacks of September 11, 2001, the Indian Ocean Tsunami in December 2004, Hurricane Katrina in October 2005, and the March 2011 earthquake in Japan have left vivid memories of devastation. Increased access to traditional and social media coverage of horrendous suffering has piqued the interest of civic-minded citizens and organizations who desire to be a part of the tremendous undertaking that is emergency response. Their assistance and compassion are invaluable community assets that must be harnessed through all phases of disaster. Large-scale response and recovery, especially, require human capital that must reach far past the personnel and resource boundaries of government organizations. It follows naturally, then, that the federal government of the United States has begun including language in its emergency management doctrine that calls upon nongovernmental actors, other levels of government and individuals to share the increasingly arduous task and expensive burden of handling disaster.

This chapter presents the emerging federal approach of the Whole Community approach, which seeks to engage with and integrate a broader set of individuals and communities in planning for and responding to disaster. This initiative, indeed as a restatement of past calls for community disaster activism, aims at shared responsibility and the leveraging of resources outside those that belong to the government. What follows is an assessment of the approach itself as well as a brief review of relevant policies, governmental roles, and potential futures for the Whole Community initiative.

The Nature of the Issue

Whole Community calls for traditional response partners and entire communities to enact innovative partnerships to align community assets with needs and ensure increased preparedness. This section provides a foundation for subsequent discussion by examining the intent of the Whole Community approach as it is explained by the federal government. In brief, this initiative recognizes the multitude of best practices that are occurring across the country and seeks to further the goals of community engagement in disaster preparedness. This effort is recognized in the guidance document *Whole Community Approach to Emergency Management*. It states that “FEMA initiated a national dialogue on a Whole Community approach to emergency management, an approach that many communities have used for years with great success, and one which has been gathering strength in jurisdictions across the Nation” (FEMA, December, 2011). This document lists the following strategic themes: understand community complexity, recognize community capabilities and needs, foster relationships with community leaders, build and maintain

partnerships, empower local action, and leverage and strengthen social infrastructure, networks, and assets (FEMA, December, 2011). It asks emergency managers to reach deeper into communities and to reexamine the nature and scope of their relationships in an effort to engage more people. There is a specific emphasis on understanding communities with whom practitioners are not used to working. It is in these same communities that a tremendous depth of knowledge and capacity to act exists.

Relevant Federal Policies and Guidelines

In order to clarify the intent of the Whole Community approach, it is important to assess its integration into federal guidance documents. This section will outline the guidance given by Presidential Policy Directive 8 National Preparedness (PPD-8) and the related subset of federal documents that give shape to the Whole Community approach. PPD-8 directs the Assistant to the President for Homeland Security and Counterterrorism to coordinate the development of a National Preparedness Goal “that identifies the core capabilities necessary for preparedness and a national preparedness system to guide activities that will enable the Nation to achieve the goal” (DHS, September, 2011). PPD-8 calls for an “all-of-nation approach” to assessing risk and capabilities in forming an overarching goal and subsequent system for implementation. It is here that the direction exists that calls for integration of all community partners in a system of preparedness. Table 1 includes details on documents required by PPD-8 or relevant to the initiative, and their significance to the Whole Community approach.

TABLE 1: FEDERAL DOCUMENTS RELATED TO THE WHOLE COMMUNITY APPROACH

Title	Purpose	Whole Community Approach or References
National Preparedness Goal	<ul style="list-style-type: none"> ▪ Required by - PPD8 ▪ Sets forth critical mission areas, core capabilities and targets for those capabilities 	<ul style="list-style-type: none"> ▪ National preparedness is the shared responsibility of our whole community ▪ Every member contributes, including individuals, communities, the private and nonprofit sectors, faith-based organizations, Federal, state, and local governments (DHS, November, 2011)
National Preparedness System	<ul style="list-style-type: none"> ▪ Required by - PPD8 ▪ Enables the Nation to meet the National Preparedness Goal 	<ul style="list-style-type: none"> ▪ Enables a collaborative, whole community approach to national preparedness ▪ The whole community contributes to reducing the Nation’s risks (DHS, January, 2008)
National Response Framework	<ul style="list-style-type: none"> ▪ Framework required by -PPD8 ▪ Serves as a guide to how the Nation conducts all-hazards response 	<ul style="list-style-type: none"> ▪ Engaging the whole community is essential to the Nation’s success in achieving resilience and national preparedness. ▪ Effective partnership relies on engaging all elements of the whole community, as well as international partners in some cases. (DHS, 2008)

Chapter 2: Whole Community: Local, State, and Federal Relationships

<u>Title</u>	<u>Purpose</u>	<u>Whole Community Approach or References</u>
National Disaster Recovery Framework	<ul style="list-style-type: none"> ▪ Framework required by -PPD8 ▪ Serves as a guide to promote effective recovery, particularly for those incidents that are large-scale or catastrophic. 	<ul style="list-style-type: none"> ▪ Engage the whole community to achieve their objectives and increase resilience ▪ Promote the resilience, health, independence and well-being of the whole community ▪ Support the needs of the whole community and contribute to sustainability and resilience. (<i>DHS</i>, September, 2012)
Whole Community Approach to Emergency Management	<ul style="list-style-type: none"> ▪ Not required by PPD-8 	<ul style="list-style-type: none"> ▪ Formative document, sets forth principals and strategic themes (FEMA, December, 2011)

Policy Effectiveness

From the perspective of this practitioner, it is heartening to see in federal documents this language that shifts the responsibility from the response community to the whole community. At first glance, these documents reinforce the multitude of partnerships required to respond successfully to disaster. Indeed, the document *Whole Community Approach to Emergency Management* does encourage engaging with groups and associations that might not previously have had active roles in disaster planning. But this initiative offers nothing new of substance. There is no shortage of examples of past programs that called for this level of action. Project Impact, while focused more narrowly on mitigation efforts, had similar goals of collaboration: “The goal of Project Impact is to bring communities together to take actions that prepare for—and protect themselves against—natural disasters in a collaborative effort (FEMA, 1996).” Citizen-focused initiatives also expanded upon this message of broader inclusion. The mission of Citizen Corps is to “harness the power of every individual through education, training, and volunteer service to make communities safer, stronger, and better prepared to respond to the threats of terrorism, crime, public health issues, and disasters of all kinds” (About Citizen Corp, 2013). Practitioners can say with confidence that partnerships have increased and awareness among citizens is improved; but they can hardly say it is so based on these examples of government programming. Certainly, the first decade of the new millennium has given us far too many examples of disaster, which has made the public more aware. However, except for a few references to the responsibility of individuals, no enforceable mechanism has been introduced that might share the burden more generally for people to be prepared for disaster. At every level of government, partnerships have taken on new meaning as emergency managers realize the scope and breadth of risk the United States faces. Reiterating the need for such partnerships is good, but a call to action for individuals seems

to be missing. As the Whole Community initiative is a government program, it is important to assess in light of the aforementioned policies and guidelines exactly what is done on local, state, and federal levels to devolve responsibility to lower levels of government, organizations, businesses, and individuals.

Levels of Government and Whole Community Initiatives

Garnering engagement and grassroots program sustainability should be at the core of any federal program seeking devolution. The following sections detail at each of the levels of government how Whole Community concepts are used and shared with organizations more proximal to individuals as well as with individuals themselves.

Local Government

At all levels of government, there have been initiatives to involve community members and organizations in emergency preparedness efforts. Some of the most prevalent of these initiatives at the local level include programs that are often sanctioned and funded by the federal government. Project Impact and Citizen Corps are examples of federal efforts to assist state and local government in integrating the community into emergency management. Federal assistance in the form of grants has been offered to begin preparedness initiatives at the state and local levels, with the hope that these programs might become self-sustaining. One could expect that the key to successful devolution as is advocated for in Whole Community is sustainability of local programming. However, program sustainability independent of federal assistance is in question, with FEMA reporting that nearly half of the 1083 Citizens Corps Councils relied on at least 50% federal funding. Of these, 75% relied on at least 75% federal funding (Citizen Corps Council Registration and Profile Data FY 11 Report, 2012). As the inception of this grant program was in 2002, it is clear that the responsibility for funding has not transitioned to the local level. As the numbers reflect, one implication of this is that a large portion of programs is still primarily supported by federal funding. Since the goal of Whole Community is to devolve responsibility away from the federal government and toward local and grassroots involvement, this level of dependence a decade after program inception is alarming.

State Government

The NRF states, “A primary role of State government is to supplement and facilitate local efforts before, during, and after incidents NRF” (NRF, 2008). The NRF lists key roles to ensure coordination, which include the Governor, the State Emergency Manager, the State Homeland Security Advisor, State Departments, Tribes, and Tribal Leaders. The primary role, that of the Governor, serves to request federal assistance when needed, facilitates mutual aid, and controls state military assets. Generally, the more granular of associated duties are handled at the level of State Emergency Management. While the functions undertaken by the state are critical to the process of managing disasters, they are certainly less defined than those of the local or federal government (Landy, 2008). In the response to

Hurricane Katrina, for example, the States of Louisiana and Mississippi served in two critical roles: mobilizing state military and police assets, and allocating federal grant funds during recovery (Landy, 2008). Indeed, it is critical to note that the makeup and format of many state and local agencies is quite different. In each case, however, with respect to Whole Community initiatives, the state agency for emergency management serves to pass through and manage federal grant money that has historically been relied upon for implementation of programs such as Citizen Corps. Additionally, state emergency management agencies may also facilitate education and training on other federal initiatives. Program examples of this have included Citizen Corps, the Incident Command System, as well as the recent Whole Community workshops offered by states like Delaware (Delaware Citizen Corps Current Events, 2012). Thus, states have historically served to push federal initiatives to the local level; Whole Community is only one example.

Federal Government

The federal government, in the NRF, lists the following roles that it may undertake during a disaster: coordination of federal responsibilities, incident management, law enforcement, national defense and defense support of civil authorities, international coordination, and intelligence. However, the public is most aware of FEMA's efforts to assist state and local jurisdictions to respond to and recover from disaster. The federal government's role in the Whole Community initiative seems increasingly to communicate the limitations of government. Its messages encourage all levels of government, the private sector, and nonprofits to share responsibility for these response and recovery operations. This message is emerging in a multitude of places:

- In written testimony by FEMA Administrator Fugate regarding Superstorm Sandy: "FEMA recognizes that we must look to state, local, tribal, and territorial leaders, as well as the whole community, to ensure the Agency is able to help locally-driven efforts to rebuild impacted communities better and stronger than they were before Superstorm Sandy made landfall" (Superstorm Sandy: Getting the Recovery Right and the Value of Mitigation, 2013).
- From the FEMA Sandy Recovery Improvement Act of 2013 Fact Sheet: "Respect the constitutional roles and responsibilities of the different levels of government, as well as the private sector" (FEMA, February, 2013).
- From W. Craig Fugate, Administrator, in FEMA Strategic Plan: "We need to move away from the mindset that Federal and State governments are always in the lead, and build upon the strengths of our local communities and, more importantly, our citizens. We must treat individuals and communities as key assets rather than liabilities" (FEMA, February, 2011).

Even if we cannot say that the Whole Community approach has resulted in policy changes to encourage shared responsibility, it is still incumbent upon us to assess events wherein FEMA is employing this approach. One example of this is relayed in the written

testimony of FEMA Office of Response and Recovery Assistant Secretary for Response Robert Fenton, Jr., for the House Committee on Transportation and Infrastructure, Subcommittee on Economic Development, Public Buildings, and Emergency Management (California's Sacramento-San Joaquin Delta: Planning and Preparing for Hazards and Disasters, 2012). This testimony provided information on FEMA's efforts to plan for a catastrophic earthquake in California's Sacramento-San Joaquin Delta that would have devastating impact on California's water supply system. Due to the broad nature of an event and the potential nationwide impact, FEMA provided a high level of coordination and planning in cooperation with the public, private, and nonprofit sectors. This testimony does address the establishment of roles and responsibilities in the form of an MOU drafted between the local government and FEMA. This approach in a local area, given the event's potentially severe consequences, is an appropriate role for FEMA to play pre-disaster. Setting forth expectations for the local area is also fitting and thus, this level of coordination might be a solid model for the future. All too often, however, FEMA's post-disaster role is relegated to reimbursement of funds expended on a local disaster wherein better preparation could be made - or budget considerations at the state and local level should be made - in advance. With this in mind, this approach faces challenges and opportunities in reexamining the expectations for all levels of government and individual citizens.

Challenges Facing the Whole Community Initiative

There are a number of challenges that face the Whole Community initiative. Chief among these challenges is that Whole Community follows a long line of federal preparedness programming to engage individuals and communities that have been selectively successful or have withered with reduction in federal funding. Programs such as Project Impact and Citizen Corps have been subject to this phenomenon. Therefore, if a different process of implementation is not present, Whole Community initiatives may only be a trend and its inclusive language the start and stop points in the stead of true shared responsibility. Secondly, shared responsibility in the purest sense means that state and local governments as well as individuals might also see an increased fiscal role. Bearing the financial burden of preparedness and mitigation measures and disaster recovery increasingly lies at the federal level. Subtle changes, however, are ongoing that indicate that the federal government recognizes this increase as an unsustainable burden and concurs that this transfer of responsibility must take place. One example of such a shift, the Biggert-Waters Flood Insurance Reform Act of 2012, reduces federal government subsidies of select properties and permits rate increases of 25% annually until the actuarial rates are achieved (FEMA, April, 2012). This change emphasizes the responsibility of the homeowner living in a flood-prone area to insure their property and reduces the expense for government. Still, it remains to be seen that all levels of society are prepared to share an increased burden of emergency management-related expenses. It is clear that the federal government can no longer, and should no longer, be relied upon to bear the primary financial burden in so many

cases. Despite some obstacles, it is evident that the Whole Community initiative can be a springboard from which to realign roles and responsibilities in such a way that encourages preparedness, and not reliance, on the federal response.

Opportunities for the Whole Community Initiative

Many unique opportunities exist in enacting the Whole Community approach. Integrating all partners and ensuring a multitude of perspectives is an important and worthwhile challenge for every practicing emergency manager. To this end, FEMA's Whole Community approach offers a framework to use wherever this is not occurring across the country. Whole Community Approach to Emergency Management (2011) suggests methods of integration with partners across the spectrum of individuals and communities as well as public, private, and nonprofit sectors.

Overwhelmingly, many local and state governments are already coordinating with nontraditional response agencies and are partnering on projects through Voluntary Organizations Active in Disaster (VOAD), Local Emergency Planning Committees (LEPCs), and other various organizations. Excellent examples of these initiatives exist; two are listed below:

- The National Disaster Preparedness Training Center (NDPTC) at the University of Hawaii has integrated concepts of Whole Community to better train and prepares the surrounding areas. Initiatives include ensuring that underrepresented groups are treated as subject matter experts and participate in events and trainings; engaging academia and practice in strong partnerships to ensure community engagement through training and ensuring that courses serve a broad audience (University of Hawaii, n.d.).
- The Do 1 Thing program, a nonprofit in Michigan, seeks to “move individuals, families, businesses and communities to prepare for all hazards and become disaster resilient” (Do1 Thing, 2013.). It challenges individuals and families to take one-step each month that makes them more prepared for disaster. They offer materials for low literacy as well as in seven languages.

While the Whole Community initiative may prove helpful in guiding less engaged local areas to include more partners in preparedness, it provides no measureable change to the role of individuals or organizations. Still, an approach like that of the Whole Community has the opportunity to recast the players in such a way that lives up to the mantra “all disasters are local.” State and local governments must become primary stakeholders in the new approach. The federal government has moved forward in the most appropriate way; Whole Community is the *suggested approach* but they will not, and should not, lead this charge. FEMA, much admonished for the centralized planning of the early 2000s, is compelled to disperse responsibility in a more effective way. Practitioners at the state and

local levels must take heed, as this can be an evolutionary approach to emergency management but it requires them to engage differently with their communities and with their jurisdictional leadership. They will have to make the case for a local emergency management that operates with less federal in funding and for a community that engages in its own preparedness. They must be the advocates for locally sustainable programs that will not fizzle when grant funds dry up, and for the rainy day funds that support large-scale disaster response. Simultaneously, the federal government does not have the role of effecting through legislation the relationships and dialogue that occur at other levels of government. It can, however, examine its own set of legislation, policies, and programs that may not contribute to a sustainable system of emergency management that encompasses all sectors and individuals. Thus, the Whole Community approach provides an umbrella of shared responsibility under which all levels of government have an opportunity to reset and reevaluate what actually builds a strong system of emergency management.

The Future of the Whole Community Approach

Based on the integration of more inclusive language into federal guidance documents, can we say that the Whole Community might someday share the responsibilities that disasters bring? Emergency management practitioners have increasingly sought the assistance of partners from the public, private, and nonprofit sectors to prepare for emergencies. They have also done their very best to reach out to individuals in their homes. However, we know that training a small minority of interested people in emergency preparedness cannot account for the millions of others who are unprepared in their homes; to date, this focal point of disaster preparedness boasts 176,669 contacts (Citizen Corps Council Registration and Profile Data FY 11 Report, 2012). The growing federal call for Whole Community participation does strengthen preparedness at all levels, but does not go far enough in delivering policy objectives that clarify roles and responsibilities. The following section outlines a way forward for increasingly shared disaster duties.

An interesting juxtaposition has crept into the landscape of emergency management recently. Superstorm Sandy brought increasingly bold language used by partners in state and federal government. Several examples include the following:

- Maryland Governor Martin O'Malley: "If you thought maybe because the kids had the day off school you could go get haircuts or go shopping, forget it. Very intense, very dangerous storm. People will die in this storm."(O'Malley: 'People Will Die In This Storm,' Superstorm Sandy Prompts Massive Closures & Strong Warning, 2012)
- New Jersey Governor Chris Christie: "They are in harm's way, and I don't know if we can get them out.....These decisions are both stupid and selfish."(Everett, 2012)

- Gary Szatkowski, National Weather Service Forecaster : "If you are still reluctant [to evacuate], think about your loved ones.....Think about the emergency responders who will be unable to reach you when you make the panicked phone call to be rescued, and think about the rescue/recovery teams who will recover your remains if you do not survive."- (Politi, 2012)

This language stands in stark contrast to the tone used by PPD-8 and the Whole Community references. The set of PPD-8 required documents generate goodwill by staying away from the very raw and very real messages shared by the Governors and forecaster cited above. It is the job of the practicing emergency manager to examine these two forms of communication and ask if either one is more correct. The formative documents, read pre-storm, use the language of inclusion to get at a sharing of responsibilities that must take place if this nation will ever become more disaster resilient. Yet, in between these documents and the Governors' frustration, there is a widening gap due to a lack of clear risk communication.

Improving the way government communicates with the public will remove the myth of the government-centric, all-encompassing response. It is a falsity to allow citizens to believe that government can respond effectively and immediately to every individual need during emergencies, and it is the duty of the practitioner to communicate this limitation of government. Involving the entire community means involving the individual citizen in their home; and thus they also share in the roles and responsibilities. It is incumbent upon the practitioner to seize opportunities to provide awareness, education, and ownership to the public for the disaster preparedness of their communities. This can mean saying things that make people uncomfortable. It means telling the truth: preparing in their home is their responsibility, and government might not respond immediately. The most difficult thing to do in this broader effort of devolution will be to remove the backstop of federal funding on which state and local governments and citizens have come to rely. This is not to say that programs such as Individual Assistance and housing programs as offered by FEMA post-disaster should be done away with, but that instead federal funding for disaster in its entirety must be reexamined. The current model in which federal funding is offered sends a confusing message. From the federal insurance subsidies for residing in flood prone areas to the federal reimbursement for local snow removal, the current mode of communication by the existence of these very programs is that government, almost specifically federal, will bear the burden of cost. Consequently, until these changes are in place, Whole Community will stay a notional concept.

Conclusion

The federal call for Whole Community participation might strengthen relationships, but does not go far enough in delivering policy objectives that clarify roles and responsibilities. If the federal government continues to provide a wide safety net, there is little incentive to invest

in sustainable emergency management programs or for individuals to take measures to reduce vulnerability. Therefore, it is incumbent upon the federal government to eliminate the leadership role it takes in paying for local disasters, as well as local daily operations. This does not translate into eliminating federal assistance wholly, but does away with the promise that the federal government is more responsible than the affected area itself.

BRIDGING THE DIVIDE

The sections above illustrate current issues in research and practice as they pertain to the concept of FEMA's Whole Community initiative. The following explores where the two perspectives intersect. Possible ways forward to bridge the divide between research and practice are discussed with respect to areas of both similarities and differences.

Consensus

The researcher and practitioner take slightly different starting points on the subject matter. The summary of the current state of research begins with an examination of governance issues affecting the relationship between local, state, and federal government, and how those may affect the implementation of a more concrete Whole Community approach. The practitioner posits that this approach can only be realized when the federal government is not the primary organization responsible for the cycle of disaster. However, the substance of the two reviews then converges on similar topics. Issues of agreement are presented below.

Current status of Whole Community as a notional concept

Despite initial efforts to define the Whole Community concept and develop a conceptual framework, this approach still lacks a clear assignment of roles and responsibilities for the various actors. Before it can effectively reassign the responsibilities associated with emergency management, practice should look to science for how devolution can be effectively carried out. Because this approach is still highly conceptual, the language of Whole Community is not yet fully engrained in the community of practice, and routine exchanges between different levels of government are not characterized by attributes of Whole Community. Instead, the term has been inserted into a multitude of federal documents and serves as a buzzword, meant to indicate shared responsibility. However, it is unclear that change has actually been instituted that would qualify as a devolution of responsibility. This review is thus exploratory in nature but hopes to make a contribution to the ongoing policy development.

Interpretation of policy intent

Both the researcher and practitioner interpret the stated vision of shared responsibility as a deviation from the current federal-centric approach to be at the core of the policy intent. Consequently, devising policies and mechanisms to operationalize the Whole Community needs to focus on how to impel shared responsibility. This will be a difficult task considering the enormous federal financial and resource contribution to local programs through each phase of disaster as well as assistance for individuals in their homes upon which many jurisdictions rely.

Importance of a strong local role

Another place for agreement is the criticality of local emergency management for a successful implementation of the Whole Community. While the local emergency management organization generally serves as facilitator and hub for all partners involved in emergency management operations, the emergency manager can also leverage new relationships. The tenets of Whole Community support shared responsibility with businesses, civic organizations, and individuals. Further and as a component of devolution, it is incumbent upon the local emergency manager to strive for a sustainable local operation that is not overly reliant upon federal funds or federal program design.

Predictability and transparency

The issue of predictability and transparency of good governance, as discussed in detail in the academic segment, aligns with the practitioner's point for the need for clear government messages of what it can and cannot provide. As more actors are expected to share responsibility for disaster management, a clearer understanding of the limitations of government is imperative in order to identify those areas where shared responsibility is necessary. It is increasingly clear that government cannot have the sole responsibility for disaster management; but the continued funding of many aspects of government operations, expanding mandates, and individual recovery perpetuates the perception that it can. Public criticism in the immediate aftermath of a disaster is always focused on FEMA, as FEMA has set the expectation that it is ready, will respond, and will cover expenses. The best way forward, therefore, is to align public messages with the reasonable expectations of government.

These areas of agreement are significant. Apart from the recognition of the current nascent state of this new policy initiative, they highlight what should indisputably be at the heart of ongoing discussions on policy development. However, equally important are differences in perspective that provide invaluable insights into other areas, which may require further attention. They are discussed next.

Difference in Perspective

The two perspectives do not present any significant areas of conflict, likely because there is so much uncertainty surrounding the concept of the Whole Community. However, the one issue on which a divergent view emerged relates to community participation.

Managing wider participation in emergency management

The review of policy documents and research suggests that the Whole Community could lead to a wider engagement of various governmental and nongovernmental actors. Moreover, shared responsibility necessary to build a truly engaged Whole Community would require a significantly more active and deeper involvement of all, beyond only participation in trainings and exercises. At the crux of the divergence between the academic and practitioner is the consideration of the likely impact of wider involvement and whether or not

an evolved system of management to accommodate this involvement is a priority. While the academic contributor reflects on the problems that arise with organizing a governance structure to manage the work being done by the various actors, the practitioner focuses beyond the organization and on the need for individuals to assume more responsibility for themselves and their homes. Thus, the authors do not conflict in their view but offer divergent perspectives on what the priorities are for next steps toward shared responsibility: improvement of governance or devolution to a smaller government role.

The practitioner response indicates that many private sector and -nonprofit-sector actors are already engaging with emergency management. They attend meetings and exercises, and participate in community-based activities to increase emergency preparedness. Furthermore, many of these organizations are already engaged in disaster activities at the Emergency Operations Center and at the response level as well. Therefore, the question then arises regarding who else the Whole Community actually intends to engage at the local level, and what engagement really means. It appears that, if local emergency management already engages governmental and nongovernmental organizations in trainings, exercises, and other events, and if the nature and scope of that engagement is considered sufficient to create the intended shared responsibility of the Whole Community, it is then primarily the household and individuals who are not yet included. While the latter are referenced in policy documents on the Whole Community, the role and level of engagement that is envisaged for them is unclear.

In addition, on the issue of governance and pointing the way forward, the researcher understands the proposed Whole Community to be based on governing by network. However, this is not the perspective of the practitioner, who concludes that the documents outlining the Whole Community give little reason to believe that the federal government intends to manage directly or be accountable for the work of individuals, nonprofits, or other organizations. As explained above, clarification on the pursuit of shared responsibility is needed in order to understand whether the current management structure is adequate to support such a policy shift and government is able to manage and maintain accountability for disaster management activities of the Whole Community, or if a different style of management, such as governing by network, may be more appropriate.

Additional Topics Addressed

The practitioner mentions a few concerns that are not covered in the academic review. In presenting them below, additional empirical research is introduced here in response.

Information, awareness, and participation

A number of researchers, for instance Green and Haines (2012), Paton (2005), and Paton, McClure and Burgelt (2006), explain how community behavior is not changed by merely providing more information or by simply creating participation opportunities. Community engagement is a result of a range of opportunities and diverse motivating factors.

Community development initiatives over the past fifty years have accumulated an extensive body of evidence on this topic. If the Whole Community approach envisaged for individuals and local communities to take more responsibility is based on more information and participation opportunities alone, it is unlikely to succeed on that basis. In fact, as pointed out by the practitioner, several similar programs that preceded the Whole Community, such as Project Impact, Citizen Corps, and the Ready Campaign, have sought additional community engagement and have not had tremendous success using federal funding or federal program design. These programs either have gone away with removal of federal funding, or have not been able to garner large-scale public participation. Thus, if the offering of participation does not incent responsibility, it is important to consider what does.

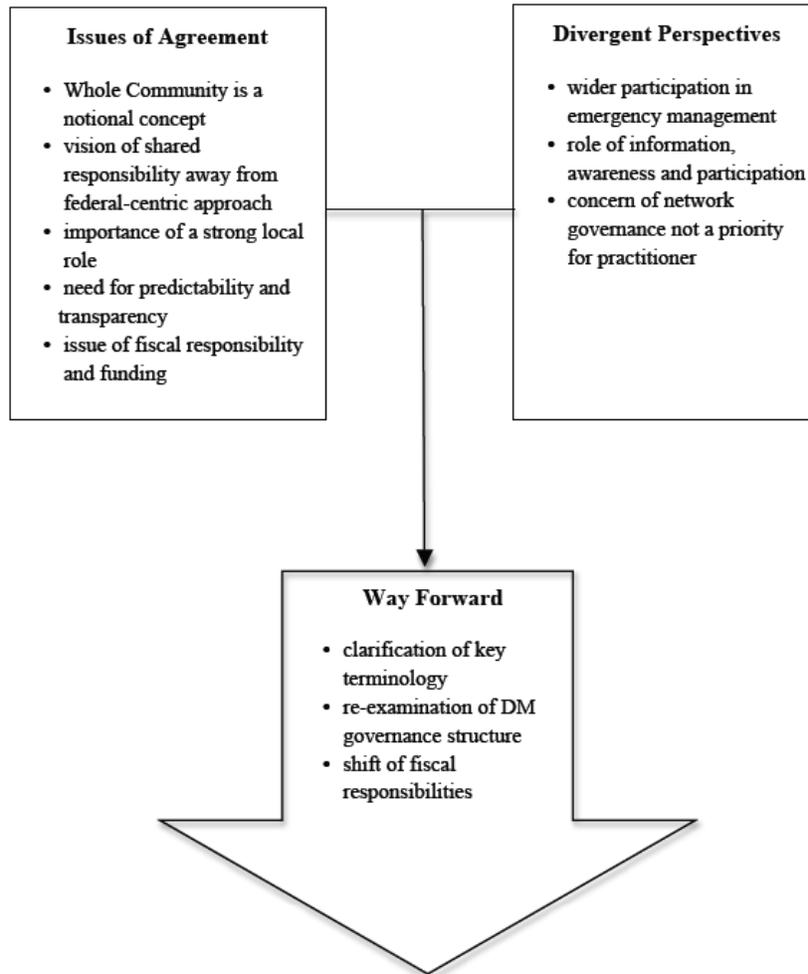
Issue of fiscal responsibilities and funding

The issue of funding was raised a few times in the practitioner segment. First, it was mentioned in the context of fiscal responsibilities, which were expected to have to be devolved to lower administrative levels together with managerial responsibilities. Second, funding was mentioned in the context of operationalizing the Whole Community concept itself. Clearly, the feasibility of any new government program has to undergo a financial analysis. Shared responsibilities should also offer an opportunity to share the financial burden, which seems to be a factor in initiating the Whole Community in the first place. In discussing the way forward, the practitioner and the researcher both agree that a shift in fiscal responsibilities would be a critical element to establish shared responsibility and build a true Whole Community. This is discussed in greater detail below.

The Way Forward

Following an in-depth discussion on the perspectives presented by the practitioner and the researcher, the following section summarizes suggested ways forward for FEMA's Whole Community initiative. Figure 1 provides an overview of areas of agreement, divergent perspectives, as well as recommendations for a focus on the way forward.

FIGURE 1: THE WAY FORWARD FOR WHOLE COMMUNITY



Future Directions for Policy and Practice

What should be maintained, and what innovations should be attempted? As explained, at this point there really is no “current state of practice” with regard to the Whole Community. It is a concept that is in the process of being developed. Several state and local organizations have already employed this concept to design innovative methods for sharing the message of preparedness and garnering more community involvement. However, no clarity exists on how the federal government actually intends to reinforce this concept with operational policies to fully share responsibility. So with the exception of a few best practices, the question of what should be maintained is, for the moment, moot. However, all of the issues that have been identified by the practitioner and academic provide a road map for what should be urgently addressed in order to build a strong policy foundation. The way in which these issues have already emerged in practice through other community initiatives – such as the Ready Campaign and Citizen Corps – and what is known about them in research will then also offer a starting point for discussion on various policy options.

The Whole Community initiative has raised hopes that it would address various perceived shortcomings in the current disaster management approach. This includes an assumption that government would consider the devolution of responsibility from federal toward state and local levels. However, to date, policy documents on the Whole Community only acknowledge that challenges in disaster management are becoming increasingly complex and extensive for government to meet alone. What other shortcomings in current disaster management the Whole Community intends to address and how it is supposed to be operationalized needs to be clarified so that policy intentions and expectations in the community of practice can be squared. This includes an explanation of who should be engaged, who is not yet engaged, and what FEMA means by “engagement” in the first place. It is only once these clarifications take place that practice and science will be in a better position to support government efforts.

Overall, the practitioner and academic see two major issues that are likely to define the success of FEMA’s Whole Community initiative: (1) a re-examination of the governance structure for disaster management, as well as (2) a shift of fiscal responsibilities.

Reexamining the governance structure for disaster management

Empirical research has found that a shift takes place from a bottom-up management structure in everyday emergencies to a top-down approach in disasters. The practitioner confirms that elements of both are evident in the field. While the federal government boasts of bottom-up incident management, the entire framework of emergency management in the United States is reliant on federal funding and federal programming. Generally speaking, an initial response is conducted using local assets until such a time when resources are overwhelmed. However, federally declared disasters are growing more frequent and come with the understanding that there is a very good chance that the federal government will reimburse the state and local government for their efforts. These efforts are generally set forth in a state or local Emergency Operations Plan and, therefore, presumably lay claim to the ability of the state or local jurisdiction to conduct and fund the outlined activities. Thus, day-to-day activities depend not only on grants in the preparedness and mitigation phases but also assistance for response and recovery costs. A detailed discussion of fiscal roles is included later in this section.

Both the academic and practitioner agree that emergencies are handled at the local level by local responders and community assets and that, to some extent, there is always a local financial contribution. However, if the federal government is primary payer of between 75% and 100%, as in the case of declared disasters, then responsibility for impact ultimately rests at the federal level. If local jurisdictions use federally prescribed systems to respond, design exercises, write plans, and assign priorities, the lead is still the federal government, and the state and locals entities are implementers. Lastly, if federal grants buy equipment, supplies, protective gear, and fund personnel, then surely local jurisdictions are meeting the requirements of the grant agreements and are using federally subsidized

assets. While emergency management policy has been increasingly centralized, especially with a renewed focus on national security after 2001, local and state governments largely accept the funding and requirements that accompany policy. Thus in stating that the federal government has a lead role, we are not saying that it is carrying out the tactics of disaster response, but that instead the federal government designs and funds it: a scary scenario during a time when financial self-sustainability should be the goal of any organization.

Divergent perspectives on the prevailing governance structure in U.S. disaster management are a contested issue in the classroom, at conferences, and among those in the field. The position that efforts are still centralized, especially in the era of Whole Community, is not shared by all. This indicates that legislative and policy intent of guiding documents such as the Stafford Act, which claims decentralization and a model of federalism that is cooperative in nature, does not find clear translation in reality. Instead, an opportunistic approach to grant making and grant taking on behalf of all parties has purged cooperative federalism and produced a shortsighted, interest-based exchange (Conlan, 2006). The lack of concern for the long-term effects of permitting the federal government to act as primary payer for disaster response and recovery has resulted in contention on the perceived and observed role of different levels of government. This is an important issue in the context of the Whole Community. If there is an understanding that emergency and disaster management is a bottom-up process, then the current structure should also be fundamentally suitable for locally driven Whole Community activities. However, if it is in fact top-down and federally driven in critical situations – especially when the Whole Community needs to come together because government capacities are exhausted – important questions need to be resolved in terms of governance. While there is already a substantial body of research on this topic and certainly media coverage during large-scale events such as Hurricane Katrina and Superstorm Sandy that extensively covers the role of FEMA, further research is currently underway to examine governance issues among different levels of government.

A shift of fiscal responsibilities

Financial assistance to state and local governments comes in many forms and supports efforts throughout the phases of disaster. With respect to Whole Community, it is apparent that emergency management budgets often rely on federal sources of funding, negating the supposition of a bottom-up system. The Emergency Management Performance Grant (EMPG), the primary means by which the federal government supports a system of emergency management, offers state and local governments a 50% matching grant for personnel, equipment, training, and exercise expenses (U.S. Council of the International Association of Emergency Managers, 2012). A recent survey reports that on average, local emergency managers who responded fund 30% of their emergency management operating budgets with EMPG alone (U.S. Council of the International Association of Emergency Managers, 2012). Despite grant guidelines listing Whole Community as a program outcome, it is unclear how EMPG funding fits into the scheme of shared responsibility, given the

sizable portion of federal dollars invested into local operations (Department of Homeland Security, 2012). For instance, the fact that local and state staffing funded by EMPG grew from 5,620 to 6,416 reinforces the idea that federal financial assistance is not value added, but instead is a sustaining mechanism for state and local operations. This same survey found that 164,359 individuals “representing the whole community” benefited from EMPG funded training but lists those individuals as government, businesses, and nonprofits. Directing training toward pre-established institutions should not be boasted as a Whole Community-based outcome. While reaching new businesses and nonprofits is helpful, Whole Community should seek to expand awareness and responsibility at the most granular levels of society. EMPG is just one example of the multitude of funding available to local and state emergency management organizations through preparedness grants, which in FY 2012 totaled \$1.3 billion (Department of Homeland Security Office of the Press Secretary, 2012).

A necessary first step toward dispersing accountability across the Whole Community must be the federal government acting on its own recommendation and encouraging additional state and local programmatic and fiscal responsibility for disaster. Until such a time when the institutions charged with local disaster duties share equally in the cost burden, we cannot expect individuals and homeowners to pass them on the continuum of responsibility. Thus, before Whole Community can be established as a successful bottom-up approach to emergency management, the federal government must heed its own warnings that government – especially federal – cannot do it all. Furthermore, the many state and local emergency management offices, which fund staff and operating budgets with federal dollars, should be concerned about their ability to sustain operations in an increasingly difficult economic climate. Whole Community offers no actionable recommendation to wean state and local emergency management offices off of federal assistance. Presumably, it is the role of the state or local government to initiate a cutting-off of the fiscal and programmatic dependencies, but there is little reason to believe this will happen universally. There is also no tenet in the documents that speaks to an increased ability in the post-disaster environment for the state or local government to pay for their own recovery, nor to better fund their operation on the front end. Should this evolution away from federal dependency not occur, the Whole Community concept, as forwarded by FEMA, will be rendered null and void. Instead, because of a widening mandate to protect citizens generally, we can expect the federal government’s service provision to expand. The growth of disaster relief funding, and grant subsidies to state and local governments to conduct basic disaster efforts does not send the message that anyone should be more prepared. The public, who is both participant and customer under the Whole Community concept, sees this message reinforced not only in these programs, but also by the barrage of constant media personalities asking, “Where is FEMA to help these people?” Indeed, no one ever asks where their state or local emergency management agency is. It may be time to ask why.

Conclusion

In summary, future direction for practice, policy, and research ultimately depend on clarifications of fundamental concepts that FEMA has introduced vis-à-vis the Whole Community initiative. Key questions to operationalize the Whole Community idea, as they have emerged from this discussion between practitioner and academic, are as follows:

- Can a realignment of emergency management responsibilities shift the burden away from the federal government without a complete reworking of the system?
- What does policy that implements the Whole Community approach look like? At what level of government should policy be made?
- How can government better enable the public to participate in their own preparedness, as well as participate in community efforts?
- How can the federal government better manage private-sector partnerships in such a way that recognizes shared responsibility but maintains accountability?
- How can the requirement for accountable government be maintained in a network such as the one proposed by the Whole Community initiative?
- Will the Whole Community approach compromise a disaster management approach of command and control?
- What motivations do other segments of society not yet engaged in disaster management have to become actively involved? How do and can different levels of government motivate them?
- Can the Whole Community initiative be realized without a significant shift in fiscal responsibility to the individual, local, and state levels?

Despite its presence in federal documents, the Whole Community approach does not spell out expectations or explain how it differs from past approaches, with the exception of a language change. It seems clear, however, that there is an intention to turn away from federal-centric disaster management toward shared responsibility at all levels. How this shift will be operationalized and to what extent nontraditional response partners and individuals will take on responsibility remains to be seen. Our findings that further development of this initiative propose to (1) reexamine the governance structure for disaster management and (2) shift fiscal responsibilities offer a way forward for this potentially innovative approach. But first, the federal government must take steps toward acting on its own recommendations and encouraging additional state and local programmatic and fiscal responsibility. Only then, will shared responsibility seep to the individual level and offer the opportunity for all of us to play a role in disaster management.

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CHAPTER 3: VOLUNTEERS AND NONPROFITS IN DISASTER

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ABSTRACT

Volunteers and nonprofit organizations have an undeniable impact on expediting a community's recovery in a post-disaster time frame. The depth of experience and resource brought to bear by voluntary organizations can mean the difference between weeks and months of recovery time for communities. This chapter will examine the challenges associated with integrating volunteers and nonprofit organizations into disaster response while exploring innovations that challenge how voluntary resources are applied post-disaster. This chapter is broken into three sections: the first two are devoted to the authors' perspectives on the topic of volunteers and nonprofits in response, and the third is dedicated to understanding the areas of agreement and discord within each author's missive. In the first two sections, in addition to investigating the trends that are shaping volunteer integration in response, the authors examine the different classifications of volunteers as well as many of the challenges that currently plague their effective utilization in post-disaster situations. These issues include liability, credentialing, coordination, and the support needed to sustain a cohesive and effective voluntary response effort. The last section is devoted to discussing the areas of agreement and discord between the author's respective views on the topic. It also provides an opportunity for exploration of emerging trends affecting volunteer and nonprofit integration. The trends examined revolve around the proliferation of mobile technologies; the impact social media has had on coordination; the need for a standardized language between state, federal, and nonprofit agencies; and the opportunity that exists to create a nonprofit response and relief framework. On the surface, connecting volunteers and nonprofit agencies with unmet community needs following a disaster seems fairly straightforward; however, after an in-depth examination by the authors on the subject, it would appear that it is anything but.

AN ACADEMIC'S PERSPECTIVE

Introduction

In the aftermath of a disaster or emergency, many well-intentioned individuals arrive at the impacted scene offering help and services to anyone who may need assistance. Whether the event is natural or man-made, these individuals arrive at the scene in large numbers. A reported 12,000 volunteers arrived to help in the aftermath of the Oklahoma City bombing. An estimated 30,000 people showed up at Ground Zero after the 9999/11 attacks. Following Hurricane Katrina, over 60,000 volunteers descended upon Louisiana, Alabama, Texas, and Mississippi to offer assistance (Souza, 2009). The issue of volunteers has been well documented in disaster literature. Examples of spontaneous volunteerism can be traced as far back as the Great Chicago Fire of 1871 that destroyed nearly 20,000 buildings and 73 miles of street (Orloff, 2011). After the 1994 Kobe Japan earthquake, the number of volunteers at the scene ranged anywhere from 630,000 to 1.3 million (Orloff, 2011). Findings show that people typically react to disasters with a spirit of concern and generosity that leads to an increase of volunteer activity in the aftermath of a disaster (Trainor and Barsky, 2011; Fernandez et al., 2006; Drabek, 2013). The view on volunteers varies, depending on whom you ask. Some view volunteers as being an asset that must be better utilized. However, others tend to view volunteers as being a problem source rather than a rich resource (Drabek, 2013). Thanks in part to the extensive research and field observation conducted on how volunteers and voluntary organizations respond to disasters, there is a great deal of information that exists on both the benefits and challenges that volunteers offer. This section will provide an overview of both volunteers at the individual level as well as voluntary organizations. The section will outline both the benefits and drawbacks of volunteers and voluntary organizations and will provide suggestions on the best way to utilize individual volunteers as well as voluntary organizations. Implications for future research will also be discussed.

Individual Volunteers: An Overview

Volunteers are going to show up at a disaster scene regardless of the situation and will bring with them a number of benefits and challenges. This section focuses on the role that individual volunteers play at the disaster scene as well as both positives and negatives that these individuals bring with them. Suggestions are also provided regarding how to best incorporate these individuals in the disaster response.

There is considerable evidence that in a disaster, volunteer activity increases and remains widespread during the emergency period (Tierney et al., 2001). Emblematically, since so many individuals and organizations enter the emergency social system, the term “mass assault” was suggested by Barton to describe this initial response (Barton, 1969, in

Dynes, 1994). Fritz and Mathewson (1957) refer to these individuals as personal convergers.

In any large-scale event, there will be volunteers who range from professional and technically trained to untrained but well-meaning individuals (Britton, Moran, and Correy, 1994). Volunteers are going to converge on a disaster area, regardless of whether responders view their presence as being useful or not. Volunteer behavior may actually have increased more recently due to the use of online social media networks (Hughes et al., 2008). It is speculated that as volunteers continue to organize and promote relief through social media sites such as Facebook, Twitter, and blogging sites, the number of volunteers responding to a disaster will continue to grow (McDonald et al., 2012). Although volunteer convergence may be problematic to relief efforts, some researchers suggest that we need to view spontaneous volunteers as being a resource for proactive engagement in disaster response and recovery (Lowe and Fothergill, 2003; McDonald et al., 2012). Communities need to consider the value of emergent volunteers and make arrangements for how to utilize their resources when a disaster strikes.

Benefits of Individual Volunteers

Volunteers can be helpful for a number of different reasons. These reasons include their specific mission and strong motivation to be responsive to whatever people need, their closeness to and familiarity with the communities they serve, and access to unique resources and capabilities that can be applied directly to the types of services needed (Arroyo, 2008). Additionally, local residents and groups are in a unique position to best identify immediate needs, coordinate initial preparations, supplement the official response efforts, and contribute to local decision-making (Brennan, 2009).

Lessons learned show us that just-in-time volunteers can provide cost- and time-saving services (Orloff, 2011). In the United States, only recently has the Department of Homeland Security (DHS) extensively documented the positive roles that community and community leaders played in disaster response and the challenges they face (Orloff, 2011). Spontaneous volunteers who converge on disaster areas play a critical role in disaster response, often being first on the scene and typically trusted by victims (Fulmer et al., 2007). Volunteers can offer a significant source of timely manpower and their actions can save lives. Their services can also be used to enhance emergency staff who may be needed to perform more specialized care (Fernandez et al., 2006).

Civilians in and near the disaster area become involved in search and rescue, providing food, shelter, and comfort (Auf Der Heide, 1989). Volunteers also participate in a wide variety of tasks, such as debris clearing; collecting food, supplies, and money; and offering medical and psychological aid, among other activities (Wenger, 1991). Sometimes this aid is provided in spite of considerable risk to the providers themselves. Those living farther away send food, clothing, medical supplies, and money. Surrounding agencies send

personnel, ambulances, fire apparatus, helicopters, and other resources. These offers of assistance may come from distant locations in other parts of the country or even from foreign countries (Fritz, 1956, Auf Der Heide, 1989).

Wachtendorf and Kendra suggest that volunteers can be helpful due to the fact that they bring

certain abilities that do not exist in sufficient quantities in the established response organizations; they may already be close enough to damaged areas to provide immediate assistance; and they may provide for the flexibility that is needed when organizations confront rapidly changing conditions. (Wachtendorf and Kendra, 2004, p. 2)

Brennan (2009) explains that local volunteers are particularly important because in many cases they are the first responders and have the greatest chance to save lives and provide support in the hours and days immediately after disaster occurrences. The majority of individuals are rescued within the first three days of a building collapse. There are cases (such as the 1985 Mexico City Earthquake) in which victims were pulled out of collapsed buildings and rescued by bystanders and volunteers (Fernandez et al., 2006).

Negative Impacts of Individual Volunteers

Although they serve many useful roles in a disaster's aftermath, volunteers are often seen as presenting a challenge to relief workers. Some challenges that go along with individual volunteers are that they lack of training and they can be a drain on resources. Additionally, volunteers can be viewed as a legal liability and they pose questions about reliability, as their skill level is often unknown. When volunteers arrive uninvited, unprepared to sustain themselves, and with no experience to work in an emergency, they drain resources that could better be used for the actual victims themselves (Aleccia, 2010). Souza (2009) explains that well-intentioned volunteers can be seen as being both a blessing and a curse. They are a blessing because they offer much-needed assistance in a timely manner following a disaster. However, the downside to volunteers can be the fact that they distract first responders who are worried about their safety. They can block key roads that are used for the flow of supplies being brought to the area, and they can create massive accountability issues and administrative headaches. Kendra and Wachtendorf describe that the desire of unaffiliated volunteers to help does not often coincide with their ability to be integrated into the response setting. Since they are not associated with a formal organization responding to the disaster, they often have a very hard time participating in the response (2001).

Volunteers are also perceived as a liability to response activity by professionals at the disaster scene. In the aftermath of the 9/11 terrorist attacks, formal organizations on the scene explained that volunteers were viewed as a liability because those in charge were

unaware of their credentials (Barsky et al., 2007). As a result, they could not properly utilize their skills and instead had to worry about making sure these volunteers did not harm themselves or others involved in the disaster response. Additionally, volunteers who came to the scene often did not have the appropriate equipment that was needed to guarantee their safety on the scene (Barsky et al., 2007). For example, personnel on the debris pile at the World Trade Center attack required protective eyewear and filter masks. Volunteers at the scene did not always have this equipment with them (Fernandez et al., 2006).

Auf Der Heide (1989) explains that because volunteers lack familiarity with organizational routines or operating procedures, organizations may experience difficulties coordinating the efforts of volunteer workers with their own efforts. The skill levels of volunteers are often unknown. Wachtendorf and Kendra describe this lack of familiarity in their work on the 9/11 World Trade Center response:

Many volunteers were without immediately applicable skills, training, or connection to the recognized emergency management apparatus. They wanted to help, too, but it was their lack of identifiable, relevant capabilities, lack of legitimacy or connection to an organization from which they could borrow legitimacy, and probable lack of familiarity with emergency operations which rendered problematic their ties to the response milieu.(Kendra and Wachtendorf, 2001, p. 9)

When it comes to volunteers, the challenge is to merge their desire to help with the need of responders to do their jobs (Points of Light Foundation, 2004). This dual view of volunteers being both a utility and a liability can pose a paradox to relief workers. Wenger (1991) explains the practical implications of this paradox when he suggests that, in response to this situation, “there is an unfortunate tendency for established emergency organizations to view volunteers and extending organizations as problems that must be managed and controlled. All volunteers become lumped together as ‘spectators’ and are viewed as a problem that must be handled” (p. 12). Although individuals are always willing to volunteer, they cannot always be utilized effectively during a response because they lack formal training. Additionally, the numbers of volunteers who converge on an area are often too great for traditional responders to try to manage in addition to the other tasks they are required to complete.

There is no single correct answer for how to best utilize volunteers in disaster response. However, this is an important issue that needs to be addressed when it comes to responding to a disaster. As Orloff explains, “the gap between those who hold important knowledge at the local level, individuals who are willing to help, and those with professional resources and training must be bridged in order to improve disaster response” (2011). Volunteer management plans must be based on valid assumptions about what individuals are *likely* to do, rather than what one hopes they will do (Drabek and McEntire, 2003).

Voluntary Organizations

In addition to individual volunteers, it is also important to understand the role that voluntary organizations play at the disaster scene. Due to their unique position and their familiarity and preexisting relationships with the local community, voluntary organizations play a crucial role in the aftermath of a disaster event. This section focuses on the role of nonprofit, grassroots, and faith-based organizations in the aftermath of a disaster.

Suggestions have been made as to how to best utilize local organizations. One suggestion that is discussed is the need for preexisting relationships to be established prior to a disaster-taking place. Through preexisting relationships, formal organizations can become familiar with local agencies. This can allow the community to best designate volunteers based on the needs of the community and the specific skill-sets required.

A great number of voluntary nonprofit organizations, community service groups, and religious organizations provide assistance in the aftermath of a disaster or an emergency. The Federal Emergency Management Agency (FEMA) has placed voluntary agencies at both the beginning and end of their sequence of delivery, making them central to a community's recovery. When a disaster or emergency occurs, government emergency management officials usually cannot be sure how much post-disaster help voluntary organizations are able to provide. In times of disaster, the first seventy-two hours are critical. However, bringing in outside assistance during this period is often difficult. Because of this, the most effective response tends to come from organizations that are already on the scene (Carafano et al., 2007). Often, voluntary organizations augment government disaster assistance and furnish outstanding help to both disaster victims and responders (Sylves, 2008). Many voluntary nonprofit organizations are involved in disaster mitigation, preparedness, response, and recovery efforts (Sylves, 2008).

Faith-based organizations are also in a unique position to provide extensive amounts of support during a disaster, primarily because of the relationships these organizations have with the community prior to the disaster (Carafano et al., 2007). Religious organizations have historically provided considerable disaster assistance to victims, particularly by distributing food, medical supplies, and temporary shelter (Sylves, 2008). Organized volunteer resource groups come in a great variety of forms. Some fifty-one Voluntary Organizations Active in Disaster (VOADs) operate on the national level. By joining together before disasters strike, member organizations are more likely to provide effective disaster aid with less duplication. Once disasters occur, the National VOAD (NVOAD) or an affiliated state VOAD encourages members and other voluntary agencies to convene at the site of the event and coordinate their efforts (Sylves, 2008).

The importance of local grassroots organizations became clear in the aftermath of Hurricane Katrina, when national organizations were unable to arrive on the scene during the crucial seventy-two-hour time period following the hurricane. Because organizations at

the federal level lacked a situational awareness of the needs of the local community and the ability to respond immediately, the local community provided immediate relief (Carafano et Al., 2007). However, despite this, failure to integrate volunteer groups of various types was mentioned as being one of the biggest deficiencies in the response to Hurricane Katrina (Drabek, 2013). It was argued that after Hurricane Katrina, faith-based and nongovernmental organizations were not well incorporated into the disaster response. Official responders often do not know how to manage volunteers, which can lead to confusion, chaos, and ill will between community members and official responders (Orloff, 2011). One suggestion on how to best incorporate nongovernmental and faith based organizations into the disaster response is through forming relationships prior to a disaster occurring.

Importance of Establishing Prior Relationships

Relationships with the nonprofit and private sector communities need to be established before a disaster, and both of these communities should be included during any planning activities. Local community organizations can best help with the essential process of determining the most crucial needs and resources of a community. Local government and federal agencies should work together with faith-based community organizations in order to assess needs, roles, and responsibilities prior to a disaster occurring (Carafano et al., 2007).

One of the most important parts of disaster preparedness and of the National Incident Management System (NIMS) is the classification of resources, including equipment and personnel. Having an accurate and specific list of available resources prepared in advance of any emergency allows the incident management staff to act quickly and efficiently (Wenzel, 2007). Additionally, local jurisdictions should know what their needs are pre-disaster and designate local agencies to address where to use volunteers and what skill-sets are needed. If a local jurisdiction has done its pre-planning, officials should know projected numbers of community members who are going to need shelter, food, medical care, transportation, etc. This needs projection can then be used as a guideline for what types of volunteers are needed.

In the aftermath of SuperStorm Sandy, a FEMA website devoted to volunteers who wished to help clean up the impacted area suggested that volunteers and donors team up with nonprofit partners, in order to ensure that survivors' needs were addressed in the most effective and efficient way (FEMA, 2012). It was suggested that by teaming up with organizations, individuals could better identify a specific need that a community has requested in order to best support the impacted zone. The website also pointed out the importance of patience. As problems are addressed and dealt with, response needs may change over time. This can impact volunteer needs. The cleanup is a long and tenuous process after a disaster, and various forms of aid may not be needed right away.

Sometimes it pays to wait for a period of time, before trying to help in the disaster's aftermath (FEMA, 2012).

Issues with Credentialing

Additional challenges that stem from utilizing affiliated and unaffiliated volunteers center on liability and credentialing. The current debate that exists over credentialing is that there are those who say it goes against the volunteer spirit and discourages people who want to help in the aftermath of a disaster. However, there are those who believe the efficiencies gained and the ability to control a response environment outweighs the possible negative impacts to the volunteer.

Souza points out that volunteers are underutilized because America lacks a standardization method to deal with their influx into a disaster site. Programs and procedures for skills assessment and credentialing volunteers need to be created. Many times, volunteers possess skills that can be highly relevant at the scene; however, their skills are underutilized because there is no way to document their abilities. This can lead to frustrations for both the volunteers as well as the organizations that require assistance (Souza, 2009).

To address this problem, some local agencies have developed their own unique volunteer in-processing system, commonly referred to as "volunteer reception" or "volunteer mobilization" (Souza, 2009). NVOAD puts forward a similar idea of forming volunteer reception centers to deal with those volunteers who will show up to help in a disaster's aftermath (Souza, 2009). Souza goes further to elaborate that if a national volunteer database system were put into place, volunteers would be better utilized in times of crisis (2009). If volunteers' skills and credentials were made known, they could be integrated into areas that utilized their specialized skill-sets.

Likewise, a method to screen volunteers could help determine the abilities and limitations of those who want to help. Both the American Red Cross and the Salvation Army have created internal disaster volunteer credentialing programs that should be used as models. FEMA is attempting this with its Whole Community approach to rolling out the new recovery frameworks, but the push for volunteer credentialing should come from the VOAD community, not the federal government.

Conclusion

In the aftermath of a disaster event, it is not uncommon for individuals to show up at the scene to offer assistance to those in need. Although well intentioned, individual volunteers bring with them both positive and negative aspects that can help and hinder the disaster response. Municipalities and emergency management organizations need to better

integrate volunteers in order to organize a cohesive volunteer response. One way to do this is through the use of voluntary organizations.

Through preplanning as well as preexisting relationships, local jurisdictions should know what their needs are pre-disaster and designate local agencies to address where to designate volunteers and what skill-sets are needed. The issue of volunteers and voluntary organizations in disasters is not a new issue. Rather, this is a problem that has been occurring for years and will continue in the future. The impact of social media on disaster response may actually lead to an increase in volunteer behavior in the future. This chapter attempts to examine the issues that go along with individual volunteers as well as voluntary organizations, such as the importance of preexisting relationships and the positives and negatives that go along with the question of whether volunteers should receive credentials. There is no single correct answer to respond to the question of the most effective way to utilize volunteers and voluntary organizations. However, by creating a dialogue, this chapter attempts to steer the conversation on volunteers and the way these individuals continue to be perceived today as well as encourage future conversations on this issue.

A PRACTITIONER'S PERSPECTIVE

INTRODUCTION

Volunteers and nonprofit organizations have an undeniable impact on expediting a community's recovery in a post-disaster time frame. The depth of experience and resource brought to bear by voluntary organizations can mean the difference between weeks and months of recovery time for communities impacted by disaster. Because VOADs almost exclusively rely on volunteers to achieve their disaster-related mandates, understanding the challenges in effective volunteer utilization is key to creating better-prepared and ultimately more resilient communities.

This section will examine several issues impacting volunteers and voluntary organizations active in response and recovery, beginning with an overview of the voluntary response framework to describe the environment in which these issues exist. Building on that understanding, an overview of volunteerism in disasters will be provided. Challenges in utilization and support needed to sustain a voluntary effort will also be examined. The subject of coordination in response will be analyzed: what models are currently employed, and how the proliferation of new technological platforms is working to divide the response community instead of bring it together.

Volunteers and the organizations that exist to support their activities are cornerstones of response efforts. These groups power numerous aspects of community-based response and provide continuity as a community progresses from response into long-term recovery. Understanding the hurdles that prevent maximizing efficiency and impact will enhance a community's ability to leverage these resources when they need them most.

Voluntary Response Framework

At the ground level, there are community and faith-based organizations that form relationships and provide resources that provide relief efforts from response to recovery. Because local organizations form the foundation upon which long-term recovery is based, the strength and cohesiveness of their relationships are factors in the speed, organization, and efficiency of response and recovery efforts. When this network of community and faith-based groups comes together with the expressed purpose of addressing preparedness, resiliency, relief, and recovery efforts in their community, they are referred to as a Regional VOAD or COAD (Community Organizations Active in Disaster). While COAD growth is beginning to spike, there are still many individuals and groups who are not represented in these local networks. These unaffiliated entities present challenges and opportunities for continued COAD growth but remain a source frustration to emergency management due to their fluid nature and lack of understanding of established response procedures.

Working above Regional VOADs/COADs are state VOADs, consisting of nonprofits and faith-based organizations that have representation or affiliates in multiple counties across a state or territory. State VOADs usually have close relationships with state emergency management agencies and, depending on their strength and experience, can play an important role in the timely dissemination of information to agencies and organizations at the onset of response efforts. It is important to note, as it is a source of confusion for many, that VOADs are not operational entities—they are convening bodies whose purpose is to promote coordination and the sharing of knowledge to increase operational awareness.

Above state VOADs exists NVOADNVOADNVOADNVOAD, which is “a nonprofit, nonpartisan, membership based organization that serves as the forum where organizations share knowledge and resources throughout the disaster cycle—preparation, response and recovery—to help disaster survivors and their communities” (National VOAD, 2013). Under this umbrella fall many of the national response organizations that consistently have operational assets in the field following disasters across the country. Due to their experience and history of responding to disasters, they represent the platform on which many of the volunteer opportunities in response exist. These organizations include the American Red Cross, All Hands Volunteers, Nechama, the Jewish Response to Disaster, Southern Baptists Convention on Disaster Relief, etc.

In an effort to promote a better-coordinated and more cohesive approach to response and recovery within its membership, NVOAD is guided by four principles: **Coordination, Communication, Collaboration, and Cooperation** (the 4 Cs). Because much of what nationally responding organizations do falls under the National Response Framework’s Emergency Support Function (ESF) #6: Mass Care, Emergency Assistance, Housing, and Human Services Annex, the 4 Cs work to reduce the duplication of efforts following an event in order to promote a streamlined and more efficient response.

The four Cs exist as the operational ideal; however, challenges remain in realizing true interagency collaboration on the ground during response efforts. Problems arise due to competition between organizations providing similar services, differing organizational priorities, concerns over the sharing of information, and a lack of a lead coordinating body that has buy-in from all responding agencies and organizations. These challenges plague response efforts and remain some of the biggest issues needing time, attention, and consensus to ensure that response efforts are onto impacted and voluntary resources are maximized.

This networked structure, from COADs to NVOAD, is often referred to as the VOAD movement. It is designed to spur the continual progression of how organizations and agencies work together, before, during, and after disasters, to improve the sequence of delivery of voluntary resources that aid in response and recovery efforts.

Volunteers

With a basic understanding of the framework in place to support voluntary organizations active in response, this section will examine the volunteers themselves, looking at their definitions and classifications, issues surrounding their utilization, and the support needed to sustain a voluntary response effort. Before examining the challenges associated with volunteers in disaster response and the level of support needed to provide an environment where voluntary resources can best be put to use, being able to differentiate between the types of volunteers and the connotations connected with each is important.

According to the -NVOAD-endorsed document *Managing Spontaneous Volunteers in Times of Disaster: The Synergy of Structure and Good Intentions* (Volunteer Management Committee, 2008), there are two categories of volunteers: affiliated and unaffiliated. Affiliated volunteers are

[a]ttached to a recognized voluntary or nonprofit organization and are trained for specific disaster response activities. Their relationship with the organization precedes the immediate disaster, and they are invited by that organization to become involved in a particular aspect of emergency management.

Conversely, unaffiliated volunteers, also known as emergent, convergent, or spontaneous unaffiliated volunteers (SUVs), are defined as

[i]ndividuals who offer to help or self-deploy to assist in emergency situations without fully coordinating their activities with emergency management at the local, state, territorial/tribal nations, or federal levels. They are considered “unaffiliated” in that they are acting independently, as an individual or group, outside of the recognized coordination system of the impacted jurisdiction(s).

These classifications are the basis for how volunteers are viewed and utilized, and with these classifications comes a bias as to the effectiveness and impact that certain types of volunteers can have. As an example, municipalities and local emergency management sometime view SUVs negatively due to the added support needed to field them safely and effectively, whereas affiliated volunteers are accepted more readily because of the backing and support provided by the organization they are affiliated with. Issues with Volunteers

Beyond the bias that exists when comparing affiliated to unaffiliated volunteers, there are blanket issues that impact their utilization that need to be considered as part of planning conversations with emergency management.

Liability

One of the issues at the heart of the affiliation conversation is liability. Because the work most volunteers engage in following an event is cleanup and usually done on private property, the issue of liability, if a volunteer gets hurt while on-site, is a grey area that makes

many officials uncomfortable. The discomfort is due to uncertainty around important aspects of response: who is responsible for obtaining the release of liability and indemnity of the volunteer and homeowner? Who will the homeowner come to when volunteers accidentally gut a home from floor to ceiling in a house that received no damage? What if a volunteer is seriously injured while working in a home? All of these questions present significant challenges to localities faced with the daunting task of utilizing volunteers in their community's recovery following an event. Because most states have unique liability interpretations and definitions as they relate to volunteers and nonprofit organizations, putting safeguards in place that address these issues often remains a source of confusion for nonprofits and municipalities alike.

Affiliated volunteers, individuals, and groups who choose to work with a nonprofit active in response mitigate much of the concern regarding liability from a municipal perspective because it is the organization coordinating the in-field activities of those volunteers who assumes liability. Individual volunteers sign a waiver to affiliate with an established response organization, and in turn, that organization usually has some sort of release or agreement with the homeowner to engage in a defined scope of work on private property. These are the safety nets that established response organizations provide volunteers and municipalities as a matter of due diligence that reinforce the value of an affiliated volunteer over an SUV and contribute to the bias mentioned above.

Unaffiliated volunteers, because they fall outside the established framework of nonprofit response organizations, present unique challenges related to liability. With diverse backgrounds in a range of vocations and lacking any formal coordination, the unaffiliated volunteer engages in cleanup activities as affiliated volunteers do, but usually without the coverage of waivers or homeowner indemnity to protect them or the municipality from real or perceived exposure to liability/litigation.

Both affiliated and unaffiliated volunteers are a part of the response and recovery landscape. Their involvement in jumpstarting a community's recovery is integral, as they provide the needed workforce to deal with the immediate cleanup of impacted homes. The better prepared a municipality can be for the influx of affiliated and unaffiliated individuals and groups, the better they will be at channeling that goodwill toward homeowners with unmet needs.

Credentialing

Like liability, credentialing is another issue that affects the utilization of volunteers in post-disaster environments. Credentialing or "badging" refers not only to the act of marking, tagging, or background checking a volunteer as part of the affiliation process, it also refers to the process of determining the skill-sets of volunteers prior to being allowed access to an affected area. The point is to easily identify individuals who have gone through a centralized intake process as a way of gating or controlling access while trying to maximize the skill-sets

in the available pool of volunteers. In addition to gating, credentialing allows for individuals with special certifications to quickly and efficiently utilize their skill-sets, such as individuals certified to work with children working in a shelter. Credentialing however, like the 4Cs of NVOAD, is an operational ideal. Its practical application can be cumbersome and expensive, and can lead to frustrated volunteers and underutilized resources.

Often the assumption with affiliated volunteers is that they have gone through some process – training, background checks, or other such screening – to be a recognized member of the organization they are affiliated with, and as such are not the target of credentialing proponents. It is important to note, however, that even though NVOAD defines affiliated volunteers as having gone through training, each organization has its own definition for what it means to be “affiliated” and rarely does overlap exist.

Unaffiliated volunteers remain credentialing proponents’ biggest targets. The rationale for instituting a credentialing program is that SUVs could be opportunists with criminal records and could have ulterior motives for engaging in volunteer activities post-disaster. In order to protect other volunteers and a community already dealing with its recovery, credentialing is seen as an added layer of protection; the argument is that by credentialing, you know who is volunteering, and depending on how in-depth the process is, you can ascertain an individual’s criminal background.

Those who are against credentialing say that SUVs are well-meaning individuals and that badging will place unnecessary restrictions and additional bureaucracy in the way of getting help to those who need it. Some voluntary agencies worry that requiring some sort of badging or credential to volunteer will kill the volunteer spirit as well as their budgets, as running background checks can be costly. The concern is that if you place too many restrictions in the way of allowing people to help people, you are going to stamp out the desire or force people to seek an alternative means of engagement. Ultimately, this may push volunteers from established to informal groups where there is less coordination and where the issues of liability thrive. Credentialing remains one of the most divisive issues related to volunteer integration into response activities, and like liability, has no clear path toward resolution that will satisfy all parties who have ideas on the best way forward.

Support

While the above issues represent challenges to organizations and municipalities alike when it comes to ensuring the safe and productive utilization of volunteers in the field, the infrastructure and support needed to sustain an effective voluntary effort are often overlooked as part of the planning process. Volunteers give communities options, they provide manpower, resources, and hope, but they also come at a cost; in order for volunteers, affiliated or unaffiliated, to be effective, they need food, housing, tools, personal protective equipment, transportation, site leadership, constructive work, and an organized way for them to engage. Some volunteers come with a plan as to how to deal with many of

those factors, some do not; it is how a community can flex in response to these challenges that can mean the difference between a slow and uncoordinated response versus one that is cohesive and efficient. After an event, existing community resources are limited or stretched and addressing immediate needs is the priority. Volunteers who come into a community unsupported can often become reliant on the aid that organizations bring in order to sustain their individual efforts.

Affiliated volunteers have the benefit of established supply chains, organizational resources, and the institutional knowledge and leadership to know how to operate in a post-disaster environment without being an added burden on local resources. In this regard, affiliated volunteers are beneficial because they come with support and a way to plug into existing response coordination without overburdening what can be an already overburdened system.

Unaffiliated volunteers usually lack the experience, perspective, and support needed to operate in a disaster environment and usually come with the mentality that they will figure it out once they get there. Problems arise when hundreds of people think the same thing due to media coverage and the local infrastructure cannot handle the influx of people wanting to help. While all unaffiliated or spontaneous volunteers are not burdens, their lack of previous experience can lead to inefficiencies or the duplication of efforts if not managed properly.

The issues of affiliation, liability, credentialing, and support do not constitute a definitive listing of the challenges that volunteers present nonprofits and municipalities. They serve to highlight aspects that may be overlooked as they represent consistent challenges that impact the overall speed and efficiency of response efforts. Based on the framework created to organize nonprofit interaction, and an understanding of some of the issues surrounding volunteer integration into response activities, the next section will examine how coordination impacts nonprofit efficacy in the field and how the proliferation of new technological platforms is working to divide the response community instead of bring it together.

Coordination

Because there is such a strong focus on creating resilience in communities to ensure that they are better prepared to respond to disasters, communities need to focus part of their planning efforts on formalizing systems of coordination to handle the nonprofit community and their role following an event. The current methodology for dealing with nonprofit coordination is ad hoc and ends up promoting discord instead of unity among responding organizations. This discord happens because in many communities there is no centralized point of coordination supporting or directing the efforts of nonprofit organizations active in response. As a result, it is not uncommon to have several nonprofit response organizations,

both established and spontaneous, working in a community conducting cleanup activities with little communication or interagency coordination taking place.

An example of this could be seen in the nonprofit response following Superstorm Sandy. Multiple points of coordination came into existence in response to unmet needs or perceived gaps in service delivery in communities across the Mid-Atlantic region, each providing similar services, many with an in-field presence within walking distance of one another, and all using volunteers. This could be seen in Long Beach, New York; Staten Island; Coney Island; Hoboken; Lower Manhattan; etc. Additional evidence for the need to institute strong systems of coordination prior to an event could be seen in the overwhelming number of Facebook pages/groups set up to serve the same neighborhoods. Because this activity, related to volunteer coordination, existed online, trying to coordinate with these groups in the field or find who was in charge proved too much for the available resources in many communities.

The foundation of a well-orchestrated response rests on a strong coordinative entity that works to expedite recovery efforts for the municipality and those affected. Not only that, but it needs to have the flexibility to adjust to the idiosyncrasies of individual responding nonprofit organizations and grassroots pop-ups. The coordinating body should have the ability to provide a snapshot of recovery efforts for that community, including scope of known need, how much work has been completed, what organizations are engaged in recovery activities, and the ability to track and report on volunteer hours. While this can be considered a myopic view of what coordination entails, this is only within the context of volunteers and nonprofit organizations working on behalf of a community, not the response effort as a whole.

The challenge with establishing a centralized point of coordination following an event is that there is no playbook for localities. Not only that, but there is usually considerable ambiguity surrounding who the lead organization responsible for coordination should be, who can make that lead organization designation, clear definitions about roles and responsibilities, and the experience to understand what to do next. Given the push to empower communities to lead response efforts, many of these challenges are enough to overwhelm a locality, and rather than seek assistance to ensure that they grow the necessary skill-sets to be able to provide the comprehensive coordination needed, nothing is done.

While a plan or annex with a focus on volunteer coordination may exist, it is rare that at the community level there is an awareness or familiarity of it. It is because of this lack of awareness that many in the affected community take the responsibility upon themselves to do something. As a result, a combination of the following spontaneous coordination mechanisms usually results:

- **Parking Lot Coordination:** Usually an individual or group of individuals running coordination from a parking lot use a note pad filled with addresses to facilitate the launching of volunteers to affected homes.
- **Street Corner Startups:** These are groups that take a block blitz mentality and use a street corner as a staging point to funnel individuals and groups to concentrate work in a certain area.
- **Facebook Groups:** These are groups that post needs for cleanup help and/or attempt to focus resource in areas of need based on third-party information. Sometimes there is a physical manifestation of this group, other times it is used strictly as a forum for information sharing.

These spontaneous activities are good things; they are the manifestation of people trying to help people. In the absence of an inclusive, coordinated response at a municipal level, as it pertains to work needing to be done on private property, the above examples are the types of coordination that will organically materialize, kick-starting response activities and bringing communities together in solidarity to get work done. While any activity surrounding cleanup is positive in the beginning, the lack of education on how these independent efforts feed into response coordination at municipal and state levels is something that remains a challenge. Strategies need to be created and implemented for how to best communicate and integrate with these groups to get them working within a larger and more cohesive response framework.

The benefit of these spontaneous points of coordination is that they ensure that work gets done in a timely manner; however, without a broader understanding of how they are impacting the overall response, these independent efforts can have several drawbacks:

- Homeowner and volunteer liability is not taken into consideration.
- There is no tracking of work in progress or work completed.
- Volunteer hours are not tracked to be applied against any federal cost share (when applicable).
- Privacy issues surrounding information pertaining to homeowner needs are rarely handled properly.
- There is no shared lexicon; a “finished” home to one group could mean something different to another.
- It fosters an environment where the duplication of efforts and resources increases.

While these challenges persist in communities affected by disaster, working to proactively educate them can help mitigate and ease the turbulence associated with coordination in a post-disaster environment. FEMA's Whole Community doctrine, coupled with a greater emphasis being placed on preparing and educating community-based nonprofits on how to respond, will enhance the capabilities of a locality when establishing and managing response efforts. With relevant and timely training, and a greater understanding of the broader response framework, empowered communities can better leverage available tools to help coordinate: nonprofits, spontaneous points of coordination, and individual SUVs and groups.

Below are two tools that are employed by NVOAD partner organizations that have met with success coordinating activities following disasters from a voluntary, community, and faith-based perspective:

- Volunteer Reception Centers (VRCs): A physical location that acts as a funnel and refers SUVs and groups to response organizations doing the work in the field.
- Recovery Coordination Centers (RCCs): A physical location that coordinates the intake, tracking, referral, and reporting of the need for voluntary assistance in cleanup efforts on private property. Depending on the municipality, RCCs have the ability to take SUVs, affiliate them, and launch them in the field as well.

The above tools have proven track records of success in creating opportunities for integrating VOAD response into community-based activities; however, the above are not without their shortfalls.. VRCs only work if there are organizations that volunteers can be referred to—if not, then the VRC is a choke point and volunteers will circumvent it and spontaneous points of coordination will develop and proliferate. Physical VRCs also require consistent numbers for staffing, which can be a challenge from a continuity of operations standpoint during the response phase. RCCs are extremely comprehensive and require training and an understanding of the response landscape to realize their full potential—something that rarely exists on a local level because of the lack of proactive preparedness taking place.

In addition to their individual drawbacks, both of these tools need buy-in to work. If there is not a recognized need for what they can provide, they will never be fully utilized within the context of response. Think of these tools as needing a bottom-up pull from the impacted community versus a top-down push from people outside the affected area. The drawbacks to these tools can be mitigated if they are addressed prior to a locality's need for them in times of disaster, but that requires recognition of need and follow through with resources to equip and train a community.

Technology

In lieu of having the tools and knowledge of how to stand up a centralized point of coordination following an event, the nonprofit community has turned to technology to help

deal with these challenges. Thanks, in part, to hackathons and groups like “hack for change,” creating customized applications that can address some of these challenges has never been easier. The result has been an explosion of technological solutions being used by nonprofit organizations that all do a variation on a theme of workflow coordination and volunteer management. The persistent challenge is that none of the technologies being employed “talk” to one another, which limits the ability to share information in real time. Part of the efficient utilization of voluntary resources is getting and maintaining situational awareness, and when the data that creates the common operating picture exist on multiple platforms in multiple formats, the result can be delays or redundant efforts undertaken to provide services to individuals and homeowners with unmet needs.

Conclusion

While there is no doubt the engine working to expedite cleanup and recovery activities is fueled by the determination and spirit of volunteers, there are complexities that make a seemingly straightforward process of getting volunteers into the homes of those affected anything but. Because not all volunteers are created equal, designations aimed at categorizing them have been created, and as such, a robust framework has been built to support groups involved in their management. The pros and cons of affiliated versus unaffiliated volunteers are continually debated, but the fact remains that every volunteer plays a significant role in advancing a community’s recovery.

One of the biggest areas of opportunity that exists within preparedness is ensuring that communities can stand up and run points of coordination to handle the individuals and groups that flood a community following a disaster. There are tools and strategies with track records of success available; however, the challenge remains to find communities willing to switch their mindset from reactive to proactive and allocate preparedness dollars accordingly.

As a result of communities caught ill prepared to deal with the realities of response, gaps are created by a lack of systems and coordinative ability. Those gaps are filled with ad hoc technological applications and platforms masquerading as turnkey solutions for workflow coordination and volunteer management. With the proliferation of these tools, there has never been a stronger case for creating more resilient communities through preparedness programming.

The frameworks and supporting structures that have been created to help a community recover from a disaster have, in some cases, made fulfilling that simple act difficult or impossible, which is why SUVs exist. The experience, blueprints, and infrastructure to create an agreed-upon response framework to address the unique challenges that volunteers and nonprofits represent are there. If we want to expedite service delivery to those who are truly in need following a disaster, then we as practitioners need to take the time to bring accountability and the 4Cs to the forefront of the conversation and

push for a greater emphasis on creating stronger, better educated, and better prepared communities. We as practitioners need to foster and support those who are working toward creating a greater sense of resilience at a local level by working within what has already been established. If we fail to support these activities, we will be doomed to struggle through the same challenges after every disaster.

BRIDGING THE DIVIDE

The role volunteers and nonprofits play in the world of disaster response and recovery is undeniable. When effectively coordinated and efficiently utilized, voluntary and nonprofit resources can mean the difference between weeks and months of recovery for a community. However, there are a host of challenges preventing the full utilization and integration of volunteers and nonprofits into response and recovery operations. Decades of research and on-the-ground observation show that volunteers will arrive on the scene following a disaster ready to help. According to Drabek (2013,) people caught in the disaster are going to help, and in fact, many survivors end up saving the majority of lives in the immediate aftermath of an event. Yet as a community of practice, we continually experience the same challenges in trying to leverage that desire today as we did 10 years ago.

This section will cover the areas of agreement between the authors as well as address any conflict in viewpoints. Additionally, the authors will expand on areas where continued dialogue and discussion could benefit our community of practice surrounding persistent issues with volunteers and nonprofits in response.

Thanks in part to the extensive research and field observation conducted on how volunteers and nonprofits respond to disasters, a wealth of consensus exists on both the benefits and challenges that volunteers offer. As such, there are many commonalities in the views of this section's contributors, both in terms of the benefits of voluntary resources as well as the challenges associated with utilizing them. One point the authors agree on is that there are many benefits that volunteers provide. Volunteers often engage in first responder activities and therefore must be accounted for when engaged in response planning. According to Drabek (2013), during the first few hours after the Loma Prieta earthquake, residents in Santa Cruz provided food and water to survivors. Residents also reported that they removed debris or otherwise helped clean up while others assisted with search and rescue activities.

Volunteers can be helpful for a number of different reasons. These reasons include their specific mission and strong motivation to be responsive to whatever people need; their closeness to and familiarity with the communities they serve; and access to unique resources and capabilities that can be applied directly to the types of services needed (Arroyo, 2008). Local residents and groups are in a unique position to best identify immediate needs, coordinate initial preparations, supplement the official response efforts, and contribute to local decision-making (Brennan, 2009). Additionally, if used correctly, lessons learned show us that just-in-time volunteers can provide cost- and time-saving services (Orloff, 2011).

In addition, volunteers and voluntary agencies, in partnership with community stakeholders, take lead roles in cleanup, feeding, emergency sheltering, distribution of donated items, emotional and spiritual care, information dissemination, and ultimately long-

term repair and rebuild activities. The value they bring can be calculated in terms of the estimated value of the labor they have donated, how quickly a community moves from early recovery into long-term recovery, the hope and comfort they provide, and the boost they can give the local economy by buying supplies from local vendors.

Even though volunteers do what they believe is best, and often their actions have positive impacts, it is the inability of municipalities and emergency management to successfully plan for and integrate volunteers' actions that creates the consistent challenges communities face when trying to organize a cohesive volunteer response.

While both contributors agree that volunteers present ample opportunity to expedite a community's recovery, there are also significant challenges in ensuring that their time and energy is put toward a productive and well-coordinated response effort. The issues associated with volunteer and nonprofit utilization constitute many of the challenges that impact effectiveness, coordination, and the full utilization of volunteers in response. There are no clear answers to many of the issues related to volunteers and nonprofits in disasters, and it is only through open dialogue that we will find a way forward.

Both authors bring up the differences in how volunteers are classified. The distinction between the types of volunteers is examined in Horan's discussion when he points out the differences between affiliated and unaffiliated volunteers and the challenges they pose to emergency management and the nonprofit world. While each classification of volunteer embodies different challenges, the takeaway is that when those challenges are not properly addressed or planned for, they can shape the view that volunteers, regardless of their affiliation status, are a burden on an already overburdened and underfunded system.

Barsky focuses primarily on the drawbacks of unaffiliated volunteers in disasters when she states that volunteers who show up uninvited are often unprepared to sustain themselves and can potentially strain limited resources designated for survivors. They can also block critical infrastructure used in the transportation of supplies and resources into the affected area. Horan expands on this point when he explains that local infrastructure cannot always handle the influx of volunteers that come to help, thus reinforcing the need for planners to account for how volunteers will impact early recovery operations.

Part of the challenge associated with distinguishing between volunteers is illustrated when trying to establish a centralized point of coordination. This point of coordination is how early recovery cleanup activities and VOAD collaboration are managed; a volunteer's affiliation status informs the ease with which they can be utilized in the field, with affiliated volunteers being easier to manage. Horan talks about the issue of coordination being a gap that is often overlooked when it comes to applying resources to creating, testing, and implementing plans aimed at addressing challenges associated with volunteers and nonprofits during early recovery.

Additional challenges that stem from utilizing affiliated and unaffiliated volunteers center on liability and credentialing. Horan brings up the point that if volunteers come affiliated with an organization then much of the liability is shouldered by the organization overseeing their in-field activities; this is because affiliated volunteers sign liability waivers in order to participate in response activities. The coverage provided by affiliated groups makes them more attractive to municipalities looking for answers that allow the use of volunteers while meeting the needs of impacted residents.

This issue of liability is one that is brought up by both authors when talking about unaffiliated volunteers. Horan raises the point that if a volunteer gets hurt performing work on private property, discerning who the responsible party is becomes muddled—is it the property owner or the volunteer themselves? This issue of liability continues to present a major challenge for municipalities. In our overly litigious society, where coffee cups have a warning about their contents being hot, there is a real fear over having so many people engaged in dangerous cleanup activities that have potentially harmful side effects to their health. The concern from a municipal standpoint is who is responsible for an SUV when they are in someone’s basement cleaning up and they hurt themselves. If there is no homeowner indemnity release signed or other documentation that covers the volunteer or homeowner, is the volunteer covered under the Good Samaritan Law? Does their injury fall under workers’ compensation? Is it the homeowner’s insurance that has to cover it? All of these questions center on who is liable and who is paying the bill.

The question of liability is one of the reasons nonprofits who take SUVs are so valuable in the eyes of municipalities: they provide the buffer needed while still leveraging the interest of so many who want to help individuals and families recover. However, the organizations that take SUVs are not as prevalent as to fully address the SUV influx following an event, so the issue of how best to address liability remains a challenge. Because different jurisdictions have different laws governing workers’ compensation and the interpretation of Good Samaritan laws, finding a turnkey solution that provides coverage for those helping on an ad hoc basis remains elusive.

An additional challenge explored by both Barsky and Horan is the issue of credentialing and how it impacts the work that volunteers and nonprofits engage in. Barsky discusses the idea of credentials in her suggestion that a credentialing system should be put into place in order to better utilize volunteers and help with integrating them into a response. And while Horan focuses on arguments both for and against credentialing, he believes the issue is not so clear. Those for credentialing argue that volunteers could very well be opportunists with criminal records, and they could have ulterior motives for engaging in volunteer activities post-disaster. Those against credentialing focus on the concerns that the action would kill the volunteer spirit and create additional bureaucracy and expense, ultimately delaying the provision of help to those who need it.

Credentialing focuses on two aspects of control: first, access to a geographic area, and second, gating volunteers as a part of the affiliation process. During the critical hours after an event, the need to control an area so that first responder vehicles can gain access while keeping those who do not belong out is a best practice implemented by the National Guard via roadblocks and checkpoints. An extension of this is a curfew; this is another way to control the area to ensure the safety and well-being of the community. In order to gain access during these times, credentialing is often required. This comes in the form of a badge that formally ties one with an entity. The body controlling who gets access to the site varies depending on jurisdiction, but the gating mechanism is the badge or credential that National Guardsmen/police will ask for at a roadblock. This type of control through credentialing is widely adopted and accepted as a best practice.

The second part of the credentialing process, the part that pertains to the vetting of individual volunteers, is not so clear. Within this aspect of credentialing, there are two methods: just in time and credentialing through affiliation.

Just-in-time credentialing utilizes a centralized intake point for volunteer registration like a VRC. This method is largely for SUVs and is created in an effort to track individuals so there is a record of who is working in a disaster-impacted community. The logistics and coordination of setting up a credentialing point for SUVs is often beyond the scope of what a community is prepared to do and as such is rarely put in place.

Credentialing through affiliation is based on the same idea as just in time; however, it is done prior to an event through an organization. If a volunteer takes certain training courses or submits to having a background check, they can become an affiliated volunteer. Municipalities encourage this type of volunteering because those who are affiliated are seen as having more experience than the average SUV due to having gone through some formalized affiliation process.

The current debate that exists over credentialing is that there are those who say it crushes the volunteer spirit by pushing the command and control mentality on something that cannot/should not be controlled. There is also a financial consideration to take into account; background checks as a part of the affiliation process are seen as desirable so that there is a built-in gating mechanism to the volunteers who are responding. However, background checks cost money and many organizations do not have the budgets to pay to have every volunteer they train or utilize cleared. In addition to that, when a VRC is the registration point, background checks do not take place because, in addition to the cost, they take time.

The credentialing debate exists because there are those who believe the efficiencies gained and ability to control a response environment outweigh the possible negative impacts to the volunteer and the nonprofits supporting them. As such, they continue to advocate for every volunteer being given a badge and push for background checks on as

many volunteers as possible. Because of the complex and often chaotic nature of response at the local level, identifying the best way to engage in a holistic dialogue on the subject is something that continues to challenge the VOAD and response communities.

Barsky and Horan find more common ground when examining two emerging trends that have had significant impacts on the management and coordination of volunteers and nonprofits: the need for a centralized point of coordination at the community level, and how the proliferation of new technological platforms are working to divide the response community instead of bring it together. These two issues present some of the biggest challenges and opportunities in working with volunteers and nonprofits in response activities.

Because all disasters begin and end at the local level, the idea that spontaneous groups form to address perceived gaps in service delivery should not be surprising. What is surprising is the impact and reach they can have thanks to social media platforms like Facebook, Twitter, and Instagram. Neighbor helping neighbor has long been the foundation upon which volunteering after disasters is based, but now that individuals can recruit and coordinate armies of volunteers with a Facebook page, traditional ways that had been previously relied upon to aid in the coordination of volunteers are being challenged.

Social media's ubiquity has also broadened the integration of spontaneous groups into response activities. As a result, there is a greater diversity and range of understanding and familiarity with best practices for operating in a disaster response environment. Because the spectrum includes first timers and seasoned professionals, the variance that exists for if and how best practices are employed is significant.

Given that there is no frame of reference for the newly indoctrinated on standards of practice, tracking crucial information such as volunteer hours, site logs, waiver information for volunteers and homeowners, and how to handle donations, gaps in coordination are appearing that can delay service delivery and create duplication of in-field efforts. The foundation of a well-orchestrated response rests on a strong coordinative entity that works to expedite recovery efforts for the municipality and those affected. Not only that, but it needs to have the flexibility to adjust to the idiosyncrasies of individual responding nonprofit organizations and grassroots pop-ups. One of the ways to address the burgeoning growth of community-based response activities spurred by social media, as well as leveraging the skills and expertise of seasoned response actors, is to create a centralized point of coordination. The coordinating entity should have the endorsement of the impacted municipality and have the ability to provide a snapshot of recovery efforts for that community, including the scope of known need, how much work has been completed, what organizations are engaged in recovery activities, and the ability to track and report on volunteer hours.

In reaction to the lack of centralized coordination, nonprofit response organizations both established and startup look to technology to help fill the gap. Because the response community is so diverse with local and national organizations actively responding, the result is that the majority of organizations employ their own technological platform to deal with the challenges associated with workflow coordination and volunteer management. When every organization uses a different technological application to coordinate their efforts, it creates additional challenges in trying to improve interagency coordination and information sharing. The unintended result is organizations fighting to implement one technological solution over another, and it creates a division among the organizations responding instead of bringing them together.

Social media has created an opportunity for better integration between the emergent groups that form following an event and the traditional response infrastructure of VOAD and federal agencies. In exploring this opportunity, one should not overlook the fact that technology is not the answer to a cohesive and coordinated approach to response – people are. Information that lives in the cloud or on machines is only as powerful as those who have access to it. How that information translates into knowledge so people can apply it is the real challenge that social media and technology present volunteers and nonprofits.

While social media and the creation of new technological platforms are the current drivers of innovation in how volunteers and nonprofits coordinate following disaster, it does not change the reason *why* people are driven to help in the first place. Horan believes there is power in understanding the motivational aspects of *why* volunteers do what they do. The intrinsic drive that exists within volunteers to help those in need is an area he believes merits further examination. If the *why* is understood, then that information could inform the creation of stronger pre-disaster messaging that resonates with volunteers or potential volunteers to drive desired behaviors. If there is an understanding of the *why*, then targeting it and attempting to reinforce patterns of behavior that drive individuals toward responsible volunteering may be possible.

The reason to focus on how better to communicate with volunteers and voluntary agencies is due to the central role they play in response and recovery. In terms of importance, FEMA has placed voluntary agencies at both the beginning and end of their sequence of delivery, making them central to a community's recovery.¹ In addition to the importance FEMA places on volunteers and the voluntary agencies that manage them, another reason for deepening our understanding around the motivations for *why* is the potential to gain an enhanced understanding of how to better integrate spontaneous individual and group activities into the broader response architecture. While there is a considerable upside to learning from the motivations of why volunteers do what they do in order to better guide their involvement in response activities, it is important to note that volunteer involvement comes at a price. Volunteers bring energy, hope, and attention to a community needing help; they also bring with them the logistical challenges of feeding,

housing, and in-field coordination. If not properly managed, the added value of volunteers to a response can quickly become a burden on a recovering community if they are not utilized and managed effectively.

Beyond understanding the *why*, Barsky and Horan believe there are other areas to be explored within the disaster space that would have a significant impact on creating unity of effort and work to streamline the integration of volunteers and nonprofits into response activities. These areas focus on the language we use to talk about disasters and building out comparable frameworks to those utilized by our federal counterparts to bring clarity to the roles and responsibilities of nonprofits engaged in response.

Within the world of disaster response, there is one language that governs how state and federal entities operate: NIMS, a system used as the basis for standardized response and an attempt at creating consistency in vocabulary, methodologies, and structure in managing crises. Contained within NIMS are systems and frameworks that manage a variety of functionalities: the Incident Command System (ICS), the Multi-Agency Coordination (MAC) System, and the Public Information System. These systems exist to manage the extensive list of state and federal entities involved in response activities. However, in all of those systems and frameworks there is nothing that the VOADs utilize that is comparable in scope or intent.

VOADs and individual volunteers have their own lexicon to define how they operate. This lack of common operating language extends to practitioners and academics as well. The result of this multisystem environment where a common operating language does not exist does more to divide than unify response efforts across state and federal boundaries. This division works against the idea of a unified command structure and promotes inconsistency in the reporting of needs and impacts, and often service delivery can be affected. The lack of common definitions and language increases the likelihood of duplicative efforts and services being offered on the ground.

Both Horan and Barsky believe that there is an opportunity to create a unified vocabulary that transcends federal and state boundaries that carries over into the VOAD world. This integration could extend to other aspects of response and recovery, but a starting point that would work to foster a more comprehensive operating picture would be to implement a common language that supports it.

In addition to moving toward a common operating vocabulary, there is another opportunity that Barsky and Horan have identified that will move nonprofits toward greater efficiencies in conducting response activities. Barsky and Horan believe there should be a unifying framework similar to that of the federal government that provides consistency and oversight to nonprofit operations in response.

There are frameworks that dictate how federal agencies coordinate with one another during response and recovery: the National Response Framework (NRF), the *National Disaster Recovery Framework* (NDRF), Presidential Policy Directive-8 (PPD-8), the National Preparedness Goal (NPG), etc. These frameworks set and manage expectations and standards of service delivery among federal agencies in both a proactive and reactive state. These frameworks outline the working relationships between local, state, and federal entities and the practices that dictate their operational interactions. If we remember the importance put on VOAD involvement by FEMA in their sequence of delivery, why has a similar framework within the nonprofit response world not been created?

Equally diverse and responsible for a great deal of response and recovery activity, the nonprofit/VOAD world remains inconsistent in its service delivery, which ultimately impacts the degree of accountability responding individuals and groups can be held to. A unifying national nonprofit response and recovery framework would establish roles and responsibilities and it would address the lack of a common coordinating structure missing in most response operations. It would also work to bolster accountability within the nonprofit world, ensuring that all organizations act in accordance with an agreed-upon standard related to any number of important issues: enhancing community resilience, standardized metrics around reporting impacts, proper use utilization of volunteers, etc.

This idea may never be implemented due to the hurdles that it would need to clear. The difference between the state and federal frameworks and their implementation is that dollars can be withheld if a state does not comply with the statutes outlined in the federal frameworks. In the VOAD world, because funding streams are largely derived from private donations, getting the necessary buy-in from responding organizations will prove challenging, if not impossible. We say this because each organization is beholden to their donors, and if a framework is written in a way that some groups do not agree with, they will operate outside of that framework with little to no negative operational impacts.

This chapter serves as a way for academics and practitioners to come together to focus on the very important, timely, and continuing challenges and opportunities that volunteers and nonprofits represent in the world of disaster response. Together the authors identified considerable areas of overlap and agreement, issues where conflicting views exist, and areas that are in need of further discussion and exploration. Horan makes the point that a greater emphasis needs to be placed on creating stronger, better educated, and better-prepared communities. Barsky agrees with this point and believes that through dialogue and by working together we can better prepare and educate communities, as well as come up with suggestions and recommendations on how to better implement and utilize volunteers and volunteer organizations.

The power and value of the volunteer and voluntary agencies are not the issues; it is harnessing that power while safely and effectively putting it to productive use that remains

the challenge. It is understanding the reasons why people do what they do so that a better job can be done in proactively engaging them prior to the next event. It is learning how to create a better and more universally accepted framework that extends beyond traditional state and federal boundaries to include the nonprofit sector. It is the recognition that there are still issues out there that do not have answers. The lack of clarity around the best way forward as it relates to these key issues means that this is very much a dialogue where new ideas and innovation can steer the conversation and direction of the evolution of volunteers in response. For as much as nationally responding organizations and groups are drivers in the disaster sector, the response and recovery of a community following an event is still and will continue to be championed by those at the local level.

Endnotes

¹ http://www.in.gov/dhs/files/IHP_Flowchart_FY09.pdf

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CHAPTER 4: PUBLIC/PRIVATE PARTNERSHIPS IN EMERGENCY MANAGEMENT

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ABSTRACT

The first section of this chapter focuses on past and ongoing efforts within the United States to develop and sustain noncontractual public/private partnerships (PPPs) to support all phases of Comprehensive Emergency Management (CEM): mitigation, preparedness, response, and recovery in the context of all hazard events. Background information, dating back to the early 1990s, is provided to emphasize the generally widely held realization that these partnerships are essential to community-level CEM. This information is updated with more current and ongoing efforts to develop and support PPPs through field-level and academic research that identifies the motivations for, barriers to, and best practices for PPPs at the community level. Descriptions and contributions of the Michigan State University, Critical Incident Protocol – *Community Facilitation Program*; the National Research Council Workshops on Private-Public Sector Collaboration to Enhance Community Disaster Resilience; the National Academies of Science research report *Disaster Resilience: A National Imperative*; and the National Incident Management Systems and Advanced Technologies (NIMSAT) Institute at the University of Louisiana Lafayette research report *The Compendium of Public-Private Partnerships for Emergency Management* are provided to highlight progress and to suggest a path forward to develop and sustain meaningful PPPs.

