

Emergency Preparedness: Concept Development for Nursing Practice

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Never before has the United States been so focused on improving its ability to respond to acts of terrorism. Ever since images appeared of commercial airliners driving into the World Trade Center and the Pentagon, Americans have felt vulnerable. US leaders, and leaders of other nations, have expressed great concern about levels of emergency preparedness, recognizing that large-scale events carry the potential for disastrous public health consequences. The threat of a large-scale incident is significant, and the United States remains dangerously unprepared. Recent terror events have killed thousands, placing the government's public health infrastructure under unprecedented scrutiny. These events highlight the need to connect the spheres of health care and emergency preparedness to each other and to the public. Emergency preparedness has become a national priority, and the federal government has responded by investing billions of dollars in preparedness.

Health care professionals have an obligation to treat as many victims with a chance of survival as possible during emergencies, but have they been lulled into complacency by the infrequency of events? Hospital personnel, those who face the challenge of organizing and implementing a plan to treat large numbers of casualties, have significant gaps in emergency preparedness knowledge and skills. Health care facilities are an essential component of the emergency response system, but they are poorly prepared for large-scale events. Finally, in most areas of the country, comprehensive community-wide emergency preparedness programs remain under development.

An intriguing situation has emerged. Weaknesses in the nation's preparedness, including many in the health sector, are being described and documented. Organizations are taking measures to improve preparedness. Colleges and universities are establishing new programs in various aspects of emergency preparedness and expanding current programs. But the target is not clear. What exactly is emergency preparedness?

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THE CONCEPT OF EMERGENCY PREPAREDNESS

Emergency preparedness is addressed frequently in the health care and social sciences literature, and in local, state, and federal documents, but the concept is not defined well. The purpose of this concept analysis is to examine and clarify the concept of emergency preparedness, especially as it applies to nursing. Currently, no conceptual analysis of the phenomena of emergency preparedness exists. The concept will be reviewed in accordance with the Walker and Avant concept analysis technique [1].

LITERATURE REVIEW

The terrorist attacks in September 2001 and the subsequent anthrax attacks exposed weaknesses in the public health infrastructure and drew US policymakers' attention to the need for strengthened public health emergency preparedness at the local level [2]. As a result, several groups are examining the issues and implementing programs aimed at enhancing response capability [3].

The term emergency preparedness has been used as the basis for individual, local, state, and national preparedness plans aimed at enhancing readiness, increasing the ability to respond to large numbers of casualties by creating surge capacity, and improving the response to terrorism and other public health emergencies. The achievement of emergency preparedness takes place through a process that involves planning, training, and practicing skills through exercises, in addition to procuring equipment [4]. The federal government, in conjunction with state and local authorities, has taken unprecedented steps to enhance preparedness on multiple levels [5].

Little has been written about emergency preparedness. A search using PubMed, Cumulative Index for Nursing and Allied Health, and Psych INFO search engines and the term "emergency preparedness" resulted in no matches. Further searches using "disaster," "preparedness," "emergency," and similar related terms provided limited results, with most articles identified being related to natural and technological disasters.

Health care professionals and public health professionals are considered by many to be the first line of emergency defense [6–8]. The goal of this care is to deliver acceptable quality while saving as many lives as possible [9]. Little is known, however, about the level of health workforce preparedness nationwide [3,10]. The Gilmore Commission [3] found that many agencies and organizations implemented workforce preparedness activities without first conducting a needs assessment including baseline knowledge levels or learning styles of the audience or effective teaching methods. According to Vastag [11], physicians and nurses lack training; he states "physicians are not trained, paid or required to know about bioterrorism" [11]. Stanley [12] identified the 2.7 million nurses registered to practice in the United States as the single largest health professional resource for response and cites their expert assessment skills, critical thinking, decision-making and abilities to set priorities and collaborate as the greatest strengths they bring to managing emergencies.

Nurses are known to be team players and work effectively in the interdisciplinary teams needed in emergency situations [13].

