

# What Have We Learned From The Disaster Research? <sup>1</sup>

## Overview

"In order to fully understand the mission and role of any person involved in local emergency management, one must understand some very basic things about disaster and emergency response in American society today.

**First of all, no community, or public or private entity is immune to disaster. The events of the last decade throughout this nation have pointed this out repeatedly.**

Current research and practical experience are giving us some very important information which must be incorporated into our strategy of dealing with large scale emergencies.

### **1. By nature always multi-organizational**

No one agency or group is going to entirely handle a major emergency. Case histories point to the fact that there may be anywhere from fifteen to forty separate and autonomous organizations, groups or agencies responding to any given disaster. These entities responding under emergency conditions constitute unique management problems."

The goal of the VA Medical Center Emergency Operations Plan is to avoid various Services operating autonomously during an emergency.

### **"2. Response always emergent**

Disaster response becomes more complex much the same as the disaster itself may do. Plans and SOPs will only provide guidance and direction for a certain time period under emergency conditions. Emergency management systems require flexibility and a great deal of improvisation by those responsible."

Structuring how certain decisions will be made and by whom comes from the Emergency Operations Plan. Implementing the Plan through the Incident Command System (ICS) emphasizes the use of "operational periods" in which objectives are set to focus the efforts on present needs. In later operational periods, as needs change, resources can be shifted to meet them.

### **"3. Organizations loosely coupled**

Because the many organizations who respond to disasters work together infrequently, they are very loosely coupled and often times not appraised of conflicting capabilities, limitations and each others existence. Interaction at the disaster scene is often the only contact some groups or organizations have with each other."

By "meeting & greeting" with key community response organizations, and by active participation in community emergency management activities, close working relationships are created.

**"4. Standard management will not apply**

Disasters, by their very nature, present unusual, and typically unique demands on the entire community. As a result, management approaches used for day to day public bureaucracies and private firms are not sufficient to handle emerging disaster circumstances. Most disasters create demands which exceed the normal capacity of day to day emergency response agencies. They create new complex problems in a short period of time and the community must be modified to fit situations that did not previously exist.

New relationships must be quickly established between community organizations, outside agencies, volunteers and other entities who may not normally work together. Multiple tasks are created at the same time so that disaster events and response demands are simultaneously originating in the same areas. Additionally, some tasks are clearly dependent on the achievement of others.

The question often asked at disaster sites is "Who's in charge?". If an emergency management program has been established, that question may be replaced by this statement.

"We have an established policy. Now, which members of the operational group will be needed to collectively solve this problem?"

In disaster response, there must be two systems of management organization operating at the same time. One is a standard system which identifies chains of command and normal management hierarchical organization. The other is a simultaneous organizational network which must be developed between policy, coordination and operational groups to collectively solve the problems from an equal status."

Implementing the Emergency Operations Plan through the ICS recognizes the fact that there are **Responders** (those who are present when an emergency occurs and must take immediate action to save lives or conserve property), and **Managers** (whose role is to support responders by projecting needs and coordinating their collective approach in the Emergency Operating Center, or EOC).

**"5. Evaluations must be directed at network or system**

Evaluations of response effectiveness must be directed at the network of emergency response entities rather than at any agency or individual. By the very nature of disaster, it requires a response from the entire system, and that system should not be entirely dependent on one link for its effectiveness. This not only insures constructive critiquing,

but provides emergency management team building."

By grouping related VA Medical Center Services into the 6 Essential Functions, or EFs, and by designating a "Lead" Service to represent that support team provides an effective coordinating structure for the entire organization.

"All current research on the subject clearly shows that emergent, multi-organizational community response dictates the need for a lead agency or entity. Not necessarily to be in charge or to direct, but to coordinate, facilitate . . . or guide . . . to get everyone singing off the same sheet of music !!!

## Four Major Continuing Operational Problems That Occur In Virtually Every Major Disaster

### 1. **No capability for interagency communication**

While no two response agency communication systems can be identical, good planning can insure adequate communication flow for all entities within the response community."

Who needs to tell who what and when (or how often).

### "2. **Ambiguity of Authority**

While better planning can correct this in part, additional efforts are required, especially at the state and federal levels."

The authority to make certain basic decisions, such as who can alert and warn occupants of the facility once notification of a threat has been received, who can order an evacuation, etc., needs to be clear.

### "3. **Poor utilization (if any) of "outside" or "special" resources**

Emergency Managers cannot predict what they will need in every situation, but they must be able to locate resources when they are required. Often, the core group of local managers was not prepared to locate and incorporate such resources. A recurring problem was the inability of local response agencies to direct the integration of special resources in the response effort."