The second part of the chapter focuses on practical experience. There are only a couple of absolutes in the disaster business: (1) government is responsible for the majority of the preparation and response, and (2) recovery rests in large part with the private sector. The private sector owns and operates nearly 85% of the critical infrastructure in the United States, and holds significant responsibility for economic restoration following a disaster. Emergency management organizations and the private sector have to share information and work collaboratively to truly be prepared to recover after a major disaster. There are models of this occurring within the last decade all over the United States, but for so long, so many of these examples of integration have been fragmented throughout the Homeland Security and Emergency Management infrastructure that they have overlooked large segments of the private sector and fallen woefully short of a true partnership. In this chapter, the authors attempt to shine a light on both the academic and practitioner points of view for where PPPs are, and where they are going. This chapter provides insight into current common practices in the community and walks the tight rope of public and private interests during disasters.

AN ACADEMIC'S PERSPECTIVE

Introduction

This section focuses on past and ongoing efforts within the United States to develop and sustain non-contractual¹ PPPs to support all phases of CEM²: mitigation, preparedness, response, and recovery in the context of all hazard events. Such events do not necessarily need to be catastrophic in nature to require a unified effort involving both the government at all levels and the private sector, including not-for-profit organizations, working together to develop, maintain, and employ CEM strategies, capabilities, and capacities to the benefit of their communities. Since the creation of the U.S. Federal Emergency Management Agency (FEMA) in 1979 and in the years before, the private sector has been recognized as a necessary partner in CEM from the community level to the federal level of government.

Despite this recognition, the vast majority of literature and authoritative direction describing these partnerships has been primarily prescriptive rather than descriptive in content. The necessity for partnerships is continuously stated in government policy directives, yet descriptive frameworks, best practices, and lessons learned for public/private partnerships based upon empirical research are comparatively few in number. This section includes both the prescriptive policy guidance for partnerships, with a summary of past and current research efforts to describe frameworks, best practices, and lessons learned and recommendations for further research.

Background

All hazards, be they natural, technological, or purposely human-induced, have the potential to impact the entire community and generally demand unity of effort to include private-sector organizations working with all levels of government. The private sector is the lifeblood of communities, providing employment, services and products, and tax revenue. In turn, the private sector depends on resources and support from the whole community to remain in business and to prosper. The necessary unity of effort must be based on meaningful partnerships which are developed and supported over long periods of time and are continually visited, practiced, and refined across the phases of CEM during periods of routine community functioning, through periods of emergency and disaster. As described later in this section, a necessary component of such partnerships is trust that is established through mutual respect, open and honest communication, and shared goals and objectives.

As a starting point for this section, a definition of PPP is required. Many definitions can be found and most include the term *collaborate*, which implies working together. The following definition of *collaborative partnerships* is selected to highlight the nature of non-contractual relationships that best fit the purpose of PPPs supporting all phases of CEM:

Collaborative partnerships are non-legal working relationships that often occur between the public and private sectors to meet a common objective or goal. Primarily goodwill gestures, collaborative partnerships are often used to provide knowledge exchange or collectively leverage resources for a specified goal. (NASCOI, 2006)

As described by John Copenhaver, a former presidential appointee to FEMA and president and CEO of Disaster Recovery Institute International, in his 1997 *Disaster Resource Guide* article “From a Business Perspective, Government and Business Working Together in Emergency Management,” states:

Much has been said (and written) about the subject of our local, state and Federal Emergency Management Agencies "partnering" with the nation's business sector in the four areas of emergency management--preparedness, mitigation, response and recovery. In fact, the concept of these partnerships seems to make sense to such an extent that the question comes to mind, "Why haven't we been doing this all along?" (Copenhaver, 1997, p. 1)

In the 2002 report *Bridging the Gap: Developing Community Partnerships*, prepared by the Oak Ridge Institute for Science and Education, Oak Ridge Associated Universities for FEMA provided a literature review and identified the following specific characteristics of successful partnerships and obstacles and challenges to forming successful partnerships:

Characteristics of Successful Partnerships	Obstacles and Challenges
Shared vision and goals Trust and respect Measurements of success Key partner involvement from the beginning Champions Leadership Clear ground rules, roles and responsibilities Communication Consensus-based decision making	Inequality of power Lack of trust Unclear expectations Unclear lines of responsibility and accountability

Despite Mr. Copenhaver’s recognition and the research of the Oak Ridge Institute for Science and Education, the development and sustainability of meaningful PPPs have been often limited to superficial and failed efforts. The research report of the Business Executives for National Security (BENS) Task Force, *Getting Down to Business*, documents and analyzes the experiences of the Gulf of Mexico hurricane season of 2005. The report includes the following finding:

The American private sector must be systematically integrated into the nation’s response to disasters, natural and man-made alike. Government alone cannot manage major crises nor effectively integrate the private sector after a crisis occurs. The Task Force believes that building public private collaborative partnerships,

starting at the state level, is one of the most important steps that can be taken now to prepare the nation for future contingencies. Unfortunately, with few exceptions, durable, collaborative relationships do not today exist.” (Business Executives for National Security, 2007, p. 4)

The report goes on to make numerous recommendations to all levels of government, the most relevant of which to this section is “creating new ways to institutionalize public-private collaboration at the state and major metropolitan area levels” (Business Executives for National Security, 2007, p. 13). The March 2011 Presidential Policy Directive 8 (PPD-8) updates this recommendation by establishing a National Preparedness System that encourages unity of effort across all sectors from the community to the federal level (FEMA b, 2012).

The findings of the BENS’ Task Force are somewhat contradicted by the Business Civic Leadership Center (BCLC), a 501(c)(3) affiliate of the U.S. Chamber of Commerce, 2006 report *From Relief to Recovery: The 2005 U.S. Business Response to the Southeast Asia Tsunami and Gulf Coast Hurricanes*. The report provides the following general statement:

U.S. companies proved indispensable during the 2005 hurricane season. Businesses large and small contributed cash, in-kind donations, and expertise to support the relief effort. Americans watched companies deliver supplies, assist with security, and even provide entertainment. In response to Hurricanes Katrina and Rita, the U.S. private sector contributed \$1.2 billion in assistance. A total of 254 companies contributed \$1 million or more in cash and in-kind giving.” (Jordan, 2006, p. 23)

The report lauds the heroic efforts of major companies such as Wal-Mart, Disney, and Office Depot, which can afford such contributions, and provides only minor mention of smaller businesses from the impacted communities. True community-level CEM readiness requires local engagement of the private sector through community-level PPPs that go far beyond response and recovery operations managed primarily from the federal level.

Several initiatives since the early 1990s, as described in the remainder of this section, have attempted to develop and strengthen these partnerships through the development and documentation of best practices and lessons learned through research and observed operational success and failure. Are these lessons learned and best practices applicable and transferable across the United States and its territories? The author of this section believes that they are, with sustained support, attention, and a shift from the past prescriptive approach of merely saying PPPs are necessary, to an approach providing the descriptive guidance, resources, and incentives to assist in actually establishing meaningful and sustainable partnerships consistent with the particular needs of a community.

Past Federal Government Efforts to Promote and Establish Public/Private Partnerships

The Federal Response Plan (FRP) of 1992 and amended in 1999 “outlines how the Federal Government implements the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, to assist State and local governments when a major disaster or emergency overwhelms their ability to respond effectively to save lives; protect public health, safety, and property; and restore their communities” (U.S. Government, 1992, p. iii). The FRP is only binding on the signatory twenty-six federal agencies and departments and the American Red Cross. It clearly identified the importance of the private sector as a partner in CEM as expressed in the following high-level statement of intent:

Federal agencies are encouraged to take advantage of current partnership relations with the private sector. Businesses, both inside and outside the disaster-affected area, can supply critical resources during response operations, and assist in restoring essential services and rebuilding the economic base during recovery operations. (U.S. Government, 1992, p. 9)

Exactly what is entailed in a meaningful and sustainable partnership (what needs to be accomplished) and specific instructions to the public and private sectors (how to accomplish the desired goal) are not contained in the 1992 and 1999 versions of the FRP. The task of addressing these omissions thus fell on various efforts and studies to incorporate the private sector as a partner in CEM. One of the first national efforts, Public Private Partnerships 2000 (PPP 2000) – Forums on Public Policy Issues in Natural Disaster Reduction – took place between 1998 and 2000 with the stated goal of seeking “new and innovative opportunities for government and nonprofit, private sector organizations to work together to reduce vulnerability to and losses from natural hazards in communities across the Nation” (Website American Geological Institute, 2012). Organized and administered by the Subcommittee on Natural Disaster Reduction (SNDR), The Institute for Business and Home Safety (IBHS), and a number of other private-sector organizations, the forums identified the following key points supporting meaningful partnerships.

- They are community-based and community-driven.
- They involve strong public/private-sector collaboration.
- They are based upon a hazard and risk assessment.
- They recognize the importance of land use planning and building codes as mitigation tools.
- They recognize the role of incentives.
- They integrate professional training opportunities, public awareness, and education for all sectors of the community into the whole process.

In the same time period, Project Impact was formally established in 1997 by FEMA in partnership with seven pilot communities across the nation to meet the goal of “bringing

communities together to take actions that prepare for – and protect themselves against – natural disasters in a collaborative effort” (FEMA, 1997). Project Impact’s guidelines stressed the absolute necessity for disaster preparedness at the community level and the development of PPPs to draw and build upon the resources that exist within each community. Although the meaning of a partnership was not defined, project guidelines set forth in the FEMA publication *Building a Disaster Resistant Community: Project Impact* included the following:

- Providing motivation
- Identifying membership
- Establishing leadership
- Setting a vision
- Establishing expectations among participants
- Setting goals and objectives

Through 2001, federal funding was provided to over 250 communities throughout the United States to promote PPPs and collaboration (Waugh and Tierney, 2007). In 2001, Project Impact was removed from the federal budget in order to save \$25 million in annual costs (Perkins, 2011). Without dedicated funding for communities to sustain partnerships, new Project Impact communities were not developed, and in the following twelve years, communities advertising their involvement in Project Impact on community-level websites have all but vanished on maintained and current websites.

Current Federal Government Efforts Promote and Establish Public/Private Partnerships

In 2003, President George W. Bush issued Homeland Security Presidential Directive 5 (HSPD-5), Management of Domestic Incidents, with the stated purpose of enhancing “the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system” (Department of Homeland Security, 2003). HSPD -5 also mandated the development of a National Response Plan (NRP) and the companion National Incident Management System (NIMS) to meet this purpose. The two documents, published in 2004, superseded the existing FRP described above, and specifically include the private sector as a partner for a coordinated, effective national response. Amended after Hurricane Katrina in 2005, and superseded by the National Response Framework (NRF) in 2008 and revised in 2013, this f-federal-level guidance assigns the following specific responsibilities to the private sector, but is nonbinding short of the financial incentive of federal funds to states and localities for compliance.

- Planning for the protection of employees, infrastructure, and facilities
- Planning for the protection of information and the continuity of business operations
- Planning for responding to and recovering from incidents that impact their own infrastructure and facilities

- Collaborating with emergency management personnel before an incident occurs to ascertain what assistance may be necessary and how they can help
- Developing and exercising emergency plans before an incident occurs
- Where appropriate, establishing mutual aid and assistance agreements to provide specific response capabilities
- Providing assistance (including volunteers) to support local emergency management and public awareness during response and throughout the recovery process (Department of Homeland Security, 2008a)

The NIMS document, which was also updated in 2008, calls for government, nongovernmental organizations, and the private sector to work together seamlessly in all phases of CEM to manage incidents and directs that “governments at all levels should work with the private sector to establish a common set of expectations consistent with Federal, State, tribal, and local roles, responsibilities, and methods of operations. These expectations should be widely disseminated and the necessary training and practical exercises conducted so that they are thoroughly understood in advance of an actual incident” (Department of Homeland Security, 2008b).

The March 2011 PPD-8: National Preparedness provides high-level guidance for systematic preparation for all hazards posing the greatest risks to national security. The first paragraph of the document includes the following statement: “Our national preparedness is the shared responsibility of all levels of government, the private and nonprofit sectors, and individual citizens. Everyone can contribute to safeguarding the Nation from harm. As such, while this directive is intended to galvanize action by the Federal Government, it is also aimed at facilitating an integrated, all-of-Nation, capabilities-based approach to preparedness” (The White House, 2011a). The National Preparedness Goal (NPG), mandated by PPD-8, was published in September 2011 and specifically includes the private sector across the five mission areas (prevention, protection, mitigation, response, and recovery) as an essential contributor to the Core Capabilities, including Planning, Public Information and Warning, Intelligence and Information Sharing, Public and Private Services and Resources, and Operational Coordination. As with the previously described federal-level directives, PPD-8 and the NPG stress the necessity of partnering with the private sector but do not necessarily provide the guidance required to create and sustain such meaningful partnerships.

Existing and Future Research

The documented recognition that PPPs are essential components of CEM from the community to the national levels, and the lack of sustained progress described above, raises several questions. These questions, listed below, were investigated by the US National Research Council (NRC) at the request of, and with the financial support of, the Department of Homeland Security in a series of workshops (2009 – 2010) to assess the current states

of the art and practice in private-public sector collaboration dedicated to strengthening community disaster resilience.³

- Why hasn't there been more progress made in developing and sustaining public/private partnerships in the US?
- What are the necessary incentives (motivators) for these partnerships?
- What stands in the way (barriers) to these partnerships?
- What are the best practices for developing and sustaining public/private partnerships?

Chapter 3 of the workshop report focuses on the identified challenges and barriers to sustainable partnerships and notes that “government and private sectors are not natural allies and that the United States has developed legal, cultural, and regulatory barriers that may discourage private-public sector collaboration” (National Research Council, 2010, p. 4). Specific barriers identified include the following:

- Jurisdictional challenges at and between all levels of government from local to state to federal
- The fear of increased government oversight of private enterprise interests in the form of new programs, regulations, and mandates associated with partnerships
- The potential for legal liability when the private sector organizations and individuals provide assistance
- Ineffective and inconsistent leadership within the partnership
- Different terminology that is not understood by all partnership members
- Insufficient human and financial resources to support partnership administration and operations

One of the critical insights of the report was that a lack of trust between and among partnership individual and organization members is inherent in all of the above barriers, and is arguably the necessary foundation for any meaningful partnership

Chapter 3 of the workshop report concludes with the assessment that “a social environment conducive to building community resilience from the ground up needs to support organic growth, flexibility, and the needs of all community stakeholders. The environment would allow relationships to be built on trust” (National Research Council, 2010, p. 52). A tested and proven model for developing and maintaining the necessary level of trust based upon a collaborative approach to PPPs is proposed in the report as a model for moving forward and establishing a research agenda. The model, developed through the empirical research conducted by the Michigan State University, Critical Incident Protocol – *Community Facilitation Program*, is based upon the experiences observed and documented in twenty-four states and fifty communities for the purpose of enhancing public/private-sector partnerships, for community crisis and emergency management

following an all-hazards approach. The six steps listed below,⁴ derived from the research, address sector and organizational benefits for partnerships and provide an evidence-based and tested framework to develop and sustain meaningful partnerships. The Critical Incident Protocol thus goes beyond the prescriptive approach to provide experience-based and documented recommendations that communities can consider and adapt consistent with their particular circumstances.

1. Identify public and private sector stakeholders to co-share leadership.
2. Ask leaders to bring others to the table.
3. Identify common issues on emergency preparedness for collaboration.
4. Identify new resources in the community to mitigate the impact of critical incidents.
5. Determine the challenges that participating organizations encounter.
6. Create sustainability in the partnership by conducting a needs assessment, setting goals, and task performance. (Website Michigan State University)

Chapter 4 of the workshop report is titled “Potential Research,” and includes recommendations for additional research beyond the Michigan State University’s Critical Incident Protocol – *Community Facilitation* Program efforts to overcome the identified barriers and to provide research-based resources to encourage and support public/private partnerships across the nation. Specific areas identified for research include the following general themes:

- Best practices
- Metrics
- Overcoming organizational silos
- Incentivizing community-level involvement
- Incentivizing business participation
- Establishing bases of information
- Behavioral and sociological characteristics
- Building capacity

The October 1, 2012 report, *Compendium of Public-Private Partnerships for Emergency Management*, conducted by the National Incident Management Systems and Advanced Technologies (NIMSAT) Institute at the University of Louisiana Lafayette⁵ “provides the findings of the study of the current landscape of public-private partnerships [PPPs] and state of the practice of PPPs in emergency management” (NIMSAT, 2012, p. 5.). The research, conducted by the NIMSAT Institute, is based upon the PADRES (Publicly Accessible, Dedicated, Resourced, Engaged and Sustainable) framework introduced by the FEMA Private Sector Office in 2011 to evaluate dimensions of PPPs. The research was informed by sixty-eight survey responses and eighteen follow-up inquiries from the emergency management and homeland security professionals composed of members of the International Association of Emergency Managers (IAEM) and the National Emergency

Management Association (NEMA). The resulting research report identifies challenges and solutions and best practices for PPPs that are consistent with Michigan State University's Critical Incident Protocol research and the National Research Council Workshop's findings and recommendations. The body of the report does, however, emphasize the critical point under the heading of "How will you get there?". It is therefore crucial for successful PPPs to demonstrate a value added proposition for all stakeholders" (NIMSAT, 2012, p.36).

In November 2012, the National Academy of Sciences made public the research-based report *Disaster Resilience: A National Imperative*, which recognizes that "national resilience emerges, in large part, from the ability of local communities, with the support of all levels of government and the private sector to plan and prepare for, absorb, respond to and recover from disasters and adapt to new conditions" (National Research Council, 2012, p. 6). The report recognizes that no single approach for all sectors working together can be prescribed, due to the diversity of communities across our nation and territories. It does, however, recommend the development of a National Resilience Scorecard (metrics developed in a collaborative manner among all levels of government and all sectors), as a basis for identifying and implementing specifically tailored community-focused metrics for CEM strategies, capabilities, and capacities in support of community and overall national resilience. Consistent with the findings and recommendations of the above-described research and workshop, a consensus-based set of metrics should help individual communities identify the emergency- and disaster-related issues facing them to help identify the most appropriate way forward to address those issues through partnerships that are developed, maintained, and sustained based upon their value added to all stakeholders.

Conclusions

As FEMA Administrator Craig Fugate stated at the first National Conference on Building Resilience through Public-Private Partnerships, held in Washington, DC, in August 2011, "We cannot separate out and segment one sector in isolation; the interdependencies are too great.... We want the private sector to be part of the team and we want to be in the situation where we work as a team and not compete with each other" (Administrator Fugate, 2011).

There is general agreement that PPPs are important at all levels of government and community. Referring back to John Copenhaver's statement and question introduced earlier in this section – "In fact, the concept of these partnerships seems to make sense to such an extent that the question comes to mind, Why haven't we been doing this all along?" (Copenhaver, 1997, p. 1) – the author of this section believes that we are making progress, but need to advance beyond prescribing what needs to be done to actually providing guidance, resources, and taking actions to establish and sustain meaningful partnerships. Research-based efforts such as Michigan State University's Critical Incident Protocol model, the NIMSAT study, and the research agendas proposed in reports of the National Research Council provide an informed approach for moving the process forward.

Endnotes

1 This focus thus excludes legal (contractual) partnerships that are predominantly public sector defined and generated contracts with private-sector entities for the provision of goods and services. Nonlegal (noncontractual) partnerships are instead defined and structured to be collaborative in nature and based on shared leadership and trust to pursue common objectives through unity of effort.

2 The term *Comprehensive Emergency Management* and its acronym (CEM) were introduced in the document *Comprehensive Emergency Management: A Governor's Guide* (1979) developed by National Governors' Association Center for Policy Research and is not to be confused with the acronym for *Certified Emergency Manager*, which is also CEM.

3 The NRC, Private-Public Sector Collaboration to Enhance Community Disaster Resilience document can be accessed at http://www.nap.edu/catalog.php?record_id=12864#description. Last accessed on August 22, 2013.

4 The Critical Incident Protocol website can be accessed at: <http://www.cip.msu.edu/index.html>. Last accessed on August 22, 2013.

5 The Compendium of Public-Private Partnerships for Emergency Management can be accessed at http://www.padres-ppp.org/NimsatPPP/resources/Final%20PPP%20Report_101812.pdf. Last accessed on August 22, 2013.

A PRACTITIONER'S PERSPECTIVE

The private sector owns and operates approximately 85% of the critical infrastructure¹ in the United States, and holds a significant amount of the responsibility for physical resilience prior to a disaster and economic restoration following a disaster. Emergency management organizations and the private sector have to share information and work collaboratively to truly be prepared to recover after a major disaster. The criticality of relationships existing between Emergency Managers and the private sector is paramount to a positive outcome following a disaster.

There are many examples of the dependencies the government has on the private sector during a disaster. This portion of text speaks to emergency management as a whole, not just the first response components, which are better characterized as on-site incident management rather than comprehensive emergency management. We can look to an example such as a Public Safety Answering Point (PSAP), or 9-1-1 Center, to illustrate these dependencies on a private entity. There are a host of communications portals that feed into a PSAP, almost all are provided by a private communications company. If the power should be down to the PSAP, it becomes the responsibility of these companies to restore the power, have backup power solutions, and maintain constant communications throughout the outage; all of this has to happen so that the answering point can maintain its civil responsibility to the citizens it provides these public safety answering services for.

Examples such as the one above can be seen throughout the entire emergency management cycle and all of the traditional emergency support functions (ESFs)² we see used in Emergency Operations Centers (EOCs) across the country. One must understand the need for the private sector to communicate clearly, effectively, and often with their emergency management partners, and for emergency management personnel to understand the requisite for effective communication and collaboration with their private-sector partners.

It is important to note that PPPs have always been a part of the emergency management infrastructure; however, in most cases the efforts were fragmented into their own sectors. The larger issue with the traditional PPP was the lack of relationship. For emergency management, relationships have been the foundation upon which effective collaboration is achieved. Relationships were the missing link for PPPs across the country. A relationship is something that is built, nurtured, and grows with time; for a long time the words *partnership* and *relationship* were confused. A relationship is built on a day-to-day basis; if individuals have a relationship, they are much more likely to call and get information or call for assistance. A partnership implies a much more formalized effort. With jobs in both the private and public sectors constantly evolving, positional turnover is much more prevalent. With that comes the need to keep one's contact lists current; again, a relationship with someone would mitigate many of these challenges.

Generally speaking, formalized PPPs specific to emergency management became much more prevalent in the early part of the 2000s. FEMA established its Private Sector Division within its Office of External Affairs in 2007. FEMA Administrator Craig Fugate has given much more attention to the issues of private-sector integration and ultimately his view has been cheerfully accepted. The Whole Community concept FEMA has outlined encourages all levels of government and the private sector to work together much more to truly create a seamless disaster recovery, which all sectors of our country benefit from. (FEMA, 2012)

States have a vast array of differences and similarities when it comes to PPPs.³ Some states have existing partnerships in subfields of their homeland security programs, such as having a large intelligence-gathering effort with the private sector. Some have strict law enforcement PPPs, with concepts such as the post-9/11 Fusion Center. Many governments have found a place they are comfortable interacting with the private sector at. States will always vary greatly on these types of partnerships because each state has different laws that dictate how they interact with the private sector. States that want to truly integrate the private sector into their emergency management infrastructure will do so by enhancing the programs and processes they already have in place. The outcome of this integration will generally look different from state to state. The ultimate goal of this integration will always be the same: both the private and public sectors benefiting significantly during a disaster.

Many states will identify having contracts with private entities as having a partnership, and while using the word *partnership* one could rationalize this, it is not the true nature of an emergency management PPP. Contractors are paid to provide resources, services, and commodities, and thereby have a legal, contractual obligation to provide these services. True integration of the private sector into emergency management is a relationship effort not just a contract. With so many different examples of what a private-sector integration effort could look like, FEMA Private Sector Division has compiled programs that are understood to be successful and listed them on their website as Model Public-Private Partnerships (FEMA Private Sector Partnerships) The partnerships they have listed are divided into groups depending on what level of government they exist within.

On a regional basis, PPPs take many forms. It is easier for the private sector to interact on a regional level, because their geographic market within their industry knows no traditional state border. They can be based in Florida and have jurisdictional responsibilities in Virginia. Interacting at the regional level ultimately makes more sense for them. It presents some significant issues for the public sector, however; the public sector has laws and legislative responsibilities within the confines of their jurisdiction.

With that in mind, a solution to this problem can be found in groups that work on a regional basis with both private- and public-sector representation. It is very dangerous when

working between sectors to not have all relevant parties involved and providing input. Regional efforts for private-sector integration can be extremely effective when used to enhance information-sharing efforts. The downside to regional efforts is their lack of “teeth” within government-run emergency management programs. They have no true constituency and therefore no legislative authority. This limits their usefulness during and after a disaster has occurred. Regional efforts are largely ineffective if the right people from both sectors are not involved.

The local level of emergency management is where private-sector integration is most important and beneficial. Emergency managers have known and understood the need for relationships with the private sector on a broad scale; the need was not slipping through the cracks of local emergency management offices. Local emergency management officials’ relationships with their private-sector partners in their jurisdiction are vital to the success of the community following a major disaster. While public-private relationships are important at every level of government, none are more important than the local relationships. These relationships at the local government level can be leveraged much more frequently and effectively. To provide a generalized example based on first-hand experience, it is much easier for a local retail store to work with the local fire department to provide water for the citizens within a community, than for a state or federal representative to work with a regional private-sector representative to accomplish the same task.

A major issue that exists from a local perspective is that the areas tied to funding requirements are the ones that receive the most attention. With requirements for grant funding from both the state and federal levels not clearly being granted with PPPs in mind, the motivation for resources being allocated to those types of efforts is severely diminished. While FEMA has provided a document that gives guidance on the use of Homeland Security Grant Program (HSGP) to be allocated to such efforts, it is not mandatory that such efforts exist to receive funding. The need is for specific funding for private-sector integration into emergency management grants. (Department of Homeland Security, 2011) At the state level the problem of funding is mirrored. While most states see the cause as a noble one, there are no dedicated, long-term grant programs to support the effort; states are left to reallocate funds to support a PPP type of program within a given agency.

With the absence of dedicated grant funding requirements, the integration of the private sector into emergency management has been left up to whichever government and private entity are trying to work together. For this reason the country as a whole has a variety of PPPs, and while some look very similar, most are built to serve that jurisdiction’s specific vision for the relationship. This has led to the understanding among PPP practitioners that one size does not fit all. The idea that everyone can do it their own way is what makes these efforts so beneficial to the jurisdictions and the private sector within. Freedom, to put it plainly, is allotted for jurisdictions to be as creative as they wish. The other high point to this freedom is that these programs are able to be fluid in nature, meaning they can adapt as

the private sector adapts. If new industry moves into a jurisdiction, they have the ability to repurpose their program as they see fit.

Federal disaster frameworks mention the importance of utilizing and including the private sector into processes; none give policy that is to be adhered to. There are many documents that could be used to provide guidance on how to best integrate the private sector, but none specifically outline how to build these relationships. Guidance for building PPPs should be written in a way that not only outlines what the private sector can do to assist the public sector, but also shows how the public sector can better support the efforts of the private sector pre- and post-disaster. The NRF does discuss the importance of including the private sector in planning, response, and recovery processes on a broad scale.(DHS, 2008) The information that is provided in these types of frameworks may be difficult to translate down to the lower levels of government.

There are a couple of key requirements that need to be met to begin the process of truly integrating the private sector into emergency management at any level of government. The keys are having someone dedicated to the relationship-building process, a sort of salesperson for the program. Having the buy-in and support of the leadership is critical to the effectiveness and sustainability of any program or large effort, and the same stands true for integrating the private sector. It is imperative to find like-minded people who can assist in these types of relationship-building efforts, people who understand the challenges and the needs of both sectors. In most cases in both the private and public sectors, these efforts will be supplemental to an already full daily list of tasks; it has to be a goal to find individuals who are motivated to make the partnerships work and last.

Identifying “key players” is essential. A partnership’s “key players” will be individuals who are well connected and have the ability to make the vital links required to connect with as many industry representatives as possible. Networking is paramount to achieving success when attempting to integrate with the private sector. By nature, networking is not something the public sector pays much attention to. While it is hard to make an argument against networking, public-sector jobs lack the traditional motivations for doing so. Networking is used to broaden the understanding of an industry or certain topic, and can be used to increase profit for a company or industry.

From the private-sector standpoint, the motivations are mostly the same when it comes to integrating with the public sector. The private sector must understand the public sector is not motivated in the same ways their other customers may be. For the public sector, emergency management community motivations surround information sharing and information worth. Worth is measured largely by the quality, timeliness, and accuracy of information. Information is another form of currency in the emergency management community, and while relationships are “king,” information is certainly “queen.” We are all

familiar with the famous adage that information is power; this is never truer than in the emergency management community.

Information has always been important to the emergency management community because it is tasked with coordinating responses to disasters. Coordinating is much different than controlling and requires that people and agencies work seamlessly together. Information becomes very important because it affects the coordination decisions that are made. Agencies may not necessarily be required to coordinate directly with emergency management organizations, and the information the emergency management organization stands to gain from these agencies is an extreme aid in the higher-level decisions that are being made.

Emergency managers want to know many things from the private sector during a large response, especially a response on the scale of a major disaster. The information can range from a store's operational status, to more complex questions having to do with anticipated power restoration times.

The other key to the sharing of information is the worth of information. The accuracy of information the private sector provides to emergency managers is vital because ultimately the people of a community turn to government officials to get their "quality" information. The public sector has spent years of fine tuning and vetting their messages during a disaster to be as accurate and timely as possible. Without accurate and vetted information from a trusted source, emergency management officials are much less likely to send the private-sector information they want the public to know. Again, this is where relationships take priority. If the information is coming from a known and trusted source that someone has a day-to-day relationship with, it is much easier to trust the accuracy of the information.

Throughout the United States, PPPs have many different shapes and scopes. Any given geographical area could have a different set of requirements that dictate their overall emergency management programs. The emergency management landscape varies significantly across the United States, and so too does the nature and scope of private-sector integration in disasters.

Generally, the way private-sector integration looks in different regions will be a result of what the industry in that region looks like. If the area is primarily a financial hub, then PPPs will mostly deal with financial institutions. If the region is very agricultural, then relationships will be built with agricultural interests in mind. Government has a responsibility to the populace of their jurisdiction to ensure recovery from disasters; it is in their best interest to ensure relationships exist with the largest employers of their jurisdictions. Focusing on large employers is a crucial part of building these relationships because they employ the people who will be responsible for restimulating a local economy after a major disaster. Information sharing with these large employers should be accurate and often.

It is easy and important to focus on the large retail establishments, financial institutions, and telecommunication companies and enlist their assistance following a disaster. It is equally important, however, to focus efforts of private-sector integration on the small business community. While small businesses are much less likely to have someone on staff specializing in business continuity or emergency management, they ultimately employ the largest amount of the population: 55% according to the Small Business Administration. The thought of incorporating all of the small businesses within a given jurisdiction can be an overwhelming one. The key to remember is that there are organizations that can be the links to these small business communities. Organizations like the Better Business Bureau, Retail Merchants Associations, Chambers of Commerce, and many other professional or trade associations are the bridge to help information flow from government officials to the small business community before, during, and after a major disaster.

While the small business community may not have a person dedicated to business continuity or emergency management, it is definitely something they are concerned with and want to be prepared for. Business leaders understand the need to have plans in place should a disaster impact their community. The question becomes, does the government entity in their jurisdiction make it easy for them to get the information they need and education on the resources they need prior to a disaster? In most cases the answer is yes, the resources and information are there, but they are just not as accessible as they could be. At the local and even state levels of emergency management, having someone dedicated to only working with the private-sector business community is not possible in today's budget environment.

The private sector does not need to be taught how to prepare their business for a disaster; they only need to be provided the information and in some cases resources to help them better prepare, respond, and recover from a disaster. This requires someone dedicated to promoting private-sector integration with emergency management to them. Someone available as a liaison between the two sectors is beneficial on many different levels, but none more important than the ability for the private sector to receive information that helps their recovery, and the public sector receiving information that assists in their response. Again, day-to-day relationships remain paramount to having this level of integration between the sectors.

The emergency management community as a whole is embracing the integration of the private sector on a large scale. More states are becoming evolved and following in the footsteps of their federal counterparts in turning these types of efforts into funded and resources programs that are sustainable. It remains difficult at the local level for resources to be dedicated directly to these efforts, but great strides are being made to incorporate the private sector into EOC's all over the United States. In Louisiana, they have constructed a physical location for businesses to assist emergency managers during disasters and vice versa. Known as a Business Emergency Operations Centers (BEOCs),⁴ these facilities are

one example of how a state can make great strides to incorporate the private sector into their processes. It cannot be stressed enough that quality interaction between the public and private sectors at the local level results in the most advantageous relationships for all involved.

The federal government has set a great example of private-sector integration within FEMA's defined regions. All ten of the FEMA regions across the country have been outfitted with a Private Sector Liaison to conduct outreach to, and gain information from, the private sector. These regional Private Sector Liaisons can be used as great resources by the states, as well as local municipalities. The broad range of contacts that can be developed through the FEMA regions is beneficial on a broad scale. In some cases, the argument is made that Private Sector Liaisons at the federal level circumvent the state and local levels, but this has not been the experience of those who work as PPP practitioners across the United States. In most cases the private sector will interact at whatever level of government they see the most benefit from. This is not a bad thing; it cuts down on the amount of private-sector information inquiries a government entity may see during a disaster.

The private-sector integration into emergency management is a two-way street, in that the private sector has its own set of rules and regulations that must be adhered to, and government must work within the confines of their chosen governmental systems. Large business may have as many, if not more, people dedicated to business continuity and emergency management than the jurisdiction they reside in. Having a relationship with these large companies allows emergency management officials to better understand the needs the company has. In most cases, the people who hold these jobs have worked in their environment for many years and fully understand the nature of a disaster and the potential impacts on their company. It is a dangerous habit for the public sector to assume the private sector requires their assistance at every turn. While the private sector is hungry for reliable and vetted information, disaster response can directly affect their bottom line. The larger companies of private industry in some cases go as far as to employ their own team of meteorologists to predict weather from around the country; this is often seen in the power generation community. In many ways, it is difficult for a business that has multinational reach to have day-to-day relationships with the emergency management personnel in a given jurisdiction. To counter this issue, it is advisable for them to employ their own teams that focus on weather and/or terrorism predictions in their areas of operation. The private sector does not need to be saved; it needs to be partnered with.

It seems as though for a long time both sectors were hesitant to work with each other for fear of legal boundaries and other such "red tape." The communities and organizations that have worked together over the years have enjoyed extremely beneficial and advantageous relationships with one another. The incorporation of the private sector into emergency management makes a vital link that stands to change the way emergency management currently looks. The resources and information that the private sector brings to

bear during an emergency are invaluable. In fact, the public sector gets most of its resources from the private sector during an emergency, thus highlighting the need for increased situational awareness among the sectors.

One of the greatest challenges for a PPP program becomes maintaining interest. Given the nature of disasters, partnerships are not a guarantee within every jurisdiction, all the time. With this in mind, one has to be creative to develop and employ methods that stimulate the relationship between the private and public sectors. Exercises can be a great way to incorporate the private sector into emergency management programs. Allowing business leaders to take part in emergency management exercises keeps everyone engaged and builds a better understanding of the specific needs each sector has. In some instances, it can be difficult to gather the large numbers of participants together in one place and gain valuable exercise information. Exercises designed for the private sector incorporating the public sector can alleviate this problem. For the most part the emergency management community has a defined role in a disaster, and therefore a defined answer for the manner in which they will respond to a given situation during a disaster exercise. It is important that both the public and private sectors understand the preparedness, response, and recovery plan of the other sector.

Truly integrating the private sector into homeland security and emergency management issues has to be viewed in one way: relationships. Relationships have proven to be the most beneficial part of integrating with the private sector. Not just one calling on the other in the time of need, but a living, breathing relationship that is nurtured over time. These relationships are leveraged for their original purpose on a daily basis to facilitate information sharing, joint planning, mutual understanding, and most of all, helping a community and its citizens recover from a disaster. While private-sector integration with emergency management continues to evolve, it will take many shapes. The principles of building, nurturing, and maintaining these relationships stay the same. Relationship is critical when it comes to PPPs without day-to-day relationships between the private sector and public sector, partnerships will fall short of their goals. The majority of the infrastructure in the United States rests in the hands of the private sector, and having the ability and wherewithal to interact with them is critical to emergency management success. Part of a community being resilient is the understanding of the interconnections that exist within the community.

BRIDGING THE DIVIDE

There is really no divide between the academic and practitioner in recognizing the many benefits and the necessity for PPPs, which raises the question of why such partnerships are not more widespread and sustained. From the academic perspective, a review of the literature, research, and past experiences shows that viewing a partnership as a value-added proposition by all partners is an essential component for establishing and maintaining a meaningful partnership. From the practitioner's point of view, many of the concepts discussed on the academic justification supporting PPPs provide an excellent overview from a research perspective. From a practitioner's perspective, it is essential for academics to understand that the research must support the actual operational process, and provide supplemental guidance to reacting to any given situation.

Research studies summarized in this chapter, including the 2002 Oak Ridge Institute for Science and Education, Literature Review Summary: *Bridging the Gap: Developing Community Partnerships*, the Michigan State University Critical Incident Protocol *Community Facilitation Program*, and the 2012 NIMSAT *Compendium of Public-Private Partnerships for Emergency Management* identify the characteristics of and barriers to successful partnerships. All of the identified characteristics and barriers can be directly related to the creation of value for the partners. From the public side, the value-added proposition is generally clear. CEM across its phases and all levels of community and government, from the local to the national levels, requires resources, coordination, and unity of effort that cuts across all sectors. Clearly, the public sector has much to gain from courting the private sector as a partner, but does the private sector feel the same way in this courtship?

From the academic review, it appears that the value-added proposition for partnerships is not as clear from the private sector's perspective. Private-sector (for-profit) organizations exist to primarily generate a reasonable profit for their owners and are generally competitive in nature and design. Expenditures of resources, be they time and/or money, that do not generate a near-term positive return (tangible and/or intangible) contributing to a reasonable profit are not generally viewed with great favor, particularly for small- and medium-sized businesses that do not have the resources, reserves, and flexibility of larger business units and organizations. This generalization is in no way intended to imply that private-sector companies do not have social responsibilities, are not concerned with a positive reputation based upon those responsibilities, and cannot find value in public/private partnerships. It is presented to make the point that motivation for the public sector does not necessarily equate to the same motivation for the private sector.

Private industry across the country continues to grow in terms of integration with the public sector. While private industry may not see the immediate "line item" return on investment from integrating with the public sector, it has become more evident that the information produced by the public sector is vital to making key business decisions that can

result in a more lucrative and effective disaster response by the private sector. All over the country, there are examples of pre-disaster relationships allowing industry to reopen its doors sooner post-disaster. In Tuscaloosa, Alabama, in 2011, a relationship between Lowe's Home Improvement and the city emergency management officials resulted in the expediting of recovery supplies into tornado-impacted areas across the community. These types of relationships become even more important to the traditional utility companies during incidents that cause road closures and power outages. The need for private utilities to gain access to their operations centers becomes critical and the relationship cultivated with the public sector is a key component to the "access" question in a post-disaster environment.

Referring back to the 2002 Oak Ridge Institute for Science and Education, Literature Review Summary: *Bridging the Gap: Developing Community Partnerships*, the summary notes that successful partnerships generate identifiable benefits for all partners and that businesses (the private sector) see financial rewards and/or positive public relations as a result of their participation. The summary also includes the profound statement that "you do not go to a business with your hand out. Go to the business and hand them something" (Oak Ridge Institute for Science and Education, 2002, n.p.). Although dated by 313 years, these observations may be considered applicable today and in the future.

Building relationships is nothing new to emergency management officials; generally it is understood to be a key component of the job. Often in smaller jurisdictions relationships are more personal in nature than professional anyway. Because of this understanding, practitioners know that "selling" a business on spending hours away from profit-generating activities can be a challenge. To react properly to this challenge, it is advisable to reassure the private-sector partner that they are of critical need to your community's overall resilience, and that having access to your emergency management official is critical to making smart business decisions during a disaster.

Determining effective motivators for building and sustaining meaningful partnerships is not uniform across all businesses, communities, and levels of government. No strategy based upon a top-down prescription of importance and standardized models or approaches will necessarily achieve the envisioned goal of widespread PPPs due to many diverse and possibly competing factors. It is widely accepted that partnerships at all levels of community and government can contribute to more effective and efficient CEM. Since emergency management is first and foremost a local responsibility, a logical starting point should be working with local communities individually to determine the motivating factors to support, and barriers to implementation of partnerships specific to each community.

"One size does not fit all" is a popular theme in public-private partnerships in the emergency management field, as it should be. Interacting with the private sector from the perspective of an emergency management operator can look very different from jurisdiction to jurisdiction and business to business; because of this it is imperative that a strong

partnership model be flexible enough to allow the industry (private sector) to interact as much or as little as they deem necessary. Local governments will in general have much more of an understanding of their business community needs than higher-level governments.

The Michigan State University Critical Incident Protocol *Community Facilitation* Program largely followed such an approach in its work with fifty communities from twenty-four different states to address sector and organizational benefits for partnerships and provide an evidence-based and tested framework to develop and sustain meaningful partnerships. Rather than prescribing a specific approach, the Michigan State University program considered the uniqueness of each community and facilitated a dialogue between and among the sectors and the participants to establish a foundation of trust and cooperation, which is essential to understanding and creating a value proposition for the partners. There is much to learn from the Michigan State University experience. It is suggested that the practitioner community consider the documented results from the Critical Incident Protocol website and the many alternative trust- and cooperation-building processes such as Force Field Analysis⁵ to establish a dialogue and to develop trust as a foundation for PPPs. Such an approach would probably identify similar if not identical best practices and barriers as those documented in the described research and National Research Council studies, but the results and ownership of the process would be the property of the community. Arguably, such a collaborative effort by potential local community partners could be much more effective than a top-down approach.

An additional approach to developing PPPs that are based upon local community participation and discovery is leveraging existing partnerships such as the Chamber of Commerce or Local Emergency Planning Committees as a starting point for engaging potential partners.

There are a host of already existing business organizations that can assist in developing a partnership that reaches many more individual businesses. It is the mission of many trade associations to bring companies of similar industry together, not only in a legislative advocacy capacity, but also to share ideas and information about the emerging trends within their given industry. One of these trends is clearly the integration with emergency management.

Professional business associations are also a vital resource to reaching the small business community, organizations like the Better Business Bureau, Retail Merchants Associations, and Chambers of Commerce have connections with many of the nation's small businesses. The emergency management official may choose to target these partners to leverage their already established relationships and ultimately reach more businesses within a given community.

Local Emergency Planning Committees (LEPCs) can generally be found in operation within most jurisdictions across the country. These committees become an avenue for businesses to not only be involved, but also to gain an intimate knowledge of how a jurisdiction plans to react to an emergency. Participation in these community meetings will help business officials gain trust within the bureaucratic structure of the locality. The amount of information that can be exchanged by way of these all-inclusive gatherings is something to be cherished.

In conclusion, the development of meaningful and widespread PPPs is progressing at all levels of government and across all sectors with the support of shared best practices developed through experience and research. The Whole Community approach championed by FEMA and the evidence-based proof that these partnerships provide value added to all participants provides a level of awareness and emphasis necessary to sustain this progress now and in the future.

Endnotes

¹ Department of Homeland Security: Critical Infrastructure Sector Partnerships

² www.fema.gov/emergency-support-function-annexes

³ www.fema.gov/private-sector/public-private-partnership-models

⁴ <http://www.labeoc.org/labeoc/welcome.aspx>

⁵ Force Field Analysis is a structured process for identifying the forces for (motivators) and forces against (barriers) change and pursuit of a goal. The analysis process is very concisely represented and explained at the Brigham Young University website: <http://audit.byu.edu/docs/selfAuditTools/ForceFieldAnalysis.htm>.

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CHAPTER 5: ACCESS AND FUNCTIONAL NEEDS

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ABSTRACT

Access and functional needs (AFN) are increasingly emphasized in disaster policy and practices. People with AFN have legal and moral rights to services, but have historically been underserved or omitted with regard to disaster-related activity. A recent change in disaster policies and planning moves from a focus on groups with “special needs” to an “access and functional needs” approach focused on fulfilling functional needs. Any member of a community may have AFN, as AFN are not limited to specific groups. Indeed, disasters may increase the number of people who have AFN. In this chapter to investigate issues surrounding AFN, a researcher and a practitioner discuss the state of research and practice, respectively, and explore areas of agreement, conflict, and tension.

Disability models including the medical model, the charity model, the social model, and the functional model are applicable in explaining potential views of AFN. Research indicates that factors associated with disabilities and AFN influence evacuation sheltering choices. Current research and practice trends regarding viewing disabilities, functional needs, preparedness, outreach, and inclusion of people with AFN in planning and policies are covered.

Macro-level approaches to AFN planning involve communities, emergency plans, and policies. FEMA promulgates a Whole Community planning initiative, in addition to other preparedness documents that offer guidance on planning for AFN. Planning approaches focus on organizations and management systems and policies at the local, state, and municipal levels of government. Planning for AFN also takes into consideration hazard assessment and community profiling, while acknowledging the role of multidisciplinary planning committees and memorandums of agreement. Inclusion of people with AFN in emergency planning, preparedness, and the salience of AFN registries are micro approaches to AFN. People with AFN and agencies that serve individuals with AFN should be part of a planning process that fosters inclusion, evaluates resources, engages service providers, and manages expectations in maintaining a system that supports independence.

Finally, the last section considers five AFN issues where there may be consensus, conflict, or tension. They are the ongoing evolution of terms and concepts that surround AFN, implementation of policies and frameworks, collective and individual responsibilities, organizational involvement, and knowledge regarding outreach and preparation with respect to practitioners’ and researchers’ perspectives.

AN ACADEMIC'S PERSPECTIVE

Introduction

A growing concern and challenge in planning for disasters is how to incorporate access and functional needs (AFN) adequately and consistently in disasters. There may be negative consequences for those whose needs or abilities do not fit with mainstream emergency planning (Santora & Weiser, 2013; Sonenshine, 2013). Any individual with AFN who is not part of the disaster plan bears a differential amount of risk compared to the rest of the population. While there has been some research investigating disabilities and disasters, the disability community is regularly overlooked and planned for without gaining buy-in from the group at large (Parsons & Fulmer, 2007). Moreover, there is limited research on best practices for incorporating AFN into disaster plans. This type of imprecise planning becomes problematic when catastrophic disaster events occur, as current plans ignore AFN by creating one-size-fits-all plans (Kailes & Enders, 2007).

As the frequency of disasters increases (McEntire, 2006), it is important to understand how AFN are considered in community disaster plans and what people realistically require to survive and maintain independence in disasters. This leads to a difficult challenge for planners: to recognize and address the myriad of AFN that affect disaster service provision. When dealing with a diverse public, daily living needs may vary drastically from person to person and are met only rarely by one-size-fits-all solutions.

A person with AFN may be anyone in the community: seniors, children, people with disabilities, people with limited access to transportation, individuals who are economically disadvantaged, those with limited English proficiency, among others. Incorporating people with disabilities and AFN as part of the planning process includes people who might otherwise be marginalized in the disaster planning and response process. The inclusion of AFN in planning by emergency managers ensures equal access to disaster services and resources for all people. However, people in the community must also take responsibility for their own disaster preparedness. Although disaster planning and response is a function of emergency management, individuals are likely to have a better and more in-depth understanding of their own needs.

Academic researchers may recognize the challenges planners face supporting a functional paradigm, and support the phrase *access and functional needs*. The term more accurately describes how people can best prepare for and respond to a disaster. It shifts the planning paradigm from people who are “special” and require “special” accommodations to a “functional” approach that acknowledges people are able to be independent. There is a greater ability to be accurate and flexible in the planning and response framework based on essential, sometimes overlapping, functional needs (Kailes & Enders, 2007).

To explore AFN, this section covers four areas. The first is terminology associated with disability and AFN. The second area is an overview of several disability models that shape how people might perceive and treat people with disabilities and AFN. The third area uses evacuation and sheltering scenarios to examine trends in research. Finally, the fourth area addresses directions in research and emergency management as it pertains to AFN. It should be noted that the approach here is not intended to provide a complete overview of this issue, but rather to provide readers with a sense of the evolving ideas in this area of study.

Responsibility for AFN

Civil rights protection for people with disabilities comes from federal law. One such law is the Americans with Disabilities Act Amendments Act of 2008 (ADAAA) (Americans with Disabilities Act [ADA], 2009). The ADAAA creates a legal definition of *disability*. The ADAAA describes a disability as “(A) physical or mental impairment that substantially limits one or more major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having an impairment” (ADA, 2009). A person must meet one of these three criteria to be afforded civil rights protection based on their disability under the ADAAA (Job Accommodation Network, 2011). People with disabilities are protected from discrimination and have an equal right to participation and to enjoy and use services. This includes the ability to have the same access to disaster services and resources as other members of the community.

State and local governments have the responsibility for overseeing disaster preparedness and response activities for the entire community. For individuals with disabilities, the state or local entity responsible for emergency management must, at minimum, ensure “meaningful access” to benefits, activities, and services offered to the public by the entity (Brooklyn Ctr. For Independence v. Bloomberg, 2013). To ensure “ensure “meaningful access,” changes to existing plans, policies, and procedures may be necessary to avoid discrimination and ensure equal access to services (Brooklyn Ctr. For Independence v. Bloomberg, 2013). Without full inclusion in community planning, people with disabilities may encounter situations that put them at increased risk of harm during disasters.

While the ADA and amendments provide statutory obligations, other terminology does not carry legal protection. As described by Davis, Hansen, Kett, Mincin, and Twigg, (2013), the use of the term *special needs* by emergency managers, disability advocates, and health care workers described an array of groups and issues. The use of this term described a myriad of people, including those of low income, those who have limited, if any, English proficiency, the young, seniors, and, among many other concerns, those having a disability. As a result, “special needs” described over 50% of the population (Kailes & Enders, 2007). The approach written into plans was to take actions *for* someone rather than *with* someone. This perpetuated the mentality that people who met criteria to be part of the special needs

group were somehow different than everyone else in a way that left them unable function as fully fledged members of society. Oftentimes the view of individuals with disabilities was as a homogenous group requiring specialized assistance provided by other people.

To move the focus from a person's disability that placed them in a "special" category, the term *functional needs* was proposed to focus on the issue a person may live with and their ability to live independently (Kailes & Enders, 2007). The Federal Emergency Management Agency (FEMA) (2010b) recognized this shift in terminology as key to focusing on the abilities people have to maintain their independence. The change in terminology to create the term *access and functional needs* has created a shift in planning that recognizes people are able to be independent during times of disaster. Plans must address AFN rather than categories of people.

Terminology

Over time, an evolution in terminology to describe people with disabilities and AFN in emergency management has occurred. Terminology regarding disability differs in an attempt to be sensitive and specific to the way the disability community interacts with society (Jette, 2006). A term or definition can have multiple interpretations or meanings that vary among different people and different organizations. Recognizing preferred terminology and understanding the differences between terms assists with planning and response. A preference for a particular term may be due to a particular emphasis in the terminology with which a community most closely identifies or because a term carries particular legal protection (Davis et al., 2013).

A recent terminology shift for those who identify with a disability focuses on "people first" language. This terminology change recognizes people as individuals, rather than objectifying the person by placing emphasis on the disability (i.e., "a person with diabetes" rather than "a diabetic"), because a disability should not be the primary, defining characteristic of the person. People-first language uses the term *people with disabilities* to refer to a protected class of individuals within the United States.

While different terminology exists, the agreement on a term or concept at a single moment in time does not ensure that a terminology change will never occur in the future. According to Weiss (1989), there is no way to definitively settle on a term because different actors in the policy process shape different policies. As changes to policies and implementation occur, different terminology becomes appropriate to use. New terms may evolve or become more salient as different groups advocate for terminology because of a shift in thinking or discourse.

Conceptual/Theoretical Approaches to Framing

Among other approaches to disability studies, one area of focus is framing or exploring “approaches” to viewing disability. Four major categories of approaches exist in this area: the medical model, the charity model, the social model, and the functional model. The models vary in their focus from disability as a condition with a medical solution to the provision of appropriate supports and resources to meet AFN. These models do not encompass a complete list of disability-related models. Rather, the models illustrate the assumptions people have regarding people with disabilities and AFN. These assumptions can subsequently influence the treatment of people with disabilities and AFN by how emergency plans incorporate functional needs in planning and response activities.

The first approach is the *medical model*. This model asserts that the difference in service provision is a result of medical requirements. This model frames the disabilities themselves as a primary cause of limitation or vulnerability (Tierney, Petak, & Hahn, 1988). Moreover, the medical model considers a disability a treatable condition, provided both a treatment is available and medical providers attend to the need. In other words, the disability is framed as a problem with a medical solution.

The *charity model*, a second theory with a slightly different approach than the medical model, includes pity and the necessity of aid provision. That is, people without disabilities feel badly for those with disabilities. There is a sense that people who have either a disability or AFN require help doing activities because they are unable to do it on their own. People with disabilities routinely live independently and do not need assistance performing daily living tasks. Therefore, both the medical and charity models are problematic in their discriminatory practices (Twigg, Kett, Bottomley, Tan, & Nasreddin, 2011). Neither model addresses the needs of people by engaging in inclusive planning.

To move beyond characterizing a person by their disability, a *social model*, the third approach, may be more appropriate in describing people with disabilities and AFN (Twigg et al., 2011). The social model explains the disability as a social construction within society. Social construction influences the individual roles people take part in or are assigned to carry out in everyday life and implicitly limits them in what they can and cannot do within their societal roles (Tierney et al., 1988). Excluding or denying equal access to someone with a disability limits their participation in society (Shakespeare & Watson, 2001). This means someone who identifies with a disability may be assigned a role as a nonfunctioning member of society, as their disability is viewed as a hindrance. However, identities determined by society can be incorrect. A role assigned by society may not be an accurate reflection of what a person with a disability can do. A person with a disability may be completely independent at home, and in society, but the perception of others is that the disability stops the person from taking part in daily activities. This may be because the person has a disability noticeable to others that affects the treatment they receive. For instance, a person who is blind may use a cane when out of the home. When other

members of society see the cane, the assumption may be made that the person, because they cannot see, cannot work. However, people who are blind work in society just as society's other members do.

A fourth approach is the *functional model*. Clive, Davis, Hansen, and Mincin (2010) describe this as the most recent movement to recognize disabilities as heterogeneous and to discard the paradigm that views illness as the crux of disabilities. Instead, the functional model recognizes everyone has specific capacities. Some disasters may — but not always — require emergency managers to address specific functional needs for individuals on a case-by-case basis. For example, someone with a catheter may seek a public shelter during a disaster. In the shelter, it may be necessary to change the catheter, as is usually done in the home. A privacy screen would allow the person to handle the health-related function as he or she ordinarily would. It also negates the need for a medical professional to intervene to assist in what, for the individual, is a routine health function. It is therefore important for plans to take into account disaster-related functional needs by including individuals with AFN, or their caregiver, to provide practical solutions and appropriate resources.

Review of Selected Empirical Research Findings on AFN in Evacuation and Sheltering

Society, defined colloquially as a group of people who live in a community sharing norms, is heterogeneous and includes many groups that participate and contribute in many different ways. The utilization of evacuation and sheltering research to examine different variables that can affect the community illustrates possible challenges to planning for AFN in the event of a disaster. Consequently, specific resources, information, or methods of service delivery that do not take into consideration AFN may make people vulnerable to disasters. Further, AFN are not limited to a single group of people, but present in members throughout society.

Evacuation

Disaster evacuations can take place in the lead time before an event (e.g., hurricane), during an event (e.g., flooding), or immediately following an event (e.g., nuclear release). Evacuation rates vary dependent upon the type of event. However, research shows some households with members with disabilities evacuate at different rates compared to households without members who identify with a disability.

Most households that evacuate make the decision to leave with their household unit (Carter, Kendall, & Clark, 1983). Most often people will go to the homes or family members or friends rather than seeking out a public shelter (Drabek & Boggs, 1968). However, when a household includes a person with a disability, the household is less likely to evacuate (van Willigen, Edwards, Edwards, & Hesse, 2002). This has been documented as the primary reason some households did not evacuate during Hurricanes Hugo and Andrew (Riad, Norris, & Ruback, 1999). The decision not to evacuate when there is a household member with a disability may be due to a perception that there would be a lack of resources or

access to assistance or services at a new location (e.g., public shelter or hotel) (van Willigen et al., 2002). Without access to services that may be needed to avoid potentially life-threatening problems, there is the risk of an elevated loss of life within the disability community compared to the rest of society (Weston & Tokesky, 2010). As lack of trust in disaster services poses a barrier for evacuation, questions arise regarding the extent to which remaining in the disaster impact zone introduces other risks to health and well-being. This is particularly troublesome to a household of low socioeconomic income, as is often the case when one or more of the household members has a disability (Clive et al., 2010), because evacuating can become cost prohibitive (Gladwin & Peacock, 1997). A household with limited economic capacity may be less inclined to seek shelter in a location where access to services and resources would need to be purchased.

The ability to access necessary resources is linked to a person's socioeconomic status and affects the extent to which a person may be vulnerable to a disaster. The socioeconomic status of a household including a person with a disability is likely to be markedly lower than a household with no members with disabilities (Clive et al., 2010). People with disabilities who receive Social Security Income (SSI) or Social Security Disability Insurance (SSDI) payments decrease their monthly entitlement if they exceed their maximum number of allowable work hours. However, receiving only the maximum monthly payment of SSI or SSDI keeps their income at or below the minimum wage (Atkins & Guisti, 2003). The income disparity between minimum wage earners and those who make more has direct implications on shelter selection, as evacuation and sheltering carry an economic cost to the household (Gladwin & Peacock, 1997; Stalling, 1984). Hotel lodging also introduces financial expenditures. If a household has economic constraints, members of the household may delay evacuation or rely on public shelters.

Transportation to leave an area — which could include plane or train tickets, access to an automobile, and gasoline — bring additional costs to a household (Gladwin & Peacock, 1997; Sorenson & Sorenson, 2006). For instance, Kailes and Enders (2007) find that the design of emergency plans focuses on strategies for those who have access to transportation. Often, people who live in cities rely solely on public transportation because it is cost prohibitive to own a car. Plans must therefore be realistic with regard to the type of evacuation transportation. Planners must know an approximate number of individuals relying on public transportation, be able to provide accessible transportation, and disseminate accessible information regarding where to go to gain access to evacuation transportation (i.e., a designated pick-up location). When individuals lack transportation – or transportation that accommodates mobility needs – incorrect planning assumptions could prove fatal.

Sheltering

Large-scale disaster events may necessitate the need for public shelters (McEntire, 2006). The larger the disaster area, the more likely people will require evacuation or sheltering. The

need for public shelters may be prompted by a sudden, severe event like an earthquake or an event predictable in advance, such as a hurricane. Depending upon the population density of the area, a very large number of people may be affected, especially as coastal areas of the United States are increasing in the number of residents (Crossett, Culliton, Wiley, & Goodspeed, 2004). Research shows that approximately 13% of the population relies on public shelters in disasters (Mileti, Sorenson, & O'Brien, 1992). In instances where social networks do not extend beyond the impacted region or, in the case of a sudden onset event where a large area is affected, the reliance on public shelters might be great in the immediate aftermath.

When people with disabilities are not adequately involved in the planning process, the available services in shelters may fall significantly short of their needs (Wisner, 2002). When a person with a disability or AFN leaves their daily residence to go to a shelter, the shelter needs to be prepared for all types of health and access concerns. How disabilities are framed based on the different approaches to disabilities and AFN may make a difference in how sheltering operations are carried out during times of disasters.

Public shelters are not built to be exclusively used as shelters, but are used as such, typically in times of disaster, deviating from their normal operations as schools or other community buildings (Kar & Hodgens, 2008). This means these locations are not, during times of normal operation, a place designed exclusively for certain AFN. Shelters are chosen because they are considered safe (Pine, Marx, Levitan, & Wilkins, 2003), not always because of their accessibility or suitability. For instance, schools that serve as shelters typically do not have backup generators hardwired into their system and do not have the correct connectors to make it possible to charge battery-operated wheelchairs or utilize durable medical equipment during a power outage, an important requirement for some AFN. Beyond power needed for medical equipment, power may also be needed to keep food cold for individuals with dietary-related AFN. Based on such deficiencies, there may be reasons to rethink public sheltering in order to be more inclusive of AFN.

As mandated by federal law, public shelters are to be inclusive. However, these same shelters may not be accessible for those with certain types of mobility impairments. The preparation of the interior space requires organizers to recognize people are able to support themselves with the correct accommodations. A person with limited mobility may come to a shelter, but find the cots arranged too closely together, prohibiting a mobility device from moving easily between rows. Or, in the instance of someone using a wheelchair, an assigned cot may be in the middle of the room without a wall to brace against in the event of a wheelchair-to-cot transfer, a potentially serious problem. Without something to brace the cot, it will, in all likelihood, slide across the floor. The person is able to transfer from a wheelchair to a bed without assistance in his or her own home, but in a public shelter, the cot is not accessible without help from someone else. Suddenly a person with a disability or AFN who is independent in his or her own space must rely on others in a shelter.

The way to overcome these inequalities is to be inclusive in sheltering practices (Clive et al., 2010; Twigg et al., 2011).

Not fully understood are the effects of prohibitive costs and concerns about available services at the destination locations on AFN. Further, even with the strides in providing necessary services and resources at public shelters, there is no guarantee people will utilize the shelters when they decide to evacuate. However, many changes in federal policies have encouraged inclusive sheltering for individuals with AFN.

Trends and directions related to access and functional needs

Even with limited research on disabilities (Kett, Lang, & Trani, 2009) and AFN in disasters, community plans must include AFN. Recent trends in emergency management recognize planning for functional needs is paramount in ensuring equal access to services and resources. Many community members are willing to work with emergency managers in the planning process to ensure disaster-related resources and practical solutions are available to meet individuals' needs. Focusing on the needs of the community involves adopting a "whole community" approach to emergency management. Planning for needs of individuals rather than for groups of people means community members and emergency management entities can work together to determine the community's needs and how best to address them (FEMA, 2011a). To create inclusive disaster plans, it is necessary to have people with disabilities and AFN help plan rather than allow emergency management professionals to lead without input and buy-in from the community at large (Barnes & Mercer, 2006).

Planning for functional needs includes five areas to consider. Parson and Fulmer (2007) note maintaining independence, supervision, medical care, communication, and transportation as functional needs to address in planning and response. To maintain independence, substitutes for support structures vis-à-vis supplies and assistance affected by a disaster must be available and may include durable medical equipment or attendants. A disaster may interrupt the supervision some caregivers provide, such as in cases of young children or individuals who experience age-related dementia. Supervision should therefore be available to meet the needs of people who may require it. The provision of medical care for individuals who require assistance with medical-related tasks and are not self-sufficient or who are without support from caregivers should be addressed. Communication dissemination must occur in accessible and usable formats to meet people's needs. Finally, transportation should address the needs of people who are without a personal or accessible vehicle, or who are unable to drive. Further, information should be available as to the location and availability of evacuation mass transportation (New Jersey OEM, 2006).

While emergency managers have the responsibility to coordinate preparedness and response to disasters on a community level, individuals are responsible for personal preparedness. To that end, some organizations have reached out – in this case specifically to the disability community – to help individuals create personal preparedness plans. The

University of Delaware's Center for Disabilities Studies received an emergency preparedness grant to assist different groups and individuals with disabilities plan for disasters. Utilizing planning material to facilitate the creation of personal disaster plans, participants were encouraged to think through challenges they could face in evacuation and sheltering scenarios (Center for Disabilities Studies, n.d.).

Other institutions, such as Temple University's Institute on Disabilities, also engage in emergency preparedness for people with disabilities. The Institute collaborates with a range of groups, from local communities to national organizations, as well as the City of Philadelphia and other local communities to assist with emergency preparedness. Creation of a plan and emergency kit for the household is encouraged in order to prepare for emergencies.

A recent court ruling in New York following a lawsuit filed after Hurricane Irene highlights problems people with disabilities faced while preparing for and responding to the disaster. Although the emergency management structure in New York City has, in many ways, fulfilled their responsibilities both planning and responding to disasters, the court found “the City’s plans are inadequate to ensure that people with disabilities are able to evacuate before or during an emergency; they fail to provide accessible shelters; and they do not sufficiently inform people with disabilities of the availability and location of accessible emergency services” (Brooklyn Ctr. for Independence of Disabled v. Bloomberg, 2013, p. 5). Each of these deficiencies highlights a lack of accessibility for people with disabilities. During and after Superstorm Sandy, people with disabilities faced many of the same issues described in the court’s ruling. A lack of accessible egress routes due to inoperable elevators or too many flights of stairs trapped too people with disabilities (Santora & Weiser, 2013). Further, if a person with a disability was able to evacuate their residence, there were an inadequate number of accessible public transportation options to meet evacuees’ needs (Santora & Weiser, 2013).

Evacuation plans increasingly take into account the fact that many people may not have their own transportation. Plans have identified key assets to assist in wide-scale evacuations. Assets include buses that can transport large numbers of people who are without personal vehicles, as well as accessible transportation for people with mobility impairments. In some areas, National Guard resources are available to move a large number of people who do not have the monetary resources or a personal vehicle, in addition to having specialized transportation and medical personnel to help with medical needs.

The Transportation Research Board's Transit Cooperative Research Program (TCRP) provides a toolkit on communicating transportation options to community members. Communication to vulnerable populations is crucial when three sectors — public, private, and nonprofit — evaluate the available disaster transportation options. The TCRP describes the necessity of determining who may need to know about emergency

transportation and how to best communicate with individuals about their options. Identifying public agencies and community partners to become part of a network that will communicate and organize to reach out to community members about transportation helps fulfill a communication-related functional need. Networking and collaborating among entities share the responsibility of inclusive outreach to vulnerable community members (Transportation Research Board, 2008).

Public shelter plans have also evolved to take into account people with disabilities and AFN. On March 15, 2012, new standards went into effect that guide alterations to existing public facilities and new construction that will accommodate those with disabilities (U.S. Department of Justice, 2010). These standards benefit those who seek out public shelters during times of disaster, as the buildings should be more accessible. Buildings that currently serve as public shelters are not necessarily accessible.

In the United States, the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 prohibits public shelters from refusing access to those individuals who identify with having a disability during presidentially declared disasters (FEMA, 2011c). Individuals should not be relocated to another shelter if the shelter does not appear to be able to handle their needs. Such a forced relocation would be considered a direct violation of their civil rights (ADA, 2009). As a result, people with different needs reside in the same shelters.

FEMA's Functional Needs Support Services (FNSS) guidance outlines steps for all people to access general population shelters and maintain their independence through the provision of appropriate medical goods and services and making reasonable modifications to structures (FEMA, 2010b). The design of this guidance, however, is not to create new obligations (Robinson, Gerber, Eller, & Gall, 2013). The FNSS sets forth ways to support current disaster shelter management. While not creating new obligations, the FNSS sets out practices for managing disaster shelters that "create an *implicit* standard for accommodating residents with functional needs" (Robinson et al., 2013, p. 318). During times of disaster, the buildings used to shelter the population are more accessible to all, while affording people with disabilities and AFN equal access to services and resources.

Conclusion

Incorporation of AFN in disaster plans is necessary to ensure that there are available services and resources for people who may need them. Legal protection is given to individuals who meet the ADA's definition of disability, but not everyone who has a disability will have an AFN in a disaster. A person may address their particular need(s) or the disaster prompts a specific need with which the person does not identify. Chronic conditions not covered by the ADA can cause the individual to have AFN during a disaster. Still, other people can have AFN without a health condition. When a disaster disrupts the environment in which the person lives, the available services and resources affect whether people have AFN.

Inclusive disaster planning among people with disabilities and individuals with AFN, community organizations, and emergency management helps identify functional needs. This allows for equal access to services and resources for members of the community.

A PRACTITIONER'S PERSPECTIVE

Introduction

As emergency management programs started to develop formal organizational structures and mature professionally, people with AFN continued to remain underserved, excluded, or denied access to disaster-related services. There were varying reasons for this: rejection of the notion that accommodations should be made for persons with access and functional needs, perception that the planning issues were too big or too complex to manage, unfamiliarity with how to develop strategic partnerships with AFN stakeholder groups, and lack of awareness or misperceptions about the different types of AFN, accessibility requirements, and/or resources to aid accommodations.

Fortunately, disaster policy and practice related to the inclusion and integration of people with AFN into emergency management programs is evolving, and continues to improve. This section discusses the state of practice regarding AFN inclusion into emergency management programs, with emphasis on disaster planning, response, and recovery. The discussion will focus on the needs of individuals with AFN who are living in community-based settings.

The most effective planning strategies involve multidisciplinary approaches that are inclusive of individuals with AFN, a triad of key government agencies (human/social services, health, emergency management), transportation providers, and service-providing agencies. When a multidisciplinary approach is not used, or when emergency plans are found to be inadequate, equality and inclusion remedies are sought through the legal system.

Communities Living Independently and Free (CALIF) vs. City of Los Angeles is often characterized as a “landmark” lawsuit in terms of its implications for emergency planning officials. The February 2011 ruling held that “the City of Los Angeles violated the Americans with Disabilities Act by failing to meet the needs of its residents with mobility, vision, hearing, mental, and cognitive disabilities in planning for disasters. A court order followed requiring the City to revise its emergency plans to include people with disabilities (Disability Rights Advocates, 2013).” The City and County of Los Angeles were both brought into the suit, with different courses of remediation. In addition to the plan reviews, the settlement agreement required Los Angeles County to hire an AFN Coordinator, maintain accessible formats on its websites, engage community-based organizations in the planning process, and be subject to monitoring over a six-year period.¹

In November 2013, the U.S. District Court, Southern District of New York, issued a wide-ranging Opinion and Order regarding *Brooklyn Center for Independence of the Disabled vs. Bloomberg* (United States District Court, 2013). The Court validated many elements of the City’s response capabilities and aspects of its emergency plans. However, it found for

the plaintiffs in areas covering nearly all phases of disaster planning, including public information messaging, accessibility of shelters, loss of accessibility during power outages, “ad hoc” reasonable accommodations, debris removal, pre-disaster outreach, and other significant disaster functions. As of this writing, the remedies portion of this legal action is still pending.

A proactive, inclusive approach to emergency planning – following the “spirit” not just the “letter” of the law – results in a more effective and reality-based emergency plan. It serves to build better pre-disaster professional relationships and increases understanding about the needs of people with AFN and the capabilities – and limits – of first response agencies.

This section offers insights and resources regarding the mechanics of access and functional needs planning: obtaining knowledge about people with AFN and what their needs are, evaluating resources available to meet those needs, identifying strengths of the key stakeholders and how they contribute to a holistic planning effort, and methods to fill gaps and increase potency where there are weak areas of community AFN planning.

Identifying Needs and Services

An essential question for emergency planners is: “Who is the person with access and functional needs, and what does this mean in terms of emergency planning and response?” First and foremost, a person with AFN is a community member with moral and legal rights to equally access all services that emergency management programs provide. This community member, like all others, also has the responsibility to plan for their own safety, to the best of their ability and personal resources.

Common misperceptions about AFN were rooted in the widespread use of the term *special needs planning* – a description that lacked both clarity and dignity regarding the individuals to be included in the planning process. FEMA’s adoption of the term *access and functional needs* ultimately provided enhanced meaning regarding how individuals with communication, independence, medical, transportation, or supervision needs function in a pre- and post-disaster environment, and what support systems are needed in order to ensure their survival.

The concept of “access and functional needs” also allowed emergency planners a better understanding of individuals with AFN, because it established the narrative that people with AFN are a part of the community. Almost everyone knows someone with an access and functional need. How does this increased understanding improve disaster-related outcomes for people with AFN? It required emergency management agencies to adopt a macro and a micro approach to AFN planning.

The Macro Approach

Macro approaches focus on organizations, management systems, and policies at the jurisdictional (state/county/municipal) level of emergency planning. When FEMA announced its Whole Community initiative (FEMA, 2011a), it provided validation to local jurisdictions regarding their macro approach, or commonly used operating strategies. FEMA's Whole Community approach is based on the following principles:

- Understanding and meeting the actual needs of a population
- Engaging and empowering all parts of the community to deal with the consequences of threats and hazards
- Strengthening what works well on a regular basis

The development of emergency plans starts with a hazard assessment and a community profiling process. The U.S. Census and other data sources such as Cornell University's Disability Statistics website (2013) and the U.S. Centers for Disease Control and Prevention's (CDC) (n.d.) Snapshots of State Population Data website help emergency planners provide insight into the scope and size of the populations with AFN.

In some communities, social vulnerabilities such as poverty, limited English proficiency, dependence on electricity for medical equipment, and risk factors for health may cause AFN-related needs to apply to nearly 50% of the population. Commonly recommended household emergency planning strategies such as stockpiling food and supplies becomes extremely difficult for those who are living in challenging economic conditions. Local government officials should plan to address basic needs of these individuals during a disaster, for a substantial period of time.

One example of this type of planning might include the Illinois-Indiana-Wisconsin Combined Statistical Area's "Gear Up, Get Ready" Community Preparedness Toolkits for emergency planners, featuring AAFN information. The toolkit provides advice on ways to engage the communities of individuals with AFN, how to use demographic research to identify AFN groups, how to market preparedness messages to audiences with AFN, and methods for incorporating social assessments into the community's risk and hazard analysis (Regional Catastrophic Preparedness Planning Team, n.d.).

One of FEMA's macro planning initiatives involved a 2010 Memorandum of Agreement with the National Council on Centers for Independent Living (CIL) (FEMA, n.d.) which are cross-disability service agencies. The agreement formally allowing CIL's nationwide access to the disaster recovery process and Disaster Recovery Centers (DRCs) also acknowledged the benefits of CILs' participation.

During the response to the May 22, 2011, Joplin, Missouri, tornado, the benefits of this pre-disaster agreement became evident. Stephanie Brady, Director of Programs for the

Independent Living Center (ILC) in Joplin, spoke about the experience during a May 2012 FEMA “Think Tank” conference call (FEMA, 2012). On the call, Brady explained how national and local level efforts enhanced response for people with AFN.

- **Pre-event:** The Joplin ILC established relationships with the local Community Organizations Active in Disaster (COAD) prior to the event. The Joplin ILC provided disability awareness training to Red Cross volunteers about a month prior to the event.
- **During the event:** The ILC provided durable medical equipment and helped with shelter transportation.
- **Post-event:** A disability and senior disaster resource committee met weekly to ensure that the needs of people with AFN were being met, including housing. The ILC hosted a mobile DRC. FEMA staff were invited to the ILC’s social event, which increased opportunities for networking and inclusion.

FEMA also entered into an Agreement with the National Disability Rights Network in 2011, to further strengthen emergency management collaboration (FEMA, 2011b).

The Micro Approach – Focus on the Individual

Micro approaches to emergency planning involve engagement with the individual with AFN, and potentially the family or other support systems. The role of individuals with AFN in emergency planning can be viewed within a number of contexts. Messages about emergency preparedness that are based on empowerment, rather than fear, are most effective.

“Not about us, without us” is a rallying cry often used by disability advocates who favor independence and self-determination over patronizing approaches toward disability policy on the national social service, health care, education – and most recently – emergency planning agendas. Planning strategies should be based on the assumption that individuals with AFN can and do provide leadership in the emergency management arena. Individuals with AFN should prepare for a disaster based on the assumption that their usual support networks, and local emergency response organizations, will likely be overwhelmed and negatively impacted by the event and unavailable to help them. Government agencies can also provide frameworks for consumer-focused preparedness activities.

FEMA’s Ready.gov website (FEMA, 2014) created in partnership with the Ad Council, offers substantial preparedness information for people with AFN, in a variety of accessible formats, including American Sign Language, languages other than English, and captioned videos. The Texas Department of Public Safety (2011) also offers accessible content regarding emergency preparedness on its website, including voice versions of preparedness topics.

Individuals with AFN should not be characterized only as passive receivers of assistance. The Progressive Center for Independent Living (PCIL), a Center for Independent Living located in Mercer County, New Jersey, provides several examples of emergency management leadership, rooted in the disability community. The first is PCIL's Emergency Preparedness Spokespersons Program, which connects individuals with disabilities with opportunities to attend the American Red Cross Community Disaster Educator's Course. The PCIL's team of spokespersons with disabilities then conducts emergency preparedness training for the individuals with disabilities at convenient times and locations. This strategy has the added benefit of placing people with disabilities in the roles of trusted spokespersons and peer mentors. Reaching out further to engage emergency responders and enhance their disability awareness, the goal of the PCIL's Adapted Vehicle Training Program is to train emergency responders who will aid individuals with disabilities during evacuations, and train them on how to work with accessible or specialized vehicles during more routine traffic accidents, or smaller-scale emergencies. The PCIL has also partnered with the AmeriCorps Program and a statewide developer of accessible housing, Project Freedom, on an Emergency Go-Bag Distribution Program.

The New Jersey Council on Development Disabilities has developed a training program aimed at individuals with development disabilities who are living in group home settings. The training content focuses on the changes that occur when disasters happen, letting the residents know that their community may look, feel, or even smell different after a disaster happens, and that different helping organizations – National Guard soldiers and other emergency personnel – will be visible, helping to keep them safe.

Using the multidisciplinary approach to provide information for individuals, the Oregon Office of Disability and Health (2009) has produced the "Ready Now! Emergency Preparedness Toolkit for People with Disabilities" in conjunction with the Oregon Institute of Disability & Development (OIDDD), the Center on Community Accessibility (CCA) and the Oregon Health & Science University (OHSU), a project funded by the CDC (Grant # GCDRC0164).

An Oregon woman, Nickole Chevron, shared her successful shelter-in-place experience (a preparedness topic that typically receives less attention than evacuation planning), on the CDC website, with advice for people with AFN. The event was a 2008 winter storm that buried Portland under more than a foot of snow. She reported being stuck in her home for eight days.

Chevron employs a caretaker and uses a wheelchair to maintain independence. She credits Oregon's "Ready Now ! (2009) – an emergency preparedness training program developed through the Oregon Office of Disability and Health (2014) – for giving her the tools and knowledge necessary to create a backup plan, and fostering a feeling of empowerment: "When I heard the snow storm was coming, I emailed all

my caregivers to find out who lived close by and would be available. I made sure I had a generator, batteries for my wheelchair, and at least a week's supply of food, water and prescription medication." Chevron added that understanding the limits of first responders during disasters is helpful in planning. Her additional tips can be found on the CDC website (2012).

The micro approach to AFN planning would not be complete without a discussion of “special needs registries,” a topic that is often surrounded by controversy. Registries are lists of individuals with AFN in a specific jurisdiction. The information is provided voluntarily by the registrant. Methods for keeping registries are wide ranging; and the type of information collected about individuals often varies in content and scope. Some communities use technology to manage registries, deploying “off- the-shelf” software applications provided by vendors. Others have developed their own in-house applications. Some registries consist of Excel spreadsheets, paper files, or return mail cards.

Fairfax County, Virginia’s Special Needs Registry Program (2013) allows individuals to register online or by mail; eligibility is limited to those needing to be in a medical needs shelter during evacuations. Fairfax County also offers registration opportunities for service-providing agencies to receive disaster-related information from the County. The State of Rhode Island’s Department of Health and its Division of Emergency Management have partnered to offer an online registry, with a paper form option (State of Rhode Island Department of Health, n.d.) The State of Utah offers online registration, paper registration, and a call-in registration option through a partnership with 2-1-1 (Utah Special Needs Registry, n.d.).

The State of Florida (FloridaDisaster.org, 2002) maintains an extensive website and uses registries and county-based special needs shelters to serve Florida residents with medical needs. The Florida Department of Health serves in a leadership role, in coordination with representatives from the disability community, to execute the state’s Emergency Operations Plan (EOP) and operate and staff special needs shelters:

Identification of individual need is also available through commercial services such as “Smart911 (2013).” Jurisdictions subscribe to the service, which allows free access to residents. Residents complete a safety profile, which can be viewed by public safety telecommunications during incidents. The vendor also offers a “Smart Prepare” application to aid public safety officials in AFN planning for specific areas, or community-wide.

At this writing, there is mainly anecdotal evidence both for and against the use of registries. Proponents stress the importance of having specific awareness and information about persons with AFN in the jurisdiction. Proponents also state the necessity of being able to conduct outreach before disaster strikes, and conduct welfare checks after impact. Registries are a tool that, if managed and maintained properly, could enhance AFN planning for some jurisdictions. Individuals who perceive less value in registries assert that they are

notoriously difficult to update and maintain, they are inconsistently managed, and registration establishes increased and unrealistic expectations about being rescued, without the individual having to develop a personal emergency plan. Registries are a complex solution to the ongoing concern of integrating persons with AFN into a community's emergency planning and response operations. Disaster experiences and technology have influenced the format and governance of registry programs. Registries continued to evolve as preparedness tools to address the disproportionate number of deaths of persons with AFN, such as occurred during Hurricane Katrina and, most recently, Superstorm Sandy.

However, registries have not turned out to be the perfect solution to this emergency planning process. In response, FEMA has produced guidance suggesting that by working with community organizations and agencies, a "list of lists" can be developed that contains aggregate data on disability numbers (FEMA, 2008). When an emergency occurs, however, aggregate data will not be enough to find individuals needing assistance, and registries also may not have all community members requiring assistance registered. The New Jersey Office of Emergency Management (2006b) uses a commercial software application for its "Register Ready" program. Outreach and messaging around the program include radio advertising, Internet banner advertising, and communications about the program to the AFN communities by trusted sources. While have been in place in many communities for several years, it is difficult to find research delving into whether registries are used by emergency managers for decision-making purposes. A recent survey was conducted to address this question (Donny, 2013). Three different areas of the United States were surveyed to gather data on the use of the registries by emergency managers. The survey returned clear results revealing that a majority of emergency managers use registry data both for planning and operational purposes. For those not using their registry for decision-making purposes, reasons provided included a lack of understanding of the purpose of the registry, a lack of training on the use of the registry, and a lack of resources to conduct outreach in their community to raise the profile of the registry (Donny, 2013).

It is through public outreach and partnerships that emergency managers can increase participant numbers and develop robust data that will enhance their decision making during emergencies. While registries are imperfect tools, they can be part of the emergency management equation to help safeguard the welfare of persons with AFN during times of emergencies.

Inclusive Emergency Planning

Inclusive emergency planning is guided by federal policy, such as the ADA and other key legislative initiatives. Inclusive emergency planning is led on the ground by coalitions, advocacy strategies, and multidisciplinary endeavors. People with AFN, government agencies, and services providers must work in partnership to ensure that policy translates into effective practice.

Community emergency planning is a government responsibility that often involves multidisciplinary planning committees of emergency response agencies, government officials, and external partners. Emergency plans should reflect an inclusive process that accounts for AFN considerations and allows AFN stakeholder groups a seat at the planning table. A major planning challenge is resisting the inclination to “annex” the needs of AFN populations onto a completed EOP. Planners should integrate AFN resources into plans, annexes, or emergency support functions, whichever format is being used. Accessible transportation for example, should be reflected in Emergency Support Function (ESF) #1 (Transportation) or the Evacuation Annex to the jurisdiction’s EOP. Shelter resources to meet accessibility requirements should be included in the either ESF #6 (Mass Care) or the Shelter Annex to the EOP.

Some jurisdictions establish planning committees for the purpose of enhancing AFN planning. The New Jersey Group for Access and Integration Needs in Emergencies and Disasters (NJ GAINED) (NJ Office of Emergency Management, 2006a) “acts as an advisory board to the New Jersey Office of Emergency Management (NJOEM) and the NJ Office of Homeland Security and Preparedness (OHSP) regarding issues affecting people with access and functional needs (AFN) in New Jersey before, during and after an emergency or disaster.” The group consists of over 50 members from across the emergency response and AFN spectrum.

Together Prepared offers another example of an inclusive planning organization. Together Prepared is a Kansas partnership launched in 2007. The coalition includes the Lawrence-Douglas County Health Department and Douglas County Emergency Management, together with the University of Kansas Research and Training Center on Independent Living (RTC/IL), and various community-based organizations serving AFN populations (University of Kansas Research and Training Center on Independent Living, 2012). Together Prepared conducted preparedness surveys, found individual and agency disability preparedness lacking, and explored the reasons why. It launched a series of training and education forums around the topics of business continuity, hazardous weather preparedness, pandemic planning, agency/first responder expectations management, and household preparedness.

FEMA’s (2010a) “Comprehensive Preparedness Guide 101 v.2” (CPG) outlines the planning process and recommended structure for emergency plans. The CPG states specifically that “it is essential to incorporate individuals with disabilities or specific access and functional needs and individuals with limited English proficiency, as well as the groups and organizations that support these individuals, in all aspects of the planning process” (FEMA, 2010a, p. 14). CPG 101 v.2 (FEMA 2010a) incorporated a section on AFN aimed at the broader planning effort. CPG 101 v.2 specifically states the need for planning jurisdictions to engage external partners, and employ social and demographic assessments in the hazard analysis. It recommends that jurisdictions identify a leading agency for the

AFN-related components of the EOP, and outline the mechanisms for successful evacuation support. It offers a productive strategic model for applying the skills of people with AFN as subject matter experts for the EOP. It also proposes that emergency planners devise means for information collection about macro and micro needs of community members with AFN, with the goal of ensuring that disaster-related needs are addressed.

The ADA is one of the most influential public policies to influence emergency planning; ADA requirements are underscored by the U.S. Department of Justice in its guidance to emergency management agencies. Prior to the issuance of the CPG 101 v.2, and prior to the adoption of the term *access and functional needs*, FEMA (2008) issued “CPG 301-Interim Guidance Regarding Planning for Special Needs Populations.” It served as a basis for outlining planning issues post-Katrina, but was ultimately replaced by FEMA’s guidance on shelter support, and was later rescinded.

Inclusive mass care planning became a specific challenge for many emergency planners, who were faced with the issue of whether or not they needed to establish “special needs” shelters. Planners also had additional concerns about the target population to be served at these facilities. More questions arose: What medical conditions would be treated? What type of staff could perform certain services? Who had responsibility for the operations? What was the role of the American Red Cross?

A U.S. Department of Justice (2008) guidance document “An ADA Guide for Local Governments – Making Community Emergency Preparedness and Response Programs Accessible to People with Disabilities” served as a “how-to” guide for local government planners regarding making an emergency management program accessible to people with AFN. The guidance addressed alert and warning, transportation and other planning concerns, but more specificity on mass care was needed.

FEMA’s (2010b) “Guidance on Planning for Functional Needs Support Services in Mass Care Shelters” offered solutions regarding the shelter client and related services to be provided. Focus was clearly on consumer independence, access, integration, and inclusion, and the need for these shared values when engaging in emergency management planning for diverse communities. This guidance incorporated the Department of Justice guidelines, as well.

Functional Needs Support Services (FNSS) are defined as services that enable individuals to maintain their independence in a general population shelter. FNSS includes:

- *reasonable modification to policies, practices, and procedures*
- *durable medical equipment (DME)*
- *consumable medical supplies (CMS)*
- *personal assistance services (PAS)*
- *other goods and services as needed*

Children and adults requiring FNSS may have physical, sensory, mental health, and cognitive and/or intellectual disabilities affecting their ability to function independently without assistance. Others that may benefit from FNSS include women in late stages of pregnancy, elders, and people needing bariatric equipment. (FEMA, 2010b FNSS, p. 8).

FEMA's FNSS guidance also eliminated the perceived need for stand-alone "special needs shelters," advising local mass care officials that individuals with AFN could not be turned away from general populations shelters or automatically placed in a segregated and restrictive environment such as nursing homes (FEMA, 2010b FNSS, p. 9). The FNSS guidance offered resource lists, how-to's, legal guidance, and key considerations regarding operating an inclusive shelter. The guidance still allows for the operation of Medical Needs Shelters for those who need medical care from licensed or certified medical professionals. Most jurisdictions will address FNSS in general operations shelters and/or operate medical needs shelters using a variety of resources (e.g.,, Medical Reserve Corps volunteers, service-providing contractors, Community Emergency Response Team Volunteers, Disability Rights and Advocacy Groups, and contracted personal care assistants). Many jurisdictions either employ, or are exploring, co-located facilities (general mass care/medical needs/pet shelters) on a single campus, intended to serve a regional geographic area.

In 2013, the National Fire Protection Association (NFPA) launched a web page with fire safety education materials for people with disabilities. The NFPA's (inclusive) Fire Safety for People with Disabilities Task Force ensures that fire safety messages reach people with disabilities. The NFPA's Evacuation Planning Guide (2014) "provides information on the five general categories of disabilities (mobility, visual, hearing, speech, and cognitive) and the four elements of evacuation information that occupants need: notification, way finding, use of the way, and assistance. It also includes a checklist that building services managers and people with disabilities can use to design a personalized evacuation plan, as well as government resources and text based on the relevant code requirements and ADA criteria."

Technology offers individuals with AFN, and emergency planners, the opportunity to increase the level of accessibility to emergency management information during all phases of a disaster. Emergency management professionals should be cognizant that high- and low-tech approaches to communications accessibility will reach the widest audience. There is a digital divide: individuals who cannot afford expensive assistive technologies or access to the Internet, or individuals who do not have a comfort level with high-tech communications approaches. Power outages will factor into the availability of communications technology.

The U.S. Department of Justice (2007) toolkit on accessible emergency planning strategies offers a section on communication requirements. It directs government authorities to ensure that "whatever is written or spoken must be as clear and

understandable to people with disabilities as it is for people who do not have disabilities.” The ADA toolkit provides advice to emergency management officials on assistive technologies, American Sign Language interpreters, face-to-face and written communications, and other facets of accessible communications.

At the individual level, people with disabilities that affect their expressive speech capabilities, or people with limited speech, should consider their disaster-related needs. The Assistive and Augmentative Communications Rehabilitation Engineering Research Center (AAC-RERC) (2014) functions as a collaborative research group dedicated to the development of effective AAC technology. Augmentative and alternative communication (AAC) refers to ways (other than speech) that are used to send a message from one person to another.” The Center has developed a wide range of disaster preparedness materials for people with limited speech, advice for emergency responders who will need to communicate with people with limited speech, and a section for advocates on disaster-related self-empowerment.

Behavioral Health and Access and Functional Needs Planning

Individuals with mental illness and cognitive impairments should be integrated into AFNANAFNANAFN preparedness efforts. Planning for individuals already engaged with the mental health system must take place *in addition* to planning for the disaster responses crisis counselors who will deploy after an event to assess, and address, the emerging mental health needs of disaster survivors.

There are a number of disaster-related issues present for individuals with mental illness (MI), including the event triggering symptoms of an earlier post-traumatic stress diagnosis, feelings of grief and loss, or depression and anxiety. People with MI may struggle with medication compliance, maintaining their recovery from substance abuse, or safety in mass care shelters, if they are evacuated. Individuals with cognitive or memory impairments may not be able to achieve a full understanding of the incident and its associated hazards.

The U.S. Department of Health and Human Services Substance Abuse and Mental Health Administration (SAMHA) (2013) offers comprehensive disaster planning guidance for service providers: the *Disaster Planning Handbook for Behavioral Health Treatment Programs* (2013). The guidance contains information on agency tasks such as preparing the client, service continuity planning, medication management, and organizing a preparedness program, with planning worksheets. The Yale Center for Public Health Preparedness’s 2008 bulletin “Disaster Preparedness for People with Serious Mental Illness” is still relevant. It characterizes mental health consumers as partners who can contribute to preparedness efforts if they are provided outreach and disaster preparedness information in an empowering context.

The Alzheimer's Association offers several resources for caregivers of persons with dementia and other memory disorders. The Association's checklist includes tips for helping a loved one with dementia through all phases of a disaster, with emphasis on Alzheimer's-related behaviors and symptoms. It reminds caregivers that the disaster may change a patient's routine or place them in a new, stressful environment, and offers suggestions for reducing agitation and continuing to meet physical medical needs. The Alzheimer's Association (2007) also offers a paid service -- Alzheimer's Safe Return® --- for patients whose symptoms include elopement.

Roles for Service-Providing Agencies - Response and Recovery

Agencies that serve people with AFN have insight into their abilities, needs, accommodations, disability status, family and supportive relationships, etc., and should be included throughout the planning process. However, these organizations generally tend to be overlooked as a resource. Additionally, service-providing agencies may serve as first responders or even become victims of the disaster themselves.

Nongovernmental organizations, primarily private nonprofit social services providers, typically provide services to AFN populations on a day-to-day basis: case management, personal care assistance, in-home medical care, counseling, substance abuse services, child welfare, and services for the aged, among others. When disaster strikes, these agencies often react, reorganize, and redirect staff and resources to meet the impacts of the disaster faced by their clients. The agencies are critical partners in the long-term recovery process, because they are aware of their clients' needs and possess the cultural competency needed to interact successfully with them.

According to the Mississippi Center for Non-Profits, after Hurricane Katrina, service providers in the Biloxi/Gulfport/Pascagoula area had these experiences: 67% lost volunteer or paid staff, 77% sustained major building damage, and 93% lost programs or services (Lampkin & Auer, 2006). The Louisiana Urban Institute reports that 50% of the agencies outside New Orleans served 73% more clients than before the storm (Lampkin & Auer, 2006). Faith-based groups and service agencies sheltered as many people as the Red Cross, in four times as many shelters. Some reported severe financial stress, s there was a lack of clarity how to access federal reimbursements for disaster-related services. Others had no or very limited clients left to serve, due to evacuations and relocations (Lampkin & Auer, 2006).

This situation is not limited to natural disasters. After the Deepwater Horizon Oil Spill, the Louisiana Association of Non-Profits (2011, pp. 3-4) reported that "39% of nonprofits saw 'noticeable changes' in client numbers or services needed after the oil spill...40% of nonprofits reported needing additional resources because of an increased demand for services [and] ... 32% of nonprofits reported that the oil spill had a direct impact on their employees" (Louisiana Association of Non-Profits, pp. 3-4).

Emergency management personnel should focus on encouraging service-providing agencies to improve their disaster resiliency and assist them with continuity of operations strategies. The private nonprofit sector is often overlooked regarding business continuity planning; yet they are in the business of helping others on a daily basis. If the agency is assisting the client in maintaining independence during non-disaster situations, it surely needs to do so in the post-disaster environment. Agencies can also serve as trusted spokespersons regarding alerts and warnings, risk communication, or disaster preparedness messages.

The New York City Office of Emergency Management (n.d.) deploys its “Advanced Warning System” for service-providing agencies, “to alert individuals with special needs to various types of hazards and emergencies in New York City that may affect their independence and their daily lives.” Registration is required, and participating agencies “receive public preparedness and emergency information designed for used by individuals with special needs. Agencies can then relay this information to their clients and contracted agencies.”

The NJOEM conducts a “Business Continuity Planning for Service Providing Agencies” training program, adapting FEMA’s Ready Business model to address the needs of the nonprofit sector. In partnership with the NJOEM the Rutgers University School of Social Work’s School of Continuing Education has included Disaster Planning for Agencies in its continuing education curriculum.

The California Department of Social Services (2007) engages service providers in its Functional Assessment and Service Team (FAST Team) program. FAST Teams “provide staff to conduct functional assessments of PAFN [people with AFN] who are in shelters. This assessment will evaluate the needs that people with access and functional needs may have, and determine whether they can be supported within the general population shelter.” The teams consist of “trained government employees and CBO [community-based organization] personnel ready to respond and deploy to disaster areas to work in shelters. FAST will work side by side with shelter personnel and other emergency response workers to assist in identifying and meeting essential functional needs so PAFN can maintain their health, safety and independence during disasters.”