Macintyre and colleagues [14] contend that many health-related emergency preparedness issues have not been addressed fully. Health care providers and facilities are vital collaborators in response to actual emergencies, yet they often are overlooked in the development of comprehensive community-wide emergency preparedness plans [14,15]. For example, Treat and colleagues [16] found that none of 30 hospitals examined were prepared to handle a biologic incident, and only 27% were prepared to handle a chemical incident. Approximately three fourths believed their sites were not prepared at all. Every hospital in their study reported a need for specific training but identified obstacles in achieving it.

Education and workforce training goals and strategies for emergency preparedness vary widely [2]. No standards are defined clearly, and guidelines for emergency preparedness do not exist [5,17]. Waeckerle [18] stated that there is no single source of authority or approved body of emergency preparedness content or curriculum, and as a result, there has been unfocused training and educational efforts. He noted that there is no program or policy office to integrate federal programs for emergency preparedness-related assistance and provide guidance to states and local communities. As Turnock [15] pointed out, the responsibility for defining what types and quantities of services are needed and what outcomes are desired and realizing them has been left to the states, raising the potential for inconsistency and lack of standardization of approaches from state to state. This may be because of the absence of an operational definition of emergency preparedness; without one, it is impossible to design the required education, training, and exercises to achieve it.

Wright [19] defines core competencies as the “knowledge, skills, abilities, and behaviors needed to carry out a job.” In the absence of federal criteria, several groups independently have attempted to develop core competencies for emergency preparedness without attempting to coordinate the competencies across the many types of emergency responders. Health care roles already addressed include emergency medical technicians and physicians [20], hospital workers [21], and public health workers [21,22]. Groups addressing nursing core competencies include the American Red Cross [23], Association of Teachers of Preventive Medicine [24], and the International Nursing Coalition for Mass Casualty Education [25]. Unfortunately the vision and resulting core competency requirements are inconsistent across the groups.

Finally, emergency preparedness is big business. In total, the Department of Homeland Security (DHS), Department of Health and Human Services (DHHS), and Department of Justice provided \$13.1 billion from FY’02 to FY’04 in grants to first responders and state and local governments to prevent, respond to, and recover from potential acts of terrorism and other potential disasters [26]. These funds were used to purchase equipment and provide training to help first responders save lives. However, no measures of effectiveness (MOEs), the quantifiable management tools that provide a qualitative and

quantitative means for measuring effectiveness, outcomes, and performance, exist for emergency preparedness [15,27]. According to the Gilmore Commission [3], “there are not yet widely agreed upon metrics by which to assess levels of preparedness among the medical and public health workforces. . . there is not even a single definition of a “prepared workforce,” because there is no consensus on what being prepared is.” Without effective MOEs, it is impossible to demonstrate that these huge expenditures have been beneficial and have resulted in any improvements in preparedness levels.

DEFINITION OF EMERGENCY PREPAREDNESS

Although there has been many uses of the term emergency preparedness, there appears to be high degree of uncertainty as to what the term means. Several key documents using the term emergency preparedness were reviewed for this article. These included: the Federal Response Plan [28], Emergency Responder Guidelines [29], National Incident Management System [30], Interim National Response Plan [31], National Response Plan [32], National Incident Management System Integration Center [33], and Personal Emergency Preparedness [34]. Only one definition of emergency preparedness, which referred to municipalities and not personnel, was found. According to Perry and Lindell [4],

“Emergency preparedness refers to the readiness of a political jurisdiction to react constructively to threats from the environment in a way that minimizes the negative consequences of impact for the health and safety of individuals and the integrity and functioning of physical structures and systems.”

The concept emergency preparedness was not found in any of several dictionaries consulted or in Roget’s Thesaurus. There is no published theoretical or operational definition of the term emergency preparedness on which to base the development of specific competencies. In conducting an analysis of the terms however, Merriam-Webster [35] defines emergency as: “(1) an unforeseen combination of circumstances or the resulting state that calls for immediate action; (2) urgent need for assistance or relief.” Preparedness is defined [35] as “the quality or state of being prepared; esp: a state of adequate preparation in case of war.” The Federal Emergency Management Agency [36] defines preparedness as “knowing the warning signs and what to do during an emergency” and “plans or preparations taken before an emergency occurs to save lives and to help response-and-rescue operations”.