In, "Resource Identification and Inventory," you will be determining who can help and respond, both within the facility and from the community. Formatting this information so that the data is quickly retrievable and accessible when needed is important.

**"4. Un-planned media relationships usually negative in nature**

All agencies involved in emergency management need to be trained in providing information to the media. In a disaster, any jurisdiction must speak with one voice.

In addition, researchers are emphasizing that an increased commitment to emergency management at the local level has historically never materialized until after some significant emergency or disaster event has happened, (or threatened to happen). Those who were ready, got repaid. How? In the maximum savings of lives and property through efficient, effective disaster operations.

Case studies and research interviews show that much ambiguity of authority and coordination problems develop when there is misunderstanding about responsibilities, services to be provided and resource capabilities.

**Disaster Research Center Study on Emergency Management**

In the fall of 1985, the Disaster Research Center at the University of Delaware began work on a five year project focusing upon community response to natural and technological disasters. The ultimate purpose of the five phase effort is to improve understanding of community response to major disaster when it overwhelms local capabilities

and necessitates substantial assistance from the outside. The project {was} being funded through the Federal Emergency Management Agency.

The first year's effort was a follow-up to a study completed in 1984. That study contrasted local emergency management agency issues and problems identified in the 1970's compared to those in the early 80's. Significant factors from that 1984 study reflected that while planning and preparedness activities had improved, there had been relatively little change in the response patterns and that the same problems and issues were evident today as in the 1970's.

On the final report for Phase I, issued in February 1987, the Disaster Research Center replicated and extended the 1984 study by focusing on how disaster emergencies are managed. The goal was to identify those dimensions that influence effectiveness of response activities. Six case studies in addition to other field data was used in reaching the conclusions derived.

The effectiveness of response activities were evaluated on the following dimensions:

The most effective responses identified from the field data gathered were highlighted by:

**-- excellent information collection and distribution,**

**-- a fully-staffed and functioning EOC,**

- adequate human and material resources,**
- a specialized division of labor among responding units with the coordination of those units by one agency,**
- a legitimated authority structure,**
- integrated and coordinated relationships with outside organizations,**
- mutually beneficial and effective relationships between emergency officials and mass media representatives**
- and "reality based" activities.**

Since 1977, disaster planning and preparedness activities have improved throughout the country at the local level. However, the Disaster Research Center also observed that despite the improved planning and preparedness, response patterns and solving of disaster related problems has not improved. Although increased planning has occurred, it has often been of poor quality. Those planning activities have been weak in three ways:

- 1. There is a failure to recognize a need for a system or overall perspective both for planning and response.**
- 2. There is a frequent underestimation of the need to plan for flexibility and improvisation in the emergency response.**

### **3. There is little recognition of the inherent limits to planning.**

Data gathered from the case studies and other field information indicated that the areas of most difficulty included communication, task assignment and coordination, and authority relationships. Although responses varied from the outstanding to the barely adequate, the problems that were identified were not those of technology or resources. Instead, they were the result of poor task allocation and coordination, confused authority relationships, and inadequate information collection and distribution. The problems associated with communication were not those of technology or equipment. They were the result of autonomous units acting independently and not talking with each other.

Effectiveness and extensiveness of response were very positively related to previous disaster experience.

Where discontinuity exists between the planned emergency response system and normal organization of government, response effectiveness will be negatively impacted despite excellent planning.

**Problems observed with EOC's were not generally those of facilities or equipment. Instead, they involved the following:**

- 1. Liaison people leaving the EOC.**

**2. High level staff failing to appear or not being present in the EOC.**

**3. By-passing the EOC in matters of resource acquisition and coordination.**

**4. Delay in establishing or failure to open an EOC.**

Much more progress could be achieved at local level planning and response if more of the specifics of disaster research findings were taken into account."

## Health Care Facilities Are Uniquely Affected By Disasters

The following six points illustrate important characteristics of how hospitals may be affected by disasters:

1. "Health care facilities are heavily occupied buildings; they house patients, staff, medical personnel, and visitors and are occupied 24 hours a day. Many patients are helpless and require trained care. In addition, they may be surrounded by special equipment, using potentially hazardous gases such as oxygen, or they might be connected to life support equipment, which is dependent upon power.

2. Health care facilities are very complex buildings combining the functions of a hotel, office, laboratory, and warehouse. Their planning is

complicated because of the presence of many small rooms. After an {incident occurs}, patients and visitors will be very confused, lights may be out, and hallways and room exits may be blocked...

3. Many health care facility supplies (pharmaceuticals, splints, bandages, etc.) are essential for patient survival and crucial for treatment of ...victims. Patient records are vital for accurate patient treatment, particularly in the event of patient evacuation to other facilities. Damage to storage and records areas may render these items unavailable at the time when they are most needed.