The California FAST Team Training Program is standardized statewide and has been endorsed by the U.S. Department of Homeland Security. Guidelines are being developed to develop a mechanism for reimbursing community based organizations that perform essential community services when disasters strike (FAST. n.d.)

A U.S. Department of Health and Human Services Katrina/Rita Research Brief from December 2008 supports early engagement with agencies in its “Lessons Learned” section (p. 8): “traditional models of disaster relief are not equipped to deal with the deep and sustained injuries of disaster victims....[S]eek out the best performers with track records in

addressing complex or challenging needs....[T]ap connections before disaster strikes.” When established, the Incident Command System should include resources directed at AFN populations. A FAST Team is essentially a human services strike team, or AFN services may be considered a Branch under the Operations Section. The ability to provide access, integration, and inclusion of all community members impacted by the disaster is the true measure of how successful government is at managing an emergency disaster or catastrophic event.

The University of Massachusetts Medical School Eunice K. Shriver Center for Emergency Preparedness and Response Initiative, Cornell University, and the University of Connecticut offer examples of how academic partnerships can help foster Whole Community engagement. The Shriver Center (kim26stephens, 2013) has developed a number of products and toolkits related to disability preparedness. There are information sheets aimed at specific audiences, a disaster toolkit for families who have children with disabilities, training opportunities, and consultation for emergency management exercises. The Cornell University Employment and Disability Research Institute Northeast ADA Center (2014) highlights the issues of disability disaster preparedness in the work environment, continuity planning for service-providing agencies, and individual preparedness on the website and throughout its training curriculum. The University of Connecticut’s University Center for Excellence in Development Disabilities, in partnership with the Connecticut Council on Developmental Disabilities and the Connecticut Office of Protection and Advocacy for Persons with Disabilities (2005) produced “A Guide for Including People with Disabilities in Emergency Planning,” which advocates that people with disabilities maintain a voice in the planning process.

Conclusion

Emergency management professionals can easily access official guidance and standards related to inclusive emergency planning for individuals with AFN. This guidance has been informed by federal laws and standards, and produced with input from the community of people with AFN. Applying the standards – finding the right AFN contacts, ensuring a cross-disability approach, examining AFN needs across the lifespan, engaging local service providers, evaluating the extent of local resources, identifying the trigger points for accessing regional or higher-level resources – is where the real work begins and will continue.

Expectations management on the part of all stakeholders is key: how can the community of people with AFN inform the planning process, what are the limits of local responders and resources in an emergency, and how does a community leverage time, personnel, and other assets to ensure an inclusive response?

Timing and accessible communication tools are key when trying to maintain the systems that support independence. Early warning strategies and remaining engaged on the topic of disaster preparedness require almost constant focus.

Successful AFN planning requires stakeholders to move outside of the “comfort zone.” Emergency planners will need to look beyond the usual first response agencies with which they are engaged: who are key contacts in the field of human services, public health, and the community and faith-based service-providing sector that interact with the AFN community on a daily basis? Likewise the willingness to learn about, understand, and prepare for the true conditions of a disaster – taxed emergency response units, long-term power outages, infrastructure damage, less-than-perfect shelter conditions, complicated long-term recovery processes, and an overall disruption to the systems that provide services to people with AFN – is necessary.

Endnotes

¹ <http://www.dralegal.org/sites/dralegal.org/files/casefiles/noticeofproposedsettlement.pdf>

BRIDGING THE DIVIDE

Introduction

Practitioners and researchers must address AFN in all stages of the disaster cycle. Addressed in this section are the following issues: the ongoing evolution of terms and concepts that surround AFN, implementation of policies and frameworks, collective and individual responsibilities, organizational involvement, and knowledge regarding outreach and preparation. Within each of these five areas, practitioners' and researchers' perspectives are explored, highlighting consensus, conflict, and tension between different views.

Terms and Concepts

The term *AFN* encompasses functional needs to be addressed in disaster planning and response. These functional needs involve communication, transportation, supervision, medical care, and maintaining independence. Planning for AFN respects the abilities people have, rather than assuming certain groups of people will automatically require additional, specialized assistance. Practitioners and researchers agree AFN are present in all communities and are not limited to specific groups.

AFN terminology moves away from umbrella terms that categorize everyone as special or vulnerable. Previous terminology utilized *special needs* to describe groups of people assumed to be more vulnerable to disasters. Putting all the groups included under this term together, *special needs* described 50% of the population. The term lacked dignity, and presumed that a person with a characteristic having a "special needs" designation automatically needed assistance or was more vulnerable to a disaster.

The shift in focus to AFN was part of a larger dialogue within the disability community to stress the ability people have to be independent. The perception that people with disabilities are automatically more vulnerable to disasters compared to people without disabilities is not true. This is, in part, because any member of the public might have AFN, while an individual with disabilities may not. Moreover, the number of individuals with AFN can increase during disasters due to disruptions in services and resources. Planning for needs rather than people is an area of agreement between practitioners and researchers because plans must reflect the capacity to deal with fluctuating numbers of individuals with AFN.

However, it is questionable as to how many states are making the move to AFN terminology and practice. Some plans explicitly use AFN terminology and planning assumptions based on FEMA guidance. Some plans use terms such as *special needs* and *vulnerable populations*, often in addition to AFN.¹

Finally, there is consensus between practitioner and researcher that people with disabilities are a part of the community with legal and moral rights to services. The Department of Justice utilizes the phrase “people with disabilities and access and functional needs.” The phrase refers to a legally protected class of people with disabilities and the wider group of people who have functional needs.

Implementation of policies and frameworks

The implementation of policies and frameworks varies between entities. State and federal governments implement federal policies, and individual states also create their own policies and plans applicable only to their state. The variation between states in implementing federal policies and the difference between states’ policies and frameworks means state plans use different language and describe different practices for disaster planning.

The ADA of 2008 protects the civil rights of people with disabilities. The act prohibits discrimination toward people with disabilities and mandates equal access. The values of the ADA include equal opportunity, integration, and full participation (Devolder, 2013). People with disabilities should “not be denied the benefits of programs, activities, and services, such as public transportation, provided by public entities, and, in many cases, by private entities providing public accommodation” (Banks, 2011, p. 29). Practitioners and researchers are in agreement that disaster planning and response activities should, without exception, incorporate the ADA to ensure equal access and protection for people with disabilities. However, recent court cases in Los Angeles² and Brooklyn³ highlight problematic implementation where services and resources made available may not have been compliant with the ADA.

The practitioner and researcher agree public shelters should adhere to the ADA to ensure equal access. Government agencies (e.g., emergency management, Department of Education) work with nongovernmental organizations (e.g., American Red Cross) to pre-select accessible shelter sites. Site selection should include accessible buildings, although that is not always the case in practice. Some buildings constructed before the implementation of the ADA of 1990 are not accessible, and, in the time since the ADA law was signed, have not been remodeled, meaning they still may not be accessible. Under FEMA’s FNSS approach, reasonable steps toward accessibility should be conducted by planners (Robinson et al., 2013). Planners should use strategies described in the FNSS to ensure that disaster shelters are more fully prepared to accommodate functional needs (FEMA, 2010b).

A shared concern of practitioners and researchers involves the shelters opened by community-based organizations (CBOs) or faith-based organizations (FBOs) independently of those opened by emergency management entities. CBOs or FBOs may open shelters spontaneously because of a wish to do something for the community. Compliance with the

ADA is not necessarily taken into consideration, limiting access to services and resources for people with disabilities.

Collective versus individual responsibility

The responsibility for preparing for and responding to disasters has collective and individual components. Disaster plans and responses are often the responsibility of a designated emergency manager at the state or local level. There is a limit to the efforts practitioners make, and then it is up to individuals to take responsibility for their own preparedness pre-disaster and for their own care post-disaster. However, when a disaster occurs, not all people take appropriate actions to keep themselves safe and prepared.

The practitioner and researcher agree that ideally people should be prepared to meet their own needs if they evacuate to a public shelter. The function of shelters is to provide temporary lodging to individuals who are unable to stay in their own homes. Meals are served three times a day, but may not be designed to meet the special dietary requirements of some individuals. Shelters are not a hotel away from home with extra amenities. In fact, it may be that people are more comfortable staying with family or friends, as is often the case when people evacuate. There are potential conveniences available at the homes of family or friends not offered at public shelters. Additionally, there is not an assumed cost associated with staying in a private home as there would be for staying at a hotel. Individuals who identify with AFN should assume that most of what they would require is not easily available in a public shelter. Therefore, when it is possible and safe to do so, they should plan to bring anything they may feel is important for their AFN with them, regardless of where they seek shelter.

There is tension between practitioner and researcher regarding the individual or collective responsibility toward AFN services. Identification of both the types and levels of services needed during a disaster must occur. Although emergency managers do their best to have services available for those who need them, many of these services will be provided in a broad fashion. If services are being provided as written in the plan, but are not those that would best serve people, who bears the responsibility of maintaining the independence of the person with an AFN? For example, opening a general population public shelter is a service provided before and after disasters. Typically, individuals reside in a common area, such as a gymnasium. Crowding or loud noise in such a situation may result in an increase in the number or severity of some AFN. It is unclear if accommodations can be made available for that type of AFN. That is, would other rooms in the building be available for a person with an AFN meeting that description, or would they be able to use different accommodations?

Evacuation of people with AFN is another source of tension between practitioner and researcher. It is the responsibility of individuals to prepare, and this includes planning a personal evacuation strategy involving the type of transportation (e.g., personal vehicle,

public transportation, etc.) as well as the evacuation route. However, there is a collective responsibility toward citizenry with transportation-related AFN to help them evacuate, if necessary. There are situations that lead researchers to have concern about evacuation assistance. For example, assume a hurricane is approaching and a mandatory evacuation order of particular coastal counties is enacted. Forty-eight hours before landfall, someone ordinarily unable to leave home because of a medically related AFN and without a personal vehicle calls his/her local emergency management agency to notify the agency of the need for assistance in evacuating to a public shelter. He/she was unable to arrange for any other transportation, and lives outside of the mandatory evacuation zone. The emergency management agency indicates there will be a fee assessed for specialized transport to take the person to a shelter. The person is unable to pay for a ride due to economic constraints. What would happen if the person lived within the evacuation zone? Would help be sent? Is there a community responsibility to evacuate the person given they live outside the evacuation area? There is no way to be sure if a hurricane will affect a larger or different-than-predicted area. If the hurricane affected the area where the person lived and he or she needed to call for help during the hurricane, first responders could be put in jeopardy. Researchers are concerned that such scenarios need to be considered when individuals' responsibilities for evacuation ties into the collective responsibility of assisting people to evacuate.

A discussion of collective versus individual responsibility must look beyond service provision and its associated logistics. Certainly, these are important planning tasks; however, integration and inclusion of people with AFN involves the establishment of pre-disaster personal relationships and support systems; there is no substitute for interpersonal relationships as a means for an individual with AFN to increase his/her chances of surviving a disaster. In "Personal Relationships – Who Are Your People?" Kahn and Pearpoint (2007) addressed disability advocates and emergency planners after Hurricane Katrina, calling for each group to begin building bridges, and increase understanding of the other's needs, capabilities, and situation. They ask:

What if we act on approaches that connect us? Our isolation from one another creates profound loneliness and despair. This is the greatest disability for any of us. What if we reframe and reorganize our energy? What if our actions engage and support folks with disabilities to share their gifts, including their capacity to bring people together?

The person with AFN viewed as a contributor, a community member, is highlighted again in a 2010 research study titled "Disaster, Evacuation and Persons with Disabilities – An Assessment of Key Issues Facing Individuals and Households. This study also makes a statement about the roles and responsibilities of service providers:

A richer social network, even when part of that network results from membership in voluntary organizations, is a good predictor of evacuation behavior. A social network with family, a caregiver, and voluntary organizations facilitates the decision to evacuate. The influence of use of a caregiver for assistance with daily activities was found to be particularly important in facilitating evacuation. These results suggest that provision of a personal care assistant from disability services organizations, particularly during an evacuation, is likely to help persons with disabilities to accurately perceive disaster risk and have the capacity to evacuate in a disaster. Disability services organizations with personal care assistance programs should be carefully examined to determine how the personal care assistant facilitates the evacuation of persons with a disability and their household. (Gerber, Norwood & Zakour, 2010, p. 10)

An additional key question is how do we better reach individuals in the community who are not connected with services from outside the home, who risk isolation from disaster warnings and preparedness information? There are many families in which a spouse or other family member is the primary caregiver, and where emergency management officials cannot rely on a third party such as a community agency and caseworker to amplify emergency management messages.

Organizational involvement

Organizations are regularly involved with providing services and resources to individual with AFN. Providers of AFN services work with the AFN community regularly. Practitioners and researchers agree these organizations know the needs of the citizens they serve. Providers are called upon to be part of disaster plans in order to continue services. In many instances, emergency managers incorporate community organizations into plans and detail what services and resources they might provide. However, regular service providers have varying levels of success in being part of disaster plans.

Community organizations may indicate they will be able to provide services during times of disasters. However, there may not be an accurate sense of the number of staff members available to provide services. Additionally, staff may be overstretched. Although research suggests role abandonment does not occur in the rates conveyed by the media (Trainor & Barsky, 2011), organizations are concerned about their staff being able to come to work during a disaster. Staff who are not required to work have a legitimate right to follow possible orders to evacuate, and may do so with their families. The staff who are able to work may find themselves stretched by trying to provide regular and additional services at multiple, possibly distant locations. There may also be an increase in the number of people with AFN during and after a disaster. Hence, more individuals who receive services are depending upon a single employee.

The issues noted above have evolved to some degree because of a lack of sustained disaster-related funding for the human services sector. A successful AFN disaster response involves participation by three sectors of government: emergency management, health, and human services. Deployment of behavioral health professionals for disaster crisis counseling is a common practice, which is funded by FEMA and other federal agencies. However, disaster planning, training, and exercising – the preparedness fundamentals – are generally unfunded or underfunded for the human services sector. Public health has benefitted from being able to access pandemic, bioterrorism, and other hazard-based federal grant programs for preparedness and planning. These resources have not been as available to the human services sector, which is most likely to address the needs of AFN populations. This is particularly problematic, as human services professionals are involved with AFN populations during all phases of the disaster life cycle.

Outreach and preparedness knowledge

An aspect to fulfilling AFN is outreach and dissemination of preparedness knowledge. Outreach may be in the form of emergency managers or other entities, such as nonprofits or non-emergency management agencies, going into a community to educate on preparedness. Preparedness education is an important function in informing citizens of what they should do before, during, and after a disaster.

The University of Delaware's Center for Disabilities Studies (CDS) had a grant through the U.S. Department of Health and Human Services to help people with disabilities prepare for disasters. One element of outreach included making personal preparedness plans that documented specific information, such as type of disability/disabilities, medications and dosage (if applicable), and an up-to-date contact sheet. The plan was for the individual to use, but it served a second purpose of compiling this information to provide to emergency management personnel or shelter volunteers if necessary. The planning sessions revealed people with disabilities and caregivers had very little, if any, knowledge about emergency management strategies. Those in the disability organizations with whom planning sessions were conducted had not received information from or interacted with emergency management entities. This was despite the interest in preparing for disasters evidenced by inviting the CDS researchers to present on the topic of personal planning. This suggests there are many additional people with disabilities or caregivers in the community who are not exposed to emergency management principles that could assist them in preparing for disasters.

Outreach is also done by practitioners. However, individuals who benefit from emergency management agency outreach may be the same people engaged with nongovernment entities. There remains a challenge in reaching the large number of individuals not connected to traditional outreach activities, as they may remain unknowledgeable about preparedness.

For outreach, one benefit of AFN terminology is to limit the stereotyping and labeling that often places people with disabilities and older adults in a negative context. This is timely, as there is more recognition needed regarding the disaster-related needs of older adults. Age in and of itself does not equal a need for assistance; each individual has his/her own needs and abilities. Disability statistics present a challenging reality, however, in the later decades of life. A look at changing demographics and social trends regarding older adults will challenge emergency planners to make sure plans are more inclusive of specific AFN needs.

An older adult may or may not self-identify as “disabled,” or consider him or herself a person with “access and functional needs.” Hence, he or she may or may not perceive preparedness messages aimed at these communities as relevant. States’ choices regarding the use of aging-related resources are trending toward older adults remaining in a community setting with support services, rather than moving to congregate settings. What will this mean as emergency planners attempt to keep individuals connected with support services during adverse conditions? Aging-in-place communities, many in larger cities with deteriorating infrastructures, will continue to evolve. What will this mean for those involved in evacuation planning, shelter accommodations, or temporary housing? There is more emphasis placed on people with disabilities rather than older adults in current policy discussions and planning guidance.

Certainly, actions taken to foster preparedness for people with AFN enhance the whole community, but older adults also present with specific issues. These issues may include significant and prior losses pre-disaster, reluctance to evacuate, fear of institutionalization, vulnerability to fraud and abuse, sensory deprivation and adverse physical effects related to extreme weather conditions (R.I. Hope, n.d.). The CDC does offer an emergency preparedness portal that serves as a good basis for additional information sharing between the aging services sector and emergency management agencies (CDC, n.d.).

Future directions for related research

There is limited research on AFN; however, the collection of promising practices at the state, county, and municipal levels continues to accrue. Further research into this topic would be beneficial in providing information regarding preparing for and responding to disasters, especially in situations that require information be communicated on evacuation and sheltering. Understanding how AFN affect people can help form key insights. This knowledge informs practitioners and researchers about the types of services and resources regularly used during normal times and should be planned for during a disaster.

Future directions for certain academic institutions involve schools of social work, psychology, counseling, and other human services professions incorporating disaster-related topics into their curriculums. Except for the topic of Post-Traumatic Stress Disorder, students

pursuing degrees in the human services professions typically receive very little exposure to disaster-related topics during their educational experience. Yet, chances are likely they will encounter a disaster survivor in their therapeutic experiences, while providing casework management, or in other settings. Many students pursue an administrative track in their studies, or move on from direct service to management of an agency. Education and knowledge about where and how human services professionals fit into the disaster life cycle, and how they can apply their knowledge and skill-sets to address the needs of the AFN – and the larger community - is needed. For instance, the Rutgers University School of Social Work’s School of Continuing Education is now offering Disaster Business Continuity Planning classes for social work professionals seeking Continuing Education Units (CEUs) (Rutgers School of Social Work, 2010).

There is also a role for schools or institutes of technology. Technology has allowed for increased independence and enhanced quality of life for people with AFN, especially in the areas of communications, health monitoring, mobility, and essential life functioning. However, disasters can result in long-term power outages of several weeks or more, and consumers find these essential, assistive technologies interrupted. The service interruption causes a person to lessen or lose independence, in some cases causing death. Improved options for individuals who are technology-reliant may offer opportunities to remain in their home, or their community, and avoid public shelters. There is a trend toward communities establishing “charging stations/areas” with water, snacks, and a rest area, but not full shelter capabilities, for this purpose. If technology schools could advance developments related to assistive technology and charging options, the larger community would benefit.

To more fully understand the services and resources needed to address AFN, specific research should include the following:

1. Identifying with AFN – Do people identify with AFN? What might this mean for planning?
2. Planning for AFN - What are best practices for different types of functional needs?
3. Trends related to AFN - Are there patterns in the population of people with various types of AFN? Are there trends in requirements for services versus resources to address AFN?
4. Privacy concerns - Are people not sharing information regarding AFN because of privacy concerns?
5. Inclusion of people with AFN – Are programs designed with the assistance of people with AFN? Are organizations with expertise on AFN helping in the design of policies and plans?
6. Best practices - What elements of projects influence the characterization of these practices as “promising?” What do “best” practices mean in the field of emergency management of AFN populations?
7. Responsibility for AFN - Where is that responsibility best addressed within the planning framework, that is who “owns” it?

8. Tried-and-true recommendations for emergency preparedness (get a plan, have a kit) – Are they adequate for individuals with AFN?
9. Registries - What is the true effectiveness of registries, and what are the specific situations when registries are best used?
10. Preparedness - Many people with AFN are still unprepared for disasters. Why?
11. Evacuation barriers - There is research regarding why individuals will not or cannot evacuate. How can we remove those barriers?
12. Social factors - Are there social factors, such as poverty, joblessness, or technology's digital divide, that influence people with AFN preparedness and response?

Conclusion

Practitioners and researchers agree on the new AFN terms and concepts, and support the movement away from the phrase *special needs* to *access and functional needs*. Some states have adopted AFN terminology in their plans in conjunction with the phrases *special needs* or *vulnerable populations*. Even with plans that utilize outdated terminology, there is agreement that the phrase *access and functional needs* is more respectful and conveys a more meaningful message of independence for individuals. Federal policy creation and implementation uses the phrase *access and functional needs*. There is concern by researchers who see the variation in plans across states as potentially problematic to equal delivery of services and resources.

Nonetheless, practitioners and researchers feel individual responsibility for services and resources is the first step in disaster preparedness. Individuals should not solely rely on federal, state, or local policies and plans in the event of a disaster. Government agencies and community organizations will be available to assist in times of disaster, but there is the possibility of large service disruptions. Practitioners and researchers agree that community providers should, and must, be active partners in disaster preparedness and response. These organizations are an integral part of preparing for and responding to disasters. Nonemergency management agencies and organizations that interface with the AFN community are familiar with who requires specific services and resources. Familiarity with the community allows knowledge to pass to practitioners about the best ways to address AFN in disaster and response.

Endnotes

¹ See, for example, emergency operations plans from California, Delaware, Florida, Mississippi, and North Carolina.

² *Communities Living Independently and Free (CALIF) v. City of Los Angeles*

³ *Brooklyn Center for Independence of the Disabled v. Bloomberg*

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CHAPTER 6: PUBLIC HEALTH PREPAREDNESS

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ABSTRACT

The terrorist incidents on September 11, 2001, and the subsequent anthrax attacks prompted the U.S. government to make significant efforts to enhance the nation's public health preparedness capabilities. This shift resulted in major changes to the organization and responsibilities of public health agencies. This chapter provides a review of academic research on public health preparedness related to the Centers for Disease Control and Prevention's (CDC) public health preparedness capabilities, which currently guide practice in the field. The final section of this chapter highlights areas of consensus and differences in perspectives between the practitioner's and researcher's points of view. This chapter also provides a review of the historical changes to public health practice prompted by recent hazard events and developments leading up to the current state of public health preparedness practice. Both authors agree that post-9/11 policy to enhance the public health preparedness infrastructure had a profound impact on both the practice and research aspects of the field. Practitioners continue the work to meet requirements and benchmarks associated with preparedness funding programs and integrate into the broader emergency management context. Meanwhile, researchers consider how to measure and evaluate this work. Both authors are also concerned with the impacts of decreasing funds allocated toward public health preparedness. Nonetheless, the practice and research perspectives in this field are not always aligned, which brings into question the usefulness of research to applied practice. Practitioners tend to rely on federal and state policy guidance to formulate plans, which may or may not be supported by the results of academic research. The chapter concludes with recommendations on how to improve connections between practice and research.

AN ACADEMIC'S PERSPECTIVE

Introduction

The field of public health preparedness is focused on the prevention of, protection from, mitigation of, response to, and recovery from the public health and medical consequences of all hazards. This includes, for example, the illness, injury, and environmental impacts of hurricanes, earthquakes, extreme heat, floods, or bombings; naturally occurring disease outbreaks (e.g., influenza virus, Severe Acute Respiratory Syndrome [SARS]); and manmade disasters, such as technological disasters (e.g., nuclear facility incidents, oil spills) and terrorism (including the intentional release of biological, chemical, radiological, and explosive materials) (CDC, 2011; Landesman, 2012; Wisner & Adams, 2002). Research on public health preparedness also examines the activities of and relationships between federal, state, and local governments, nongovernmental organizations, the private sector, communities, and individuals. Due to the specialized knowledge required to address this wide range of hazards, research from a number of academic disciplines contributes to the science of public health preparedness, including, but not limited to microbiology/virology, epidemiology and surveillance, nursing, emergency medicine, environmental health sciences, laboratory sciences, pharmacology, psychology and disaster behavioral health, health communication and education, sociology, law, public policy, and organizational and emergency management.

The body of literature on public health preparedness grew tremendously over the last decade following the terrorist incidents of September 11, 2001, and the anthrax attacks of October 2001, which dramatically refocused U.S. priority on enhancing capacity to address the public health and medical consequences of disasters and emergencies (National Security Council, 2009). This shift resulted in a substantial restructuring of public health organization, personnel, and resources and required the development of new or modified relationships between governmental agencies and the private sector. As these major changes in the U.S. public health system took place, academic research followed. Scholarly literature on public health preparedness is now commonly published in books and mainstream peer-reviewed medical, public health, environmental health, pharmaceutical, and mental health journals, but since 9/11 we have also seen the development of specialized journals in the field (see, for example, *American Journal of Disaster Medicine; Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science; Disaster Medicine and Public Health Preparedness; Prehospital and Disaster Medicine; and International Journal of Disaster Medicine*) that report research and commentary on topics specific to this emerging academic field. Public health preparedness topics are now commonly addressed in disaster-specific books and publications as well (e.g., *Disaster Prevention and Management; Journal of Emergency Management*). Also available are academic analyses of public health preparedness for purposes of investigating impacts on the field (e.g., Hanfling et al. 2012; Ringel & Wasserman, 2011; Trust for America's Health, 2012). Moreover, there

are now many programs of academic study in disaster medicine, public health preparedness and related disaster science and management certificate and degree programs (see, for example, the College List of Public Health, Medical, and Related Programs available through FEMA's Emergency Management Institute at <http://www.training.fema.gov/emiweb/edu/collegelist/pubhealth/index.asp>).

As this is a book devoted to bridging the divide between research and practice in emergency management, the research section of this chapter will focus on the main themes in the academic literature that are of particular relevance to the applied practice of public health preparedness. As the practice of public health preparedness is currently guided by the CDC's (2011) Public Health Preparedness Capabilities (see practitioner section for more detail), the research review in this section will be organized by the corresponding domains of the capabilities: Biosurveillance, Community Resilience, Countermeasures and Mitigation, Incident Management, Information Management and Surge Management. The chapter also includes a section on Disaster Behavioral Health, as this is noted as a significant theme in the public health preparedness research literature. First, however, this section will discuss the conceptualization of public health preparedness and will later conclude with trends in the study and evaluation of public health preparedness, matters that are relevant to the conduct of research on public health preparedness.

Conceptualization of Public Health Preparedness

A persistent operational problem in the area of public health preparedness research is the lack of consistency in defining the concept. The field is still grappling with the exact parameters by which it should be defined and conceptualized, and how it should be measured and evaluated (Abramson et al., 2007; Fraser, 2007; Gibson, Theodore, & Jellison, 2012; Nelson et al., 2007). Nonetheless, recent consensus-building research designed to compare various frameworks of public health preparedness (Gibson, Theodore, & Jellison, 2012), along with definitions provided by federal public health agencies (CDC, 2011), is leading to growing unanimity on the activities that constitute preparedness and response among public health agencies and is helping to clarify the role of public health in emergency management. According to Homeland Security Presidential Directive (HSPD)-21 (Public Health and Medical Preparedness), public health and medical preparedness is defined as "the existence of plans, procedures, policies, training, and equipment necessary to maximize the ability to prevent, respond to, and recover from major events, including efforts that result in the capability to render an appropriate public health and medical response that will mitigate the effects of illness and injury, limit morbidity and mortality to the maximum extent possible, and sustain societal, economic, and political infrastructure" (The Homeland Security Digital Library, 2007, p. 2). A proposed conceptualization from the research literature defines public health preparedness as

the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities. (Nelson et al., 2007, p. S9)

A more recent research framework builds upon this and other similar definitions by identifying six processes involved in responding to an “ordinary or extraordinary” public health emergency over three time periods (pre-incident, incident, and post-incident): (1) prepare (build capacity), (2) monitor (conduct surveillance), (3) investigate (identify the problem), (4) intervene (control the problem), (5) manage (synthesize information to guide ongoing activities), and (6) recover (manage long-term effects, return to normal operations) (Gibson, Theodore, & Jellison, 2012, pp. 633-34).

Despite continued deliberation on how public health preparedness should be defined, research on the disaster-related practices of public health is growing. The last ten years of activity in this field were primarily devoted to building a public health preparedness infrastructure, which was essentially nonexistent prior to 9/11 (Menachemi et al., 2012). Thus, much of the research on public health preparedness focuses on the implementation of building and maintaining capabilities and on how this new infrastructure worked in response to recent disasters and emergencies, such as SARS, Hurricane Katrina, and foodborne illness (e.g., the 2006 E.coli O157:H7 outbreak from spinach), the 2009 H1N1 influenza outbreak and subsequent vaccination campaign, the Joplin, Missouri, and Moore, Oklahoma tornadoes, California wildfires, and Superstorm Sandy.

Biosurveillance

The post-9/11 era brought increased attention to the threat of biological terrorism, public health surveillance, and infectious disease detection. Although Congress has provided specific funding to enhance pandemic flu preparedness since FY2004 (Lister, 2007), concern for infectious and communicable disease preparedness increased following the identification of emerging infections in recent years, including the 2003 outbreak of coronavirus that caused SARS and the rising potential of influenza pandemic following the transmission of the H5N1 avian influenza strain (bird flu) to humans and the 2009 H1N1 influenza pandemic (Morse, 2012). These growing concerns have led public health to research enhanced surveillance methods in order to provide early warning of outbreaks. Enhanced surveillance methods also help to provide decision makers with information about outbreaks and improve situational awareness during an outbreak (Sell, 2010). This area of research primarily looks at epidemiological investigation processes and the use of tools, data sources, and methods to conduct surveillance for disease detection. BioWatch, which is an environmental detection system designed to detect the release of select biological agents, BioSense, an early warning clinical case presentation system, and the National Biosurveillance Integration System, which helps to increase situational awareness by

monitoring information sources in near real-time are examples of the tools that are being used to assist with unusual case presentation (Estacio, 2006).

One area of particular focus in the research literature is syndromic surveillance, which uses automated data sources to identify clusters of symptoms and may be especially helpful in identifying novel infections that have pandemic potential and to inform the development of a framework for risk assessment (Morse, 2012). Current research efforts on syndromic surveillance include investigations on the effectiveness of using data from emergency departments to detect illness clusters (Hiller et al., 2013), with particular attention to the evaluation of detection of the 2009 H1N1 influenza pandemic (Cinti et al., 2011; Enanoria et al., 2013; Rosenkotter et al., 2013). Other recent surveillance research efforts include, for example, testing the utility of electronic health records (EHR) and ambulatory care data to help in the detection of illness outbreaks (Stigi et al., 2013).

Public health laboratory testing also plays a critical role in the early detection, characterization, and confirmation of actual or potential exposure to hazards and is designated as a CDC capability to support surveillance under the biosurveillance domain. Laboratory capabilities to perform rapid tests have greatly expanded since 2001, and functions in event investigation may include analysis of clinical samples, food, or environmental samples (CDC, 2011). Lab work is used to assist with diagnosis confirmation and contact tracing, and aids the epidemiological investigation into sources and modes of transmission. Research in this area demonstrates that public health laboratories serve an important role in assisting state and local health departments during outbreak investigations, as was seen during the 2009 H1N1 influenza pandemic when the virus was confirmed within days following the start of investigation into the reports of clustered respiratory illness (Enanoria et al., 2013; Juliano et al., 2009). Nonetheless, such events also show that laboratory capacity can get quickly overwhelmed during the investigation of a novel and emerging hazard and can be hampered by data gaps such as details of test outcomes by sample type and sampling date, as occurred with the investigation into the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012 (de Sousa, Reusken, & Koopmans, 2014). The complexity of newly recognized syndromes where the specific etiological agents are not known at the onset of an investigation shows us that surveillance efforts and laboratory analysis, along with professional judgment informed by past lessons learned are all critical tools needed in order to rapidly identify and control disease threats (Goodman, Posid, & Popovic, 2012).

Community Resilience

The community resilience domain of the CDC's Public Health Preparedness Capabilities includes community preparedness, defined by the CDC as "the ability of communities to prepare for, withstand, and recover – in both the short and long terms – from public health incidents" and community recovery, defined as "the ability to collaborate with community

partners (e.g., healthcare organizations, business, education, and emergency management) to plan and advocate for the rebuilding of public health, medical, and mental/behavioral health systems to at least a level of functioning comparable to pre-incident levels, and improved levels where possible” (CDC, 2011). Indeed, the capacities of community resources are increasingly being recognized across government policy on preparedness and recovery. Along with biosurveillance, countermeasure distribution, and mass casualty care, HSPD-21 identifies community resilience as one of the four most critical components of public health and medical preparedness (The Homeland Security Digital Library, 2007). Moreover, the main two goals of the National Health Security Strategy (NHSS) are to “build community resilience and strengthen and sustain health and emergency response systems” (U.S. Department of Health and Human Services, 2009).

Citizen readiness and participation is a particularly important factor in many public health mitigation strategies and countermeasures. Operational response time in a disaster can be prolonged for hours or days, medical supplies may become limited, and hospitals and healthcare facilities may become overburdened and unable to provide medical services to all who need them. In such scenarios, at-home and community care would serve as an essential function (Schoch-Spana et al., 2007). Of particular concern to public health are at-risk populations who may be particularly susceptible to hazards, including children and the elderly (McCormick, Pevear, & Rongbing, 2013) or persons whose functional needs require assistance with communication, medical needs, maintaining functional independence, supervision, and transportation (C-MIST) (Kailes & Enders, 2007). Individual-level preparedness for the public health and medical consequences of disasters may also require specialized supplies, such as fever-reducing medications and electrolyte replacement drinks for dehydration, in addition to general emergency preparedness supplies (e.g., flashlights, battery-operated radios, water, nonperishable foods, medications for chronic conditions, etc.) (MMWR, 2012).

The body of research on the sociology of disasters and community emergency planning demonstrates the value and usefulness of including communities in complementary and mutually supportive emergency preparedness and response functions and indicates that the civic infrastructure should be seen as a key resource in preparing for health emergencies (Dynes, 1994; Dynes, 2006; Glass & Schoch-Spana, 2002; Schoch-Spana et al., 2007). The principles of community engagement are not new to public health in general; many public health efforts depend on active collaboration with community members, including, for example, the management of chronic disease and the limiting of the spread of infectious diseases such as HIV and STDs. Much policymaking and research is devoted to understanding the social and physical environments that influence lifestyles, behaviors, and the incidence of illness and how socioeconomic factors influence disparate health outcomes (Iton, 2009; Schulz & Mullings, 2006). These public health community engagement approaches are now being applied in the context of emergencies and disasters.

Further research on the role of community engagement in public health preparedness is needed to further expand our understanding of how local and state public health departments are connecting with the civic infrastructure in order to determine which concepts and measures are most effective and to learn whether sufficient resources are devoted to this function (Gill, 2012; Schoch-Spana, 2012; Uscher-Pines et al., 2012). Established models of community engagement that come from the fields of public health (e.g., health education and promotion), public administration (e.g., mediating structures theory) and evaluation (e.g., community-based participatory research) (National Institutes of Health, 2011) can inform this line of study.

There is extensive and ongoing dialogue regarding the concept and measurement of resilience in emergency management and disaster research, a full review of which is beyond the scope of this chapter. Some key works in this area include, for example, that of Norris et al. (2008) who posit that community resilience emerges from four sets of primary adaptive capacities: (1) economic development, (2) social capital, (3) information and communication, and (4) community competence. Together these adaptive strategies provide a strategy for disaster readiness. Cutter, Burton, & Emrich (2010) attempt to identify metrics and standards for measuring resilience. For in-depth reviews of this area of research, see Kendra et al. (2013) and the Community and Regional Resilience Institute Research Reports available at <http://www.resilientus.org/publications/research-reports/>.

Countermeasures and Mitigation

The countermeasures and mitigation domain of the CDC's public health preparedness capabilities encompasses medical countermeasure dispensing, medical materiel management and distribution, non-pharmaceutical interventions, and responder safety and health. Preparedness for medical countermeasure dispensing and exercise of these procedures is a significant effort of health departments throughout the country, particularly for the nation's largest cities and metropolitan statistical areas that receive federal funding through the CDC's Cities Readiness Initiative (CRI). CRI is a program designed to assist large metropolitan public health departments in planning for the possible need to dispense antibiotics to an entire population within 48 hours following a large-scale bioterrorist event (CDC, 2010). Research in this area looks to evaluate drills and exercises and provide baseline data that may inform national standards in operational capabilities of the key elements of successful medical countermeasure dispensing, including personnel call down, site activation, facility setup, pick-list generation, and dispensing throughput (Jones et al., 2012). Recent events such as the 2009 H1N1 influenza outbreak have also allowed practitioners and researchers to assess medical countermeasure dispensing capability through real-world response. Changes in antiviral guidance and multiple sources of information, determining appropriate uses/recipients, staffing/personnel issues, and shortages of pediatric antivirals were among the biggest challenges for local health departments in an assessment of the H1N1 countermeasure dispensing response, and

recommendations are made to use such data to improve planning for future events (Hunter, Rodriguez, & Aragon, 2012).

Non-pharmaceutical interventions include the strategies of isolation and quarantine, restrictions on movement, social distancing, external decontamination, hygiene, and precautionary protective behaviors (CDC, 2011). Most of these strategies require public cooperation, and as such the research in this area is closely connected to the literature on community engagement discussed above. While the findings demonstrate that the public can be counted on as an ally in public health response, additional research is still needed on whether interventions such as mask-use, school and workplace closures, and mandatory travel restrictions are considered to be effective in limiting disease transmission and are acceptable to the public in order to enhance compliance (Aledort et al., 2007; Mitchell et al., 2011).

CDC designates the safety and health of public health agency staff and the ability to support the needs of hospital and medical facility in responding to an incident as a high priority and a component of its preparedness capabilities. This includes both medical and mental/behavioral health risks (routine and incident-specific) that may be faced by staff responding to an incident, along with identifying personal protective equipment, medical countermeasures, and mental/behavioral health support services that may be needed to protect staff. Risk-specific safety and health training is an important aspect of safeguarding responders, and monitoring and surveillance are also needed to identify adverse health effects during response. Research on managing the safety and health of workers responding to disaster supports the need for these services and calls for both pre-event and “just-in-time” training on likely hazards, along with hands-on instruction in the use of protective equipment. Recommendations also suggest consideration of pre-deployment medical review to ensure “fitness for duty” and call for testing and evaluation of this safety management function through exercise simulations and drills (Reissman & Howard, 2008).

The issue of responder safety is also noted as a factor in public health and healthcare workers’ stated ability/willingness to report to work during a pandemic-type event (Garrett, Park, & Redlener, 2009; Gershon et al., 2009). While research has demonstrated that the expectation of widespread role abandonment among disaster response workers is unfounded (Trainor & Barsky, 2011), concern for the safety of family and personal safety concerns were reported as significant anticipated barriers to willingness to work during a pandemic. Such findings have important policy implications, as interventions such as preferential access to antiviral therapy or to personal protective equipment to both the employee and his or her immediate family were reported to significantly reduce anticipated absenteeism (Garrett, Park, & Redlener, 2009).

Preparedness-related training and education for public health workers is a significant issue related to responder health and safety. Such training places new demands on the

public health infrastructure and risks lack of standardization and duplication of efforts (Lurie, Wasserman, & Nelson, 2006; Gill & Gershon, 2010). Moreover, research shows that preparedness training and education for public health workers does not typically take place outside government agencies to include entities such as community health centers that may be needed to play a critical role in response to a large-scale event (Ablah et al., 2010). In order to inform future training and education needs, research work continues to focus on assessing the knowledge, skills, and attitudes (core competencies) a public health professional must bring to a response (Gebbie et al., 2013).

Incident Management

Public health as a component of all-hazards preparedness must comply with jurisdictional standards and practices and the National Incident Management System (NIMS). The incident management domain of the CDC's preparedness capabilities addresses this need for emergency operations coordination. The role of public health in preparedness must be scalable to the degree that incidents have as their root cause or primary outcome a public health and/or medical focus (e.g., pandemic influenza). Research work in this area focuses on the need for model development that applies traditional incident management principles to the functions and processes required of public health (see, for example, Barbera & Macintyre, 2002).

Information Management

Risk communication is another area of interest to researchers, especially as emergency public information and warning and information sharing are identified as preparedness capabilities under the Information Management domain identified by the CDC (2011). Although disaster researchers have been studying the topic of risk communication and response to warnings for decades and the same factors of effective risk communication apply (e.g., trustworthiness and credibility of message source, accuracy and clarity of the information, guidance and specificity about what action should be taken) (Fitzpatrick & Mileti, 1994), there is less known about risk communication processes in the context of public health threats than other hazards such as hurricanes and tornadoes (Glik, 2007). This is, in part, due to the fact that large-scale public health incidents occur less often, so there are fewer opportunities to study public response to health risk information and also because characteristics of public health hazards (e.g., disease transmissibility, ambiguity surrounding the hazard agent, slow moving) can distinguish such events from other hazards.

While the field of public health has much experience in public health education, typical health promotion messages are usually one-directional (from authorities to general public) and do not account for variations in how different groups receive messages (Holmes, 2008). In the context of a public health threat, public acceptance and adherence to official guidance is not only important for individual safety, it is also critical to event management. In order to control and limit transmission of an infectious disease, for example, the success

of non-pharmaceutical interventions requires a cooperative and mutually respectful relationship with the public (Glass & Schoch-Spana, 2002; Holmes, 2008). In a study conducted by Baurle Bass et al. (2010), for example, that looked at factors influencing individual decision making in considering whether to comply with a hypothetical quarantine order, differences were seen among demographic groups, including gender, age, education levels, and income groups. Women, older people, those with lower levels of education and lower income said they were more willing to follow quarantine orders and stay at home for two weeks or to travel to a facility if asked to by the government. Current research in this area reinforces the importance of tailoring emergency health communications for different groups, taking into account individual beliefs and circumstances, and emphasizes the importance of gaining public cooperation in following government-issued guidance (Pribble et al., 2010; Wray et al., 2012).

Surge Management

The surge management domain of the CDC's public health preparedness capabilities includes fatality management, mass care, medical surge, and volunteer management. Fatality management for public health is "the ability to coordinate with other organizations (e.g., law enforcement, healthcare, emergency management, and medical examiner/coroner) to ensure the proper recovery, handling, identification, transportation, tracking, storage, and disposal of human remains and personal effects; certify cause of death; and facilitate access to mental/behavioral health services to the family members, responders, and survivors of an incident" (CDC, 2011, p. 11). Case study data from international events on outcomes of mass fatality management, including body recovery and storage, identification, disposal of human remains, and health risks, provides some data on lessons learned and ongoing needs (e.g., Morgan et al., 2006). Nevertheless, further research to measure the ability to effectively perform this capability in the United States is needed, especially considering scenarios where clinicians may be unfamiliar with a particular disease (Borio et al., 2002). Mass care refers to the need for coordination with other agencies in order to address the public health, medical, and mental/behavioral health needs of those impacted by an incident at a congregate location, such as an emergency shelter (CDC, 2011). Further research to demonstrate effective performance of this capability is also needed.

Medical surge addresses the need to provide adequate medical evaluation and care when the normal capacities of the medical infrastructure of an affected community are overwhelmed. The U.S. Department of Health and Human Services provides a management framework for medical surge, consistent with the National Response Plan (NRP) and NIMS, in its Medical Surge Capacity and Capability (MSCC) handbook (Barbera & Macintyre, 2007). Yet, researchers also continue to explore and refine the conceptual framework of surge capacity (Hanfling, Altevoigt, & Gostin, 2012; Watson, Rudge, & Coker, 2013), including its definition and the factors that contribute to effective surge response (Hick, Barbera, & Kelen, 2009), the use of the term *surge*, the types of events that may cause a surge (e.g., a

contained event versus a population-based event), and the categories of victims involved in such an event (Bonnett et al., 2007).

Research on the potential need for volunteer public health personnel in response to a hazard event primarily focuses on functions, training, and education, and assessment of performance of existing volunteer programs such as the Medical Reserve Corps (MRC) (Savoia et al., 2013), which is a national network of medical, nursing, pharmaceutical, dental, veterinary, and administrative professionals who could supplement local public health response capacity. Similar research is conducted in the field of disaster medicine, looking at how health professionals can supplement clinical services (see Cruz et al., 2012, for example). Research findings show that volunteers are a valuable and reliable resource who can quickly be called on to support responders in the field following disasters and public health emergencies. MRC units have been activated many times for local or state-led and federal response efforts. Volunteers who serve near to where they live and work provide a benefit through unofficial connections with their communities (e.g., a preexisting working or social relationship with local police or EMS workers) (Frasca, 2010).

Research in the area of volunteer management also assesses the involvement of nontraditional vaccine providers in actual mass vaccination efforts, such as in response to the 2009 H1N1 influenza pandemic (Seib et al., 2013). Findings demonstrate that volunteer providers perform an essential function in supplementing capacity during an emergency event. Pharmacists, in particular, reported much higher than normal patient volumes during the H1N1 vaccination effort, which indicates a broad capacity for community reach (Seib et al., 2013) and an important consideration for future planning. Importantly, however, alternative providers may have less experience administering vaccines, which may have an impact on confidence or self-efficacy. Research also looks at this possible impact, as a lower sense of self-efficacy may impact willingness to respond in an emergency. Findings indicate that participation in vaccine training and exercise efforts for nontraditional vaccine providers enhance the willingness to respond (Seib et al., 2012).

Disaster Behavioral Health

Another substantial area of research in public health preparedness is the study of disaster behavioral health. Primary foci in this area include and the development of plans for disaster behavioral health (McIntyre & Goff, 2011); the effectiveness or appropriateness of intervention approaches, especially the use of Critical Incident Stress Management (CISM), Psychological First Aid (PFA), and the FEMA/Substance Abuse and Mental Health Services Administration (SAMHSA) Crisis Counseling Programs (CCPs) (Fox et al., 2012; Gard & Ruzek, 2006; McIntyre & Goff, 2011); and the analysis of best practices in disaster behavioral health (McIntyre & Goff, 2011).

Both PFA and CISM are considered to be most appropriate in the immediate post-event phase of disaster response. CISM was originally developed to help emergency

personnel (e.g., fire, police, EMS) deal with the stressful situations they encountered as a routine part of their work. In the context of disaster response, however, CISM is considered to be a controversial approach to crisis intervention. Research findings show CISM to be ineffective in preventing post-traumatic stress disorder (PTSD). Moreover, some studies found possible worsening of stress-related symptoms in persons who received CISM. As a result, it is recommended that CISM be utilized only with extreme caution, if at all, and should never be considered a mandatory intervention (Bledsoe, 2003). The focus of PFA is on promoting an environment of safety, calm, connectedness, self-efficacy, and empowerment. Activities of PFA might include helping people to acquire basic needs for food and shelter, listening to people and providing accurate information about the disaster, and finding out about the types and locations of services that are available and direct people to those services. Research findings indicate that adequate scientific evidence for PFA is lacking but that it is widely supported by expert opinion (Fox et al., 2012). CCPs are only implemented following federally declared disasters and are delivered primarily by non-mental health professionals. The main goal of the CCP program is to educate the community on normal responses to disaster. The program is intended to serve all members of a community affected by a disaster through services including outreach, education, brief supportive counseling, and professional referrals. CCPs are often in place for longer periods of time than PFA or CISM programs, often for several months following a disaster (McIntyre & Goff, 2011). Research on disaster behavioral health also looks at training and education practices for public health workers and finds that quality and effectiveness of training programs are difficult to assess due to a wide range of curricula, lack of recordkeeping on trainees, and inconsistent credentialing of trainers (Gill & Gershon, 2010).

Trends and Directions in the Science

Scientific study and evaluation of public health preparedness is relatively new. With limited empirical research data available, the field still faces unanswered questions as to what defines a state of preparedness (Fraser, 2007). Typical assessments of plans and infrastructure are carried out through internal, self-report activities, such as drills and exercises and routinely produced after-action reports that often lack reference to standard measures and are not widely circulated, and are limited in determining accountability (Lurie, Wasserman, & Nelson, 2006). Nonetheless, as consensus continues to build across federal, state, and local public health agencies, and among professional organizations and researchers, we can expect to see a refinement of the concepts and activities that are measured and evaluated. Also, as state and local public health agencies work to meet the requirements detailed in the CDC's preparedness capabilities (2011) and are evaluated based on their associated performance measures, research will likely be conducted to determine progress on meeting those objectives. The Association of State and Territorial Health Officials (ASTHO), in cooperation with the CDC, recently developed a measure of health security and preparedness, the National Health Security Preparedness Index (NHSPI),

in order to account for progress made by the significant investment in public health preparedness (Lumpkin et al., 2013).

Current research in the field of public health preparedness includes development and evaluation of the usefulness of technology, educational games, and scientific tools to assist in disaster and emergency management. For example, researchers are working to develop a photographic-based reunification tool, vetted by emergency managers, which would be used to assist families in locating and identifying loved ones in the event of separation following a disaster (Chung et al., 2012). Other researchers are exploring the many potential uses of geographic information systems (GIS) and geospatial technology (GT) for assisting public health preparedness, such as estimating post-disaster patient surge in a geographic area and providing estimates of special needs populations (Curtis, Curtis, & Upperman, 2012). Exploration of computer simulation modeling and educational games is also underway for use in training and exercises to facilitate decision making in public health emergency response (Araz et al., 2012; Olson et al., 2012).

Analysis of public health preparedness and response should also be conducted from the perspective of organizational change. Little research exists on how public health organizations have adapted to major changes in the structure and the fluctuating availability of resources for public health emergency preparedness following the events of September 11, 2001. As funding continues to decline, research can be conducted to examine the impact of limited and decreasing funds on community participation in public health emergency planning and response.

Much is to be gained by better integrating public health and the practice of emergency management. There is great value in the potential for these disciplines to become more strongly connected to better advance policy and strengthen the nation's resilience to hazards. Because of the complex role of public health and emergency management, this topic warranted special attention. This chapter only touched on the many important areas of research underway and the significant trends we can expect to see in the years to come.

A PRACTITIONER'S PERSPECTIVE

Introduction

In October 2001, the United States was still reeling after the attacks of 9/11. However, a new and frightening form of terrorism emerged. An innocuous letter was received by U.S. Senator Tom Daschle's office that contained a threat unlike any that first responders had been previously dealt. It contained deadly anthrax spores. Opening that letter set off a sequence of events that not only ended in the deaths of five people, it closed a number of federal buildings and postal facilities, caused an untold number of responses by federal, state, and local first responders, and caused intense concern as the public perceived that they were individually being targeted by our enemies.

It is from the perspective of a first responder turned public health preparedness practitioner that this discussion on public health preparedness begins. While emergency management as we presently know it grew out of the Cold War and Civil Defense, 9/11 and the anthrax letters of 2001 were the genesis for public health preparedness since that time. In the initial grant guidance, those charged with public health preparedness had to rapidly engage to develop plans for many different biological and chemical agents capable of causing illness, injury, and death in their communities. These early efforts yielded plans and procedures derived from a multitude of sources including the military and fire and emergency medical services, which were thought to have the most experience with these new threats. These "traditional" emergency managers and experts in incident command and management provided a foundation on which public health preparedness was built and adapted as practice.

Public Health's Organization at the Local, County, Regional, State, and/or Federal Levels

Historically, public health has been organized around ten essential functions of public health agencies. These are illustrated in Figure 1.

The 10 essential functions were developed in the mid-1990s and have essentially stayed the same since that time. While they broadly define what public health does, it is not all-inclusive or necessarily prescriptive in how it is done. In many cases, these functions may be given to several agencies in any given locality, region, or state.

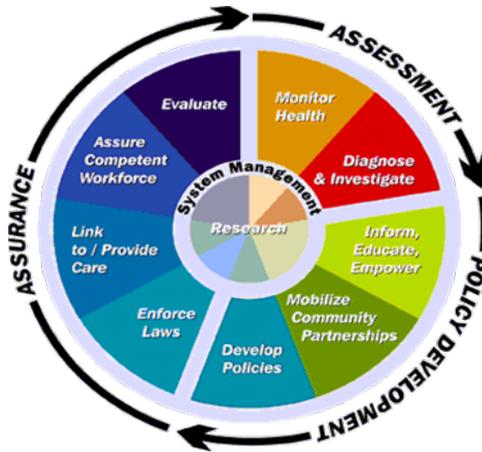


FIGURE 1 - 10 ESSENTIAL FUNCTIONS OF PUBLIC HEALTH (CDC 2013)

It is not the purpose of this discussion to go into detail on these functions other than to note that although public health preparedness is not defined as a specific function, it does provide the framework that supports and allows public health preparedness to happen. What is important is that public health preparedness is addressed as diversely as public health is delivered in communities. This diversity manifests itself in how public health agencies are structured in each state and their statutory responsibilities.

The federal responsibility for public health clearly rests within the Department of Health and Human Services (DHHS). DHHS is a large organization housing many important functions such as the Food and Drug Administration (FDA), the Centers for Medicare and Medicaid Services (CMS), and the Health Resources and Services Administration (HRSA). The CDC is among the most visible of the DHHS agencies and handles public health functions. The CDC traditionally has provided funding to state health agencies that supported the various communicable and chronic disease programs. In the case of federal public health preparedness funds, the CDC is the conduit to get these funds to the states.

A discussion of how public health is organized in a state is important in the context of the level of funding an agency receives. For example, some states have strong centralized and statewide health departments that provide direct services to individuals at the community level, such as Delaware and Hawaii. These agencies have the advantage of being able to retain all the federal funds at the state level and apply programs and funding consistently across the entire jurisdiction.

Other states have systems of strong local health departments such as New Jersey and California. The state health agency retains some funds to build and maintain capabilities that provide to support local health departments. However, a significant portion of the funds are sub-granted to the regional, county, or local health department. The state health department monitors and reports progress. Each local health department then has to assign personnel to develop their own local or regional preparedness program. Other states

are hybrids of these two ends of the spectrum, with regional health agencies covering several counties or jurisdictions or a combination of state-provided services in localities without local health departments. Four cities are directly funded by the CDC due to their size and significance - Washington, DC, New York, Chicago, and Los Angeles.

Public Health Preparedness and Federal Support

Prior to 9/11, many public health agencies only had a tangential relationship with emergency first responder services, mostly through emergency medical service oversight responsibilities that many public health agencies held. In many locations, activities in public health preparedness were beginning as an outgrowth of several programs:

- Public Law 104-201 (1997), The Defense Against Weapons of Mass Destruction Act (or the Nunn-Lugar-Domenici Act),
- The Biological and Chemical Improved Response Programs of the United States Army's Soldiers Biological and Chemical Command (SBCCOM),
- The Metropolitan Medical Response System (MMRS) program. The Nunn-Lugar-Domenici Amendment to the National Defense Authorization Act for FY 1997 authorized funding for "Metropolitan Medical Strike Teams" (MMST) that subsequently evolved into the MMRS Program. To date, ongoing Congressional appropriations have funded contracts with 124 MMRS jurisdictions nationally (Capitol Region Council of Governments, 2002).

However, the funding was limited in these programs and not specifically directed to public health agencies, although many benefitted from the training and opportunities to work with partners in the emergency response and healthcare communities.

The spectrum of terrorism witnessed in the 9/11 attacks and the October 2001 anthrax mailings (in what came to be known as the Anthrax Case) placed the preparedness status of public and private healthcare systems squarely in the public eye. Public health was the governmental agency that had the understanding, interest, and knowledge of the healthcare system. Clearly, public health had a role. The federal government recognized that the national public health infrastructure was insufficient to respond to these emerging threats. State and local public health budgets had been eviscerated, and laboratory, surveillance, and epidemiology functions — the core activities of a public health department — were woefully underfunded and not integrated into traditional emergency responders or emergency management systems. An Institute of Medicine report (2002) stated that the public health infrastructure suffered from "vulnerable and outdated health information systems and technologies, an insufficient and inadequately trained public health workforce, antiquated laboratory capacity, a lack of real-time surveillance and epidemiological systems, ineffective and fragmented communications networks, incomplete domestic preparedness and emergency response capabilities, and communities without access to essential public

health services.” In addition to inadequate public health infrastructure, the healthcare system, specifically hospitals, did not have the capacity or capability to respond to the types and quantities of illnesses and injuries that were now being predicted by intelligence, modeling, and simulation.

In response, Congress allocated additional funds to augment the public health and medical capability of communities across the country. DHHS was charged by the President and Congress to facilitate getting the funding from the federal government to public health departments.

DHHS utilized its existing agency structure to assign responsibility for executing Cooperative Agreements with the fifty state, four local, and eight territorial health departments that were to receive funds. A Cooperative Agreement is “an alternative assistance instrument to be used in lieu of a grant whenever substantial Federal involvement with the recipient during performance is anticipated. The difference between grants and cooperative agreements is the degree of Federal programmatic involvement rather than the type of administrative requirements imposed” (DHHS, 2007). A cooperative agreement rather than a grant was selected, as there is shared responsibility between the federal agency and the recipient to ensure success.

The DHHS CDC was selected to administer the Public Health Emergency Preparedness Cooperative Agreement, which was focused on improving public health department and governmental response to disasters and emergencies. The DHHS HRSA was initially selected to administer the Hospital Preparedness Program (HPP) Cooperative Agreement, issuing funds to grantees who then determined the best strategy to utilize the funds at the local level. Eventually in 2006, this program was moved to the DHHS Assistant Secretary for Preparedness and Response (ASPR) for administration, and the program was renamed and refocused as the Healthcare System Preparedness Program.

Public health agencies were now forced to deal with an influx of billions of dollars and no discernible plan or long-term strategy for capability building. Many agencies were not capable of accepting these responsibilities due to limited staffing and resources and limited procurement capacity. The influx of CDC and HRSA funding to state and local health departments for activities to increase public health and hospital preparedness forced the creation of offices within those health departments that were dedicated to public health preparedness.

With these funds came federally mandated benchmarks and performance measures to assess progress on an annual basis, which provided early standards for preparedness. The benchmarks and performance measures were modest in their approach, realizing that all organizations were working from the most basic infrastructure. Benchmarks and performance measures tried to establish a minimum, population-based level of capability and capacity. For example, most public health departments already had an epidemiology

capability. The cooperative agreement program built upon these previous activities and focused on the capability to rapidly identify and communicate epidemiological findings within the public health department.

More challenging perhaps than managing the funding was actually defining two key questions: What constitutes “preparedness” for public health agencies and medical facilities? What is the public health role in disasters? These two points are discussed in the following sections.

Public Health Preparedness

While public agencies may be structured differently throughout the country, they are united in a common effort to develop the plans, policies, procedures, and resources necessary to prepare for public health emergencies. Preparedness is commonly defined as a state of full readiness and readiness for action. Presidential Policy Directive (PPD)-8: National Preparedness, issued in March 2011, defines the term *national preparedness* as “the 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 to the security of the Nation” (DHHS, 2011). Preparedness for public health has been difficult to define, although it has evolved since the first focus area Critical Capacities and Critical Benchmarks were identified.

Initially, public health preparedness activities focused expressly on bioterrorism or, namely, anthrax. The Anthrax attacks and subsequent nationwide alarm about anthrax drove initial public health efforts. Efforts were focused on identifying the competencies necessary for coordinating the resources to respond to a complex local, regional, or statewide response to one or more confirmed cases of anthrax. No sooner were public health agencies working through the Anthrax attacks when federal officials became concerned about the threat of the smallpox virus being used as a biological weapon. Public health agencies had to rapidly shift their focus from anthrax to a new, supposedly eradicated, and dangerous disease that included a vaccine that had not been administered to the general population since the early 1970s. This was followed in 2003 by the SARS epidemic, a newly defined disease that further challenged the public health community. SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained (CDC, 2004).

Preparedness seemed to be defined by the disease the public health department was planning for and not the functional capabilities, many of them similar, necessary to address the threat. For example, agencies were required to develop smallpox plans that were separate from their anthrax plans, with an extensive list of requirements for the plans to meet the federal guidelines. This resulted in plans that contained, in many cases,

redundant information. Having those plans, in a federally approved status, constituted “preparedness.”



These early attempts were driven in part by the recognition that no locality or state was prepared to manage the spectrum of bioterrorism threats of concern. For the next ten years, following the CDC program guidance, or receiving favorable scores on a Strategic National Stockpile (SNS) Technical Assistance Review (TAR) or on the Trust for America’s Health “Ready or Not” reports, tended to be the driving force in public health preparedness. Many agencies focused efforts on striving to obtain the highest TAR score they could so that they could proclaim that they were “prepared” in news releases to their constituents.

In the fall of 2011, the CDC issued Public Health Preparedness Capabilities: National Standards for State and Local Planning, a document that describes a capability-based approach to preparedness with clearly measurable tasks across the fifteen capabilities listed in Figure 2. The creation of this document was a considerable step forward in that it articulates planning, training, and resource elements that should be held by the public health department in order to be considered “prepared.” Public health departments now had a broad view of their roles and responsibilities and the criteria against which they could measure. It was soon realized that the work of the prior ten years had advanced public health agencies’ capabilities and capacity to respond considerably. However, many agencies still had many gaps in their plans, policies, procedures, and resources that remained to be filled.

The Public Health Role

Prior to the events of 9/11, public health agencies were typically not among those listed in the classic sense as “first responders” such as fire, law enforcement, emergency medical services, hazardous materials, and search and rescue agencies. Those agencies tended to have a historic and defined response role or at least one to which it could easily adapt.

At the most basic level, public health agencies were often assigned to the role of health and medical system coordination by the state and local emergency management agency. This was consistent with the then Federal Response Plan’s Emergency Support Function #8 – Health and Medical role when an emergency operations center was activated. The ESF #8 functions were broad in nature and were not adopted uniformly by all public health agencies nationwide. More often than not, plans and procedures did not clearly and succinctly define responsibilities of the public health agency.

The grant guidance that came along with the federal funding soon defined the public health department’s anticipated or expected roles. Initial public health activities centered on meeting requirements outlined in seven “Focus Areas” described in the grant guidance (CDC, 2004).

- Focus Area A addressed the development of regional and statewide plans to address bioterrorism, emerging infectious diseases, and other public health threats as well as involving stakeholders in the development of the plans. Focus Area A also addressed the development of plans to receive, distribute, and dispense the Federal National Pharmaceutical Stockpile (now known as the SNS).
- Focus Area B focused on building disease surveillance and epidemiological investigation capacity.
- Focus Area C addressed the development of laboratory capacity to test for bioterrorism agents.
- Focus Area D addressed the development of laboratory capacity to test for chemical terrorism agents.
- Focus Area E addressed the development of Health Alert Networks to communicate critical public health information with stakeholders.
- Focus Area F addressed the development of capacity to provide health and risk communications to the public and stakeholders.
- Focus Area G addressed the building of capacity within the agencies to provide training on bioterrorism, emergency infectious diseases, and other public health emergencies to public health practitioners and stakeholders.

Within each of these Focus Areas were “Critical Benchmarks” that provided the detailed requirements for the public health department to achieve and defined the activities that they should be expected to provide. Public health agencies also found themselves managing funds and serving as the point of coordination for hospital preparedness activities through the DHHS Hospital Preparedness Program. Soon public health agencies found

themselves “at the table,” in the sense that they began working more closely with traditional first responder agencies and emergency managers at all levels.

Compounding the challenge to public health departments was that while they were working to address the Focus Areas and Critical Benchmarks, they were also building the organization that would become a public health preparedness office. This required staff, many with advanced degrees or education, to work in these offices. Public health departments often had to work through complex local- or state-mandated budget justification and personnel procedures to get the people on board to address these activities.

The public health role continued to evolve as a number of devastating hurricanes hit the Gulf Coast in 2005 and resulted in a widely criticized state and federal response. While public health is typically involved in post-hurricane disease monitoring, Hurricane Katrina and shortly thereafter Hurricane Rita demonstrated that public health departments were looked upon to address not only a wide variety of issues beyond bioterrorism, but natural hazards as well. A Rand Report (2007) suggested that “the Hurricane Katrina response highlights the gaps that result when public health officials at all levels of government are uncertain about their respective roles. In fact, we would argue that many of the breakdowns we observed in communications, the distribution of needed medical and other supplies, and serving special needs populations primarily occurred because there was considerable ambiguity regarding the respective roles of federal, state, and local public health agencies and other governmental institutions.” A balanced, all-hazards approach to planning and greater coordination with emergency management and the community would have provided a better foundation for all preparedness efforts.

Subsequently, federal guidance and public health preparedness practitioners adjusted to an all-hazards approach that is evident today and is reflected in the development of capabilities-based plans and policies outlined in the CDC’s Public Health Preparedness Capabilities: National Standards for State and Local Health Departments (CDC, 2011). Large-scale natural disasters such as Hurricane Irene and Tropical Storm Lee (2011), and Superstorm Sandy (2012) have reinforced the role that public health plays as a vital member of the community emergency management team.

This role is dynamic and varied depending on the capabilities retained by the public health department. For a great many public health agencies, they have been long-time members of the local, county, regional, or state emergency management team. As a team member, sometimes they are at the forefront organizing and providing medications or vaccines, as in a bioterrorism event. Many times, they provide support in the areas that require typical public health consultation, subject matter expertise, or field evaluation. Some public health departments have developed significant logistics capabilities to support a variety of response activities related to the public health role in medication distribution and

dispensing, mass fatality operations, environmental evaluation for hazardous materials, and mass casualty, medical surge, and mass sheltering operations (see the discussion below on preparedness). These added capabilities complement those available to emergency management and support community response and recovery activities.

Public Health Preparedness and Reduced Funding

In the face of diminishing state and federal support, public health departments have had to take a hard look at all their programs, including preparedness. The early cooperative agreement funding of the seven Focus Areas was intended to build capacity and capability in public health skill areas of disease surveillance, investigation, and control; public health laboratories; and public information, traditional areas of public health practice that had been underfunded for many years due to ongoing budget constraints. The federal funds helped energize these program areas and build them into the greater preparedness program that had been previously nonexistent in most public health agencies. The initial influx of funds, with \$1.6 billion in 2004-2005, had not been seen in public health agencies in years and, for the greater part, was invested in building the designated capacity and capability in agencies. In 2013, overall federal support for public health preparedness had fallen to \$584 million. In a 2012 report, the Trust for America's Health (TFAH) observes that "federal funds for state and local preparedness have decreased 38 percent from FY 2005-2012 (Centers for Disease Control and Prevention (CDC) funds, adjusted for inflation). States are reporting that gains in public health preparedness achieved in the past decade since September 11, 2001 are eroding, and since 2008, budget cuts have resulted in more than 45,700 job losses at state and local health departments." Public health agencies are making difficult choices in how funds are utilized at the state level and distributed to local health departments.

The Future of Public Health Emergency Preparedness

In the years since 9/11, public health as a member of the emergency management team has continued to evolve. There is increased recognition from emergency management that public health has a distinct role to play in the greater emergency management discussion. The 2009 H1N1 influenza pandemic demonstrated that public health has a major role in incidents involving widespread infectious diseases, but that there were distinct interdependencies with emergency management and the first responder agencies, including volunteer recruitment and coordination, coordination in the use of facilities (such as school buildings), and support from law enforcement and emergency medical service providers for mass vaccination centers.

Traditional public health functions such as epidemiological surveillance and investigation and laboratory testing have been brought into greater view in the emergency management and law enforcement fields due to intense interest in foodborne disease

outbreaks and post-disaster environmental health issues such as water supply protection and mold remediation. Insect-borne diseases such as Eastern Equine Encephalitis, Lyme disease, and West Nile Virus have brought emergency management and public health together to jointly address these issues as common enemies to the public that they mutually protect. In addition, these public protection efforts have broadened the coalition of agencies that have mutual responsibilities to protect the public's health, such as agriculture and environmental protection. In states that have intelligence fusion centers, public health is represented among law enforcement and other agencies providing important information on threats to the public.

However, as public health departments are more fully integrating with emergency management, they face new challenges. With the onset of the 2008 economic recession and subsequent and continuing budget crisis into the spring of 2013, the public health emergency preparedness cooperative agreement has seen annual reductions in funding to the states. The impact of these funding resources is significant in that states are finding it increasingly difficult to maintain, let alone introduce, new programs. Many states have to cut back their preparedness programs at the same time that the Public Health Preparedness Capabilities are being rolled out and program-by-program status assessments are being conducted (Trust for America's Health, 2012). The published capabilities provide direction to public health agencies where they can focus their funding efforts, but the same public health agencies may be unable to sustain capabilities that they have previously attained, affecting their overall preparedness for all-hazards incidents. National organizations such as ASTHO and the National Association of City and County Health Officials (NACCHO) have documented the effect of the diminishing federal support for public health in general and public health preparedness in particular (ASTHO, 2012; NACCHO, 2013).

Public health agencies are fortunate that they have many dedicated individuals who hold a deep belief in the value of the work that they perform. These individuals are the ones who will continue to rise to the challenges of reduced funding in order to maintain their preparedness programs, because those programs have evolved over the last 10 years to be integral parts of the overall identity of the public health agency.

Conclusion

Much advancement in public health emergency preparedness over the past 1313 years of federal funding is a direct result of academic research and incorporating traditional public health practices. While modern medical countermeasures require extensive research and many of the best practices are often determined by academic research, there is much that can be learned through the observations of an experienced emergency manager. Recognizing and merging this experience can only improve our preparedness efforts.

BRIDGING THE DIVIDE

In this section, we detail consensus and differences in perspectives from the viewpoints of the practitioner and the researcher. We conclude with recommendations for future directions in practice and research. This chapter is intended to provide a review of the critical areas of public health preparedness practice and research that have developed over the last decade following the 9/11 terrorist attacks. Although some preparedness funding did precede 9/11, the authors of this chapter agree that the emergency management system in general and public health system in particular underwent significant changes in response to the terrorist events of 2001, most especially with regard to the inclusion of public health in emergency management. We hope that this contribution will promote enhanced dialogue between practitioners and academics, as a core purpose in conducting research is to validate processes, procedures, plans, and tools used by response organizations to address emergency response or recovery tasks.

Areas of Consensus

The Overall Impact of Policy to Establish a Public Health Preparedness Infrastructure

It is clear that the terrorist events of September 11, 2001, and the anthrax attacks that occurred shortly thereafter had a profound impact on the public health system in the United States. Federal, state, and local governmental organizations in the United States underwent significant reorganization in the interest of enhancing national security and emergency preparedness. In contrast to the gradual changes that the U.S. public health system saw throughout the twentieth century, the terrorist events that occurred at the start of the twenty-first century resulted in swift and dramatic changes in priorities (Bush & Perez, 2012; Lister, 2005). In addition to performing routine public health functions and essential services, health departments across the United States were charged with making significant enhancements to emergency preparedness and response capacities. Shortly after the 2001 attacks, Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act (Public Law No. 107-188), often referred to as “the Bioterrorism Act,” intended to enhance the nation’s ability to respond to bioterrorist threats, emerging infectious diseases and other public health emergencies (Redhead et al., 2002). Among the many provisions and changes to preexisting law that this act made available was a substantial increase in funding to states and local health departments to increase capacities for bioterrorism and public health emergency preparedness (Lister, 2005; DHHS, 2013).

The authors of this chapter agree that public health practitioners faced a significant adjustment while integrating these new resources and responsibilities into the existing public health infrastructure. Efforts included workforce development and the creation of new emergency planning and response positions within nearly all local and state health departments; training and education for public health workers, with particular focus on

emergency and incident management systems; development and/or enhancement of emergency preparedness and response plans; drills and exercises to test and evaluate plans; development and enhancement of surveillance systems; laboratory and communication enhancements; hospital preparedness programs; and surge resources such as the MRC, the SNS, and Point of Distribution/Dispensing (POD) sites (Lister, 2005; Lurie, Wasserman, & Nelson, 2006; Trust for America's Health, 2012). Now a decade following the initial implementation of preparedness-specific resources and responsibilities, health departments continue to work to meet the requirements and benchmarks associated with their ongoing preparedness funding programs and define the role of public health in the broader emergency management context.

For both practitioners and researchers, this leads us to ask how we define and measure public health preparedness. For practitioners, the ability to define and measure preparedness is especially important in order to identify successes in achieving improved levels of readiness and for identifying gaps in plans, policies, procedures, and resources where improvement is needed. It is also necessary for researchers to agree upon an operational definition of public health preparedness in order to consistently measure and evaluate the phenomena of interest. As mentioned earlier, the CDC's 2011 issuance of the Public Health Preparedness Capabilities: National Standards for State and Local Planning (CDC, 2011a), intended to provide guidance and recommendations to state and local planners in order to direct preparedness resources to priority areas, identify areas for improvement, and develop plans for sustainability. For practitioners, these capabilities and their associated functions and performance measures provide a consistent framework for defining and measuring preparedness. Researchers are less settled on the notion of what defines a state of preparedness (Gibson, Theodore, & Jellison, 2012), especially if that is to be set by markers such as performance measures or the capacity of a state or local health department to meet its funding agency objectives (Fraser, 2007). Nonetheless, as this discussion goes on, researchers work to measure and evaluate public health preparedness and response activities.

Interorganizational/Interorganizational/organizational/organizational Coordination

Disaster preparedness and response require complex, multi-organizational coordination, and as public health began to take a more prominent seat at the emergency management table, agencies found themselves revising or building new partnerships with federal, state, and local emergency management and other first responder organizations, community-based and faith-based organizations, healthcare providers, the media, and the public. Such responsibilities can require resources that potentially overlap with the plans or policies of emergency management (e.g., plans for setting up mass prophylaxis/POD sites, management of the medical reserve corps volunteers, coordination with hospitals, health care providers, and mental health services).

Several federal agencies are involved in the delivery of grant-funded programs to support public health preparedness systems. In 2012, DHHS made a change to the way grants are delivered for the HPP and the Public Health Emergency Preparedness (PHEP) cooperative agreement in order to encourage cooperation and align the programs through a joint award. According to DHHS efforts are underway to facilitate coordination among all federal emergency preparedness programs (DHHS, 2012). With the potential for territorial issues, competition over funding, and/or differences in agency priorities, however, the concern here is in the duplication of effort and misallocation of funds and personnel. Especially given the decrease in available funding for public health preparedness agencies (discussed below), it is necessary that resources are stretched and used in a way that is meaningful and that agencies are not competing with one another. Further evaluation of how inter- and intra-organizational coordination is being experienced by public health practitioners is needed.

The Impact of CDC's Centers for Public Health Preparedness and Preparedness and Emergency Response Learning Centers programs on Academic-Practitioner Collaboration

The Centers for Public Health Preparedness (CPHP) program was established by the CDC in 2000 to connect academic expertise from accredited schools of public health with state and local health agencies in order to develop, deliver, and evaluate preparedness education. The CPHP program closed in August 2010, and CDC-sponsored preparedness education work now continues through fourteen Preparedness and Emergency Response Learning Centers (PERLCs) (CDC, 2012). The CPHP and PERLC programs serve as an invaluable resource to many state and local health agencies in supporting preparedness training and education needs and personnel.

In 2008, the CDC's Office of Public Health Preparedness and Response awarded additional funds to seven accredited schools of public health to establish Preparedness and Emergency Response Research Centers (PERRCs) (CDC, 2012). The PERRCs are directed to conduct all-hazards research using a public health systems approach to look at the organization, function, capacity, and performance of components in public health preparedness and response. The findings from the research projects conducted by PERRCs will be used to help inform public health practice, planning, and policy development at all levels of government.

The PERRC program serves as an especially important and innovative bridge for connecting academic research to practice. Through the CDC and ASPR, DHHS has funded many important projects that evaluate a wide range of public health emergency management activities. This research has certainly had a positive impact on plans and response actions in areas such as epidemiological surveillance and medical countermeasures and can serve as a model for all emergency management research and practice. And while this important training, education, and research work continues through the CDC's PERLC and PERRC programs, the number of Centers have dramatically declined

since the inception of the CPHP program and the funding available to the remaining Centers has also declined, which leads us into the next area of consensus: our concern regarding the decrease in available funding for public health preparedness.

Decrease in Funding for Public Health Preparedness

Congress acted quickly after the events of September 11, 2001, to make available a significant increase in funding, guidance, and technical assistance to help state, local, and tribal health agencies improve capacity to prepare for and respond to a range of health emergencies and other hazards. In addition to the 2002 Public Health Security and Bioterrorism Preparedness and Response Act, described earlier, the Pandemic and All-Hazards Preparedness Act (PAHPA) was signed into law in 2006 following several devastating hurricanes and increasing concern of the potential for an influenza pandemic after the transmission of the H5N1 influenza strain (bird flu) to humans (Lister, 2005). Among other things, the PAHPA established within DHHS the ASPR; provided new authorities for a number of programs, including the advanced development and acquisitions of medical countermeasures; and called for the establishment of a National Health Security Strategy (DHHS, 2009). The PAHPA law was recently reauthorized (DHHS, 2013).

Nonetheless, over the last seven years, from fiscal years 2005 to 2012, CDC funds to support public health preparedness have been cut by more than 38% and additional cuts are expected. The cuts to federal budgets are further compounded by recent cuts in state budgets and among public health jobs and programs (Trust for America's Health, 2012). Practitioners and researchers alike are very concerned that the decrease in funds available to public health preparedness practice, training, education, and research may limit the nation's ability to respond to public health emergencies and other hazards. Health departments are being asked to do more with less and overstretch existing resources. This also leads to concerns about the sustainability of existing preparedness and response capabilities.

Differences in Perspective

Capabilities-Focused Practice Versus Areas of Research Emphasis

As discussed above, the enormity of the task in creating a public health preparedness and response infrastructure dominated practice activity in this field throughout the last decade. Moreover, demands of meeting funding requirements and benchmarks primarily dictated how most health departments define preparedness. For researchers, work continues to focus on agreement of a conceptual and operational definition of preparedness for the purposes of measurement and evaluation (Gibson, Theodore, & Jellison, 2012). Beyond this issue, practitioners are primarily focused on meeting the goals of the tasks outlined by the CDC's public health preparedness capabilities. In addition, while much research work in this field specifically targets the assessment of practice activities (e.g., surge capacity, risk

communication), especially the work being conducted by the CDC's PERRCs, researcher work is not always aligned with the priorities of practice entities. Researchers, too, are accountable to their primary institutions and often must adhere to guidelines and priorities of their funders and administrators.

Related to this is the question of the usefulness of research to applied practice. The authors of this chapter concur that an important focus moving forward should be on finding a better way to communicate research findings to practitioners in an efficient and practical way. Most disaster research is conducted prospectively, before the incident, or retrospectively, after the incident. Research in this field is inherently difficult because the variables cannot be controlled and immediate event and post-disaster data collection is especially difficult to collect. This leaves a lot of planners and response managers questioning the value of research and how it can be applied to their particular situations. It is challenging to help practitioners apply the findings of research to their plans and, in particular, their communities. The research conducted on points of dispensing in an urban environment may be totally different for the vast majority of suburban and rural areas of this country. How do those public health emergency managers take the lessons of research conducted in Los Angeles and make it work in the middle of Kansas? This is the core question that needs additional attention.

The Role of Guidance in Public Health Practice

In 2011, FEMA introduced the Whole Community concept to emergency management, where Whole Community is “a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests” (FEMA, 2011). Public health has traditionally engaged in this type of activity throughout its history, as this is a basic principle for public health as they look at solving health issues in larger populations. It would seem that public health would be the champion of this approach with emergency management. It is not clear that this is the case.

Guidance may or may not be the result of academic research. Most guidance seems to evolve from experience that produced some level of positive outcome, whether it was sustained or not. Practitioners tend to rely on, or are requested to rely on, guidance to formulate policy or plans. Guidance on NIMS, points of dispensing, medical surge, and other areas was based on principles and practices borrowed from other areas. There has been much retrospective research on many of these practices; however, it is not known how well the research has translated into improvements in how public health incorporates these findings into current practice. Continuing reductions in funding make it less likely that agencies will make changes to plans or training already in place.

As another example, emergency managers have wrestled with the challenge of helping people with “special needs” for many years prior to the 9/11 attacks. Hurricanes Katrina, Rita, and, more recently, Irene and Sandy have clearly shown that progress in providing services to persons who do not have the resources or ability to help themselves remains a challenge. FEMA’s Whole Community approach is welcome, though it is uncertain how the guidance will be applied and how emergency management and public health will work together. This is a particularly important question in light of diminishing emergency management and public health funding.

It is generally acknowledged by both public health and emergency managers that asking the public to be an active participant in all-hazards preparedness is the most appropriate course of action. However, it has always been a challenge, perhaps because of the perception that the public is something to be controlled and the realization that community engagement will require intensive interactions through a multitude of means by public health and local emergency managers, something that may not happen simply because of a perceived lack of time, staff, and decrease in funding. Change will be difficult in such circumstances even when academic research is available.

Future Directions and Recommendations for Practice and Research

Assessing need while simultaneously building the practice infrastructure has been a major challenge in public health preparedness throughout the last decade. Funding provided through the PHEP cooperative agreement and the CPHP/PERLC programs is not intended for research work; thus, practitioners must rely on other sources to ensure evidenced-based practice. Certainly, there is significant federal government support for research work through mechanisms such as the PERRC program, but the clear distinction in funding for training and education, practice, and research results in disconnect. At present, there is no standard process through which practitioners and academics communicate in order to streamline and synchronize their work.

Recommendation 1: Enhance collaboration between practitioners and academics, whereby academics conduct standardized needs assessment and research work on behalf of practitioners.

Rather than academics presenting practitioners with a portfolio of available products that they may utilize, we recommend that academic units develop ongoing, working relationships with practice partners in order to conduct standardized assessments and evaluation of practice activity that meets the particular needs of local and state jurisdictions.

Recommendation 2: Enhance inventory and distribution of available training materials, tools, and research findings to help translate research into practice.

At present, there is no centralized database to house the many tools and resources that have been developed by both practitioners and academics through the various PHEP programs over the last decade. Although significant cooperation occurs between jurisdictions to share templates, tools, resources, and lessons learned through LISTSERVs, internet and intranet programs, and professional relationships, there is no centralized database or inventory accessible for practitioners or researchers. A better inventory of products and resources available to health departments would significantly reduce duplication of resources and “reinventing the wheel.”

Recommendation 3: Simplify research results into usable tools for practitioners.

A main criticism of research in the public health preparedness and response realm is the complex and dense nature of findings summaries. Oftentimes, the result of research work is published in scholarly journals, written for an academic audience. Practitioners do not necessarily have the time or means to access specialty journals. Moreover, research findings may not be summarized in a way that makes explicit the applicability of the work to practice.

One example of how researchers are working to overcome this research-practice translation gap is through the development of “research briefs.” These are usually one- or two-page summaries of completed research work, and they often highlight the pieces of the work that are particularly applicable for practice (see, for example, the research briefs prepared by the North Carolina Preparedness and Emergency Response Research Center at <http://cphp.sph.unc.edu/ncpercc/research/briefs.htm>).

Recommendation 4: Move beyond after-action reporting and conduct broader evaluative research.

Typical assessments of public health emergency plans and infrastructure are carried out through internal, self-report activities such as drills and exercises, and routinely produced “after-action reports” that often lack reference to standard measures, are not widely circulated, and are limited in determining accountability, depending on the methodological approach used in its development (Lurie et al., 2006; Stoto et al., 2013). In order to provide evidence-based results, practice assessments must be conducted in a more rigorous and systematic way through broader evaluative research. This means that funds must be made available to researchers to conduct such work and that researchers continue to work with practice partners in order to build trust and to conduct such work on their behalf.

Research on Whole Community should also be expanded according the principles of effective community engagement to include entities such citizens at-large, local civic and religious leaders, voluntary organizations, and nonprofit and social service organizations that provide critical community services during both routine times and periods of crisis. Such

an approach may help capture the perspective of a more diverse range of community stakeholders and allow for examination of whether plans and policies are feasible and realistic for people with different needs and circumstances.

Further research is also needed to assess the impacts of organizational change. Little research exists on how public health organizations have adapted to major changes in the structure and the fluctuating availability of resources for public health preparedness following the events of September 11, 2001. Information is also lacking on the extent to which these resources have been applied to the dual use of strengthening the overall public health infrastructure. Research should be conducted to examine the impact of limited and decreasing funds on public health preparedness.

Recommendation 5: Integrate preparedness into higher education curricula for the next generation of public health practitioners.

Emergency management training, education, research, and practice are specialized concentrations in the public health world. This area is slowly increasing its presence as a core and mainstream function of public health, but still has a ways to go in terms of how this work becomes sustainably integrated into general public health practice and research. A key area for facilitating this integration is the domain of public health training and education. At present, most schools of public health do not teach emergency preparedness and response as part of its core curriculum (other than in the context of traditional public health work, such as infectious disease control or environmental health, whereby principles of such practice are expanded when applied to a large-scale emergency). Rather, most emergency preparedness and response training and education occur in specialized programs (see FEMA's list of "Colleges, Universities and Institutions Offering Emergency Management Courses," available at: <http://www.training.fema.gov/emiweb/edu/collegelist/>). While such programs are very important in training specialized practitioners who are particularly qualified to work in emergency preparedness and response roles, it is also necessary that the public health field, in general, begin to integrate and understand this work as a core function and responsibility. Including such training in mainstream public health educational curricula would help to integrate preparedness and response roles and responsibilities into core public health work.

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CHAPTER 7: PLANNING AND IMPROVISATION IN EMERGENCY MANAGEMENT

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ABSTRACT

This chapter includes both a theoretical and practical examination of planning and improvisation in emergency management. The first portion of the chapter explores the concept of planning from a theoretical perspective and includes a critical assessment of its relation to community disaster preparedness. This section also restates important principles of sound disaster planning and underscores the need for improvisation due to limitations in human cognition and the uncertain and dynamic nature of disasters. A new concept of “spontaneous planning” is introduced and is defined as “a semi-formal process of evaluating existing and unfolding problems as well as determining potential solutions and required emergency management actions.” A research agenda pertaining to this concept is identified at the conclusion of this initial discussion of pre-disaster planning and post-disaster improvisations. The second part of the chapter reiterates, from a real-world perspective, the value of planning and improvisation alike. Although planning – the zenith of analytical decision-making – is clearly regarded to be a vital and indispensable foundation of emergency management, this section underscores the fact that policy is generally based on, and is almost completely biased toward, planning. For this reason, it is asserted that there is also a need to teach emergency managers about the significance of improvisation. Examples are provided to illustrate why improvisations are necessary in and beneficial for disaster response operations. The final portion of this practical exposition reveals how factors such as education and training may increase the probability of successful improvisations in the future. The final section of the chapter seeks to assimilate the theoretical and practical findings presented previously. Agreement was reached in regards to the benefit of planning, the primacy of planning in policy, the necessity of improvisations, the requirement for improved response operations, and the false dichotomy between planning and improvisations. Divergent thoughts about rationality, intuition, and training are also mentioned in this integrative section. The chapter concludes with recommendations to further examine the nature of planning during response improvisations, the extent of rationality in emergency management, the value of intuition in decision-making, and the need to identify who should receive training about improvisation. The major lesson to be drawn from this chapter is that researchers and practitioners share many common views about planning and improvisation, and agree that more discussion is required to resolve differences of opinion and advance the emergency management profession.

AN ACADEMIC'S PERSPECTIVE

Introduction

Whether justified or not, academic research is sometimes very critical of practical efforts to deal with disasters. For instance, scholars have written about the problems resulting from the creation of the Department of Homeland Security and the numerous failures evident in the response to Hurricane Katrina (see Aguirre, 2004; Waugh & Streib, 2006). Nonetheless, disaster literature closely parallels the real-world concerns of professional emergency managers in many ways. Academic studies provide thorough explanations of disaster behavior and thoughtful discussions of theoretical nuances, but they also reveal trends in catastrophic events and explore the implications of diverse emergency management policies (Bissell, 2013; Natural Hazards Center, 2006; McEntire, 2004; Quarantelli, 1993).

The interesting relationships between scholarship and practical application are especially visible in the primary responsibilities of emergency managers. For instance, those involved in civil defense have long been — or should be — concerned about strategic planning and tactical operations (Canton, 2007) and today's emergency managers are also interested in incident action planning for improved responses (see the recommendations of the Incident Command System [ICS] and National Incident Management System [NIMS]). Scholars have also focused research on the concepts and processes of planning, improvisation, and adaptive organizational responses. This chapter will discuss these theoretical topics and their ties to the profession of emergency management. While it would be impossible to include all of the relevant research, the chapter does attempt to cover some of the most important work on these subjects. In order to avoid repetition, the terms *practitioner* and *professional emergency manager* will be used interchangeably.

Disaster Preparedness and Planning

According to the academic literature, a major duty of the emergency manager is to prepare for disasters. Preparedness is one of the fundamental phases or functional areas within comprehensive emergency management (McEntire, 2003). The concept and goal of preparedness implies a variety of efforts to get ready to cope with disaster situations that cannot be avoided (Lindell, Prater, & Perry, 2007). Developing an operational plan of action, training personnel in rescue techniques, the stockpiling of supplies, and the earmarking of funds for relief operations are examples of such preparedness activities (Perry & Lindell, 2007; Brown, 1979). Other components of preparedness may include hazard identification, grant application and administration, disaster exercises, public education, and the creation of Community Emergency Response Teams (CERTs) (Waugh & Tierney, 2007; McEntire & Myers, 2004).

Although preparedness includes a very broad array of actions that take place prior to the occurrence of a disaster, the majority of an emergency manager's time is spent on

disaster planning. *Planning* is sometimes equated in the research with overall *community disaster preparedness efforts*, and the use of these terms may often lead to confusion. For instance, Perry and Lindell (2007, p. 8) have argued that planning is “preparing before the event” while others have pointed out that planning is one specific type of activity within the preparedness phase of comprehensive emergency management (McEntire & Myers, 2004). Therefore, preparedness and planning have a complex association. They are undoubtedly related, but still have unique activities that are performed by the professional emergency manager.

However, it should be underscored that planning is a unique activity within all aspects of emergency management, and it is related to many functions including mitigation, preparedness, response, and recovery. Regardless, planning often conjures up the development of official documents (i.e., plans or emergency operations plans) that describe “strategies and procedures covering a range of disaster events” (Phillips, Neal, & Webb, 2012, p. 484). Before disasters occur, emergency managers identify possible hazards (whether natural, technological, or anthropogenic man-made) and determine what must be done to react to them effectively. For instance, emergency managers also write annexes dealing with specific hazards (e.g., hurricanes, hazardous materials, terrorism, etc.). Anticipatory measures for a disaster may include planning for various functions such as warning, evacuation, sheltering, and other post-disaster operations. In this sense, planning “provides an opportunity to explore how organizations [will deal with] . . . uncertainties about the future” (Kartez & Lindell, 1987, p. 487).

While the exact relationship between planning and other phases is at times debated, the literature is clear about the relevance and benefits of planning. Planning is regarded to be an essential part of life, but it is especially vital in the context of disasters (Clarke, 1999). Many assert that emergency operations plans are a crucial component of emergency management (Lee, Woests, & Heath, 2007). Planning is believed to increase disaster preparedness (Lee, Woests, & Heath, 2007). Scholars also declare that planning promotes efficiency and lessens the impact of crises (Wang & Ritchie, 2010; Penrose, 2000). In short, planning is believed to help design and manage a future crisis in an effective manner (Pollard & Hotho, 2006; Quarantelli, 1984).

While planning is regarded to be vital, not all plans are the same. The literature illustrates that disaster plans may be informal or formal in nature (Perry & Lindell, 2003). An example of an informal plan is the verbal agreement a business or family might have about how the organization or parents and children will respond to an emergency (e.g., where to meet after a fire). An example of a formal plan is the Comprehensive Emergency Operations Plans created by the local emergency manager to anticipate possible or impending disaster situations and be eligible for Emergency Management Performance Grants (EMPGs). It is this document and the process of creating it that are commonly referred to in the literature

about emergency management. However, emergency managers are also responsible for Hazard Mitigation Action Plans and others related to recovery.

Regardless of the type of plan being discussed, researchers agree on many important principles that should guide the planning process (Quarantelli, 1997). Some of these principles and others are discussed below.

1. Disaster plans must be comprehensive and inclusive. An important principle of planning is that emergency managers should consider all types of hazards, vulnerabilities, disaster impacts, and functions to be performed and potential actors to be involved (Blanchard et al., 2008). If an emergency manager does not strive to anticipate the big picture, it is likely that anticipatory planning will be limited, ineffective, or inefficient.

2. Plans must be based on actual behavior. Another principle of disaster planning is that plans should be based on accurate assumptions about human behavior. Planning is considered to be unrealistic if it is based on erroneous views about human activity in disasters (e.g., the prevalence of panic and looting, the breakdown of society, the helplessness of victims, the need for donations, etc.). Alternatively, some plans are regarded to provide more correct policy recommendations because they are based on behavioral expectations (e.g., evacuation planning under the Federal Emergency Management Agency's [FEMA] National Hurricane Program). Thus, planning will serve as an effective guide for certain situations to the extent that it is based on valid perceptions about human behavior (Drabek, 1985).

3. Plans must assign responsibilities. Plans should also identify important activities to be performed in a disaster and who will be responsible for those functions. Laws, executive orders, command and control structures, and plans like the National Response Framework have this goal in mind. Along these lines, Dynes (1994) suggests that emergency authority will not be ensured through the creation of an artificial authority structure. Instead, it is advisable that the "pre-emergency authority" carries over and serves as the basis for activity in a disaster situation.

4. Planning must facilitate coordination. A major purpose of planning is to identify important priorities and needed resources, and find ways to enhance coordination so major considerations do not fall through the cracks. Planning, such as the development of Concept of Operations (CONOPS), should provide information so that the parties involved know what the others are doing and can take this knowledge into account in disasters (Perry & Lindell, 2007; UNA-USA, 1977). Planning requires cooperation in all levels of government (McEntire, 2003; Brown, 1979) and across the public, private, and nonprofit sectors.

5. Planning must avoid common pitfalls. Planning should not be based on the "paper plan syndrome" or promote the creation of "fantasy documents" as an end unto itself. In some cases, practitioners might regard plans to be a physical document that is

developed solely to comply with legislation or to satisfy public demands (i.e., the paper plan syndrome). Research reveals that some community leaders falsely assume that they are prepared for a disaster by simply having a plan (Auf der Heide, 1989). When asked if they are ready for possible contingencies, they frequently reply that they “have a plan” (but ironically seem to forget to undertake the many other preparedness activities that are needed to build response and recovery capabilities) (McEntire, 2006). For instance, New Orleans had a very detailed plan prior to Hurricane Katrina (covering hurricane impacts and evacuation and sheltering functions), but the city was not able to implement the plan when this disaster occurred. In this sense, organizations sometimes use plans as a form of rhetoric to convince audiences that they ought to believe what an organization says. Instead of identifying realistic actions to be taken, some plans have so little instrumental utility in them that they warrant the label “a plan without means” or a “fantasy document” (Clarke, 1999). Therefore, planning must avoid the fantasy documents mentality and reject the paper plan syndrome.

6. Planning must be an ongoing process. The development of a disaster plan should not be a one-time occurrence (McEntire, 2003). Plans should be viewed as an interim product based on information and understanding at one particular moment, and subject to revision. In other words, the plan itself represents a snapshot of that process at a specific point in time (Perry & Lindell, 2003) and plans are out of date almost as soon as they are published (Canton, 2006). Planning must thus be a recurring process, to be revised and changed as risk changes over time (Perry & Lindell, 2003). In addition, plans should be tested, exercised, validated, and then updated again with sufficient input from all relevant parties. That is why plans are best described as “living documents.”

The literature discussed above is – or should be – closely related to the practice of emergency management. However, this is not to suggest that planning will resolve all types of disaster problems. For instance, research reveals that there can be a big gap between what was planned for and what actually happens in a disaster crisis (Quarantelli, 1997). There are at least three reasons for this. First, planning itself may be inadequate. Humans are not omniscient so plans may not fully anticipate what could happen or identify the best ways to react to emergencies. Second, there is often a failure to recognize that the principles of disaster planning are not the same as the principles of crisis management (Quarantelli, 1988). The differences between disaster planning and crisis management are significant because traditional emergency planning occurs before a disaster, while the management of a crisis takes place in the heat of the incident, emergency, or disaster. Along these lines, planning is intended to be a rational process with no serious time constraints, while the management of crises requires difficult decision making due to incomplete, incorrect, or changing information as well as the rapid implementation of policies resulting from a pressure to act as soon as possible. Third, politics may impact planning. Political leaders may not fully understand emergency management, and they even

might try to shape planning to downplay risk. For these reasons, good planning (or strategy) does not automatically translate to good managing (or tactics) (Quarantelli, 1993).