Homeland Security Presidential Directive (HSPD)-8 [37] states:

The terms “major disaster” and “emergency” have the meanings given in section 102 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. . . The term “preparedness” refers to the existence of plans, procedures, policies, training, and equipment necessary at the Federal, State, and local level to maximize the ability to prevent, respond to, and recover from major events. The term “readiness” is used interchangeably with preparedness.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act states:

“Emergency” means any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States [38].

Landesman [7] defines emergency as “any natural or man-made situation that results in severe injury, harm, or loss of humans or property” and preparedness as:

“All measures and policies taken before an event occurs that allow for prevention, mitigation, and readiness. Preparedness includes designing warning systems, planning for evacuation and relocation, storing food and water, building temporary shelter, devising management strategies, and holding disaster drills and exercises. Contingency planning is also included in preparedness as well as planning for postimpact response and recovery.”

During a series of interviews, representatives from key organizational stakeholders were asked to define the term emergency preparedness. Organizations included: the American Red Cross; the Center for Health Policy, Columbia University School of Nursing; the Commissioned Corps Readiness Force, DHHS; the Emergency Management Institute, DHS; the Emergency Preparedness Evaluation and Specialty Branch of the Health Resources and Services Administration, DHHS; the International Nursing Coalition for Mass Casualty Education; and the National Disaster Medical System Training Program, DHS. All of these organizations used the term emergency preparedness without having or providing an operational definition of the term. Steven Sharro from the Emergency Management Institute emphasized:

It’s one of those a-priori base terms that is expected to be commonly understood. I may be wrong, but I’m not aware of any FEMA doctrine that formally defines the term “emergency preparedness” (Steven Sharro, Emmitsburg, MD, personal communication, 2004).

Perhaps Turnock best sums up the lack of consensus of a definition of emergency preparedness in his comments [15]:

“Currently, states are not clear about what is meant by preparedness and how it can be measured and recognized. In this definitional vacuum, states are left to fend for themselves, resulting in uneven and inconsistent approaches from state to state and from locality to locality within states.”

DEFINING ATTRIBUTES

Defining attributes are those characteristics of a concept that appear over and over again. They help to name the occurrence of a specific phenomenon as differentiated from similar or related ones [1].

Defining attributes are person-specific and role-specific. Nancy McKelvey, Chief Nurse of the American Red Cross, echoes this thought by describing both role-specific technical skills and personal attributes. She stated [8], “nurses need assessment skills to assess the individual, the group and the environment, and adaptability.” She also identified that nurses need to be flexible, creative, and able to work in frequently changing environments with many different disciplines without the usual technology and support. Riba and Reches [39], as a result of focus groups with Israeli nurses, included as additional attributes of emergency preparedness: accountability; active, creative, and effective decision-making and problem-solving; assertiveness; autonomous action; dedication; the desire to do the right thing; effective communication; knowing where and how to access additional information and resources; open-mindedness; recognizing and acknowledging personal strengths and limitations; and the ability to function as a member of a team.

There are no defined national technical emergency preparedness standards for nurses. Several groups have attempted to define the technical skills required by nurses for emergency preparedness [23–25] by defining core competencies. No consensus on a required technical skills set has been reached.

ANTECEDENTS

Antecedents are the events or actions that must be in place or occur before a concept can transpire [1]. Chen and colleagues [40] examined family physicians’ beliefs about preparedness and defined the antecedents of emergency preparedness as: (1) the awareness of the environment, (2) the perceived threat of an emergency, and (3) engagement in the identification of training needs. Other authors supported these views and also included planning for response and training and exercise as practice to cement new requisite skills [10,41–45]. For clinicians to take personal action to obtain and then update and reinforce training, they must see the benefit. They must believe that there is a personal risk to themselves and their community and new or additional skills needed that they must learn and practice to sustain their competence.