4. Health care facility function is dependent upon utilities such as power, water supply, and waste disposal, and communication. Radiology, monitoring, life support, sterilization, and other equipment must be powered.

5. Many items in a health care facility are hazardous if overturned or damaged (drugs, chemicals, heavy equipment). In addition, drugs may become a target of abusers if normal security breaks down.

6. In addition to internal problems caused by damage to the facility itself, community damage will result in an influx of injured people, as well as friends and relatives seeking information about hospital patients. At the time of most need, the building may be non-

functional and trained staff killed or injured."<sup>2</sup>

## Research Findings on the State of Preparedness of Health Care Facilities <sup>3</sup>

"Among the many components of the emergency social system in a community are hospitals of various types and medical units. Within the United States, testing and drills are commonplace, reflecting in part a formal certification requirement of the American Hospital Association. Yet, the knowledge base regarding the impacts of such efforts on behavioral responses during actual disasters remain a near void.

The extent of planning for specialized types of hospitals has been documented and found to be rather lacking. For example, a survey of 100 Veterans Administration general hospitals secured the cooperation of 46. "Of those 46 hospitals, 22 had no specific plan at all for psychiatric casualties. Fourteen had a rudimentary plan comprising only a general statement to "provide care" or to "remain available" on the bed unit to receive casualties from the receiving area. Eight plans specifically called for mental health professionals in the triage area."

"In contrast to event qualities or patient demands is the rather unique issue of hospital evacuation. Apparently, this is a matter that has yet to be reviewed carefully by most administrators.

And currently, researchers offer little guidance."

"A hospital fire is treated somewhat differently from in other types of buildings. Given a fire in a normal high-rise, the first decision would be to evacuate. Given a fire in a hospital, the first decision is to attempt to avoid an evacuation if at all possible."

"Dauphin County, just north of TMI {Three Mile Island}, contained four hospitals ranging in distance from 9.5 to 13.5 miles from the stricken plant. Crash plans put into effect within 48 hours of the initial incident successfully reduced hospital census to below 50 per cent of capacity, but retained bedridden and critically ill patients within the risk-zone. No plans existed for area-wide evacuation of hospitalized patients. Future-oriented disaster planning should include resource files of host institution bed capacity and transportation capabilities for the crash evacuation of hospitalized patients during non-traditional disasters."

"Other types of inadequacies were reflected in such proposed innovations as the use of signs to guide volunteers and relatives during emergency responses. Both are quite likely to be present. Yet, even the extent to which actions as simple as these have been planned and rehearsed so as to be routinely put in place quickly has not been documented using nationally based samples of hospitals."

## Fourteen Major Misconceptions About Disaster Behavior

The following is an excerpt from the text, **Blueprint for Community Emergency Management**, by Patrick LaValla and Robert Stoffel, and this material was based upon over 30 years of disaster research:

### **"1. Warnings will produce panic responses. People panic when faced with a great threat or danger.**

The most common response initially is denial. Panic is defined as a sudden, unreasoning, hysterical fear which spreads to other people rapidly. In terms of disasters it would imply behavior such as irrational flight to escape.

In general, panic requires three conditions which rarely exist:

- a. Seeing the threat with a perception of possible entrapment (escape route blocked);
- b. Feeling of powerlessness or impotency;
- c. Feeling of social isolation or sole dependency on one's self.

In fact, people often stay in potentially threatening situations rather than moving out.

### **2. People won't listen to official advice.**

The warning period for most disasters is usually marked with multiple information sources, which are typically inconsistent. According to Perry, et. al., 1981 there is a distinct effort made by most people to confirm the situation and its magnitude. Conflicting and vague message content can entirely neutralize the desired response, Uniformed personnel, with specific information and advice as to adaptive actions is the most effective and believed source for warning.

There are seven key functions which must be addressed in any effective warning system:

- a. Detection
- b. Measurement of magnitude
- c. Collation/integration of all warning input
- d. Interpretation
- e. Decision to warn
- f. Message content
- g. Dissemination

### **3. Evacuation of communities will produce substantial numbers of automobile accidents.**

Studies of several hurricane and flood evacuations have refuted this. (Quarantelli, 1980) Most evacuations tend to be relatively well orchestrated and organized.

**4. Typically, most people will go to public shelters during disaster evacuations.**

In actuality, few will go to shelters. Studies indicate (Perry, et. al., 1981) that somewhere between 3% and 30% will seek shelter in publicly established facilities. Most will go to a relative's or friend's home. For those that do go, their stay is usually short.