Perhaps some of the weaknesses of planning result from the fact that there is still surprisingly insufficient research about the topic itself (Tierney, Lindell, & Perry, 2001). Most studies are based on interviews of individual emergency managers or anecdotal evidence of what works and what does not. In addition, there are a variety of topics related to planning that are not adequately addressed by current research. For example, how much commitment do emergency managers devote to planning on a daily basis and is that the most effective use of their time? What else do emergency managers need to do to make sure that disaster plans are effective in practice? How are Threat, Hazard Identification, and Risk Analysis Assessment (THIRA) and Hazard Mitigation Action Plans (HAZMAPHMP) related to, or different than, emergency operations plans? Should more emphasis be given to recovery planning? If so, why? To what extent does planning ensure success in response and recovery operations? Is more planning required to address non-Stafford Act events, National Contingency Planning events, or public health events? These and many other questions about planning deserve further investigation by current researchers.

Improvisation

Although planning is regarded to be an important responsibility of the emergency manager in the preparedness phase, both researchers and practitioners acknowledge that this activity may be confronted with potential limitations. For instance, scholarship illustrates that it is impossible to plan for all disasters (McConnell & Drennan, 2006). There are simply too many variables to consider, and the nature of disasters is usually synonymous with unpredictability. A historical examination of planning reveals that plans rarely work as anticipated. Planning is hindered by the lack of knowledge about future events; no one is able to predict the future precisely. Such improbable, unanticipated, and consequential events have been described by Mendonça, Cunha, Kaivo-Oja, and Ruff as “wild cards” (2004). They are characterized by rarity, uncertainty, significant and broad consequences, complexity, and urgency (Mendonça, 2005, p. 957). These wild cards thus “unfold in a unique way” so plans need “to be complemented with action based on . . . knowledge acquired and processed on the spot” (Mendonça et al., 2004, p. 210).

Research has indicated that practitioners have, at times, relied too heavily on plans that constrain initiative and effectiveness during response operations. Dynes (1994) argues that disaster plans are often based on a military model that stresses adherence to standard operating procedures (SOPs) and the centralization of authority. This perspective views disasters as episodes of social chaos that can only be rectified by following SOPs and implementing command and control over organizations (Webb & Chevreau, 2006; Dynes, 1994). However, sometimes adhering to plans and following routine orders has devastating consequences, as Weick illustrates in his study of the Mann Gulch fire (1993). Thus, plans

may at times have a limiting effect on response (Canton, 2006). Disaster scholars have argued that effective emergency response therefore requires organizational flexibility (Blanchard et al., 2008; Quarantelli, 1997; Neal & Phillips, 1995). In other words, evidence suggests that plans are more of a general road map than a script that should be followed verbatim (Quarantelli, 1993). Plans are meant to be scalable and flexible based on the type of event, magnitude, duration, impact, etc.

While planning and plans have become less rigid and restrictive over time (compare FEMA's Local Planning Guide 101 in 1994 to its Comprehensive Preparedness Guide 101, version 2 in 2012), research suggests that improvisation is an essential response activity (Kendra & Wachtendorf, 2006; Mendonça, Giampiero, & Wallace, 2001; Kreps, 1991). Improvisation has been defined as an "adaptation to the unique circumstances of an unfolding situation" (McEntire, 2007, p. 431). Improvisation allows for a departure from existing plans and suggests tolerance of, or even appreciation for, flexibility and creativity. Webb and Chevreau articulately state that "successful responses to crises occur not in spite of but because of various unscripted activities, improvised behaviors, and emergent organizational structures" (2006, p. 67).

The 2010 Deepwater Horizon oil spill is a good example of the need for improvisation in practice at the tactical level. Prior to this ecological disaster, British Petroleum planned to use skimmers to clean up oil if a spill were to occur on the ocean. However, the company did not anticipate that the drilling mechanism would suffer a catastrophic failure far below the ocean surface and spew over 100 million gallons of crude oil into the Caribbean Sea Gulf of Mexico. For this reason, engineers had to devise a way to cap the source of the oil with cement and other mechanisms at a depth of 3,600 feet. This solution was not based on a prior plan but was, in essence, a departure from the existing operating procedure (e.g., the use of skimmers). The improvised reaction eventually contained the amount of oil spilled in what could have been an even worse environmental catastrophe.

There is also the possibility of improvisations emanating within or from emergency operations centers (EOCs). After the Deepwater Horizon oil spill, public officials created a "Forward Emergency Operations Center" and implemented their own version of community relations and claims assistance. Because FEMA was not involved in this event, there was a need to obtain resources for those who were affected by the spill. EOC personnel therefore worked closely with British Petroleum to meet the needs of those affected and assist the state in recovery efforts.

Another example comes from New York City after the terrorist attacks of September 11, 2001. Operational decision makers had no way of overseeing the response to the 9/11 attacks after the EOC in World Trade Center #7 was gutted by fire. Emergency management officials therefore set up a temporary makeshift EOC in a police training facility and later moved operations to a pier on the Hudson River. This ad-hoc re-establishment of the EOC

clearly facilitated resilience in New York City on 9/11 (Kendra & Wachtendorf, 2003). In other disasters, those in the EOC may make decisions in order to meet the unique challenges at hand. For instance, emergency managers in Texas and Louisiana had no plans to respond to the disintegration of the Space Shuttle Columbia upon its re-entry into the atmosphere. They either adapted or departed from existing plans or created new methods altogether for dealing with scattered debris, recovery of remains, public information, and other needed functions after this tragedy in 2003.

As can be seen, emergency managers and others responding to disasters must therefore plan to improvise (Webb & Chevreau, 2006). While research has certainly identified the need for flexibility and creativity, as in the case of the water-borne evacuation of Manhattan on 9/11 (Kendra & Wachtendorf, 2003), it is possible that scholarship has not fully investigated if improvisation is always beneficial. Is it possible that first responder free-lancing, citizen emergent behavior, and improvised responses (e.g., showing up without being summoned, beginning work without informing incident commanders, and exploring creative ways to fight high-rise fires resulting from terrorist attacks) had deadly consequences in the World Trade Center complex? Therefore, the advantages and disadvantages of improvisation (based on studies of real-life examples) need to be addressed further in disaster scholarship.

Spontaneous Planning

As indicated, the literature on planning and improvisation is extremely important in emergency management. However, it is possible that the existing research is too simplistic. For instance, the concepts of planning and improvisation are sometimes discussed in a dichotomous manner. “A significant hypothesis from this research states that managers respond to crisis challenges either rapidly by relying upon familiar norms and templates or with creative and flexible improvisation” (Roux-, Duffort , & Vidaillet, 2003; see also Weick, 1993; Staw, Sandelands, & Dutton, 1981). That is to say, pre-disaster planning and post-disaster improvisation are believed by some scholars to be alternative or opposite activities. However, Kreps admits that “without improvisation, emergency management loses flexibility in the face of changing conditions. Without preparedness, emergency management loses clarity and efficiency in meeting essential disaster-related demands. . . . Improvisation and preparedness go hand in hand” (Kreps, 1991, p. 33). Harrald agrees and asserts that agility and discipline are critical factors for the success of response operations (2006).

For this reason, scholars are now recognizing that the relationship between planning and crisis management is more complex than is often assumed (Eriksson & McConnell, 2011). Studies of organizational responses to disasters now show that there is a unique relationship between improvisation in a disaster and prior planning activities. For instance, Mendonça and Wallace’s work (2007) examines distinct types of activities that emerge

based on plans and improvisations. Wachtendorf (2004), and Wachtendorf and Kendra (2005), also found three ways in which improvisation is related to disaster plans:

- **Reproductive Improvisation:** Although a system for response is in place, the disruption of a disaster impels the organization to improvise to achieve the desired result. In this case, the emergency managers replicate existing plans through improvised efforts.
- **Adaptive Improvisation:** While a response system may have been identified in advance, the organization adapts the plan to unfolding conditions or opts for a novel approach altogether. In this situation, emergency managers improvise because the existing plan is not totally appropriate for the situation.
- **Creative Improvisation:** If no plan exists to deal with environmental demands, organizations may establish new courses of action that are emergent in nature. Under these circumstances, emergency managers improvise because no plan captures the essence of the unfolding disaster.

While research is currently exploring different ways that improvisation may be based on — or depart from — existing plans, “the processes that actually constitute improvisation have been comparatively underexplored” (Mendonça & Wallace, 2007, p. 547). In particular, it is possible that scholarship has not fully recognized that planning itself occurs within improvised response operations. For instance, Alterman declares that planning may occur before a disaster, but he is also careful to acknowledge that planning will occur during and after a disaster as well (1995; see also Kreps, 1991, p. 34).

Sense making is in some ways an example of this blended activity (Weick, 1995). Sense making is the construction of reality in one’s mind based on environmental clues and a person’s prior experience and frame of reference. In terms of disasters, sense making is a context gathering and analysis process that informs and shapes ongoing decision-making and subsequent response operations. While sense making may occur automatically based on the necessity of any given situation, it is not necessarily a process that excludes the attempt to pursue rational decision making and logical implementation strategies.

In addition to Weick’s work on sense making, the research of Mendonça and others implies that the improvisation process is complex and may include its own planning activities. “Unplanned-for contingencies . . . create the need for the responding organization to develop and deploy new procedures in real-time” (Mendonça, 2005, p. 954). In many disasters, emergency managers must recognize that “no planned-for procedure applies to the current situation” and that organizations must seek the “real-time development and deployment of new procedures” (Mendonça, 2005, p. 955). The resulting “organizational improvisation refers to the convergence of conception and execution” (Mendonça et al., 2004, p. 210). It is a “problem solving” effort (Mendonça & Wallace, 2007, 549) that may include the gathering and assessment of environmental cues,

situational awareness, a reflection on prior experience, learning on the job, hunches about the future, the development of “mental models,” identification of goals, competition and negotiation of options, and strategies on how to accomplish new priorities (Hamra et al., 2012; Mendonça, 2005; Ford & Schmidt, 2000).

These arguments bring up the recently introduced concept of “spontaneous planning.” McEntire, Kelly, Kendra, and Long define this phenomenon as “a semi-formal process of evaluating existing and unfolding problems as well as determining potential solutions and required emergency management actions” (2013, p. 3). In other words, this concept conjures up “a decision making endeavor undertaken during or after disasters to identify available options and specify additional or novel tactical guidelines based on situational awareness and the acquisition of context-specific knowledge” (McEntire et al., 2013, p. 3). McEntire and his colleagues are careful to note the differences between planning, spontaneous planning, and improvisation.

Spontaneous planning is not equivalent to routine planning or emergent improvisation. Spontaneous planning is distinct from normal emergency planning because it does not take place before an emergency or disaster occurs. While spontaneous planning is indeed an anticipatory activity (like the development of emergency operations plans), it is only witnessed [immediately before or] after an incident occurs and takes into account actual hazards and unfolding disaster consequences. Spontaneous planning is, at times, based on or expands from existing planning documents, but it may also depart from agreed-upon procedures and result in completely unanticipated post-disaster activities. (McEntire et al., 2013, p. 2)

The concept of spontaneous planning was identified while studying the 2010 San Bruno gas pipeline explosion (NSF Award CMMI-1103819). This research project sought to advance the literature on organizational resiliency during disasters. The preliminary findings of this research illustrate that spontaneous planning was utilized by virtually every organization during initial response operations and such planning continued through ongoing recovery activities. For instance, after the pipeline explosion, CalFire had to spontaneously plan air drops in a residential neighborhood to avoid injuring firefighters on the ground. Later on, city officials held multiple meetings to spontaneously plan victim re-entry into the affected neighborhood so it could be completed in a coordinated fashion. Most functions, in fact, were regarded to include aspects of spontaneous planning.

Moreover, the preliminary research on the San Bruno incident reveals that spontaneous planning appears to have contributed to the success of mass care, public relations, damage assessment, site security, debris removal, environmental remediation, and long-term recovery activities. The comments from one city official about this type of planning are particularly instructive:

I mean, literally, we had thought [and worked] through every possible contingency [as the problems unfolded] and had addressed [them]. . . . The operation was so smooth that people didn't even believe it themselves – that they had been able to pull it off. (City official as cited by McEntire et al., 2013, p. 20)

The implications of spontaneous planning may be significant. Even though spontaneous planning occurs during and after disasters, it may facilitate successful improvisation in unfolding response and recovery operations. The idea that ad-hoc planning improves response operations should come as no surprise to practitioners. First responders and emergency management personnel have taken more interest in the ICS, which mandates the development of incident action plans (IAPs) to better manage a particular emergency or disaster (see Mendonça et al., 2004, p. 211, for similar comments on this subject).

However, the preliminary work on the spontaneous planning concept is clearly incomplete. Does spontaneous planning really occur in some, most, or all disasters? Is spontaneous planning a valid descriptor of the decision-making and implementation process that occurs during disaster improvisations? If so, what individual or contextual characteristics increase the probability that spontaneous planning will be effective? How does spontaneous planning relate to sense making and improvisation? Does spontaneous planning require a “safe” climate for improvisation, diversity of perspectives, an attitude of nonconformity, improved information processing skills, the ability to rapidly reconsider previous knowledge, and reorganize new structures to be successful (Mendonça et al., 2004)? What is the role of feedback and communication in spontaneous planning (Hamra et al., 2012, p. 589)? Is spontaneous planning more common in response operations than in recovery operations? When does spontaneous planning end after a disaster? Finally, what additional education and training would be required to improve spontaneous planning skills for future emergency managers? There are currently few answers to these important questions.

Conclusion

This section illustrates that disaster research closely parallels the practice of emergency management. Disaster researchers have discussed at length the concepts of preparedness and planning. They have illustrated that emergency managers spend a great deal of time on preparedness activities, including the process of planning and the development of formal emergency operations plans. Those in academia underscore the value of planning and also differentiate it from crisis management activities.

However, scholars also question a sole reliance on planning. They assert that no one is able to anticipate all types of disasters and their unique consequences. For this reason, scholars also study improvisation and underscore the importance of flexibility in order to

discover ways to improve disaster response operations. Yet, in many ways, improvisation is regarded as being divorced from disaster planning activities.

In recent years, scholarship has argued that the relationship between planning and improvisation is actually much more complicated than previously thought. The work of McEntire and his colleagues has attempted to draw out the relationship between planning and improvisation during response operations. They illustrate that planning is not only evident in response operations, but argue that it will logically improve improvised activities after disasters occur.

Nevertheless, there are certainly numerous questions that deserve exploration in future scholarship. Many opportunities exist to determine if and how spontaneous planning occurs and benefits post-disaster emergency management activities. In short, there is a continued need to ensure that the theories developed by scholars are transferrable and beneficial to practitioners in the important profession of emergency management. For this reason, further constructive dialogue among scholars and practitioners will be required and is to be encouraged.

A PRACTITIONER'S PERSPECTIVE

Introduction

While there are many kinds of people in the world, this paper will focus on just two: one type that sees the need for planning and plans to guide our actions, and the other that believes in improvisation and flexibility as the key to thriving and surviving. Planners seek order and improvisers work well in chaos. We often see these two kinds of people in emergency management, even in the same EOC working under stressful conditions saving lives and property. We might well ask ourselves, given the two different – but not necessarily opposite – approaches, is one approach better or more effective than the other in dealing with disasters and emergencies? Or, is some sort of hybrid approach more valuable?

Both approaches have merit and neither is inherently better or worse than the other. The two extremes are reconcilable in the sense that both contribute to emergency management and both grow and gain from the other. This position comports with that of Kendra & Wachtendorf (2006, p. 8), who wrote that “planning and improvisation are important aspects of any effective disaster response and are best considered as complimentary.”

The purpose of this section is to identify, from a practitioner's viewpoint, the differences between approaches dominated by planning and by innovation, and to ask why our profession still seems to favor one (planning) over the other (improvisation). This portion of the chapter will conclude by proposing how improved training of improvisation in emergency managers could be achieved.

Planning

Planning may be the zenith of analytical decision-making. Emergency management planners collect and analyze large volumes of relevant information regarding a particular threat or hazard, and the potential impacts, and provide guidance on how best to act. Through the planning process, a plan is developed that encourages us to focus on and implement actions that repeat optimized patterns of activity (Weick & Sutcliffe, 2001). Written plans and procedures have been shown to serve valuable purposes in training new organizations, individuals, and public officials for responding to emergencies and disasters. It has been demonstrated repeatedly that when emergency operations are conducted in accordance with existing plans, reaction time is reduced and coordination improved with fewer casualties and reduced economic and property damage as results (Mendonça et al., 2006).

Plans have significant strengths (Klein, 2003). For instance, they allow us to solve problems in the absence of specific expertise. Consideration of important issues, opportunities, and constraints before an event happens can allow individuals without

complete knowledge of what they need to do to implement an effective response. An example of this might be an emergency manager being able to lead aspects of a response to a hurricane without being a meteorologist or an engineer. Plans allow us to perform adequately in areas where we lack specific expertise.

Plans also allow us to coordinate a team so that everyone knows what they are supposed to do and where they fit in to the overall response. Through the development and study of a plan, we can see the interactions required to pull a complex mission together. Plans shape our thinking by allowing the team to get smarter. Through the analytic processes, planners and plan users can learn more about hazards, vulnerabilities, what has worked in the past, and what might work in the future. Plans allow us to generate expectations, such as what and how many resources should be available so we can spot shortfalls in time to do something about it. By “war-gaming” the response process planners can identify important decision points and critical roadblocks to effective response. Most importantly, however, plans can serve as platforms for improvisation.

Improvisation and Plans

Improvisation has been described (Leyborne & Sadler-Smith, 2006) as a combination of intuition, creativity, and bricolage. Intuition is characterized by decisions and actions that are reached with little apparent effort and typically without conscious awareness and with little or no conscious deliberation (Hogarth, 2001); creativity is expressed by originality, expressiveness, and imagination (*American Heritage Dictionary*, 1982); and bricolage used in this context refers to solving problems with the resources one has available at the time (Leyborne & Sadler-Smith, 2006). Successful intuition has been described both as a rapid, creative, and effortless solution to a problem or problems and as a slower-building realization established over time (Hogarth, 2001).

As emergency managers acquire experience, they can combine improvisation with plans and use the written plan as a basis for action rather than as a prescription. It is this improvisation that leads to innovation and new ways of responding to familiar problems. It is through a strong planning base that practitioners can discover new and better approaches.

Plans do have important shortcomings (Klein, 2003), however, and the shortcomings must be understood by emergency managers. Plans are always based upon assumptions, and if the assumptions are violated, the prescription in the plan may be less appropriate. Indeed, Waugh and Streib (2006, p. 132) argue that “emergency managers have to innovate, adapt, and improvise because plans, regardless of how well done, seldom fit circumstances.” Plans are developed out of context and may overlook information that an expert responder will see and recognize as important. Reliance on plans encourages a search for attributes that are consistent with the plan. They encourage not searching for attributes that are inconsistent with the plan. They can make you immune to important cues

that things are not quite right and may delay the implementation of corrective actions at the earliest possible time when the problem can be more easily solved.

There are indications that, especially under high stress and emergency conditions, humans do not analyze their options rationally and then choose the best solution (Simon, 1955; Vermeule, 2004). Humans are able to satisfice, intuit, and improvise. Individuals in high-reliability organizations cope with unexpected events by adapting to circumstances rather than depending on plans (Weick & Sutcliffe, 2001). It may be, therefore, that human nature is biased toward improvised solutions over plans in crisis situations.

This paper is not the only place where one may find criticism of the primacy of the operational use of plans over improvisation. Mintzberg (1994) warns us that planning, taken to its extreme, can stem from an obsession to control. Over-planning may inhibit spontaneity. Mintzberg focuses specifically on strategic planning rather than emergency planning. However, his cautions are relevant to emergency management plans and planning. Planners may believe in the absolute need to prepare for all contingencies and minimize surprise since, to Mintzberg's extreme planners, surprise is an unsatisfactory state of affairs. He warns that an obsession with control can lead to several undesirable behaviors: aversion to risk, conflict with others who do not appreciate planners' concerns about their loss of control, and a belief that control must be provided by the plan. If we apply these behaviors to the field of emergency management, we will see several possible dysfunctions: the making of poor or delayed decisions, obsession with a more complete and perfect plan, and a knee-jerk reaction toward "improving" the plan when there is evidence of suboptimal performance. Mintzberg also points out that the obsession for control may come from the failure to recognize or appreciate the value of spontaneity. Hence, any conflict with planners could possibly result from the planner's lack of appreciation of the power and importance of improvisation.

Planning, Improvisation, and Emergency Management

Despite some shortcomings and because of the strengths of plans and planning, emergency management has adopted the analytical planning process as the model to address natural and human-caused disasters. Planning continues to reign supreme in our preparedness activities. Part of this may be linked to our natural instinct to consider things whenever we have the time to do so. How often are we advised to "sleep on it" or "take your time" in our decisions? In important matters we feel more comfortable with decisions developed through analytical processes. Planning is not, however, the only way forward. There is also room for improvisation.

Improvisation allows for agility in our response. When we are confronted with time-critical decisions and when the plan does not cover the situation, we must rely on improvisation or else we do not act. We see improvisation in a sporting context all the time: a player comes up with a novel solution in the heat of the game, sometimes with spectacular

effect. We appreciate the effect in improvisational comedy where entertainers come up with novel and viable solutions to unrehearsed situations. We also view it in emergency management where, for instance, a firefighter decides to alter the response based upon a sense of how a situation is evolving. Even though they cannot explain how they are doing it, individuals in these examples are experts in improvising successfully in the absence of specific guidance contained in a plan.

Similarly, improvisation can provide valuable insight to planners. Improvisation brings novel solutions to the challenges the plans are designed to address. Without some improvisation added to the planning process, plans do not change. They continue to solve the old problems in the same old way. Planners use innovation to develop new solutions to old problems as well as new solutions to novel problems.

Intuition may be essential and at its best extraordinarily powerful, but it is not infallible (Officer, 2005). As a result, our improvisations may not be successful. Successful improvisation requires a base of expertise upon which it works (Mendonça & Wallace, 2007). There is a need for a degree of prerequisite expertise to develop in an individual before improvisation would be expected to produce positive outcomes. Simon and Chase (1973) have suggested – and this has been confirmed by subsequent investigators (see Ericsson and Lehmann, 1996, for some discussion) – that it takes approximately 10 years of intensive study and experience to develop true expertise in any domain or subject area. Novices do not have the prerequisite knowledge and ability to improvise with frequent success.

There are at least two distinct steps in the process of improvisation as applied to emergency management (Mendonça & Fiedrich, 2004). The first step is to recognize that no existing plan or plan element applies to the current situation or that an applicable plan cannot or should not be executed. The second step involves the real-time development and deployment of new procedures using available resources. Both are essential if improvisation is going to be effective.

Suppose we consider novice chess players as an example. We can understand that their lack of expertise requires them to channel all of their conscious thinking into how they might react to a given threatening situation. They would need to think explicitly about the details of the situation to address it. Alternatively, a chess master has seen it all before and would in all probability choose an appropriate move immediately. In fact, the master chess player probably would not have found him or herself in such a predicament in the first place, realizing the trap that was waiting and playing his or her way out of it.

We can also use the analogy of jazz musicianship (Mendonça & Wallace, 2007). Improvisation is at the heart of jazz. Talented jazz musicians are experts with their instruments and with how music works, and this expertise is critical before a musician can

be expected to improvise within the genre. Without mastery of the fundamentals, jazz is sloppy.

Suppose we apply the analogy to the operation of a nuclear reactor, the mitigation of flooding within a community, or running a complex hazardous materials emergency response. It is not difficult to predict the outcome when we improvise with a lack of expertise. Insufficient understanding of the context and alternative solutions would only magnify the impact of the event.

There is a false dichotomy that emergency management operations must be performed subject to the dictates of previously prepared plans with little room for improvisation, versus a second view that plans cannot possibly be detailed enough to account for all possible eventualities and, therefore, can only provide a general framework within which improvisation flourishes. A somewhat more rational approach looks at response operations as occurring along a continuum (figure 1). It is likely that, for emergency managers, every response will be different and fall at a slightly different spot along this continuum. Indeed, it can be argued that even the slightest deviation from the plan is, by definition, improvisation.

FIGURE 1. A CONTINUUM MODEL WHERE A PROPER SOLUTION TO EVERY SITUATION (LARGE ARROW, FOR EXAMPLE) INVOLVES A MIXTURE OF PLANNING AND IMPROVISATION.

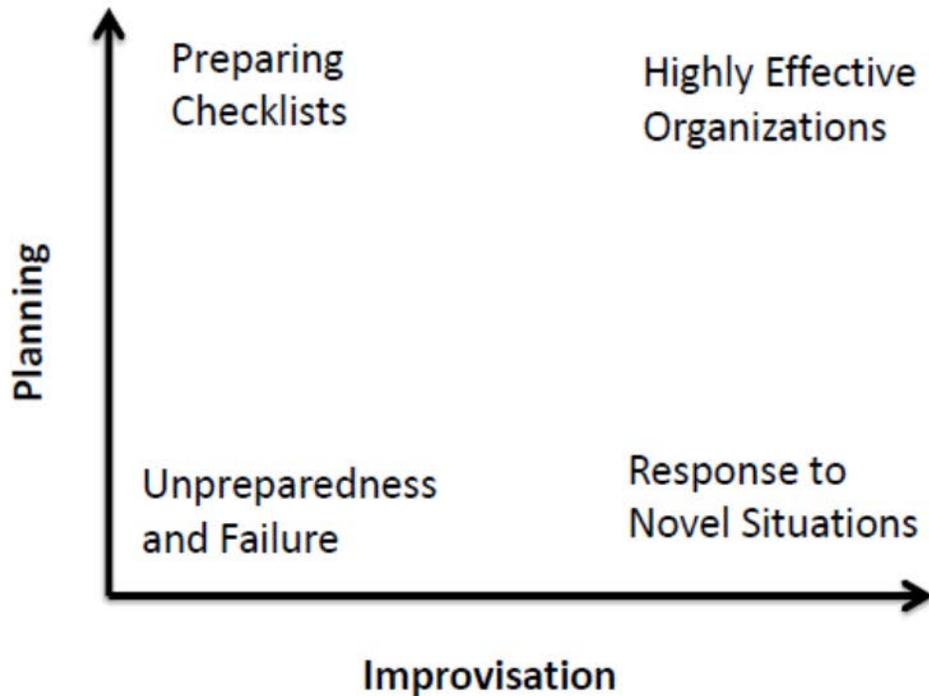


It is also possible to think of planning and innovation as being orthogonal axes on a graph where all activities performed in emergency management consist of a specific combination of both innovation and planning (figure 2).

For instance, the development and use of a checklist involves a high degree of planning and relatively little improvisation. Reacting successfully to a novel situation — especially in a time-sensitive manner — requires a high degree of improvisation and, perhaps, little formal planning. Little planning and little improvisation would be the realm of unpreparedness and failure. Highly effective organizations are characterized by large amounts of both planning and improvisation tempered by an awareness of when each should be employed. Retired Marine Corps Lieutenant General Paul Van Riper comes very near this point when he says that “when we talk about analytic versus intuitive decision making, neither is good or bad. What is bad is if you use either of them in an inappropriate

circumstance” (Gladwell, 2005, p. 143). By thinking about planning and improvisation on a graph, we can sense the fundamental independence of these two approaches and how they are correlated among specific tasks. We also avoid looking at planning and innovation as being “opposites.”

FIGURE 2. THE GRAPH MODEL, WHERE SOLUTIONS CAN BE IDENTIFIED ASSOCIATED WITH INDEPENDENTLY VARYING AMOUNTS OF IMPROVISATION AND PLANNING. THE AREAS IDENTIFIED SUGGEST REGIONS CHARACTERIZED BY SPECIFIED AMOUNTS OF IMPROVISATION AND PLANNING.



Applying Improvisation

Crisis situations are characterized by ambiguity and unplanned-for events (Rankin, Dahlback, & Lundberg, 2011). This can require the solution of highly novel problems and the need to act quickly. These factors reduce the opportunity for extensive planning in emergency management (Mendonça & Wallace, 2007). A clear example of this would be the Apollo 13 mission. After an oxygen tank explosion in the Service Module crippled the spacecraft on its way to the moon, the crew and mission control were confronted with a clear need for improvisation. Using the Lunar Module as the crew’s “lifeboat”; constructing a method of mating the Command Module’s carbon dioxide filters to the different size and shape of the Lunar Module’s; and the manual control of the spacecraft aligning it for reentry: all of these demonstrate improvisation at its highest degree. When the plan failed, improvisation literally saved lives.

A Bias in Emergency Management?

The literature and general understanding tell us that improvisation is critical to successful emergency management (Waugh & Streib, 2006). It is, therefore, a bit shocking that, despite clear evidence that improvisation is a fundamentally necessary component of the response repertoire, the written and published doctrine of emergency management in the United States is skewed decisively in favor of plans over improvisation. Why does emergency management doctrine place plans above improvisation? Why does emergency training not encourage and develop intuition, creativity, and bricolage? Arguably, the profession of emergency management would be greatly improved through adopting these approaches.

In addition, why do we see in the documents describing the National Response Framework, the *National Disaster Recovery Framework*, the National Response System, and NIMS only scant attention paid to intuition and improvisation? A quick search of these documents finds only three occurrences of the word *improvise* and its derivatives (such as *improvisation* or *improvised*) — all used in connection with “improvised explosive devices” — and no occurrences of the word *intuition* or its derivatives (such as *intuitive*). The term *flexible* and its derivatives occur frequently (seventy-six times in these documents), but used in the context of a need for “flexibility” in plans and programs, not in the context of operational art or creative thinking. Only the National Response Framework bears general reference to “innovation” in the sense of promoting on-scene initiative and innovation, although it does not indicate how this might be encouraged. It appears that these terms and concepts are nearly absent from the Department of Homeland Security and FEMA lexicon.

FEMA has produced the Comprehensive Preparedness Guide (CPG) 101 to illustrate how states and local governments should develop emergency operations plans. Unfortunately, there is no similar document that illustrates how to develop intuition or encourage improvisation in emergency management. CPG 101 only mentions improvisation once and that is in reference to ensuring that the planning team is diverse so as to bring creativity and innovation to the process.

Training and Teaching Improvisation

Another question centers on how we might go about training and teaching improvisation, Coaches have for years addressed how to develop decision-making skills and intuition in athletes. Some of their experience is helpful.

Assuming that expertise is required before we would expect meaningful training on improvisation to be successful, this suggests that the target audience for improvisation training should be mid-career professionals who have already mastered the basics. While all emergency managers could benefit from improvisation training — even those with limited

practical experience — the greatest benefit should be achieved when we target those with around ten years of actual experience in emergency management or with a combination of relevant emergency management experience in related fields. We should not restrict improvisation training to only management staff. Many highly experienced personnel choose to practice their profession as firefighters or police officers without entering management ranks. These true experts would be valuable recipients of improvisation training as well.

It seems that the traditional trainer-student relationship of the classroom would not be expected to develop improvisation. The training environments we see most commonly today tend toward sharing information on what already works along with existing policy and procedures rather than improvisation. The preferred relationship should probably be more akin to that of a coach-athlete or a mentor-protégé relationship. This, of course, requires moving away from a 30 to 1 student–instructor ratio. We would need to change our learning approach and individualize the training if we are to develop successful improvisation. We would expect that the coaching or mentoring would be appropriately paced and require an increased investment in time and resources.

We might expect that the training pedagogy should involve frequent exposure of the improvisation-learners to novel situations where they must develop solutions based upon analogy from their experience. There frequently is no correct answer to these sorts of problems, so correct answers should not be sought. Successful learning outcomes are achieved when the improvisation student consistently realizes a “good enough” answer within the time frame of the problem. Example types of pedagogy would include off-the-shelf computer-based simulation training (Mendonça & Fiedrich, 2004) and decision-making exercises described by Klein (2003). Designing training for teaching improvisation is fundamentally different from designing for plan execution (Mendonça & Fiedrich, 2004).

The improvisation student must receive consistent and frequent feedback. We might conceive of this training environment to be characterized as a “feedback-rich zone.” The best feedback would be achieved through the process coaches have been using for years, which is described as “coaching through questioning.” Here, the improvisation student — working alone or in groups as the problem requires — is asked to describe the process of their solution to include their thoughts and feelings as they worked through the problem. The coach does not provide an answer to the student. The coach’s job is to get the student to figure it out for him or herself through open questions. The goal is to allow the improvisation student to practice drawing on their experiences and memories in an explicit way and, through articulating their own process, to draw on their knowledge and expertise to develop their own successful approach to improvisation. The selection of emergency management coaches who have displayed successful improvisation in their own careers would be essential to the process.

How different this is from our current approach to training: no lectures filled with PowerPoint presentations, no reporting of group activities that fail to engage improvisation, no multiple guess examinations. The improvisation student is presented with a novel (and, perhaps, unsolvable) problem and required to think his or her way to an improvised solution. The terminal objective is not focused on knowing, comprehending, or applying; it is focused on improvising.

Intuition is a key part of improvisation (Leyborne & Sadler-Smith, 2006) and research has shown that intuition can be taught and learned (Klein, 2003). However, in what kind of learning environment can we learn to be intuitive?

Hogarth (2001) differentiates between “kind” and “wicked” training environments. “Kind” environments are those where feedback is timely and relevant, and tasks are neither too lenient nor too exacting (Officer, 2005). Intuition learned in these environments is likely to be “good” in the sense of being dependably predictive within a reasonable range of tolerance. If feedback is poor or delayed and if the tasks are either too demanding or lacking in challenge (or worse, if they are a *mélange* of both) then the learning environment is “wicked.” Intuition developed in wicked environments is based upon unreliable feedback and is not dependable. It follows from this that “kind” environments are more conducive to facilitating “good” intuition and innovation.

Conclusion

In the final analysis, the proper relationship is that plans meld together analysis and assumptions into suggested actions. Responders examine, validate, and verify the assumptions into facts based upon what they encounter at the time. If any or all of the assumptions are invalidated, the only recourse is to improvise. It is a mistake to assume that a response can be completely scripted (Waugh & Streib, 2006).

Nevertheless, there is evidently a bias in the emergency management profession toward a planning model and away from one that explicitly develops improvisation. This bias is evidenced in the paucity of improvisation training available to emergency managers and in the primacy of planning provided in doctrinal documents. This is unfortunate and counter-productive given the value that improvisation – when performed by experienced and expert emergency managers – can bring to the profession.

Improvisation can be taught and it can be learned. It will probably require a shift in our teaching paradigm and pedagogy to accomplish this goal, changing instructors into coaches and mentors. The profession of emergency management would be greatly enhanced by practitioners who are expert in both planning and improvisation.

BRIDGING THE DIVIDE

Introduction

We have enjoyed reading each other's work on planning and improvisation, and we believe that there are more points of agreement than disagreement in our respective treatment of these topics. Although there are a few points of departure between us based on our backgrounds in the profession of emergency management and academia, these differences are more of degree than of kind. The following joint section identifies several areas of agreement, explores divergent opinions, and concludes with a discussion about the future.

Areas of Consensus

As a first point, we agree that the development of plans to guide emergency management is critical for the success of emergency management. Professional emergency managers must clearly be involved in the planning process to anticipate potential hazards and identify what the jurisdiction should do about them. Planning not only exposes what can go wrong, but it also identifies how crises can be averted (if that is possible) or dealt with in a more effective manner (when risk cannot be eliminated). Planning before a disaster allows time for rational thought about probable risks, likely consequences, and needed response and recovery actions. Furthermore, disaster planning allows divergent actors and organizations to spend time together, which fosters awareness of roles for improved preparedness and capacity building. Likewise, disaster planning increases the probability of coordination when response and recovery operations are needed, because the participants are already aware of partners and stakeholders who can assist in post-disaster operations. Therefore, the value and importance of planning cannot be denied.

Second, we concur that planning has been the predominant approach practitioners have pursued in emergency management, but we underscore the fact that this is not necessarily without limitations. Scholars have for years expressed the need for emergency managers to consider the possible drawbacks of a planning-only philosophy. No amount of planning – regardless of time and commitment – will cover every possible contingency. While plans based on highly educated guesses about the future are possible and required, there are simply too many hazards, vulnerabilities, and dynamic variables that have to be taken into consideration. No plan is perfect or complete in any given moment in time – they are meant to be scalable, flexible, and dynamic. In addition, researchers have expressed concern about the command and control mentality derived from planning assumptions that may jeopardize multi-organizational collaboration in disasters. Such attitudes will often backfire during the preparedness phase or, more disturbingly, when diverse agencies meet in the field or at the EOC in an actual disaster. Therefore, practitioners' observations regarding U.S. policy being slanted toward planning reinforces prior academic research on the subject.

Third, we fully recognize that improvisation may be necessary in emergency management on many occasions. Because plans are insufficient, are always works in progress, and are often too rigid in the context of unfolding disasters, prior operational conceptualizations may deserve further scrutiny or rejection and new methods for problem resolution must be identified and implemented. The sporting analogy consequently deserves additional elaboration here. For instance, a quarterback may have been given a particular play to run by the coach or offensive coordinator, but the leader on the field realizes he must call an audible based on the formation of the defense he reads in front of him. In the context of basketball, the point guard may also have to set aside a called play if the offensive scheme breaks down as times wanes on the shot clock. In either case, the departure from the existing play is a wise move that may generate a greater chance of success, or even take the defense by surprise and result in a touchdown or basket. Emergency managers should therefore acknowledge the merit of improvisation when prior plans will not work as anticipated. Improvisations are just another means to accomplish goals that have been identified previously in plans or new ways to adapt to shifting disaster conditions.

Fourth, we are generally of the same mind regarding the steps relating to improvisation. When confronted with an unanticipated disaster or a unique situation that calls for the alteration of a scripted function, it is true that emergency managers must first recognize why the current plan is not applicable and then develop new procedures to address the challenge confronting them. If emergency managers do not allow themselves to think “outside of the box” and if they cannot come up with novel solutions, the unfolding operations will be severely constrained in terms of possibility and success. In this sense, there is no doubt that improvisation requires flexibility as well as a combination of intuition, creativity, and bricolage.

Fifth, we accept the fact that both planning and improvisation have merit and that neither is inherently better or worse than the other. Both approaches are needed for emergency management to be effective. Van Riper’s comments on analytic versus intuitive decision making deserve repetition: “what is bad is if you use either of them in an inappropriate circumstance” (Gladwell, 2005, p. 143). In the context of emergency management, this implies that improvisation is not to be pursued if plans will work as initially conceived. Or, in contrast, if prior plans are inadequate to the task, improvisation should be fully pursued and embraced.

Finally, we fully agree that there is a false dichotomy between planning and improvisation. While it is true that planning predominantly occurs before a disaster and improvisation commonly takes place during or after an incident, this conceptualization of chronology masks what is really happening in the heat of an emergency or catastrophe. First responders and emergency managers make sense of the situation facing them and they begin to plan how to implement plans or they plan how to undertake improvisations. This

planning process requires situational awareness, in-person meetings or other forms of communication, a discussion of options, a selection of the decision or decisions, and the identification of how the policy choices will be implemented and by whom. Thus, we agree that planning occurs during and after disasters, and not only prior to their occurrence.

Differences of Opinion

In spite of the numerous areas of agreement mentioned above, there are a few points of departure between us, although these differences are more of degree than of kind. First, we did not reach consensus on the practitioner's claim that "humans do not analyze their options rationally and then choose the best solution." On the one hand, practitioners are clearly aware of the ample evidence that suggests people do not have all of the information necessary to make rational decisions about disasters. Mistakes may frequently be made in emergency management for a variety of reasons. The failure to anticipate the possibility of the Twin Towers collapsing on 9/11 is a perfect example that could be given. First responders staged equipment and the incident command posts in and around the World Trade Center. They based their actions on how they responded to the 1993 bombing rather than consider all possible outcomes of the 2001 terrorist attack involving airplanes. The failures witnessed in Hurricane Katrina also reveal the imperfections of individuals and organizations. The assumption that people would or could evacuate when warned proved to be false in many cases. In addition, local efforts to prepare for probable hazards were clearly incomplete, the state did not follow proper protocol for damage assessment and requests for a Presidential Declaration, and the federal government was confused about the proper relationship between the Department of Homeland Security and FEMA. Hence, there can be no doubt that rational decision-making is highly unlikely most of the time.

On the other hand, there are times when leaders and those in the field do make what can be described as logical decisions under a condition called "bounded rationality." The reference to sports is again an example of this assertion. For instance, a football or basketball team may call a time-out so the coaches and players can identify options and select the best play to surprise the defense and score a touchdown or basket. It is true that the coaches and players do not have time to review the footage of their opponent and generate a well-developed plan (like they would during the week leading up to the game). In spite of time limitations, they can still make educated guesses about what might work in the given situation at hand. The reaction to the explosion of the Apollo 13 spacecraft is another case in point. The engineers, astronauts, and flight control crew worked diligently to understand what was happening, determine alternative courses of action along with their consequences, and respond in the most reasonable manner possible. While the Apollo 13 case illustrates many characteristics of improvisation, there were problem-solving efforts occurring in real-time as well. The makeshift engineering of the oxygen scrubber and the plan to power up the re-entry vehicle approximate the bounded rationality in what we term the concept of spontaneous planning.

We also differ in our opinion on the point regarding whether intuition is the most important element for improvisation. Yes, intuition can be right in many cases and it should not be ignored as a critical variable. For instance, there were individuals with no engineering knowledge whatsoever who thought the Twin Towers might tumble to the ground on 9/11. Police officers in New York City saw the Towers leaning from their vantage point in the helicopter and tried to relay this information to firefighters in the buildings. Had this intuition been conveyed fully and followed, fewer lives would have been lost in the incident. However, it is vital to recognize that intuition can also be wrong at times. As an example, the mayor of New Orleans delayed issuing an immediate warning for Hurricane Katrina because he thought the storm would veer to the north and east. This mistake sent mixed messages to the citizens of New Orleans or at least delayed evacuation for some individuals. Thus, we agree that intuition is very important, just as flexibility, creativity, and bricolage are. Nevertheless, hunches about the future could also be wrong and have negative consequences in emergency management.

Finally, there is a difference of opinion as to whether improvisation training should be limited to those with considerable experience or provided to everyone. We do agree that an expert is more likely to make good decisions regarding improvisation than a novice. Just as the expert chess player will be able to anticipate subsequent moves with confidence much better than the amateur, a seasoned emergency manager will be able to improvise with greater skill and finesse than an apprentice. Nonetheless, we can argue whether or not we should teach and train for improvisation and the process of spontaneous planning to everyone who is interested and involved in emergency management. In spite of this, we do feel that the more people who understand and value these additional and alternative concepts to planning the better.

Discussion and Conclusion

Our individual contributions and the collective evaluation of our respective pieces reveal many areas of agreement and a few points of divergence. Based on our comments thus far, we feel it is necessary to provide some recommendations for the future. These suggestions are directed to both practitioners and academics, and may have significant implications for the profession of emergency management, training programs, scholarly research, and education.

- Recognize that planning is indispensable but is not the only approach in emergency management. Planning will always be a main priority of emergency managers, and it should be strengthened and improved over time. However, this should not imply that different knowledge and skills pertaining to response and recovery operations should be downplayed or neglected.
- Understand that improvisation is often needed and can be effective in many situations where plans are insufficient. Since it is impossible to predict every

potential disaster and estimate all types of necessary reactions, emergency management officials should always consider if improvisation is required and how it might benefit response and recovery operations. At the same time, it is imperative that we acquire more information about the potential drawbacks of improvisation, since most case studies praise this behavior instead of deciphering when it may prove problematic. For instance, there are many cases where laws prohibit actions that depart from prescribed actions.

- Learn more about planning and improvisation, and when and under what conditions we should choose one approach over the other. Since planning and improvisation are essential principles in emergency management, it will be vital to comprehend when one should be applied versus the other. As of right now, we lack knowledge about choices between a reliance on planning and the pursuit of improvisations.
- Uncover the relationship between planning and improvisation, and explore how planning during response operations may benefit those involved in emergency management. Because planning and improvisation are tightly coupled phenomena, additional insight must be gained about their complex interaction. In particular, there is room for improvement in terms of how planning may impact response operations and improvisations.
- Examine the extent of rationality in emergency management, the value of intuition in decision making, and who should receive training about improvisation. Right now, our comprehension of these subjects is extremely limited and this fact may be harming the progression of emergency management. Further information on such topics could help emergency managers meet the demands of the future.

In conclusion, it should be pointed out that the authors of this chapter agree that both planning and improvisation have merit and are vital for the success of emergency management. Differing opinions do exist about these important concepts and processes, but the divergence presented in this chapter is more of scale than kind. Although there are certainly distinct points of view among professionals and researchers, we each share a desire to improve emergency management. Continued discussion within and across these groups will therefore positively influence what we do in terms of research, teaching, training, and application.

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CHAPTER 8: REFLECTIONS ON NIMS

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ABSTRACT

This chapter discusses issues concerning the National Incident Management System (NIMS) as the single comprehensive system for preparedness and response to events of any size, magnitude, or complexity. Jensen, an academic, discusses the goal of the NIMS mandate and the likelihood that its primary goals will be achieved in the context of decades of disaster empirical and conceptual disaster scholarship and recent research specifically on the system. Based on decades of practitioner experience, Sevison evaluates the extent to which NIMS is accepted in the response community, the extent to which the effectiveness has been assessed, and factors influencing each of these issues. Jensen and Sevison then offer an integrated practitioner-academic view of NIMS based on what they believe the emergency management community knows at this point. They also address the implications of what we know for NIMS as a policy and in practice, including specific recommendations related to training and practice, the use of incident management teams, multiagency coordination centers, investigating alternatives to NIMS, and continued research to improve the implementation of NIMS.

AN ACADEMIC'S PERSPECTIVE

Introduction

Investigation of the response to the September 11, 2001, terrorist attacks revealed a number of shortcomings in how the United States manages disaster events (National Commission on Terrorist Attacks upon the United States, 2004). The terrorist attacks provided a “window of opportunity” (Birkland, 1997) unlike any seen before to address emergency management issues through policy (Tierney, 2005). Within this “window” a number of sweeping changes were introduced to try to correct the identified shortcomings, including a series of laws, regulations, and policies.

The National Incident Management System (NIMS) mandate was among the policy initiatives introduced. Please see Department of Homeland Security (DHS) (2004, 2008) for an outline of the system. The NIMS mandate is intended to standardize the emergency management activities, structures, and processes of all relevant organizations within a jurisdiction, within surrounding jurisdictions, and across all levels of government. Standardization is sought based on the assumption that uniform implementation of a common management system will allow disparate organizations and jurisdictions to immediately, simultaneously, and effortlessly mount an organized, effective disaster response, correcting the response shortcomings evidenced in the September 11th/9/11 response. Implementation of NIMS within all jurisdictions in the United States was mandated as of 2004.

The goal of NIMS is a good one, but to what extent is it likely to achieve its goal? Decades of empirical and conceptual work related to disasters and a small body of empirical research specifically on NIMS provide initial answers to this question. This chapter will review these initial answers from the disaster literature in its first section, examine recent research on the extent to which NIMS is currently being implemented in its second section, and conclude with a discussion of NIMS' potential as an organizing system for emergency management in the United States.

Disaster Literature and NIMS

Scholars had long explored various aspects of disasters prior to the NIMS mandate. A vast body of knowledge has been developed as a product of their empirical and scholarly explorations. This body of knowledge—loosely referred to as “the disaster literature”—has been contributed to by scholars who were examining a variety of topics from a variety of various academic disciplines who were examining a variety of topics. Disaster literature provides insight into how disaster phenomena work (e.g., tasks like risk communications and whole phases of activity like response), what influences how they work, and what it would take for them to work better. When considering NIMS—a system devised to manage

disasters—it is logical to turn to the disaster literature and “ask it” about NIMS. Thus, this section relates what the literature has to say regarding what is in NIMS (i.e., its components and required activities) and what NIMS tries to bring about (i.e., standardization).

Disaster Literature Support for NIMS Areas of Focus and Mandated Activities

The findings from the disaster literature suggest that there is value in the NIMS mandate. In fact, Examination of the literature suggests that NIMS’ focusses on important areas of activity in its Preparedness, Communications and Information Management, Resource Management, and Command and Management Components. Disaster scholarship provides evidence that these issue areas are often problematic during disaster response. Moreover, the literature has found that positive response outcomes result from these issues being purposefully and consistently addressed pre-disaster with the full participation of relevant organizations within a jurisdiction.

Preparedness component.

NIMS suggests that effective emergency management must be based on a “host of preparedness activities conducted on an ongoing basis,” including activities such as planning, training, exercises, personnel qualifications, and equipment certification (DHS, 2008, p. 7). A review of the disaster literature reveals that many of these preparedness activities are critical to effective emergency management (e.g. Auf der Heide, 1989; Drabek, 1986; National Research Council, 2006; Tierney, Lindell, & Perry, 2001). Disaster scholars have long maintained that activities such as identifying personnel and organizations that should be involved in response in advance of disaster (see, for example,; Auf der Heide, 1989), planning (see, for example,; Dynes, 1983; Gillespie & Banerjee, 1993; Kartez & Lindell, 1987; Lindell, 1994), and training and exercising (see, for example,; Daines, 1991; Drabek, 2005; Dynes, 1994; Peterson & Perry, 1999; Perry, 2004) are important to increasing readiness. The literature also consistently suggests that these activities must be conducted on an ongoing basis (e.g., Drabek & Hoetmer, 1991; Dynes, 1983; Gillespie & Streeter, 1987; Quarantelli, 1981; 1993).

Communications and information management component.

NIMS also focuses on communication and information systems outlining the required features for a “standardized framework for communications” that is intended to facilitate “interoperability, reliability, scalability, and portability, as well as the resiliency and redundancy of communications and information systems” during disaster response (DHS, 2008, p. 7). The disaster literature supports the notion that issues related to communications (e.g., Comfort & Haase, 2006; Dynes & Quarantelli, 1976; Garnett & Kouzmin, 2007; Kapucu, 2006; McEntire, 2002; Quarantelli, 1987; Stallings, 1971) and information management (e.g., Celik & Corbacioglu, 2009; Comfort, Ko, & Zarecki, 2004; Comfort et al., 2004; Fisher & Kingma, 2001; McEntire, 2002; Wenger, Quarantelli, & Dynes, 1989) are challenges during response that could be addressed in the pre-disaster

period. In addition, many of the goals that NIMS seeks to bring about through its requirements related to communications and information management such as resiliency (Kapucu, 2003; Kendra & Wachtendorf, 2003; Tierney, 2003) and redundancy (Shao, 2005; Streeter, 1991) have also been identified in the literature as important with respect to achieving positive response outcomes.

Resource management component.

Further support for the system is found in the disaster literature with respect to NIMS' focus on resource management. NIMS "defines standardized mechanisms and establishes the resource management process to identify requirements, order and acquire, mobilize, track and report, recover and demobilize, reimburse, and inventory resources" (DHS, 2008, p. 8). The notion that resources are required to respond to disasters has been noted in the literature more times than can be counted repeatedly (e.g., Dynes, Quarantelli, & Kreps, 1972; Wenger et al., 1989). It has been recognized that resources will come from a variety of sources (Prince, 1920) and that these resources can be difficult to manage has also been recognized (e.g., Fritz & Mathewson, 1957; Parr, 1970; Rademacher, 2012; Wenger, 1992). Moreover, the literature supports the idea that response efforts are most successful when time and attention have been paid to this issue pre-event (e.g., Auf der Heide, 1989; Holguín-Veras & Jaller, 2012).

Command and management component.

Disaster research has also repeatedly identified difficulties associated with overall, on-scene, and off-scene coordination of response (e.g., Banipal, 2006; Chen et al., Sharman, Rao, & Upadhyaya, 2008; Comfort & Kapucu, 2006; Grant et al., Hoover, Scarisbrick-Hauser, & Muffet, 2002; Kearney, 1972; Kueneman et al., Smith, Taylor, & Waxman, 1972; McEntire, 1999; 2001; 2008; Morrow & Ragsdale, 1996; Nigg, 1997; Ponting, 1970; Salmon, Stanton, Jenkins, & Walker, 2011; Stallings & Schepart, 1987), communication with the public (e.g., Aguirre, 1994; Mileti et al., 2006; Sorenson & Mileti, 1987; Mileti & Sorenson, 1990), communication with the media (Quarantelli, 1990; Scanlon & Alldred, 1982; Scanlon et al., Alldred, Farrell, & Prawzick, 1985; Scanlon, 2006; 2007), and leadership (Boin, 2005; Boin & 't Hart, 2003; Devitt & Borodzicz, 2008; Hart, Rosenthal, & Kouzmin, 1993; Wenger et al., 1989) in the aftermath of disasters. Thus, literature support exists for NIMS' focus on command and management issues. NIMS intends to "enable effective and efficient incident management and coordination by providing a flexible, standardized incident management structure" through requiring the implementation of three organizational mechanisms, including Multiagency Coordination Systems (MACs), Public Information, and the Incident Command System (ICS) in the aftermath of disasters (DHS, 2008, p. 8).

Of the organizational mechanisms that NIMS requires for implementation, the disaster literature would support the potential value of emergency operations centers (EOCs)—a form of MACS—to resource coordination, leadership, and policy making during

response (e.g., Dynes, 1994; Kweit & Kweit, 2006; McEntire, 2007; Perry, 1991; 1995; 2003a; Wenger et al., 1989). Disaster research has also found that the provision of regular, clear, consistent information to the public is critical to effective response (Flynn, 1979; Fritz, 1957; Lindell & Perry, 1983; Mikami & Ken'ichi, 1985; Mileti & O'Brien, 1991; Perry, 1981). Yet, the literature is not as clear in its support for the mandated use of ICS, the third management structure required by NIMS.

Disaster scholars have recognized that ICS has been used for decades within the fire service (Nicholson, 2006; Perry, 2003b; Wenger et al., 1989; Wenger, Quarantelli, & Dynes, 1990) and that it is popular with emergency management practitioners (Buck, Trainor, & Aguirre, 2006; Tierney et al., 2001; Waugh, 2009; Wenger et al., 1990). Nevertheless, disaster scholarship has time and again voiced concern about command and control models of management such as ICS, given the realities associated with the aftermath of disaster (e.g., Drabek, 2003; Dynes, 1983; 1993; 2000; Neal & Phillips, 1995; Schroeder, Wamsley, & Ward, 2001; Tierney et al., 2001; Perrow, 2005; Walker, Harrald, Ducey, & Lacey, 1994; Waugh & Strieb, 2006; Wise & Nader, 2002). Some disaster scholars have even suggested that command and control models are “outright inappropriate” for disaster response (Drabek, 2007, p. 228).

Empirical research specifically on ICS has suggested that that ICS may not be particularly well perceived by all individuals and organizations who should be implementing the system (Decker, 2011; Jensen & Yoon, 2011). Further, it has been found that there is variation in the degree to which ICS is used, if used at all, in disaster response (Lutz & Lindell, 2008; Moynihan, 2009b), as well as in response to day-to-day emergencies (Decker, 2011; Yarmohammadian, Atighechian, Shams, & Haghshenas, 2011). And, when ICS is used, it is not used consistently by responding organizations (Decker, 2011; Lutz & Lindell, 2008; Moynihan, 2008, 2009a, b; Yarmohammadian et al., 2011).

Disaster Literature Support for NIMS Goal Achievement

As the discussion thus far has demonstrated, the disaster literature offers substantial support for all of the areas of focus in NIMS, as well as many of the specific activities or structures it requires. Yet, the areas of focus and many of the activities within NIMS were not new to emergency management or to disaster research when the system was mandated in 2004. Disaster scholars have long called for attention to be paid to these issues and activities. Despite their calls, little has changed. Preparedness continues to vary across the United States and over time, as does the effectiveness of response efforts.

Disaster research has identified a variety of explanations for why this state of affairs exists and will, most likely, always exist. These explanations are related to jurisdictional intent and capacity, organizational implementation, and the complexity of disaster response. Review of the literature in these areas explicates why there have been historical issues achieving the same level of preparedness in all jurisdictions and responding effectively to all

disasters. Such a review also demonstrates why it is unlikely that NIMS will achieve its ambitious goal of standardizing emergency management across relevant organizations in government and the private sector in the United States.

Jurisdictional intent

Prior to the NIMS mandate, jurisdictions in the United States had varying degrees of intent to address basic emergency management concerns (e.g., Labadie, 1984; Petak, 1985; Wolensky & Wolensky, 1990). For decades, it has been noted by disaster researchers that some jurisdictions undertake an array of activities to prepare for or mitigate against disasters while most others do very little, sometimes even when mandated to do so by law or policy (e.g., Falato, Smith, & Kress, 2007; Faupel & Bailey, 1988; Gillespie, 1994; Gillespie & Streeter, 1987; Lindell, 1994). A number of factors influence jurisdictional intent. For instance, the culture, priorities, and perspectives of individual jurisdictions impact the degree to which they each intend to address emergency management (Kettle, 2003; Neal & Webb, 2006; Patton et al., 2010; Schafer, Carroll, Haynes, & Abrams, 2008). Similarly, jurisdictional intent is impacted by their perception of risk and how to address it (Mileti, 1980, 1999; Blaikie et al., Cannon, Davis, & Wisner, 2004; Tierney et al., 2001) and previous disaster experience (Drabek, 2005; Fischer, 1998; Kartez & Lindell, 1987). Further complicating matters, jurisdictions cannot be forced to implement the system—or even undertake most basic emergency management activities for that matter—due to the federalist system in the United States which that provides each level of government some sovereignty and independence from other levels (Drabek, 1985; May, 1985; May & Williams, 1986; Sylves, 1991,; Sylves, 2008; Waugh & Streib, 2006).

Based on a read of the literature, it seems unlikely that there will be a universal intent to implement NIMS with all of its components and related activities, structures, and processes, since jurisdictions do not intend to address even basic emergency management concerns consistently. Instead, it seems likely that some jurisdictions will want to implement the system as it is designed, some will want to implement parts of the system, and some may not want to implement the system at all.

Jurisdictional capacity

Even if there is an intent to implement the system, the literature suggests jurisdictions may not be able to so—at least not in the same way. Jurisdictions have historically taken different approaches to handling emergency management concerns due largely to the factors discussed in the previous paragraphs (e.g., differences in culture, disaster experience). Additionally, many jurisdictions cannot, or do not, devote adequate resources to emergency management. In many cases, this is because they do not have enough resources to provide even basic services to constituents (e.g., road maintenance) without assistance from the state and/or federal government. Moreover, state and federal resources to supplement those at the local level have never been enough; there are often restrictions on how the resources can be used; resources tend to be directed to response and recovery as opposed

to preparedness and mitigation; and, the resources provided ebb and flow with economic conditions and the occurrence of large- scale disasters (McEntire & Myers, 2004; Settle, 1985; Smith, 2006; Sylves, 2008; Wamsley & Schroeder, 1996; Waugh, 1988,; 2007). This issue has been noted for decades, and there is reason to believe that the situation remains unchanged (Clarke, 2006; Drabek, 1985; Kreuger, Jennings, & Kendra, 2009; McEntire, 2007; Waugh, 1994; Wenger, Quarantelli, & Dynes, 1989; Wolensky & Wolensky, 1990).

The substantial variation in the amount of human and material resources jurisdictions have at any given time has contributed to variation in the degree to which they undertake emergency management activities (Drabek, 1985,; Drabek, 1987; Donahue & Joyce, 2001; Falato, Smith, & Kress, 2007; Kettl, 2003; Quarantelli, 1988; Schafer et al., 2008; Sylves & Waugh, 1996; Waugh, 1994; 2000, p. 41). Implementation of each NIMS component requires a combination of human and material resources. Yet, the literature would lead one to predict that all jurisdictions do not have (or will not devote) the resources required to fully implement the system. Therefore, even if all jurisdictions intend to fully implement NIMS, many may find that they cannot fully, or, perhaps, even minimally do so.

Organizational implementation

The preceding discussion has been based on a review of the literature related to jurisdictions; yet, whether and to what extent the individual organizations within jurisdictions implement NIMS will influence each jurisdiction's overall ability to utilize NIMS as an organizing mechanism. Private- sector businesses (MacManus & Caruson, 2011; Smith, 2011) and nonprofit organizations (Chandra & Acosta, 2009; Kapucu, 2007; Phillips & Jenkins, 2008; Pipa, 2006) are critical partners in emergency management. And, relevant businesses and nonprofit organizations within every jurisdiction must also implement NIMS for it to achieve its goals (DHS, 2008).

Unfortunately, the disaster scholarship related to organizations suggests that they vary in the same ways jurisdictions do, with the same potential consequences for NIMS implementation. For instance, like jurisdictions, individual government organizations have their own perspectives, priorities, and culture that shape what they want to do, what they do, and how they do it independent of the jurisdiction as a whole (Auf der Heide, 1989; Drabek & McEntire, 2002; Quarantelli, 1997; Toulmin, Bivans, & Steel, 1989; Waugh, 1993).

Private- sector business and nonprofit organizations also have their own perspectives, priorities, and culture that shape what they want to do, actually do, and how they do it (Wolf, 1999). What businesses do internally to address hazards and risk and what they do externally to participate in the emergency management efforts of their surrounding jurisdictions varies (Dunaway & Shaw, 2010; Larson & Fowler, 2009; Rapaport & Kirschenbaum, 2008; Webb, Tierney, & Dahlhamer, 2000). The same can be said for nonprofit organizations (Boris & Steuerle, 2006; Brudney & Gazley, 2009; Egan & Tischler, 2010; Klindt, 2010; Palttala et al., 2012; Smith, 2012; Spillan & Crandall, 2002). Thus, the

disaster literature related to organizations leads one to hypotheses similar to those made about jurisdictional implementation of NIMS—namely that organizations will also differ in their intent to implement the system, ability to implement the system, and approach to implementing the system. Variation in the way in which NIMS is implemented by individual organizations will significantly influence the extent to which NIMS will be useful as an organizing mechanism within each jurisdiction, as well as across jurisdictions in a large-scale disaster.

Complexity of disaster response

Even if all organizations and jurisdictions wanted to implement the system and could implement it the same way, analysis of the literature would still suggest that NIMS will not be a salve for common response issues. Disaster scholarship has shown that achieving an effective response is more complex than simply implementing a system like NIMS. The literature suggests that a lengthy list of factors influences how response progresses and the extent to which it is considered effective. Examples of these factors include whether informal social networks exist to support response efforts, the strength of relationships between responding organizations, the role played by citizens, the amount of forewarning before a disaster occurs, the degree of uncertainty surrounding what has occurred, the urgency associated with the response, and the extent to which convergence and emergence occur (e.g., Dynes & Tierney, 1994; Dynes, Quarnatelli, & Kreps, 1972; Fischer, 1998; Koelher, Kress, & Miller, 2001; National Research Council, 2006; Taylor, Zucher, & Key, 1970; Tierney et al., 2001). Whether and to what extent these factors manifest during disaster response and the individual and combined influence of those factors on response will vary. And, because the status of preparedness varies over time and from jurisdiction- to-jurisdiction, jurisdictional capability and capacity to cope with these response issues will vary as well.

Disaster researchers have maintained that planned systems such as NIMS are often not able to adapt to complex response environments and meet related needs. Planned systems that require implementation of multiple structures and processes in a standardized fashion can lead to an overly- bureaucratized or rigid approach to response—the opposite of what is needed (Neal & Phillips, 1995). And, if the planned system is strictly adhered to despite its inability to meet the needs generated by the disaster and/or public expectations, the response will likely be perceived to have been poor (Schneider, 1992; 1995). Thus, flexibility and improvisation are viewed both as a natural part of response efforts and a requirement for effective response by disaster scholars (e.g., Dynes, 1994; Fischer, 1998; Kendra & Wachtendorf, 2003,; 2006; Mendonça & Wallace, 2004; Mendonça, Beroggi, & Wallace, 2001; Webb, 2004; Webb & Chevreau, 2006).

There are numerous examples of situations that can lead to jurisdictional improvisation when planned systems are not able to meet the demands of a disaster response. For example, the role(s) an individual or organization actually plays in the

response to a disaster may not be the role(s) they planned to fill (Webb, 2004). The structures that were intended for use may be rendered insufficient or unusable (Kendra & Wachtendorf, 2003). Individuals and groups that had not been involved in pre-disaster planning may participate in the response (Dynes & Quarantelli, 1980). For these reasons, and many others, the disaster literature suggests that “...the planned emergency response system will probably not be the one that emerges. The one that does emerge, most likely, will have a tendency to be locally self-organizing, somewhat unpredictable in its inter-organizational linkages, and likely to succeed or fail in unpredictable ways.” (Koehler, Kress, & Miller, 2001, p. 295)

This review of the disaster research has suggested that standardization of emergency management across the United States will not be achieved because both preparedness and response have varied and will continue to do so. And, the factors influencing this variation are many and complex. In light of these issues, it would seem that the NIMS mandate will not bring about standardization, make the United States prepared, or make response effective everywhere, all the time. In sum, the disaster literature suggests that it is doubtful NIMS will fulfill its ambitious purpose.

The NIMS Research

The discussion to this point has been based on a review of the disaster literature at-large. The disaster literature reflects the implications for NIMS from scholarship related to a variety of emergency management topics and not empirical research specifically on NIMS. Prior to drawing conclusions as to NIMS’ potential, this literature too must be reviewed.

While there has been some limited scholarly writing on the topic of NIMS (e.g., Anderson, Compton, & Mason, 2004; Henkey, 2011; Lester & Krejci, 2007), there has actually been very little research on the system. Nevertheless, the results of a small, but significant, group of studies on NIMS have been reported in recent years. Cumulatively, this research confirms what the review of the disaster research suggested—that the NIMS mandate has not yet fulfilled its goal, that there is varying intent across jurisdictions to see this goal realized, and that there is substantial variation in the extent to which the system is being implemented. This section reviews the NIMS research literature for what it reveals about perceptions of the system, the extent to which the system is being implemented, and the factors that influence its implementation.

Perceptions of NIMS

Most of the research on NIMS to date has focused on perceptions of the system,; and, the research has found a consistent perception problem when it comes to NIMS. Dewalt (2010) found in his case study of volunteer fire fighters in Indiana that NIMS was not particularly popular. In their survey of North Dakota volunteer fire department chiefs and fire fighters, Jensen and Yoon (2011) also revealed that neither NIMS, or its sub-component, ICS, were well-perceived for routine times or disasters. Wilson (2010) also found that perceptions of

NIMS were not positive in his survey of training officers from rural fire departments, emergency medical services, and law enforcement agencies. And, Jensen (2009) found in her interviews with county emergency managers in three Midwestern states that while the majority of emergency managers liked NIMS “in theory” (particularly as related to its command and management component), “in reality” they had significant concerns with the system.

Day-to-Day Implementation of NIMS Implementation Day-to-Day

The lack of wholly positive perceptions of NIMS does not necessarily mean that NIMS was not being implemented as designed. Yet, the research to date has found that day-to-day implementation of the system varies. McCauley’s (2011) study of city public safety directors in a Midwestern state and Clark’s (2010) study of implementation by New Jersey municipalities found varying implementation of the system. And, Jensen (2009) found that most counties in the three Midwestern states studied adopted a minimal compliance mentality, selectively implemented the system, and obfuscated the degree to which the system was being implemented in their compliance reporting to higher levels of government. Varying day-to-day implementation was also found by Jensen (2011) and Jensen and Youngs (e.d.) in their random national sample of counties. They not only found significant variation in the degree to which counties were implementing each of NIMS’ components but also that most counties were modifying the system’s required structures and processes as they implemented them.

NIMS Implementation in Disasters

Research has also found that implementation of the system differed during disaster response both within organizations and across organizations (Neal & Webb, 2006; Jensen, 2008). Neal and Webb’s (2006) quick response research examined federal and local agency use of NIMS in the aftermath of Hurricane Katrina. They found substantial variation in the use of NIMS. Specifically, that some organizations had been trained in NIMS, but used their own response system instead; that some organizations had no interest in using, or intent to use, NIMS; that some organizations used NIMS only somewhat; and, that others utilized the system in its entirety (p. 355). Similarly, Jensen’s (2008) quick response research exploring the use of NIMS at the state and local levels in response to a tornado found a significant struggle with NIMS implementation. She found that only parts of ICS were used in the initial response (e.g., an incident commander was designated) as opposed to the rest of NIMS; the aspects of the system that were used were used inconsistently by the organizations involved; and, the full NIMS was only used when an incident management team arrived to support local coordination efforts in the early recovery period. Interestingly, the state did not think it made a difference to the response whether NIMS was used or not. Despite the lack of NIMS use, the jurisdiction was widely perceived to have mounted a successful response at both the state and local levels.

Explaining Implementation

The NIMS research suggests that a large number of many factors explain the variation in day-to-day and disaster implementation of NIMS. The factors that help us understand day-to-day implementation fall into five categories: including organizational views, inter-organizational characteristics, local context, policy characteristics, and implementation support. The NIMS research shows that each of the identified factors can individually and in combination with one another influence NIMS implementation. Please see Table 1 for a list of the independent variables in each category, the expected direction of the relationship of each independent variable with NIMS implementation suggested by the literature, and citations of the relevant literature.

TABLE 1. INDEPENDENT VARIABLES THAT EXPLAIN DAY-TO-DAY IMPLEMENTATION OF NIMS.		
Independent Variables	Sign	Citation Support
<i>Organizational Views of System</i>		
Attitude toward the system	+	Dewalt, 2010; Jensen, 2009; Jensen & Yoon, 2011; Jensen & Youngs, e. d.; Neal & Webb, 2006
Motivation to implement the system	+	Jensen & Youngs, e. d.
Predispositions toward state and federal policy in general	+	Jensen & Youngs, e. d.
Desire to maintain organizational autonomy by organizations	-	Jensen, 2009
Fit with organizational cultures	+	Dewalt, 2010; Jensen, 2009; Neal & Webb, 2006
<i>Inter-organizational Characteristics</i>		
Goal congruence across organizations	+	Jensen & Youngs, e. d.
Existence of working relationships across organizations	+	Jensen & Youngs, e. d.
Trust among organizations	+	Jensen & Youngs, e. d.
Presence of barriers to coordination	-	Jensen & Youngs, e. d.
<i>Characteristics Related to Context</i>		
Fit with jurisdictional culture	+	Dewalt, 2010; Jensen, 2009; Neal & Webb, 2006
Status of first response services*	-	Dewalt, 2010; Jensen, 2009; Jensen & Yoon, 2011
Time required for help to arrive	-	Jensen, 2009
Distance between resources	-	Jensen, 2009
Capacity to implement	+	Jensen & Youngs, e. d.
Degree of reliance on state for response support	-	Jensen, 2009
<i>Policy Characteristics</i>		
Necessity of NIMS	+	Jensen & Youngs, e. d.
Clarity of Objectives Associated with Implementation	+	Jensen & Youngs, e. d.
Specificity of Objectives Association with Implementation	+	Jensen & Youngs, e. d.
Existence of Incentives to Implement	+	Jensen & Youngs, e. d.
Likelihood of Incentives to Implement	+	Jensen & Youngs, e. d.
Existence of Sanctions for Failure to Implement	+	Jensen & Youngs, e. d.
Likelihood of Sanctions for Failure to Implement	+	Jensen & Youngs, e. d.
<i>Implementation Support</i>		
Support of Administrative/Elected Officials	+	Dewalt, 2010; Jensen, 2009
Quality of NIMS training	+	Dewalt, 2010; Jensen, 2009; McCauley, 2011; Neal & Webb, 2006
Time to implement	+	Jensen & Youngs, e. d.
Technical support	+	Jensen & Youngs, e. d.
Funding to support implementation	+	Jensen & Youngs, e. d.

The NIMS literature suggests that the factors that help us understand implementation in disasters include all of those identified as important on a day-to-day basis in Table 1, as well as additional context factors and factors related to the disaster itself. Please see Table 2 for the list of additional independent variables related to implementation in a disaster, the direction of the relationship of each independent variable with implementation, and citations of the relevant literature.

TABLE 2. ADDITIONAL INDEPENDENT VARIABLES THAT EXPLAIN IMPLEMENTATION DURING DISASTER RESPONSE.

Independent Variables	Sign	Citation Support
<i>Additional Context</i>		
Extent to which NIMS was used day-to-day in the period leading up to the disaster	+	Neal & Webb, 2006
Practice with NIMS response structures and processes	+	Neal & Webb, 2006
Time between training and implementation in an event	+	Jensen, 2008
<i>Disaster</i>		
Forewarning	+	Jensen, 2008
Duration	+	Jensen, 2008
Geographic Scope of Impact	+	Jensen, 2008; Neal & Webb, 2006
Number of Needs Generated	-	Jensen, 2008
Types of Needs Generated	-	Jensen, 2008

Based on an understanding of these empirically- grounded categories and the factors within them, a profile of a jurisdiction most likely to implement NIMS on a day-to-day basis can be developed. Knowledge of what an ideal jurisdiction would consist of provides a basis from which to discuss the extent to which research has found jurisdictions in the United States to match up. This profile will be first presented and then discussed.

Profile of a jurisdiction likely to implement NIMS as designed. In a jurisdiction where implementation of NIMS on a day-to-day basis is most likely, all of the relevant emergency management relevant organizations within the jurisdiction would buy into the system, be motivated to implement it, and see implementation as a priority. The organizations within the jurisdiction would perceive the system be a rationale solution to meeting a real need in emergency management. The organizations within the jurisdiction would believe that the system fits with how they work, how they are organized, and what they value (i.e., their organizational culture), and each would be willing to give up some of their organizational autonomy to bring about improved emergency management outcomes. Beyond fitting with the culture of each of the relevant emergency management relevant organizations in the jurisdiction, the system would also fit with the culture of the area as a whole. Working relationships based on trust would exist among all of the relevant emergency management relevant organizations in the jurisdiction.

Use of the system would be normative for all of the organizations, as they would each be implementing it within their individual organizations. They would believe that what they are supposed to do to implement the system is both clear and specific; that there was enough time to implement the system to be compliant; that incentives and sanctions related to implementation exist; and, that the incentives and sanctions are likely. Technical assistance would be available to assist the organizations (and jurisdiction as a whole) as they go about trying to implement the system. Sufficient funding to support implementation would be provided. Locally elected and state-level officials would be supportive of NIMS implementation. High-quality training in NIMS would be available to organizations within the jurisdiction.

In order for the jurisdiction to successfully transition from day-to-day implementation of the system to implementation in a disaster, there would have been ample opportunities to practice the use of NIMS response structures and processes through exercises. The opportunities to participate in NIMS-related training and exercises would also have been recent so that little time would have lapsed between when individuals within the organizations and jurisdictions were trained/last practiced and when they actually have to implement the system in a disaster.

Yet, as important as the profile of the jurisdiction is to understanding the implementation of the system during a disaster, there are additional factors that the literature suggests are important—factors related to the disaster event that the jurisdiction experiences. If the system is to be implemented as designed within a jurisdiction during a disaster, then, in addition to matching the profile presented, the jurisdiction would have had significant forewarning before the event occurred, and once it was occurring/had occurred, the period of impact would be of short duration, the geographic scope of impact would be small/localized, and the number and range of needs that would have to be met to respond to the disaster would be few.

Prevalence of the ideal profile

Unfortunately, the ideal jurisdictional profile most conducive to NIMS implementation does not exist in all jurisdictions in the United States—not even in most jurisdictions—based on the research that has been conducted on NIMS to date. For example, research has found that state and/or local leadership support to implement NIMS is lacking in some jurisdictions/states (Dewalt, 2010; Jensen, 2009). Neal and Webb (2006) noted that conflict between NIMS and the cultures of some organizations was related to varying implementation of the system. Jensen (2009) found that a culture of independence and help-giving behavior was related to partial and selective implementation of NIMS in some rural areas (Jensen, 2009). A lack of knowledge about (and, hence, use of) the system (Jensen, 2009; McCauley, 2011; Neal & Webb, 2006), insufficient NIMS training (Dewalt, 2010; Jensen, 2009; McCauley, 2011; Neal & Webb, 2006), inadequate practice with NIMS

response structures and processes (Jensen, 2008; Neal & Webb, 2006), and too much time between when organizations and jurisdictions are trained and when they attempt to implement the system in an event have been found in some jurisdictions (Jensen, 2008). And, The data from a random sample of United States counties revealed that counties have varying views of the system (e.g., not all have buy-in, are motivated to implement, see implementation as a priority, etc.), vary in the extent to which they understand what they are supposed to implement, vary in their belief that there are likely incentives and sanctions (particularly sanctions) associated with implementation, and vary in believing that implementation support (e.g., technical assistance, funding to implement, etc.) is available (Jensen & Youngs, e.d.). Thus, the NIMS research to date suggests that there is a great deal of variation in how jurisdictions match up to the profile described.

Implications from the Disaster Literature and NIMS Research

The evidence on NIMS implementation that exists to this point suggests—what as the disaster research also suggested—that the ideal jurisdictional profile is not the real profile in all jurisdictions in the United States. In fact, the literature suggests that many jurisdictions are missing several profile components. The extent to which this finding is problematic for NIMS as an organizing mechanism for emergency management is important to explore.

Consider the implications for standardization if jurisdictions exhibited the following features:

- Jurisdiction A: Some organizations that have refused to implement the system, other organizations that have not participated in exercises, and leadership is unsupportive of implementation in the jurisdiction, or
- Jurisdiction B: The sentiment in the jurisdiction is that NIMS does not fit with local culture, or “how we do things.” There are organizations that do not trust each other, and some organizations are not willing to give up some of their autonomy for the sake of emergency management., or
- Jurisdiction C: Organizations within the jurisdiction do not understand what aspects of NIMS they are supposed to implement, training and practice with the system is lacking or of poor quality, and the general thinking is that in a disaster the state will step in to support response to a disaster anyway, so why there’s no need to bother with NIMS.”.

The NIMS research shows that jurisdictions like these, where elements of the ideal profile are missing, are likely to modify system components, incompletely implement system components, or not implement some system components at all. Hence, emergency management within, and across, these jurisdictions would not be standardized.

The jurisdictions described do not reflect some made-up, mythical alternative reality. According to the NIMS research, the jurisdictions with imperfect profiles are not the

exception—they are the rule. And, as a result, variation in implementation is not unusual—it is common.

More than one jurisdiction like those described above is located within individual geographic regions/states. More than one such geographic region/state is located next to one another, and there are several such geographic regions, or states, within the United States. There are differences in how emergency management is handled within jurisdictions, jurisdiction-to-jurisdiction, region-to-region, and state-to-state (Clark, 2010; Dewalt, 2010; Jensen, 2008; 2009; 2011; Jensen & Yoon, 2011; Jensen and Youngs, e.d.; McCauley, 2011; Neal and Webb, 2006; Wilson, 2010). Hence, standardization of emergency management à la NIMS has not been achieved.

The degree to which variation in NIMS implementation is a problem is an open question. On a daily basis, the public, media, and officials from every level of government would likely not notice whether NIMS is being fully implemented within a given jurisdiction, or even in many jurisdictions. Even in routine emergencies, variation in implementation would likely go unnoticed; and, if noticed, it would likely present few problems due to the nature of these events (Auf der Heide, 1986). But, NIMS was not mandated primarily for these circumstances.

NIMS was mandated to as a means to prevent response problems such as those seen during the aftermath of September 11/9/11 and Hurricane Katrina—events where the public, media, and officials at every level are paying attention and where there are many and urgent needs that have to be addressed by employing numerous resources with the help of entities from more than one sector, level of government, and many areas of the country. It is in these circumstances that standardization would yield incredible benefits to response efficiency and effectiveness. It is in these circumstances that the lack of standardization due to variation in NIMS implementation will be both noticed and costly.

The notion that NIMS has not brought about standardization at this point is not necessarily because the system's areas of focus or the structures, processes, and activities it mandates are flawed. After all, review of the disaster literature showed that NIMS addresses enduring preparedness and response problems and that some of the structures and activities the system requires can be useful in bringing about improved response outcomes. Instead, the most fundamental problem with NIMS seems to be that its success is predicated on standardization (DHS, 2008). While standardization is desirable, it is an unrealistic goal.

There are many factors that influence each jurisdiction's implementation of NIMS. The disaster literature and NIMS research suggested that a range of factors related to intent, organizational views, inter-organizational characteristics, context, the policy, and implementation support influence day-to-day implementation of NIMS. And, Factors related

to the hazard, response, and additional context factors also influence disaster implementation of the system.

It will be difficult to make all jurisdictions fit the ideal profile for implementation (i.e., ensure that all of the factors identified by the literature exist in all jurisdictions), given the range of factors that influence implementation and the extent to which these factors can be controlled. While many of the policy and implementation support factors can be addressed in a uniform way (e.g., incentives could be provided for implementing the system, and sanctions could be levied for failure to implement, training could be improved, funding could be provided to support implementation efforts), the factors associated with intent, views, organizations, and context are not easily impacted. Indeed, the factors associated with disaster situations that the disaster literature and NIMS research identified cannot be controlled. It will not be easy—perhaps not even possible—to do anything that would result in the buy-in of all organizations and jurisdictions in all places, the alignment of all organizational and jurisdictional cultures, the improvement of inter-organizational characteristics within all jurisdictions, etcetera.

Conclusion

The NIMS research found that the system is not particularly positively perceived in a particularly positive way by a many of the organizations that ought to be implementing the system. More importantly, the research also found that the system is not being implemented as designed day-to-day or in disaster situations by all organizations and jurisdictions across the United States. A wide variety of factors, or conditions, were identified as influencing the implementation of NIMS.

It must be remembered, of course, that the factors influencing NIMS implementation have been identified through a small number of studies, —the findings of which are not generalizable (with the exception of Jensen, 2011, and Jensen & Youngs, e.d.). Moreover, not all studies found that factors such as leadership and funding influence NIMS implementation (Clark, 2010; Jensen & Youngs, e.d.). The influence of the factors found in the NIMS research to date needs to be further explored through research.

The finding that NIMS is not positively perceived by all organizations and the variation in implementation of the system also needs to be further studied in more organizations and jurisdictions, day-to-day and during disasters, and over a long period of time. Moreover, each of the NIMS components and the activities, structures, and processes within them merit examination. Future research ought to explore how each of these areas is perceived and implemented, as well as the degree to which implementation is related to positive response outcomes.

While the NIMS research to date is not generalizable and more research is certainly needed, the NIMS research does not stand by itself. The NIMS research, like the disaster

literature at-large, does not support the assumptions upon which NIMS is based, including (1) that all relevant organizations and jurisdictions will implement the system; (2) that the system will be implemented in the same manner; and, (3) that common response shortcomings will be avoided if it is used (Jensen, 2009; Neal & Webb, 2006). The NIMS document itself states these assumptions (DHS, 2008, pp. 3-6). The disaster literature suggests that all three of these assumptions are false; and, further, that little can be done to make them true. In fact, Review of the disaster literature led to the hypotheses that not all organizations and jurisdictions will want to implement the system, that not all everyone will implement it in the same way, and that it will not work to completely correct common response shortcomings if it is implemented. The NIMS research provides evidence to support each of these hypotheses. Furthermore, both bodies of literature point toward the relevance of the same factors in understanding why this is the case.

This review of both the disaster and NIMS research presents a strong case that the NIMS mandate will not result in a standardized emergency management system. NIMS does not appear to be, nor likely to will ever be, implemented fully, or in the same way, across all organizations and jurisdictions at all levels in the United States. It also seems that NIMS will not be the mechanism for improving response across the United States because the system requires standardization.

NIMS' dual goals—standardization and improved response—were ambitious from the start. Ambitious because so many entities and jurisdictions are involved in the emergency management enterprise, because there are many influences on why emergency management is what it is in any given location, and because the problems that it tried to address related to preparedness and response are historical and enduring. While the NIMS mandate may not fulfill its purpose, it may still have had positive impacts on the emergency management system. For instance, it is possible that NIMS has helped increase preparedness by drawing attention to what preparedness activities ought to be undertaken and how. Furthermore, it is possible that the NIMS mandate has led to better managed response efforts in disaster situations than would have been the case in the absence of NIMS. These issues should also be investigated through future research.

A PRACTITIONER'S PERSPECTIVE

Introduction

Historically, the United States has progressed incrementally on a path of increased federal involvement in disaster preparedness and response, generally following events that served as catalysts for change. The terrorist attacks of September 11, 2001 (9/11) led to the largest restructuring of government since World War II, and post- Hurricane Katrina reforms led to the implementation of at least six statutes concerning federal emergency management activities. Much of the focus since 9/11 has been on the ability of the federal government to prepare the collective response community, including all levels of government, private sector, and volunteer organizations, for response to large- scale disasters as well as to ensure that the response is coordinated and effective.

In 2003, then President George W. Bush issued Homeland Security Presidential Directive- 5 (HSPD-5), Management of Domestic Incidents. The stated purpose of HSPD-5 was to "...enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system" (Bush DHS, 2003). Since that time, a tremendous amount of effort has been expended to achieve this goal. The National Incident Management System (NIMS) has been a requirement for many individuals and organizations since it was first implemented in March of 2004. As directed in HSPD-5, NIMS was intended to create a consistent national approach to prepare for and respond to emergencies and disasters, regardless of size, cause or complexity (DHS, n.d.). Given the diverse nature of the first and second responder community of practice, NIMS has been the topic of much discussion and debate regarding its necessity, as well as its effectiveness. This chapter section will discuss how although NIMS has been a requirement for nearly 10 ten years, it is not universally accepted throughout the response community, and NIMS implementation has not been truly assessed for effectiveness in achieving the stated goals of HSPD-5.

Local communities have long recognized the need to plan, prepare for, and respond to emergencies and disasters that are beyond their own capabilities and resources. Additionally, the U.S. government has also recognized the need to plan, prepare for, and respond to emergencies and disasters that are beyond the scope of traditional community-based activities, with much emphasis placed on these federal efforts beginning in the Cold War era. The preparedness campaigns, evacuation planning, shelter planning, and community Civil Defense Rescue Squads of the 1950s are not unlike our current Ready.gov campaign concepts of 72 seventy-two hours of self-sufficiency, making family plans, and citizen participation in Citizen Corps. The basic structure and function of emergency management today, as well as many of the mutual aid networks for emergency response, were born out of Cold War preparedness activities. On April 1, 1979, the Federal Emergency Management Agency (FEMA) was created through Executive Order (EO) 12127. This was a

culmination of efforts from a “...review of the disjointed system of bureaucracies managing civil defense” conducted by then President Jimmy Carter’s administration (DHS, 2006). During that same year, the accident at the Three Mile Island Nuclear Generating Station (TMI) nuclear power plant occurred and added to the on-going debate concerning the creation of a single disaster preparedness agency, resulting in the issuance of EO 12148, establishing FEMA as the lead agency for coordinating federal disaster relief (DHS, 2006).

In 1988, the Robert T. Stafford Disaster Relief Act was adopted, attempting to clarify roles and responsibilities of states and the federal government for disaster response and relief from the Disaster Relief Act of 1974. Soon thereafter, the federal government and emergency management again came under scrutiny for not being able to effectively manage disasters such as Hurricane Hugo and the Loma Prieta earthquake, leading to the development of the Federal Response Plan (FRP). Established in 1990, the FRP, established in 1990 attempted to ensure a more effective and coordinated federal response by drawing on best practices of the fire service community, such as the Incident Command System (ICS). The FRP was only applicable to federal agencies and the American Red Cross (ARC), and not to state, local, and private- sector entities. The last two decades have seen a continuum of attempts by the federal government to refine preparedness and response policies and doctrine, and expand these concepts to include state, territory, tribal, and local governments.

Origin of NIMS

The origins of NIMS can be traced to an initiative that began after extensive and large- scale wildfires in California in the 1970s (Buck, Trainor, & Aguirre, 2006). That initiative resulted in Firefighting Resources of Southern California Organized for Potential Emergencies (FIRESCOPE). FIRESCOPE looked to address the major problems identified in responding to large- scale wildfires: too many people reporting to one supervisor, different emergency response organizational structures, lack of reliable incident information, inadequate and incompatible communications, lack of a structure for coordinated planning between agencies, unclear lines of authority, terminology differences between among agencies, and unclear or unspecified incident objectives (National Wildfire Coordination Group [NWCG], 1994). In 1980 the concepts of FIRESCOPE were adopted and modeled into a program called the National Interagency Incident Management System (NIIMS). This initiative was applicable to state and federal agencies with wildland fire protection responsibilities (NWCG, 2004). In that same time frame, the ICS concepts promoted by FIRESCOPE were adopted by federal response agencies such as FEMA and the U.S. Coast Guard and were also added to the teaching curriculum of the National Fire Academy (NWCG, 1994). Throughout the 1980s, the incident command system (ICS) was used and modified primarily by fire service-oriented agencies. These modifications caused concerns about standardization, which led to the organization of the National Fire Service Incident Management System Consortium. The stated purpose of the incident management system (IMS) consortium was to develop

operational protocols to be able to apply ICS as one common system (DHS, 2005). In 1993, the first of the model procedures guides for ICS was published, creating a standard national doctrine for emergency response (DHS, 2005). Although there were model procedures guides published for response disciplines other than firefighting, ICS was still seen by many responders as primarily a fire service application.

The terrorist attacks of 2001 showed that even our largest and most resource-rich cities were still vulnerable to events that could surpass their capabilities, and once again the federal government sought to further refine policies and create national doctrine for emergency and disaster response. The introductory memo on NIMS from the first Secretary of the Department of Homeland Security (DHS), Tom Ridge, noted that NIMS was the result of extensive outreach with state, local, and tribal partners, and represented the best practices of incident managers at all levels. These best practices included the lessons learned from the evolution of FIRESCOPE, NIIMS, and the IMS consortium. This memo also contained a provision that all federal departments and agencies had to make adoption of NIMS by state, local, and tribal entities a requirement for receiving federal preparedness grants (Ridge, 2004). This aspect of NIMS potentially addressed the perception of ICS as a fire service application by attempting to make the system more universally implemented. Hurricane Katrina in 2005 led to further review and refinement of the federal emergency management system and NIMS to include requirements for states to be more inclusive in their planning and preparedness efforts, and a requirement that FEMA work with non-federal partners to develop capabilities for a national catastrophic response system (Bea et al., 2006). All of these events served to promote the expansion of the federal role in disaster preparedness and response, and shape the national doctrine of today.

Challenges of NIMS Implementation

NIMS is comprised of comprises several components, including preparedness, communications and information management, resource management, command and management, as well as on-going maintenance. Although for this chapter the focus will be on the command, management, and coordination aspects of NIMS, the issues brought forward would also have applicability in varying degrees to the other NIMS components. The United States has spent hundreds of millions of dollars and tremendous collective effort to implement NIMS in order to meet the requirements of HSPD-5. This single incident management system is to be applicable "... for incidents where additional resources are required...from different organizations within a single jurisdiction..., or for complex incidents with national implications such as emerging infectious disease or a bioterrorism attack (DHS, 2008)."

The effectiveness of NIMS is contingent on the acceptance, knowledge, skills, and abilities of the system's users from the local to the national level. This includes not just emergency services and emergency management but also public works, healthcare, human

services, educational institutions, elected and appointed officials, volunteer Voluntary Organizations Active in Disasters (VOADs), non-governmental organizations (NGOs), military, private sector, government contractors, and numerous other entities.

Although there is tremendous merit in the principles of NIMS for emergency and disaster response, there are also many challenges to implementing NIMS as a nationally accepted, single solution to emergency and disaster response in the United States. The current system of training, education, application, and evaluation of NIMS may not equate to a greater level of preparedness for local communities and the U.S. as a whole. The feasibility to develop proficiency in national-level response doctrine at the local level, given the varied statutes and business practices of the states, commonwealths, districts, territories, and tribes that comprise the United States, as well as the varied composition and perceived risk within jurisdictions is questionable.

Perception of NIMS Relevancy

When it comes to implementing new federal initiatives or programs, state and local jurisdictions should address key questions concerning their motivation for compliance. The reasons that a jurisdiction or organization implements and complies with NIMS are important to effective application of its concepts for preparedness, response, and recovery. From a federal perspective, all incidents are local and national doctrine is needed to ensure the United States is prepared for the low-probability, high-consequence incidents that will rise to the level of full NIMS/ICS implementation. Conversely, many local and state entities and other organizations look at NIMS as something that is mainly applicable to terrorist attacks or major disasters such as hurricanes or earthquakes. If these entities do not see NIMS as being relevant to their organization on a daily basis, they may complete the minimum requirements for NIMS compliance merely to ensure their continued federal grant eligibility.

As a Deputy Fire Chief and Deputy Emergency Management Coordinator, the author had the responsibility for implementing NIMS/ICS requirements for a small city. This included providing the basic training to emergency services and public works employees, emergency operations center (EOC) staff, as well as elected and appointed officials. As an instructor for the NIMS/ICS programs for the city as well as throughout the region, it was easy to recognize that many of the students had no real interest in the program and were completing courses primarily because of federal requirements. Many of them could not see the relationship between their community and the need to change their practices from what they had been doing for many years. A large number of the first responders understood basic ICS as it was applied to their community but did not see the value of many of the other concepts such as common terminology, credentialing, resource typing, incident action planning, and area command. These were students who had been involved in large floods resulting in federal disaster declarations, large fires involving factories and high-rise

buildings, hazardous materials and technical rescue incidents, and had always been able to resolve these incidents effectively. When incidents did occur that exceeded local capabilities, traditional mutual-aid networks and existing means for acquiring such resources proved effective.

While none of these incidents would be defined as catastrophic, many would meet the threshold for advanced- level NIMS/ICS training and implementation indicated under the guidance provided by DHS/FEMA. A common sentiment heard soon after NIMS was introduced as a requirement, and still heard today from many first responders, is, “so why are we doing this?” If these incidents were managed effectively prior to NIMS and the only thing that changed was 9/11 and Katrina, why do we need to become compliant in something that is only applicable to hurricanes, earthquakes, and terrorist attacks when those are not our local risks?

A sampling of the dialogue on NIMS from several national- level blogs provides insight into the perception of NIMS throughout the U.S.¹ Comments on these blogs included NIMS curriculum being overly focused on terminology, titles, forms, and meetings and not on practical application. Others noted NIMS as requiring too many staff positions to be realistically used at many incidents where limited responders are available. In some cases those from western U.S. regions that had 30 years of experience with ICS due to large wildfires were having a difficult time understanding why those from other areas of the United States could not see the relevance of NIMS for actual emergency response activities. Also noted was that NIMS is too bureaucratic and complex, being referred to in one case as “FEMA speak.”. It was cited that the only motivation for NIMS compliancy was simply to be eligible for federal grants, and while this certainly is not the sentiment of the entire community of practice, it is consistent with the many of the author’s experiences concerning local implementing implementation of NIMS.

The perceived relevancy of NIMS at the local level is significant since it impacts every aspect of compliance, from NIMS training and exercise to the use of common terminology, credentialing, and standardized resource typing. If responders and local officials do not see NIMS as relevant, the training and other aspects of NIMS compliance will most likely not lead to a tangible capability. This does not mean that these jurisdictions do not have effective resources and programs to respond to local, regional, and national disasters. It simply means that these jurisdictions are completing and reporting on NIMS requirements solely for the purpose of compliance, as opposed to an earnest effort to comply with the intent of NIMS and HSPD-5.

Effect of Organizational Culture on NIMS Implementation

Organizational culture can be defined as “a set of understandings or meanings shared by a group of people that are largely tacit among members and are clearly relevant and distinctive to the particular group which are also passed on to new members (National

Defense University, n.d.).” When looking at the effective implementation of NIMS at the local level, the culture of organizations must be considered. During federal disaster deployments, it is not uncommon for federal disaster employees and responders to hear comments from the supported state or jurisdiction: such as, “What are you doing here? We didn’t ask for you.” “We don’t need your help.” or questions like, “Who is FEMA to tell us how to do our jobs?” These comments are often from personnel at the operational or tactical level of the organization as well as from local-level emergency services officials. Obviously, some of this can be attributable to individual personalities, but in discussions with colleagues, it seems more organizationally than individually driven.