CONSEQUENCES

Consequences are those events or incidents that occur as a result of the occurrence of the concept. They are useful in determining neglected ideas, variables, or relationships that may yield new research directions [1]. Riba and Reches [40] cited as consequences of emergency preparedness: (1) personal satisfaction, (2) sense of control, (3) sense of achievement, (4) sense of pride, and (5) competent decision-making. Most importantly, their nurses identified specialized training as providing them the means to function in their role during the chaos of the disaster.

EMPIRICAL REFERENTS

Empirical referents are classes or categories of phenomena that measure the concept or determine its presence in the real world [1]. No metrics exist that

measure overall emergency preparedness. Reineck and colleagues [46] developed the Army Nurse Readiness Instrument, which estimates the level of individual readiness perceived by Army nurses. Only one instrument exists that examines domestic preparedness training for first responders [47]. To a lesser degree, after action reviews and lessons learned could be considered a proxy for empirical referents if their recommendations were implemented. The influence of individuals and systems on core practices, both in capacity and performance, should be measurable. The instruments to measure and evaluate them have not been established. Therefore, development of standardized metrics and measurement tools is critical to empirical assessment of emergency preparedness.

RELATED CONCEPTS

Related concepts demonstrate similar ideas to the concept being studied, but differ when examined closely [1]. There are several concepts related to emergency preparedness that are used interchangeably but appear to have varied meanings. These include all-hazards preparedness [37], bioterrorism preparedness [5], citizen preparedness [48], community emergency preparedness [4], community preparedness [49], disaster preparedness [23], disaster response [23], family preparedness [49], hospital preparedness [16], individual preparedness [49], national biodefense preparedness [5], nurse preparedness [8], public preparedness [5], public health emergency preparedness [50], public health preparedness [2,51], and terrorism preparedness [52]. Also mentioned is the concept of emergency management as “the process of preparing for, mitigating, responding to and recovering from an emergency” [53] and surge capacity as “the ability to expand care capabilities in response to sudden or more prolonged demand [54]. Although each of the related concepts shares some attributes of emergency preparedness, some are threat-specific. Others involve only specific elements, such as planning or response, and do not encompass the entire breadth of the term emergency preparedness.

MODEL CASE

The following is a model case constructed to illustrate the concept of emergency preparedness. A model case is a real-life example of the concept that includes all of the defining attributes of emergency preparedness and no other attributes [1].

At the entrance to a shopping mall, a hospital nurse senses a strong vibration and watches as shelves and fixtures start to sway and items begin to fall to the floor. Realizing that an earthquake is taking place, she quickly exits the building and returns to her car in the parking lot. In the safety of her car, the nurse turns on her radio and hears a broadcast emergency alert over the local radio station announcing a 5.8 earthquake 100 miles from her location. Initial reports indicate the quake has resulted in many casualties. The broadcaster announces that the local hospital emergency plan has been implemented and that all staff are being asked to report for duty. The nurse returns to her home and initiates

her family emergency plan. Her husband and children each perform their planned and exercised roles, turning off gas and water lines at the main valves. Then they move to the designated family area containing supplies, including a first aid kit, flashlights and spare batteries, bedding, bottled water, and nonperishable foods that require little or no cooking and no refrigeration. Using a battery-operated portable radio, her husband monitors the local emergency radio station. The children amuse themselves with games and coloring books put aside for this situation. Assured that her family is safe and taken care of, the nurse quickly consults a review sheet of her hospital's emergency plan and then drives to her place of employment. She arrives at the prescribed hospital entrance and presents her emergency response credential. She reports to the reception area and accepts her assignment in the triage area. As the first health care professional at the triage site, she quickly implements the triage portion of the hospital disaster plan. She assumes command of the triage area and evaluates and sorts casualties to the appropriate treatment site. When a senior staff member arrives, the nurse relinquishes command and assumes the role of staff person, assisting in the triage process. When the flow of casualties stops, the nurse returns to the reception area, to be told that there are no additional needs and she is released from duty. Upon arriving home, she recounts her personal satisfaction in performing well. She attributes her success to the ability to capitalize on experiences gained from previous training and exercises. She states that her experiences resulted in her ability to appropriately assume and function in her role in her family's as well as the hospital's emergency plans, allowing her to meet her organization's mission.