**5. Most victims are dazed and relatively non-functional due to the shock of the event. Most victims wait for officials to organize and respond.**

Typical response is rational and directed toward helping others. Disaster victims react in an active manner and do not wait for assistance from outsiders of official organizations. They show the ability to cope with the immediate disaster problems. Case studies in Cheyenne and Wichita Falls illustrate this. (Drabek, et. al., 1981) Typical response is self help and immediate aid to others. Rare cases of "disaster syndrome," (variety of responses such as hyperactivity or shock) while not unheard of, are the exception. People continue to play their traditional behavior in the presence of danger. In general, disasters do not cause disabling emotional consequences or leave numbing mental health problems among large numbers of their victims. Depending upon the event, a very small percentage of a population will evidence intense shock.

Planning implications are that few victims will get to the hospital via official transportation.

**6. Anti-social behavior, especially looting and other forms of crime increases after most natural disasters.**

While rumors of looting are high with great concern about the consequences, actual cases are rare. However, because of the public fear of this activity, local officials must present an image of control and security. By contrast, the most common responses reflect altruism and heroic acts.

**7. Media coverage provides an accurate and balanced portrait of the disaster scene.**

In general, the atypical and exceptional responses are focused upon by the media in hopes of stimulating readership and viewers. The competition among the media heightens the emphasis on the unusual or unique. Three fairly distinct phases are discernible to the coverage of major emergencies or disasters:

- a. **Stunned by the tragedy or impact** - genuine concern for people.
- b. **Accusation** - this stage follows after the initial impact has worn off. If something went wrong, then there will be a hunt for who did it.
- c. **The story behind the news** - the search for

controversy and the story behind the news. What really happened and why?

Victim as well as responder feelings are stressed with high emotions during the initial phase.

**8. Disaster exercises and other planning tools allow emergency organizational responses to be integrated and predetermined.**

Despite the prevalence of exercising and other planning tools, excessive fragmentation of the organizational response continues to be documented. The complexities and scope of the emergent multi-organizational networks are at times overwhelming! (Drabek, et. al., 1981)

**9. Disaster victims receive most help from relief agencies.**

Informal aid networks are the rule with nearly a "utopian mood" prevailing. Reference items #5 and #6 above. Although small in numbers, people helped by relief agencies are provided with special needs; i.e. temporary housing, special populations, the very poor, etc.

**10. Psychological scars remain with disaster victims - they never fully recover.**

Very little evidence in the research points to long-term effects of disaster impact. The exception to that is the Buffalo Creek Disaster, (Erikson, 1976)

By contrast, Drabek and Quarantelli have not substantiated findings in the Buffalo Creek Disaster. Buffalo Creek was a unique situation, with community differences and only a small amount of participation in therapeutic community programs. By contrast, there is much evidence that responders are suffering many long-term psychological problems as a result of exposure to traumatic disaster situations.

**11. Following disasters, local community leaders typically initiate many forms of disaster mitigation.**

While some instances of rather successful mitigation have been cited, as in the case of Rapid City, South Dakota, overall patterns suggest minimal mitigation planning in the restoration process. Family and business pressures seem intense for getting decisions made and most wish to rebuild rather than relocate.

**12. Local authorities always know who is in charge.**

Quite the contrary! In most cases studied, there seems to be a problem with ambiguity of authority. After reviewing 27 disaster responses, researchers concluded that "Search and/or rescue takes place in loosely structured situations with uncertain exercise of authority" (Quarantelli, 1980). Additional research and social mapping have now provided substantial verification that organizational

perceptions of "who is in charge" varies dramatically during a disaster situation. (Drabek, et. al., 1981)

**13. More communication means better communication.**

Too often what is perceived as poor communication really reflects a lack of interagency coordination. In most cases, the problem has been too much communication - or the inadequate regulation of flow and volume.

**14. The ICS (Incident Command System) is the management panacea to all disaster response.**

Emergent, multi-organizational disaster response requires emphasis on interagency coordination, communication and key functions rather than command authority and military structure within. Although it establishes a solid foundation at the incident sites in most cases, standard ICS alone does not provide the model for community-wide management of a multi-organizational response. Concerted effort must be focused on bridging the community's Integrated Emergency Management System with ICS."

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Researchers Are Telling Communities, **Community Emergency Management: Program Development and Strategies**, Emergency Response Institute, Inc., Olympia, WA., 1993.

<sup>2</sup> U.S. Government, **Seismic Considerations - Health Care Facilities**, FEMA 150, May 1990, pp. 9-11.

<sup>3</sup> Drabek, Thomas E., Planning, Chapter 2, **Human System Responses to Disaster: An Inventory of Sociological Findings**, Springer-Verlag, 1986, pp.36-37

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<sup>1</sup> Erwin, Charles, LaValla, Patrick and Stoffel, Robert, Chapter 2, What