There is a famous quote from former President Ronald Reagan:, “The nine most terrifying words in the English language are: I’m from the government and I’m here to help.” For some organizations this has a ring of truth when it comes to the help received from the federal government in making us all safer through NIMS.

This issue of culture is not confined to federal interactions with state and local governments and is also found in organizations within the same jurisdiction. As an example, the culture of distrust among the police and fire departments in New York City has been cited as inhibiting the effective implementation of NIMS-compliant preparedness and response activities (Carraro, 2009.) If an organization’s culture creates attitudes of distrust or disdain for other organizations or higher-level government, it is not likely to be cooperative and collaborative in its relationships with those entities during times of preparedness planning or response. These attitudes can also affect the level of acceptance for implementation of NIMS as a relevant system for all levels of preparedness and response.

One area of contention is the standardized typing of resources and terminology associated with emergency services. The typing of resources to a common reference standard can increase effectiveness in resource requisition and integration during interregional or interstate incidents where a supporting state or region’s nomenclature for these resources may not be familiar or consistent with those of the supported region or state. The issue of water tanker and water tender, although relatively insignificant, is a good example of local attitudes. The fire service has called apparatus that carry 1,000 gallons or more of water ‘tankers’ for much of its history. Under NIMS, a tanker is an aircraft that conducts water drops on large wildfires, and the traditional water tanker is now to be called a water tender to avoid confusion. A common rhetorical question concerning this change is, “When was the last time a fire chief got an airplane at his barn fire instead of the 1,000 gallon tanker that was requested?” Something as simple as changing the terminology for a piece of equipment can be significant in communities that have developed peculiar names and associated traditions, and they may not see the relevance of adopting the change. Organizational culture as well as the culture of distrust mentioned previously can affect the

practical implementation of NIMS in areas such as collaborative planning, information sharing, and efficient response.

Volunteers and NIMS

A concept being promoted by FEMA Administrator Fugate is that of 'Whole Community'. This concept looks to engage the entire community in a process to "...collectively understand the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacity and interests (FEMA, 2011)." Pennsylvania, as one example, has 2,566 municipalities in 67 counties. This includes large cities such as Philadelphia and Pittsburgh, smaller cities such as Harrisburg, Erie, and Scranton, as well as over 400 municipalities with populations under 1,000 residents.

Each of these municipalities is its own political jurisdiction and will likely have its own emergency management coordinator and police chief. The larger communities will have a full-time police force while the smaller communities rely on coverage by the state police, or part-time police officers. Additionally, each of these political jurisdictions will likely have one, or more than one, fire chief since the majority of communities under 50,000 rely exclusively on volunteers (National Fire Protection Association [NFPA], 2004). While counties have paid emergency management coordinators, their emergency management agency (EMA) staff members are generally volunteers. At the municipal level, typically only the largest cities have a full-time emergency management office. This issue is not unique to Pennsylvania, as many other states also have the same reliance on volunteers as those described above, with states such as Texas and New York each having more than 950 volunteer fire companies and states such as North Dakota, South Dakota, and Vermont having the highest rates of per capita volunteers in the United States (D'Intino, 2006).

When much of the United States looks at the Whole Community they are looking at not just community volunteers such as civic groups and faith-based organizations but also at volunteers for many of their critical emergency services such as fire, rescue, hazardous materials response, emergency medical response, and emergency management. The recruitment and retention of volunteers has been a concern for communities primarily served by volunteers for a number of years. Although volunteer firefighters comprise 72% of the firefighters in the United States, reports indicate a national drop of 8% percent in volunteer firefighters since 1984, with the largest impact in the northeast United States (National Volunteer Fire Council [NVFC], n.d.). Using Pennsylvania again as an example, there were approximately 300,000 volunteer firefighters in 1975, and by some estimates only approximately 50,000 today. Although reduction in volunteerism is a complex issue, one of the issues cited is increased time demands for training and certification.

A critical factor identified for solving recruitment and retention issues was the need for an assessment of the volunteer skills and abilities most needed to develop and maintain performance with the volunteer fire company (D'Intino, 2006). The addition of NIMS training

requirements can effect affect volunteer recruitment and retention. Although many of the courses are primarily web-based, it is still an additional requirement on a volunteer's time and is in direct competition with discipline- focused training most needed to perform their primary tasks. Additionally, NIMS does not just affect these volunteers through NIMS/ICS training course requirements but also with additional time needed to acquire and maintain minimum standards developed as part of other NIMS requirements such as credentialing. NIMS notes that a robust Homeland Security Exercise and Evaluation Program (HSEEP) is critical to maintaining NIMS proficiency. While this is true, it also represents additional more requirements for volunteers to participate in additional exercises involving multi-agency and multi-jurisdictional scenarios. This competition for time inhibits the ability to participate in collaborative activities and exercises needed for effective NIMS implementation.

Effect of Risk Attitudes on NIMS Implementation

NIMS requirements may not be perceived as necessary for ensuring that communities are organized and resourced effectively for their level of community risk. Shanksville, Pennsylvania, has been used many times as an example of why even rural communities need NIMS compliance, referring to the hijacked aircraft that was wrested to the ground by some exceptional Americans on 9/11. Risk- based decision making looks at risk as the following formula: Risk = Threat x Vulnerability x Consequence. Risk- informed decision making must also include human values and risk attitudes. When we look at smaller communities such as Shanksville, what truly is the risk of something as significant as a commercial airliner crashing in their community? If a thorough all-hazard risk assessment of the entire community and region is conducted, what are the actual risks likely to occur in that community? In many communities the risks will involve the historical events anticipated and planned for by their local emergency management and emergency services organizations and not catastrophic disasters or terroristic use of weapons of mass destruction. It is this community- focused risk assessment and associated risk attitudes concerning terrorism or catastrophic disaster that are the perspective of many communities, not just rural ones, when it comes to NIMS compliance. Here again, if the improbable terrorist attack or some other disaster affecting their community is not seen as likely, then it becomes an acceptable risk and the relevance of NIMS will be challenged.

Table 1. NIMS Incident Complexity Types

Type 1	<ul style="list-style-type: none"> • Most complex type of incident • Requires national resources for safe/effective operations • All command and general staff positions filled • Branch organizations established • Written incident action plan required for each operational period • Operations personnel may exceed 1000 total • High impact on the local jurisdiction
Type 2	<ul style="list-style-type: none"> • Extends beyond local capabilities for control and for multiple operational periods • May require regional or national resources • Many or all command and general staff positions filled • Written incident action plan required for each operational period • Total incident personnel normally less than 500
Type 3	<ul style="list-style-type: none"> • Incident needs exceed capabilities • Some or all command and general staff positions filled • A Type 3 IMT or incident command organization manages initial action incidents with a significant number of resources • Incident may extend into multiple operational periods • Written incident action plan may be required
Type 4	<ul style="list-style-type: none"> • Command and general staff functions activated if needed • Several resources needed, including task force or strike team • Usually limited to one operational period • No written incident action plan normally required
Type 5	<ul style="list-style-type: none"> • Incident managed with one or two single resources and up to six personnel • Only incident command position activated • No written incident action plan is required • Incident is contained within one operational period, usually less than a few hours • Examples include a vehicle fire, injured person or police traffic stop

NIMS/ICS Training and Experience

NIMS/ICS is a complex management construct that many times is being taught through rote learning techniques. Although this may be an effective means to convey basic terminology and concepts, this type of learning cannot be the only exposure a person has to the information. If the student is to comprehend the information actually presented, there needs to be a high level of competence on the part of the instructor as well. In many instances the NIMS instructor has very limited experience and cannot convey the myriad challenges of NIMS in practical application, relying solely on the information in the instructor manual and their own potentially myopic view. As noted in NIMS doctrine, learned knowledge is only one part of competency, and there is a need to gain experience using these concepts in exercise and practical incident applications. In many areas of the United States, the frequency and scale of emergency incidents does not provide adequate opportunity for responders to gain proficiency in NIMS/ICS. This issue is not limited to rural response communities, as many cities also do not see the same types of incidents they had in the past, with many more

medical and investigation- type incidents as opposed to greater alarm fires and other more resource- intensive events (see Table 1 for NIMS incident complexity types). While these incidents may provide an opportunity to gain experience in some applications of NIMS it is not representative of the level of complexity and novelty often seen in major disasters.

The Department of Defense (DoD) has created a large and robust military response community designed to provide support to civilian authorities during times of disaster and emergency. The military members are generally required to complete the same NIMS/ICS training as their peer level of civilian responder. These military units are affected by the same issues that affect much of the civilian community when it comes to proficiency with NIMS, such as lack of frequency of use in complex incidents and in loss of experience through turn-over of personnel. Just as some local emergency responders gravitate to their local policies and procedures because of limited exposure to NIMS/ICS, the military response units seem to rely more on their service or branch military doctrine as opposed to NIMS for many of their activities as well. In either case, the NIMS/ICS concepts, methods and processes must be refreshed and applied in sufficient variety, frequency, and complexity to gain confidence and proficiency in its use. In many communities and response organizations this does not, and may never occur.

NIMS/ICS Leadership and Experience

The National Fire Protection Association (NFPA) Standard 1561 has required the use of ICS for the fire service since 1990 and through periodic updates has incorporated NIMS concepts since 2005. When the fire service began to recognize and require firefighter and fire officer certifications, the phrase ‘paper fireman’ began to be used to describe someone who had taken the tests and acquired the certifications in a short period of time but had no actual experience. Through legitimate training and evaluation there is an expectation that these responders should be able to perform the basic functions related to their certification. While this may be true for task based competencies found at the lower levels, it is a concern for those individuals that rise to positions of leadership as these positions require greater critical thinking skills. The ability to apply training and education to a variety of situations, identify the differences between actual and expected outcomes, and learn from these experiences is essential to effective response. NIMS/ICS training to the ICS 400 level would be required for those that would have command responsibility for type 3 level complexity incidents (See Table 2 for NIMS training course descriptions). For most communities this would include a multiple alarm fire or similar size incident. This would be true of a city of 1,000,000 or a town of 2,500 people. The main difference is that the Battalion Chief from the city of 1,000,000 people will likely have been able to apply the NIMS/ICS concepts on

many previous occasions, whereas the volunteer fire chief in the community of 2,500 may have never had this opportunity.

IS-700	This course provides training and resources for personnel who require a basic understanding of NIMS. This course is intended for individuals with emergency management responsibilities including prevention, preparedness, response, recovery, and mitigation.
ICS-100	This course provides training and resources for personnel who require a basic understanding of the Incident Command System (ICS). ICS-100 introduces ICS and provides the foundation for higher level ICS training. This course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the NIMS. The target audience includes persons involved with emergency planning and response or recovery efforts.
ICS-200	This course is designed to enable personnel to operate efficiently during an incident or event within the ICS. This course focuses on the management of single resources. ICS-200 provides training and resources for personnel who are likely to assume a supervisory position within the ICS. The primary target audience is response personnel at the supervisory level.
ICS-300	ICS-300 provides training and resources for personnel who require advanced application of the ICS. The course expands upon information covered in the ICS-100 and ICS-200 courses. This course is intended for individuals who may assume a supervisory role in expanding incidents or Type 3 incidents.

Recent discussions with several emergency service leader colleagues from the northeast United States identified common issues with NIMS/ICS being seen in the fire and emergency services. One of the fire chiefs remarked that, “many of the volunteer chief officers now believe that since they have taken the on-line NIMS courses they do not need to take fireground tactics and related ICS courses.” This led to discussions of two recent fires involving municipalities of approximately 15,000 people each. One of these fires involved a large manufacturing facility that went to four alarms, requiring extensive mutual aid. There was one incident commander for this event with no further division of labor such as division or group supervisors. During the after-action review of this fire, one of the fire officers suggested that perhaps there should have been a second incident commander due to the size of the building. In another large fire, the incident commander established a command post but also assigned himself as “forward command,” entering the structure and assuming command from that position. When non-operational issues arose that required a decision by command, the chief noted that he was inside working on bigger problems like putting the fire out. In both of these instances, there was an application of NIMS/ICS that was neither consistent with its concepts and principles, nor consistent with basic fireground ICS

concepts such as the role of the incident commander and span of control. Additionally, both of these local jurisdictions would be considered NIMS compliant.

The issue of effective command of local-level emergency incidents is not limited to rural areas or those served primarily by volunteer responders. The retired fire chief from Phoenix, Arizona, Alan Brunacini (Halton, 2009; NFPA, 2008) sparked much debate several years ago over his suggestion of a local incident management system (LIMS). In his proposal, he noted that NIMS/ICS efforts focused on areas most applicable to large-scale disasters such as resource typing and certification with no real focus on commanding local incidents (NFPA, 2008). Chief Brunacini noted significant differences between the type of incidents NIMS/ICS was intended for and the majority of local-level incidents. The issue of whether NIMS/ICS training and concepts adequately prepare responders for commanding local incidents is not only raised by those in the fire service, but also raised by those in law enforcement, noting the challenges of implementing NIMS/ICS concepts in the initial stages of highly complex incidents such as active shooters (Renaud, 2012). In training local responders in NIMS/ICS, one of the more common questions heard by the author concerns “getting to NIMS.” In other words, how do local responders get from the basic tactical applications of ICS into the more complex and bureaucratic concepts outlined in NIMS?

In many emergency service and emergency management organizations, promotion is contingent on passing rigorous tests or interview processes to ensure that the candidate has the ability to succeed in the rank or position they are seeking to attain. This may also include specific higher education or certification requirements as well. There are other emergency service organizations that promote the person that performed best at the last position held, or perhaps in the case of emergency management coordinator responsibilities, have indicated a desire to take on additional duties. In instances where emergency management is an additional duty, the staffer is many times less volunteer and more “volun-told” for the additional duty. There are still others, primarily volunteer emergency services organizations, where leadership and other critical positions are elected by popular vote. This creates a very diverse group of people, with diverse aptitudes, required to learn and understand a system for managing dynamic, dangerous, and complex situations. When we require responders to take NIMS/ICS training on relatively complex management concepts that they may not have the ability to apply with sufficient frequency in their response environment, the aptitude to understand, or the desire to learn and apply, we are creating capability only on paper.

Effect of Local Government Structure on NIMS Implementation

NIMS encourages development of regionally based Incident Management Teams (IMTs) to assist in the management of incidents above the Type 5 level of complexity. In smaller regions, these teams would draw on several municipalities for staffing and support and alleviate some of the issues discussed previously. The personnel volunteering for these teams would understand and be committed to the time needed to become proficient and

since they are regionally based, would have the opportunity to apply NIMS/ICS concepts more often than any one single jurisdiction.

While this concept is well suited for some jurisdictions, it has significant challenges for others. Many states have strong local governments with specific criteria contained in municipal code on the responsibilities of elected officials during emergencies and disasters. Many of these jurisdictions cannot, or will not, delegate authority to a person not under the direct control of the local elected official. Many times this prevents IMTs from being requested at incidents where they would be of benefit or limits the role the IMT plays in the incident.

This same issue can extend itself into the concept of Unified Command and Area Command in many communities as well. Issues of Unified Command include more than learning how to work well together. Here again, while many jurisdictions accept some of the collaboration aspects of Unified Command, many require 51% of the vote for the authority having jurisdiction when it comes to decision making.

Area Command under NIMS is another concept that presents challenges in some areas of the United States. NIMS states that an agency administrator or executive, or other public official with jurisdictional responsibility for the incident, makes the decision to establish an Area Command. Here again, in states with numerous strong local governments, there is no single entity that can approve an Area Commander, and the numerous jurisdictions affected tend to be unwilling to relinquish any decision-making authority to another entity.

To illustrate the challenges of Area Command, consider a flooding event in an area with numerous independent municipalities. The event would likely meet the criteria for an Area Command in that it would have multiple incidents that were geographically separated but with common objectives and potential competition for resources. In many areas of the United States when this occurs, local responders will establish command for their particular incident such as a water rescue, evacuation of a mobile home park, or an evacuation of a local hospital, but no one actually has command authority of all of these incidents as a whole because of issues with jurisdiction. Resource prioritization will usually be made through the coordination structures that are in support of the flood, such as the county emergency operations center (EOC). Although it is possible that an Area Command concept could be developed, if the perception is that the current system within this community and region works, then the relevancy of NIMS is again in question and the desire to develop policy or statutory change will be absent.

Multi-agency Command and Coordination Challenges under NIMS

The implementation and use of coordination centers such as the EOC mentioned in the previous paragraph was prevalent before NIMS and the Multi-agency Coordination System

(MACS) terminology. This system of coordination is critical to nearly all emergencies and disasters. The public safety answering point (PSAP), or 911 center, serves a basic coordination role for relatively small incidents such as a Type 5 incident, while county and state EOCs would be activated for larger-scale incidents and events. While much of the NIMS-related training and doctrine is well suited and valuable to disaster coordination, the introduction of NIMS/ICS training to coordination staff has caused some confusion. This is not to say that the coordination community cannot benefit from NIMS/ICS concepts, practices, and principles, but as mentioned previously, teaching terms and concepts out of context can also create confusion.

As an example, in a coordination structure the main purpose of operations is resourcing, while in a field structure operations deals with the tactical management of the incident. Another example would be in prioritization of resources. NIMS doctrine identifies both Area Commands and MACS as having this responsibility, with caveats. Unfortunately, if the NIMS instructor does not have experience with application of these caveats or the local structure of government is not suited to the application of these concepts, students may not fully comprehend these more complex command and coordination structures. While the traditional multi-agency coordination system (MACS) of 911 centers and EOCs works well for the majority of incidents and disasters, this system seems to work less well as the level of incident complexity increases. During more complex incidents, the MACS seems to struggle under the NIMS construct in two primary areas: the relationships between MACS and command and coordination roles and responsibilities.

MACS as well as the concepts of command are represented simplistically in NIMS doctrine. A bureaucratic hierarchy is represented through wiring diagrams, with solid lines representing direct reporting lines and dashed lines representing a relationship of sorts. The NIMS construct represents these structures as fairly linear. In smaller, less-complex incidents, this may be an accurate representation. In larger and more complex incidents, this simplistic representation is not the reality of the complex organizations that emerge in response to the disaster.

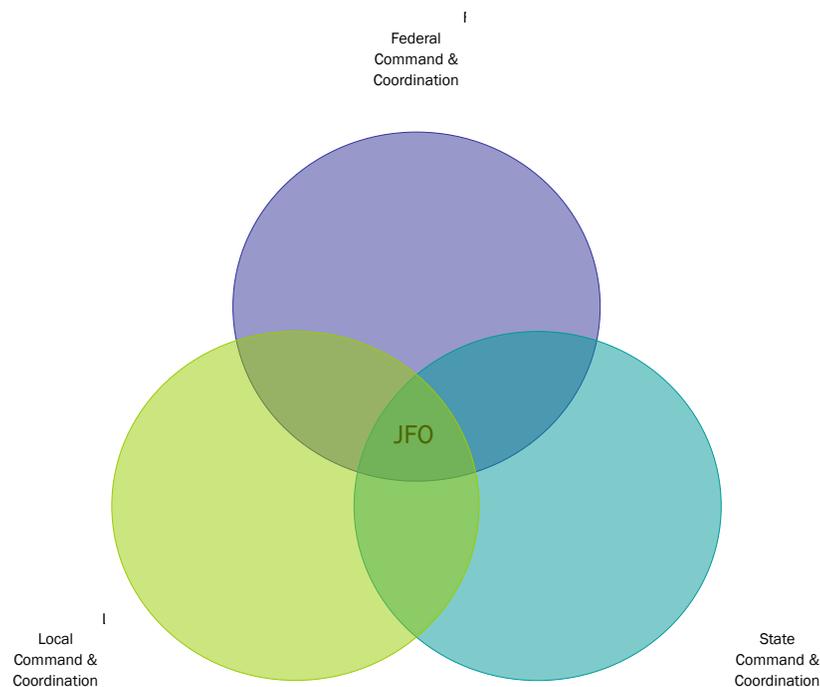
As an example, U.S. military forces under the authority of the Department of Defense (DoD) use a construct called Dual Status Command (DSC) for command and coordination of state National Guard and federal military (Title 10) response supporting civil authorities during a disaster. This is a bifurcated system where there is one person with overall command but with separate lines of authority and separate staff for National Guard and Title 10 activities. This concept was developed after Hurricane Katrina and was recently put into use during Superstorm Sandy response. Although generally touted as being successful, the bifurcated lines can create challenges during response. These challenges involved aspects of command such as directing forces to accomplish specific tasks or missions, as well as aspects of coordination to include narrowly defined mission assignment of federal forces; both areas affecting accomplishment of response objectives (Matthews, 2013).

Additionally, it was noted that these separate and distinct branches have unique statutory requirements as well as specific elected officials at the top of the branch: governor for state and president for federal.

Similar issues exist within the civilian application of MACS where there is a distinct federal system of MACS that ends with the President of the United States, and a distinct state system that ends with the Governor. Depending on disaster statutes within a particular state, there could also be a distinct local system ending with a local elected official. Adding further complexity is the insertion of echelons of coordination that are only implemented during large-scale disasters. These include entities such as regional MAC entities and functional coordination entities such as the FEMA urban search and rescue Incident Support Teams (ISTs)². Although structures such as the Joint Field Office are intended to ensure effective synchronization and coordination regardless of governmental affiliation, in reality these systems remain somewhat independent with overlapping areas of influence and coordination.

FIGURE 1. SPHERES OF INFLUENCE DURING A COMPLEX DISASTER

This same concept of independence with overlapping areas of influence is also true for the field (command) structures, as described previously in the river flood example. As mentioned, NIMS represents command and coordination structures and relationships as being linear and hierarchical in nature. In complex disasters, although many of the hierarchical attributes are retained, the

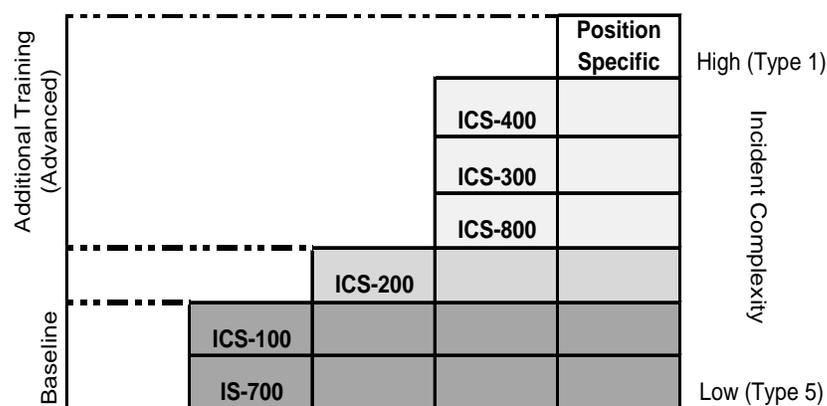


relationships become much more obscure. A Venn type diagram (Figure 1), as opposed to an organizational chart, can serve as a visual representation of the relationship of these organizations, where much of their activity and influence (command and coordination) can be largely independent but with areas of overlap where mutual activities are required or desired. NIMS’ simplistic representations of command and coordination structures are not an accurate depiction of many of the actual relationships and interactions that occur in complex disasters and can establish unrealistic expectations for those trained in its doctrine.

NIMS Compliancy/Metrics

The discussion thus far has been on the effectiveness of NIMS as it relates to command, management, and coordination, with a focus on the challenges of NIMS constructs applied to various levels of implementation. All of these issues affect the ability to manage domestic incidents using a single comprehensive national incident management system (IMS) as described in HSPD-5, which leads directly to a discussion on measuring the effectiveness of NIMS/ICS. When we look at the reporting criteria for training, exercise, command and management, and other activities concerning NIMS compliance, we are many times measuring effort as opposed to effectiveness. The NIMS guidance establishes training requirements for personnel at a certain level of performance (see Table 32 for NIMS training requirements and Figure 2 for training requirements by incident complexity). As an example, the reporting system for NIMS compliancy requires reporting on the number of persons required to take the respective level of training and the corresponding number of personnel that who actually accomplished the training. A high percentage of compliance does not on its own equal a high degree of competency in the individuals that who completed the training or a defined level of capability for the jurisdiction. It simply means the jurisdiction expended an amount of effort in order to comply with the NIMS standard.

FIGURE 2. NIMS TRAINING BY INCIDENT COMPLEXITY (DHS, 2011)



States have reporting criteria for homeland security and emergency management programs beyond the NIMS Compliance Assistance and Support Tool (NIMSCAST) and some

of those do attempt to assess state and local capabilities on a subjective basis. The State Preparedness Report (SPR) and the incident and exercise after-action review process attempt to assess the effectiveness of training, equipment, policies, processes, and procedures as related to the National Preparedness Goal (DHS, 2011a), but both of these have limitations in attempting to assess capability for command and coordination of response based on NIMS.

The SPR is based on planning factors that communities or organizations identify based on an evaluation of risk. Based on this risk assessment, capabilities can be evaluated "...through the lenses of real-world incidents, assessments, and exercises to determine whether changes to current capability levels are warranted (DHS, 2011a)." Due to the infrequency of major disasters and terrorist attacks occurrence in U.S. communities, the risk attitudes mentioned previously of those completing the assessment as well as other factors such as organizational culture can influence the report, creating an inaccurate measurement of actual capability as it relates to command and coordination capabilities.

After-action reviews and lessons learned can also be valuable tools for evaluation and improvement but many times fail to identify root cause issues, or they focus on the perceptions from that particular incident, failing to see the novelty of the issue as it relates to general disaster response. This, in turn, can create circumstances where the root cause problem is not corrected, or a solution is implemented for a situation that may never occur again. Following the terrorist attacks of 2001, After-action reviews noted a lack of collaboration and cooperation among New York City response departments. This, along with HSPD-5 requirements for implementation of NIMS, led to the establishment of the NIMS-compliant City Incident Management System (CIMS) for New York City. One area of focus for CIMS was the establishment of lead agencies for various types of response such as hazardous materials incidents. One survey conducted among Fire Department of the City of New York (FDNY) chief officers noted that although there were specific changes to response and command roles and responsibilities directed under CIMS, these directed changes have not resulted in fundamental differences in the reality of actual responses within the city (Esposito, 2011).

Although the SPR and National Preparedness Report (NPR) are based on the National Preparedness System 8 and take into account other aspects of capabilities, it is NIMS that provides the basic training and foundational requirements for effective response. As opposed to simply measuring effort, there are potential means for measuring the effectiveness of NIMS. As an example, one of the basic tenets of response and a stated priority in NIMS/ICS is responder safety and health. This could be a measurable objective, as each year the U.S. Fire Administration (USFA) annual report on firefighter deaths and injuries continues to identify command and control of the incident as a contributing factor. The issue of responder safety was noted by retired Phoenix Fire Chief Alan Brunacini as a reason for developing training and certification in a local incident management system (LIMS) tailored

specifically to local-level response. If responder health and safety is one of the stated outcomes of NIMS/ICS, then it should be one of the objectives monitored for NIMS effectiveness. Additionally, other metrics to determine increases in response effectiveness or efficiency must also be considered. These could include criteria such as the time from recognition of the need for commodities or resources at the local or state level to the time the actual commodity is in the hands of disaster survivors or the resource is engaged in disaster activities.

Because NIMS is the foundation for response doctrine for the National Response Framework and its effective implementation is critical for coordinated disaster response, it should have reporting metrics with valid data that corresponds to measurable indicators of capability and not information primarily measuring training and activity completion ratios and other efforts expended in a federally mandated program.

Incident Management Teams

There are aspects of NIMS that work well in some of the smaller communities and more rural areas described previously in this chapter, as the activities are seen as relevant to the local community. The IMTs are an excellent example of attempting to build response capability in a tiered manner, taking into consideration local and regional risk. Even with the statutory and delegation of authority challenges mentioned previously, these teams provide valuable support to many communities during large-scale incidents and planned events. These teams are many times the centers of gravity for regional planning efforts and the development of other specialized regionally based response teams. In addition, the use of Position Task Books (PTBs) and credentialing of these responders through evaluated exercises and incidents adds credibility to these teams. All of these activities fit well into the NIMS construct and also work to meet the intent of HSPD-5 and the needs of many smaller communities. While that is a tremendous benefit, these teams may also create a demarcation line for true NIMS adoption in many communities. In these areas NIMS buy-in and proficiency may start at the regional level, as it gives those at the municipal level the opportunity to defer everything except for minimum compliance requirements to the IMT.

Discussion

Although NIMS has some significant shortfalls effecting universal implementation, it has been accepted and implemented in many organizations and jurisdictions across the United States. Specifically, NIMS appears to work well in states and local jurisdictions that had long-standing requirements to follow national response standards such as the NFPA and areas traditionally affected by large wildfires. This could be due to an acceptance of regulatory requirements and repetitive use of NIMS/ICS as part of the organizational culture or a perceived risk of terrorism or catastrophic disaster. Additionally, there seem to be more broad-based and tangible increases in capability resulting from NIMS in areas such as

communications and in standardized response teams such as those for hazardous materials and mass -casualty response. While anecdotally we believe these are significant improvements that increase our effectiveness in response, to what degree is this measurable, economically beneficial, and attributable to NIMS policies and doctrine?

The United States needs a national strategy to respond to catastrophic incidents, and the concept of a single comprehensive national incident management system as described in HSPD-5 is desirable from a federal perspective. If as described in this chapter, national response doctrine is diluted to the point of irrelevance or ineffectiveness when it reaches the local level in some communities, how then do we achieve the end- state described in HSPD-5? A legitimate analysis of our historical events and probable future trends is warranted to determine if the perceived failures in response and future risks are being addressed by our current strategies. The tangible value to the end -state of having every first and second responder in the United States, regardless of community risk, take on-line courses on national doctrine must be assessed. If we find that we do indeed need a national incident management system that is used on a daily and routine basis, then we need to embrace the “Whole Community” of responders for their peculiar needs and develop implementation strategies that will be accepted in all communities, regardless of size, jurisdiction, or form of government. If we continue to put additional requirements on communities primarily served by volunteers, we need to assess the actual value to the community versus the risk to volunteer recruitment and retention.

Perhaps a national program that accepts local variances at the expense of national efficiency is in the “too hard to do” category. A quote from an anonymous source believed to have been found after the end of the Cold War says, “One of the serious problems in planning the fight against American doctrine is that the Americans do not read their manuals nor do they feel any obligation to follow their doctrine.” When it comes to implementing NIMS in many areas of the United States , we could alter this quote to read, “One of the serious problems in implementing national disaster response doctrine is that the responders do not read the manuals nor do they feel any obligation to follow the doctrine.” In some aspects this captures some of the challenges we face as an evolving federalist nation in trying to develop and implement national doctrine that is primarily implemented through states and local governments. If we need national- level doctrine that incorporates every incident from local response through catastrophic response, then we must honestly look at the needs of local communities and states, and the needs of the nation as a whole. From there, we either need to develop and implement policies and statutes that facilitate a more nationalistic approach to comprehensive emergency management in the United States, or accept and try to improve the inequities and inefficiencies of our current system. As noted earlier in this chapter, we’ve spent hundreds of millions of dollars and tremendous collective effort trying to implement the intent of HSPD-5 with no real means to determine whether are our current efforts are effective in working toward that goal or practical for the United States.

Conclusion

This section has examined several key issues concerning NIMS. First, acceptance of NIMS is not universal throughout the United States. While many areas of the United States have embraced and put NIMS into practical use, there are still other areas that have done so only on paper. The reasons for this are varied and include risk perception, organizational culture, practicality, as well as the form and function of local government. Second, NIMS is a complex concept that has challenges in how it is taught, who is learning it, and the feasibility of gaining experience in its use. Those instructing NIMS/ICS courses have varying degrees of experience in its use in large or complex disaster environments and may not themselves truly understand the complexities of the disaster management system or the disaster environment as it relates to NIMS. The same is true for those required to take NIMS courses and also includes the aptitude of the student to practically comprehend and apply NIMS concepts. Third, although there has been much effort and expense put toward NIMS compliancy, there is not a valid means of ensuring greater effectiveness or efficiency in emergency and disaster preparedness and response, as most means of ensuring NIMS compliancy are simply measurements of effort. Lastly, NIMS has been accepted and implemented in many areas and organizations with increases in certain areas of capability. Even in areas where NIMS is not universally accepted or implemented, there are components and concepts of NIMS such as Incident Management Teams (IMTs) and traditional MACS that are being effectively applied in part or in whole.

As discussed throughout this section, NIMS is a complex concept that is being applied to a very diverse group of organizations, cultures, and individuals that in order to be successful must be both effective for disaster preparedness and response as well as accepted and implemented by the entire community of practice.

Endnotes

¹ On-line discussion sites containing NIMS related topics:

Fire Chief at <http://firechief.com/blog>

Fire Engineering at <http://community.fireengineering.com>

Firefighter Nation at <http://firefighternation.com>

Homeland Security Affairs at <http://www.hsaj.org>

Officer.com at <http://forums.officer.com>

The Survival Forum at <http://forums.equipped.org>

² The FEMA National Urban Search and Rescue (US&R) Incident Support Team (IST) provides a group of highly qualified specialists readily available for rapid assembly and deployment to a disaster area. The IST furnishes federal, state, tribal and local officials with technical assistance in acquiring and using US&R resources. It provides advice, Incident Command assistance, management, and coordination of US&R Task Forces, and US&R logistics support. The IST is organized according to basic Incident Command System (ICS) guidelines, with an IST Command and Command Staff and Operations, Planning, Logistics, and Finance and

Administration Sections. There are three rostered IST-A teams in the National US&R Response System. Retrieved from <http://www.fema.gov/urban-search-rescue-participants>

BRIDGING THE DIVIDE

Introduction

The potential for differences in what the two authors of this chapter would share about NIMS and the conclusions each would reach about the system was high. After all, the reflections shared came from two very different perspectives—that of a practitioner and an academic. And, Practitioners and academics generally form their perspectives of emergency management phenomena in very different ways.

Practitioner views are often primarily formed through on-the-ground participation in the world of emergency management (e.g. job experience, incident experience, training, and interactions with other practitioners). Based on this engagement with the real world, practitioners often have insight into what is needed in the field, what will work, what will not work, and why. When practitioners discuss these issues, they speak to what they have learned and the opinions they have formed on the basis of lived experience. Their perspectives are powerful because their insight into emergency management phenomena is personal, intimate, and deep.

Academics, on the other hand, do not typically form their opinions of emergency management phenomena on the basis of what they have lived but instead on the basis of what they have learned in the literature and through research. Based on their study, academics too have insight into what is needed in the field, what will work, what will not work, and why. When academics speak to these issues, they seek to speak on the basis of evidence offered in and across the literature related to a particular topic, not what they have experienced. Academic perspectives are strong because they can be cumulative, broad, and (hopefully) objective in nature.

Both practitioners and academics offer unique insight into emergency management phenomena, but both perspectives may demonstrate certain weaknesses. For instance, limited by what they themselves have seen, heard, done, and otherwise experienced, practitioners cannot often generalize their experience, while academics may attempt to generalize without a true understanding of the on-the-ground realities related to and context surrounding the topics they study. If practitioners and academics could more often work hand-in-hand to study a given topic, then the work produced could take advantage of the strengths of both perspectives while minimizing the limitations of each. The integration of what is felt and believed about NIMS on the basis of experience with what is known based on empirical data, or hypothesized based on research, has the potential to strengthen the “profession” of emergency management and disaster response tremendously. The goal of this section is to offer an integrated practitioner-academic view of NIMS based on what we know at this point and the implications of what we know for NIMS as a policy and in practice.

Practitioner-Academic Agreement

As discussed, practitioners and academics approach topics differently. Thus, the potential to see divergent perspectives on NIMS in the two sections of this chapter was high. The potential was particularly great given that practitioners have typically supported systems such as NIMS, while academics have voiced significant concerns. Yet, in this case, we were not far apart in our observations of, and conclusions about, NIMS.

While we each included issues in our individual sections that the other did not, very little disagreement on the topic was evidenced. In fact, there was harmony between Severson's personal experience and observations and Jensen's review of the literature and research on variety of points. Specifically, both of our sections identified that NIMS has a "perception problem" in the field. NIMS is perceived by many (including a mix of emergency managers and representatives of emergency management- relevant organizations like fire departments) to be inapplicable or irrelevant to their area. Both sections also identified that NIMS is not being implemented on a day-to-day basis or similarly in all organizations and jurisdictions. Furthermore, both of authors identified that the use of NIMS (and, hence its usefulness as an organizing mechanism for emergency management) seems contingent on a range of factors including, but not limited to, acceptance of the system, knowledge of the system, practice using the system in exercises and the management of incidents, goodness-of-fit with organizational culture, risk perception/risk salience, jurisdictional leadership, organizational and jurisdictional autonomy, and the status of first responders (i.e., paid versus volunteer). We both indicated that there is an issue with self-reported compliance as a measure of the system's implementation and as a measure of jurisdictional ability to utilize the system as it is designed.

Implications for NIMS

The degree to which variability in implementation of NIMS is a problem depends a great deal on what we hope to achieve as a result of the mandate. If the system is simply an idealized version of what would be achieved in emergency management in a perfect world, or a set of "best practices," then poor perceptions of the system and differences in organizational and jurisdictional implementation are not a problem. Many organizations and jurisdictions around the country that want to will continue to try and implement the system to the best of their ability, and those that do not want to, or cannot, implement the system will not. Emergency management will be approached differently in different places at different times. Measured against the ideal reflected in NIMS, incremental improvements in emergency management and increased similarity in approaches to emergency management may be made in some jurisdictions, regions, and states, but we will expect the historical ebb and flow of preparedness and variation in the effectiveness of response efforts to continue in the United States.

Alternatively, if we are counting on standardized implementation of NIMS as the basis from which to mount an effective response to all disasters, we have a serious problem. For nearly a decade, we have been investing time, energy, and resources into the implementation of NIMS with the expectation that use of it will prevent the response issues seen in past disasters (e.g., September 9/11, Hurricane Katrina). Yet, the evidence—both practice-based and empirical—suggests that NIMS is not being implemented in a standardized way and that differences in approaches to emergency management exist at every level of government and across sectors.

Thus far, the emergency management community at-large has not been able to devise another potential grand solution that attempts to control for response problems commonly evidenced in large-scale disasters (e.g., coordination, communication, leadership). The community at-large seems to want NIMS to be the solution and also seems convinced that we need it to work. Because NIMS is currently depended on as the organizing mechanism for emergency management, it is critical to examine what can be done to bring about more complete and uniform implementation of the system.

Topics for Future Consideration

There are some things that could be done to bring about increased implementation of the system. There are also things we could do to improve the system and how we implement it. Our The individual sections either implicitly or explicitly suggested a range of things that could be done, but, based on our discussions with one another, we believe there are six critical issues that should be addressed if we intend to keep NIMS as the basis for how we organize our emergency management efforts in the United States:- including (1) training and practice, (2) the use of incident management teams, (3) assessment, (4) multiagency coordination centers, (5) investigating alternatives to NIMS, and (6) continued research.

Training and Practice

We believe both training and practice can be addressed in a sweeping and significant way to facilitate increased implementation of NIMS. Training needs to result in increased knowledge about, and understanding of, NIMS on the part of those expected to participate within the NIMS framework if we want the system to be implemented. We could be doing a better job in this regard with respect to 1) the quality of training available and 2) evaluating learning.

Improving the overall quality of the NIMS training available is one significant change that could be made to improve NIMS implementation. The trainings are said to be boring, not good in providing a rationale for the necessity of the system and implementing it (or aspects of it), laden with terminology unfamiliar to many audiences, and overly detailed in the system's nuances, and not specific enough about how certain audiences fit in and what they actually need to know based on the role they would be expected to fill. The trainings also fail to include an open discussion of implementation challenges and how to overcome

them. These issues should be addressed soon and perceptions of the course's quality should be monitored on an ongoing basis.

We would recommend that training courses should be developed that present NIMS within the context of organizational cultures and what, specifically, organizations of different types will do in a disaster relative to others. These courses should not attempt to train individuals in all of the components of NIMS or all of the available structures, processes, and positions. Instead, the courses should focus solely on what they students *must* know to do *their* part in a disaster situation. Such an approach would help the individuals from those organizations better identify with and learn about the system. Additionally, training courses specifically designed to help individuals understand how to implement NIMS in their organizations' day-to-day activities should be developed and made available. Critical to this is effective and flexible implementation in the initial stages of an emergency. These courses too should also be carefully designed to appeal to the different organizations that are expected to participate within the NIMS framework.

Perhaps the most important thing we can do to increase implementation is begin evaluating what individuals trained in the system actually learn and what they retain over time. Currently, the evaluation mechanism for NIMS training courses is a multiple choice test that assesses rote memorization of what amounts to NIMS trivia (e.g., the names of structures or positions). The test is generally taken immediately following the completion of a NIMS training course, and the test is only taken once. This is not a sufficient means of assessing what individuals know, what they understand, or the degree to which they can appropriately apply what they have learned related to NIMS. Because the test is taken only once, right after the training, the test is not even a good assessment of their ability to recall the system's structures, processes, or positions. Individuals would need to be tested days, weeks, and/or months after the training to get a better sense of the extent to which they memorized the details we want them to remember.

If we desire to see training bring about a change in what people know and what they are prepared to do, then we must have an evaluation system that assesses the degree to which we are accomplishing that goal. Moreover, the evaluation system must be iterative. The results of evaluation must be used to identify where training needs to be expanded, refined, or otherwise improved, the changes in training need to be implemented, and then evaluation must continue for us to really bring about the change in implementation of NIMS that we seek. Investigation of how such a system can be developed should begin immediately, and implementation should follow as soon as possible.

In addition to improving NIMS training, we the authors also recommend developing more innovative ways to provide individuals with the opportunity to get the practice using NIMS they need to be able to implement the system effectively in large-scale disasters. While day-to-day use of the system, practice through exercises (particularly full scale), and

practice through response to actual events are ideal ways of developing NIMS-related skills, these opportunities are not available to everyone for various reasons. The U.S. military faces a similar problem in providing sufficient opportunities for its leaders to learn the highly stressful and complex environment of warfighting. The use of immersive multiplayer computer simulation game training is one means used to facilitate learning. The operational environment of many military activities requires competencies such as negotiation, consensus building, effective communication, analyzing ambiguous situations, self-awareness, innovative thinking, and effective problem solving (Raybourn et al., Deagle, Mendini, & Heneghan, 2005). Computer simulation training can be used to enhance other forms of training as well as experienced gained in actual responses. The adaptive thinking competencies needed for the operational environment of the U.S. military are not unlike those needed for the operational environment of disaster response. We suggest there should be further exploration of the potential for simulation and gaming technology to provide more opportunities to practice implementing NIMS, allowing responders to gain proficiency and confidence in NIMS.

Incident Management Teams

An additional area that could be examined into the future is how we might go about supporting NIMS implementation in areas that cannot, or will not, fully implement NIMS. We believe further exploration of how Incident Management Teams (IMTs) can be leveraged to “make NIMS work” would be beneficial in this regard. Where local jurisdictions are not prepared to implement NIMS in a disaster situation, these teams can provide invaluable organizational support and subject matter expertise in addition to fulfilling a crucial role as “middle men” translating local issues, concerns, and resource requests into “NIMS-speak” so locals can be readily understood by higher levels of government (and vice versa). While there are challenges associated with reliance on IMTs, ranging from statutory issues to the timeliness of their arrival in impacted jurisdictions, we believe that expanding, regularizing, and socializing the use of IMTs in all states would (a) recognize that implementation is lacking in many areas, (b) lessen the impact of a lack of implementation in these areas to regions, states, and the federal government when they are assisting, and (c) allow us to continue utilizing NIMS as an organizing mechanism with a reasonable expectation that it will help the emergency management system function more effectively and efficiently than it would otherwise. We suggest that this idea is should be further explored, though even while admitting that such a move will not solve the standardization problem by itself and may, in fact, have unintended, negative consequences.

Multi-agency Coordination Systems

Another area that could be examined into the future is how Multi-agency Coordination Systems (MACS) are addressed in NIMS. MACS in the form of emergency operations centers EOCs are essential for effective disaster response and recovery, as they can be used to anticipate and coordinate resources, assimilate and disseminate critical information, and develop a common operating picture for senior officials, among other things. Yet, NIMS

includes a variety of new forms of MACS that are not traditional coordination entities and that do not fit well with how intergovernmental/inter-organizational relationships function in the United States. These new MACS were created to help facilitate resource coordination and situational awareness across multiple levels of government and wide geographic areas, but they have not consistently served the purpose for which they were designed, often leading to conflict, confusion, and frustration in the field. It is important that the support structures that are advocated in NIMS be helpful when implemented; thus, we would recommend that a review of how MACS are treated within the training curriculum be undertaken as well as a review of which MACS structures within NIMS are truly helpful in disaster situations.

Assessment

A critical area that needs to be examined in the near future is how NIMS implementation is assessed. There are at least four issues with the current assessment system for NIMS. First, the assessment of implementation relies exclusively on self-reported data. Local jurisdictions report their progress toward compliance each year to their state that in turn reports the state's overall compliance to FEMA. The data collected in this way is based largely on subjective assessments and may or may not be accurate. Objective assessments of implementation ought to be incorporated into the assessment system, if we are truly interested in gauging the extent to which NIMS is being implemented.

A second issue with the current assessment system, closely related to the first, is the relationship between incentives and sanctions and implementation. Currently, there is a strong incentive/threat of sanction for jurisdictions and states to self-report compliance with NIMS implementation, since compliance is a prerequisite for Homeland Security Preparedness funding. This may, unfortunately, result in the submission of data that does not reflect on-the-ground implementation realities. Incentives and sanctions are certainly important to understanding implementation, but for them to be effective, we recommend that they be linked to objective assessments of implementation.

Third, the issue of whether assessments are assessing what they should be is critical to address. The current system simply assesses whether certain tasks and activities are completed. It fails to assess what is being accomplished as a result of implementation. The extent to which implementation of NIMS is related to preparedness and response outcomes must also be examined in the assessment process to determine whether the overarching goals of the NIMS mandate are being achieved.

Finally, there should be an intimate connection between what is found through subjective and objective assessment of the system's outputs and goal-related outcomes and the content/delivery of training, the system's design, and future assessment tools/measures. We should purposefully and carefully approach these issues and use assessment evidence as the basis for any changes made.

Alternatives to NIMS

The authors would caution the reader not to conclude from our discussion to this point that they believe that if the issues we suggested for future consideration are addressed, the standardization problem would be fixed. They are also not suggesting that NIMS would automatically “work” in the way we want it to in disasters if these issues were addressed.

There are a number of aspects of the standardization problem that we cannot address in any broad, meaningful way. For instance, we cannot reduce the numbers of different organizations and jurisdictions we count upon to participate in emergency management. Little can be done to make all of them believe that there is a need for NIMS or that it is relevant to them. We cannot force all organizations and jurisdictions to believe NIMS fits with their culture. We cannot ensure that all of those who work within those organizations and jurisdictions have the knowledge, skills, abilities, or experience best-suited to implementing the system. We cannot force organizations to have relationships based on trust. We cannot provide enough resources to eliminate reliance on volunteers for first response services. And, we cannot make disasters of sufficient scales and complexities occur on a regular basis just so that jurisdictions can get real-world practice implementing the system.

The fact that we cannot sufficiently address all of these issues suggests that the standardization problem will remain. The areas for future consideration discussed to this point have been offered simply as suggestions of how we might improve implementation of NIMS in light of the fact that we remain committed to utilization of the system. As policies and processes for determining effectiveness of federal terrorism and disaster response programs evolve, it is important to determine if there is alignment between the goals originally sought as part of HSPD-5, the current goals established for the National Preparedness System under Presidential Policy Directive/ (PPD)-8 (Obama, 2011), and NIMS implementation. Thus, as the issues discussed thus far are explored, we would also recommend that the emergency management community should consider whether a system that requires standardization across all relevant emergency management relevant organizations in all jurisdictions at all levels in the United States to be effective will ever be realized,; and, just as importantly, if such a system is necessary given the risks we face as a country. Should the conclusion be that an overarching system based on standardization is not feasible or needed, then we would suggest that an effort to replace NIMS should be undertaken. A series of creative, smaller, more targeted policy initiatives that are not susceptible to the factors discussed in our chapter might be better able to improve response outcomes.

Future Research

We have suggested several things have been suggested to improve implementation of NIMS and/or the system itself, including the improvement of training, development of an

evaluation system for training, development of practice opportunities using simulation and gaming technologies developed, expansion and regularization of the role of IMTs, reexamination of MACS within NIMS, and investigation of the potential for alternatives to NIMS. The academic community can inform these efforts through the conduct of research on these topics and dissemination of the findings.

There has been limited research on NIMS. More research on NIMS is desperately needed on a host of topics, including perceptions and implementation of the system's components, both day-to-day and in disasters, and the factors that explain any variation found. A fundamental issue that can be explored through future research is whether NIMS is not universally implemented because of a flaw in the system's design (i.e., it is not well-suited for all disasters regardless of size, nature, and complexity) or because of the factors like those reviewed by Jensen in her section. These topics need to be investigated within the organizations that are supposed to implement NIMS, across individual jurisdictions, at each level of government, in different geographic areas, and at different points in time. Additionally, while there has been much focus on the challenges of universal NIMS implementation, there are many organizations/jurisdictions that have embraced and implemented NIMS to varying degrees. It would be beneficial to conduct research specifically on these entities to examine the aspects of NIMS that are being used, why, and toward what end. And, Even though NIMS has not been universally implemented, research should be undertaken to determine what, if any, impact the NIMS mandate has had on preparedness and response. Where ever and whenever research on NIMS is conducted, we would urge the scholars responsible to should both acknowledge and build on the disaster literature and the NIMS research specifically.

Conclusion

Former President George W. Bush implemented HSPD-5 in order to "...enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system (Bush, 2003)." The two main goals of NIMS, to standardize and improve overall response, are admirable and desirable from the context of large- scale disaster response. The research indicates that even if this standardized approach is highly desirable, it is not likely to be universally achievable due to the issues brought forth in this chapter and will affect achievement of the second goal, improved response. If NIMS, as currently applied, is not the panacea for all incidents regardless of size, cause, or complexity, then what is?

The practitioner community has an obligation to prepare its personnel and organizations to provide the highest level of service possible to its constituency. An overarching consideration when implementing NIMS is defining the constituency and prioritizing the time, effort, and expense needed to prepare. As discussed throughout this chapter, the goal of preparing the entire response community for low-probability, high-

consequence national disasters is admirable. In order to achieve this goal, NIMS aspires to create a single comprehensive national response doctrine. Especially in this era of looming fiscal austerity, leaders at all levels must continually assess whether the focus of effort on NIMS yields an equitable distribution of benefits across all levels; local, state, and federal. As federal funding to states for NIMS implementation dwindles, the issues of risk attitudes and perceptions of NIMS' relevancy will become significant, as the cost to sustain NIMS activities already undertaken will become more and more a state and local responsibility. In developing effective national incident management doctrine, the issue for practitioners is in ensuring there is a recognized and accepted equity in its benefit and effectiveness across the entire enterprise. The research community can aid tremendously in this endeavor by furthering the limited body of knowledge concerning universal NIMS implementation as well as the potential for standardized national response doctrine in general. As indicated in this chapter, there are common themes concerning NIMS from both research and practice, and these themes may have much broader implications for emergency and disaster preparedness, response, and recovery. Researchers can objectively assess the multitude of factors influencing implementation and effectiveness of national-level incident management doctrine, providing information that enables disaster policy makers to select courses of action based on sound research as opposed to anecdotal evidence alone.

With respect to national response doctrine, while both disaster research and practical experience indicate there is value in NIMS constructs and concepts for emergency management, successful implementation is the key to achieving the desired end-state of effective management of domestic incidents regardless of size, cause or complexity. As we've demonstrated in this chapter, there is tremendous value in the synergy of the perspectives from the practitioner and academic communities. This same synergy should be leveraged in the pursuit this end-state and achievement of the goals established in HSPD-5 and PPD-8.

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CHAPTER 9: LONG-TERM RECOVERY

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ABSTRACT

The long-term recovery phase of a disaster can present some of the most vexing problems ever faced by a community and for those who are trying to help. Long-term recovery is messy, idiosyncratic, and fraught with challenges, but extremely gratifying. While there are many more resources available to help with recovery today as compared to twenty years ago, the issues seem more complex and the coordination requirements more daunting. Recovery practitioners find it increasingly difficult to keep abreast of changes in federal policy, procedures and processes. Given the diversity of academic disciplines studying recovery, it is also a challenge to locate and access research that may be helpful to practitioners. This chapter reviews the current state of the practice for long-term recovery and examines various theoretical perspectives that inform the recovery process and associated policies, looking toward the future. The chapter illuminates important developments, trends, and future needs, including those for research and evaluation.

Long-term community recovery from disaster requires a comprehensive approach, extensive stakeholder involvement, and the vision and political will to implement measures that will protect the community from future threats and enhance resilience when disasters do occur. At the household level, individuals and families must commit to and invest in preparedness actions that improve coping capacities and facilitate adaptive decision making. In order to advance the knowledge base and state of the practice for long-term recovery, greater investments in research and evaluation must be made. Learning from disaster must be cumulative rather than reactive, and not defined in terms of the last significant disaster. Practitioners must persevere in the face of limited resources and numerous obstacles to effective collaboration. We do all these things for the sake of the many people, communities, and nations traumatized by disaster to ease their travels on the road to recovery.

Recovery of the future, by necessity, will be grounded in planning, preparedness, and capacity-building efforts that emphasize keen knowledge of recovery processes and resources *and* leadership to effectively engage all stakeholders. The discipline and profession of emergency management must take the lead to advocate for policies, structures, and procedures that allow us to reduce red tape and alleviate human suffering. Most importantly, the recovery process needs to be understood and embedded in the day-to-day functioning of community systems with broad ownership of the problems and solutions.

AN ACADEMIC'S PERSPECTIVE

Long-term recovery from disaster is a complex phenomenon that defies easy description. Disasters affect individuals, families, businesses, communities, regions, and even nations. The processes at work to enable recovery from disasters are complex, highly variable, and often quite technical and are influenced by a myriad of factors that can help or hinder recovery. Numerous stakeholders, including participants from the public, private, and nonprofit sectors, are involved with recovery, which further increases complexity. Scholars from many academic disciplines (e.g., sociology, public administration, planning, geography, economics, psychology, social work, etc.) are engaged in various aspects of recovery research, making integration, synthesis and application of research findings especially challenging. This section explores existing *theoretical* perspectives for long-term recovery together with pertinent research findings, and offers a synthesis of these perspectives and path forward. Trends and potential future directions for the study of long-term recovery are discussed as well as implications for practitioners.

Theoretical Perspectives and Recovery Research

Many important insights have been gleaned from research on disaster recovery, but in relation to other disaster topics, recovery has received limited attention in the literature (National Research Council, 2006; Berke, Kartez, & Wenger, 1994). Early recovery researchers often utilized a case study approach (Haas, Kates, & Bowden, 1977; Rubin, 1985) that helped to illuminate the recovery process for a particular disaster or community, but as with any case study, generalizing findings to other locales proved to be difficult. While other researchers have been able to build on these early findings, many scholars agree that recovery research has not yet produced an overall unifying theory of disaster recovery (Reiss, 2012, Smith & Wenger, 2006). In addition to being constrained by the failure to systematically employ a comparative focus, development of theory has been hampered by the failure to place recovery in the context of broader conditions and trends (Tierney & Oliver-Smith, 2012).

The study of disaster recovery is not very old. Some of the earliest recovery research focused on earthquakes that occurred in the 1960s and 1970s (e.g., the Alaskan earthquake in 1964 and the San Fernando earthquake in California in 1971, as well as earthquakes outside the United States). Early conceptualizations of recovery tended to equate social recovery with physical reconstruction or restoration of the built environment, and viewed it as a linear process (Tierney & Oliver-Smith, 2012). This stages approach has been used for the classic disaster phases or life cycle (mitigation, preparedness, response, and recovery) as well as phases or stages within recovery. For example, Haas et al. (1977) and his colleagues described recovery in this fashion as consisting of four sequential stages beginning with the emergency period, followed by restoration, then first-stage reconstruction (replacement or return to pre-disaster levels or greater), and ending with second-stage

reconstruction (commemorative, betterment, and development) reconstruction period (Haas et al., 1977). Rubin (1985; Rubin, 2009) has cautioned that various models of the periods of the recovery process do not hold up well, as access to resources and power will affect recovery activities undertaken at the local level and the timing of when they are initiated. Rather than the neat and predictable time cycle proposed by Haas et al. (1977), substantial overlap was found. With respect to the transition from response to recovery, Alesch and his colleagues (2009, p. 36) suggest that recovery begins when the “community repairs or develops social, political, and economic processes, institutions, and relationships that enable it to function in the new context within which it finds itself.”

Early research also failed to illuminate the differential recovery processes at work between different sectors and subpopulations affected by disaster (National Research Council, 2006). We now have a greater appreciation of the cascading effects of disasters and sector interdependencies, as well as social vulnerability considerations with respect to disaster recovery outcomes. Early work by Rubin (1985) also established the importance of effective intergovernmental relations for efficient recovery.

Clearly, recovery from disaster can and should be viewed through many lenses: social factors, institutional arrangements, economic aspects, and physical and environmental effects. Each lens provides important insights about the recovery process, but no single one is sufficient to provide a complete picture of disaster recovery.

Finally, recovery research has made analytic progress by distinguishing the study of disaster impacts with respect to recovery, recovery activities undertaken by and affecting different social units, and recovery outcomes (National Research Council, 2006, p. 147). This conceptual clarification has served to underscore the multidimensional nature of recovery, its variability, and the differential effects of vulnerability. However, recovery researchers continue to be challenged by measurement issues. For example, should recovery be measured by return to pre-disaster levels of functioning as measured by objective, physical aspects of recovery or are there subjective, psychosocial aspects to consider? What variables are key, regardless of the scope or type of disaster? Such considerations are important ones for future researchers and of prime interest to frontline practitioners and policy makers.

Vulnerability and Resilience

Disasters, regardless of their cause or scale, create loss, stress, and disrupt social, economic, and psychological well-being. Recovery from disasters is a process that is shaped by pre-disaster as well as post-disaster factors and conditions. The concepts of vulnerability and resilience are important constructs in understanding recovery and recovery outcomes (National Research Council, 2006). For example,

The notion of vulnerability applies both to the likelihood of experiencing negative impacts from disasters, such as being killed or injured or losing one's home or job, and to the likelihood of experiencing recovery-related difficulties, such as problems with access to services and other forms of support. (p. 151)

The concept of social vulnerability is a key one for recovery because it has us consider factors that increase vulnerability and make it harder to cope with the effects of disaster, be they economic or social or some other limiting factor. When we understand such factors, we can identify ways to minimize their influence. The flip side of vulnerability is resilience, or factors that help us survive, cope, and adapt to disaster impacts, such as access to resources. When we understand these factors, we can look for ways to promote or strengthen them. The concept of resilience is increasingly garnering attention, and has been deemed a “national imperative” according to a report by the National Research Council (2012). This report calls for a nationwide effort of complementary federal policies and locally driven actions in communities across the United States to promote community disaster resilience.

Institutional Arrangements

Disaster recovery outcomes are influenced by both institutional arrangements that support pre-disaster planning and capacity building as well as the post-disaster assistance network (Smith & Birkland, 2012). The intergovernmental system plays a key role with respect to disaster recovery and associated policies, with variables such as the commitment and capacity of various actors being key ones that will influence outcomes (May & Williams, 1986). We have long observed that the intergovernmental paradox for emergency management is that the governmental units are least likely to perceive emergency management as a key priority (local governments) of being at ground zero in terms of responsibility (Cigler, 1988). Issues of commitment, capacity, and problem salience make pre-disaster recovery planning particularly difficult. In addition, recovery research has shown us that the timing of post-disaster recovery programs (e.g., grants-in-aid, planning, and training) can have a significant influence on disaster recovery outcomes (Olshansky & Chang, 2009; Olshansky, 2008; Rubin, 1985).

In addition, a diverse array of public, private, and voluntary agencies and groups make up the assistance network for disaster recovery. This network is often fragmented and limited in what it can accomplish in the post-disaster environment. Scholars and practitioners agree that the recovery process works much better if pre-disaster planning for recovery and relationships are established before a disaster occurs.

Economic Recovery

Community planners cite economic recovery as one of the most serious issues facing communities following a disaster. According to Schwab et al. (1998, p. 53): “The extent of

the disruption of normal economic activity varies with the type of disaster, the size and economic makeup of the community, and other factors, but the disruption invariably adds to the property losses already suffered by shrinking incomes, profits, and productivity.”

In one of the earliest case studies of disaster recovery and reconstruction, Geipel (1982) found that the time needed for reconstruction was heavily influenced by economic trends in place before the disaster. The disaster will accelerate those trends, either for redevelopment or for further decline of the local economic base. He also found that residents of a disaster-stricken community will want to rebuild the community the way it was before the disaster rather than consider alternate scenarios, making the case for pre-event planning (Geipel, 1982).

Nevertheless, studies have revealed that local economies and businesses are generally resilient to disasters (National Research Council, 2006; Webb, Tierney, & Dahlhamer, 2002). Small businesses, however, often do have greater difficulty recovering, as they may occupy more physically vulnerable structures, have less access to insurance, and have limited capacity for pre-disaster preparedness and mitigation.

Built Environment

As mentioned earlier, historical views of recovery equated it with restoration, repair, or replacement of the built environment. A more contemporary view of the role of the built environment and recovery views this environment as a “complex, self-organizing system” where it is more important to know what functions and interrelationships were damaged and must be re-established, rather than simple counts of destroyed structures (Alesch & Siembieda, 2012). In particular, attention must be paid to *cascading consequences*:

The March 11, 2011, 9.0m earthquake and tsunami tragedy in Japan is a terrible and precise example of cascading consequences: a powerful earthquake generates a massive tsunami which generates failure of a nuclear power plant backup systems and then the power plants themselves, exacerbating deaths and injuries, homelessness, economic collapse in the regions, supply chain disruptions and then more consequences that ripple out into other places and other lands. (Alesch & Siembieda, 2012, p. 199)

Synthesis Research

The first International Conference on Urban Disaster Reduction (Kobe, Japan) held in January, 2005 organized a conference track around the theme of disaster recovery theory. Attracting scholars from Japan, the United States, Mexico, India, and other nations, papers were presented dealing with recovery models and measures, theory and research gaps, and potential management approaches and models (Johnson & Hayashi, 2012). Emphasizing

conference themes regarding the nonlinear, dynamic, and holistic attributes of recovery, participants agreed upon the following definition:

Recovery is a complex, multidimensional, nonlinear process. It involves more than rebuilding structures and infrastructure; rather, it is about people's lives and livelihoods. The process has no clear end point and there is not necessarily a return to what existed before. (Johnson & Hayashi, 2012 p. 227)

Almost six years later, the Public Entity Risk Institute (PERI) convened a two and one-half-day workshop on recovery theory, funded by the National Science Foundation, in November 2010. Leading researchers in a variety of disciplines discussed social, economic, institutional, environmental, and built environment dimensions of disaster recovery and proposed the following five topics of a preliminary research agenda:

1. In what ways is recovery influenced by the institutional arrangements (especially law, policies and plans) that determine the character of the built and natural environments?
2. Compared to pre-event normality, what are the characteristics of decision-making processes that affect the trajectory and speed of recovery?
3. How can betterment of social equality increase resilience and sustainability, and how can life recovery, community recovery and formal aid be directed toward reducing inequities of gender, race and class?
4. What is the makeup and nature of disaster recovery assistance networks?
5. What are the important variables of recovery from the victims' point of view? (Reiss, 2012, p. 121)

Specific recommendations for the future conduct of recovery research emphasized comparative and longitudinal approaches that would examine and compare recovery outcomes in different locations *over time* in order to observe and document how the disaster recovery process unfolds (Reiss, 2012). Obviously, such approaches would require close collaboration with practitioners in their design and implementation.

Trends and Directions

Disaster recovery is increasingly becoming an important public policy focus in the United States, due in large part to large-scale disasters like Hurricane Katrina and Superstorm Sandy. Following Hurricane Katrina, national attention to the challenges of coordinating recovery resulted in the development of the NDRF to help promote policy development and implementation, and guide practice. Hurricane Katrina also attracted a number of new scholars to the study of disaster and disaster recovery who have brought important insights to our understanding of recovery.

Johnson and Hayashi (2012) make the point that the introduction of the *National Disaster Recovery Framework* (NDRF) brings a time-sensitive opportunity for the disaster

research community to develop some consensus views around recovery and to design a comprehensive research agenda. Such an agenda would include the following activities:

- Continued collection of recovery case studies
- Synthesis of comparative cases
- Consistent and systematic collection and archiving of both empirical and qualitative data over time in a readily searchable format
- Development of replicable and executable models and measures of recovery and recovery management that are meaningful for policy and decision making (p. 230)

Finally, Tierney and Oliver-Smith (2012) emphasize the need for a close connection between policy and practice, and suggest that policy and its application “can serve as an important proving ground for the relevance and predictive ability of theory (p. 141).”

Conclusion

Long-term community recovery from disaster requires a comprehensive approach, extensive stakeholder involvement, and the vision and political will to implement measures that will protect the community from future threats and enhance resilience when disasters do occur. At the household level, individuals and families must commit to and invest in preparedness actions that improve coping capacities and facilitate adaptive decision making.

In order to advance the knowledge base and state of the practice for long-term recovery, greater investments in research and evaluation must be made. Learning from disaster must be cumulative rather than reactive, and not defined in terms of the last significant disaster. Practitioners must persevere in the face of limited resources and numerous obstacles to effective collaboration. We do all these things for the sake of the many people, communities, and nations traumatized by disaster to ease their travels on the road to recovery.

A PRACTITIONER'S PERSPECTIVE

Long-term recovery is messy, idiosyncratic, and fraught with challenges, but extremely gratifying. While there are many more resources available to help with recovery today as compared to twenty years ago, the issues seem more complex and the coordination requirements more daunting. This section reviews practice considerations for long-term recovery by illuminating important developments, trends, and future needs, including those for research and evaluation. A major challenge for recovery practitioners is keeping abreast of changes in federal policy, procedures, and processes. Given the diversity of academic disciplines studying recovery, it is also a challenge to locate and access research that would help to inform recovery practice.

What Is Recovery?

Defining the recovery phase of the disaster cycle is challenging. Recovery for some is viewed as an end state or goal and for others as an ongoing process. Recovery is generally accepted as what begins when the critical life-saving, property protection, and incident stabilization actions conclude. A fine line exists between where response ends and recovery begins. Some would say there is no difference; recovery begins from day one because what happens in response sets the stage for what will occur in recovery.

A clear distinction between short- and long-term recovery is also difficult. Current definitions have short-term recovery dealing with vital life support systems being brought up to minimal operating conditions. Long-term recovery is more about returning life to “normal” or even to improved levels, such as rebuilding homes to current building codes. Recovery occurs as a progression, with initial efforts focused on immediate needs for food, clothing, and housing. Repairs to homes and businesses are made, people return to work when businesses reopen, and communities continue to clean up. Short-term actions may include debris clearance from roadways, temporary housing, and restoration of utilities. Longer-term activities include restoration of infrastructure, rebuilding, and community planning. It is not unusual for these recovery activities to last for several months or years. Depending upon the scope of the event, recovery can last decades.

Recovery will be different for each person and/or family. What recovery means to one person may be completely different to another. Following the Alabama Tornado Outbreak in April 2011, the Tornado Recovery Action Council (TRAC) conducted a survey of Tuscaloosa residents. Individuals were asked, "How do you know the community has recovered?" The majority of respondents replied, "When Krispy Kreme opens." Tuscaloosa officials decided that was a worthy goal. One of the first businesses to re-open following construction was Krispy Kreme. Little else surrounded the store for sixteen months after the tornado when it re-opened, but that did not stop local residents from camping out the night before. A sign of hope. A symbol of a community moving forward. Waiting over two hours seemed like a small

price for a city struggling to re-emerge with a sense of normalcy (Tornado Recovery Action Council of Alabama, n.d.).

Some argue that communities and the citizens that comprise them never truly recover, but are forever changed. Recovery is often defined as a return to normal or to pre-disaster conditions, but recovery practitioners will tell you that in reality, it is a “new normal” with many obstacles to overcome, but also possibilities to rebuild safer and better. This sentiment is embodied in the *National Disaster Recovery Framework* (FEMA, 2011):

Of equal importance is providing a continuum of care to meet the needs of the affected community members who have experienced the hardships of financial, emotional or physical impacts as well as positioning the community to meet the needs of the future. The NDRF also highlights the importance of disaster recovery activities that promote sustainability practices. (p. 5)

In the post-Katrina and post-Sandy environments, simply rebuilding communities to their pre-disaster conditions is not acceptable or responsible. We must look to mitigate the effects of future disasters. Long-term recovery from disaster takes planning, forethought, keen knowledge of local circumstances, and sufficient resources to facilitate the recovery process.

Helping Individuals and Households Recover

Long-term recovery is truly a community approach to life after a disaster. Recovery is not only about the restoration of structures, systems, and services, although they are critical. The NDRF tells us that recovery success also “is about the ability of individuals and families to rebound from their losses in a manner that sustains their physical, emotional, social and economic well-being” (FEMA, 2011, p. 9).

Significant disparities likely will exist with respect to disaster impacts and resources that can be mobilized by community residents for their recovery. Individual and household recovery is dependent upon two factors: funding and the capacity to recover. Funding takes shape with a variety of sources, often inadequate on their own, such as insurance settlements, Federal Emergency Management Agency (FEMA) grants, Small Business Association (SBA) loans, and assistance from nongovernmental organizations (NGOs) or faith-based organizations. For example, the maximum grant available from FEMA in 2013 was \$31,900 – hardly enough to rebuild the family home. In addition, funding sources often place limits on eligibility. Limitations may be placed on households (renter or owner-occupied) that are under-insured, those with lower- to middle-class incomes, those unable to repay SBA loans, and those who do not understand household budgeting or money management (FEMA, 2012).

For those with resource shortfalls, volunteer and faith-based agencies play a key role in individual and household recovery. Skilled and non-skilled volunteers can be utilized to address a variety of disaster-caused needs, including debris removal, clean up, emotional support and child care, and home repairs and rebuilding. Volunteers are often utilized by the Long-Term Recovery Committees (LTRCs) that are convened to address the unmet needs of disaster sufferers.¹ The makeup of LTRCs varies widely based upon the constituent agencies in the local community or LTRC service area. Often during large scale, presidentially declared events, agencies that do not have a day-to-day presence in a community will provide resources to disaster survivors; the resources they bring to bear will also become a welcome addition to the LTRCs. LTRCs may be a subcommittee of a Voluntary Organizations Active in Disaster (VOAD) or they may be a standalone incorporation.

LTRCs focus on the individual's recovery efforts such as home repairs, rebuilding, and necessary household items (e.g., beds, furniture, refrigerator, etc.). They comprise NGOs, faith-based organizations, VOAD members, and strategic funders. Often, there is a governmental agency present for advisory purposes, which can assist with issues related to building permits, debris management, and other required inspections. These organizations work with disaster-impacted survivors regardless of economic status or citizenship. Client information is presented as a case number versus a name to maintain anonymity and an unbiased casework approach.

During a presidentially declared disaster, FEMA deploys Voluntary Agency Liaisons (VALs) to assist communities in identifying key stakeholders to support recovery planning and implementation. The VALs facilitate meetings, encourage collaboration, provide technical guidance, and can bring additional agencies to meet specific household-type community needs; specific needs may include accessible furniture, large appliances, food boxes, or counseling services. VALs remain available for technical advice or support during undeclared events, although this is done remotely.

A disaster impacting a community that does not receive federal assistance through the Stafford Act must rely more heavily on the voluntary agencies and faith-based organizations to lead the recovery efforts. The National VOAD (NVOAD) members tend to be the conveners of recovery meetings, although there are instances where local organizations or agencies may be viewed as the only "local" community resource for assistance. Emergency managers can assist in the recovery process by initiating discussions between the voluntary and faith-based agencies regarding the capabilities each of their agencies can provide.

The capabilities may be limited, as the materials and financial resources may not be enough to meet the need. Monetary resources for individuals in non-declared events are likely to be restricted to insurance claim payments, if the household was insured. LTRCs and local VOADs will work through their state VOAD to seek other potential government

funding sources to aid disaster survivors, such as a gubernatorial request for an SBA Declaration. In certain instances, the Governor of an impacted state can request an SBA Declaration even if there is not enough damage to warrant a Presidential or Major Disaster Declaration request.

In situations where there is insufficient capacity in a state to provide case management services in a timely manner to all who need them, states may apply for funding through FEMA to implement a Disaster Case Management Program (DCMP). The state must have received a Presidential Disaster Declaration to be eligible to apply. The DCMP program is designed to provide a state framework necessary to ensure that tools, leadership, and technical expertise are in place to support the LTRC's long-term recovery efforts. Disaster case management is a process where case managers work with affected individuals and families to help develop recovery plans and advocate for the family for recovery assistance that the family may be qualified to receive. DCMP has assisted clients in receiving goods, materials, and grants through the LTRCs, including funds from FEMA disaster assistance programs, SBA loans, and in-kind services. After the President has made a formal Disaster Declaration, the state has the option of requesting financial assistance to implement a DCMP. A letter of intent, from the state, must be submitted within fifteen days of the declaration, and the formal proposal on how the funds will be administered must be submitted within forty-five days of the declaration (Administration for Children and Families, 2012).

Helping Communities Recover

Community recovery is always a local issue. Each community must decide, possibly with outside assistance, what recovery looks like moving forward. Identification of leadership in the community, or reaching out to organizations with expertise, that can lay out a "master plan" of what the recovery will look like, establish a set of priorities and rank them accordingly, and appoint "project champions" who can see them through to completion is fundamental for an organized recovery. The establishment of Long-Term Community Recovery (LTCR) committees is essential. The LTCR acts on behalf of the community to address what is necessary to meet the primary needs of the whole.

The system of government programs can be extremely challenging for most communities to navigate, often due to a lack of personnel experienced with federal programs available to assist. Several federal departments and agencies, including FEMA, Department of Housing and Urban Development (HUD), Economic Development Administration (EDA), Environmental Protection Agency (EPA), and U.S. Department of Agriculture (USDA), are described in detail to newly elected officials; however, as is often the case, the timing may not be relevant when a newly elected official is learning every aspect of his/her position. Sensitivity is needed as to when community leadership receives instruction on the importance of programs and organizations that can support a community with

resources and expertise to facilitate recovery efforts. The NDRF serves as a guidance document that defines core recovery principles, discusses roles and responsibilities, and suggests an interagency coordination structure.

FEMA places emphasis on long-term recovery and its role in bringing communities back from a devastating incident. FEMA, along with several federal agency partners, has worked with expert groups to develop training programs and guidance materials to assist community leaders with the role of recovery. Regional FEMA offices have provided resources in the form of Federal Disaster Recovery Coordinators (FDRCs) to provide operational support for declared disasters.

Much of the reason for the change is the awareness that many rural communities do not have the capacity to effectively utilize the technical assistance and resources available to them following a disaster. For example, FEMA's assistance in dealing with long-term community recovery may involve the provision of specific planning and community engagement expertise (e.g., planning charrettes) designed to produce skeleton planning documents. The planning documents allow local communities the opportunity to determine what is necessary to ensure that the community comes back whole or to a "new normal."

However, more times than not in rural communities, the expertise or skill-set needed to champion the projects and see them through to fruition is not available. Certain projects require project management of community planning, land development, and construction skills in the recovery phase of the program. Establishing these skill-sets prior to an incident is critical. This can be accomplished through local expertise or soliciting help through regional community programs. Routine meetings can help ensure that the network of expertise is available along with awareness of the community's vision.

Regional Planning Commissions (RPCs) are well established and provide their respective regions with a variety of technical assistance ranging from planning services such as preparing local government comprehensive plans, zoning ordinances, and subdivision regulations; responding to general planning and zoning questions; conducting local strategic planning forums; preparing housing needs assessments, neighborhood improvement plans and downtown revitalization plans. They also provide services to seniors through local contracts or direct service provision to include transportation and employment programs that assist with training and support for job seekers. RPCs have much to contribute to long-term community recovery planning.

In summary, careful consideration of local circumstances, available resources, and the needs of residents is needed to support long-term community recovery. How each of these factors interact must also be considered, as evidenced by the following case example:

Montezuma, GA experienced over 20 inches of rainfall in less than 24 hours during July, 1994. The ensuing flooding placed the entire downtown underwater. The city

decided to focus recovery efforts on rebuilding the downtown area. SBA loans, CDBG [Community Development Block Grant] monies, and other funds were pumped into the community in an effort to revitalize the downtown area. While this may have seemed the logical step at the time, thought was not given to where residents would shop while awaiting their downtown to re-establish itself, nor that residents would find it easier to jump on a nearby interstate to the next community. Residents created new shopping patterns at larger stores in the neighboring community during the weeks-to-months needed to rehabilitate the downtown area. Shoppers did not return to the downtown area once it re-opened, as infrastructure and road work made it difficult to access the stores. As a result, many businesses failed or opted to leave in favor of cutting their losses. Employees also left the area to seek work. This compounded the issue by decreasing potential customers for the retail and service establishments. (Alesch, Holly, Mittler, & Nagy, 2001)

Practice Considerations and Critical Development Needs

While there is still much to be accomplished in the area of long-term recovery from disaster at all levels of government and the private sector, attention to certain areas would seem to yield considerable return on investment for the long-term recovery enterprise. Such attention might translate to scholarly research, policy analysis, program evaluation, or advocacy.

Affordable Housing

Disasters do not discriminate which housing units they will impact and which ones they will avoid. When a disaster impacts affordable, lower-income, or government-subsidized housing units, this must be taken into immediate consideration for housing recovery strategies. This population segment tends to be at risk, often living paycheck-to-paycheck, with no real means of affording security deposits or paying for hotels. This is an interesting dynamic for communities, as many at-risk households represent a critical workforce to a recovering area, balanced with the opportunity to improve the overall housing condition. A good indication that affordable housing has become an issue within the community is if many residents have been staying in a disaster shelter since the event.

Prior to a disaster, communities should regularly take inventory of their affordable housing stock. This can be done through a joint effort with the Realtors Association, local Housing Development Authority, and Senior Services. Knowing where affordable housing exists and what percentage of the unoccupied stock was impacted will enable communities to make faster decisions about housing strategies. For example, if 75% of the available affordable housing stock was destroyed or significantly damaged by a disaster, a community knows that alternative solutions will need to be created. Emergency shelters will struggle to close until housing options are identified. This may come in the form of temporary housing units (THUs), additional HUD subsidies for Section 8 vouchers, tax incentives for landlords, or other creative ideas.

Building Codes

Many communities throughout the nation may not have established ordinances and building codes or have the necessary, trained personnel to enforce them. Building codes and ordinances support pre- and post-disaster mitigation efforts of a community. In a report published by the Insurance Institute for Business and Home Safety dated December 31, 2011, entitled “Rating the States: An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions,” it was noted that none of the rated states achieved the 100-point perfect score, and three of the five Gulf Coast states had some of the lowest scores when it came to building code protections. None of the states in the bottom group, including the three states along the Gulf Coast, have a mandatory statewide residential building code.

Establishing a funding source that is needed to ensure that building inspectors are available for enforcement of building codes through a program that encourages measures or incentives regarding new construction, or rebuilding after an event based on hazard mitigation analysis damage assessments, could possibly lower damage and subsequent insurance claims. Working with both banking and insurance industries to allow for reduced or relaxed rates by just adding simple safety upgrades, such as tie-down straps during construction, which has been proven to reduce damage, could reduce the damages from which families and businesses would need to recover.

This may be a nationwide issue and will need to be addressed as long-term recovery becomes more of a pronounced program and federal programs are geared to its solution. Regional variations make it necessary to establish mandatory building codes that will assist not only the end user, the homeowner, or building owner, but also other organizations such as insurance, construction, infrastructure, and so on. As indicated by the Insurance Institute for Business & Home Safety, established building codes that can be enforced by ensuring qualified inspectors are in place will benefit all by possibly lowering insurance rates and potential interest rates in home and business loans, driving down costs.

Disaster Case Management

At the state level, a plan should be developed pre-event to discuss DCMP design and implementation. Planning will ensure that all agencies desiring engagement in the case management process are included, with an up-front understanding of what the capabilities and expectations are, as well as where their agency fits into the overall plan. Planning also can reduce or eliminate the need to review multiple proposals, which often creates a lag in the DCMP implementation process. If a plan is not developed pre-event, chaos may ensue as the proposal becomes rushed for completion. Relationships between the state requesting agency and the voluntary community can break down, resulting in duplicative efforts and poor communications. Ultimately, the disruption of relationships between the state requesting agency and the voluntary/faith-based agencies can negatively impact the community’s ability to recover from the current event and future resiliency.

Pre-event Planning for Long-Term Recovery

As indicated in the NDRF, a central point of contact is essential and should be established for recovery preparedness with local, tribal, and federal governments. A state LTRC committee, established as the coordinating agency, would help develop, train, and exercise recovery plans, maintain contacts and networks for disaster recovery resources and support systems, and promulgate principles and practices that further resilience and sustainability in development and strategic planning initiatives. Recovery coordinators can also take an active role in preparedness, response, and mitigation as it ties into the State Emergency Operations Plan (SEOP) and partner with the state emergency management agency (EMA) for development of recovery efforts.

By reviewing state laws and ordinances, which could become barriers to expediting recovery, pre-positioned contractors could be established for recovery by assisting localities in the development of recovery plans, and train and exercise recovery plans as well. As far as mitigation, the LTRC office can participate in mitigation planning to ensure that unfunded recovery projects are incorporated into the next revision of the state Hazard Mitigation Plan (HMP), and long-term recovery efforts are considered within the mitigation framework.

Emergency managers should share their HMP (local or state) with agencies that assist with recovery efforts. Nonprofit and faith-based agencies are involved in repairing and rebuilding homes, a task that provides an excellent opportunity to implement mitigation strategies. Activities may include elevating water heaters, building storm shelters, raising homes, or other disaster-specific mitigation activities.

If a community makes the decision to have a standing LTRC, households impacted by a non-declared event are much more likely to have a successful recovery. Recovery support actions become second nature when LTRCs are sustained. These agencies are able to maintain communication and awareness of each other's capabilities and/or capacities to assist disaster survivors throughout the year, and will often learn more about other available programs each agency may have. Agencies are also more apt to seek alternate funding for recovery needs, such as private grants or conducting recovery-based fundraisers, if a relationship is maintained throughout the disaster cycle.

Relationships and Processes

Many factors influence long-term recovery strategies throughout the country. Because of the many regions and varying incidents, personnel, and ideas, stakeholders need to seek out and implement a set of principles that can be utilized as a guide. Standardization is hard to implement because each organization will want to apply principles and processes to fit their particular situation. Through guidance provided by the NDRF, organizations are working to eliminate the "silo effect," or working in isolation, which can slow down recovery efforts. Instead, they are concentrating on a team approach to identify issues and solve problems. In such an operating environment, stakeholders have the entire picture and can possibly

speed up recovery efforts. The idea is to prevent duplication of effort and ensure that the entire team reaches a consensus with all the facts rather than in a piecemeal fashion.

State-level support can include establishing a state joint task force or work group; coordinating efforts between levels of government to eliminate or minimize duplicate practices; providing liaison support with communication between local, state, and federal levels; and ensuring involvement of organizations that can support projects at the local level. State-level support includes recognizing and understanding funding streams and how they can affect large projects that, in a recovery effort, extend over several funding cycles. Because disasters are not always considerate to grant funding cycles, there has to be direction on how money is secured for multiyear projects. Communities need help to leverage what minimal assets they have in order to link with appropriate grant opportunities and get the best value for their investment. Communities also need help to determine what federal organizations have low interest loans available to help support the applicant's share of the project.

Monitoring the process is essential when it comes to ensuring that recovery is accomplished. Conference calls and project status updates on a weekly, semi-monthly, monthly, or quarterly basis, depending on where a state is during the recovery or revitalization phase, is essential for the local community so that local leaders can address community inquiries. Established procedures that are generic and can be duplicated or tweaked for each situation can help manage the program of recovery and speed the process. Regular training, through community exercises dealing with a variety of scenarios, provides community leaders the opportunity to work through potential issues as a team, allowing for networking and ensuring that decision makers know who they are working with when a crisis occurs. Processes are reviewed and procedures established to streamline how incidents are addressed. Organizations can rethink how different departments receive documentation and learn from their experiences, knowing how to share information and speeding the process so that recovery/revitalization can be expedited.

Review Process/Assessment

Increasingly, efforts to develop a standard review process, whereby an unbiased third party can review recovery projects and establish timelines that address and ensure that needed requirements from the grassroots level are provided to all claimants on the front end to make sure the process is smooth. An accountability or set of metrics that each agency is measured by, that is regulated and monitored, would allow federal/state/local agencies an opportunity to review what processes have to be addressed more closely and which need to be tweaked to benefit the final recipient—the survivor of the disaster. Sometimes organizations can work in an isolated way, with limited knowledge of, or without accountability measures in place to manage and monitor the progress of, a claim by a community. Reviewing the processes and allowing for after-action review to take place will

ensure that procedures are fine-tuned, and the benefits are felt by the communities that need to be brought back whole as quickly as possible.

The success of long-term recovery is also impacted by frequency of disasters in the locale or region, VOAD strength, VOAD member presence within the locale or region, political continuity, and documentation of previous post-disaster strategies. If an area of the country experiences multiple, larger-scale events in a relatively short time frame (one to two years), or if they experience repetitive, smaller-scale events, the long-term recovery process and agency experience remains fresh. Stakeholders are also able to capitalize on lessons learned from each event. Lessons could range from implementation of a recovery program or strategy to understanding of funding streams.

For example, the Gulf Coast states of Alabama, Mississippi, Texas, Florida, and Louisiana experience frequent tornadoes, flooding, wildfires, and hurricanes. These events provide the opportunity to retain standing LTRCs and LTRCs. When the LTRCs and LTRCs are able to remain in place, they can eliminate the need for new training, allow for testing of new systems, and evaluate whether the right decisions were made at the right time in the response and/or recovery process. What they do with the knowledge gleaned from staggered (1/3/5/10/20 years) evaluations increases the odds for a more successful recovery.

Resources to Help

Below are brief descriptions of some key federal disaster assistance programs and guidance documents that support long-term recovery from disaster:

Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288) As Amended. This act provides the statutory authority for most federal disaster assistance, especially FEMA programs. Of particular note for community recovery is the Community Disaster Loan program that can provide funding to eligible jurisdictions that have suffered substantial loss of tax and other revenue. If a jurisdiction can demonstrate need for assistance to perform its government functions, loans not to exceed 25% of the annual operating budget for the fiscal year in which the major disaster occurs can be provided, up to a maximum of \$5 million (FEMA, 2013a). Loans are essential when it comes to rural communities that have lost significant revenue and subsequent tax base as a result of disaster.

Comprehensive Preparedness Guide 102 (CPG-102), Recovery Planning for State and Local Governments (DRAFT). The primary function of the document is to lay out the basic concept of local long-term recovery. It addresses the roles of local, state, and federal agencies; understanding the process; setting realistic goals and expectations and how they help ensure that the recovery process moves forward, etc. Many of the more rural communities need a blueprint or plan to follow in order to know what is required next in the

process. Because of limited capacity and expertise, having this guide helps to work through the many processes encountered by local leadership. Although the document is currently in draft, expectations are that the guide will be available in the near future. The guide is just that, a guide, and is not expected to be an answer to everything. All disasters are different, and with each situation, leadership will have to make the determination, based on what is presented, which process is the best solution to recovery.

National Disaster Recovery Framework (NDRF). This document describes the roles and responsibilities of the different levels of government dealing with the recovery efforts. Although much is written about the aftermath of disasters, much more needs to be written about the pre-planning and pre-disaster programs in place that ensure communities are ready for what is likely to happen. The NDRF goes beyond the idea that recovery only encompasses the restoration of a community's physical structures, but addresses the Whole Community concept of post-disaster care, sustainability practices, addressing diversity efforts, and much more. The NDRF is a key tool in providing a community the information needed to become stronger and more vibrant. Divided into six specific Recovery Support Functions (RSFs), the document addresses specific needs and encourages various agencies to participate with the necessary resources to meet the specific needs of the community. State-level coordination provides the necessary venue to bring all the stakeholders together to address specific community needs by bringing those in need to the resources that can help. Roles and responsibilities of recovery coordinators are defined.

Section 404, Hazard Mitigation Grant Program (HMGP) and Section 406 Mitigation Funds. These Stafford Act programs associated with FEMA's Public Assistance program deal with both pre- and post-disaster related mitigation efforts. Local EMA officials are normally the primary liaison between FEMA and local leadership when it comes to the public assistance program. Because local EMA officials have the relationships with local leadership, FEMA relies on local EMA personnel to set up meetings and address requests.

Section 406 funds are also vital to provide cost-effective measures that reduce or eliminate future damage to public facilities or structures. The funds can be used to upgrade public facilities that may not meet current standards or codes, but would benefit the community by providing updated programs.

Long-Term Community Recovery Planning Process – A Self-Help Guide (FEMA, 2005) Published in 2005, the self-help guide is a step-by-step process that outlines much of the guidance already provided, but gives specific instruction starting with a definition of *Long-Term Community Recovery*, the program, and the specifics in each stage of recovery. Much of the document is in general form to allow local and state agencies the flexibility with which to adjust to the varying programs and needs of their communities. The guide allows for communities to move through the process, access the needs, prioritize the projects that have been determined, and then assign or appoint "project champions" to ensure that the

projects have the needed funding, resources, and fit within the framework of the recovery of the community. The guide also discusses leadership, both a chairperson and members of the community, who will take part in the decision making for the future.

Disaster Assistance: A Guide to Recovery Programs.² This reference guide contains brief descriptions and contact information for federal programs that may be able to provide disaster recovery assistance to eligible applicants.

Federal Disaster Case Management Program (DCMP). A supplemental FEMA (2013b) program that provides funding for disaster case management services upon the request of a Governor of an impacted state for the purpose of ensuring effective and consistent recovery case management services; promoting partner integration; providing capacity building; and assisting with state-level program development. An Individual Assistance declaration must be in place. DCMP funds can be used for technical assistance and establishing the DCM infrastructure. Consideration must be given when evaluating other federal grant programs and who will administer or provide complementary services to ensure that there is not a conflict of interest. A significant benefit is that DCMP is a 100% federally funded program (no cost share to the state). More information about disaster case management is available in the *Disaster Case Management Program Guidance (2013)* document available from FEMA.³

National Voluntary Organizations Active in Disaster (NVOAD) Long-Term Recovery Guide (National Voluntary Organizations Active in Disaster, 2012). This guide is a training tool and guidance document that LTRCs can utilize as a reference in establishing and maintaining LTRCs. Guidance includes items to consider when establishing policies, governance framework, financial resources, and administration.

Concluding Thoughts

Emergency managers have the opportunity to influence long-term recovery strategies after careful observation and examination of the community makeup, with respect to available partner resources and the unique idiosyncrasies that define their communities. Identifying these characteristics can assist the emergency managers throughout the emergency management cycle.

In preparedness, knowing what resources are available in long-term recovery provides valuable information by looking at historical data, anticipating necessary resources, and encouraging relationships among voluntary and faith-based organizations. These relationships can also be strengthened by the inclusion of the private sector in preparedness. Examples of strengthening efforts would include joint (emergency management, NGO, private) community preparedness projects such as weather awareness, disaster education, fire safety (smoke detectors, family plans), and promotion of risk-based insurance (all-hazard, hurricane, earthquake, etc.).

During response, emergency managers need to gauge what resources will be needed to effectively facilitate long-term recovery. These resources can include housing availability (including affordable housing), feeding resources, transitional feeding and sheltering strategies, Census data, and pre-disaster/steady-state economic factors (homelessness, private sector closures, etc.).

This review of long-term recovery has focused on both community and household recovery, and mechanisms to facilitate each. Both are essential to the recovery effort, and it becomes more and more clear that the two *must* work together to ensure that the needs of both are being met and that duplicated efforts are eliminated to ensure the best use of limited grant funding.

Endnotes

¹ LTRCs are not to be confused with Long-Term Community Recovery Committees (LTRCs) whose primary focus is to revitalize the community through economic development, rebuilding of infrastructure and municipal buildings, community planning, and other initiatives focused on community recovery.

² Document is available at <http://www.fema.gov/pdf/rebuild/ltrc/recoveryprograms229.pdf> .

³ <http://www.hSDL.org/?view&did=732994>

BRIDGING THE DIVIDE

Our discussion so far has observed that the recovery phase of a disaster remains one of the most challenging and misunderstood elements of the disaster cycle. As the practice environment becomes increasingly more complex and difficult to navigate, the demands for coordination and creative solutions, informed by recovery research, becomes ever more challenging and difficult to implement, yet such knowledge, skill, and creativity is essential to successful outcomes. This chapter has attempted to illuminate some of the issues, current state of the practice, and theoretical underpinnings. What follows is a synthesis of what is known for certain, remaining questions, and possibilities for the future.

What Do We Know?

Recovery from disaster is not a return to “normal” but a “new normal” state that includes the possibility of implementing mitigation for future disasters. Since Hurricane Katrina, governmental entities and organizations have solicited a plethora of ideas from practitioners and academics on how to solve a problem that disaster survivors continue to face: what do we do now? Elected officials are put into office because citizens feel they will lead their communities through whatever challenges may come. But many mayors, city council members, county commissioners, and other community leaders do not have the necessary knowledge and tools required for decisions dealing with community survival after a severe natural or human-made disaster. Training is available from a variety of sources, including federal and state agencies, associations, and interest groups, but many community leaders do not avail themselves of these opportunities.

Nevertheless, various frameworks informed by disaster research have emerged to explain recovery or to guide practice. For example, PERI funded a handbook produced by the Natural Hazards Center at the University of Colorado at Boulder in 2001 and revised in 2005 entitled *Holistic Disaster Recovery* (Natural Hazards Center, 2005). This handbook targeted a range of stakeholders who might help a community during disaster recovery, and promoted a holistic and sustainable approach. Another seminal document produced by the American Planning Association in collaboration with FEMA was the 1998 report entitled *Planning for Post-Disaster Recovery and Reconstruction* (Schwab et al., 1998). This document in particular illuminated the important links between post-disaster redevelopment and mitigation.

More recently, Emergency Support Function (ESF) #14 – Long Term Community Recovery under the National Response Framework formalized a mechanism for providing federal help for long-term community recovery in the form of technical assistance and recovery planning support. Seven years of experience working with 180 communities across 23 states from 2004 to 2011 was highlighted in the FEMA document *Lessons in Community Recovery* (FEMA, 2011a).

The report noted the following keys to success:

- Act quickly
- Actively plan
- Engage the community
- Develop partnerships, networks and effective coordination strategies
- Make decisions and manage recovery locally
- Mitigate
- Prepare for recovery

Following these efforts was the NDRF, promulgated in 2011 after extensive stakeholder engagement, including academics (FEMA, 2011). The NDRF is the first attempt on a national basis to define core recovery principles, roles, and responsibilities, and suggest a coordination structure and process.

We feel the NDRF succeeds in providing a conceptual framework that defines core recovery principles, roles and responsibilities, a coordinating structure, and associated processes. Further experience with the framework is needed, however, to validate the concepts, illuminate implementation challenges, and eliminate unnecessary bureaucracy. Another welcome sign is the attention given to recovery research in recent years, with a number of important books and journal articles expanding the body of knowledge for disaster recovery. For example, the comprehensive disaster recovery textbook by Brenda Phillips (2009), Gavin Smith's (2011) *Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework*, and *Managing for Long-Term Recovery in the Aftermath of Disasters* (2009) by Dan Alesch and his colleagues are particularly noteworthy. Finally, efforts to build capacity and capability in disaster recovery at all levels of government are underway. Training for recovery operations is being routinely offered by FEMA at the Emergency Management Institute in Emmitsburg, Maryland, and in the field.

Knowledge Gaps

Many challenges await us as we anticipate larger and more frequent disasters in the future. While significant attention has been given at the federal level to develop policies and procedures to support recovery operations, it is still unknown as to whether they produce effective, coordinated action. These same policies and procedures need to be translated to state and local levels, constrained by capacity and resource limitations that greatly impede meaningful progress. States need to invest in building program capacity to support disaster recovery operations and the provision of guidance, training, and technical assistance to build capacity at the local level.

Another structural issue that needs further examination is the interface of long-term community recovery and long-term recovery for individuals and families. Both demonstrate a

great deal of overlap with respect to resource needs and dependencies, yet we see little overlap in terms of operations and limited communication. We wonder whether colocating these operations or establishing one coordinating agency to oversee them might lead to a more holistic and better integrated approach to long-term disaster recovery.

More needs to be known about the complex coordination and communication requirements associated with recovery from disaster. Do the current structures offer the best approach or can changes be recommended to improve effectiveness and streamline processes and procedures? Will the same approach work for rural areas as for urban ones, or are there fundamental differences that need to be acknowledged and addressed? We also need to better understand the role of leadership in the recovery process. For example, is leadership personality driven or is it a collaborative affair? All of these areas seem to hold particular promise for knowledge generation and integration.

Vision for the Future

Funding and financing of recovery is high on the list of important issues for practitioners, as are issues associated with policy implementation and standardization. The organizing framework outlined in the NDRF holds promise for improving coordination, resource sharing, and the development of creative solutions to the somewhat daunting and overwhelming tasks associated with long-term recovery.

We believe that planning is essential to sound decision making. Set guidelines are needed that allow those individuals put into the position of making decisions on behalf of their communities the ability to act to make recovery an easier process. The development of a statewide training program that can be used for a variety of audiences and venues would go a long way to build capacity at the local level. The program could incorporate initial training provided by designated state agencies, contract organizations, or train-the-trainer programs, which could then disseminate further to local leaders and community stakeholders. Mutual Aid Agreements (MAAs) or Memoranda of Understanding (MOUs) between organizations could ensure that an understanding is in place prior to disaster events.

Ongoing communication would be essential to ensure that the relationships continue to grow and members are familiar with one another and what assets each organization can offer. Lists of organizations, key personnel, and resources would require periodic review and updating to ensure that the most current information was available. Providing the necessary roles and responsibilities for each level of government will establish the training requirements and essential powers that are necessary for individuals to make decisions without undue restrictions during times of immediacy. Limiting restrictions on certain processes and streamlining programs during disaster would allow for quicker recovery as long as the people making the decisions know the restrictions to the resources being provided. Routine meetings established with key members of the recovery agency, made up

of the various departments and communities, would ensure that all were being given as much information and training as possible. Because many of the more populated or urban areas usually have much of the resources at their fingertips, the primary focus of the immediate need should be on the more rural and isolated communities.

Making our leaders accountable for the decisions they make is essential. Instead of allowing decisions to be made based on media influence or scrutiny, decisions have to be made based on the greater good of the people who are being governed. Putting solid building ordinances in place and zoning restrictions to ensure that people are building stronger and safer, without worrying about the political climate or how constituents are going to vote, should be the focus. Working toward hazard mitigation whenever possible to ensure safety of the communities has to be a priority.

Ensuring that the state initiates a mandatory requirement that all are required to develop pre-disaster recovery plans would ensure that supporting agencies, which are necessary to help with the plan, get the funding required to develop and implement the plan. Additionally, exercising plans routinely benefits all by identifying flaws in plans and addressing further mitigation issues that require a solution.

Conclusion

Recovery of the future, by necessity, will be grounded in planning, preparedness, and capacity-building efforts that emphasize keen knowledge of recovery processes and resources *and* leadership to effectively engage all stakeholders. The discipline and profession of emergency management must take the lead to advocate for policies, structures, and procedures that allow us to reduce red tape and alleviate human suffering. Most importantly, the recovery process needs to be understood and embedded in the day-to-day functioning of community systems with broad ownership of the problems and solutions.

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CHAPTER 10: AFTER-ACTION REPORTING FOR EXERCISES AND INCIDENTS

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ABSTRACT

Identifying strengths and deficits in preparedness plans and systems through exercising allows for the evaluation of an organization's capabilities (Gebbie et al., 2006; Biddinger et al., 2010). Fiol and Lyles define learning as "the development of insights, knowledge, and associations between past actions, the effectiveness of those actions, and future actions (Fiol & Lyles, 1985). Organizational learning requires that teams continuously assess their performance to identify and learn from successes and failures (Salem-Schatz et al., 2010; Argyris and Schon, 1996). Organizational learning is, at its core, a process of growth and a commitment to change that is assumed, in the context of disaster management, to result in presumably improved behavior.

The evaluation of response actions associated with both real incidents and exercises is frequently documented in after-action reports (AARs). When these incident insights and experiences are gathered together in documents such as AARs with critical analysis, there is an opportunity to identify common and/or recurring organizational or system challenges. Donahue and Tuohy observed, however, that a challenge in the identification of causal underlying processes in the emergency response disciplines is the lack of a common operating doctrine where agencies tend to consider individual incidents and particular broad patterns of behavior (Donohue and Tuohy, 2006). It has also been suggested that this isolation is a result of a disconnect between the observation of challenges, the issues that caused those challenges, and the process for the AARs to better drive process change because of a lack of formalized procedures to follow through improvement efforts (Seid et al., 2007).

Although the after-action review process and accompanying AAR/Improvement Plan (IP) document have provided a solid foundation for incident response and exercise evaluation, challenges in terms of quality improvement achieved from the incorporation of corrective actions, promising practices, and lessons learned into practice has been noted (Donohue and Tuohy, 2006). Can an analysis of the "why" of an incident and a discussion improve how organizations link past actions to future actions and advance quality improvement as part of organizational learning and practice? This chapter will first review how emergency management post-exercise/post-incident after-action review documentation is currently used in academia/government operations, how that doctrine is currently used to support (or not support) quality improvement, and observations as to how the current doctrine can be revised to place a stronger emphasis upon documenting and analyzing the "why" of an incident to advance quality improvement as part of organizational learning and practice. The chapter will then reflect observations from the practice community regarding

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after-action review documentation, and current challenges with the implementation of the current doctrine for after-action reporting. The chapter will conclude with a discussion of observations and suggestions from the two disciplines for how after-action reporting can be used to advance quality improvement as part of a broader culture of organizational learning.

Endnotes

1 The findings and conclusions in this chapter are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

AN ACADEMIC PERSPECTIVE

Introduction

The infrequent occurrence of large-scale disasters causes preparedness organizations to simulate disaster scenarios through exercises and other proxies to allow for the practice of response actions and preparedness plans (Donahue & Tuohy, 2006; Dausey, Buehler, & Laurie, 2007; Gebbie, Valas, Merrill, & Morse, 2006). By practicing response actions, or exercising, the connection between plans and action can be established (Perry, 2004). Identifying strengths and deficits in preparedness plans and systems through exercising allows for the measurement of organizational response capacity against its preparedness capacity, thus providing the opportunity for evaluation of an organization's capabilities (Gebbie et al., 2006; Biddinger, Savio, Massin-Short, Preston, & Stoto, 2010).

The evaluation of response actions associated with both real incidents and exercises is frequently documented in AARs. The AAR is the written document produced from the after-action review process. The after-action review process is a retrospective analysis of the incident response or exercise, which includes but is not limited to hot washes (facilitated discussion for participants to self-assess their performance), incident debriefings, participant feedback surveys, source data collection, and root cause analysis (RCA). A component of the AAR is the IP, which is generated to address corrective actions. Corrective actions are derived from performance deficits identified from the after-action review process and AAR documentation. The corrective actions identified through the evaluation of both exercises and real incidents are often captured in AARs, including the IP section. The after-action review process is an opportunity to extract actions from one event or project, examine the effectiveness of those actions, and apply them to future actions. When these incident insights and experiences are gathered together in documents such as AARs with critical analysis, there is an opportunity to identify common and/or recurring organizational or system challenges.

Fiol and Lyles define learning as “the development of insights, knowledge, and associations between past actions, the effectiveness of those actions, and future actions (Fiol & Lyles, 1985). Organizational learning requires that teams continuously assess their performance to identify and learn from successes and failures (Salem-Schatz, Ordin, & Mittman, 2010, Argyris & Schon, 1996). A key component to the growth and commitment to change that is learning begins with an analysis to identify the causal process that underlies actions and their effectiveness. In the context of individual and organizational factors, there is often a complex chain of events that lead to a positive or negative outcome (Mahajan, 2010). Organizational learning is, at its core, a process of growth and a commitment to change that is assumed, in the context of disaster management, to result in changed (and presumably, improved) behavior.

Donahue and Tuohy observed, however, that a challenge in the identification of causal underlying processes in the emergency response disciplines is the lack of a common operating doctrine where agencies tend to consider individual incidents and particular lessons in isolation, rather than as systems or broad patterns of behavior (Donohue and Tuohy, 2006). Seid et al. suggested that, at the level of individual organizations, incident action isolation is a result of a disconnect between the observation of challenges, the issues that caused those challenges, and the process for the AARs to better drive process change because of a lack of formalized procedures to follow through improvement efforts (Seid et al., 2007).

Although the after-action review process and accompanying AAR/IP document has provided a solid foundation for incident response and exercise evaluation, challenges in terms of quality improvement achieved from the incorporation of corrective actions, promising practices, and lessons learned into current preparedness practice has been noted (Donohue and Tuohy, 2006). There has been an identified tension between exercise artificiality and real incidents that leads to the after-action review process and subsequent generation of the AAR product to be composed of irregular and informal practice, disparate and unsystematic approaches, and a lack of consistent knowledge facilitation in the preparedness community (DeGrosky, 2005).

Can an analysis of the “why” of an incident and a discussion improve how organizations link past actions to future actions and advance quality improvement as part of organizational learning and practice? This chapter will first review how emergency management post-exercise/post-incident after-action review documentation is currently used in academia/government operations, how that doctrine is currently used to support (or not support) quality improvement, and observations as to how the current doctrine can be revised to place a stronger emphasis upon documenting and analyzing the “why” of an incident to advance quality improvement as part of organizational learning and practice. The chapter will then reflect observations from the practice community regarding after-action review documentation, and current challenges with the implementation of the current doctrine for after-action reporting. The chapter will conclude with a discussion of observations and suggestions between the two disciplines for how after-action reporting can be used to advance quality improvement as part of a broader culture of organizational learning.

This section is a discussion as to how the current practice of after-action reporting, either for exercises or real incidents, can be used to advance a culture of quality improvement. It begins with a synopsis of organizational experiences with the after-action review and the AAR document, followed by a review of federal agencies that fund preparedness activities or enact policies/directorates that guide emergency preparedness operations. Current concepts related to emergency management evaluation through exercising, real incident reporting, and corrective action implementation will be discussed.

This section also presents a proposal for emphasizing the causal process that underlies actions, including the use of root cause analyses in AARs, as part of organizational learning. Finally, suggestions are presented as to how the current federal after-action review, exercise guidance, and practice can be optimally leveraged to better disaster response performance and advance quality improvement in federal, state, and local preparedness practice.

Lessons Learned from Experience and After-Action Reporting

Learning from experience or “lessons learned” can improve preparedness practice, which ultimately reduces avoidable deaths and the negative health, economic, and social consequences of disasters (Savoia et al., 2012; Donahue & Tuohy, 2006). Improvements in preparedness can come from both lessons learned from exercises and responses to real incidents. Lessons learned from exercises and incidents can be used to revise operational plans and provide a basis for training to improve proficiency in executing those plans thus improving future response actions (FEMA, 2002). However, lessons learned cannot be retained unless they are properly documented.

Preparedness agencies use various mechanisms for identifying lessons learned after exercises and real incidents, such as in-progress reviews, after-action reviewing, discussions (hot washes) and debriefings (Donahue & Tuohy, 2006). However, there is not a consistent approach used to record incident and exercise actions, strengths and deficits (Donahue & Tuohy, 2006). The most common approach utilized in preparedness is the AAR, which is developed through an after-action review process (Donahue & Tuohy, 2006; Stebbins & Vukotich, 2009).

Why Don't Agencies Learn?

Peter Senge observed, “The Army's After Action Review (AAR) is arguably one of the most successful organizational learning methods yet devised. Yet, most every corporate effort to graft this truly innovative practice into their culture has failed because, again and again, people reduce the living practice of AARs to a sterile technique” (cited by Clark, 1997). To see why even organizations that focus on learning often repeat mistakes, Darling et al. (2005) analyzed the AAR and similar “lessons learned” processes at more than a dozen corporations, nonprofits, and government agencies. The fundamentals are essentially the same at each agency; following a project or event, team members gather to share insights and identify mistakes and successes. The common denominator was that the organizations made no effort to apply what they observed from the actions of the incident to actions and decisions taken on current projects. The AAR was solely perceived to be a meeting, a report, or a postmortem.

The U.S. Army's Opposing Force (OPFOR) uses the AAR as an instrument to focus on improving a unit's own learning and, as a result, its own performance. A unit may generate a lesson during the AAR process, but the lesson is not considered “learned” until its members

can identify “why” and have changed their behavior in response. OPFOR units are held accountable for learning their own lessons, with the unit leadership held accountable for taking lessons from one situation and applying them to others—for forging explicit links between past experience and future performance. The AAR, in this context, is forward-looking, not backward “reviewing” (Darling, et al., 2005).

After-action reviews were first developed in the 1970s by the United States Army Research Institute (ARI) as a process used to identify learning opportunities from combat training (U.S. Army, 1993). The U.S. Army defines the after-action review as a professional discussion of an event, focused on performance standards, that enables soldiers to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weakness. The after-action review process asks “how did the unit do?” through the lens of several further questions: “What happened?” “Why did it happen?” “How can the unit improve their performance?” (U.S. Army, 1993) Documentation of the identified gaps or deficiencies as well as response strengths within AARs can lead to corrective actions that can improve the deficiencies before a real incident occurs (Biddinger et al., 2008).

AARs can serve as a record of an incident or exercise to document event occurrence (i.e., accountability), or as an opportunity for process or quality improvement. While not inconsistent, these two purposes often require different methodological approaches. An AAR written solely for the purpose of documenting that an incident or exercise occurred may likely emphasize structured data written as a list rather than in paragraph form, be limited to a factual narrative of the incident activities, and not include editorial commentary or explanatory context. An AAR that is being used for quality improvement may attempt to document how well the system or participants performed against a target or metric. The latter tends to take a more holistic or system-focused view and necessitates the participants to review the narrative of the incident/exercise (either in a facilitated after-action review conference or dialogue sessions) and attempt to answer the following: “What changes need to be made to plans and procedures, organizational structures, leadership/management, performance improvement (including training recommendations), or future approaches to similar problems?” However, AARs used for quality improvement are not useful unless the lessons learned are translated into implemented solutions.

Homeland Security Exercise and Evaluation Program (HSEEP) and Preparedness Standards

HSEEP is a set of guiding standards for emergency exercise programs, as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. The concept of exercising emergency preparedness plans has been documented by FEMA’s National Exercise Program and in the HSEEP since 2002. HSEEP was revised in 2013 to be consistent with the National Preparedness Goal (NPG) and the National Preparedness System. HSEEP was created to provide a common exercise policy and program guidance that is capable of constituting a national standard for all

discussion-based (seminars, workshops, tabletop exercises, games) and operational (drills, functional, full-scale) exercises. HSEEP is founded in a cyclical process of planning, training, exercising, and evaluation that assesses an organization's performance in an exercise and identifies strengths and areas for improvement. The HSEEP guidance includes the development of an AAR, inclusive of an IP and includes a suggested template for practitioners. This suggested template that is intended to assist in identifying and deriving critical lessons from emergency exercises in an effort to improve capabilities and Presidential Policy Directive-8 (PPD-8). This program is ultimately a capabilities and performance-based exercise program that serves as a national standard for all exercises (FEMA, 2012a).

An evaluation standard associated with FEMA's HSEEP is the Lessons Learned Information Sharing (LLIS) portal operated by FEMA, which "serves as the national, online network of lessons learned, best practices, and innovative ideas for the emergency management and homeland security communities" (FEMA, 2012a). In particular, LLIS is the primary national repository for AARs and promising practices in the field of disaster preparedness.

The HSEEP methodology and LLIS platform are referenced by emergency management and public health preparedness organizations as the suggested model to follow for AAR development and dissemination. Public health agencies such the National Association of County and City Health Officials (NACCHO) and the Association of State and Territorial Health Officials (ASTHO) have included these exercise evaluation approaches standards into projects such as the Public Health Accreditation Board (PHAB) and Project Public Health Ready (PPHR) (NACCO, 2013b). However, there is an absence of guidance for how these items are to be incorporated into the HSEEP methodology.

A challenge identified with using standards for after-action review and AARs to support the identification of "why" and change organizational behavior has been the variation in cross-referencing agency-specific deliverables and the variation on due dates or time frames for the production of AARs. For example, within the Public Health and Emergency Preparedness (PHEP) cooperative agreement issued by the Centers for Disease Control and Prevention (CDC), awardees must submit an AAR within sixty days of the conclusion of an exercise or real incident to meet the criteria set forth in performance measures (CDC, 2012). When completion in a certain amount of time is the measured performance outcome of the after-action review process, the focus can shift away from action observation and improvement in learning evaluation of the incident to the completion of an AAR within the given time frame and the preservation of incident-specific context. The time-based focus on documentation often limits the amount of time for, as well as the quality and quantity of results obtained from, RCA and the evaluation process. This emphasis upon time-based deliverables is just one minor variation within a standardized approach that changes the underlying purpose of the AAR from one that promotes quality

improvement to one that preserves incident context and institutional learning. Therefore, the net learning contributions from an AAR that contributes to quality improvement in the preparedness field are decreased.

A challenge seen within the different fields of preparedness pertains to the assessment of capabilities (Stoto et al., 2013). The HSEEP guidance references analysis of the core capabilities, as established by the NPG and sorted by mission areas. This new framework may not translate well for different sectors outside the emergency management setting. For example, FEMA has a single core capability entitled “Public Health and Medical Services,” versus the CDC’s fifteen public health preparedness capabilities, and the Assistant Secretary for Preparedness and Response’s (ASPR) eight healthcare preparedness capabilities, for a combined total of twenty-three health-related capabilities. Currently, no published national standards exist for how these twenty-three capabilities fit into the Core Capabilities framework and how evaluation should be standardized to meet the needs of both. The CDC and ASPR capabilities are not sorted by the mission areas reflected by the NPG, making integration of all of the capabilities more difficult. Finally, HSEEP exercise guidance has not been updated to include the components of these health-related capabilities that lie outside the Core Capabilities, leaving the fields struggling to apply the HSEEP framework to their practice.

Exercising Preparedness Capabilities: A Government Funding Requirement

Exercising plans is recognized by the public health preparedness and emergency management fields as action needed to build preparedness capabilities and enable an effective response that will minimize illness, injury, social disruption, and the loss of life (Seid et al., 2007; Tierney, Lindell, & Perry, 2001). For this reason, the process of exercise planning, execution, and analysis is an implementation requirement for three federal government funding programs (CDC’s PHEP, FEMA’s Department of Homeland Security [DHS] Homeland Security Grant Program, and the ASPR’s Hospital Preparedness Program [HPP]). Exercises conducted with FEMA support are to be managed and executed in accordance with HSEEP, and FEMA-supported grantees must develop AARs and IPs after the completion of FEMA-funded exercises. For this requirement, the use of HSEEP templates for the AARs and IPs is strongly encouraged. ASPR’s HPP cooperative agreement requires awardees to determine how healthcare coalitions will address multiagency coordination during response. The HPP cooperative agreement requires grantees to perform regional exercises to test this capability to comply with Title II, Section 201 of the Pandemic All-Hazards Preparedness Act of 2006 and participate in an annual exercise or real incident that tests preparedness and response capabilities. The CDC, as the granting agency, reports to the Secretary of Health and Human Services within a year of the funding on the strengths and weaknesses identified through such exercises, and on the corrective actions taken to address material weaknesses. In all of these federally funded programs, the use of HSEEP methodology is strongly encouraged.

Exercising Preparedness Plans

Preparedness exercises identify both strengths and deficiencies within preparedness planning and training (FEMA, 2002; Rottman, Shoaf, & Dorian, 2005; Perry, 2004; Tierney, Lindell, & Perry, 2001). Educating personnel on disaster plans and procedures through the hands-on practice of exercising can reveal gaps in resources, inter- and intra-agency coordination, planning weakness, and confusion among personnel concerning their specific roles and responsibilities (Biddinger et al., 2008; Biddinger et al., 2010). Quantitative results of “hands-on” experience obtained through exercising have confirmed the transfer of preparedness knowledge and concepts into actionable competencies (Rottman et al., 2005; Perry, 2004; Uden-Holman et al., 2005). This transfer of knowledge is achieved by incorporating content material composed of training and plans into an applied exercise learning environment requiring personnel to make focused, action-based decisions built upon the organization’s preparedness plans (Rottman et al., 2005; Perry, 2004). Additionally, exercising preparedness plans strengthens the operational relationships between personnel within and outside of an organization, enhancing interagency collaboration (Perry, 2004; Tierney, Lindell, & Perry, 2001). Perry (2004) demonstrated that exercising preparedness plans and protocols enables the establishment of working relationships among colleagues. Effectiveness was determined by Perry (2004) as increased communication between disparate agencies and decreased response times. Effective working relationships have shown to facilitate successful performance during disaster response (Perry, 2004). Finally, connecting plans to actions enables the detection of difficulties, deficiencies, and/or strengths in operationalizing proposed planning strategies as well as determining the effectiveness of established protocols (Perry, 2004).

Quality Improvement As a Foundation for Preparedness

Real incidents and emergency preparedness exercises offer opportunities for public health and emergency management agencies to improve personnel response behavior or to address system deficits in programs or service areas. Identifying issues and areas for improvement through the AAR process offers the opportunity to apply the concept of continuous quality improvement as root causes of issues are addressed through the implementation of corrective actions and improvement is achieved. In both the practice and academic approaches to the practice of after-action reporting, there is consensus that preparedness systems require exercise and evaluation approaches that are embedded in a culture of quality improvement (Duffy & Moran, 2011).

In state and local emergency preparedness and response, AAR practice currently resides as relatively unharnessed potential. One possible barrier to improving systems through the AAR process, perhaps, is an emphasis on programmatic requirements by emergency preparedness funders and unrealistic timelines for report submission over a true

learning emphasis that would be a fundamental component of creating the AAR document. In our view, a key component of improving learning is the adoption of RCA.

RCA aims to identify the true cause of a problem and the actions necessary to eliminate it with a permanent solution rather than continuing to address the symptoms. RCA is utilized among various organizations and originated from the chemical, aviation, and nuclear power industry fields (Oaks, 2012; Percarpio, Watts, & Weeks, 2008; Carroll and Rudolph, 2002; Bagian et al., 2002; Rooney and Heuval, 2004). Within these fields, high-risk incidents can result in devastating consequences. Such incidents lend themselves better to qualitative analysis of system failures rather than quantitative, since the event or incident does not occur frequently (Oaks, 2012). In RCA, it is important to determine, often by using one or more tools to separate it from exercise or incident symptoms, what happened during an incident or exercise, why it happened, and if the situation is a problem, how to potentially eliminate the problem so that it will not happen again. RCA practice is based on the premise that problems are best solved by correcting or eliminating the fundamental causes, as opposed to merely addressing short-term or obvious symptoms.

The OPFOR's emphasis upon identifying the "why" of an incident's action and the emphasis upon accountability to find a permanent solution is an illustration of the application of RCA. RCA was incorporated into the medical field in 1996, when the Joint Commission mandated RCA to be utilized to investigate incidents that resulted in serious, unanticipated patient injury. Afterwards, health and medical centers across the United States and internationally began using RCA to improve patient safety (Percarpio, Watts, & Weeks, 2008; Middleton, Walker, & Chester, 2005; Taitz et al., 2010; Institute of Medicine, 1999). RCA is now the industry and medical standard for analyzing system failures causing adverse incidents and sentinel events.

Both RCA and quality improvement have the opportunity to enhance programs. In order to accomplish this goal, educational tools are needed at all levels of an organization. Tools are needed to show how the utilization of this practice can not only assist in the accomplishment of discrete deliverables but to be used for improved outcomes. Practitioners who have embraced a RCA and/or quality improvement methodology could develop peer sharing or peer exchanges as a method to advance RCA and/or quality improvement methodology; in turn, researchers and academic communities could utilize these operational experiences into a systematic case study or similar framework for translation into promising practice.

Quality Improvement Achieved through After-Action Reports and Improvement Plans

For AARs to drive quality improvement in the preparedness process, the root cause behind response performance deficits needs to be identified and the corrective actions developed to address the deficit must be implemented (Singleton et al., 2013; Seid et al., 2007). HSEEP attempts to address this concern through the incorporation of an IP template into its

AAR-generating process (FEMA, 2007). The purpose of the IP is to connect the root causes behind lessons learned identified in the AAR to specific, concrete and actionable corrective actions in the IP (FEMA, 2007; Savoia, Agboola, Biddinger, 2012). The HSEEP IP is developed as a matrix that links the response deficit, recommendation for improvement, corrective action, agency responsible for implementation of the corrective action, and the agency point of contact together for ease of tracking the change needed for response improvement (FEMA, 2007).

HSEEP AAR and IP templates are used for continuous quality improvement in various federal agencies involved in emergency preparedness activities via the implementation of exercises and real incident reporting recommendations and corrective actions. HSEEP guidelines (FEMA, 2007) define recommendations as a “description of steps that must be taken to address areas for improvement,” and corrective actions as “specific and measurable steps developed from the recommendations that when implemented will result in improved preparedness.” HSEEP guidance also instructs on the importance of root cause identification (FEMA, 2006; FEMA, 2007). However, this instruction is limited and has only been included in the guidance since 2005.

Organizational Challenges to Exercise Evaluation via After-Action Review and Reports

Preparedness systems require a continuous process of planning and exercising against potential threats, measuring performance through indicators and metrics, and implementing and testing improvements (Altevogt, Pope, & Shine, 2008). DeGrosky (2005), in his report on *Improving the After Action Review Process*, defined the after-action review as a process through which exercises or incidents are retrospectively analyzed to identify issues needing remediation as well as to identify successful or promising practices. The AAR is the final written product of the after-action review process. AARs are developed in various formats including the HSEEP template format. AARs generally include a summary of the event/incident and strengths and weaknesses of the response actions.

In addition to military and government incorporation of AARs described in a previous section, the after-action review process can be seen in other disciplines such as healthcare and business. In a review of AARs from these disciplines, however, DeGrosky (2005) notes the similarity between these disciplines utilizing AARs is more of a “borrowing of techniques from other industries and disciplines, with emphasis placed on rapid integration rather than optimal design, acceptance, and performance.” Agencies tended to adopt the technique without seeking to adopt the possibility of the technique’s use in a broader culture of continuous learning.

Deficits in Exercising Preparedness Capabilities and After-Action Reporting

Historically, exercise results have been used to demonstrate performance, and by proxy, preparedness, despite the fact that metrics have not been established to measure

preparedness. Public health preparedness systems have been identified as requiring a continuous process of planning, drilling, and exercising against indicators and metrics, as well as implementing and testing improvements (Altevogt et al., 2008). While exercises can be used to test operational capabilities, there are researchers who believe that the exercise outcomes have not been linked to clear performance standards and metrics (Nelson, Lurie, & Wasserman, 2007; Gebbie, Valas, Merrill, & Morse, 2006.). A 2006 RAND study indicated that while many public health departments use exercises as the primary method to measure preparedness, exercise performance was often identified as a success summarized in an AAR without reference to a priori goals and measures or precise objectives and metrics. This study found that the focus is often on the mechanics (i.e., submitting a timely AAR versus substantive improvements and follow through on Corrective Action Plans [CAPs]). This study found neither a generation of measurable corrective actions nor the costs of those corrective action implementation processes, which may include future exercises. As a result, there is a lack of quantitative data to document real forward progress (Shugarman et al., 2005). Concurrently, current CDC PHEP AAR reporting requirements appear to mirror this solitary emphasis upon the timely submission of an AAR through their Emergency Operations Coordination capability performance measure entitled “Time to Complete a Draft of an AAR and IP.” Since the process of exercise planning, execution, and analysis is part of the implementation requirements for emergency management, healthcare, and public health federal funding programs, it can be extrapolated that there may be merit to recommending stronger emphasis upon continuous quality improvement across these components of emergency preparedness and response.

As a result of the September 11, 2001, attacks, the 9/11 Commission conducted an after-action review of that incident and identified five primary themes as IP items (problems implementing plans, making sure that federal agencies are working together, failures to communicate, failures to share, failures to plan). However, despite federal, state, and local governments exercising operational plans and using a scientific cyclic and progressive methodology in a post-9/11 world, Hurricane Katrina demonstrated the fact that similar, if not identical, IP items were cited as in the 9/11 cross-agency report. As previously noted by Donohue & Tuohy, the same lessons and issues continue to be identified, the same lessons continue to be “learned” – but what is the process that underlies the lesson? Failure to learn is due, in part, to a lack of systems to identify and disseminate lessons. Absent this, there can be limited confidence that a remedy will work, and that kind of quality improvement analysis will be rare, and learning will not be not evident (Donahue & Tuohy, 2006).

To be able to effectively develop actionable solutions to improvement areas identified through exercises or real-world incidents, it is imperative that root cause(s), or the underlying reason(s) behind an identified issue, be uncovered and incorporated into AARs (FEMA, 2007; FEMA, 2012a). RCA was incorporated into HSEEP methodology in 2005 as

the primary method for analyzing the underlying issues behind successes and failures during incidents and exercises (FEMA, 2006; FEMA, 2007).

Root Cause Analysis As a Component of Exercise Evaluation and Quality Improvement

RCA is a qualitative, retrospective, quality improvement tool used to analyze adverse incidents and sentinel events (e.g., a preventable error leading to death, serious physical or psychological injury, or risk of such injury) at the lowest system level (Percarpio et al., 2008; Woodward, 2004). RCA answers three basic questions: What failed? Why did it fail? How do we prevent it from failing again? (Oaks, 2012; Bagian et al., 2002; Rooney & Heuval, 2004) Although the RCA framework may vary depending on the implementing agency or organization, the foundation for the process is consistent as follows: an adverse event is analyzed for primary, system-based, causal factors, and corrective actions for improvement are then developed to prevent the event from recurring (Percarpio et. al., 2008). RCA is applied when the frequency of occurrence of an adverse outcome is low and the potential impact of the adverse outcome is high (Oaks, 2012).

Problem solving focuses on identifying solutions to problems, and RCA focuses on identifying the causes of problems (Oaks, 2012). The combination of RCA and problem solving leads to the development of corrective actions intended to address underlying system problems causing adverse outcomes (Oaks, 2012).

RCA separates systems into components and then assesses the effects of each component on individuals using the system and the system itself (Oaks, 2012; Rooney & Heuval, 2004). A multidisciplinary team uses RCA to determine the primary systemic causes of the adverse incident without placing blame on the individuals involved (Percarpio et al., 2008; Carroll & Rudolph, 2002). Multiple investigators participating in RCA increase the validity of the findings (Oak, 2012). RCA is affected by the quality of input data, team member bias (such as blaming individuals), or fear of being blamed instead of focusing on searching for system fails and recall bias (Oaks, 2012; Percarpio et al., 2008). The outcome of RCA is corrective actions developed to prevent similar adverse incidents from occurring again.

Increasing Quality Improvement through RCA in After-Action Reporting

Currently, HSEEP AAR templates and documents do not instruct users on how to align real incident objectives and activities with queries designed to elicit an understanding of the root causes behind real incident issues or observations (FEMA, 2006; FEMA, 2007). Singleton et al. (in press) reviewed a cohort of real incident (2009 H1N1 influenza pandemic) state and local public health AARs and IPs using the HSEEP guidance as a reference benchmark for comparison. This work determined the extent to which state and local public health entities followed the HSEEP AAR template in their H1N1 incident response AARs, and the extent to which the HSEEP template facilitated the identification of detailed corrective

actions and continuous improvement. The results of the study indicated a possible lack of distinction of purpose between the corrective actions and recommendation sections within the HSEEP AAR template. IP/AAR recommendations, rather than corrective actions, were found to be more focused on addressing the root cause of identified issues.

As mentioned earlier in this chapter, several federal funders recommend the use of the HSEEP process. These funders encourage the sharing of AARs via the LLIS (www.llis.gov), which is a DHS/FEMA online library of AARs, documents, and user-submitted materials related to all aspects of homeland security and emergency management in order to facilitate collaboration among members of the emergency management community. The AARs posted on LLIS are user-submitted and it is not clearly evident as to whether or not these AARs were submitted in the “draft/recommendation development” phase or are considered “final.” AARs posted to the user-submitted LLIS website are not accompanied by any federal agency context or commentary and are solely organized by topic area. Users have the option to comment upon posted AARs, and the LLIS website does not contain a formal LLIS review for each of the posted AARs as to “what changes may need to be made to the evaluation of plans and procedures, organizational structures, leadership/management, performance improvement (including training recommendations), or future evaluation approaches to similar problems.”

Although the LLIS site contains reports entitled “Lessons Learned,” “Good Stories,” and “Practice Notes” that are researched in consultation with subject matter experts or identified in AARs, the site clearly notes that the AARs listed should not be considered peer-reviewed research. LLIS-produced “Best Practices” are peer-reviewed by a panel of subject matter experts, but it should be noted that the “Best Practices” identified do not articulate an official “standard” or metric as to what should be contained in the ideal AAR. However, if AARs submitted to federal funders or public sharing sites such as LLIS are considered “final” and continue not to include detailed corrective actions addressing root cause, additional studies may be needed to determine possible reasons why either (a) the published LLIS reports do not reflect actual RCA discussions or (b) why RCA did not occur. Further studies may be needed to determine whether corrective actions addressing root cause are being incorporated into AARs as HSEEP recommends. Exercise and real-incident reporting may also benefit from studies of how post-incident root cause identification is solicited, facilitated, and captured. Finally, a better understanding of how jurisdictions plan to implement or address AAR findings (as either a recommendation for improvement or as a specific action item) may provide useful information as to how quality improvement aspects are built into AARs. Results can then be used to develop guidance that can be defined, translated, and disseminated throughout the emergency preparedness and response community.

Summary

Current federal after-action review and exercise guidance and practice can be optimally leveraged to better disaster response performance and advance quality improvement in federal, state, and local preparedness practice by encouraging jurisdictions to embrace the quality improvement process as a fundamental component of creating the AAR document. AARs used for quality improvement are not useful unless the lessons learned are translated into implemented solutions. For AARs to drive quality improvement in the preparedness process, the root cause behind response performance deficits needs to be identified and the corrective actions must be implemented to address the deficit. HSEEP AAR templates and documents, the current industry standard for AAR development, do not instruct users on how to align real incident objectives and activities with the root causes behind real incident response issues. Further studies may be needed to determine how post-incident root cause identification is solicited, facilitated, and captured.

A PRACTITIONER'S PERSPECTIVE

Introduction

In order to effectively compile and improve upon lessons learned from an AAR, a balance between the process that standardizes assessment of exercises and one that standardizes the evaluation of real incidents is needed. The establishment of a culture of continuous improvement that promotes organizational learning from one incident to the next that forms the critical component for evaluation (Stoto, et al., 2013). Research on the use of quality improvement processes within public health indicate that communities do not follow through on identified lessons learned and improvements from exercises (Nelson, Lurie, & Wasserman, 2007). Ensuring that a given community can critique its response to a given real incident in a way that the lessons learned can be identified and transferred to the next incident or, for that matter, any incident within another community remains the focus as many of the same mistakes are continuously made (Auf der Heide, 1989). When communities and organizations do not correct their own deficiencies and do not learn from mistakes, a culture of continuous quality improvement is inhibited (Auf der Heide, 1989).

This culture of continuous improvement requires both equal value placed on diligently accomplishing the mission at hand and attention to the demands of improvement processes that necessitate honest assessments for how to achieve greatness (Collins, 2005). Similarly, when establishing real incident evaluation methods, using a flexible, yet structured evaluation process in which resources can be leveraged most appropriately may result in more robust AAR products that can be used to support a culture of quality improvement. The results of such an approach may likely result in more practical and robust AARs with IPs that can be used to facilitate organizational learning.

In this section of the chapter, distinctions between exercises and real incident evaluation are explored alongside the tensions that these differences bring about for preparedness evaluation. Suggestions for ways in which jurisdictions can practice quality improvement more frequently to increase saliency are also considered. The practitioner approach to creating a culture of quality improvement centers on the development of a scalable, flexible evaluation structure and process for real incidents. This standardized framework expands upon the traditional HSEEP methodology currently utilized for exercise assessment and identifies quality improvement gaps that can be minimized moving forward. Discussion concludes with the importance of leveraging resources needed to implement a real incident evaluation framework that facilitates knowledge sharing and promotes a culture of continuous quality improvement.

Differences between Exercise and Real Incident Evaluation

Large-scale disasters are important means by which lessons learned from real incidents can be incorporated into practice, thereby improving a community's preparedness. The 2009-2010 H1N1 influenza pandemic is a prominent reminder of how complex this type of evaluation can be for any jurisdiction, as it comprised a multi-sector coalition of public health, emergency management, and public safety resources. For example, in Rhode Island this response lasted a total of 436 days, in which a robust command structure was managed by the Rhode Island Department of Health alongside representatives from various government agencies (Cunningham & Rajotte, 2012a; Cunningham & Rajotte, 2012b; Rhode Island Department of Health, 2010). To capitalize on the lessons learned from this multi-sector response, the Rhode Island Department of Health worked with its partners to establish a robust evaluation function within the Incident Command System (ICS) that provided a framework for documenting institutional knowledge, promoting lessons learned, and conducting RCA as part of quality improvement. Upon complete demobilization at the end of the response, a 771-page AAR and IP had been developed, reviewed, and finalized following the HSEEP format that served as the basis for the agencies' organizational improvement processes.

Real incidents provide practitioners with a unique opportunity to evaluate emergency preparedness activities in a more realistic way than exercises do, because real incidents represent a response system's activation and interplay (Jackson and McKay, 2011). Furthermore, since exercises are costly and there is an identified need for more realistic exercises to determine more than just the ability to execute a plan, large-scale real incidents or even smaller, routine, non-emergent proxies may offer promise to evaluators looking to assess a jurisdiction's response system under incident-like situations (Jackson and McKay, 2011).

Ideas such as the development of an incident learning system can assist in preventing disasters, accidents, and the associated losses (Cooke and Rohleder, 2006). Using a small-scale proxy incident in lieu of exercises to test plans, validate response systems, and promote organizational learning may be an effective way for practitioners to achieve the balance in reducing exercise costs, resource needs, and simulation while increasing the inputs into an incident learning system. In order to do this, jurisdictions may have to determine what kinds of traditional jurisdictional problems might be good proxies for organizational learning and growth (e.g., application of ICS to a water main break, small foodborne-illness outbreak, apartment fire, or polio eradication). Lastly, practitioners may consider lessons learned from real incident lessons to be the most reliable sources for quality improvement in preparedness and response efforts. These types of incidents can help increase the frequency of response practice and evaluation outside the confines of simulation by establishing a routinely used learning process that may be leveraged to

combat complacency and deter unintended consequences from occurring during a real, large-scale incident (Cooke and Rohleder, 2006).

When evaluating preparedness via real incidents, one issue faced by emergency management, public health, and other public safety practitioners is unclear real incident evaluation guidance. While HSEEP provides a concrete, systematic process for evaluation of an exercise, HSEEP is much less clear in its guidance about the application of the methodology to real incidents and how to systematically synthesize lessons learned from multiple incident AARs (Savoia, Agboola, & Biddinger, 2012).

According to researchers, the preparedness community, despite using exercise standards included in HSEEP, is still deficient in its ability to evaluate if its response systems will be effective during a real incident (Jackson and McKay, 2011). Part of this may be due to continued emphasis in exercise doctrine that an AAR captures observations of an exercise, makes post-exercise recommendations, and identifies corrective actions for overall improvements (FEMA, 2007). The controlled, often isolated, nature of an exercise allows for relatively strict adherence to project and program management guidance within the HSEEP cycle, but the reliance upon solitary capabilities can be cumbersome and limited in its translation to dynamic, real incidents, such as the 2009-2010 H1N1 influenza pandemic (Savoia et al., 2012). It is this tension between exercise artificiality and real incidents that has led to the implementation of the after-action review process, as well as generation of the actual AAR, to be based upon a technique that is composed of confusing context (i.e., HSEEP exercise instruction). In turn, because practitioners may be unclear as to the application of exercise elements to real incident practice, there have been disparate approaches and inconsistent knowledge facilitation in the preparedness community (DeGrosky, 2005).

The lack of standardized methodology and complementing guidance as to how to capture these lessons learned from real incidents leaves a gap in the evaluation and quality improvement process within preparedness efforts. To address this gap, there is a distinct need to uniformly define an AAR learning process that identifies a real incident situation, what to measure, how to measure it, when and where to organize measuring it, and the appropriate review audience.

Varying Perspectives on Developing AAR Documentation

The development of AARs for real incidents is generally developed with several competing purposes that lead to unsystematic approaches, among other challenges (DeGrosky, 2005). To an individual or a local agency that has recently experienced an incident and mounted a significant response, the AAR may solely serve as a record of the incident or event archive. Given the realities of an actual incident, the AAR also may serve as a realistic depiction or benchmark for the success and/or failure of a response system, portrayed as a summary of lessons learned (Jackson & McKay, 2011).

The AAR can, however, represent the result of a mechanism to develop highly reliable responses, assess current capabilities, identify promising practices, quantify achievements/measurements, and perhaps even remember what not to do in a future response (Cooke & Rohleder, 2006). From the point of view of a research organization or national entity, such as an academic institution or a government funding agency, the AAR serves as a means to promote organizational learning by identifying and further studying the root cause of errors of causal relationships, as evident by national incident investigations (Cooke & Rohleder, 2006). Doing so entails placing value on learning from mistakes, developing corrective actions, and initiating wide-ranging quality improvement. Research suggests that future HSEEP guidance may need to promote root cause analysis and more specific corrective actions within AAR templates for real incidents to achieve this type of organizational learning (Singleton, DeBastiani, Rose, & Kahn, 2013).

Whether the focus is on public health, emergency management, or another sector, all purposes for development of an AAR are important for the preparedness and response community. Each purpose needs to be considered in the development of a standardized and practical after-action review process for real or small-scale proxy incidents. Moving toward a balance between preserving institutional knowledge and learning from this knowledge through the development and tracking of corrective actions that address the root cause may prove beneficial.

Leveraging Knowledge and Real Incidents to Establish Quality Improvement Efforts

As evident by a recent study of AARs within the preparedness and response arena, there is a large focus on preserving institutional knowledge instead of root cause analysis (Singleton et al., 2013). Within this focus, knowledge acts as “a justified belief that increases an entity’s capacity for effective action” (Alavi & Leidner, 2001). From this definition, knowledge can be viewed as a state of mind, an object, a process, a condition of having access to information, or a capability (Alavi & Leidner, 2001). By defining knowledge in this way, the idea encapsulates the motivation for an agency to at least compile the event synopsis section of an AAR to include the preservation of institutional knowledge by

- archiving an actual event,
- assessing capability at one point in time,
- demonstrating the meeting of performance measures, and
- documenting lessons learned with respect to performance of a response process.

In order to complete the cycle, practitioners may need to shift focus to another driver of AAR development: quality improvement. Quality improvement places emphasis on the cyclical nature of knowledge sharing and comprises systematic and documented activities geared toward a learning process or improvements. In contrast to HSEEP, where the exercise and its goals, as well as the evaluation standards, are planned through exercise

evaluation guides, improvement and corrective action planning for real incidents requires a slightly different model and approach. Real incident evaluation requires devoting significant time and energy into retrospective analysis, such as RCA, in which errors are investigated. This method “provides a structured and process-focused framework with which to approach sentinel event analysis” (Wald & Shojania, 2001). The benefits of this technique include addressing organizational and systems issues, discovering root causes of accidents and problems within a response, and helping to prevent them from recurring, thus assisting in the development of a more highly reliable response system founded on continuous quality improvement.

Formulating corrective actions, a cornerstone for quality improvement, has been observed to be more difficult than actually finding the problems (Wu, Lipshutz, & Pronovost, 2008). To further understand the importance and purpose of targeted corrective action planning, it may be helpful for practitioners to think about continuous quality improvement in terms of real incidents, because during a response, solutions to problems are usually generated throughout the response as those problems arise. By utilizing the action offices that can institute strategic and tactical change, real incident evaluation efforts can avoid generating results with limited applicability. This will ensure that the corrective actions themselves are based on the causes of the errors, challenges, or miscalculations (Wu et al., 2008).

Looking at the continuous quality improvement cycle in the context of real incidents may be a realistic way to envision the purpose of corrective action planning in the emergency management domain. Formulating corrective actions has been observed to be more difficult than actually finding the problems (Wu, Lipshutz, & Pronovost, 2008). Additionally, follow-up on corrective actions and overall outcomes has been noted to be rare (Wu et al., 2008). RCA is many times incorrectly or incompletely utilized, therefore generating results with limited applicability (Wu et al., 2008). Researchers have demonstrated that in many organizations the after-action review is inappropriately focused on identifying the “single most fundamental reason” for error (Wu et al., 2008). Sometimes corrective actions are also confused with recommendations and helpful items an organization should remember to continue to do, which may be why organizations tend to think an IP is equivalent to quality improvement. According to some researchers, quality improvement and the skills required for the pursuit of this discipline within an organization must be broadly disseminated, establishing a base of learning organizations and quality improvement practitioners to really accomplish this goal (Lotstein et al., 2008).

Proposed Processes for Preparedness Quality Improvement in Practice

There is an opportunity for practitioners and academics to leverage established incident management systems to promote quality improvement and a learning environment. When developing an AAR for real incidents, effective compilation of an AAR requires a structured

process and a commitment to organizational learning within the agency. Trained evaluation staff can be brought in to systematically develop the AAR.

Given the fact that many fields and jurisdictions have adopted the implementation of ICS as the standard response structure, and the emphasis ICS places on scalable organizational structure, it is only rational to propose an evaluation structure using the same tenets. The Planning Section ensures that the direction and guidance for managing response activities is incorporated by the entire system. It is naturally a well-suited home for the evaluation function to reside. The evaluation elements are scalable based on the size, scope, and type of incident. Evaluation elements can be organized into single resources, strike teams, task forces, or any combination of the three.

If the human resources tasked with the after-action review process have only been trained in the mechanics of AAR production, without the understanding of and motivation to promote quality improvement, then learning is less likely to occur and benefits from AAR production will be minimal (DeGrosky, 2005). This reinforces the need for making the appropriate resources available for the development, implementation, and follow-through of evaluation activities.

Once a formalized, yet flexible structure is established, a guiding set of principles needs to be established to facilitate the evaluation process. A recommended timeline for implementation and an approach to minimize duplication of work within the response must accompany the structured process. The extent to which a standardized process is incorporated into each response varies with the same incident-specifics and evaluative purposes previously described. In this instance, increasing the perceived value on evaluation is reliant upon decreasing agency burden and increasing systematic preparation and practice.

By expounding upon the functions of the other units within the Planning Section, along with other ICS roles, the preparation of the AAR and other evaluation products can begin almost immediately within a response and then be sustained until the response organization is demobilized. All of this is also done while minimizing duplication of work and distributing the evaluation burden, in particular with AARs, throughout the response. Key to the success of this process is the development of an evaluation plan to outline expectations (which vary based on each response), excise superfluous steps, forecast resources, ensure that demands are in line with the reality of the situation, and ensure consideration of long-term maintenance of corrective action planning. A significant benefit from this proposed process is that it can be tailored to the most skeletal form for a small-scale or routine event or expanded to include all elements for complex, prolonged, or large-scale events requiring extensive evaluation.

By making this a consistent process approach, evaluation of a small-scale or even routine incident can be done using this format to practice quality improvement techniques,

such as RCA using a scenario that is not simulated. This use of real incidents can lead to quality improvement for all programs, not just those associated with preparedness. For example, if jurisdictions are experiencing an outbreak of a community-acquired infection, why not entice organizational learning by using ICS to manage immunization Point of Distribution/Dispensing (POD) and then evaluating the incident to promote quality improvement?

Resource Availability for Real-Incident Quality Improvement

In order for practitioners to develop AARs that focus on continuous learning using quality improvement and RCA, it would be remiss to not specifically address the need for improving evaluation and quality improvement staff competencies. Evaluation may appear mundane in comparison to the adrenaline-fueled life safety and other missions of a given response, but it is in and of itself a highly analytical function for which guidance is not the most forthcoming. More specifically, since there is limited guidance in HSEEP about RCA, preparedness evaluators are not trained in using such techniques during AAR development. Therefore, in the current climate, it may be productive to have dedicated subject matter experts on evaluation and continuous quality improvement engaged as change agents to support this real incident evaluation methodology. It may behoove the community to consider a model in which those trained in quality improvement, such as those working on accreditation and other similar efforts, place and renew response staff within the structure to carry out this mission. This would require the cross-training of action office personnel and responders in both HSEEP and quality improvement training. A notion like this is of particular importance when prolonged incidents requiring more than one type of evaluation project are being launched.

During the H1N1 responses within the United States, it is possible that several evaluation projects may have been initiated within a given jurisdiction. These projects ranged from AAR development to preparation of medical journal article publications. All these projects required data management, treatment, and coordination. When grant reports, performance measures, program reports to funding agencies, calls for promising practices, and the like are requested of response organizations, evaluation, knowledge facilitation, and quality improvement skills become key. Reducing awardee burden and maximizing organizational and resource potential is critical. It is easy to envision a scenario for H1N1 where grant reports for four CDC funding streams, extensive AARs, program progress reports for preparedness, laboratory, and immunization programs, along with academic interest to partner with epidemiological and health data specialists, exist at the same time. This all can be initiated and retained in the same evaluation structure.

By providing such resources to this function, regular practice in the process is inherent, since, for example, the national focus on PHAB, PPHR, and the National Public Health Performance Standards Program (NPHPSP). These three national programs were

created to assess the capacity and performance of local and state public health agencies with more coordination (Baker and Koplan, 2002). This coordination provides an opportunity to incorporate evidence-based efforts and new human capital into real incident evaluation. Doing this type of assessment and coordination will likely reinforce and ensure that quality improvement and organizational learning resulting from an AAR are achieved.

According to at least one set of researchers, it has been demonstrated to be crucial that documenting response and real incident performance of the public health, emergency management, and public safety systems post-emergency requires the development of additional methods that align doctrine, technique, and resources (Baker & Koplan, 2002). This also may lend itself to a broader, very practical model in which such resources may be “typed” in accordance with the National Incident Management System (NIMS) and allow for peer assessments within this proposed framework, increasing opportunity for and decreasing host-agency burden associated with real-world evaluation. These resources can ably fulfill the role of knowledge facilitator.

Summary

Given the competing priorities for and purposes of AARs by various organizations with different viewpoints, it is essential that continuous quality improvement becomes a focus and driver of AAR development across the emergency preparedness industry. This notion must be further defined and maintained through a flexible but standard approach, balancing all stakeholder needs and requirements. In doing so, it is important to ensure that such a solution incorporates the needs to outline a process, allow for routine practice, have systematic application, and facilitate knowledge sharing and improvement tracking. While it may appear simplistic in presentation, the practitioner model requires academia and researchers to ensure that a culture of quality improvement from AARs is supported by the following:

1. Streamlining of guidance and expansion of programs such as HSEEP to include real-life incidents and quality improvement techniques
2. Researching the benefits of real incident evaluation compared to exercise assessments
3. Examining the use of small-scale proxy incidents to simulate real incident conditions and reinforce routine use of response and evaluation systems
4. Developing a disciplined, flexible, and scalable evaluation structure and process that operates independently of the measurement standards chosen to evaluate the real incident
5. Using knowledge-sharing techniques in combination with a standard, yet flexible, evaluation process to increase lessons learned, preserve event history, and refine system mechanics for real-life events in which institutional knowledge remains a basis for organizational learning

6. Blending quality improvement principles into the evaluation process to target root cause analysis and conduct corrective action planning and tracking
7. Determining a cross-training mechanism for the additional resources needed for quality improvement in preparedness

Knowledge is developed by learning, retained for further treatment, transformed into written material, distributed through systems and expert networks, and finally, applied as needed (Wiig, 1999). Within this quality improvement opportunity, having a more robust knowledge facilitator as part of the after-action review process has the potential to increase knowledge sharing among all organizational levels, programs, and projects post-incident (Roth & Styhre, 2002). Real incident evaluation may offer practitioners a unique venue for the development of such culture.

BRIDGING THE DIVIDE

An Introduction

Quality improvement still remains to be integrated as a primary driver for exercise and real incident evaluation within the emergency preparedness culture. Although the April 2013 revised HSEEP guidance contains references to RCA and quality improvement, and a brief statement suggesting evaluators should attempt to trace adverse events back to their origin and respective causes, there is still potential for greater leveraging of an RCA and quality improvement methodology within preparedness. To further complicate matters, there is a lack of training on RCA and quality improvement within the emergency preparedness community, including HSEEP practitioners. Additionally, as jurisdictions practice and refine their capacity to achieve capabilities in the HSEEP evaluation framework, the AAR focus needs to shift from not only recording institutional knowledge, but also to organizational learning in order to fully embrace a culture of quality improvement. This section will discuss significant challenges to the integration of quality improvement into the emergency preparedness culture and provide considerations for future integration of quality improvement within the practitioner and academic/research communities.

Quality Improvement Culture Is Not Integrated in Preparedness Guidance

The 2013 HSEEP revisions include suggested Exercise Evaluation Guides (EEGs) for the NPG core capabilities that contain a rating scale of: P – Performed without Challenges; S – Performed with Some Challenges; M – Performed with Major Challenges; and U – Unable to Be Performed. Although there is space identified on the EEG for evaluator comments, there is not an explicit directive on the EEG to prompt the evaluator to document the observations in light of data elements that would facilitate RCA. The HSEEP-suggested AAR template, revised in April 2013, contains a “fill-in-the-blank” section within each NPG capability that simply states “Analysis: Provide a root cause analysis or summary of why the full capability level was not achieved” (FEMA, 2013d). Additionally, the EEGs are currently designed for exercises and do not seamlessly transition to the five mission areas of the NPG capabilities for tasks of real incidents. These EEG templates do not promote the RCA guidance mentioned in the HSEEP doctrine itself and further minimize the importance of quality improvement as a facet of exercise and real incident evaluation.

Although the HSEEP guidance documents cite the topic of RCA, a significant challenge to operationalizing the HSEEP methodology in light of an RCA/quality improvement approach is the lack of featured documents in the HSEEP portfolio that highlight the “Analysis” section with specific RCA components. The revised LLIS site highlights “good stories” and AAR “Quick Look” reports that identify “what happened” and identify “Areas of Strength or Improvement” in incidents or exercise AARs but the concept of

“why something happened” or explicit verbiage citing root causes to incident response is absent in all of the currently published examples.

Furthermore, the current April 2013 HSEEP instructions for data collection and evaluators do not formally require that reviewers cite how the target was or was not met, the relevant decisions made and information gathered to make decisions, plans, policies, procedures, or legislative authorities used or implemented, or any obvious cause or underlying reason the target was not met or critical task was not completed. The suggested EEG templates created by the federal government contain text fields for the insertion of capability targets or critical tasks. Therefore, if the EEG instrument templates do not specifically require the completion of a text field by data collectors/observers, that prompts a reviewer to consider quality improvement techniques for effective utilization of the capability targets or critical tasks. HSEEP training may need to be revised to include discussion of these templates, including information on evaluator notes and the utility of such feedback in RCA and other evaluation methods during the after-action conference (AAC).

An AAR captures observations of an exercise or incident and makes recommendations for post-exercise/incident improvements, whereas an IP identifies specific corrective actions based upon the post-exercise/post-incident recommendations recorded in the AAR. Improvement planning is the process by which the observations and recommendations recorded in the draft AAR are presented at a multidisciplinary AAC with the development of concrete corrective actions. The IP is produced to yield a list of corrective actions that identify what should be done to address observations and recommendations, who (person or entity) is responsible, and the time frame for implementation. Recommendations are frequently observations from the evaluators or AAC attendees, without specific attainable benchmarks to monitor progress. In turn, corrective actions are to include attainable benchmarks that gauge progress toward full implementation.

An additional disconnect in emergency preparedness quality improvement discussions is the lack of agreement as to “whose” capability content should form the basis for quality improvement formulation. In traditional quality improvement Plan-Do-Check-Act (P-D-C-A) cycles, the “plan” component is based on a singular document or plan. Although the NPG core capabilities were released in the fall of 2012, the public health and healthcare sectors were operating from more operational, sector-specific capability content developed in 2011 prior to the NPG revisions. In some cases, the public health and healthcare capabilities contain the same or very similar name as a NPG core capability.

As a result of the public health and medical capabilities being complementary to the NPG core capabilities but more operational in nature, the “plan” content of a similarly named capability will have vastly different content. For example, the NPG Core Capability

“Emergency Public Information and Warning,” within the Mitigation Mission Area, contains one set of critical tasks such as “warn people of the risk in their community and the action they can take to mitigate those risks,” “communicate priorities and actions identified through risk analysis and plans to stakeholders and those expected to take action to reduce risk,” and “promote mitigation and resilience to the public through a national preparedness campaign to increase public awareness and motivate individuals to build societal resilience prior to an event” (FEMA, 2013e). Conversely, the same NPG “Emergency Public Information and Warning,” under the Prevention Mission Area, contains a different set of tasks such as “share prompt and actionable messages, to include National Terrorism Alert System (NTAS) alerts, with the public and other stakeholders, as appropriate, to aid in the prevention of imminent or follow-on terrorist attacks” and “leverage all appropriate communication means such as the Integrated Public Alert and Warning System (IPAWS) and social media” (FEMA, 2013). Lastly, the PHEP “Emergency Public Information Warning” capability contains distinctly different and operational critical tasks from the identically named NPG capability such as “prior to an incident, identify Public Information Officer, support staff (depending on jurisdictional vulnerabilities and subject matter expertise), and potential spokesperson(s) to convey information to the public” or “prior to an incident, identify a primary and alternate physical and/or virtual structure that will be used to support alerting and public information operations” or “prior to the incident, ensure identified personnel are trained in the functions they may be asked to fulfill” (CDC, 2011). These disparate tasks pose a challenge for practitioners and evaluators unless the multiple involved sectors can agree a priori to the exercise on incident tasks and activities. Given this information, many argue that more operational capabilities provide better needs assessment of the ability to respond by a given sector (e.g., public health) in comparison to the core capabilities.

Quality Improvement Culture in Preparedness Needs Further Development

Quality improvement has been found to be increasingly successful when it is integrated into routine work rather than added to pre-existing work, especially in under-resourced systems (Seid et al., 2007). It has also been noted that quality improvement must be engrained into routine management of work and not implemented as an independent system (Seid et al., 2007). In terms of public health preparedness, “integrating quality improvement and public health emergency preparedness into routine public health practice may reduce burnout, a well-documented phenomenon in overworked professionals” (Seid et al., 2007). In terms of shifting the quality improvement culture within the preparedness community, a structured organizational process must be established alongside all participating sectors that also place high value on reducing practitioner burden from overworking in an under-resourced environment.

This notion of multi-sector recognition of quality improvement is congruent with FEMA’s notion of Whole Community, in which a variety of community stakeholders can meet

together to assess community needs and decide how to (re-)organize and strengthen their assets, capacities, and interests (FEMA, 2013d). The benefits of framing the cultural shift for improved quality improvement in terms of Whole Community are strikingly similar to those of knowledge management and promote the opportunity for the use of a variety of strategies and practices to identify, review, and disseminate the teachable moments and experiences gained by human capital over time (Savoia et al., 2012). At the same time, the shift also creates a stronger social infrastructure upon which a learning organization can be built.

In an effort to achieve such a shift in quality improvement culture, the following core values must be recognized and implemented:

1. Leadership commitment to quality improvement
2. Quality strategic planning
3. Human capital investment for quality improvement
4. Information and data sharing
5. Cross-sector coordination
6. Process management (Macinati, 2008)

Quality improvement core values such as leadership commitment to quality improvement and staff commitment have been embraced by national public health initiatives such as the PHAB. These same quality improvement principles are incorporated in NACCHO's *Roadmap to a Culture of Quality Improvement*. Meanwhile, AAR guidance such as HSEEP has primarily focused upon process management of "how" to format a discussion deliverable that is intended to track actions over time. For example, the notion of using IPs as a mechanism to track continuous improvement is congruent with quality improvement principles. However, it is currently challenging on a national level to monitor this type of tracking, given limited processes, infrastructure, and cross-sector coordination. It is this type of collaboration that is needed to support a national performance-improvement process (Wright et al., 2010).

These limitations also inhibit the development of sustainable quality improvement systems that can support the facilitation of information that is accurate, trustworthy, and sufficient for decisions to be made (Preuss, 2003). An example of this challenge for practitioners is seen by the presence of differing evaluation criteria among emergency management sectors. In terms of public health emergency preparedness, there are at least five frameworks against which organizational performance can be evaluated (Gibson, Theodroe, Jellison, 2012):

- Common Ground
- PHEP
- Rand Corporation Pandemic Influenza Quality Improvement Toolkit
- National Response Framework

- National Health Security System

Despite the April 2013 revised EEG release for the NPG core capabilities, evaluation expectations are still ambiguous between the relationship of the core capabilities and sector-specific components such as the public health preparedness and healthcare capabilities. This alone creates information that is not standardized and may not be the most accurate for global decision making, especially in times of limited resources, within the preparedness community as a whole, as quality improvement requires consistency. To further complicate such information and data inconsistencies, continuously changing formats for AAR and IP submissions and performance measurement have not only increased resource burdens but also complexity. Lastly, the absence of a cross-sector approach and a revamped quality improvement culture has likely confused practitioners as traditional models of objectives, outcomes, activities, and outputs are hidden among terms such as functions, tasks, resource elements, and measures.

In an effort to establish a new quality improvement culture that integrates all six core values, practice and academia should jointly explore lessons learned from efforts such as PHAB, NACCHO, HSEEP, and any other applicable sources. They should then leverage these lessons to inform high-level preparedness decision making and create an overarching leadership commitment to consistent quality improvement efforts. Comprehensive expectations and strategies for consistent analysis within the practitioner community must be provided. On a practitioner level, the cultural shift must embrace the need to continually monitor organizational response capacity, include the resolution to train the workforce on quality improvement, and leverage resources to efficiently make quality improvement part of routine work. In addition, both research and practice must reiterate the importance of finding a balance between the “write it down” and “talk it out” strategies within the context of preparedness.

Quality Improvement Process for Real Incidents

Real incidents, as opposed to planned exercises, pose a unique challenge to the quality improvement workforce. Real incidents are similar, in terms of evaluation complexity, to exercises that have been elaborately designed so they are realistic and can be used to assess not just the execution of a plan, but how well the plan can adequately address the simulated conditions within the scenario (Jackson & McKay, 2011). In contrast to exercise development and evaluation, response or real-incident evaluation, at the time of the incident, does not formally undergo the five phases of strategy planning, design and development, conduct, evaluation, and improvement planning of interconnected capabilities.

In practice, many times a single exercise is designed to facilitate advanced scenario-specific planning, catalyze interagency coordination, educate the public, train response staff,

and evaluate preparedness activities simultaneously (Jackson & McKay, 2011). Designing an exercise that incorporates these goals simultaneously has been noted to present a challenging situation for practitioners when the different goals suggest competing priorities and varying requirements for exercise design that are found to be in conflict (Jackson & McKay, 2011). Interestingly enough, this is the exact predicament that real incidents present to quality improvement tools such as those provided by HSEEP, as each of the aforementioned goals are balanced within any given response.

The challenge then becomes deciding what evaluative benchmark is to be used in measuring competing goals of a real incident rather than a single topic, as what may occur in a HSEEP-styled exercise. Who decides how to do this in a standardized way to avoid creating additional inconsistent data and information? As public health, emergency management, and public safety agencies have utilized many disparate methods and processes for collecting and sharing post-exercise or post-incident experiences (e.g., progress reviews, debriefings, hot washes, AACs, and AARs), it is realistic to say that quality improvement for real incidents requires a consistent process (Savoia et al., 2012).

Organizational response capacity can be assessed pre- and post-incident, as post-incident evaluation tends to focus upon the recover and prepare functions (Gibson et al., 2012). In terms of post-incident evaluation, this quality improvement notion fits well, as the tie between the recover and prepare functions encompasses the many drivers for AAR and IP development, such as preservation of institutional knowledge through record keeping and the sharing of knowledge within a learning organization. Perhaps this tie can be used as a means to rethink and formalize quality improvement in the real incident setting. Is it more realistic, in the absence of pre-determined exercise benchmarks, to conduct RCA on the implementation of improvement plans from one AAR to the next? Perhaps quality improvement should more specifically focus on this notion of Whole Community whereby what is measured is not what changes in the response system post-event, but instead, what changes are made to the existing public health infrastructure and systems based upon lessons learned in a response. For example, it may be beneficial to look at the changes made to community immunization programs after the H1N1 response in lieu of looking at the changes made to an individual component of an agency's mass vaccination response system between the H1N1 response and the next similar incident.

It has been noted by at least one set of researchers that recurring difficulties in disaster response can be partially attributed to the failure of organizations to produce generalized recommendations that resonate outside of the immediate short term after an incident (Savoia et al., 2012). A formalized approach to post-incident evaluation that conducts AAR and IP development during recovery and then applies RCA in routine preparedness operations may assist in establishing this quality improvement culture. This change in preparedness quality improvement culture could better leverage resources and therefore incorporate the entire public health system. Given that jurisdictions are now

robustly familiar with ICS, one might consider ICS to be part of the routine public health and emergency management practice. Just as emergency preparedness staff personnel have implemented ICS training as part of the industry culture, this human resource can equally benefit from a more systematic infusion of quality improvement practice in daily public health and emergency preparedness activities (Seid et al., 2007). When a complex network, such as the emergency preparedness industry, integrates concepts in this fashion, the community can ensure quality improvement within the preparedness system (Seid et al., 2007).

Quality Improvement Resources Needs

The emergency management community has a prevention, protection, mitigation, response, and recovery framework, but a significant portion of its executable activities are focused upon the prevention and response aspects of that cycle. After the adrenaline passes during an exercise or incident response, it is challenging for responders to turn exercise or incident energy toward actions that support sustainable changes. Exercise or incident response actions are a reflection of the culture of the responding agency. An agency's organizational culture is developed over several years as a reflection of actions that have occurred within that agency. Time, staffing, and financial pressures for agency deliverables can compete for the systematic and eventually cost-effective planning that could occur with quality improvement efforts. This competition exists despite the concept that if a quality improvement culture is established at the individual, middle management, and senior leadership level, exercise and incident improvements can be sustained over time. If there is minimal awareness, ability, or willingness for quality improvement practice as part of the preparedness culture, or if quality improvement efforts are only occurring on a sporadic basis, it is challenging for quality improvement efforts to take root and advance an agency's development.

Future Research Agenda and Principles for Practice

Opportunities for Research and Measurement

quality improvement is a never-ending process for improvement where root causes of problems are identified and improvements (gradual or dramatic) are monitored over time to reduce variations and improve quality. Until recently, quality improvement has been infrequently practiced and considered in the public health and medical communities, and not practiced within the emergency management community. Development of validated case examples for review where quality improvement and RCA were employed could be identified by the HSEEP LLIS library staff as well as by the staff that maintain any sector-specific secure AAR repository channels. This would be particularly helpful in terms of AAR review from exercises and real incidents. A starting point may be with federal agency AARs for large-scale responses.

In turn, studies into the current utility and usage of the HSEEP CAP across the emergency preparedness community may provide valuable insight into the breadth of HSEEP usage and utility across sectors to provide opportunities that more formally include RCA and quality improvement as part of the HSEEP AAR process. The CAP currently exists as an online tool to document items from a completed IP to ensure that corrective actions are tracked and addressed. The “tracking” process in CAP is akin to the “check” step of a quality improvement Plan-Do-Check-Act cycle. The “check” step is the opportunity to determine how or if progress is being made on a particular IP item. The “check” step, if fully embraced by CAP users, offers opportunities to identify where quality improvement principles can be leveraged to support the achievement of continuous learning.

In summary, opportunities for measurement and research, within the context of AARs and the P-D-C-A cycle, are best underscored by the fact that the identification and dissemination of quality metrics must be generated from the beginning (Wood, 1997). The same is likely true for real incident quality improvement. It has not yet been determined if the more operational capabilities provide a better assessment of the ability to respond by a given sector (e.g., public health) in comparison to the core capabilities. Future research is needed to explore whether planning- or operational-based capabilities provide the basis for a better needs assessment, as well as outcomes from assessments in AARs using a variety of capability types as benchmarks.

In order for quality improvement/RCA to be optimally integrated into national emergency preparedness practice, national documents such as the NPG, the core capabilities, and accompanying workforce training vehicles should heavily reference and emphasize the expectations for quality improvement principles to be demonstrated in AAR vehicles. This type of national-level promulgation would support at least three of Macinati’s core values for quality improvement institution, namely leadership commitment to quality improvement, human capital investment (i.e., workforce training) for quality improvement, and cross-sector coordination.

Possible Vehicles for Quality Improvement

The practice community could conduct an investigation into lessons learned for AAR and IP processes and generate peer-reviewed best practices. In addition, formal quality improvement training and partnerships are essential for all preparedness sectors. Future directions for academia and research revolve around the incorporation of such best practices in HSEEP guidance for real incidents, as well as exploration of AAR-to-AAR comparisons and RCA studies to lead this cultural shift. A quality improvement culture is crucial in mitigating the recurrence of similar adverse events (Donahue & Tuohy, 2006). The incorporation of the above recommendations could facilitate a quality improvement culture engrained in the sharing of performance information generated from incident evaluation, lessons identification, and learning.

A more formalized post-incident evaluation process that embraces quality improvement is to promote the use of the ICS demobilization unit as a formalized yet flexible structure that can be used to scale quality improvement efforts to fit the nature of the real incident. A more formalized post-incident evaluation process that embraces quality improvement and is integrated into the ICS, through recovery operations or demobilization, may provide the formalized yet flexible structure that can be used to scale quality improvement efforts to fit the nature of the real-life event. Demobilization and recovery offer a unique solution because both are encapsulated in the transition back to routine management, as should quality improvement efforts. This also establishes a foundation for IP tracking and corrective action plan execution beyond the immediate incident-generated momentum. ICS can provide the formalized procedure and structure within the Planning Section to reinforce leadership commitment to quality improvement, assist in resource acquisition and allocation, and enhance the evaluation process. The Planning Section offers the consistency, in terms of development of event metrics, highlights, and source data, that information used for quality improvement requires. At the end of an incident, it is realistic to assume that quality improvement, unless reinforced by the structure and leadership, is likely to be lackluster for events of significant complexity or prolonged nature as resources are drained. This type of structure offers the follow-through on analysis that is needed and may lead to better incorporation of lessons learned prior to the next incident.

Potential Resources and Partnerships

The emergency management community developed NIMS to streamline and more effectively manage resources during a response. As mentioned earlier in this chapter, NIMS is a model for how evaluation resources can be more efficiently utilized in a resource-fixed agency. That being said, the ability to manage preparedness quality improvement does require not only human resources, but also leadership commitment, a quality improvement planning infrastructure, individual staff focus and commitment, and teamwork/collaboration (NACCHO, 2013a). To implement quality improvement in preparedness during fiscally challenging times, additional funding investment may not appear feasible, particularly for increased education to the evaluation principles of quality improvement at all levels of government and the multi-sector community at large. However, quality improvement, when implemented early and often, could actually reduce the operational expenses of an organization by diminishing or mitigating costly errors. Implementing and leveraging quality improvement to help the preparedness community evaluate its desired outcomes can be vital through the identification and application of incident- and response-specific capability content that can be monitored over time.

Local, state, and federal preparedness agencies are being questioned as to how their funded programs can produce better response outcomes given the billions of dollars invested in the preparedness industry. The advantage of long-term quality improvement is that small, short-term P-D-C-A cycles executed at multiple points over time as needed can be aligned with funding cycles to demonstrate results during the “Check” or “Act” cycles.

Additionally, to develop a preparedness community culture of quality improvement, practice community partnerships are needed. Once established, the academic/research communities can use these partnerships as operational research projects to provide tactical, hands-on, and realistic opportunities to leverage existing resource-sharing portals for quality improvement sustainability in the multi-sector emergency preparedness and response community.

Concluding Thoughts

The AAR evaluation process was created so that participating entities could not only document what occurred from an incident but also learn how to improve operational processes, thereby increasing performance. The philosophy of continuous quality improvement is a natural component of this process. Although the robust universe of responses to exercises and real incidents may challenge the emergency preparedness community in terms of time, fiscal, and human resources, responders have always embraced the opportunity to learn from their experiences. Promotion and promulgation of a greater diffusion of quality improvement and RCA principles in emergency preparedness and response evaluation practice, supported by evidence-based quality improvement principles as AAR evaluations are conducted, will support responders to create learning organizations, establish multijurisdictional partnerships, and build a Whole Community working together to mitigate challenges and incidents to their communities.

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CHAPTER 11: SOCIAL MEDIA AND EMERGENCY MANAGEMENT

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ABSTRACT

This chapter reports on the challenges and opportunities made possible by social media in the field of emergency management. First, we consider the emergency practitioner and the challenges they face when using social media: difficulties in verifying social media data, liability risks, information overload, and a lack of resources to manage social media communications and data. To address these challenges, we propose the use of performance measures, standards, best practices, digital volunteers, training, and exercises.

Attention then turns to the research around social media in times of crisis. This research investigates public activity (citizen reporting, community-oriented computing, and collective intelligence and distributed problem solving) and demonstrates how social media have shaped—and continue to shape—perceptions around how members of the public can participate in an emergency. We then look at research that studies emergency management organizations as they seek to understand how social media might be used in their practice. We conclude with descriptions of future research directions and next-generation tools for monitoring and extracting information from social media.

Finally, we discuss the differences between practice and research perspectives and discuss how these differences can make it difficult to reach consensus regarding social media's role in emergency response. We advocate that as practice and research work together expanding the research agenda, understanding roles, building relationships, considering organizational fit, and developing best practices, they will advance knowledge about the potential and realities of social media and move toward envisioning how social media may be used as a resource in emergency management.

AN ACADEMIC'S PERSPECTIVE

Social media are Internet-based applications that promote high social interaction and user-content generation often at a one-to-many or a many-to-many scale. Examples of popular social networking applications include Facebook, Twitter, YouTube, and Flickr. Social media have visibly opened up the discussion around the matter of public participation in disaster and presented new opportunities for research. In recent years, users of social media have demonstrated how broad and ready access to other people during a crisis¹ event enables new forms of information seeking and sharing and exchanges of assistance (Hughes, Palen, Sutton, Liu & Vieweg, 2008; Palen & Liu, 2007). Through social media, a growing number of eyewitness texts, photos, videos, maps, and other information contribute to the information available around crisis events. Meanwhile, emergency management organizations are working to understand how to respond to the new content and these new communication platforms: the initial focus on developing and executing best practices for outward communications is now giving way to discussions about augmenting response efforts with inclusion of data from the public (Hughes & Palen, 2012; Latonero & Shklovski, 2011).

The purpose of this discussion is to review the research literature on social media's role in times of crisis. We approach this review from a crisis informatics perspective. *Crisis informatics* is the study of the social and technical (socio-technical) behaviors in emergency response, with a focus on the flows of information between the people and organizations involved (Hagar & Haythornthwaite, 2005; Palen, Vieweg, Liu & Hughes, 2009). Crisis informatics brings attention to members of the public as contributors and receivers in the emergency information arena and reveals the nature of information exchanges in play. In addition, as the public's role becomes more visible through the lens of social computing,² crisis informatics attempts to descriptively and theoretically account for social behavior that is made possible through technology.

In this discussion, we give an account of social computing research in the context of crisis events. Starting with the first observations of social media activity in crisis, we describe activities by the public (citizen reporting, community-oriented computing, and collective intelligence and distributed problem solving) and demonstrate how social media have shaped—and continue to shape—perceptions around how members of the public can participate in an emergency. Discussion then turns to consideration of emergency management organizations as they seek to better understand how social media might be used in their practice. Included in this discussion is a consideration of the challenges emergency managers face as they adopt social media: roles and responsibilities, liability, data deluge, trustworthiness of citizen-generated data, reliability of social media networks, and universal information access. Finally, we present descriptions of future research directions and next-generation tools for monitoring and extracting information from social media.

Social Media Enters the Emergency Scene

In response to Hurricane Katrina in 2005, crisis informatics research documented some of the first cases of social media use in response to a crisis event (Macias, Hilyard, & Freimuth, 2009; Palen & Liu, 2007; Procopio & Procopio, 2007; Robinson, 2009; Shklovski, Burke, Kiesler & Kraut, 2010; Torrey et al., 2007). In two studies, researchers examined blogs and online forums following Hurricane Katrina and discovered that these online communication venues provided places where displaced citizens could virtually connect with members of their geographically based communities to exchange information and cope with their loss (Procopio & Procopio, 2007; Shklovski et al., 2010). Torrey and colleagues (2007) found that several citizens used online means to coordinate disaster relief, such as the donation of clothes, toys, and other items. Additional research discovered cases where citizens used social media to help find missing persons as well as housing for victims (Macias et al., 2009; Palen & Liu, 2007). These initial studies demonstrate that through social media, citizens could potentially offer and obtain crisis-related information (Palen & Liu, 2007) as well as participate in disaster response and recovery efforts even when remotely located from physical disaster sites (Heverin & Zach, 2010; Hughes et al., 2008; Qu, Huang, P. Zhang, & J. Zhang, 2011; Vieweg, Hughes, Starbird & Palen, 2010).

After Hurricane Katrina, research continued to explore social media activity in times of crisis, but expanded this exploration to a variety of hazards. Many students took advantage of already established networks in social media applications like Facebook during the 2007 Virginia Tech school shootings; students used these applications to assess the impact of the event on their wide and diffuse social network (Palen et al., 2009; Vieweg, Palen, Liu, Hughes & Sutton, 2008). Public participation during the 2007 Southern California wildfires demonstrated how social media could function as an important “backchannel,” where members of the public could informally obtain, provide, and seek information that clarified and expanded upon the information they received from formal emergency management channels (Sutton, Palen, & Shklovski, 2008). Other studies looked at the role that social media could play in repairing human infrastructure and creating a sense of normalcy amid ongoing conflict and war (Mark, Al-Ani, & Semaan, 2009a; Mark & Semaan, 2008). Qu and colleagues (2009) studied a popular online forum in China (Tianya) following the 2008 Sichuan Earthquake and found that the forum provided a place for information sharing, seeking, gathering, and integrating as well as a place where community members could provide emotional support. These research findings demonstrated social media’s range of use and captured the attention of emergency managers who were beginning to consider whether social media could benefit formal response efforts.

Application to Emergency Management

It is difficult to pinpoint exactly when emergency managers started to take notice of social media and their potential. However, the authors began receiving requests in 2007 from

early adopters interested in understanding how social media could be used in emergency practice—following two particularly visible crisis events where citizens notably used social media: the 2007 Virginia Tech Shootings (Palen et al., 2009) and the 2007 Southern California Wildfires (Shklovski, Palen, & Sutton, 2008; Sutton et al., 2008). Research had shown that social media channels allowed for quick dissemination of information during a crisis (Kodrich & Laituri, 2011; White, Hiltz, Kushma, Plotnick & Turoff, 2009) as well as two-way communication between members of the public and emergency management organizations (Artman, Brynielsson, Johansson & Trnka, 2011; Hughes & Palen, 2012; Latonero & Shklovski, 2011; Palen & Liu, 2007). Furthermore, the information contained in citizen-generated data showed potential for contributing to situational awareness (Cameron, Power, Robinson & Yin, 2012; Ireson, 2009; Vieweg et al., 2010), which could benefit emergency response operations (Hughes & Palen, 2012).

However, social media adoption in formal emergency management has lagged behind that of public uptake (Hughes & Palen, 2012; Latonero & Shklovski, 2011; Sutton, 2010). In the Joint Information Center (JIC) at the 2008 Democratic National Convention³ (DNC), Sutton (2009) and her colleagues examined if and how its staff used social media. Without clear plans for how monitoring might be done—and, critically, without clear problems arising in this particular National Security Special Event (NSSE⁴) for information officers to respond to or interact with—emergency managers fell back on standard operating procedures that emphasized traditional media monitoring (e.g. television and radio broadcasting and newspapers). Latonero and Shklovski (2011) investigated the use of social media by the Los Angeles Fire Department (LAFD) in 2009. At the time, the LAFD's active use of social media (monitoring, message distribution and response) was unusual for an emergency response organization, and Latonero and Shklovski (2011) suggest that much of LAFD's advanced adoption could be attributed to having a single social media evangelist in the department. Around this same time (in 2009), Hughes and Palen (2012) interviewed 25 Colorado public information officers (PIOs) and reported that PIOs wanted to use social media but did not have permission or support from their management to do so. In addition, many of the participants reported that they lacked training as well as the resources to commit to maintaining a social media presence between emergency events. For those PIOs who had been able to obtain the permission and resources to use social media, they were most often used for one-way message distribution, with little interactivity with their constituents.

Moving Toward Increased Public Participation

While emergency management organizations began to consider how to include social media in their communication activities, the discourse around public participation in crisis began changing. Previously in these organizations, public communication channels were imagined as one-way pathways that flowed from emergency response organizations to members of the public (Palen & Liu, 2007). However, with the emergence of social media applications,

members of the public exploited new opportunities for participating in crisis response and recovery efforts, which laid bare and propelled existing behaviors. With readily available ways to communicate with peers, to generate information that could be tactically valuable to response, and to perform support functions that could complement emergency response strategies (Meraz, 2006; Palen & Liu, 2007), crisis informatics research launched investigations of these behaviors and how they could be shaped for future visions of emergency management.

Citizen Reporting

The ability for people to report from on-the-ground during and after an event has found analogies to ideas of citizens as “sensors” (Goodchild, 2007)—members of the public who detect, measure, and report local emergency information—and citizens as “journalists” (Gillmor, 2006)—members of the public who collect, report, analyze, and disseminate news and information. In the world of emergency response, the idea of first-hand reporting—particularly in the form of visual documentation through the use of camera phones and photo-sharing sites—made an indelible impression of what the future of public participation could bring to both the tactical aspects of response (Fontugne, Cho, Won & Fukuda, 2011; Liu, Palen, Sutton, Hughes, & Vieweg, 2008), as well as the longer-term aspects of a community’s cultural heritage (Liu, Palen, & Giaccardi, 2012; Liu, 2011). The ability to broadcast messages to wide or selective audiences (Dabner, 2012; Palen & Vieweg, 2008; Sutton et al., 2008) and provide commentary on events through blogs and public forums continues to reinforce the idea of highly localized but widespread “journalism” and “sensing” (Al-Ani, Mark, & Semaan, 2010; Jin & Liu, 2010; Macias et al., 2009).

Studies of disaster events around the world have documented instances and the likely ubiquity of citizen reporting. During a five-day media ban following a controversial election in Kenya, social media provided a means for citizens to act as on-the-ground reporters who provided and consolidated information (Mäkinen & Kuiru, 2008). Meier and Brodock (2008) reported on this same Kenya election and found that citizen reports of protest activity and violence were published well before traditional media channels reported them, a behavior that gave rise to the Ushahidi platform, discussed later. Similarly, the first widely available video footage of the 2008 Sichuan Earthquake was shot by a Sichuan University undergraduate student with his camera phone (Wang, 2010).

Community-Oriented Computing

Social media have been described as facilitating online communities where members share and seek information during times of crisis (Qu, Wu, & Wang, 2009; Wang, 2010). As an early instance of this, following Hurricane Katrina, studies report how some New Orleans residents went online in an attempt to locate friends and neighbors—with the hope of reducing the geographical distance between their newly dispersed community (Macias et al., 2009; Procopio & Procopio, 2007). During the Southern California wildfires of 2007, the fires were so diffuse across the region that acquiring information about particular locations

and neighborhoods from traditional media sources was difficult. In this environment, innovations around social media emerged that let some mountain communities share information specific to their concerns (Shklovski et al., 2008). They were in a sense able to “project” their geographical community activities to the digital sphere, but connect on the basis of geographical bounds.

By providing community members with tools to engage in crisis preparedness, response, and recovery, social media may have a role to play in building community resilience—a measure of a community’s ability to respond to, withstand, and recover from adverse situations (Belblidia, 2010; Dufty, 2012; Mark, Al-Ani, & Semaan, 2009b). Hjorth and Kim (2011) found instances, following the Great East Japan Earthquake of 2011, in which social media provided a means for residents to express emotion and to grieve with their community. Several studies examined how members of the public create collective histories of crisis events by sharing photos, videos, and personal experiences over social media (Liu, 2010; Mark et al., 2012). Social media may also create a sense of solidarity during political protests (Starbird & Palen, 2012; Tonkin, Pfeiffer, & Tourte, 2012) and times of war (Mark et al., 2009b; Mark & Semaan, 2008). In addition, studies have demonstrated that social media have a place in crisis recovery and the restoration of a sense of normalcy (Al-Ani et al., 2010; Mark et al., 2009a; Semaan & Mark, 2011).

Collective Intelligence and Distributed Problem Solving

Social media have been shown to facilitate collective intelligence—where large, distributed groups of people solve complex problems (Palen et al., 2009; Vivacqua & Borges, 2010). For example, students affected by the Virginia Tech shootings converged on popular social media sites to first report their own safety in the early, uncertain moments, and then from these data (and their absence) began compiling lists of those who had died as they learned how extensive the trauma was to their community. This happened across more than one group, and though no single list was complete, across all lists, every name was correctly identified before they were publically released (Palen et al., 2009; Vieweg et al., 2008).

Starbird and Palen (2012) examined Twitter posts (or tweets) during the 2011 Egyptian uprisings and noted how members of the crowd recommended and filtered tweets by rebroadcasting (or retweeting) them. The most frequently retweeted messages among remote, worldwide observers tended to be those with broad appeal, such as high-level news reports and messages of solidarity with the Egyptian cause, but related subsequent work on the Occupy Wall Street movement suggests that those on the ground are seeking more particular kinds of information (Starbird, Muzny, & Palen, 2012).

Citizens may also provide geographically tagged localized and distributed reports—known as volunteered geographic information—of crisis events through social media (DeLongueville, Luraschi, Smits, Peedell, & De Groeve, 2010; Goodchild, 2007). This geographic information can then be collated and mapped by volunteers who call themselves

“crisis mappers” using open source mapping software such as Google Maps,⁵ OpenStreetMap,⁶ or Ushahidi⁷ (Goodchild & Glennon, 2010; Heipke, 2010; Norheim-Hagtun & Meier, 2010; Zook, Graham, Shelton & Gorman, 2010).

Contributions to Situational Awareness

An important contribution social media offer in times of crisis is their potential to enhance situational awareness (Ireson, 2009; Johnson, Zagorecki, Gelman & Comfort, 2011; Vieweg et al., 2010). *Situational awareness*, in the emergency domain, describes human perceptions of the multifaceted circumstances around a crisis event that allow for interpreting situations, making decisions, and predicting future outcomes. Obtaining situational awareness is vital for those dealing with crisis because these situations are unusually complex and poor decision making may lead to adverse consequences (Johnson et al., 2011; Vieweg et al., 2010).

Examples of situational awareness research include the in-depth analysis of tweets sent during the 2009 Red River floods and the 2009 Oklahoma City fires, where tweets were found by searching on relevant keywords (e.g., #redriver and #okfires). Researchers analyzed tens of thousands of tweets by hand to identify and extract information that could enhance situational awareness, such as flood-level status and fire locations (Vieweg et al., 2010). Subsequently, Project EPIC⁸ (Empowering the Public with Information in Crisis) has developed a natural language processing classifier that analyzes text to help identify tweets contributing to situational awareness (Corvey, Verma, Vieweg, Palmer & Martin, 2012; Verma et al., 2011), though in general, the state-of-the-art nature of the field is such that automation behind situational awareness derivation is quite difficult to do dependably. Ireson (2009) assessed the extent to which public forum postings could add to situational awareness during the 2007 floods around Sheffield, UK, and found extractable relevant event information despite the inconsistent quality and conversational nature of the posts.

Research has demonstrated that data from social media interactions can provide situational awareness for specific crisis-related tasks and domains. Using natural language processing techniques and crowdsourcing (the process of accomplishing a task by dividing it into subtasks that can be performed by a large group of people), several research groups have developed methods and tools for detecting and monitoring epidemics through social media data analysis (Chen & Sui, 2010; Culotta, 2010; Munro, Gunasekara, Nevins, Polepeddi & Rosen, 2012). One study used Internet reports to create early estimates of the death toll for the Great East Japan Earthquake of 2011 (Yang, Wu, & Li, 2012). The estimate was correct within one order of magnitude—an improvement over early static estimation models that can be off by as much as three orders of magnitude—and it could be updated as more information became available. Another study augments standard evacuation models with evacuee sentiment obtained from social media with the aim of improving evacuation planning (Gottumukkala, Zachary, Kearfott & Kolluru, 2012). Researchers at several

institutions have used geographic information contained in social media reports to detect earthquakes and predict earthquake impact and damage (Earle, Bowden, & Guy, 2012; Guy, Earle, Ostrum, Gruchalla & Horvath, 2010; Sakaki, Okazaki, & Matsuo, 2012).

Social Media Use in Formal Emergency Management

Many of the initial challenges that had prevented social media use in formal emergency management began eroding around 2010, though concerns about this changing socio-technical arena naturally remain. Early adopters within the emergency management community shared anecdotes and gave illustrations about valuable social media use. A growing body of empirical research documented innovative online behaviors that enlightened what future contributions of social media could be. A number of policy and research visioning meetings have been held (Burns & Shanley, 2013; Committee on Public Response to Alerts and Warnings on Mobile Devices & National Research Council, 2011; Committee on Public Response to Alerts and Warnings Using Social Media, Computer Science and Telecommunications Board, Division on Engineering and Physical Sciences, & National Research Council, 2013; Computing Community Consortium, 2012). Emergency managers continue to face mounting pressure from members of the public to use social media (Hughes & Palen, 2012); if emergency managers do not provide adequate social media information around a crisis event, citizens may obtain their information elsewhere (Stephens & Malone, 2009). These factors made emergency management more likely to support and incorporate social media in their practice.

In this changing environment, several empirical research efforts have studied emergency management social media use. One study looked at whether international medical response teams and organizations coordinated through Twitter during the 2010 Haiti Earthquake (Sarcevic et al., 2012). Though there was little evidence of direct coordination between these international groups distributed across Haiti, the researchers identified an important pre-condition to coordination: that of online “beaconing behavior,” where responders broadcast messages in the hopes that the message would be heard by a large audience. This is taken as a sign that groups are anxious to assist, to make themselves known, and to coordinate in a highly decentralized activity. They perceive the digital sphere as being important in this regard, but it does not automatically provide the social connections that are needed (Sarcevic et al., 2012).

Another study looked at social media use by two different police organizations during the August 2011 UK riots. Each organization took a different approach to their Twitter communications (“instrumental” and “expressive”), which yielded advantages and disadvantages in terms of relationships with the public and the ability to sustain communications over a period of time when internal resources were taxed (Denef, Bayerl, & Kaptein, 2013). Briones and colleagues (2011) interviewed forty members of the American Red Cross to understand how they use social media to build relationships with their public

and found that members perceived social media as both an effective and necessary public relations tool.

Around the time of this writing, very recent research efforts include an analysis of tweets about the 2013 Boston Bombings. This analysis discovered that with the widespread attention focused on the event, emergency officials needed to tailor their Twitter communications to both a local audience seeking help and guidance as well as a remote audience wanting to know more about the attacks (Sutton et al., 2013).

In addition, new research by Hughes, St. Denis, Palen, and Anderson (2014) offers insight about the online communication behaviors of 840 fire and police departments within a 100-mile radius of where Hurricane Sandy made landfall in 2012. They found that though use of Facebook, Twitter, websites, and Nixle was relatively low overall, the ways in which departments employed the technology varied widely. Creative uses by some departments suggest new possibilities for public engagement in the future, and such variance suggests that a social media practice remains highly emergent as groups experiment with different styles of engagement.

Best Practices for Social Media Use

Much of the guidance available to emergency managers regarding social media use comes in the form of best practices—guidelines regarding what social media tools to use and how to use them (Jin & Liu, 2010; Rajan, Chen, Rao & Lee, 2010; Veil, Buehner, & Palenchar, 2011; White & Plotnick, 2010; White, 2011). Nilsson and colleagues derive a set of considerations for using social media to warn the public about approaching crisis, noting the importance of establishing trust (Nilsson et al., 2012). Another study looks at blog usage in crisis and offers recommendations for how public relations professionals can monitor and respond to blog content (Jin & Liu, 2010). One group of researchers looked at how the public consumes and provides information over social media to draw conclusions about how crisis management communications are perceived by the public and offer guidance for how to work with social media. They note that the crisis origin, information form, and source play important roles in how information is perceived (Jin, Liu, & Austin, 2011). Latonero and Shklovski (2011) spoke with emergency managers about how they use social media, and noted the importance of having a social media evangelist to make it successful. The difficulty with these types of prescribed practices, however, is that they are often unique to the situation or the organization in which they were developed, which can make it difficult to apply them in other contexts.

Challenges to Social Media Adoption

Though many organizations seek to adopt social media, the practical matter of formally incorporating it into emergency management practice still presents challenges.

Changes in Role and Responsibility

Introducing social media into emergency response procedures changes the way responders communicate within the organization and externally to their constituents, which in turn, challenges established roles and responsibilities. Some of the structures and procedures that support emergency management organizations do not lend themselves to social media use. For example, PIOs—the public relations side of emergency management—are required to obtain permission from the Incident Commander or emergency operations center (EOC) Manager (for EOC PIOs) of the crisis response effort before they can send any information to the public, but this can be challenging if the PIO is trying to use social media. One of social media's strengths lies in the distribution of short, timely messages, something that is difficult to leverage if permission must be sought every time a message is sent (Crowe, 2010). Some emergency managers fear losing control of “the message.” In the past, emergency management organizations were the primary source of official information during a crisis, but now the mainstream media are also willing to rely on citizen-generated content (Wigley & Fontenot, 2010). Members of the public, as long as they can discern reasonable credibility of the source, will also consider the viability of user-generated content (Palen, Vieweg, & Anderson, 2011). During high-response times, PIOs often monitor social media streams to ensure that information communicated by the public is correct. Even though they are not authorized to respond to these communications, they will step in to correct misunderstandings (Hughes & Palen, 2012). Observations like these highlight the need for procedural and policy changes to support the use of such emergent social media practices.

Concerns with Liability

The adoption of social media as a communication and information channel in formal emergency response efforts raises liability issues (Lindsay, 2011; Low et al., 2010; Sicker, Blumensaadt, Grunwald, Palen & Anderson, 2010). In times of crisis, the emergency management action or inaction may cause injury, death, or property damage, potentially leading to litigation. Consequently, emergency managers want to ensure that all the information they work with is accurate, complete, and does not violate citizen privacy. However, when dealing with large amounts of unstructured public data, it is difficult to determine what information meets this standard (Low et al., 2010; Sicker et al., 2010). Another liability concern arises with growing public expectation that when requests for help are made through a social media channel, there be an appropriate response (American Red Cross, 2011). Currently, very few organizations could meet this expectation in large part because online communications outstrip what can be monitored, even with technology aids (Lindsay, 2011). However, another concern is the liability incurred by not responding to requests that *do not* reach the social media sphere: are those who are most vulnerable and perhaps the most injured able to have the same “social media volume” as others?

Deluge of Data

Social media use has become so widespread that during a major crisis, the vast amount of information available becomes difficult to monitor and make sense of. For instance, during

Hurricane Sandy in 2012, Project EPIC collected over 26 million tweets in an attempt to comprehensively collect the worldwide tweet communications about the warning, onset, and two-weeks post hurricane. Such representative data sets enable rigorous data analysis of how social media were used during the event, using a specialized infrastructure designed to handle large data sets—itsself a research project on its own (Anderson & Schram, 2011; Schram & Anderson, 2012). At this point in time, it is almost impossible to make sense of the large amount of socially generated data without adequate tools to filter, analyze, and visualize the data. The goal of doing this in real-time remains an objective of the technology research community.

In response to this challenge, researchers have designed and built several systems that filter and analyze social media streams in times of crisis. The Enhanced Messaging for the Emergency Response Sector (EMERSE) system classifies and aggregates tweets and text messages using supervised learning techniques so that emergency responders and members of the public can more easily access them (Caragea et al., 2011). A research group from Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) has developed a Twitter tool with burst detection, message summary, machine learning and classification, and history analysis (Cameron et al., 2012; Yin et al., 2012). Twitcident uses semantics techniques to filter tweets and provide better search capabilities to help people explore Twitter data (Abel, Hauff, Houben & Stronkman, 2012; Terpstra, de Vries, Stronkman & Paradies, 2012). All these systems demonstrate proof-of-concept of such ideas, but they are not deployable at scale.

An alternative approach to filtering large information sets is to shape the social media data itself, making it easier to parse and analyze. The Tweak the Tweet project proposes a prescriptive syntax using descriptive hashtags (e.g., #location, #status, #needs, #damage) to make tweets more machine readable and allow for automatic analysis (Starbird & Stamberger, 2010; Starbird et al., 2012). Several projects have developed methods for extracting and disambiguating location names from social media data, thus providing valuable contextual information that can allow the data to be visualized with mapping software (Intagorn & Lerman, 2011; Sultanik & Fink, 2012). Ushahidi⁹ was originally developed during the 2008 post-election fallout in Kenya and allowed citizens to report and map accounts of violence online. Since that time, Ushahidi has become a computing platform that supports human-entered data and analysis in an array of humanitarian situations (Meier & Brodock, 2008; Morrow, Mock, Papendieck & Kocmich, 2011).

Trustworthiness of Citizen-Generated Data

When choosing to act—or to not act—on citizen-generated crisis information, emergency managers and citizens must assess information credibility. Despite the free, unregulated production of information in this type of environment, researchers have found that much of the information provided over social media is self-regulated, meaning that members of the

community will question and correct the information (Mendoza, Poblete & Castillo, 2010; Palen et al., 2009; Qu et al., 2009). Building upon this finding, Starbird and Palen (2010) explored the role of retweeting (rebroadcasting) and found that retweeted messages tended to correspond with information that was accurate or contributed to situational awareness. Recognizing the value of a retweet, one research group has developed a fine-grained predictive model to predict what information will be retweeted (Zhu, Xiong, Piao, Liu & Zhang, 2011). Tapia and colleagues (2011) explored how Twitter could fit the information needs of nongovernmental organizations (NGOs) in disaster and described methods to overcoming trust issues, such as using a private online environment where all users are known or using Twitter for ambient or contextual data only.

Relying on citizens to filter trustworthy information and restricting who can contribute information is not the only way of creating veracity; as an alternative, several researchers are developing computational methods that seek to automate the process of finding the most credible social media data. Xia and colleagues (2012) have developed an unsupervised learning algorithm for detecting credible information on Twitter, while another research group (Gupta & Kumaraguru, 2012) adopted a supervised machine learning and relevance feedback approach to ranking tweets using a credibility score. Preliminary evidence suggests that social media users geographically closer to the physical disaster location tend to share more accurate information (Thomson & Ito, 2012). Consequently, several efforts have created computational methods that use social media features (e.g., profile information, social connectedness, recommendation data) to identify on-the-ground social media users (Schlieder & Yanenko, 2010; Starbird et al., 2012).

Reliability of Social Media Networks

An important restriction with social media is their dependence upon network infrastructure. Depending on crisis event circumstances, physical damage to or overloading of the network may prevent the use of social media services. Palen & Liu (2007) predicted that people outside the affected area would “stage” information for when the region came back online again. We see how this played out in recent events: after the Great East Japan Earthquake, Kaigo (2012) found that social media was often used to disseminate information; while land-line telephones and broadcast television were not available, Internet access through mobile devices was quite stable. Though people had limited access to online resources in the aftermath of the 2011 Christchurch, New Zealand earthquake, others outside the outage area relayed information found online back to those affected (Sutton, 2012). In an effort to create more reliable social media networks for crises, researchers are exploring the use of cloud computing (Hertzler, Frost, Bressler & Goehring, 2011) and “delay and disruption tolerant networking” (Fall, Jannaccone, Kannan, Silveira & Taft, 2010) to support social media networks and communication needs during a disaster.

Universal Information Access

To date, little research has focused on the needs of the disadvantaged in regards to social media and crisis (Bricout & Baker, 2010; Cinnamon & Schuurman, 2012). The majority of the literature discussed in this chapter has studied populations with widespread access to social media and the hardware technology to use it. In the United States, Crutcher and Zook (2009) observed how access to Google Earth following Hurricane Katrina fell strongly along disadvantaged economic and racial lines. Elwood (2008) looked at how citizen-generated data is shaped during a crisis, and observed that what information is available as well and who it empowers or disempowers is a function of access. However, some also suggest that social media has potential to provide crisis communications in places where emergency response infrastructure is poor (White & Fu, 2012).

New Frontiers

Members of the public, social media advocates, technologists, emergency managers, humanitarian activists, and researchers continue to experiment, design, question, and develop new ways to use social media during crises.

A successful effort is Ushahidi—an open source application for collecting and analyzing citizen-generated information (Meier & Brodock, 2008). Ushahidi relies on both the public as well as “digital volunteers” to populate maps that are helpful to humanitarian efforts. Digital volunteers donate time to performing tasks that aid in crisis efforts and can be completed remotely with online applications like social media (Starbird & Palen, 2011). A spontaneous version of this activity was observed following the 2010 Haiti earthquake when remotely located citizens self-organized over Twitter to collect and donate funds to those affected by the earthquake (Starbird & Palen, 2011). A group that had coalesced prior to the Haiti earthquake also converged to help Haiti. The OpenStreetMap (OSM) community created a base layer map for Port-Au-Prince in the aftermath of the earthquake, all by the work of volunteer “crisis mappers,” the “neocartographers” (Liu & Palen, 2010; Shanley et al., 2013) of the humanitarian space. Later, the Humanitarian OSM Team (HOT) evolved out of this effort to deploy on the ground to make maps usable to the international response, and later, foster community mapping activity within Haiti itself (Soden & Palen, 2014).

Digital volunteerism is related to grassroots efforts that develop applications or provide services to meet humanitarian needs. Some of the earliest groups included the Random Hacks of Kindness “barcamps” and the CrisisCommons¹⁰ organization. These groups were composed of “technology volunteers” with software development and emergency management experience who donated their time to building tools and applications that help those affected by crisis (Boehmer, 2010). A global volunteer organization—HumanityRoad¹¹—seeks to provide members of the public with crisis information by teaching people how to “crisis tweet,” and by monitoring social media streams to collate information (Starbird & Palen, 2013). Similarly, the Standby Task Force¹²

organizes digital volunteers in response to humanitarian needs with a focus on crisis mapping. Organizations like these help to sustain digital volunteer efforts across time and disaster responses.

Seeking to find ways to monitor and maintain social media streams and capitalize on the behaviors exhibited by these early digital volunteers, emergency managers experimented with groups of digital workers (who are pre-selected and trusted) to manage some of the social media communications responsibility (St. Denis, Hughes & Palen, 2012). These groups call themselves Virtual Operations Support Teams (VOSTs). A similar effort by Wickler and colleagues (2011) created a Virtual Collaboration Environment that leverages Web 2.0 technologies in support of virtual experts who can participate and assist in an emergency response remotely. Following the 2011 Libya Crisis, volunteer crisis mappers collaborated with the World Health Organization to map over 600 Libyan health facilities (Chan, Colombo, & Musani, 2012).

Many questions still remain around how digital volunteer efforts can work with emergency management effectively and sustainably. The American Red Cross has established the Digital Operations Center, which employs trained digital volunteers to help with social media monitoring (Meier, 2012). In February 2013, New York City Mayor Bloomberg established a Code Corps to engage “vetted volunteer technologists to realize lifesaving City government initiatives with an emphasis on emergency and disaster recovery needs.”¹³ These will be critical initiatives to follow as we think about the role of planned and spontaneous digital volunteers in disaster response. The Woodrow Wilson Center for International Scholars has sponsored legal research that examines this issue in the United States, and reports that digital volunteers are not covered under Good Samaritan laws because the volunteers seek situations in which to assist. Instead, they need to reduce their liability by establishing standards of care against which they want to be evaluated (lest a court determine that after the fact) and other liability-limiting measures (Robson, 2012).

Conclusion

In the space of this section, we attempt to provide an overview of the current state of crisis informatics research and practice. Social behavior that is made possible through technology is demanding a new look at the way we conceive of information distribution in emergency response, and a new way in which we frame the “formal response” vis-à-vis the “informal response.” Palen et al. (2011) see members of the public as analysts—“everyday analysts” who bring a discerning eye and desire for accurate localized information relevant to their needs to make informed decisions. We need to see the role of social media-generated information as a critical part of their engagement with emergency response. They seek information, which inspires others to provide information. The frequent and rapid interactions that occur between people in these information exchanges shape the digital representation of the disaster. The behaviors that we see exhibited today are signs of what

is to come; more critically, they provide us with the material for deliberately creating what is to come in the form of practice, policy, and technology design.

Endnotes

¹ For this discussion, *crisis* is used as a general term for mass emergencies, disasters, and other mass disruptions like extended political protests. The term *crisis*, though problematic because of other possible connotations beyond these definitions (e.g., “financial crisis,” “political crisis,” “mid-life crisis”) has been picked up by a number of groups and writers worldwide as a multi-lingual solution for describing situations on a large social scale, and that often require humanitarian aid.

² *Social computing* broadly describes a field of research at the intersection of social behavior and computational systems.

³ While the DNC was not a crisis event, DNC management used the same personnel and processes used in emergency response efforts.

⁴ A National Special Security Event (NSSE) is an event of national significance considered by the U.S. Department of Homeland Security (DHS) to be a possible target for terrorism or other criminal activity.

⁵ <https://maps.google.com/>

⁶ <http://www.openstreetmap.org/>

⁷ <http://www.usahidi.com/>

⁸ <http://epic.cs.colorado.edu>

⁹ <http://www.usahidi.com/>

¹⁰ <http://crisiscommons.org/>

¹¹ <http://www.humanityroad.org/>

¹² <http://blog.standbytaskforce.com>

¹³ <http://www.nyc.gov/html/digital/html/codecorps/codecorps.shtml>

A PRACTITIONER'S PERSPECTIVE

Social media use during the response and recovery phases of a disaster has been introduced as a means to improve the efficiency and effectiveness of the tactical response of the relief effort. It also provides a way for rapid communications for eyewitnesses, victims, and those seeking to ascertain more information about the disaster. One expanding component of social media, consistent across the nation, is the growth of social media use by the public during disasters (Brooks, 2013). Changing and evolving social media communications provide the public with ever-increasing information access (Keim & Noji, 2011). Witnesses from both public and private sectors continue to testify on Capitol Hill regarding the successful use of social media in emergencies, providing compelling examples of best practices and lessons learned. Because of an increase in social media testimony about their growing use and value, emergency management officials continue to embrace and incorporate it into their disaster relief practices. More agencies are establishing themselves as the authoritative source on social media platforms for information. However, with the positives come some negative consequences. From the practitioner perspective, it is important that all dimensions of the social media issue receive appropriate attention.

The following sections discuss practitioners' challenges with social media. Specifically, the criticality of verifying social media data, avoiding liability risks, validating credibility of sources, information overload, and the allocation of resources to manage social media. Overcoming these challenges is also addressed. The practical solutions include performance measures, standards, best practices, digital volunteers, training, and exercises. Recommendations for formal adoption of social media in emergency management will be discussed in the concluding section.

Challenges

From an operational perspective, it is important to discuss drawbacks of social media use that practitioners could experience. Challenges emerge in social media use during large-scale emergencies. They might include two critical factors that are commonplace in most disasters where social media is relied upon: extreme noise and information overload. The benefits of social media use for the public are well documented. However, the benefits for practitioners are not as clear. The speed by which social media data are generated is advantageous to the public by providing real-time information. But in the same vein, that speed of social media data, compounded by the quantity, produces a fog for decision makers. This fog of ambiguity must be resolved before it can be reasonably considered a reliable communication tool to make operational decisions.

The scope, magnitude, and complexity of emergencies drive social media use and value. Highly visible, large-scale emergencies will increase public social media traffic, as discovered through research by the Hazards, Emergency Response, and Online Informal

Communication (HEROIC) Project¹ following both the April 2013 Boston Marathon bombing and Hurricane Sandy in October 2012.

Defining an appropriate trade-off represents the critical tension between the public's desire for immediate information and the practitioner's need to ensure accuracy before disseminating information. Practitioners must make prudent adjustments, based on the situation, between command and control requirements and the need to ensure broad coordination and communication (Harrald, 2006). When too much or irrelevant information is presented, determining which pieces of information should be used to make a decision, and which should be ignored, is paramount (Sorensen & Mileti, 1987).

Social media can cloud the situational awareness picture, making it difficult for decision makers to make accurate and timely decisions. A measure of uncertainty and confusion may occur when information is too expansive, fraught with inconsistencies, delayed in arriving, or difficult to manipulate. In the search for certainty, regardless of the speed and volume of social media data, the practitioner prefers verified information before making decisions. Accurate information provides reassurance on the status of any response or recovery effort planned or in progress (Walker, 2011).

The Importance of Verification

President Barack Obama, on April 19, 2013, made the following statement in response to the capture of a second suspect in the Boston Marathon bombing:

In this age of instant reporting and tweets and blogs, there's a temptation to latch onto any bit of information, sometimes to jump to conclusions. But when a tragedy like this happens, with public safety at risk and the stakes so high, it's important that we do this right. That's why we have investigations. That's why we relentlessly gather the facts.

President Obama warned the public about the dangers of relying on ambiguous social media information to draw conclusions before official word is formally released. Non-authoritative sources that accidentally, or even intentionally, disseminate unverified information may lead to the public believing the misinformation. For practitioners, it is essential that staff or qualified volunteer resources thoroughly review social media information for accuracy, before it is released.

Verifying information received from sources where no relationship previously existed is necessary given the risks for misinformation, whether accidental or intentional. Methods are needed to differentiate between erroneous, misleading, and awareness-bringing information (Dugdale, Van de Walle, & Koeppinghoff, 2012). Social media accelerates the rate by which misinformation spreads. This signifies the criticality of verifying information before taking action, as inaccurate information could endanger the safety of first responders

and the community (Lindsay, 2011). Liability and credibility issues emerge as a result of the inappropriate use of social media.

Liability

The growing use of social media in everyday life gives rise to a range of evolving liabilities (Hartwig & Wilkinson, 2011). During Hurricane Sandy, social media reports claimed that New York Governor Cuomo was trapped in Manhattan, the Metropolitan Transportation Authority (MTA) had closed the New York City subways because of flooding, the New York Stock Exchange was flooded under three feet of water, and the power to Manhattan was shut down because of high tides. This information went viral, spreading rapidly through social media and the traditional news media (Hill, 2012). These reports were false – intentional lies confessed to by the originating author (Ngak, 2012). Before Governor Cuomo, the MTA, the New York Stock Exchange, or the power company had time to refute the false reports, the information had spread uncontrollably. Eventually, officials identified the culprit of the false reports and refuted the misleading information. Although no collateral damage was recorded, injury or death could have resulted if resources had been deployed while they were legitimately required elsewhere.

In 2011, 150 representatives from the Federal Emergency Management Agency (FEMA), the American Red Cross, state and local emergency management agencies, private-sector interests, and various volunteer communities convened to discuss how social media and emerging technologies affect response operations. Participants identified liability as a major area of concern (Wardell III & Su, 2011).

Are emergency responders liable for not responding to requests for assistance via social media? What are the consequences of emergency management basing decisions on non-authoritative information? Practitioners are concerned with liability issues that range from public perception, to acting on or sharing erroneous information. Time is rarely an ally for the practitioner. While the public waits for an update from an authoritative source, they also have access to real-time information generated in social media channels that could conflict with practitioners' information once it is released. Public information through social media does not wait for the practitioner latency in communicating risks damaging their online credibility.

Credibility

Making decisions based on information from unknown sources poses unnecessary risks for practitioners, if the decisions lead to negative results for themselves, the public, or both. Consequently, practitioners remain hesitant to share unsubstantiated information unless the source is deemed reliable. It is more important for the practitioner to obtain valid information as to what is happening than it is to take immediate action (Ryan, 2013). Had law enforcement officials concluded their investigation based on information from social media platforms following the Boston Marathon bombings, not only would the wrong

suspects have been accused (Petrecca, 2013), but the credibility of the agencies would have been tarnished. With public information through social media channels being created at an accelerated rate and the associated reduction in time for verification, potential liability increases for the practitioner because of the chance of reporting erroneous information. They must attempt to maintain a proper alignment between their own online credibility and ensuring that information is accurate before release. Practitioners are held accountable for communicating details relative to the disaster, while minimizing damage to the organization, and strengthening trusting relationships with the public (Young, Flowers, & Ren, 2011).

As time lapses, practitioners face online scrutiny for delays in communicating. The public demands information immediately, and practitioner online credibility often ties directly to the length of time spent verifying information. Therefore, if practitioners can develop methods of releasing information in a timely manner, their online credibility with the public is maintained, or even improved.

Information Overload

As of 2012, Twitter had more than 200 million users worldwide and approximately 95 million tweets were shared each day (Hurtado, 2012). During a highly visible, large-scale emergency, a deluge of social media data exist, challenging the ability to analyze this data. For example, in a three-hour span on April 15, 2013 – the day of the Boston Marathon bombings – 509,795 tweets with the “#BostonMarathon” hashtag were collected by Syracuse University's School of Information Studies (Bauer, 2013). Sifting through information is time intensive (Chavez, Repas, & Stefaniak, 2010). Having no geographical boundaries, social media users around the globe can digitally converge on U.S. emergencies, adding to the overload of data. Though data aggregation tools can consolidate social media information, a human must accurately assess the validity of the data and decide whether to take action on that information (Turoff, Chumer, Walle & Yao, 2004).

Resources and time-exhausted monitoring and analyzing social media, as well as correcting misinformation, can potentially jeopardize other emergency response requirements. In addition, the complexity of emergencies can quickly overwhelm organizations and personnel. These demands for resources and time, coupled with the complexity of the emergency, can lead to poor decision making and loss of life (Taniguchi, Ferreira, & Nicholson, 2012), calling into question the value of unverified information as a basis for decision making. Filtering and extracting pertinent cues from collected information to obtain situational awareness creates a problem (Hall & Jordan, 2010). The necessity for sorting relevant and pertinent information occurs when there is either too much information, or embedded irrelevant information, facing the practitioner.

Similar to how scope, magnitude, and complexity of a disaster drive the level of response, they also contribute to the quality and quantity of social media use. During Hurricane Sandy, public attention on Twitter increased significantly (Spiro, Sutton, Johnson,

Fitzhugh & Butts, 2012). This type of increase to social media traffic calls attention to the need for resources – humans – to filter through the consolidated, yet unverified, data to determine their value in the relief effort.

Allocation of Resources

Without hiring additional staff to monitor, analyze, and communicate social media information, practitioners have difficulty with allocating limited resources toward this assignment during an emergency. For instance, 53% of 115 government agencies polled cited staffing constraints as the main reason why social media is not in their emergency communication plans (Everbridge, 2012). These constraints affect the frequency of social media use for an agency. Additionally, practitioners devote a significant amount of time and effort correcting misinformation, countering rumors, validating the accuracy of information, and dealing with those who post noise (Taylor, Wells, Howell & Raphael, 2012). The burden of staffing constraints and investment of time toward verifying information provides skeptical practitioners with further reason to hesitate in adopting social media within their environment.

The preceding section discussed several challenges practitioners face with using social media in their environment; however, there are means to mitigate them. To overcome the identified challenges, practitioners must assess the value of developing performance measures, standards, and best practices, utilizing digital volunteers, and developing training and exercise programs associated to social media.

Overcoming the Challenges

According to a 2012 ARC survey, “Social Media in Disasters and Emergencies,” 77% of the 1,017 U.S. adults polled selected local emergency officials as the most trusted source on social media. During disasters, the public will give sustained attention to social media (Fraustino, Liu, & Jin, 2012). Twitter research also suggests tweets originating from traditional sources of authority will be rapidly propagated (Starbird & Stamberger, 2010). The public has come to expect emergency officials will be online, and authorities are beginning to recognize this. On the day of the Boston Marathon bombings, Boston authorities presented the public, through their Twitter accounts and traditional media environments, a clear, calm, and reassuring picture of what to do next (Sieczkowski, 2013).

Performance Measures

It is important to ensure performance measures are developed and implemented for social media. These measures will help in the development of standard operating procedures and also authenticate social media value, from an operational perspective, to skeptics. Social media success stories continue to appear; however, no standardized performance measures exist that assess social media’s effectiveness for the practitioner. Practitioners should focus on the development of objectives that recognize the value of operating in the social media environment (Hoffman & Fodor, 2010). Understanding reach, engagement, and

influence of social media communications will allow an agency to define itself in all four phases of emergency management.

Performance measures gauging the effectiveness of social media during emergencies versus nonemergency times will vary dramatically. For example, tracking growth rate of followers for an agency's social media site(s) will reflect a heavy increase during the response and recovery phases as opposed to nonemergency times found within the mitigation and preparedness phases. Agencies should not judge social media's demand (Spiro et al., 2012) based on metrics solely from the preparedness and mitigation phases, but rather on metrics from all four phases: preparedness, response, recovery, and mitigation. Research projects can provide evidence that will assist agencies in determining how to effectively use social media in future disasters. For example, the HEROIC Project discovered that public attention to Boston agencies' social media accounts increased during the Boston Marathon bombings (Sutton et al., 2013).

Guidance, Standards, and Best Practices

The lack of social media guidance in emergency management has resulted in diverse and inconsistent practitioner use at the local, state, and federal levels. FEMA Director Craig Fugate encourages state and local governments to engage with the public in social media (Fugate, 2011); however, he acknowledges the lack of universal adoption (Mazmanian, 2012). A Congressional Research Service Report on social media and disasters concludes that social media use is insufficiently developed to draw reliable conclusions about its value; more research and examination of social media value to practitioners is recommended before it is fully adopted and used for emergencies (Lindsay, 2011).

Local and state emergency management agencies' inconsistent use of social media range from some using multiple social media platforms during all four phases of emergency management (preparedness, response, recovery, and mitigation), to others having a minimal presence composed of random participation. The wide and varying degrees of social media involvement, complicated by the demands of the public, pose difficulties for practitioners to meet expectations. Compounding the challenge is the lack of universal standards for social media, which could aid in addressing the expectations of the public. However, there has been progress in tackling this gap. In December 2010, DHS established the virtual social media working group (VSMWG). Since its inception, the VSMWG has published three guidance documents on the use of social media for practitioners. The guidance documents provide best practices that agencies can reference to develop their own social media strategy (Virtual Social Media Working Group & Department of Homeland Security First Responders Group, 2013).

Continuing to document best practices and lessons learned will provide further evidence to practitioners who have yet to incorporate social media into their environment. Lessons learned from Hurricane Sandy contained many successful examples of information

sharing, data aggregation, and partnerships that encourage agencies to embrace new communication and engagement methods (Virtual Social Media Working Group & Department of Homeland Security First Responders Group, 2013). These lessons learned should empower practitioners who are hesitant or skeptical in adopting social media, to reassess their position on the topic.

Digital Volunteers

The sheer volume of social media data streams in an emergency must be filtered before meaningful patterns and trends can be detected (Kavanaugh et al., 2012). Digital volunteers can assist practitioners in sifting through these data streams and they can be used as liaisons between overburdened practitioners and social media users who seek information (St. Denis, Hughes, & Palen, 2012). Digital volunteers are often found in various not-for-profit organizational structures (e.g., Community Emergency Response Teams [CERTs], American Red Cross, and the Army Corps of Engineers). In recent years, hybrid organizations—such as Virtual Operation Support Teams²—have formed, which focus on providing social media assistance during disasters to requesting organizations.

Contributions from these organizations could benefit the practitioner and play a prominent role in moving the field of emergency management forward in adopting social media. In May 2013, Christopher Terzich, Chair of the Regional Consortium Coordinating Council, testified before the U.S. Senate Subcommittee on Emergency Management, Intergovernmental Relations, and the District of Columbia on “The Role of the Private Sector in Preparedness and Emergency Response.” In his written statement, he discussed how the CERT understands community dynamics and gives responders the ability to leverage local skill and expertise. Mr. Terzich also highlighted another organization called CrisisCommons³, which is composed of volunteers working together to build and use technology tools during emergency events.

Training and Exercises

The development of training programs and exercises is necessary to ensure social media proficiency in emergency management. These training programs and exercises should blend current emergency management training offerings with trending technologies, and include practitioners’ social media best practices and lessons learned. Training offerings have progressed. The Emergency Management Institute of FEMA now offers a course titled “IS-42: Social Media in Emergency Management.” Additionally, “Social Media for Natural Disaster Response and Recovery” is a FEMA-certified course listed in the FEMA National Training and Education Division catalog, offered by the National Disaster Preparedness Training Center at the University of Hawaii.

Holding virtual tabletop exercises (VTXs) represents a proven means to ensure social media proficiency. VTXs are a demonstrable technique by which performance can be measured and adjustments made. The goal of this training is to establish a user base that

could effectively and efficiently use social media during the response and recovery phases of a disaster (Everbridge, 2013).

Formal Adoption of Social Media in Emergency Management

Adopting social media in emergency management has a promising future. Discussions of how to develop social media standards, guidance, training, and volunteer assistance should be examined in forums, committees, and working groups composed of emergency management officials at all levels of government, social media subject matter experts, academia, nongovernmental organizations, the private sector, and citizens. These collaborative efforts could address challenges and determine how to incorporate social media into concepts and principles of emergency management, specifically the National Incident Management System (NIMS), while hearing how their adoption would affect the public.

Incorporating Social Media into NIMS

NIMS documentation contains only a brief section regarding the use of Internet-based technology. Also, the documentation has been updated only once since its issuance in 2004. The guidance is vague and does not offer clear direction for incorporating Internet technology (Hughes & Palen, 2012) into the practice. NIMS is a dynamic system that promotes ongoing maintenance of incident management and is reflective of best practices and lessons learned. Social media best practices and lessons learned during emergencies have without question provided an opportunity to revisit NIMS and consider making modifications. These modifications would focus on ensuring that social media is documented appropriately as a means to efficiently and effectively communicate from the practitioner perspective.

Collaboration

Social media is a permanent fixture in crisis communications. Practitioners must look at their advantages and work toward adopting them within their environment while reducing the negatives that currently exist. These collaborative efforts should include the VSMWG and the National Integration Center (NIC). The NIC was responsible for initially gathering together emergency management organizations to implement NIMS. It is only appropriate that the NIC take the lead on updating the documentation now. For social media to be formally adopted within emergency management, it requires collaboration. The challenges social media pose, and how to overcome them, have been identified and now it is a matter of taking action to accept the technology in emergency management.

Endnotes

¹ <http://www.heroicproject.org/>

² <http://idisaster.wordpress.com/2012/02/13/what-is-a-virtual-operations-support-team/>

³ <http://crisiscommons.org/>

BRIDGING THE DIVIDE

Social media have changed and continue to change the ways in which people communicate, connect with others, and access information during mass emergency events. Disaster management practice and research have an interest in these changes because the types of interactions that social media enable could inform and even shape aspects of future emergency management.

In the United States, emergency management has explored ways that social media could be used to complement existing response efforts (Hughes & Palen, 2012; Latonero & Shklovski, 2011; St. Denis et al., 2012; Sutton, 2009; White, 2011). Emergency management at the federal level has begun to consider the role of social media (FEMA, 2013), as demonstrated by the inclusion of a social media course in official emergency management training¹ by FEMA. Discussion around how responsibility for social media will fit into response organizations and processes has also taken place at national emergency management conferences (Wardell III & Su, 2011), in online communities (e.g., Social Media for Emergency Management², Virtual Social Media Working Group³), and national labs (Burns & Shanley, 2013). Though certainly not all emergency management groups use social media in their response efforts as many challenges exist, most recognize the growing use of social media by members of the public as a new channel of communication (Burns & Shanley, 2013; Hughes & Palen, 2012)

Similarly, research has sought to observe, document, and understand social media use in times of crisis. The primary focus of these research efforts has been on members of the public and their use of social media to communicate with family and friends, share crisis-related information through text and photos, and support the needs of disaster-affected communities. Most research has focused on the role of the public because their social media-enabled behaviors and interactions are so new and rapidly evolving and needed attention to understand them. However, a small but growing area of research seeks to expand and apply these understandings by studying how emergency management organizations use social media in times of crisis.

The Divide between Practice and Research

Despite efforts toward understanding and using social media in emergency management, a divide between research and practice exists, in part because of the expected reasons for such divides in other fields—difficulties in collaboration, challenges to knowledge transfer, and disagreement of focus—but it also exists because social media are so rapidly changing. In short, emergency management needs to put plans around social media into action *now* while research is trying to anticipate its *future*—in preparation for the practical plans that will need to be put into action *then*. From these equally important agendas, we see the different perspectives of practice and research arise, which we explore here.

Practice

The practice of emergency management necessarily orients to the demands of the present and the short-term future as it seeks guidance for how to incorporate social media into emergency management. With growing public use of social media in response to crisis events, practitioners face new demands and expectations by members of the public to provide information over social media in tomorrow's next event (Hughes & Palen, 2012). Practitioners feel pressure to consider the public's social media activities and incorporate the useful and relevant information back into response efforts (Denef et al., 2013; Palen & Liu, 2007; Stephens & Malone, 2009; Tapia, Baipai, Jansen, & Yen, 2011) even though the means for adoption of social media into practice is unclear. Emergency response organizations operate under conditions of great uncertainty and urgency such that social media may or may not be useful or even operational. Concerns about the trustworthiness and veracity of citizen-generated information are constant: emergency managers are liable for the actions they take on this information and therefore they must ensure it is correct. Similar to other lines of work, emergency organizations are challenged to keep pace with rapid social media advances and to find the time and resources to maintain a social media presence—as Denef et al. (2013) discuss in their examination of police Twitter communications in the 2011 London Riots. In an interview study conducted with twenty-five public information officers (PIOs) in 2009, many of the PIOs expressed the desire to be more active on social media but found it difficult to add responsibility for a new public communication mechanism to their already busy workloads (Hughes & Palen, 2012). In addition, organizational acceptance of new technologies can be slow; leaders must be convinced that benefits outweigh the risks before technology use can be sanctioned.

Under these challenging circumstances, practitioners can struggle to distribute basic emergency information over social media streams and find themselves in a position where they must justify social media use. Consequently, emergency management tends to perceive social media as tools whose use and outcomes can be measured and evaluated dichotomously as good or bad so that decisions based on social media can be clear and defensible. However, such evaluations can be premature and limit further ideas about how social media could be appropriated by emergency management. For example, when social media use is described in a manner that allows it to be easily measured and evaluated—such as the number of messages sent or the number of people who have access to a message—it can be difficult to know what (if anything) these numbers mean when social media and the human behaviors around them continue to evolve. These metrics can lead to perceptions of poor performance and premature rejection of social media as part of emergency management practice.

The all-hazards focus in the United States further complicates matters. Whereas research needs to make distinctions between the types of disasters so that researchers can explain accurately what they see, practitioners who deal with a variety of situations are left to imagine how lessons from a tornado might map to something like a terrorist attack. The

difference between these two cases is that in the terrorist attack, the aftermath becomes a criminal investigation while in the tornado the aftermath focuses on extended human rescue and recovery. As such, the social media behaviors are quite different in the recovery phase, and yet practitioners who are looking for answers may look at the lessons of “altruistic community” and “self-policing for veracity” during the immediate aftermath of a tornado event and then claim (rightly) that these lessons do not apply in the longer-term response of a criminal investigation, where checks and balances in the information sphere are different because the agent is unknown and at large. This uncertainty catalyzes different kinds of responses in the public sphere. Sometimes the research on a topic for emergency management is missing—such as social media communication about a mass crime—because the research cannot keep pace with the new phenomena. Further, most research has focused on case studies of particular events; little attention has been paid to extrapolating online behavior and lessons across different kinds of events. Practice sometimes expects things of the research that have not yet been empirically investigated.

Research

Research tends to be oriented toward anticipating or predicting the *future*. It does this in multiple ways: some research analyzes behaviors that seem to serve as harbingers that give some hint of what is to come. Other research interprets a fuller set of behaviors on display today to develop theoretical descriptions that can stand the test of time and offer a basis for comparison for rapidly changing behaviors. Still another ongoing aim of the greater research agenda is to topically survey the many different kinds of behaviors that occur with social media across the emergency management spectrum. They might be as varied as the human behaviors witnessed in the physical world before, during, and after disaster, and so this goal is still very much in progress. Central in social media and disaster research is the understanding that the tools and behaviors are under immense change, with visible differences between disaster events over time. The volume alone of the Twitter data produced in a five-year span makes this rapid change clear: Project EPIC at the University of Colorado Boulder, for example, collected 100,000 tweets for 2008's Hurricanes Gustav and Ike; 3.3 million for the 2010 Haiti Earthquake; and 26 million tweets for 2012's Hurricane Sandy (Kenneth M. Anderson, personal communication). In other words, the research of social media and emergency management can barely keep pace with social and technical advances. In this, both research and practice share the same challenge.

This natural orientation to the future of social media use means that research results can appear detached from the immediate conditions and constraints of emergency management. Furthermore, because the unit of analysis is on social media behavior during an emergency—rather than on the entire emergency itself—some emergency managers perceive the whole agenda as a kind of social media evangelism, when in fact researchers are trying to isolate one aspect of a much larger response. Additionally, research on social media in emergencies tends to be drawn to individuals and groups that are equipped to handle social media because that is “where the action is.” In other words, it is much harder

to say something about social media in emergency response in places where there is an absence of it. Research that takes social media use as its scope therefore needs to be careful that its claims do not overreach to describe universals about what was happening across the event under study, and the reader has to perceive this distinction as well. Though research can be done where social media is not in use, the research agenda has only recently become ready to contribute to such questions of technology adoption in a meaningful way, as a clearer future now exists to compare to current practical matters. In the meantime, many of the subjects explored by researchers are seen as atypical and too advanced for all practical purposes, and consequently, practitioners can find it difficult to transfer findings to practice.

Another point of disconnect lies in the potential absence of groundedness by researchers in the domain. For example, social media in disaster research conducted by computer scientists may not be attentive to the processes, protocols, and practice of emergency management. Recommendations to emergency management from such research might be absent, misguided, or impractical for the current practice. In addition, research in the relatively new field of social computing has not necessarily had much experience in the world of policy; emergency managers, on the other hand, frequently work with policy as it affects the institutional imperatives and directions under which they operate. A multidisciplinary approach to conducting research in this domain—one that includes disaster sociology, emergency management, policy making, and social computing expertise—can help alleviate these concerns; however, this approach may not be practical because it requires more time, resources, and coordination.

Bridging the Divide

In this section, we identify and discuss several ways in which practice and research can work toward bridging the divide between them. We begin by noting how the research agenda could be expanded to provide insight and guidance more directly relevant to practitioners. We then discuss how research and practice, through understanding their respective professional roles, could have more circumspect interpretations of research findings and practitioner needs. Next, we outline how researcher-practitioner relationships could create conditions for effective work, including collaboratively built tools and solutions that address the challenges that emergency managers face when aspiring to a future with a more integrated social media plan. Lastly, we consider how social media might be incorporated into emergency management policies and structures and discuss the development and sharing of social media best practices.

Expand the Research Agenda

Much of the existing research focuses on members of the public during the response phase of large-scale, high-impact crises arising from natural hazards, where social media activities are abundant, visible, and stand outside downstream issues like criminal investigations.

Little understanding exists—from an emergency management perspective—around how to apply social media techniques to different conditions (e.g., disaster types, stages, locations, demographics). Furthermore, research has only begun to understand what communication strategies are effective in a social media world. As a recent example, Sutton et al. (2013) studied Twitter communications by state and federal organizations in response to the 2010 Deepwater Horizon oil spill and found that the networked structure of Twitter user profiles affected information spread. Specifically, health and public safety organizations tended to be more centrally located within these networks, suggesting that these organizations have the potential to reach a more widespread public audience than others. Another line of research investigates diffusion of information through Twitter social networks, and finds that information by emergency agencies is more likely to be re-tweeted than other sources (Starbird & Palen, 2010), and that information from those closest to an event is more likely to be propagated than by distant, curious onlookers (Starbird, Palen, Hughes, & Vieweg, 2010).

Making research more accessible to practice, both in presentation and practical application, would also help to bridge the divide. Researchers can work toward this goal by not only presenting and publishing findings in academic venues, but also in places that reach an emergency management audience—such as meetings and workshops (e.g., Burns and Shanley, 2013) with emergency responders and emergency management conferences and publications.

Understand Roles and Build Relationships

Another step toward bridging the divide is to build a common understanding of practice and research roles regarding social media in emergency management. By understanding these roles better, practice and research will know what to expect from one another and the strengths of each can be leveraged. A role for emergency practitioners is to consider and communicate what social media tools and strategies can or cannot be reasonably adopted. Practitioners bring their expertise and their deep commitment to the calling of public health and safety to bear on priorities as an emergency is unfolding. Research strives to offer a more critical, objective view of social media use. Some of the ideas of social media held by emergency managers are opinion-based, whereas the aims of research are to find empirically based evidence. To do so, however, requires sometimes limiting the scope of inquiry at the outset, and expounding upon the conditions under which these claims may or may not hold. Practice and research need to thoughtfully consider places where social media can fit into response efforts without jeopardizing the safety and welfare of those affected by a crisis. Still, a technical education component may be required to make the incorporation of social media possible in emergency response.

A common problem between research and practice in any field is that each tends to operate independently. To help overcome this problem, researchers and practitioners can work to build relationships that encourage communication and foster collaboration. Efforts

such as the Natural Hazards Center Workshop⁴ held annually in Boulder, Colorado, strive to make such relationships possible. In particular, it can be difficult to obtain research access to a crisis event in progress—a necessary precondition to transferring research results to practice. With relationships established in advance, researchers could observe and study emergency practice in situ, and emergency managers will feel comfortable allowing them to do so.

Such relationships can then engage in mutual informed development of tools and policies that support the current state of emergency practice—an effort that benefits from collaborative efforts with emergency practice. Using participatory design methods (Büscher, Kristensen, & Mogensen, 2008; Büscher, Mogensen, & Kristensen, 2009; Kristensen, Kyng, & Palen, 2006), researchers and practitioners can collaboratively explore, design, test, and implement solutions that address future emergency management needs. In this participatory design model, researchers bring the technical design and implementation expertise, and practitioners bring the domain expertise. Current tools for monitoring social media have been designed for a broad, general-purpose audience; thus, these tools do not necessarily address the particular needs and concerns of emergency managers (e.g., data veracity, traceability, and rumor management). By including emergency managers in the design aspects of the research activities, the resulting products have a better chance of more accurately suiting practice.

The changes brought about by social media have placed new demands on both research and practice. “Keeping up” is a problem for both worlds; an appreciation of this problem might pave the road forward toward joint problem-solving.

Consider Organizational Fit & Develop Best Practices

A shared focus about where social media activities could fit within formal emergency response structures and processes is critical, since where it might fit is in part determined by what those activities would be; this is both a problem for research and practice. Currently, NIMS—the management system under which all emergency response organizations are organized in the United States—lacks guidance and consideration for using social media. In particular, this lack of guidance causes confusion within the Incident Command System (ICS)—the Command and Management component of NIMS—because several roles within ICS could potentially manage social media.

One such role is that of PIO. Within ICS, the PIO’s duties include distributing information to the public about emergency events, fielding questions from the public, and monitoring the public information arena so they can correct false rumors and misinformation. The PIOs need to distribute information and their orientation to the information needs of the public seem to be a natural fit for social media, and in practice, many PIOs have adopted the role of managing social media (Hughes & Palen, 2012).

However, the PIO is not the only role where social media responsibilities could lie. The Planning Section within ICS is responsible for collecting and analyzing all incident information, especially information that provides situational awareness and/or informs response efforts. Social media activity generated during an event has been shown to produce information that could contribute to situational awareness (Cameron et al., 2012; Johnson et al., 2011; Vieweg et al., 2010), and therefore the Planning Section may also be a place well suited to social media responsibilities.

By experimenting with social media and creating, sharing, and testing ideas generated from this experimentation, emergency responders can come to better understand and define future policy about where social media responsibilities within ICS (and ultimately NIMS) might lie—whether it is in the role of the PIO, the Planning Section, another role within ICS, or a new yet-to-be-defined role.

A subsequent step toward bridging the divide between practice and research is to develop “best practices” around social media that can be shared, tested, and refined within the emergency management community. Best practices are methods or techniques for accomplishing particular tasks that have consistently shown better results than other ways of completing the same tasks. Emergency practice has evolved largely through the development of best practices that emergency managers share and constantly improved upon; they feel that the best practices of today shape the emergency response processes and policies of tomorrow. Critically, however, best practices with respect to social media must be communicated in a way that ensures flexibility in their application. We see emergency management as a flexible working organization—this is a critical aim of NIMS—and so it is important to appreciate that those same expectations of flexibility must be applied to guidelines for social media because the underlying behaviors are in such flux and can touch upon so many parts of the emergency management organization. Responsibility for developing best practices falls primarily to emergency managers, as they have embedded knowledge of emergency response and the means to test and develop these practices. However, White and Plotnick (2010) advocate that research can also contribute to the development of best practices.

Conclusion

We have summarized our perspectives about the challenges that contribute to a divide between emergency management practice and research with respect to social media. Social media are rapidly evolving and, during disasters, they reflect emergency response complexities. However, we also advocate that as practice and research work together through the means outlined in this paper—expanding the research agenda, understanding roles, building relationships, considering organizational fit, and developing best practices—they will advance combined knowledge about the potential and realities of social media, and

move together toward envisioning how social media may be used as a resource in emergency management.

Endnotes

¹ <http://www.training.fema.gov/>

² <http://www.sm4em.org/>

³ <http://www.hSDL.org/?abstract&did=722650>

⁴ <http://www.colorado.edu/hazards/workshop/>

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CHAPTER 12: PROFESSIONALIZATION

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ABSTRACT

Emergency management is often referred to as a profession in textbooks and scholarly publications with little regard for whether the field possesses the recognized hallmarks of a profession - monopoly, autonomy, and authority. Recognized professions create dependence in those outside the profession based on the abstract, specialized knowledge and expertise they possess. A profession's power is derived from the dependence of others. While there have been numerous efforts to advance the field's movement toward becoming a profession, the field still does not evidence the necessary hallmarks or requisite power to claim such status. Vision, coalescence, and commitment will be essential elements of future steps toward professionalization.

This chapter examines the efforts that have brought emergency management to where it is today from the perspective of an academic and practitioner that have been engaged in, and chronicled, professionalization activities. The efforts examined include: delineation of identity; creation, expansion, and utilization of higher education; creation and fine-tuning of standards and credentialing; and, fostering of professional organizations. Additionally, necessary next steps toward professionalization, challenges with structural representation issues, and areas for greater reflection and efforts are also addressed.

AN ACADEMIC'S PERSPECTIVE

Introduction

This chapter addresses emergency management's advancement toward professionalization from the perspective of the key characteristics of a profession, the efforts undertaken by the practitioner and academic community, and the creation or furtherance of necessary structural components of a profession. Professions possess unique characteristics that allow them a level of power based on the dependence of those outside the profession on their expertise (Cwiak, 2009; Cwiak, 2011a; Wilson, 2000). The emergency management community has been purposeful in advancing efforts that will allow it that power, specifically in the areas of delineation of identity; creation, expansion, and utilization of higher education; creation and fine-tuning of standards and credentialing; and fostering of professional organizations. Indeed, efforts designed to advance emergency management are continuously ongoing in both the practitioner and academic communities, individually and as a function of synergistic efforts.

The sections that follow will review emergency management's current status; the matter of identity; higher education's role in the advancement of professionalization efforts; the roles and standards of credentialing; the importance of professional organizations; recent efforts that advance the professionalization agenda; and necessary next steps toward professionalization. Through these sections, the efforts and organizations that have pushed emergency management toward professionalization will be discussed. Additionally, areas where there is need for additional reflection or efforts will be addressed.

Emergency Management's Current Status

Emergency management, while often referenced as "the profession of emergency management" in textbooks and scholarly publications (Drabek, 2004, 2007; Drabek & Hoetmer, 1991; Haddow, Bullock, & Coppola, 2007; Kendra, 2007; Sylves, 2005; Waugh, 1999; Waugh & Streib, 2006), does not yet possess the true hallmarks of a "profession." To warrant the designation of "profession," a field must possess the key characteristics of monopoly, autonomy, and authority, and be able to evidence power over those outside the profession based on their necessary dependence on the abstract, specialized knowledge and expertise of those within the profession (Cwiak, 2009; Cwiak, 2011a; Wilson, 2000). There are many indications that the field of emergency management is moving toward becoming a profession, but arrival at that destination is not a given. The steps the emergency management community takes at this juncture must be purposeful in advancing professionalization goals. Those steps will require vision, coalescence, and commitment, and they will be more difficult steps than those that have been taken in the past. Yet, they are necessary steps, as without the status of profession, emergency management will

continue to be vulnerable to definition and re-definition by legislators and hobbled by systems and structural frameworks that impede effective practice.

To best understand where emergency management is going, it is important to understand where it has been. It is also of value to examine recent efforts and to provide a glimpse of the road ahead. However, it must be noted at the outset that ownership over the professionalization process by the emergency management community is paramount to the success of the effort. The community's advocacy and support of emergency management's identity and goals must be unwavering. The end goal of emergency management's recognition as a profession supersedes governmental boundaries in regard to the establishment and endorsement of identity. That is not to say that a profession does not interface with specific governmental structures and laws in each country, but instead evidences that core principles and doctrine in emergency management are universal across jurisdictions and countries.

The Matter of Identity

Emergency management and disaster relief activities have long been a focus at the local level and with voluntary organizations such as the American Red Cross; but early on, the federal government became involved only on a disaster-by-disaster basis (Kreps, 1990). Despite the dramatic impacts of some large-scale disasters in the early twentieth century, the United States had no general disaster policy or program to respond to them until 1950, relying instead on ad hoc laws passed post-event that focused on providing relief for specific disasters (Platt, 1999). In 1950, the Disaster Relief Act of 1950 and the Civil Defense Act of 1950 set the stage for a more consistent, coordinated, and collaborative relationship between the federal government and the states as it applied to preparedness from civil defense-related events and preparedness, response, and recovery from disasters (Hogue & Bea, 2006). These two pieces of legislation were significant in that they created the structure within which a portion of responsibility was assumed by the federal government in an area that was previously considered to be solely a state and local responsibility. Indeed, this legislation can be said to be the first formalized movement toward the creation of emergency management as a field in that the Federal Civil Defense Administration provided a continuous, unbroken line of federal personnel focused on activities germane to emergency management. This was also the starting point of an institutionalized knowledge base that ultimately served as a foundation for emergency management's establishment as a field.

The Disaster Relief Act was intended to provide a more consistent and orderly method of providing disaster relief to the states and was the first permanent disaster law to be passed by Congress (Platt, 1999). In particular it "established ongoing (permanent) authority for federal action," "shifted responsibility from Capitol Hill to the White House," and "committed the federal government to provide specific types of limited assistance following a disaster, as well as certain help before disasters occurred, including actions to foster the

development of state and local disaster plans” (Bea, 2007). The Civil Defense Act of 1950, although specifically focused on wartime threats, utilized a similar approach as the Disaster Relief Act in that it acknowledged the purview of civil defense as being that of the states, but allowed for federal support and facilitation in planning and preparation and a mechanism for federal assistance in case a locality was overwhelmed and unable to deal with an enemy attack (Bea, 2007). The value placed in these two acts on core emergency management functions, and on the creation of a more formal system of response and recovery supported with resources from the federal government, validated the function of emergency management at the local, state, and federal levels.

The Disaster Relief Act was initially administered by the Housing and Home Finance Agency (1951-1953), but was thereafter (1953-1974) “housed within a series of civil defense agencies” (Platt, 1999). Despite the two distinct focuses of the Disaster Relief Act and Civil Defense Act, there was a great deal of ideological overlap and similar collaborative activities that established the federal government in a supporting role in state and local level civil defense and disaster relief efforts. The Federal Emergency Management Agency (FEMA; created in 1979 by President Carter) merged a number of agencies handling different preparedness and disaster-related activities including the Defense Civil Preparedness Agency, which served as a tacit acknowledgement of the overlap and similarities in the activities taking place between those focused on emergency management and civil defense activities (Sylves, 2007), and established what has become one of the most globally recognized entities engaged in emergency management.

Many laws and programs have been developed since 1950 and have since been revamped, amended, enhanced, and re-evaluated in response to major disasters that have occurred along the way. As the federal legislation has evolved over the years, it has resulted in both an expansion of the federal role and an increased focus on the promotion of planning and mitigation-oriented activities at the state and local levels (Rubin, 2012). As legislation has been revisited and re-shaped to address concerns that arise after disasters expose vulnerabilities, so too have the responsibilities and expectations of emergency management offices and partners at the local, state, and federal level changed. There have been concerted efforts on the federal government’s part to strengthen the collaboration, coordination, and local commitment to reducing disaster costs. Efforts focused on standardizing emergency management activities and creating a more seamless interface between all partners, while not compliance-mandated, are tied to the ability to access funding initiatives and resources (e.g., the National Incident Management System [NIMS], Incident Command System [ICS], Hazard Mitigation Grant Program [HMGP], etc.). These efforts have sometimes been met with angst and resistance by those in the emergency management community at the local and state levels, but lacking the professional strength to guide or object to these attempts by the federal government, the emergency management community has often found itself with little voice or recourse.

The emergency management community's ownership and engagement in the molding of its identity has been both one of its greatest frustrations and more recently, one of its most noted triumphs (Cwiak, 2009). In 1978, the National Governor's Association (NGA) defined emergency management as "the coordinated and collaborative integration of all relevant stakeholders into the four phases of emergency management (mitigation, preparedness, response and recovery) related to natural, technological and intentional hazards." While the NGA's statement of identity was not generated by the emergency management community, it was a clear delineation of the field's general role and set the frame for later definitional frameworks. In 1991, Drabek and Hoetmer defined emergency management as "the discipline and profession of applying science, technology, planning, and management to deal with extreme events that can injure or kill large numbers of people, do extensive damage to property and disrupt community life." Drabek and Hoetmer's definition notably advanced the discussion about the status of emergency management by labeling it as both a discipline and profession.

In 2007, a critical milestone regarding emergency management identity was reached when a group of stakeholder representatives from the emergency management community (e.g., the NFPA 1600 Committee, the International Association of Emergency Managers [IAEM], the National Emergency Management Association, the Emergency Management Accreditation Program, FEMA, the higher education community, and the practitioner community) agreed upon a definition, vision, mission, and principles of emergency management. The document, *Principles of Emergency Management* (Blanchard et al., 2007), advanced emergency management's professionalization efforts in three key areas.

First, it stood as a statement of identity produced and endorsed by the emergency management community itself via its key stakeholder organizations and representatives' participation in the process and vetting across their organizations and groups. The breadth of this endorsement – as evidenced on the document itself by the organizational emblems ascribed to it – was purposeful in that the goal was to self-define emergency management from within the community with the organizational representatives that had actively been pushing forward singular efforts.

Second, it established boundaries around, and expectations for, the practice of emergency management. The document did this by concisely capturing emergency management's identity and its key principles. Interestingly, the definition, vision, and mission are both specific as to the type of function emergency management is and the goals that frame activity, and broad in regard to what specific skills, education, or training are required. Of additional note, the disciplinary nature of emergency management and the extent to which any given discipline could create an "emergency manager" was not specifically addressed in the *Principles of Emergency Management* document; yet, the eight principles clearly call for knowledge from a smattering of different disciplines.

Third, even though created as a U.S.-centric effort, it created an identity that resonated globally. To date, the *Principles of Emergency Management* document has been translated into eight languages, has been adopted by public, private, and nonprofit partners around the world, and has served as a foundation for other efforts focused on advancing the emergency management community's agenda (Cwiak, 2011c).

The wholesale support and utilization of *Principles of Emergency Management* denoted a major milestone in the field's movement toward professionalization. After years of unsuccessful attempts to better define and internally codify the ideology of what emergency management is, and should be, the document delivered credible evidence of a field focused on unifying and moving forward. This movement was critical as, historically, most "major federal laws, executive directives, programs, policies, organizational changes, and response systems have resulted from major and catastrophic disasters"; and, as the operational landscape changed with subsequent disasters, so too did the roles and expectations of emergency management (Rubin, 2012). The challenge of external definition served as an enduring frustration to the emergency management community and was an impediment to both the advancement of the discipline and the move toward professionalization (Cwiak, 2007). *Principles of Emergency Management* delivered a clear statement of identity from the emergency management community and in doing so made an emphatic declaration to lawmakers that the definition and redefinition of roles and expectations of emergency management would no longer be accomplished without resistance.

Higher Education's Role in the Advancement of Professionalization Efforts

While the muscle for the professionalization effort must be built on identity, the fuel for the effort has come out of higher education efforts. With over 200 degree offerings in emergency management available at higher education institutions across the United States (as well as dozens in other countries), the message that a future career in emergency management requires education has been cemented. Acknowledgement of the importance of higher education in emergency management practice has also been noted in the IAEM Certified Emergency Manager (CEM) credential and in position descriptions in the public, private, and nonprofit sectors at all levels of employment (from entry-level to administrative). Further, higher education has been able to deliver dedicated researchers (through faculty efforts, research fellows, and graduate student work) to identify and further develop the body of knowledge and build the discipline.

Emergency management higher education program offerings were limited prior to 1994, with only one emergency management bachelor degree program and three certificate programs in the United States (Blanchard, 2008). In 1994, the Superintendent of the Emergency Management Institute (EMI), John McKay, with the support of FEMA's Associate Director, Kay Goss, created the FEMA Higher Education Program. The initial goal of the

program was to encourage and support “the dissemination of hazard, disaster, and emergency management-related information in colleges and universities across the United States” (Blanchard, 2008). Dr. B. Wayne Blanchard was assigned the position of program director and served in that position continuously until his retirement in late 2010. During his tenure, Blanchard “helped foster and facilitate development of emergency management certificates and degrees at colleges and universities by providing a plethora of resources – everything from sample syllabi to ready-to-teach college courses” (Cwiak, 2011b). As a result of Blanchard’s passion and dogged determination and his robust engagement with like-minded faculty across the United States,

- degree and certificate programs have been established and nurtured;
- resources have been created and collected;
- partnerships between institutions have been fostered;
- synergies between agencies have been discovered;
- dialogues between the practice, research, and academic communities have been engaged; and
- professionalization efforts have been supported.

Blanchard was driven by a “vision of emergency management as a self-regulating profession supported by a rich body of knowledge and a strong disciplinary framework” (Cwiak, 2011b), and he used the Higher Education Program’s budget to fund the development of resources that would further that vision. Blanchard understood that despite his efforts to create a strong cadre of college-educated emergency management professionals who were prepared to address the challenges facing the field, “the infrastructure necessary to allow them to best advance emergency management efforts on the ground was often stymied by others’ political agendas, a weak power base, and a lack of cohesive identity within the emergency management community” (Cwiak, 2011b). It was Blanchard’s commitment to addressing such issues, particularly that of emergency management identity, that brought together (under the auspices of FEMA’s Higher Education Program) the stakeholders for the Emergency Management Roundtable that developed *Principles of Emergency Management* in 2007.

It is unlikely that McKay and Goss fully appreciated at the outset the impact the dual decisions – the creation of the FEMA Higher Education Program and the placement of Blanchard in the Program Director position – would have on emergency management as a field and discipline. (Cwiak, 2011b)

Absent those decisions, it is difficult to imagine what trajectory emergency management would have taken, but it is unlikely that professionalization efforts would have advanced as far as they have. The FEMA Higher Education Program played a pivotal role in shaping the emergency management higher education community and fostering its engagement in activities that advanced professionalization efforts.

The Role of Standards and Credentialing

The ability to certify expertise and credential professionals based on accepted standards is a necessary component for entry into, and continuance of good standing in, a profession. Standards may also be attached to program expectations, particularly public-sector programs. The development of standards and credentialing programs is a part of movement toward professionalization and begins the process of defining and validating the expected knowledge, level of skill, and professionalism representatives of the field should possess and display. The challenge lies in understanding the evolutionary nature of these standards and credentials and understanding where they will fit (if they fit at all) in the eventual structure of entry into, and continued practice in, the profession.

Standards such as NFPA 1600 from the National Fire Protection Association (NFPA) and the standards from the Emergency Management Accreditation Program (EMAP), although both still voluntary, have helped frame consistency in the expectation of performance at the program level. Both of these standards have been heavily vetted across the emergency management community and are reviewed and revised on regular cycles (National Fire Protection Association, 2010; Emergency Management Accreditation Program, 2010). The EMAP standard, which was originally based on the NFPA 1600 standard, has been purposefully structured to be able to measure compliance. NFPA 1600 does not provide such a measurement structure; it provides statements of what should be done, but does not explain the type of evidence necessary to show the standard has been met.

The NFPA 1600 standard, while valuable for setting a program expectation baseline, does not offer an accreditation platform. EMAP does offer such a platform to public-sector organizations at the federal, state, local, university, and agency levels, but participation requires the commitment of hundreds of personnel hours and typically many thousands of dollars. With no requirement for this type of program accreditation, the challenge for those seeking accreditation is in making the case for the expenditure of time and money. The majority of the forty-six programs that have been accredited as of early 2014 are state-level programs (thirty of forty-six).

At an individual level, IAEM offers CEM and the Associate Emergency Manager (AEM) credentials. The CEM credential seeks to “raise and maintain professional standards” with structured credentialing criteria that includes an experiential component, service to the emergency management community, and bachelor degree requirements that are intended to “certify achievements within the profession” (International Association of Emergency Managers, 2014). The AEM credential is for those who have not yet garnered the necessary experience or made the professional contributions required to meet the CEM criteria. Over 1,000 practitioners globally presently hold an AEM or CEM certification from IAEM (International Association of Emergency Managers, 2014).

There are also credential offerings in specific sub-fields of emergency management and at the state level that seek to supply credibility and assurances of a minimum expectation for knowledge and experience. Credentialing efforts often are a dual-edged sword in that while they offer the aforementioned credibility and assurance they are really only as good as the credential's framing of expectations, the organizational review process, and the system that supports them. Often, there is considerable expense tied to obtaining and maintaining a credential for the individual, and the credentialing process (pre-credentialing education, exam preparation, exam fees, pack review, and certification maintenance) becomes a cottage industry in and of itself for the organization administering the credential.

It only takes credentialing a few recognized leaders in a field to create buzz around a credential that can then snowball into a status-driven competition for recognition. That is not the type of credentialing that advances a field's professionalization directives. Instead, it is a detractor from professionalization, as it creates the illusion of designated professional standards to those outside the field and these standards are often incomplete, not well vetted, and not appropriately linked in to the overall community's efforts to advance its overall goals. Yet, credentialing is a reality of the billion-dollar market that focuses on professional development and gaining an edge in a competitive job market – it will not go away (Brown, 2006). The challenge of a field pushing to professionalize is to detail what entry baseline credentials or licensure will require; to decide to what extent its gatekeeper organization will manage, award, comment on, or recognize additional credentials; and to what extent other entities will be allowed to license or credential within the purview of the profession without facing legal action. It could be that credentials that are relevant today will become irrelevant once access to the profession is controlled.

The Importance of Professional Organizations

Professional organizations are a necessary and important part of the professionalization process. Professional organizations that have either a direct or indirect nexus with emergency management exist at all levels (local, state, national, and international); in all sectors (public, private, and nonprofit); for specific interest areas (business continuity, homeland security, public health, etc.); and for specific groups (women, race, students, etc.). Professional organizations are able to advance coalescence efforts, forward movement on professional agendas, and advocate for the field. Professional organizations at the national level in the United States, such as the National Emergency Management Association (NEMA) and IAEM, have operational agendas that seek to advance overall emergency management directives; yet they serve different audiences and sometimes find themselves in conflict. NEMA serves as a “professional association of and for emergency management directors from all 50 states, eight territories, and the District of Columbia” and “provides national leadership and expertise in comprehensive emergency management; serves as a vital emergency management information and assistance resource; and advances continuous

improvement in emergency management through strategic partnerships, innovative programs, and collaborative policy positions” (National Emergency Management Association, 2014). IAEM seeks to represent the interests of emergency management professionals around the world. The organization boasts over 5,000 members globally and “is dedicated to promoting the "Principles of Emergency Management" and representing professionals whose goals are saving lives and protecting property and the environment during emergencies and disasters”(International Association of Emergency Management, 2014).

Both of these organizations invest heavily in advocacy efforts and have mechanisms within their organizations that create, promote, monitor, and push forward legislative agendas relevant to their mission for emergency management and their specific membership. IAEM’s mission and obligation is larger than NEMA’s, as NEMA represents the interests of state and territory-level directors from a U.S., government-centric perspective, while IAEM represents an international emergency management audience from all sectors (public, private, and nonprofit) and at all levels of operations and government (local, state, federal, and international). Both of these organizations have helped advance the field of emergency management, sometimes as a show of force based on membership numbers and other times as a function of influence. Of note, IAEM has better situated itself to address the needs and agenda of the profession of emergency management by fostering the professional dialogue at an international level. This is necessary to achieve a key tenet of a true profession – that the abstract, specialized knowledge and expertise that exists within the purview of a profession, which while affected by government structural or organizational challenges, is not ideologically changed from country to country (Cwiak, 2011a).

Recent Efforts that Advance the Professionalization Agenda

Every time a member of the emergency management community clarifies the identity of the field to a legislator, contributes time to strengthen a representative professional organization, or helps the next generation of emergency managers to meet future challenges, movement is made toward professionalization. The notion that movement toward professionalization only occurs with big, dramatic moments is a fallacy. Every effort and commitment that individual emergency management community members make in their day-to-day work that represents forward movement, however small, matters.

The emergency management higher education community has been working diligently to contribute to the professionalization effort for the past decade, often in partnership with the practitioner community. Four noteworthy recent efforts in this vein - curriculum outcomes (Jaffin et al., 2011), accreditation issues (Brown et al., 2012), the purview of the discipline of emergency management (Jensen, 2011), and research standards (Jensen, 2013) – were supported and facilitated by the FEMA Higher Education

Program. These are the types of activities that help to better standardize expectations for education and research and that advance the emergency management community's directives and agenda.

A group of academics from colleges and universities across the United States met in late 2010 and early 2011 to create a document that provides “an informational baseline for the types of knowledge, skills, and abilities that one should expect a person holding an undergraduate degree in emergency management to have” (Jaffin et al., 2011). This document, *Curriculum Outcomes*, provides three groupings of knowledge that students should possess: foundational tenets, core areas, and supporting areas. The *Curriculum Outcomes* document advances professionalization efforts by offering a snapshot of what can and should be expected of those who graduate with an emergency management degree. It is the first step in moving toward a more standardized educational outcome expectation for graduates of emergency management higher education degree programs. This step is crucial not only from a credibility standpoint at the individual institution level; it is also important as a building block of future accreditation efforts.

In September 2012, a small group of academics and other professionals involved in accreditation met to discuss how the emergency management community should move forward regarding the accreditation of emergency management higher education programs. To date, accreditation efforts have not been wholly embraced in the emergency management community, as they have been viewed by many as premature (Cwiak & Muffet-Willett, 2009). The group discussed accrediting body structure, quality guidelines, and potential challenges to overcome. A series of next steps were delineated and it appears accreditation efforts will move forward with stronger direction from the emergency management higher education community. Accreditation is important to the professionalization effort, as a degree at an accredited institution is often a partial requirement for entry into a profession.

Also in September 2012, the higher education community pulled together researchers and academics to address the purview of the discipline of emergency management. This rich discussion was purposeful in that the strength of the discipline is tied to, and helps support, the identity and strength of the field. A strong and clearly delineated discipline is one that, among other things, has identified the body of literature relevant to the discipline, has defined parameters for the creation of new knowledge and data collection, has a dedicated group of scholars, and has identified how it should relate to the practice of emergency management (Jensen, 2011). A continuing focus on shaping the discipline is yet another effort that advances emergency management professionalization.

In 2013, a group of academics were gathered to discuss and develop research standards. The group's directive “included discussion and debate related to what the research and publishing standards should be for students and faculty, research standards

for conducting research including methodological approaches, research standards for publishing research including primary outlets for dissemination of EM research, and ethical guidelines for EM research” (Jensen, 2013). The research standards produced by the group will guide scholarship in the academic discipline of emergency management.

Necessary Next Steps toward Professionalization

Over the past decade emergency management has experienced steady forward movement on its path toward professionalization, but there is still a great deal of introspection and work to be done before it can be said that emergency management possesses the key characteristics of a profession. The emergency management community must focus intently on these characteristics and develop a well-thought out and deliberate strategy that ensures the necessary development and maturation in the key areas of monopoly, autonomy, and authority.

In regard to monopoly, which is characterized by “abstract, specialized knowledge that requires a university education and a knowledge base that is fostered, informed, and continually molded by professional associations, professional journals, universities, and the overall professional culture” (Cwiak, 2011a), next steps will need to include further identification of the body of knowledge, continued efforts to build the discipline, and extensive discussions about the activities and partnerships that are necessary to create the strength needed to sustain monopoly. The emergency management community will have to commit to what is in its purview and what is on the periphery of its purview. The clarity of emergency management’s identity and role in the public, private, and nonprofit sectors will have to be crystallized so that where it begins and where it ends is easy to see by those both inside and outside the practice of emergency management.

The next steps to move toward the other two key characteristics – autonomy, which allows professionals to rely on their own judgment “based on their mastery of the knowledge base,” but which also necessitates an “accountability mechanism” that ensures professional standards are met, and authority, which “ensures that access to the profession is regulated and controlled” (Cwiak, 2011a) – will keep the emergency management community busy for many years to come. These steps will include discussions that span the entire emergency management community across the globe, and then necessarily move into country-specific requirements. They will include the creation of accepted standards across the emergency management community; an extrapolation from those standards of general learning outcomes; a rigorous accreditation framework for colleges and universities offering emergency management higher education degrees; a set of criteria for baseline entry into the profession of emergency management; the development of a strong set of ethical standards; and the creation of an independent gatekeeper organization that will control access to the profession, monitor continuing education requirements, and sanction behavior that doesn’t meet ethical or quality of practice standards.

Conclusion

The field of emergency management still has much work to do before it can be considered a profession, but it is making steady progress. Moving forward, the challenge will be to invest the community's time and effort strategically on the projects that are necessary to advance the collective goal. This will require vision, collaboration, humility, advocacy, and a tremendous amount of determination. Those currently in the field are in an enviable position, in that the legacy of emergency management's development into a profession continues to be written in the here and now. The necessary next steps in the professionalization process will be undertaken by people currently in, or soon entering, the emergency management community. To that extent, the forward movement of emergency management's professionalization effort is a call to action – emergency management's evolution is in the hands of those committed enough to step forward and engage in the dialogue.

A PRACTITIONERS PERSPECTIVE

Introduction

The role and profession of emergency management has never been more important than it is now. The number and intensity of disasters are increasing, as are the sources of international threats. However, a 2013 article by an emergency manager (Holdeman, 2013) challenges the field of emergency management by asserting that emergency management is not a profession. He cites instances of inexperienced or untrained individuals being selected to serve as a community's emergency manager. He also states emergency management positions are among the first to be cut due to tight budgets.

Most professions are defined as occupations requiring extensive education, experience, mastery of specific skills and specialized knowledge. They often have levels of standardization, accreditation, certification, credentials, and/or licenses, and use professional organizations to advance the profession and provide oversight. These components are likewise critical to emergency management.

As the field of emergency management grows, it is advancing toward recognition as a profession. Applicable standards are being developed and strengthened. Opportunities for education and training are increasing. Programs and professionals alike are being vetted and recognized for their effectiveness.

This section describes the development of emergency management from an occupation to a profession, from the emergency management practitioner's perspective. It begins with a brief discussion on the establishment of a set of principles of emergency management, which define the profession. The section then describes a set of ethics to which its professionals should adhere. The discussion then reviews the methods by which emergency management programs and professionals are measured, through standards and accreditation, and certifications. Next, it discusses the training and education opportunities available to emergency management professionals. Then, it describes how emergency management professionals collaborate through publications, conferences, and professional organizations. Finally, it concludes with a brief discussion of some future trends in emergency management.

Principles of Emergency Management

The first step in developing emergency management into a profession is the establishment of a common set of core principles. Several years ago, the FEMA Emergency Management Institute (EMI) convened a representative working group of emergency management practitioners and academics to develop a mission, vision, and set of principles of the profession of emergency management. This working group attempted to be specific and

agreed upon the following set of principles of the profession (FEMA, n.d.), largely to convey the scope, approach, and philosophy of emergency management. The working group determined that emergency management must be:

1. Comprehensive – Emergency managers consider and take into account all hazards, all phases, all stakeholders, and all impacts relevant to disasters.
2. Progressive – Emergency managers anticipate future disasters and take preventive and preparatory measures to build disaster-resistant and disaster-resilient communities.
3. Risk-Driven – Emergency managers use sound risk management principles (hazard identification, risk analysis, and impact analysis) in assigning priorities and resources.
4. Integrated – Emergency managers ensure unity of effort among all levels of government and all elements of a community.
5. Collaborative – Emergency managers create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication.
6. Coordinated – Emergency managers synchronize the activities of all relevant stakeholders to achieve a common purpose.
7. Flexible – Emergency managers use creative and innovative approaches in solving disaster challenges.
8. Professional – Emergency managers value a science and knowledge-based approach based on education, training, experience, ethical practice, public stewardship, and continuous improvement.

Subsequently, the Department of Homeland Security, FEMA, IAEM, NEMA, Emergency Management Accreditation Program (EMAP), and NFPA attached their logos to the publication of these principles, showing their support of and concurrence with them. The profession of emergency management had established a widely accepted set of principles.

Ethics

As a profession grows, its members identify norms, ethics, etc., to serve as the ideal for members of the profession. While it is a code of ethics for membership in IAEM, as opposed to the field as a whole, the only code of ethics for the profession to date is the one drafted and adopted by IAEM, which was approved on January 31, 2011, and published in the IAEM-Global Administrative Policies & Procedures on the IAEM website (IAEM, 2011). The code of ethics includes areas such as competence, professional independence, conflicts of interest, confidentiality, professional responsibility, and fiscal propriety, among others.

Evaluating Programs and Professionals

To ensure the effectiveness of emergency management programs, as well as the individual professionals, across the country, there must be standards in place. There must also be a means of assessing programs and individuals to those standards. These standards and programs in the field of emergency management are discussed below.

NFPA 1600

The NFPA Standards Council established a Disaster Management Committee in January 1991 and gave it the responsibility for developing documents relating to preparedness for, response to, and recovery from disasters resulting from natural, human, or technological events. The first document this council began drafting was NFPA 1600, Recommended Practice for Disaster Management, now termed Recommended Practice for Disaster/Emergency Management and Business Continuity (NFPA, 2010). That first draft NFPA 1600 was presented to their membership at the 1995 Annual Meeting in Denver, Colorado, producing the 1995 edition of NFPA 1600. NFPA has issued numerous updates, with editions in 1998, 2001, 2004, 2007, 2010, and most recently 2013.

International Standards Organization's Business Continuity Standards

The International Standards Organization created the following standards:

- Societal security – Business continuity management systems – Requirements
- Societal security – Business continuity management systems – Guidance
- Information security - Security techniques – Guidelines for information and communication technology readiness for business continuity

ASIS International Resilience Standards

ASIS International, an American National Standards Institute (ANSI)-accredited standards organization, has published the Organizational Resilience: Security, Preparedness, and Continuity Management Systems—Requirements with Guidance for Use (ASIS International, 2009) standard, which was adopted by the U.S. Department of Homeland Security's Private Sector Preparedness Program (PS-Prep). ANSI/ASIS is a voluntary program designed to enhance national resilience in an all-hazards environment by improving private-sector preparedness. IAEM has received a FEMA grant to explore possibly leveraging existing collaborative efforts, such as this, to set a way forward.

FEMA's Capability Assessment for Readiness

In 1997, the FEMA Director deployed the agency's Preparedness, Training, and Exercises Directorate to work closely with the states in developing a self-assessment document for states to use in evaluating their emergency management programs. The initiative was designed to inform Congress if it was getting its money's worth from the Emergency Management Performance Grants provided each year to the states. This initial FEMA effort

resulted in the creation of a process termed Capability Assessment for Readiness (CAR). The states assessed themselves using this instrument, very similar in scope and substance to NFPA 1600, in 1997 and 2000.

The Emergency Management Standard

The Emergency Management Standard is the set of sixty-four standards that assess the effectiveness of a jurisdiction's emergency management program (Emergency Management Accreditation Program, 2010). The EMAP is based on these standards. According to the NEMA EMAP web site,¹ as of October 2013 (the latest data available at the time of this writing), twenty-nine states and the District of Columbia have become EMAP accredited, and two have been conditionally accredited. Ten local jurisdictions have been accredited; two others have been conditionally accredited. The Centers for Disease Control and Prevention and two districts of the U.S. Army Corps of Engineers have also been accredited. EMAP is also available to campuses at institutions of higher education for assessment of their emergency management processes, procedures, and programs to provide safety and security to students, faculty, and facilities.

IAEM's Certified Emergency Manager and Associate Emergency Manager

Emergency management practitioners demonstrate and validate their expertise by undergoing certification. This certification can be as a general emergency management practitioner, or for a specific discipline within emergency management. There are several international, national, and state organizations that offer certification.

The most respected and recognized certification is IAEM's CEM certification. Certification requires 100 hours of emergency management training, 100 hours of general management training, an essay, an examination, three years of experience in comprehensive emergency management, a baccalaureate degree (or equivalent), and six contributions to the profession. The certification process requires renewal every five years. There is also an AEM certification, which does not require the experience, degree, or professional contributions.

Training and Education

Whether or not certification is pursued by its members, the field of emergency management must ensure that its practitioners have the knowledge, skills, and abilities necessary to meet the standards that have been set. This is accomplished through classroom-based and independent study courses sponsored by the FEMA EMI, the National Fire Academy, the states, other sources, and through educational opportunities from colleges, universities, and other schools.

Training

There are hundreds of sources of training for emergency management professionals. The FEMA EMI in Emmitsburg, Maryland, is the flagship training facility for emergency

management. A former college campus, EMI offers over 500 courses (FEMA, 2012). These courses are attended by thousands of federal, state, and local stakeholders each year. Many of these courses, and many others, are offered by the states, tribes, counties, and municipalities. In addition, EMI offers over 100 online Independent Study (IS) courses to the emergency management community.

Many community colleges and other local organizations offer emergency management and emergency response training. There are several hazard-specific training centers across the country, including the following:

- Center for Domestic Preparedness
- Energetic Materials Research and Testing Center
- National Center for Biomedical Research and Training at Louisiana State University
- National Center for Emergency Response for Surface Transportation
- Texas A&M Engineering Extension Service National Emergency Response and Rescue Training Center
- National Nuclear Security Administration/CTOS-Center for Radiological/Nuclear Training
- National Disaster Preparedness Training Center at the University of Hawaii

Education

Opportunities for emergency management education exist for students from elementary school through doctoral degrees. New York City has established an Emergency Management High School, opened in the fall of 2013. The New York City Fire Department has also established a Youth Fire Academy. FEMA has a “School Tool for Emergency Preparedness (STEP)” Program for elementary and secondary schools. STEP was launched in the New England states and has spread throughout the country.

In 1994, when FEMA launched its Higher Education Program, there were only a handful of degree programs. As of late 2013, there are over 275 emergency management degree and certificate programs, with another 100 in various stages of development. There are also over 100 programs in homeland security. These programs are housed in many different academic areas – public administration, political science, engineering, sociology, geology, meteorology, public health, seismology, homeland security, geography, continuing education, and so on. Most states have at least one of these degree programs and some have many.

Collaboration

As the field of emergency management develops, opportunities for its practitioners and others to share information and expertise continue to grow. This collaboration occurs through the conduct of research, information sharing through relevant publications, attendance and presentation at conferences, and interaction through professional organizations. Some such opportunities are described below.

Research

Research in disaster science and management, once very rare, is increasing and improving rapidly. Relevant and extensive research is being conducted in most of the institutions of higher education where emergency management degree and certificate programs are offered, including the following examples:

- Natural Hazards Center, University of Colorado at Boulder
- Disaster Research Center at the University of Delaware
- Center for Disaster Research and Education at Millersville University
- Center for Natural Hazards and Disaster Research at the University of Oklahoma
- The University of Maryland Center for Health Preparedness and Homeland Security
- The Hazard Reduction Center, Texas A& M University at College Station

The Department of Homeland Security has numerous Centers of Excellence in Homeland Security Research, which may offer some useful research and information for emergency management:

- The national Center for Risk and Economic Analysis of Terrorism Events (CREATE), the University of Southern California, develops advanced tools to evaluate the risks, costs, and consequences of terrorism.
- The Center of Excellence for Zoonotic and Animal Disease Defense (ZADD), co- led by Texas A&M University and Kansas State University, protects the nation's agriculture and public health sectors against high-consequence foreign animal, emerging, and zoonotic disease threats.
- The National Center for Food Protection and Defense (NCFPD), led by the University of Minnesota, defends the safety and security of the food system by conducting research to protect vulnerabilities in the nation's food supply chain.
- The National Consortium for the Study of Terrorism and Responses to Terrorism (START), led by the University of Maryland, provides policy makers and practitioners with empirically grounded findings on the human elements

of the terrorist threat and informs decisions on how to disrupt terrorists and terrorist groups.

- The Center for Advancing Microbial Risk Assessment (CAMRA), co-led by Michigan State University and Drexel University and established jointly with the U.S. Environmental Protection Agency, fills critical gaps in risk assessment for mitigating microbial hazards.
- The National Center for the Study of Preparedness and Catastrophic Event Response (PACER), led by Johns Hopkins University, optimizes the nation's medical and public health preparedness, mitigation, and recovery strategies in the event of a high-consequence natural or human-made disaster.
- The Center of Excellence for Awareness & Localization of Explosives-Related Threats (ALERT), co-led by Northeastern University and the University of Rhode Island, develops new means and methods to protect the nation from explosives-related threats.
- The National Center for Border Security and Immigration (NCBSI), co-led by the University of Arizona in Tucson and the University of Texas at El Paso, develops novel technologies, tools, and advanced methods to balance immigration and commerce with effective border security.
- The Center for Maritime, Island and Remote and Extreme Environment Security (MIREES), co-led by the University of Hawaii and the Stevens Institute of Technology, focuses on developing robust research and education programs addressing maritime domain awareness to safeguard populations and properties in geographical areas that present significant security challenges.
- The Coastal Hazards Center of Excellence (CHC), co-led by the University of North Carolina and Jackson State University, performs research and develops education programs to enhance the nation's ability to safeguard populations, properties, and economies from catastrophic natural disasters.
- The National Transportation Security Center of Excellence (NTSCOE), co-led by the University of Connecticut, Tougaloo College, and Texas Southern University, is a seven-institution consortium focused on developing new technologies, tools, and advanced methods to defend, protect, and increase the resilience of the nation's multimodal transportation infrastructure.
- The Center for Visualization and Data Analytics (CVADA), co-led by Purdue University (visualization sciences-VACCINE) and Rutgers University (data sciences-CCICADA), creates the scientific basis and enduring technologies needed to analyze large quantities of information to detect security threats to the nation.

Additional research is being conducted by individual professors in their own universities, not all of which offer degree programs.

Publications

An early challenge in the emergency management profession and academic pursuit was the lack of textbooks and other related books. A number of publishers, academicians, and practitioners have stepped forward with helpful materials, research, textbooks, and other books.

Additionally, the *IAEM Monthly Bulletin*, *Journal of Emergency Management*, the *Emergency Management* magazine, the *Journal of Emergency Management and Homeland Security*, the *Disaster Recovery Journal*, the *Homeland Security Education Journal*, *Journal of Search and Rescue*, *Emergency Operations Center Journal*, the *Homeland Security Network*, and others have begun to fill gaps.

Many emergency bibliographies exist. A comprehensive list is posted to the FEMA Higher Education Program's website (FEMA, 2012). The largest library collection of emergency management materials is at the Learning Resource Center on the Emmitsburg, Maryland, campuses of the Emergency Management Institute and National Fire Academy. This collection was started by the U.S. Fire Administration and the National Fire Academy and extended to emergency management with the launch of the FEMA Higher Education Program. Materials from this collection of close to a million documents are available to all emergency managers upon request to the Center. Most recently, California State University – Long Beach has begun an effort to collect as many emergency management and homeland security publications as possible, as a research tool for students and faculty, and teaming with the FEMA Learning Resource Center.

Conferences

The Annual FEMA Higher Education Conference, first held in 1997, became the largest conference FEMA hosted on the EMI campus, with hundreds of academicians, practitioners, and students, including representatives of seven to nine countries, attending and actively participating every year. Large annual and biannual professional conferences are conducted by NEMA and IAEM. Most state emergency management agencies or associations have an annual conference. These conferences offer an opportunity for emergency management professionals to gain insight and information, and to network with their peers.

Professional Organizations

IAEM was founded in 1952 as the U.S. Civil Defense Council, becoming the National Coordinating Council of Emergency Managers (NCCEM) in 1985, and the International Association of Emergency Managers in 1997. Currently, IAEM has added a Global Board and strong international outreach. IAEM conducts two conferences each year and sponsors the

CEM program, guided by the CEM Commission. Also, IAEM has a student organization known as International Association of Emergency Managers Student Association (IAEMSA).

NEMA, comprised primarily of state emergency managers and staff, was incorporated on February 7, 1974, and advocates for strong emergency management programs in all states. Headquarters are co-located in Lexington, Kentucky, with EMAP, Emergency Management Assistance Compact (EMAC), Council of State Governments, and other state-related organizations.

The National Hazard Mitigation Association is very active in providing collaborative sharing of best practices and updates on the literature and research, through its LISTSERV and conferences.

Additional professional organizations such as State Emergency Management Associations in all states, the Association of Continuity Planners, Disaster Recovery Institute International (DRII), British Continuity Institute, among others, are growing in membership, active participation, and public profile.

The Foundation for Higher Education Accreditation sponsors an honor society for emergency management students, Epsilon Pi Phi, for outstanding students in emergency management.

Future Issues Facing the Profession

As the profession of emergency management continues to evolve, there are several issues that will continue to need to be addressed. These issues include the increased use of technology, particularly social media, legal issues (such as government liability when injuries/fatalities occur), and developing emergency management practitioners in nongovernmental sectors (such as at institutions of higher education). They are described below.

Emergency Management Technology

Every individual creates so much new data that it is challenging to keep up. Emergency management is increasingly dependent upon the use of technology, virtual emergency operations centers, whether it is used in the Emergency Operations Centers, Fusion Centers, or in the daily steady-state management, such as WebEOC and E-Team, as well as other similar information management programs, geographic information systems (GIS), database mining, webinars, document sharing, like SharePoint, and other knowledge management tools. Many of these systems can use legacy systems so that transitions are smooth from one system to another or from one program to another.

Social Media

In this country, social media is playing an enormous role in all phases and all hazards for all stakeholders. On its website, FEMA refers viewers to follow it on Facebook, Twitter, and other social media sources for information regarding the agency, emergency management, and the profession. LinkedIn has an emergency management community, an exercise and evaluation community, a response operations community. The American Red Cross has added an additional aspect to its social media work, by adding an element to measure the specific sentiment of words that are being communicated, not necessarily to find a “needle in a haystack,” but to see if the haystack is moving. Twenty-two thousand videos are posted each day on YouTube, many of which pertain to disasters.

Legal Issues

Legal issues are increasingly cropping up in the profession of emergency management. In 2012, six Italian scientists were tried and convicted of not sufficiently informing the residents of L’Aquila of the earthquake risk in the region (Pappas & LiveScience, 2012). Future disasters may result in charges or civil suits against emergency managers.

University/College Emergency Management

A relatively new aspect of the emergency management profession is that of school, college, and university campuses to keep their facilities, students, faculty, and administrators safe and secure. Increasing numbers of colleges and universities have enlisted professional emergency managers to lead preparedness efforts on campuses, as well as mitigation, response, and recovery. The IAEM has a University and College Committee (UCC) for those practitioners, in addition to their traditional Training and Education Committee. UCC has developed a “Crosswalk for Resilience (IAEM, 2013) which provides a comparison of relevant standards, such as NFPA 1600 and Comprehensive Preparedness Guide 2.0. Some universities sponsor higher education emergency management conferences.

Conclusion

As the practice of emergency management in the United States has evolved, so too has the field itself into a profession of its own right. Its practitioners have developed principles and ideals to which they strive to hold themselves. They have set standards of practice for how emergency management is performed. They have established a number of certifications to demonstrate to other stakeholders that they are qualified. They have established and developed training and education opportunities, as well as developed opportunities to network and collaborate with fellow practitioners, to ensure that they have the knowledge, skills, and abilities to perform the profession’s functions. These efforts demonstrate to the public that the field of emergency management is a profession, not just a job, to those who accept the call to carry it out.

BRIDGING THE DIVIDE

Introduction

There is no debate between the authors that emergency management has made significant advances toward professionalization over the past two decades. As part of this advancement, the emergency management community has coalesced around key identity- and boundary-delineating activities; learned how to better advocate for the support and resources needed by the community to effectively meet its goals; and focused more intently on the steps necessary to advance emergency management to the status of profession. These advancements have been attained by virtue of a combination of efforts from both emergency management practitioners and academics. Such efforts from the emergency management community have been increasingly viewed as part of a necessary infrastructure to take emergency management to the next level – a level where it can achieve the status of a profession.

The actualization of a profession of emergency management requires definitive parameters and controls. Professions possess three key hallmarks: monopoly, autonomy, and authority. To achieve these hallmarks emergency management must focus on the following:

- Collaborative efforts between emergency management practitioners and academics that are necessary in building the infrastructure of the profession
- Professional organizations serving emergency management must be strengthened
- A regulating body must be established
- Criteria for entry into the profession must be set forth
- Licensure procedures for initial licensure and licensure renewal must be detailed
- A code of conduct that sets the baseline expectation for practice must be developed
- A disciplinary system with incremental discipline and an appeal process must be created
- Legislative advocacy efforts must move to the forefront of the emergency management community's agenda.

The efforts detailed above are necessary elements of professions that are allowed to operate autonomously. Clearly, there is much work to be done, and this work must all be vetted within the emergency management community to ensure that the identity of emergency management is accurately represented and that the support of the community is behind it.

To provide a better sense of the additional steps required to move emergency management toward the designation of profession, each step will be discussed with greater specificity. The steps delineated herein are not intended to be all-inclusive. Rather, they are intended to provide a sense of the components and structure that are necessary to create and maintain an autonomous profession.

Collaborative Efforts to Build the Infrastructure

The bulk of the efforts necessary to advance professionalization efforts lie in building the infrastructure upon which emergency management will draw its ability to claim monopoly over the subject matter efforts such as

- delineating the boundaries of emergency management;
- identifying the requisite body of knowledge to inform the study and practice of emergency management;
- determining baseline outcome expectations for graduates at varying degree levels;
- defining and gaining agreement regarding the parameters for the creation of new knowledge and data collection within the discipline of emergency management;
- ensuring the production of emergency management scholars; and
- identifying key roles and synergies regarding the relationship between the discipline and practice of emergency management.

Some of these efforts are already starting to take shape, but they are occurring at a grassroots level. Ultimately, the work on these efforts needs to be vetted nationally and endorsement of completed efforts must be wholesale across the emergency management community.

Additionally, these efforts must be engaged in with an appreciation of the enduring importance of the work. While modifications or expansions may ultimately occur as part of professional evolution, care must be taken to create an infrastructure that not only understands where it has been, but also understands where it is going. Much like the framers of the Constitution envisioned a document that would serve as a framework for decades into the future, so too should the emergency management community view the types of efforts listed above. There must be a tacit understanding of each effort's role in the desired end product coupled with an appreciation of the ways society may change and a clear understanding of the tenets of emergency management that will not change. The tenets anchor the ability to claim monopoly in an ever-changing world.

Strengthening Professional Organizations

Professional organizations are necessary to furthering the professionalization agenda. Ideally, key organizations have adequate mass to represent large segments of the emergency management community and use the collective power of their membership to push forward agendas beneficial to their members. There is work to do in the current organizations in regard to expansion of membership and settling into roles that enhance, but do not interfere with a regulating body. Professional organizations will serve to advance professionalization efforts in the short term and will perform a key role in supporting, maintaining, and advancing the profession once established.

To date, the existing professional organizations have served as catchalls for a variety of efforts involving the emergency management community and have solely carried the legislative advocacy burden. The organizations will have to examine the fit for their organization as emergency management evolves into a profession. They will need to make some key decisions regarding criteria for membership, the cost of membership, the services offered to members, and the ways in which they can best contribute to profession-wide goals.

Establishment of a Regulating Body

Access to a profession must be “regulated and controlled” (Cwiak, 2011a). A regulating body that assesses competency for practice (based on established criteria), provides licensure, tracks compliance with any continuing education requirements, addresses conduct violations, and promotes the general advocacy interests of the profession must be established to act as the gatekeeper for the profession. This body must exist independent of professional organizations that have a membership-driven agenda and comprise paid staff who are making only objective evaluations in regard to competency, licensure, and compliance. The regulating body should have at least one staff member devoted full-time to profession-focused advocacy. Members of the emergency management community should be elected to oversee the staff as members of an unpaid governing board. Each member of the board should serve a multiple-year term. The governing board should also assign a committee to work with a staff member to address conduct violations.

Examples of such regulating bodies and governing boards can be found in professions such as law and medicine. These bodies both protect the profession and the citizenry by ensuring that the expected standards of the profession are upheld by those who have been licensed to practice within the regulating board’s jurisdiction. Strong and effective regulating bodies help professions maintain autonomy and avoid interference from legislators and ad hoc legislative initiatives.

Criteria for Entry into the Profession

To be able to have autonomy – a necessary component in the recognition of a profession – there must be criteria set for entry into the profession. Entry into a profession typically requires evidencing “mastery of the knowledge base” (Cwiak, 2011a). As such, key concepts, the body of knowledge, and a code of conduct are all areas that prospective emergency management should be expected to know. While the general areas to be mastered may be more easily identified, the ways in which this mastery is measured generates a much more complex discussion.

For example, many professions require a degree from an accredited institution as one of the requirements of entering the profession. This singular requirement creates a list of potential questions:

1. What type of accreditation is needed? General accreditation or emergency management-specific accreditation? If it is emergency management-specific accreditation, what material needs to be covered in programs, who will decide what that is, and what organization will do the accrediting? Who will govern the accreditation body? What will the cost of accreditation be and how onerous will the process be? Will some institutions be unable to afford the money, time, and resources to seek accreditation? How will a drop in emergency management program offerings due to a lack of accreditation affect the emergency management community and the profession?
2. What kind of degree meets the requirement? Is it based on the degree type, the extent to which it meets the required emergency management content, or the department within which it is earned?
3. What happens to those who are currently practicing, but do not have a degree – will they be grandfathered in? Will they be allowed to use that grandfathering for only a set period in which it is expected they will pursue a compliant degree? What level of practice will allow them to be grandfathered in? Will it be based on years in the field, the type of experience, the exposure to key emergency management knowledge and skills, or something else? What if they have a degree and have been practicing, but the degree was earned before specific accreditation was available?
4. What happens if a college or university loses regular or emergency management specific accreditation half way into a student’s degree? Is the date of degree assessment the date the student started or the date they graduated?

5. What will be utilized beyond the degree to ensure mastery? Will there be a comprehensive test? Will a minimum grade point average be required? And if so, how will grade inflation be dealt with?

Even with this short list of questions regarding one possible requirement, it is clear that many questions that will come up in this part of the professionalization discussion must be addressed as part of the preparatory infrastructure. There are many individuals, organizations, and higher education institutions that have already invested a tremendous amount of time, money, and energy into the advancement of emergency management. Understanding where those efforts fit while seeking to move forward as a collective is part of the challenge of creating a baseline entry expectation that will necessarily keep some unqualified individuals out. The exclusivity that is created with entry expectations is a double-edged sword – particularly in the early days of a profession. While the emergency management community as a whole will gain status and control as a profession, there will be those that are left behind because they cannot adapt to the evolutionary curve being imposed. There will be a backlash in the early years of professional status while some individuals, organizations, and institutions fade away and others emerge in their place. The challenge for emergency management has been, and will continue to be, how it brings along as many as possible of its existing advocates, stakeholders, and community members in the march toward professionalization without losing momentum and the necessary support.

Licensure Procedures

Emergency management is still quite young in its development and because it operates within the ever-changing sphere of society, new information and approaches are continually emerging. This must be considered in establishing licensure procedures. Licensure must encompass not only actual process, but also dictate the expectation for continued learning. Topics for discussion within licensure include the following:

- Process for licensure
- Cost of licensure
- Length of the licensure period
- Expectation for, and monitoring of, continuing education
- Evaluation and approval of what qualifies as continuing education
- Cost of continuing education
- Process for renewal

Each one of these topics requires thoughtful consideration in regard to the effect on the community and the ability to manage whatever requirements are put in place.

An example of the complexities in this discussion is apparent in simple questions regarding continuing education requirements. Professional continuing education is a cottage industry for professions and can be very competitive. When licensure has such a mandate, options to meet the mandate at varying price points will appear like weeds in an untended garden. What will be deemed worthwhile as continuing education? Will every offering need to be vetted at some point through the regulatory body? Will there be a price cap on approved continuing education offerings? Will there be online options? Whose responsibility will it be to track and submit completion of continuing education? Will the organizations offering continuing education be required to submit detailed reports about course completion and evaluation? Will each course update require additional review and approval by the regulatory body?

Beyond these questions are ones that deal with the licensed practitioners. What happens if a licensed practitioner cannot fulfill continuing education requirements based on an illness, activation in a major event, or any other incident that may be deemed worthy of an extension? How will those situations be evaluated and handled and by whom? Will incompleteness of continuing education be viewed as a violation of the Code of Conduct, will it result in automatic suspension, or will it merely put the noncompliant practitioner into a probation mode? Clearly, this is another area where extensive thought and discussion must be involved.

Code of Conduct

Professions create a state of “institutionalized dependence” in that professionals’ grasp of the complex subject matter forces others outside of the professional to rely on their expertise (Cwiak, 2011a). This creates the potential for vulnerability in those outside the profession. Protections to protect those outside the profession must be addressed within the profession via expectations for standard of care and professional behaviors. Such a code may take the form of an ethical code, a standards code, or a conduct code, but the effect of the code is the same to set the expectation for behavior as a representative of the profession. The difficulty in creating these types of codes is in the clear delineation of what is acceptable or not under the code. Often these codes will use words such as *honest*, *professional*, *good faith*, etc. What these words mean in different situational contexts can vary. Indeed, it is virtually impossible in such a code to imagine how many ways a singular code expectation can be violated. Providing enough detail to a code to make clear the expectations attached to it but not burdening it with so many examples that it becomes voluminous is a delicate balance.

Violations of the code must be met with disciplinary actions. Once again, the context of the violation is relevant to the extent to which the practitioner would be disciplined. Using language at the outset of the code that clearly states the violation of the conduct will result

in disciplinary actions up to and including fines and revocation of license sets the tone for addressing behavior across a wide spectrum. Over time, the way violations are addressed will set the precedent for dealing with like violations.

Agreeing in writing to be governed by the code must be part of the licensure process, as significant rights could be affected by disciplinary actions taken under the code. As such, those seeking licensure should be required to attend a course that teaches the expectations of the code and receive a passing score on a test that examines acceptable and unacceptable behavior under the code. It is in the profession's best interest to ensure that the code is upheld with as few infractions as possible. The course and testing will allow the regulatory organization to reinforce the code's importance and filter out those who cannot fully grasp its application. To reinforce the profession's ability to self-monitor its members, all code infractions must be addressed in a timely and consistent manner. Including the disciplinary process, potential disciplinary actions, and the appeal process for disciplinary actions in course and testing coverage will help create and reinforce the importance of compliance with the code. Additionally, it would be prudent to require a portion of continuing education credits to be fulfilled at least biannually with a review of the code and any updates, overview of recent disciplinary actions, and tips for effective ways to avoid code violations.

Disciplinary System

Significant time and effort are involved in reaching the point of professional licensure. Restrictions or revocations regarding the right to practice must be handled with recognition of the individual rights involved, the potential impact to those outside the profession, and the impact to the profession and those faithfully serving within it. The potential for discipline will reside solely in the professional code of conduct, which will necessarily require a case-by-case evaluation of misconduct. A standing committee of practitioners in good standing must be empowered by the regulatory body to review and hear testimony regarding violations. The committee should have the benefit of legal counsel at each hearing to help inform appropriate action. Decisions of the disciplinary committee should be posted for public access. Disciplinary actions not only address problematic behavior in the profession, they also let those outside the profession know that the autonomy held by the profession to self-regulate is being honored. A second standing committee should be available to consider appeals.

The process for disciplinary actions must be timely to ensure the highest level of protection for the public and the rights of the accused practitioner. A reasonable amount of time must be provided to the practitioner to detail his or her response to the violation. The committee addressing the violation will need to receive all the relative response materials fourteen to twenty-one days in advance of a hearing to ensure that they have had adequate

time to review them. All decisions must be submitted in writing in a consistent format and then mailed to the practitioner. Decisions should be posted online for the public. Prior decisions will help serve as precedent for similar situations in the future.

Legislative Advocacy Efforts

True professions are not shaped and reshaped by others, they are internally controlled (Cwiak, 2011a). However, potential legislation can often have an impact on how a profession operates within a given jurisdiction. Legislative advocacy needs to be an enduring function of the regulatory body. This advocacy can be everything from providing fact sheets for legislators, to tracking and providing updates to membership regarding pending legislation, to arranging and preparing members to provide testimony. This function will serve to not only advance the directives of the profession, but to also protect the profession from random acts of Congress.

Conclusion

Looking forward it is clear that there is much work to be done before emergency management can claim the status of profession. This is not a sprint; this is a marathon. It is important to step back at this juncture and think about how each of the above pieces fits into the desired end result. Members of the emergency management community have a great deal of work in front of them that will require patience, focus, and unparalleled commitment. Standing still or retreating is not an option. The power and control that emergency management needs to best accomplish its mission lies in its ability to obtain the status of profession. Only then will it achieve its highest order objectives without interference from well-intentioned legislators or misplaced appointees.

Decades from now, this discussion of the inner-workings of establishing a profession of emergency management will be the pedestrian discussion of polite dinner conversations. For the time being, and into the foreseeable future, many important and perhaps contentious discussions and debates must be entertained to advance the cause. The labor and burden involved will weigh heavily on current and upcoming practitioners, but there can be no mistake that movement toward professionalization is underway.

Endnotes

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CHAPTER 13: UNMET NEEDS AND PERSISTENT PROBLEMS

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ABSTRACT

This chapter explores a number of long-standing issues in the emergency management field— issues that experienced practitioners and researchers agree need to be addressed, but have not been for various reasons. This chapter is somewhat different from the others in that it does not follow the sequence of an academic section and then a practice section, and a bridging the divide section structure as the others do. Instead, the chapter is structured around the issues and then presents the academic’s and practitioner’s views within each issue. They are presented together when the views call for it or separately when the nature of the problem calls for that approach. This chapter is considerably more subjective when compared to the other chapters. The editors chose to include it in the volume despite these differences because the topic itself and the specific issues being addressed were the explicit results of a series of live exchanges among researchers and practitioners. The conversations evolved and drew attention within the larger community, since most works do not address unmet needs and persistent problems in a focused and deliberate way. Although this is not a comprehensive treatment of issues, or a review of every long-standing or persistent problem, it does provide a set of ideas worth reflecting on all the same. This chapter is not about what we know, but rather is focused more on what we need to know and do. It shares the views of two senior members of the profession and the information they were able to collect about issues other experienced practitioners and researchers have discussed with them.

Background

Regarding unmet needs and persistent problems in emergency management, we know of no authors who have addressed the topic directly and completely. Most often, comments, findings, and insights on this topic are more likely to be included at the end of a chapter, report, or book. In short, any attention paid to the topic is limited and secondary. Hence, the authors have relied on conference sessions, government reports, and think tank studies to supplement the workshop discussion points. In this chapter, we are hoping to make people think about these issues.

The genesis of this chapter was a discussion of unmet needs and persistent problems in emergency management. The discussion occurred at a conference session called “What Keeps Me Up at Night,” held at the 2012 Natural Hazards Workshop. The topic was covered in depth, and with humor, by about seventy attendees, many of whom were academics, researchers, or senior practitioners in the emergency management field. The session at this major national conference was a unique opportunity for a public forum on some long-term issues and problems. The results of that session were considered important enough by conference organizers to be summarized and discussed further in an article also called *What Keeps Me Up at Night*, which was published as an invited comment in the October/November 2012 issue of the *Hazards Observer*.

The reason for creating the session, and also for capturing and sharing the discussion via the invited comment article noted above, was the nagging and pervasive feeling among today’s senior practitioners and researchers that lessons have not been learned, issues have not been resolved, and that knowledge gained the hard way—from painful experience in actual disasters—has not been saved and shared with the broader emergency management community. In general, the presenters and commenters at that session were not satisfied with the extent to which knowledge is being captured, shared, or used.

Although the participants acknowledge that much progress and learning have taken place in the field of emergency management, the unfinished business and unsettled issues continue to be of concern for these committed professionals. It is interesting to note that the practitioners and researchers were essentially in agreement. Though they had different priority concerns, neither camp dismissed or argued with topic choices nor the statements made and opinions cited by the other. Our hope is that reading these descriptions will motivate others to think more deeply about these issues and/or that it will lead to a more sustained conversation around these problems and their potential solutions.

Issue Identification

The choice of issues and the resulting discussion were supported by concurrent input (commentary and documentation) from both researchers and practitioners through a

process managed by the chapter authors and motivated by curiosity. It did not follow established methods and was not research in a conventional academic mode. It was instead a purposive and exploratory process of reflection guided by the chapter's authors. The chapter that follows will present several of the issues the authors judged as more important to the community.

As discussed above, the 2012 Natural Hazard Conference session was the starting place for a public discussion of the issues. From that session, more than twenty topics were identified, about half of which were summarized in the *Hazards Observer* article (Rubin and Colle, 2012). For this chapter, the authors selected six topics that seem of greatest interest and concern based on the discussion or commentary in response to the to the *Hazards Observer* article. The topics include:

- Long-Term Recovery
- Mitigation
- Federal Emergency Management Workforce
- Knowledge Base
- Lessons Learned
- Decreasing Impact on Policy and Decision Making

Our Approach to the Issues

Generally, the academic and research literature in emergency management does not include longitudinal studies, program evaluations, and multi-decade assessments. This may be due to lack of funding support for such major undertakings or the lack of foresight and interest on the part of the federal agencies that provide grants for such studies. For example, the Government Accountability Office has been critical of the Federal Emergency Management Agency (FEMA) on several occasions regarding the agency's failure to do evaluations or conduct research over the years. As a result, it is quite difficult to determine what problems are the "most important." In selecting and discussing the basic issues covered in this chapter, the authors made a number of subjective choices and decisions; hence supporting documentation for most of the issues is more reliant on anecdotes than is true of the earlier chapters. Although the core topics come from the experience and opinions of a limited number of senior researchers and practitioners, the authors decided against giving personal attribution to various points and criticism in order to allow those persons to continue working by not offending their funding sources or employers.

This chapter should be viewed as the editors also believe the book should be seen, as a starting point for future assessments and evaluations. It is intended to stoke conversation, not to provide answers or even to substantiate how these issues compare with others. In truth, our efforts to pull discussions of these issues together have shown that one of the things that is most needed is to ask basic questions about the following areas:

- Quality and outcome of training and educational efforts
- Effectiveness of policies and programs – at all levels of government as well as in the for-profit and not-for-profit organizations involved in disasters
- Extent to which research and knowledge is being used today and to which those with experience are being listened to
- Appropriateness and adequacy of the workforce used for all phases of emergency management

Problem Origins

In discussing unmet needs and persistent problems, it is important to note that simply identifying issues may underemphasize how difficult developing the solution may be, depending on the nature of the problem. It is essential to determine what problems/issues can be reduced if not solved by the right ways and means. This is the case because, while some are “manageable,” others are more “systemic” in nature. We briefly discuss the difference below. While we cannot get into all of those dimensions for each of the topics to be covered, we did want to note that sometimes structural or systemic problems are at the root of these issues and they usually prevent well-intended, capable people from getting their assignments done or organizations from achieving their mission. Whenever possible we attempted to identify several systemic issues we feel are important for each issue.

The manageable and fixable elements of emergency management are things such as better leadership in public emergency management and remediation efforts for past failures to use that knowledge and experience appropriately and effectively. For example, the federal sector needs to address the inherent flaws in the National Flood Insurance Program by putting this program on a sounder actuarial basis. Another example is variance in degree and quality of coordination and cooperation at all levels of government. These problems could be addressed if leadership at all levels is willing to take them on and work toward sustainable solutions. More anticipatory efforts should be made, prior to disasters.

Systemic problems are those inherently flawed issues/problems/conflicts that we have long known about: flaws in the disaster legislation, disincentives for preparedness, lack of solid strategic planning, the way people behave, and the unrealistic expectations and/or sense of entitlement they often have. Also problematic is the fact that the federal government keeps reimbursing the same communities and/or individual owners because of repetitive events—paying victims’ way out of things they never should have gotten into in the

first place. Some systemic problems are those we haven't been able to resolve without an act of Congress or a major change in politics or public thinking. Some of these systemic problems are so great that they undermine whatever efficiencies have been attempted.

Among the fundamental problems that impede progress toward remediating many of the systemic problems are needed changes in the enabling legislation for FEMA and a major change in the need for streamlining and consolidating Congressional oversight of not only FEMA but of the Department of Homeland Security (DHS). Regarding the latter, on September 11, 2013, a report was issued by the 9/11 Commission chairs and other members of a blue-ribbon panel entitled *Streamlining and Consolidating Congressional Oversight of the U.S. Department of Homeland Security (D)* (Aspen Institute, 2013). Noting that Congressional oversight for DHS involved more than 100 committees, the report made numerous recommendations to improve the process, stressing that DHS should have an oversight structure that resembles the one governing other critical departments, such as Defense and Justice and that the committees claiming jurisdiction over DHS should have overlapping membership. In summary, progress, or lack thereof, in the emergency management field may be due to in large part to systemic impediments in the emergency management system, perhaps the main reason that the problems identified span several decades.

The Six Selected Issues

Issue 1: Long-Term Recovery

Recovery from a disaster or emergency consists of those efforts taken to help a community return to "normal" however that might be defined by the community and, if possible, better than the pre-disaster state. Recovery is especially affected by actions taken during the preparedness and mitigation phases of the emergency management cycle. Recovery usually consists of two parts: short term and long term. Typically, short-term recovery begins while the response phase of a disaster is still going on and includes such items as temporary housing, structure stabilization, restoration of utilities, debris removal, and assessing damage. Long-term recovery addresses permanent housing and the rebuilding of public buildings and infrastructure, use of scientific and engineering solutions, upgrades to codes, and environmental restoration. Long-term recovery from a disaster is often the most expensive phase of emergency management and the longest in duration. Full recovery may take years, if not decades, to be completed.

Academic Perspective

As a nation, we still are not making the kind of progress that is needed with respect to long-term recovery. We still do not have an understanding of the many variables and complexities of recovery. Nor are we doing an adequate job documenting, assessing, and compiling a knowledge base about recovery. Ideally, an effective practical recovery research knowledge base would include information sources and resources on the following:

- Recovery theory
- Best practices
- Case studies
- Outcomes
- Models

The lack of attention to creating a body of recovery theory has been a concern, at least for the research community, for many years. In November 2010, the Public Entity Risk Institute sponsored a workshop at the University of North Carolina, with funding support from the National Science Foundation, to deal with this topic. For the first time, about 25 academics, researchers, and practitioners from across the country assembled to address the topic of recovery theory and related aspects. The results of the workshop were published as a Special Edition on Disaster Recovery in the *International Journal of Mass Emergencies and Disasters* (August, 2012). It was unfortunate that it took two years to get the results published, and that they were published in a journal that is not as well publicized outside of academia. Nevertheless, that issue is perhaps the single best summary of recent thinking about recovery theory.

Another useful source is an article by Gavin Smith and Dennis Wenger (2007) entitled “Sustainable Disaster Recovery: Operationalizing an Existing Agenda”. With regard to best practices, case studies, and outcome, see also several other chapters in the *Handbook of Disaster Research* cited above and another journal article: “Long Term Recovery; the Neglected Component of Emergency Management” (Rubin, 2009). Other excellent research has been done by Laurie Johnson and Prof. Robert Olshansky. For example, see their recent work with the American Planning Association (APA) and their recent book titled *Clear as Mud: Planning for the Rebuilding of New Orleans* (Olshansky & Johnson, 2010).

Among the various reasons for the deficiencies in the progress of long-term recovery is that federal agencies are not providing enough guidance and technical assistance to states and localities—especially those localities that may only experience long-term recovery perhaps once (if they are lucky) in the tenure of their public officials or in the lifetime of most citizens. Often, what is missing is one or more of the following: knowledge of threats/disaster, knowledge and practice of emergency management, ability to act (including public management capabilities and money), and the political will and muscle that is needed to address and implement recovery at national and other levels. Another key

deficiency is that there is no explicit federal mandate for recovery—no recovery equivalent of the Disaster Mitigation Act of 2000.

Since the issuance of Presidential Policy Directive (PPD) 8: National Preparedness, and the advent of *the National Disaster Recovery Framework*, more attention is being given to recovery theory, practice, and cases examples, but these are general guidance and recommended actions only. There is no mandate that compels federal, state, and local governments or citizens to incorporate the recommended recovery practices. Hence, we still have a long way to go. Among the needed undercarriage for recovery are mandates such as statutes and regulations, policies, programs, local codes, and funding akin to response and preparedness. Additionally, a Recovery Knowledge Base has not been assembled; hence, recovery experience is not being captured, analyzed, improved upon, or shared in the quarter-century that we've been tracking this area.

Practitioner Perspective

Practitioners at all levels of government have struggled to find positive models of recovery and templates or checklists of items to be considered but have often been unable to develop a sufficient list. From our perspective, their frustrations are due to several factors:

- Recovery is very complex and varies considerably from place to place. There are so many variables to be considered that simple guidance documents and checklists really are not feasible.
- Although FEMA has been in existence for 35 years, the agency only issued the *National Disaster Recovery Framework* in September 2011. And the guidance for implementing that framework has yet to be issued (as of September 2013). Furthermore, that *Framework* applies mainly to FEMA and its federal partners. States and local governments are not required to follow it.
- The lack of a knowledge base on recovery, particularly information about both good and bad examples of local experience with recovery.

Systemic Problems

As noted above, the lack of laws, regulations, guidance, and technical assistance from the federal government to state and local governments contributes to serious systemic problems and leaves large areas of uncertainty for governmental and nongovernmental organizations responsible for disaster response and recovery. Another issue has to do with the extent that federal policies and programs, like the National Flood Insurance Program (NFIP), may have inadvertently contributed to coastal structural damage rather than reduce it by providing flood insurance that is low-cost and doesn't require necessary mitigation that would likely reduce damage to insured structures.

Two other problems regarding long-term recovery were brought to the forefront recently by Hurricane Sandy. One concerns the problems that arise after flooding events; rebuilding is dependent on FEMA's flood maps (under the NFIP). Given the unpredictable areas of impact and the coastal or riverine changes resulting from the flood event, new

mapping efforts must be done and such efforts often take twelve to eighteen months. In the meantime, elevation and setback requirements are unknown as yet, while residents anxious to rebuild are in limbo. They can and do work off of estimated base elevation maps, but final determinations may take a year or more. In the New York and New Jersey area, the maps were last updated about twenty-five years prior to Hurricane Sandy, so the changes caused great anguish for property owners. Another concern, also related to the NFIP, is the issue of repetitive flood losses (i.e., recurring floods in disaster-prone areas wherein communities repeatedly receive disaster monies for their losses). This is not the place to fully examine that topic, but this issue should be addressed for those areas subject to repeated coastal and/or riverine flooding.

For a fuller discussion of recovery projects and needs, from the federal perspective, see the report of the Superstorm Sandy Rebuilding Task Force (2012). That 300-page report contains sixty-nine recommendations, and is too new for the authors to fully incorporate the materials in this chapter.

Issue 2: Mitigation

As is true for recovery, most researchers and practitioners think that mitigation does not get enough attention. However, mitigation has been given more attention than recovery, in part because of enabling legislation (e.g., the Disaster Mitigation Act of 2000,) as well as regulations, directives, and guidance provided by FEMA. Moreover, the research community has produced many books and documents about mitigation. One of the most persuasive pieces of research in recent years, cited frequently, is the work of the National Institute of Building Science, Multi-Hazards Mitigation Council (2005) and its report titled *Natural Hazard Mitigation Saves*. That piece documents the fact that for every dollar spent on mitigation, four dollars may be saved on response and recovery expenses. The link between mitigation, recovery, and more recently resilience is interesting to note. In the National Research Council report (2005) titled *Disaster Resilience: A National Imperative*, the authors make the following point:

The roles and responsibilities in the federal government for long-term recovery and improvement of resilience constitute a particularly significant policy gap despite some recent legislation and initiatives. Implementation of Presidential Policy Directive #8 (PPD-8) (Obama, 2011) should help address the gap. (p. 193)

Academic and Practitioner Perspectives

What remains to be done is to create more incentives, and/or perhaps penalties, in order to compel communities to incorporate mitigation into their emergency management activities. Enforcement of the NFIP is another major mechanism of mitigation policy. A recent document from the APA, an organization composed of both practitioners and researchers, provides a current synopsis of mitigation issues that remain to be addressed. Although intended for internal policy use by the APA (2013), this five-page paper titled *Policy Paper:*

Hazard Mitigation provides a useful update on current concerns and unfinished business with respect to hazard mitigation.

Because the APA's membership is composed of both practitioners and researchers, it is assumed that this document reflects the views of both groups. It is of special interest because it is current (April, 2013). Among the considerations for up-to-date mitigation planning are climate change and sea level rise. The APA notes ten hazard mitigation policies that incorporate planning for these threats (p. 2). In addition, the APA document provides an overview of potential policy issues that are helpful reminders of items to consider (see pages 3-5 of the APA document for more details):

- State enabling laws that focus on land use and zoning issues
- Data and measurements
- Interagency communication
- Local plans, codes, and ordinances
- Green infrastructure
- Interrelationships among plans, development codes, and ordinances
- Resiliency standards
- Incentives
- Creating local capacity
- Use of resources and stakeholder involvement

Issue 3: Federal Emergency Management Workforce

A key piece of confirmatory evidence of the confusion and turmoil surrounding the FEMA workforce is the thousands of hits and dozens of comments provided to postings on this topic in the blog RecoveryDiva.com hosted by one of this chapter's co-authors after FEMA made major changes to its Disaster Reservist program at the beginning of 2013. Among the concerns were that many of the more experienced reservists were downgraded in rank while less experienced members of the program were upgraded. At the same time, the new FEMA Corps program was starting up. It is a version of the AmeriCorps program whereby young people interested in public service are recruited to help in the post-disaster setting. They receive housing, a modest stipend, and limited training. After Hurricane Sandy occurred in late October 2012, FEMA Corps personnel were assigned to help, gaining visibility for the first time.

Academic and Practitioner Perspectives

Both researchers and practitioners have expressed concern about the quality and competence of the emergency management workforce and its personnel, particularly at the national level. Once again, the anecdotal evidence precedes major academic research on this topic. Nevertheless, there have been a number of studies conducted by the Government Accountability Office and the Inspector General for the Department of Homeland Security (DHS) addressing FEMA workforce issues, as well as the National

Academy of Sciences addressing DHS workforce including FEMA. Some of these reports are listed below.

GAO Reports

- *FEMA Reservists: Training Could Benefit from Examination of Practices of Other Agencies.* (GAO, 2013).
- *FEMA Could Enhance Human Capital Management and Training* (GAO, 2012a).
- *Workforce Planning and Training Could Be Enhanced by Incorporating Strategic Management Principles.* (GAO, 2012b).
- *DHS Strategic Workforce Planning: Oversight of Department-wide Efforts Should Be Strengthened.* (GAO, 2012c)

DHS OIG Reports

- *FEMA Needs to Improve Its Internal Controls Over the Use of Disaster Assistance Employees.* (DHS OIG, 2012).
- *FEMA's Management of Disaster Assistance Employee Deployment and Payroll Processes.* (DHS OIG, 2010).
- *Building a Resilient Workforce: Opportunities for the Department of Homeland Security: Workshop Summary.* (Institute of Medicine, 2012).
- *A Ready and Resilient Workforce for the Department of Homeland Security: Protecting America's Front Line.* (Institute of Medicine, 2013)

What is particularly frustrating for the community is that these issues continue despite a sizeable supply of experienced and/or educated emergency managers—that is, people who have been in higher education programs and actually have taken courses and have a year or more of higher education. Many of these programs exist in part because of FEMA's Higher Education Program, which has been in existence since 1994 and has encouraged more than 200 institutions to offer degrees and certificates in emergency management and homeland security. At the June 2012 Higher Education Conference, one of the concerns expressed was that graduates are not finding jobs. Most academics at the conference said they were telling their graduating students to look for jobs in the private sector. They don't know why the public sector isn't hiring them, but that seems to be the case.

While on the one hand we have this experienced and educated potential work force, on the other hand we have the actual recruitment and hiring practices currently going on at the federal level. In 2012, FEMA had ninety-nine disaster declarations. Assuming that more than 100 places throughout the United States are in the recovery phase of a disaster, it is a tall order for FEMA to send staff and other resources to the states to help over 100 localities recover. From reports received from those working in the field on recovery projects, a large part of the workforce that FEMA is sending out to assist the affected places are what's

called Reservists (Disaster Assistance Employees [DAEs]—full-time but temporary staff who are not regular FEMA personnel. While many of the DAEs have been assisting FEMA for years and are highly experienced, others do not have any education or a background in emergency management. Despite this shortcoming, large numbers of Reservists are being employed to work in the field and for the regional offices. They are being augmented by an inexpensive additional FEMA Corps cadre from AmeriCorps composed of energetic and well-meaning, recent high school and college graduates, many of whom also have little education in emergency management and rely on the limited training the program provides. So, on the one hand there is a supply of well-trained, well-educated people who are not finding jobs, while there are a lot of people who have no background in emergency management being given work. It seems to be a mismatch in the supply and demand for the emergency management workforce.

The workforce issue has several other dimensions:

- Split between people going through higher education programs promoted by FEMA and the federal hiring practices for full-time employees, when such hiring is possible
- Change in the DAE/Reservist program that occurred at the start of 2013
- Use of the new FEMA Corps hires and their relationship with the Reservists

In addition, the morale at FEMA has been low for years. One piece of evidence for that statement is the fact that FEMA ranked 231st (out of 240) in a listing of the best federal agency to work for in 2012 (Partnership for Public Service, 2014).

Other Aspects of Workforce Composition

Another concern expressed about the workforce composition relates to those communities that are most vulnerable, especially minority communities (the Katrina incident served as a perfect example). In spite of the fact that minority communities are at the greatest risk in terms of all kinds of disasters, minorities are still not adequately represented in either the practitioner or researcher workforce. The demographics of the workforce have to reflect the vulnerabilities of the communities in this country. We need more Latino and African American researchers, for example, because they will probably ask questions that others may overlook. We need to have more Latino, African American, and other minorities involved in practice because those practitioners may develop innovations and approaches that are different from those in the mainstream but more useful to the populations they serve.

Issue 4: Knowledge Base

Over the past forty years, many in the emergency management community have talked about the need for an emergency management “Information Clearinghouse” – a central knowledge base, a repository, a place or means to encourage the creation, gathering, maintenance, and especially sharing of the vast wealth of material in our highly complex and multidisciplinary field. Such a knowledge base would include not only the academic and other research that has been done, but also the many after-action reports, organizational

studies, and informal knowledge documents (e.g., professional articles) written by practitioners.

More recently, a 2012 report titled *Disaster Resilience: A National Imperative*, prepared by the Committee on Increasing National Resilience to Hazards and Disasters (2012), reiterated the need for a knowledge base. Early in the report the authors' state:

Furthermore, the nation lacks a national repository for all-hazard event and loss data, comprising the ability of communities make informed decisions about where and how to prioritize their resilience investments. (p. 4)

Based on that observation, they issue the following recommendation:

A national resource of disaster-related data should be established that documents injuries, loss of life, property loss and impacts on economic activities. Such a database will support efforts to develop more quantitative models and better understand structural and social vulnerability to disasters. (p. 87)

Traditionally, books, articles, and occasionally media materials have been the main source of emergency management academic knowledge. In recent decades, the trend has been for libraries to have fewer physical holdings but more digital resources. In fact, many agencies and organizations no longer have a traditional “bricks and mortar” library. The mantra is “We’re in a digital age, an internet age. We have alternate ways via technology for storing, ranking, and using knowledge.” Yet we know of only one digital effort in emergency management maintained by the federal government: the Lessons Learned Information Sharing system (LLIS) (n.d.), which is supported by FEMA and devoted to after-action reports and lessons learned—a small slice of the knowledge in emergency management. For purposes of this chapter, we will use the term *Information Clearinghouse*. Such a service is needed by both researchers and practitioners and discussed below

Academic Perspective

Many people are not aware, or have forgotten, the early research that has been done, particularly during the 1950s, 1960s, and 1970s. Much of this work is still relevant today. Various outstanding studies were undertaken by some prominent social science researchers, such as Henry Quarentelli, Russell Dynes, Charles Fritz, and Gilbert White. Some of the best work on warnings and evacuation were done in that early research. It is where we discovered things like the extent to which people pay attention to what others are doing and how they make decisions to evacuate because of what others are doing, or the importance of social networks and how they both push people out of areas and also keep them attached to an area.

In addition to accessing past and current research and practical information, an information clearinghouse would help researchers identify gaps in existing knowledge that could then help them decide what research to undertake, as well as who are the

knowledgeable researchers in the field, and which practitioners might be a valuable resource.

Practitioner Perspective

Emergency management practitioners and state and local decision makers are often “flying blind” while carrying out their duties—especially during a response, or response-to-recovery transition. This is true when a community has to deal with a Presidential Disaster Declaration for the first time in its history. Many local decision makers do not know what emergency management knowledge exists or where to find it, or whom to talk to in order to learn more about a particular topic. Both authors have been contacted by field personnel, asking us for information and help. What about the thousands of other practitioners and decision makers out there? They need a central place to contact, a place that is reliable and always available, especially when they’re deep in a response.

Systemic Problems

A great deal of this historical research is archived at the Natural Hazards Center in Boulder, Colorado, and the Disaster Research Center in Newark, Delaware. Both centers have been in operation for at least forty years, and these two centers are oriented toward the social sciences. The FEMA library, called the “Learning Resource Center,” located in Emmitsburg, Maryland, is well stocked, though not centrally located or readily accessible to the general public, the FEMA library does offer services via mail. Also, several major earthquake research libraries exist throughout the country. Even so, a lot of the knowledge—both historical and current—is not accessible to most people. It is held in costly journals and databases, or it is on paper only—not digitized—and no longer in catalogues, or on someone’s personal bookshelf. For a comprehensive list of resources, by organization, see the excellent Hazards Center and Organizations site, maintained by the Natural Hazards Center (n.d.) in Boulder, Colorado.

In general, emergency managers and even many researchers don’t seem to know about the research and findings from the past decades, or the practical knowledge gained from others’ experiences, hence they do things that run counter to what we know works: they repeat the mistakes that have been made over and over again. So, given this wealth of historical research coupled with the ongoing research and lessons learned, a “knowledge commons” or information clearinghouse would be useful to centralize all of the knowledge that we have accumulated and make it available now, and also to future generations. A related problem is that busy practitioners who are engaged in disaster response or recovery activities are not inclined to patiently engage in an extensive search for documents that might help them. When a new knowledge base is created, it will have to be made user friendly, easily accessible, and feature extensive outreach and reference services for users.

Additionally, not enough effort is being made to effectively translate knowledge into practice. An information clearinghouse would help practitioners, and policy and decision

makers access the accumulated information in our field. Our nation does not effectively integrate knowledge across disciplines or get research results “translated” and shared with the practitioner community. As a former staff member said about the Colorado center: “When the Natural Hazards Center was put together, it had one mission: to take the knowledge produced by the research community, warehouse it, and transfer it to the practitioner; to perform that link; to integrate the knowledge and bridge the gap between the researchers and practitioners. We are not saying the Center isn’t accomplishing the mission—the mission is now much bigger than the Center could ever accomplish.” Today there are many university-based research centers, not just in the United States but also maintained by international organizations such as the United Nations, the World Bank, and the European Union. Any new clearinghouse should create linkages with the existing centers.

Another dimension that needs to be addressed is the need for international information exchanges. For example, the 2012-2011 major earthquakes in Christchurch, New Zealand, have involved extensive information exchanges between personnel in New Zealand and their counterparts in the United States. These exchanges were facilitated due to sharing the same language, similarities in culture, organizational arrangements, etc. More systematic efforts are needed to take advantage of present-day technology to share assistance and information among countries. These international exchanges should occur in quiet times as well as post-disaster.

We have the capacity now, in this Digital Age, to build a comprehensive information clearinghouse, a “knowledge base or knowledge commons” online, accessible 24/7: a clearinghouse that may have many contributors (e.g., crowd sourcing) and even more users. The late Eleanor Ostrom recognized that this function needs to be facilitated through the technologies currently available. What we are facing is the need for a creative approach to design this information clearinghouse. An approach that is interdisciplinary, inter-jurisdictional, and inter-organizational. We have the technical capacity to do this but we need the creative capacity of our younger researchers plus the knowledge and experience of our older researchers and practitioners. Coupled with technology, this information clearinghouse could be located at one of the existing emergency management libraries (e.g., the Natural Hazards Center, Disaster Research Center, or FEMA’s Learning Resource Center library at the Emergency Management Institute). An essential element is the need for a mediator or curator of the service. A concerted public-private effort is needed to encourage this action and to raise funds to make it happen.

Issue 5: Lessons Learned

The term *lessons learned* is meant to convey a step up the evolutionary ladder or progress achieved in whatever field the lessons have originated. It implies that we know more about what works and what doesn’t work and that we will move forward and apply those lessons in all that we do—putting knowledge into practice. It is telling that in one of the earliest basic

documents about emergency management, written in 1957, mention is made then of failure to learn from past lessons (Smith, 1957)! Many researchers and practitioners get annoyed at the overuse of the term, as *lessons identified* are not necessarily *learned*—and the results will not be known until the next disaster.

Academic Perspective

One of the participants in the 2012 workshop session noted that in his experience the term *lessons learned* is actually used to create freedom from having responsibility to put knowledge into practice. It is a way to be able, in a post-disaster setting—for example after 9/11—to allege that we learned the lesson that “different agencies did not have the ability to communicate with each other,” and then spend billions of dollars creating a technological solution to that problem when a technological solution was not the answer. Many years ago Henry Quarentelli (former Co-Director of the Disaster Research Center at the University of Delaware) pointed out that you can’t solve that particular problem with just technology. That there are social elements involved in communications as well as technical. That police departments and fire departments that don’t talk to each other routinely, won’t talk to each other at or after a disaster. So we are troubled by the use of the idea—not that there aren’t lessons learned. Engineers actually go to earthquakes to discover new things for their best practices. But the term is used by people who do not take the time to do their homework, by those who did not perform an information review, but are approaching the problem as if no knowledge exists.

Practitioner Perspective

Practitioners would like to have insight into lessons learned. At present, those “lessons” are hard to track down—often for reasons noted previously in the Information Clearinghouse section. And when potentially relevant information is identified, it may not be accessible without a steep fee, or it may be written for academics and not users. Or, the information may give a “glimpse” of something, but not enough details to be useful. Practitioners, especially those who are knee-deep in a response or recovery, often want to know what tactics, approaches, and ideas have worked or have not worked for others. There is often little time—or energy—to come up with solutions to a new issue they are facing and the concurrent political pressure to “solve” the problem. Or, they may need the credibility provided by a “proven solution” to persuade their leadership of the value of their choice. If, however, the potential solution is buried in a local after-action report on someone’s desk five states away, or in a journal article that no one knows about, the solution is of little help to them or anyone else.

Systemic Problems

There have been various reasons cited for why the emergency management community has not applied lessons learned. Among them are the following:

- Failure to study or appreciate history leads to individuals who do not realize that there is wisdom and knowledge to be found in past events; hence they do not seek out this knowledge—no matter what field they are in.
- An over-reliance on technology as a solution for everything while ignoring less costly alternatives that have proven themselves.
- Political influence overrides the information (e.g., when federal funding is used to bail out communities more than once for the same type of event when they didn't rebuild properly).
- Funding for a sustained effort based on what we know is considered prohibitive, even though recovery after an event might cost two, three, or more times the initial amount it would have cost to mitigate before the event.

One over-riding problem is that there are thousands of practitioners and decision makers at all levels of government (local, state, federal) across geographic boundaries and political jurisdictions. Without a central rallying point such as an information clearinghouse, it is not easy for the two groups to meet, interact, share with, and inform each other.

Issue 6: Decreasing Impact on Policy and Decision-Making

Empirical research studies, lessons learned, after-action reports, and other types of findings can help inform practitioners and decision makers, and at times can shift what might become poor political decisions. In the not-too-distant past, the knowledge and opinions of practitioners and researchers were regularly sought out or favorably received by decision makers and politicians. However, that no longer seems to be the case.

Academic Perspective

We are dismayed at the extent to which members of the emergency management community (practitioners, engineers, seismologists, social scientists, psychologists, anthropologists, planners, managers, responders, and others) seem to have lost the ability to have much impact on policy at all levels of government. How do we transfer knowledge to the people at the national and state levels who are making all of these decisions, especially making decisions in ways that are not risk-informed or responsible?

Consider the terrorist attacks on September 11, 2001, or the devastation caused by Hurricane Katrina and the extent to which it was assumed that nothing like this had ever happened previously in the world, or at least in the United States. There were numerous people during that period who attempted to bring to bear the fact that we already have a lot of information that was relevant to 9/11 and then later, to Hurricane Katrina. Why did our governments and political leaders ignore the fact that there is historical research and practical knowledge that goes back a long time and can inform policy and decision making?

Compounding this issue, there is a propensity of some people to think that if we give people and communities the right tools they will make the right decisions. However, just because we tell them what has proven to work and show them what the long-term risks might be versus the short-term economic gains they think are going to happen, they are not necessarily going to do the right thing. And often those decisions do not consider all the elements, especially the long-term consequences. These problems are not going to change until people become responsible for the consequences of their decisions. Right now there are a myriad of ways that decisions can be made wherein the benefits are gained by those who make the decisions and the consequences are externalized to others, such as the taxpayers across the nation (in the case of repeated disaster funds for recurring events in the same communities), or deferred to future decision makers. This often results in development at risk, such as has occurred along the ocean coasts, where people have been allowed to build right up to the sand dunes in the path of hurricanes and storm surges. Or in heavily forested wilderness areas which are vulnerable to severe wildfires. Or next to rivers that experience regular flooding.

Authors' Observations

Many of the long-standing issues, including those discussed in this chapter, are caused by fundamental conflicts and inconsistencies in our emergency management system; hence they cannot be easily addressed or reduced by improvements in leadership, better educated and trained staff, or greater efficiency. They require major changes in statutes, regulations, and, perhaps most importantly, the existing culture. Among those conflicts and inconsistencies are the following:

- Federalism is inherently inefficient, especially as it relates to disaster management. The roles, functions, and responsibilities of each level of government vary throughout the nation. And competency and capability vary as well. Many of the post-Katrina assessments done at the national level (such as those initiated by the White House and by the Congressional Research Service and Government Accountability Office) dealt with the inefficient and ineffective intergovernmental relations that initially slowed the response to Katrina victims by each level of government.
- Some states and localities do not or cannot invest in preparedness or mitigation activities, with the result that recovery is more intense, extensive, protracted, and expensive than is necessary.
- Regardless of the quantity and quality of the workforce put in place by FEMA to deal with programs, policies, and projects with respect to response and recovery, some of the above factors thwart the best intentions.
- The presence of various inherent problems in the NFIP means that reliance of flood maps that are not current and the difficulties of getting compliance with the setback and constructions standards make for complex and varied recovery experiences.

In August 2013, a major report of the Rebuilding Task Force for Superstorm Sandy was issued. Titled *Superstorm Sandy Rebuilding Strategy Report: Stronger Communities, a Resilient Region*, it is significant in that it represents six months of effort by senior representatives of twenty-four federal departments and agencies (Hurricane Sandy Task Force, 2012).

The report was mandated in Presidential Executive Order #13632 establishing the Superstorm Sandy Rebuilding Task Force (December 7, 2012). Among the stated purposes: “A disaster of Superstorm Sandy’s magnitude merits a comprehensive and collaborative approach to the long-term rebuilding plans for this critical region and its infrastructure. Rebuilding efforts must address economic conditions and the region’s aged infrastructure – including its public housing, transportation systems and utilities—and identify the requirements and resources necessary to bring these systems to a more resilient condition given both current and future risks.”

The Task Force came up with sixty-nine recommendations; among the key recommendations are the following:

- Facilitate the incorporation of future risk assessment, such as sea level rise, into rebuilding efforts with the development of a sea level risk tool
- Mitigate future impacts to the liquid fuel supply chain like those experienced during the Sandy recovery
- Encourage federal and state cooperation to improve electric grid policies and standards
- Support efforts to reduce consumer confusion regarding risk and insurance coverage while working to increase hazards preparedness
- Improve NFIP policyholder awareness of factors that affect flood risk and insurance rating decisions
- Encourage hazard mitigation activities including elevation in order to protect property against future losses
- Implement and support regional rebuilding initiatives in both New York and New Jersey that promote multi-jurisdictional approaches to problems/issues that are shared by communities with similar demographics, geography, infrastructure, and social concerns

Several major professional and trade organizations watched with great interest as the Task Force conducted its work, and some were asked to participate in an advisory capacity by the federal agencies. The ability of local governments to incorporate and use this information in their land use decisions is still in question.

Many of the recommendations coincide with the points made in the Natural Hazards workshop session. And many are recommendations that have been made in several earlier reports, such as in the after-action reports for Hurricane Andrew (1992), and Hurricanes Katrina and Rita (2005) and include the following:

- Increasing the collection, analysis, and distribution of disaster-related data and information
- Establishing a framework to suspend or ease federal policies
- Revising the Stafford Act to include a "catastrophic disasters" designation
- Devoting resources to develop and strengthen connections and build relationships
- Increasing the focus on the preparedness and resilience of small businesses

Conclusion

These are some, but not all, of the many thoughtful points made by the highly experienced and seasoned emergency management researchers and practitioners during the session in Boulder, in the *Hazards Observer* article, and subsequently in responses received on the Recovery Diva blog. The discussions raised many important and thought-provoking points that should be called to the attention of a broader audience and given “air time” at future professional conferences. This should be the beginning of efforts to review and assess past actions, experiences, and research efforts. These and other issues warrant input from practitioners and researchers in the future.

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CHAPTER 14 : CONCLUSIONS AND INSIGHTS ON THE ACADEMIC/PRACTITIONER DIVIDE

Joseph E. Trainor and Tony Subbio

Introduction

A number of authors have written about the academic/practice divide in emergency management. Often those authors discuss the “seemingly battling values” (Cwiak, n.d.); between those who have learned about emergency management through research and/or formal education programs (e.g., academics) and those who have learned through on-the-job experience (practitioners). Many of these authors have shown that the divide may not be as fundamental as it was once thought to be.

This volume took a similar position. Its vision for integration between these stakeholder groups and every element of the process design argues that we have the ability to bring ourselves together. Further, the coeditors believe it is necessary, maybe even paramount, to the professionalization of emergency management. We need to all learn to value theory, research, education, experience, training, policy, best practices, and other forms of knowledge, regardless of whether we are academics or practitioners. We need to better understand how these types of knowledge work together, misalign, or simply provide different angles on these problems. Finally, we need to recognize the knowledge created by those who have traveled a different path to “knowing” than we might have.

Posturing and judgment have gotten the field and the emerging profession nowhere. One might argue that these activities have created artificial walls that need to be broken down. If we are to improve our work “across the board,” it has to be done in a way that builds on all of our knowledge. We need to evaluate and discuss what we know. We need to trade ideas and “war” stories. More than anything, we need to do better if we are to have any hope of developing theories, fundamental knowledge, policies, and practices that will meet the ever-increasing demands placed on emergency management. We hope this volume is a step in that direction.

An academic and a practitioner edited this volume. Each chapter includes information from academics and practitioners around these focal issues. Each chapter was peer reviewed by an academic and a practitioner. In many ways, this volume is one response to the most commonly repeated reasons for the academic practice divide: namely, the two groups do not have a good reason to work together (Yemaiel and Wilson, 2004; Kendra, 2007). This volume gave motivated people from both stakeholder groups a reason to work together. While one can learn a great deal by reading the individual sections of the chapters, the real promise of this book is the strength of the Bridging the Divide sections. They are clear evidence of the progress that can be made and the insights that can be developed when academics and practitioners work together.

The process was not easy, however, and one should not underestimate the implicit and explicit forces that keep researchers and practitioners from achieving the synergy we might enjoy some day. For the editors, one of the most interesting aspects of developing this manuscript was having the opportunity to reflect on the assumptions we brought to our own exchanges as we planned and edited the volume. Similarly, we had the chance to observe and in some cases mediate the interactions between our contributors. Through the process we jotted notes, had conversations, and thought about what fundamental forces feed the practitioner and researcher divide. In some cases, we were also able to see things that helped teams work through differences.

The goal of this chapter is to communicate some of those insights. Not all are new, but some are. We will discuss several related elements. First, we will examine two issues that we believe are the root of many observations about the academic and practice divide: different expectations for and ways of creating knowledge. Based on those ideas, we present several conflicts we observed that we believe are linked to these more fundamental differences. Essentially these are consequences of the first. Next, in recognition of the fact that most of our authors were committed to a meaningful exchange, we move to discuss functional barriers for those who want to work across the divide. We conclude with some recommendations on how to more effectively “Bridge the Divide.”

A Note on Divisions within These Groups

While the majority of this chapter will focus on the factors relevant to the academic–practice divide, we think it is important to note that this particular distinction is only one of many differences and variations we saw during the process. Other fundamental differences in opinion and/or assertions about what is “known” were also fairly evident. For example, among academics there were clear disciplinary divisions where reviewers and authors came from different perspectives, including preferences for different sources, use of different theories, different sense of methodological conventions, etc. Similarly for practitioners, there were disciplinary divides as well in terms of what part of the disaster cycle they focused on, what level of government their experiences came from, and different specific disaster experiences. In short, we have many divides to consider as we work toward stronger integration across emergency management.

Different Expectations for Knowledge

Another fundamental difference between the groups is that they are often trying to accomplish very different goals with the knowledge they are creating. It is important to consider those goals and their influence on how we view information.

For the most part, the practitioner community wants knowledge in order to determine why a specific event happened and/or to reduce the risk of the same incident in their own jurisdictions. The practitioner also wants to identify what went right and what went wrong

with the organizational actions around the emergency so that he or she can develop standards, policy, best practices, guidance documents, stronger plans, and so on, based on how this event turned out. These goals mean that most practitioners want specific, actionable insights that can be directly applied to a future situation. He/She ultimately wants to use the information to ensure that his/her own response to a similar incident will go as well if not better than others' events. This tendency leads practitioners to focus more on how any piece of information can be used "as is" to improve the way things get done. Some practitioners do look to broader patterns and more complex dynamics despite the drive toward more functional concerns.

In contrast, the academic community typically engages in what is referred to as "basic research." In other words, they are trying to see how fundamental human, natural, or engineering processes work and how those processes might be affected by or even create the "disaster context." The approach assumes that most disasters or disaster organizations share some fundamental similarities and as a result serves as a sort of laboratory for exploring more abstract ideas about how human, built, natural, and social systems are related to crisis and disasters. The tendency is to use a particular organization or disaster event as a context for testing theories and concepts about how some more abstract phenomenon works. For the academic, good contributions to knowledge are those that test or develop categories and concepts, and/or explore the relationships between concepts. Whatever findings the research makes, academics typically will relate those ideas to other findings from research on different disasters, where those ideas were explored in order to see if the results are the same or different. In contrast to practitioners, the academic approach tends to lead to ideas and proposed solutions that are more general or ideological.

Some researchers do engage in more "applied research," where the same detailed data collection and analysis procedures are used to address more focused and specific problems/issues, often on behalf of governmental agencies and organizations. Even so, within most universities, this type of work is at least implicitly, and often explicitly, seen as less valuable.

Different Approaches to Creating and Gathering Knowledge

It is important to recognize that academics and practitioners typically create knowledge in different ways. Practitioners tend to develop their understandings of disaster based on their own real-life experiences working in an agency and/or by sharing experiences within a trusted network of other practitioners. In terms of broader sharing, after-action reports (AARs) are often developed and in some instances shared. In some cases, these types of insights are used as the basis for exercises and/or are shared in large exchanges such as the Lessons Learned Information Sharing database.

Because of academics' focus on connecting specific experiences to broader and often abstract ideas about how some phenomenon operates, they typically rely on logical induction or deduction and "the scientific process." Commonly, we call this "research."

In some ways, the word *research* is somewhat misleading though, because the word is so often used to refer to the process of gathering information. That has led to an association of the term with any activity where references/information are collected and considered in some systematic way. This analysis is often conducted by practitioners at the beginning of their planning projects. This is not what an academic means when he or she says *research*.

For academics, research is an intensive process driven by a set of complicated standards and conventions that explicitly guide what is good or bad about different approaches to data collection, analysis, and drawing conclusions. Attention to those processes is of critical importance in order to have the information accepted as legitimate. Because of this, there is a very high level of focus on specific details of the process that created any insight and on the link between that process and the conclusions. While often the focus of significant grumbling and anxiety for most academics, transparent and open critique of the process, often called "peer review," is accepted as being necessary to improve the depth of understanding.

Conflicts Due to Different Expectations

The differences in expectations and process for creating information discussed above sometimes lead to conflicts between academics and practitioners about what information has "value." In this section, we address several common ways that the conflict manifested itself during the development of this volume.

Different Ideas of Evidence and the Need for Supporting Information

We believe, in some part due to differences noted above, practitioners and academics showed a different level of concern for how they provide support for their assertions of knowledge or truth.

As pointed out in chapter 8, many practitioners (but certainly not all) have a relatively narrow view of their part of the field. Most rarely leave their home jurisdiction or mutual aid area and most specialize in a particular part of the cycle of comprehensive emergency management. As a result, practitioners develop policies and doctrine based heavily on their own experience and the anecdotal evidence that is most easily and readily accessible to them. Doing so leads them on the path to being considered an "expert" in their focal topic and their area of responsibility or authority. That depth of knowledge is seen as valuable and admirable.

Reliance on individual knowledge and/or anecdotal evidence, however, led to many statements that most academics would think required a citation. For example, during the writing process, one practitioner reviewer reported that 80% (give or take) of all critical infrastructure in the United States is owned by the private sector, including the majority of the healthcare system. By another, that statistic was noted as 85%. Neither was supported with a direct citation for the statistic. Neither author was concerned about that. The point was that a lot was owned by the private sector, and from a programmatic perspective the private sector needed to be at the table.

In contrast, the academic typically has a broader view of issues, having access to a wide range of information and the time to explore specific issues for years at a time. They strive to eliminate their own bias in analyzing issues. They cite previous work to support their ideas as unbiased and aligned with the body of knowledge. This practice was carried into the critique of each chapter, and academic peer reviewers typically pointed out what statements needed support. For example, in chapter 4, the academic reviewer questioned the practitioner's assertion that public-private partnerships were increasing in number, and requested statistics to support that statement. In chapter 11's review, the academic reviewer challenged the practitioner's assessment of a key individual and his leadership to advance social media for use by emergency management officials. The reviewer requested supporting details such as what impacts have been made and the role that the individual's subordinates played. Chapter 7's review also included peer reviewers pointing out the need for more detailed explanation of the logic used to create an argument.

Practitioners may see the level of detail commonly used by the academic to support an idea as excessive. In chapter 8, for example, an author cites twenty-eight different studies to support an assertion regarding the difficulties observed about various aspects of emergency response. Practitioners might think the in-line citations are so dense in the paragraph that it is difficult for a reader to see how many and what aspects of response are addressed in that statement. Additionally, none of the specifics of the situations where the difficulties were observed are stated by the author, likely because the academic is focused on the general assertion and not necessarily on making policy around these difficulties.

Differences in How Supporting Information Is Presented

How we present supporting information also varies. Academics are expected to have a certain command of the body of knowledge. Authors often assume that the readers also are familiar with the body of knowledge or that they could go to the original sources to gain that knowledge. Most write with that assumption in mind. Because of this, one will often find passive references in the academic sections of this volume similar to the example given in the section above. For example, in chapter 2, readers are told that works by DeFilippis and Saegert, and Green and Haines, present experiences and lessons learned regarding community participation, but there is no mention of what any of those lessons are. Chapter 7 includes references to works by Aguirre and Waugh regarding problems associated with

the creation of the Department of Homeland Security and failures in the response to Hurricane Katrina, but does not identify any of the problems or failures. Most academic readers likely accept the references, know the information within, or allow the vague detail in order to allow greater attention in the manuscript for the focal concepts. Practitioners are looking for what happened there that might be of relevance to their jurisdiction.

Generalizability of Information from One Disaster to Another

We observed clear differences in how the groups evaluated the usefulness or certainty of information from one event or place as a guide for what would happen in another event or place.

Despite developing analyses that ultimately assume that disasters share some similarities, academics were hesitant to assert that findings were broadly applicable and/or definitive. For example, in chapter 4, the authors argue that the variability of one disaster to another makes it impossible to apply an individual case study to another situation. In chapter 8, authors suggest that only a small number of studies have examined the factors that influence the implementation of the National Incident Management System (NIMS), and that these findings are not generalizable. Similarly, in chapter 6, the authors point out that the inability to control many variables in the research in this field makes that research difficult to apply from one situation to another, or one community to another. This idea was supported by comments made by chapter 6's peer reviewer, and is reinforced in chapter 11 as well, where early or tentative findings are reported.

This unwillingness to assert generalizability of findings is part of the culture of science and is particularly important in qualitative research methods such as case study, interviews, etc. The attention to how the conventions in data collection impact findings and the importance of recognizing those limits is built into the academic enterprise. Concepts can always be refined, factors can always be added, and new ideas will be developed. No academic wants to be the one to make an assertion that is too forceful, only to have later evidence prove he or she was short-sighted. Given that incremental advances in knowledge are still valued in the community, that all assertions must be placed in the context, and knowing that every word will be scrutinized by reviewers, the culture discourages definitive statements and aggressive assumptions.

As discussed in chapter 13, practitioners are focused on what specific tactics, ideas, and so on, worked for others and which did not, so that they can apply those lessons to their context. Regardless of what is available, they need to develop a set of assumptions to serve as the basis for policy. This leads to a greater acceptance of limited information if it is "the best available." This tendency leads to an approach to information that best facilitates specific courses of action. Comments in chapter 10 exemplify this, when it is stated that AARs are not useful unless the lessons learned from an event or exercise are translated into implementable solutions. In short, practitioners want to see how to apply lessons learned

from a tornado, for example, to another tornado or even to another hazard. In other instances, we saw this trend in the fact that specific disaster deployments or events tended to more significantly influence practitioners' views because they were the situations where the implications of their work were most apparent. AARs, information sharing among collaborators, and debrief seminars were the next most preferred, arguably because those documents are more likely to be explicit about how a particular assumption, policy, or approach might be modified.

"Shelf Life" of Insights

Another interesting difference in the thinking of some of our contributors was various views on whether the age of a source mattered. Practitioners frequently questioned the applicability of studies they perceived to be too old and as a result too dated to be of value. This occurred in the peer review process of the majority of chapters in this volume, where the practitioner reviewers were especially critical of what they perceived to be aged information. For example, in one chapter a reviewer asked how can citations from a 2007 discussion of recovery possibly be relevant given the changes in recovery over the last few years. The practitioner in this case was more acutely concerned about how the organizational and policy shifts of the last five years might render older studies invalid. Academics tend to overlook those specific changes as less important for explaining the broader patterns of recovery. The peer reviewer for chapter 3 stated that sources from even five years earlier could not necessarily be applied to today's environment. Chapter 6's reviewer indicated that any research conducted before the H1N1 pandemic in 2009 was outdated. This was based on changes to how the healthcare and public health communities operate as a result of the pandemic. The reviewer of chapter 7 commented on the age of several references – that anything before several major events (e.g., Hurricanes Katrina and Rita in 2005) changed how emergency management is carried out was old. In the development of one chapter, a source from 1979 was called "ancient."

Academics are accustomed to using research that is many years old. Academics are trained to place their specific insights relative to the complete body of knowledge that is available and to show how the study at hand builds on that knowledge. As such, the omission of key works from decades ago would seem like a significant oversight that showed a lack of understanding of how the ideas and evidence have evolved. As an example of this convention, the reader can look to Chapter 8 where references to five studies over a twenty-year range, from 1987 to 2007, are used to support an assertion that variation in activities undertaken by jurisdictions to prepare for or mitigate against disasters exist. Similarly, in the development of chapter 4, the authors pointed out that the findings from research from fifteen years ago are now being developed into best practices in the field.

Practitioners and researchers need to understand that the time frames that they work on for analyzing the response to events are significantly different. For practitioners, the

Federal Emergency Management Agency's (FEMA) Homeland Security Exercise and Evaluation Program (HSEEP) guidance does not specifically state in its text a deadline for development of an AAR/Improvement Plan (IP). It does, however, include a Master Task List tool that shows that the draft AAR should be complete within thirty days following an exercise, reviewed at a meeting within forty-five days of the exercise, and finalized no later than one week after the meeting (no later than fifty-two days after the exercise). Research, in contrast, may be initially published years after the event. For instance, chapter 2 included a reference to a 2008 study of Hurricane Katrina, which happened in 2005. Chapter 7 referred to a 2003 study of the attacks on the World Trade Center on September 11, 2001. Chapter 11 included a reference to a 2009 study of the 2007 Virginia Tech shootings. That chapter also included a 2012 study of the Los Angeles Fire Department's use of social media in 2009. The type of systematic analysis that most researchers do is very time consuming and detail oriented. In most instances these analyses are far more detailed than those the average practitioner is able to complete in the course of daily responsibilities.

Barriers to Interpreting/Sharing Insights

The issues discussed above provide some insights into the ways that most academics and practitioners approach knowledge and how there may be misunderstandings. Unfortunately, even for those who move beyond the fundamental differences in how knowledge is created, barriers still remain that need to be overcome. In this section we discuss some of these barriers to fruitful exchange.

Lack of Agreed-Upon Terminology

While not exclusively a problem of the divide, there is a lack of a standard lexicon or even a range of roughly-agreed upon ideas in the field of emergency management. As noted in chapter 3, despite NIMS requirements for standardized terminology, there is no common operating language. This leads to confusion, not only between practice and academia, but within each as well. One academic may use a word, term, or acronym differently than another academic, and one practitioner may use one differently than another practitioner. In some cases, individual authors changed the meaning of terms or used several terms to reflect the same idea. Many reviewers pointed out the need to use consistent terminology.

Some instances of words, terms, and acronyms that were a source of contention during the writing process are identified below. Developing a stronger sense of these terms and the ideas around them in both practice and research is important. The above discussion on the word "research" is one example. In addition, in chapter 5 there is significant discussion of the propriety of and differences between the terms *disability*, *special need*, and *access and functional need*, as well as what label, if any, should be applied to individuals or population groups with those needs. As another example, a researcher used the term "*hazard mitigation action plans*" to refer to *hazard mitigation plans* (HMPs) as discussed in the Disaster Mitigation Act of 2000 (DMA 2000). The use of the different term

begged the question of whether or not the researcher was, in fact, referring to a different type of plan entirely or the individual mitigation actions contained in an HMP.

This issue even spilled over to how we refer to particular events as well. Some refer to “the Terrorist Attacks of September 11, 2001”; others simply say “9/11.” The influenza pandemic of 2009 has been named the “2009 Novel Influenza A (H1N1) Pandemic,” “the H1N1 Pandemic,” and simply “H1N1.” The major cyclone of October 2012 is referred to as “Hurricane Sandy,” “Superstorm Sandy,” and “Post-tropical Cyclone Sandy.”

While some may consider these different terminologies a matter of semantics, it is important to recognize that specific words often have specific meanings to each of us. We cannot ensure that we are communicating our ideas when we do not use the same terms or at least understand what the other means when they do.

Limited Access to Knowledge/Information

Few practitioners go out of their way to maintain current knowledge of the disaster research being conducted. Few know of the wide range of journals that exist, in which academics share their findings. For others, the cost of access to even a single journal, let multiple journals, is a deterrent or barrier. Similarly, few academics go out of their way to share their findings with the practice community by publishing their findings in the practitioners’ newsletters, magazines, etc. Many of the basic tools for sharing practical lessons learned such as the Lessons Learned Information Sharing platform routinely exclude academics from access on the grounds that such access poses a security risk. In preparation for developing this manuscript, the academic coeditor applied for and was refused access because the information was not public access, and as a non-practitioner there was no reason for access to be granted.

The degree to which conferences are used to share information between the two groups is somewhat better, but with only a small minority of each group selectively crossing over. Generally, and especially at the local level, practitioners present at conferences that are geared toward the practice community, and academics present their findings at conferences attended by other academics. Conferences that are equally attractive to both practitioners and academics are usually at the national or international level. As such, both groups could face significant travel costs to attend these conferences. These costs are a deterrent to both groups. When we couple this lack of access with the style of presenting information in a way that assumes that all readers have access to and have read those other works, the gravity of the problem becomes clearer.

Conflict from the Nature of the Work Process

Finally, it is important to note that our teams often ran up against some cultural differences in terms of what to expect and how to prioritize work. These differences resulted in conflict, either between authors and the editors or between the authors themselves.

Level of Oversight

One significant difference comes from a research grant versus project contract approach to funding. Many traditional academic funding mechanisms recognize the uncertainty associated with scientific findings and as a result demand explanations of the process and progress, but allow significant freedom to adapt and adjust through the process. In addition, most of these mechanisms grant complete control to the investigator with very limited intervention from the funder, under the expectation that the grantee is a reputable and qualified researcher. This approach is in contrast to the contract mechanisms most often used by practitioners, where the contractor is often seen as an extended labor force. Under these conditions, agencies often feel justified and even obligated to manage the development of the ultimate product. These differential expectations can and do lead to conflicts.

Firmness of Deadlines

While individual personalities influenced this dynamic, another important difference between the groups that caught our attention was the relative trade off in quality versus meeting deadlines. For academics, the quality of analyses, papers, and publications is seen as the ultimate measure of competence and a clear measure of how good a researcher that person is. As a result, these documents have a value or currency far beyond what most outsiders realize. Academics are typically stubbornly resistant to delivering a product that falls below their standards for quality, and academics routinely miss deadlines in an attempt to tweak, modify, and improve “just a little more.”

This luxury is likely linked to the freedom to choose when to submit a document for publication. While significant pressure exists to develop and distribute research, it is not common for any single analysis to “have to go out *now*.” In many ways, most academics link a significant portion of their self-identity to their work and as a result refuse to deliver a product below their standard.

Practitioners were far more respectful of deadlines. They were more likely to see the deadlines as hard and to produce the product on time even if it meant delivering a product that they themselves felt was somewhat underdeveloped. This pattern also makes sense in a setting where deadlines are linked to funding and/or in some cases happen in contexts where a fair decision now is better than no decision. In some of the exchanges we mediated between authors, this dynamic proved to create significant tension between some of the author pairs.

Conclusions on Bridging the Divide

The bulk of this chapter has focused on providing details on the nature of the academic/practice divide. While one could walk away from this with the sense that these issues are simply too complex to overcome, the coeditors are hopeful. What is apparent about these insights is that they are not unsurmountable. We hope that these descriptions will help readers begin to develop a better understanding of how these factors influence the ways we see our work. While we have made these ideas explicit, it is worth noting that most of the time we do not explicitly recognize most of these differences as we go about our daily roles.

Also, unsurprisingly, one of the key insights this project reinforces is that with the right motivation we can find common ground and move to improve emergency management. Further, it shows that with some work to understand each other there is great potential to improve what we do. Many of our chapter pairs were able to do so. We have even heard from several authors that they intend to continue their interactions. In some cases, teams have already arranged for working meetings and/or site visits to continue learning from each other.

In the end, no single solution will solve these issues, but there are a number of possible forms that such solutions might take:

- **Developing academic-practitioner relationships.** Subscribing to journals and databases may be too expensive for most practitioners. Reading through study after study may be too time-consuming. However, as the adage goes, “emergency management is all about relationships.” Practitioners should invest the time to develop relationships with scientists, with whom the practitioners can discuss current research and the academic body of knowledge. Likewise, practitioners can provide access to plans, AARs, and other documents to trusted members of the research community, so that these documents can help feed the science.
- **Improving access to information.** Practitioners can make AARs, lessons learned documents, and other documents that establish the experiential record available to the research community. Academics can ensure access to research through briefs, summaries, and information distributed in accessible locations.
- **Translating research to practice.** Practitioners can provide increased input as to the research questions they would like answered. Academics can increase the amount of attention paid to translating research findings into implications for practice, showing how specific cases may provide insights. Incentives for academics to engage in more applied research should be developed.
- **Helping practitioners understand research.** Public safety training centers and emergency management organizations should offer courses designed to improve the ability of practitioners to review, digest, synthesize the findings of research studies.

- **Improving understanding of the activities of the other groups, so as to improve understanding of the factors that drive them.** Practitioners can invite academics into the Emergency Operations Center to observe operations and provide insight during an event. Academics could invite practitioners to classes in order to discuss their experiences or could ask them to serve on an advisory board for a research project.
- **Providing additional, and more-significant opportunities for substantive exchange.** States and organizations that have emergency management meetings, workshops, or conferences, or statewide publications that reach the practitioner community, could solicit participation by the academic community. Similar forums that already exist for the academic community can be expanded to include sessions designed for practitioners.

If nothing else, this book provides proof of concept on the value of academic/practitioner exchange. It shows that we can learn from each other and we can improve on emergency management. Not every chapter reached the same level of agreement, but each pushed forward our understanding of particular issues. Among the many outcomes, some chapters identified consensus, some showed conflicts in need of resolution, some identified research needs, some even suggested how specific insights could be applied today. We hope that everyone who reads this volume learns from the exchanges. Twelve chapters and a few more than two dozen authors is a small start. The ultimate measure of this volume's success will be its ability to stimulate conversations around these issues and more broadly around mechanisms to better integrate researchers and practitioners. Development of these chapters proves we can do better to improve emergency management; we just have to find the will to work at it- together.

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Tony Subbio has over ten years of professional experience in emergency management, with special expertise in emergency planning at the state, region, and county levels. Subbio has led and contributed to projects including all-hazards emergency operations planning, continuity of operations planning, public health emergency planning, hazard mitigation planning, and post-disaster community (long-term) recovery planning. He has developed, delivered, and evaluated Homeland Security Exercise and Evaluation (HSEEP)-compliant tabletop, functional, and full-scale exercises.

Subbio began his career as the emergency planner for Dauphin County, Pennsylvania, where he maintained several county-level emergency plans and assisted municipalities and other organizations in their emergency preparedness efforts, including evacuation planning. He has served as an Emergency Operations Center Logistics Section Chief for emergencies and disasters ranging from severe thunderstorms to widespread riverine flooding. Subbio also served on the county's hazardous materials response team as a Hazmat Technician and Duty Officer.

Joseph E. Trainor holds a PhD in sociology. He is an Assistant Professor in the School of Public Policy and Administration at the University of Delaware and a Core Faculty Member of the Disaster Research Center. He has worked in disaster research for over ten years and has significant qualitative and quantitative research experience. He engages in basic research, applied research, and translational work on various disaster-related topics. Most recently, his work has focused on household response to tornados, post-disaster housing decisions, mitigation and insurance decisions, multi-organizational sense making in disaster, and the measurement of community resilience. He has done funded work for numerous federal and state entities as well as several international governments. He has authored or co-authored over a dozen peer-reviewed articles and book chapters on disaster-related topics and over a dozen more disaster-related reports and invited publications and has delivered numerous presentations to both academic and practitioner audiences on disaster-related topics.

CONTRIBUTORS

Lauren Barsky. Some of Barsky's previous research includes a study of the Federal Emergency Management Agency's (FEMA) Urban Search and Rescue Task Forces, a study of role conflict and abandonment after disaster events, and a study of volunteer organizations in the aftermath of Hurricane Katrina. After obtaining her PhD, Barsky spent time working as an Emergency Systems Analyst for Argonne National Laboratory where she studied the Alabama Chemical Stockpile Emergency Preparedness Program. She currently works at the University of Delaware as the Associate Director for the Undergraduate Research Program.

In 2011, Barsky obtained her PhD from the University of Delaware, where she spent seven years working as a graduate research assistant at the Disaster Research Center.

Rochelle Brittingham is a PhD candidate in the School of Public Policy and Administration at the University of Delaware and works jointly with the Disaster Research Center and Center for Disabilities Studies. Her research focus is evacuation and sheltering situations for individuals with access and functional needs. Additional research and professional experience include state and federal disability policy, emergency management policy, and household protective action decision making. Recent fieldwork has included two trips to the tsunami-devastated areas of Japan to investigate how individuals with access and functional needs were accommodated in emergency shelters and temporary housing. She also participated in fieldwork after Hurricane Sandy to explore how the disaster affected coastal communities. As an instructor, she teaches disaster-related courses at Wilmington University. Brittingham was lead graduate student on a National Science Foundation grant from 2009 to 2012 investigating residents' perceptions of safety in North Carolina in the event of landfall of a high-category hurricane. This project involved conducting focus groups with key stakeholders in North Carolina, one-on-one telephone interviews, creating a telephone survey, conducting and supervising the survey using computer-assisted telephone interviewing software, and data analysis. Her master's research included using qualitative data to assist in writing the State of Texas Disaster Mental Health Annex based on stakeholders' perceptions of how their organizations interact with others before and during disasters.

Brittingham graduated with honors from Millersville University with a Bachelor of Arts degree in psychology and a minor in sociology in 2004, and earned a Master of Public Administration with a concentration in emergency management from the University of North Texas in 2009.

Brett A. Burdick, MS, MPA, PG, CHMM, CEM, is the Deputy State Coordinator for the Virginia Department of Emergency Management (VDEM) and has worked for VDEM for nearly twenty years. His operational background includes eight years as the Director of the Technological Hazards Division overseeing Virginia's statewide Hazardous Materials Response and Training Programs and four years serving as a Virginia Emergency Response Team Coordinator for disaster response operations at the Virginia Emergency Operations Center. He has extensive experience as the Commonwealth's On-Scene Coordinator at hazardous materials incidents, field response to natural disasters, and terrorism incidents, including serving as the Senior State Official at the Pentagon following the 9/11 attack.

Burdick holds a Master of Science degree from Virginia Commonwealth University, a Master of Public Administration from California State University – Dominguez Hills, is a Professional Geologist in two states, a Certified Hazardous Materials Manager through the Institute of Hazardous Materials Management, and a Certified Emergency Manager through

the International Association of Emergency Managers. He is an Adjunct Instructor with the Homeland Security and Emergency Preparedness Program at Virginia Commonwealth University.

Jude Colle. As a former hazardous materials first responder, Colle has over thirty years of national and international experience in supporting the public and private sectors in all phases of emergency and disaster management. Currently, she maintains a solo consulting practice in Englewood, Colorado. Prior to this she conducted studies for senior leadership at several components of the Department of Homeland Security and Congress. Colle was the original author of Emergency Support Function #10: Hazardous Materials of what is now the National Response Framework, and helped the U.S. Environmental Protection Agency set up its national ESF #10 program.

Amy L. Crabill is the Deputy Director of the Cecil County Department of Emergency Services (CCDES) in Maryland and has been with the organization for nine years. In her current role she directly supervises Assistant Chiefs responsible for 911 Communication, Field Operations, Training and Education, and Electronic Services. Her previous roles with CCDES permitted her to concentrate on emergency management specifically, where she directed Cecil County's response and recovery efforts to multiple declared disasters. Her colleagues elected her President of the Maryland Emergency Management Association for two terms from 2008 until 2010. At the completion of her terms, she was awarded a Governor's Citation for Service to Emergency Management in Maryland.

Crabill is a PhD candidate at the University of Delaware in the Urban Affairs and Public Policy program, where she is completing her dissertation on the effects of federal funding on local emergency management. Additional research interests include federalism, governmental limitations, and performance management. She holds a Bachelor of Science degree in political science and communications studies from Towson University and a Master of Arts degree in National Security Studies from American Military University.

Carol Cwiak holds a J.D. and a Ph.D. in Emergency Management. She has been a full-time faculty member with North Dakota State University's (NDSU) Emergency Management Program since 2006. In her capacity at NDSU, Dr. Cwiak serves as the Undergraduate Coordinator and Internship Coordinator. She was awarded the 2013 Service Award by NDSU's College of Arts, Humanities, and Social Sciences for her service activities on the campus, in the local community, at the state and national level, and in furtherance of the emergency management community's agenda. She is part of a dynamic team at NDSU that believes that the best educational model for emergency management is a three-pronged approach that includes academic coursework, functional application, and internships out in the field. NDSU offers a minor, major, master's, and Ph.D. in Emergency Management and is committed to promoting excellence in emergency management higher education and facilitating the professionalization of the field.

Dr. Cwiak is the Executive Director of the Emergency Management Higher Education Consortium; Liaison for Higher Education with the International Association of Emergency Managers' Training and Education Committee; an advisory board member of the Urban Assembly School for Emergency Management in New York; a lead facilitator in NDSU's Innovation Working Group; and, a member of the North Dakota Department of Emergency Services Boy's State Exercise Facilitation Team. She is a subject matter expert on matters relating to emergency management higher education program development, emergency management identity, emergency management professionalization, campus planning, and business continuity and works frequently with the Federal Emergency Management Agency on projects of importance to the emergency management community. Dr. Cwiak has served on the North Dakota Department of Emergency Services Advisory Committee and continues to partner on projects with emergency management agencies and public and private sector partners at the local, state, national, and international level.

Dr. Cwiak regularly instructs FEMA's E390 Course: Integrating Emergency Management Education into Your Institution and is also a FEMA/DHS certified trainer for Community Emergency Response Teams (CERTs), Disaster-Resistant Jobs, and Multi-Hazard Emergency Planning for Schools (K-12), and Multi-Hazard Emergency Planning for Colleges and Universities. She teaches Disaster Preparedness, Disaster Mitigation, Disaster Response, Business Continuity and Crisis Management, Exercise Facilitation, and Professional and Career Development at NDSU. Her primary areas of research and writing involve emergency management identity, professionalization, higher education, business continuity, and chaos theory.

Summer D. DeBastiani is a Health Scientist in the Centers for Disease Control and Prevention's (CDC) Division of State and Local Readiness, Applied Science and Evaluation Branch. She holds an M.P.H. from Johns Hopkins and a B.S.N. from West Virginia University. An experienced critical care nurse, DeBastiani also has experience in the preparedness arena, including research on citizen preparedness in West Virginia, instructing FEMA preparedness planning courses nationally, and providing health and human services domestically and internationally to at-risk and vulnerable populations.

Kimberly B. Gill is an Assistant Professor in the Disaster Medicine and Management Program at Philadelphia University. She is a sociologist with specialization in disaster management and public health preparedness and response. Her research and professional experiences over the last decade include community preparedness and recovery, community resilience, hazard and risk communication, community-based participatory research, program evaluation, and qualitative methodology. Dr. Gill served as the Program Manager for the Center for Public Health Preparedness (CPHP) at Columbia University's Mailman School of Public Health, National Center for Disaster Preparedness and as the Assistant Director of the Office of Mental Health Disaster Preparedness and Response at the

New York City Department of Health and Mental Hygiene. She received her PhD in sociology from the Disaster Research Center at the University of Delaware.

Mary J. Goepfert is a staff member of the New Jersey State Police Office of Emergency Management. She is currently the External Affairs Officer/Access and Functional Needs Liaison for the New Jersey Office of Emergency Management, involved in Media/Community/Intergovernmental Relations and Access and Functional Needs Planning. She oversees the NJ Group for Access and Integration Needs in Emergencies and Disasters (NJ GAINED), and other programs related to disaster preparedness for persons with access and functional needs. Goepfert formerly served as an Instructor and Instructional Designer in the NJOEM Training program, and held the role of Exercise Coordinator in the Radiological Emergency Response Preparedness Unit. She holds a Bachelor of Arts degree in social work and a Master in Public Administration from Rutgers University and an Accreditation in Public Relations (APR) from the Public Relations Society of America. She is also a NJ Certified Public Manager (CPM). Goepfert is an Adjunct Professor in the Fairleigh Dickinson University Master of Administrative Science program. She was also a member of the training team at the NJ Department of Personnel Human Resources Development Institute for several years. She is a member of the Public Relations Society of America, and the National Association of Social Workers. She is currently pursuing a master's degree in clinical social work at Rutgers University, expected to graduate in May 2014.

Kay Goss was former Senior Assistant for Intergovernmental Relations for Governor Bill Clinton where she coordinated fire service, emergency management, public safety, emergency medical services, and law enforcement agencies and activities. President Clinton appointed her, and the U.S. Senate confirmed her unanimously, as the first woman to serve as Associate FEMA Director, where she directed National Preparedness, Training, and Exercises, including the Emergency Management Institute in Emmitsburg, Maryland; the Mount Weather Emergency Assistance Center in Berryville, Virginia; and the NATO Civil Emergency Planning Staff in Brussels, Belgium. During her tenure at FEMA, she and her staff contributed to a number of high-profile activities including the launch of the FEMA Higher Education Program in 1994; the National Interagency Task Force on Counterterrorism; a partnership with EMERCOM of Russia, which spanned the remainder of President Clinton's term of office and continues to the present; the Capability Assessment for Readiness Program, which evolved into the Emergency Management Accreditation Program; a partnership with Istanbul Technical University to support them in their efforts to provide technical emergency management training to local, provincial, and national emergency management officials, so challenged by a series of devastating earthquakes. During this time she was also the appointed Chair of the National Emergency Food and Shelter Program where she and her program manager broadened the base of information and funding available to the 11,000 shelters nationwide, through specific support from the President and the First Lady.

After end of the Clinton administration, Goss worked as Senior Advisor for Emergency Management, Homeland Security, and Business Continuity, at Electronic Data Systems Corporation in Herndon, Virginia, until 2007. She then joined SRA International as Senior Principal and Director of Emergency Management under Environmental and Organizational Services, until 2011. When she formed her own company, World Disaster Management, LLC, working with the Memphis Schools, Booz Allen Hamilton, McKinley Group, Every Child Is Ours Foundation, World Disaster Management Community College, UNLV, and the University of Arkansas. Also, she has become CEO for GC Barnes Group of Washington, DC. She has authored five books (the most recent being *Mr. Chairman: The Life and Legacy of Wilbur D. Mills*), hundreds of articles, is a regular columnist for *Domestic Preparedness Journal*, and spoken on the subject of public service and emergency management in every state.

Jeremey Horan started his career in disaster response as a volunteer. Since then he has spent the last seven years implementing disaster response programming in the United States and throughout the world. He has led domestic volunteer-based disaster response operations, established and run cross cluster programming in Haiti, as well as provided leadership in rural water and transitional construction programs in Peru. Most recently he was the Director of Operations at All Hands Volunteers, a disaster relief nonprofit, and Manager of Disaster Services for Points of Light. These experiences have given him the ability to create effective program plans in response to acute community needs, the ability to manage resources (human, physical, and financial), and the confidence to work with all levels of stakeholder from an impacted family to governmental personnel.

In addition to the knowledge acquired in program implementation and management, Horan has a solid understanding of volunteer-based disaster response operations. During his tenure as a field practitioner, he has coordinated and managed over 9,000 volunteers during 20+ assessment and response operations. He was responsible for the oversight and evaluation of systems designed to ensure the safe and effective use of volunteers while connecting them with unmet community needs. Starting as an unaffiliated volunteer and growing into a management position has shaped Horan's views on how top-down governance can support bottom-up civic engagement in fostering better-prepared and more resilient communities. In an effort to add his perspective on how best to address the persistent challenges communities face in preparing for and responding to disasters, Horan started Everything's A Disaster (www.everythingsadisaster.blogspot.com), a blog with the aim of highlighting new ideas and approaches to persistent challenges communities face in building preparedness and resilience.

Amanda L. Hughes is an Assistant Professor of Computer Science at Utah State University. Her research interests span human-computer interaction, computer-supported cooperative work, social computing, software engineering, and disaster studies. She grounds her work in the empirical analysis of social relationships and work practices, after which she designs, prototypes, tests, and implements digital solutions that support this analysis. Her current

work investigates the use of ICT during crises and mass emergencies, with particular attention to how social media affect emergency response organizations.

Hughes has also received a bachelor's degree in computer science from Brigham Young University and a master's degree and PhD in computer science from the University of Colorado, Boulder.

Jessica Jensen's research focus is split between perceptions about and implementation of incident management systems and the development of emergency management as an area of study (including articulation and study of its disciplinary nature, core concepts, theory, and curriculum). Jensen's work has been published in the top journals, and she is known for her work in both areas. She also maintains an active service profile acting as a research consultant for the International Association of Emergency Managers, a facilitator for Federal Emergency Management Agency Higher Education Program projects and focus groups, and a subject matter expert for local area organizations.

She completed her doctorate in emergency management at North Dakota State University's Department of Emergency Management in 2010. She is one of the first doctoral degree holders in this new academic discipline. She also holds a Master of Science degree in emergency management and a Bachelor of Arts degree in political science.

Jane Kushma is an Associate Professor of Emergency Management and Doctoral Program Director at Jacksonville State University (JSU) in Alabama. She has been teaching emergency management at the college level for nearly twenty years, and has led curriculum development efforts at both the graduate and undergraduate levels at several institutions. She received the IAEM Academic Recognition Award in 2012 for her role in the design and implementation of a new doctoral program in emergency management at JSU. Her research areas are disasters and public policy, long-term recovery, vulnerable populations, and volunteer management. Before joining academia, she spent many years with the American Red Cross national headquarters where she coordinated the organization's catastrophic disaster planning efforts. She has also served as a consultant to the FEMA Recovery division, National VOAD, the Alabama Emergency Management Agency, and Serve Alabama, the Governor's Office of Faith Based and Volunteer Initiatives.

Kushma has a PhD in urban policy and public administration from the University of Texas at Arlington and also a master's degree in social work from the University of Pittsburgh.

David A. McEntire is a Professor in the Emergency Administration and Planning Program (EADP) in the Department of Public Administration at the University of North Texas. He teaches emergency management courses in both the undergraduate and graduate programs. He served previously as the Coordinator for the EADP and PhD programs, and as the Associate Dean in the College of Public Affairs and Community Service. McEntire's

academic interests include emergency management theory, international disasters, community preparedness, response coordination, and vulnerability reduction. He has received several Quick Response Grants and other grants (funded by the Natural Hazards Center at the University of Colorado and the National Science Foundation), which allowed him to conduct research on disasters in Peru, the Dominican Republic, Texas, New York, California, and Haiti. McEntire is the author of *Disaster Response and Recovery* (Wiley), *Introduction to Homeland Security* (Wiley), and the editor of *Disciplines, Disasters and Emergency Management* (Charles C. Thomas). His research has also been published in *Public Administration Review*, the *Australian Journal of Emergency Management, Disasters, the International Journal of Mass Emergencies and Disasters, Journal of Emergency Management, Journal of the Environment and Sustainable Development, Sustainable Communities Review, International Journal of Emergency Management, Towson Journal of International Affairs, Journal of the American Society of Professional Emergency Planners*, and the *Journal of International and Public Affairs*. His articles in *Disaster Prevention and Management* have received Highly Commended and Outstanding Paper Awards.

McEntire has published chapters in the *Handbook of Disaster Research* (Springer), the *Handbook of Disaster Management* (CRC Press), and *Emergency Management: Principles and Practices for Local Government* (ICMA). He has been a contributing author for a study of Texas Homeland Security Preparedness for the Century Foundation as well as three IQ Reports for the International City/County Management Association.

McEntire has presented papers in Mexico and Norway, at the National Science Foundation, at the National Academy of Sciences, and at the Higher Education Conference at FEMA's Emergency Management Institute in Emmitsburg, Maryland. He is a member of Congressman Burgess' Homeland Security Advisory Board, FEMA Region VI Advisory Board, and the ICMA Advisory Board. In addition, McEntire has reviewed books for Delmar Learning and is on the editorial staff for the *Journal of Emergency Management*.

Prior to coming to the University of North Texas in the fall of 1999, he attended the Graduate School of International Studies at the University of Denver. While pursuing his degree, he worked for the International and Emergency Services Departments at the American Red Cross. McEntire was recognized as the 2010 Dr. B. Wayne Blanchard Award Recipient for Academic Excellence in Emergency Management Higher Education.

Rocky Milliman was appointed by Governor Bentley in 2011 as Alabama's State Disaster Recovery Coordinator. His duties are to oversee the effective and sustainable long-term recovery process of communities impacted by the worst storms ever to hit Alabama. Prior to his appointment, Milliman was the Director of the Autauga County Emergency Management Agency (EMA). In this position, he was selected to be a participant in Alabama's EMA Delegation to meet with Alabama Congressmen regarding disaster-related issues and as a result additional funding was secured for future mitigation programs. He was awarded EMA

Rookie of the Year in 2010. Milliman's initial start with disaster recovery began while working with NorthStar Communications. He helped redesign the communication infrastructure in New Orleans after Hurricane Katrina. Additionally, Milliman served with the U.S. Air Force in communications and worked on both HAZMAT and response teams at several installations. Milliman is a board member of the Alabama Rural Coalition for the Homeless and sits on several advisory boards. He earned a degree in business administration from the University of Maryland and graduated cum laude.

Benjamin L. Muncy is currently a Business Continuity Analyst with the Federal Reserve Bank of Richmond in Richmond, Virginia. Benjamin began his career with the Virginia Department of Emergency Management (VDEM) where he founded and administered VDEM's Private Sector Liaison Program. Muncy built the program into a nationally recognized best practice and a FEMA Model Public-Private Partnership Program. Muncy has been asked to speak in numerous settings on his expertise in the field of private-sector integration in emergency management, and how to apply methodologies to develop beneficial relationships between sectors. Muncy is a two-time veteran of Operation Iraqi Freedom where he served with distinction in the 82nd Airborne Division. Benjamin attended Virginia Commonwealth University in Richmond, Virginia, where he earned his bachelor's degree in homeland security and emergency preparedness.

Leysia Palen is an Associate Professor of Computer Science at the University of Colorado, Boulder and an Adjunct Full Professor in Information Systems at the University of Adger in Norway. She is the Director of the National Science Foundation (NSF)-funded Project EPIC: Empowering the Public with Information in Crisis. She examines human behavior in and design of socio-technical systems, and has over seventy publications in these areas. Her most recent work is in the area of crisis informatics, though she has worked in aviation, digital privacy behavior, personal information management, and mobile technology diffusion. She completed her PhD at the University of California, Irvine in information and computer science and her Bachelor of Science degree in cognitive science at the University of California, San Diego. In 2006, Palen was awarded an NSF CAREER Grant for her "Data in Disaster" proposal to study information dissemination in disaster events. In 2005-2006, Palen was a visiting professor at the University of Aarhus, Denmark.

Steve Peterson is employed with the federal government in an emergency management capacity and has specialized in policy making for both the public and private sector in the area of emergency communications for over fifteen years. He is the President of Montgomery County Community Emergency Response Team where he designed an award-winning social media monitoring strategy that was implemented during a 2013 weather-related emergency. He has made numerous presentations at the local, national, and international levels on the various dimensions of social media and its impact on emergency management. Peterson has worked for two nationally recognized corporations where he provided data communications support during Hurricanes Katrina and Rita in 2005 and the

September 11th terrorist attacks in 2001. Peterson received his Bachelor of Science degree in computer studies from the University of Maryland, University College. He is studying to attain his certification in emergency management through the International Association of Emergency Managers.

Yvonne Rademacher holds a Joint Honours Degree in Law and Politics (LL.B.) from the University of Edinburgh, Scotland, as well as a Master in Law (LL.M.) from the College of William and Mary, Virginia. In 2013, she was awarded a PhD in Disaster Science and Management from the University of Delaware.

For ten years prior to starting her PhD, Rademacher worked in humanitarian emergency assistance and post-conflict recovery, mainly with the United Nations. Her field assignments included work with the United Nations High Commissioner for Refugees after the civil war in the former Yugoslavia, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) after the 2004 tsunami in Sri Lanka and the 2005 Pakistan earthquake, the World Food Programme during the droughts in Somalia and Kenya in 2006 and 2007, and United Nations Development Programme as Early Recovery Adviser on internal displaced in Pakistan in 2009. In addition, she also served as OCHA Desk Officer for West Africa at UN headquarters in New York from 2001 to 2004.

Having started her career as a practitioner in the field of international emergency assistance, her academic work is now primarily concerned with helping to bridge the gap between science and practice, facilitating timely contributions to policy discussions and developing conceptual frameworks as useful, practical tools for the emergency management community. Rademacher's research interests to date have focused on three areas: (1) the identification and activation processes of community disaster management assets, (2) governance structures and the politics of linking institutional emergency management with civil society, and (3) opportunities of peace-building through disaster management. She is currently exploring these areas with fellow academics and former colleagues in the United States, Romania, Africa, Indonesia, and China.

James C. Rajotte is a Health Policy Analyst from the Rhode Island Department of Health's Center for Emergency Preparedness and Response. He is completing his Master of Science degree in leadership from Roger Williams University and holds two Bachelor of Science degrees from Rensselaer Polytechnic Institute. An experienced public health preparedness planner and practitioner, Rajotte also has experience with emergency response, as Incident Commander and Planning Section Chief for the Department of Health, as Emergency Support Function #8 Liaison for the State Emergency Operations Center and Joint Field Office, and as a member of Rhode Island's Type III All-Hazards Incident Management Team. Rajotte has served on numerous committees, including the Association of State and Territorial Health Officials (ASTHO)'s Performance Evaluation and Improvement Workgroup, ASTHO/CDC's Model Design Workgroup for the National Health Security Preparedness

Index, and the Public Health Foundation's Training Finder Real-Time Affiliate Integrated Network (TRAIN).

Robert (Bob) Ross is a vice president of Delta Development Group, a Pennsylvania-based consulting firm. Bob leads Delta's Disaster Preparedness Solutions team, assessing the issues challenging Delta's private- and public-sector emergency management, public health, and healthcare clients and then works with them to formulate sound, viable strategies for answering those challenges. Ross emphasizes a whole-community, all-hazards approach in emergency planning and the need to integrate and coordinate planning within an organization and with external agencies and departments.

Prior to joining Delta, Ross spent several years working for a homeland security consulting firm in the national capital region, providing public health preparedness and general technical assistance for federal, state, and local clients. His projects included preparing public health-centered exercises and plans and developing guidance documents for the federal Department of Homeland Security. Previously, Ross was the Administrator for the Public Health Preparedness Section of the Delaware Division of Public Health and was responsible for planning, training, and operations functions. He was the primary author of Delaware's systems approach to surge capacity planning, the Modular Medical Expansion System, which integrates command and control, Strategic National Stockpile receipt, distribution and dispensing, and victim medical care and transportation. Ross served as an Emergency Support Function #8 coordinator in several weather-related activations of the Delaware Emergency Operations Center and as the Operations Section Chief of the Delaware State Health Operations Center during Hurricane Isabel in 2003. He also was instrumental in building a coalition of public health preparedness leaders from state and federal agencies in the Mid-Atlantic region for coordinated planning activities. Over the past twenty-five years, Ross, a former nationally registered paramedic and volunteer firefighter, has served as a county-level Emergency Medical Services (EMS) Training Officer, EMS Operations Chief for a small city, and EMS Training Coordinator for the state of Delaware. Ross was also an EMS Field Instructor for the Maryland Fire and Rescue Institute as well as an instructor cadre for Basic Trauma Life Support and Pediatric Advanced Life Support in Maryland.

Ross holds a bachelor's degree in human resource management from Wilmington University in Delaware. He is a graduate of the Mid-Atlantic Health Leadership Institute program at Johns Hopkins University. He has completed numerous state-delivered and independent study courses through the Federal Emergency Management Agency.

Claire Rubin is the President of Claire B. Rubin & Associates, LLC, a small business specializing in disaster research and consulting, located in Arlington, Virginia. She also is CEO of the online Disaster Bookstore (www.disasterbookstore.com). She has been affiliated with the Institute for Crisis, Disaster and Risk Management at The George Washington

University in Washington, D.C., since 1998. She was the cofounder of the *Journal of Homeland Security and Emergency Management* and served as Managing Editor for six years. During her thirty-five years of experience in the emergency management field, she has been a researcher, consultant, and academic. She has written more than ninety publications and delivered numerous lectures and presentations on emergency management and homeland security. She is the editor of the textbook *Emergency Management: The American Experience, 1900-2010 (2nd Edition)*, published by Taylor and Francis in April 2012. For more than three years, she has maintained the professional blog called [Recovery Diva.com](http://RecoveryDiva.com). She is a Contributing Writer to *Emergency Management Magazine*.

Rubin holds a Bachelor of Science degree from Simmons College and a Master of Arts degree from Boston University. Some of her local volunteer activities include CERT and Citizen Corps programs in Arlington County, Virginia, and she has served as member of the Emergency Preparedness Advisory Commission, created by the Arlington County Board. She also has served on an Advisory Committee to the American Red Cross.

Julie Schoening is the President of Alabama VOAD and served as the State Emergency Management Program Manager (AL) for the American Red Cross. She has served on the Governor's Mass Care Task Force (AL), Co-Chair of the Functional and Access Needs in Disasters Task Force (AL), Co-Chair of the Tri-State VOAD Conference, and on the FEMA Region IV Individual Assistance Conference Planning Committee. She studied emergency management at the University of Wisconsin-Green Bay and molecular biology at Illinois Benedictine College. She is a member of the Alabama Association of Emergency Managers. She works regularly with other state VOADs and state emergency management agencies to further development of recovery planning efforts. She has presented on and advocated for VOADs and related issues at events such as Wisconsin Medical Reserve Corps Fall Preparedness Summit, FEMA Getting Real II, and the National Mass Care Strategy Exercise 2013.

Timothy W. Sevison has extensive background in emergency and disaster preparedness and response, having served as the Deputy Director for Planning and Preparedness for the Pennsylvania Emergency Management Agency (PEMA) until 2011. Prior to his appointment with PEMA in 2007, Tim was the Senior Deputy Fire Chief and Deputy Emergency Management Coordinator for the City of Harrisburg, Pennsylvania. He is currently serving as a military planner for homeland response with the Pennsylvania National Guard.

Sevison has been involved with emergency and disaster activities at the local, state, and federal level for over thirty years, including response to the 9/11 World Trade Center attacks, and the Gulf Coast hurricanes of 2005. He is active with the DHS/FEMA National Urban Search and Rescue Response System, serving as a Task Force Leader for Pennsylvania, as well as a member of the DHS/FEMA US&R Command and General Staff working group. Sevison was actively involved in the development of the regional response

model for Pennsylvania and continues to serve as a regional IMT Leader. He has been in the U.S. military for over thirty years, serving in active, reserve, and National Guard components of the United States Air Force, including a tour in Iraq in 2004. His primary military responsibilities have included Fire and Emergency Services management and Homeland Response planning.

Sevison is on the Advisory Board of Millersville University's Center for Disaster Research and Education and is an adjunct professor for Millersville's graduate program in Emergency Management. He is also a domestic and international consultant in emergency services and emergency management planning, preparedness, and response. Sevison holds a master's degree in business administration from Eastern University in St. Davids, Pennsylvania, and a master's degree in homeland security/public health preparedness from Pennsylvania State University. He is currently a doctoral student at Jacksonville State University, majoring in emergency management.

Gregory Shaw, D.Sc., joined The George Washington University (GWU) Institute for Crisis, Disaster and Risk Management in December 2001. Currently, he is an Associate Professor of Engineering Management and Systems Engineering and a Co-Director of the Institute for Crisis, Disaster and Risk Management. Since 2001, Shaw has conducted research in support of Operation Safe Commerce, the organizational response to the 9/11 attacks, mass casualty preparedness and response, healthcare emergency management competencies and certification, the impact of the 9/11 attacks on corporate America, Comprehensive Emergency Management planning and Continuity of Operations program development, a risk assessment of the San Francisco ferry system, Netherlands and U.S. Water Crisis research (NUWCRen), and a Public Health Risk Assessment for the National Capital Area with a follow-on effort to identify Public Health risk mitigation projects. Previously, he served as an officer in the United States Coast Guard, retiring as a Captain in October 1996. While on active duty, he commanded four cutters and the Coast Guard's largest shore unit, served as the Coast Guard's Director of Training and Education, Liaison Officer to the United States Navy Mine Warfare Command, and as a senior analyst for the congressionally chartered Commission on Roles and Missions of the Armed Forces. From 2000 to 2001 Shaw was the Director of the Geospatial Technologies for a commercial system integration company.

Shaw has earned his Doctor of Science in engineering management at GWU and master's degrees in physics at Wesleyan University, education and human development at GWU, and business administration at Webster University, and Bachelor of Science degree in engineering at the U.S. Coast Guard Academy. In 2002, he earned a certification as a Business Continuity Professional through Disaster Recovery Institute International.

Christa-Marie Singleton is the Senior Medical Advisor in CDC's Office of Public Health Preparedness and Response (OPHPR), Division of State and Local Readiness. In that role,

she serves as the senior science advisor providing direct medical advice in the planning, direction, coordination, support, application, standardization and integration of state and local public health public health preparedness issues and programs. Leading multidisciplinary and interagency efforts, encompassing over 200 expert contributors, and capturing the evidence-base generated from over ten years of work and over \$7 billion in congressional public health preparedness investments, Singleton was the lead architect and author of CDC's *Public Health Preparedness Capabilities: National Standards for State and Local Planning*, the nation's inaugural set of peer-reviewed and validated scientifically-principled public health preparedness capabilities.

Prior to joining OPHPR, she was the chief medical director for the Baltimore City Health Department's Office of Public Health Preparedness and Response, coordinating all emergency preparedness and response operational activities. She also has served as the director of public health emergency preparedness at the Baltimore County Department of Health.

Singleton received her bachelor's degree in microbiology from the University of Notre Dame in South Bend, Ind., her medical degree from the University of Louisville in Louisville, Kentucky, and her pediatric residency training at Thomas Jefferson University/Alfred I. duPont Hospital for Children in Wilmington, Delaware. She earned her master's degree in public health in 1996 from the Johns Hopkins University School of Hygiene and Public Health.

Singleton has been recognized by the Thomas Jefferson University for Excellence in Ambulatory Pediatrics, by the White House Fellowship Program as a 1997 national finalist, by the American Medical Association/Glaxo Welcome Program as an "Emerging Leader" and received the 2011 "Outstanding Scientific Award" Employee of the Year Award by the Atlanta Federal Executive Board for her work in authoring CDC's *Public Health Preparedness Capabilities: National Standards for State and Local Planning*.