This scenario reflects that everyone knew what to do, that plans made earlier were put into action and worked. As a result, family members were safe, and medical and health services were available and provided. [Fig. 1](#) illustrates the concept of emergency preparedness.

PROPOSED DEFINITION OF EMERGENCY PREPAREDNESS

Based on the preceding analysis, a clarified definition of emergency preparedness is proposed:

Emergency preparedness is the comprehensive knowledge, skills, abilities, and actions needed to prepare for and respond to threatened, actual, or suspected chemical, biological, radiological, nuclear or explosive incidents, man-made incidents, natural disasters, or other related events.

RELEVANCE FOR NURSING

According to Walker and Avant [1], development of a concept analysis can be useful for:

- Defining ambiguous terms used in theory, practice, education, and research; providing operational definitions grounded in a theoretical basis
- Understanding the underlying attributes of a concept
- Assisting in the development of research instruments and outcome measures

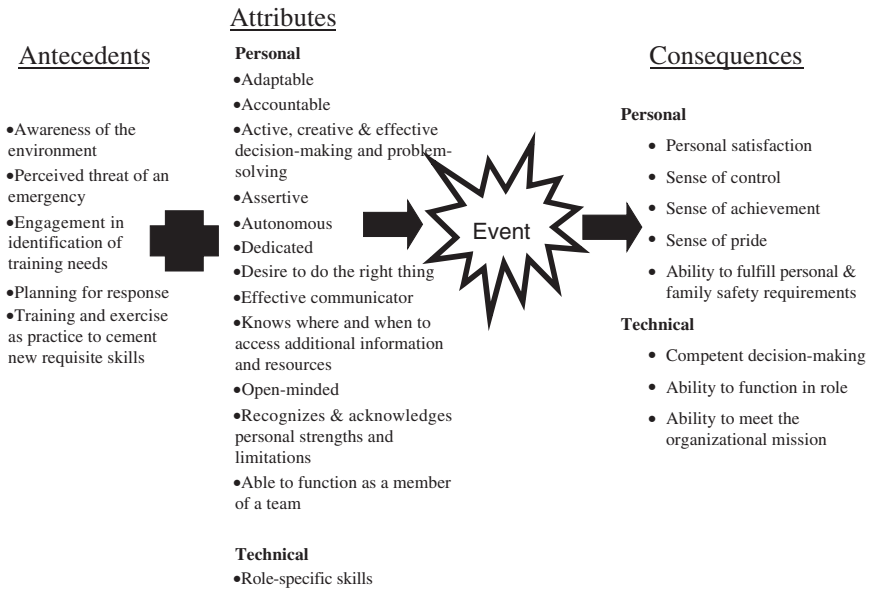


Fig. 1. Concept of emergency preparedness is illustrated.

Because nursing is the single largest health professional group, work toward further refinement of the concept of emergency preparedness has relevance for nursing practice and may assist in the development of research opportunities needed to understand this concept in its fullest dimension. Further studies are needed in a variety of settings and professional groups to assist in the development of nationally recognized and standardized core competencies.

SUMMARY

This concept analysis was undertaken to clarify the concept of emergency preparedness, enhance the application of theory to practice, and raise awareness of the responsibilities of the therapeutic role of health care providers in the emergency preparedness arena, especially nurses who engage in emergency preparedness activities. Although considerable progress has occurred since 2001, much remains to be done.

Consensus about the operational definition of emergency preparedness is fundamental to a comprehensive and effective national plan. Increased understanding of the concept will ensure that the range of preincident actions and processes are standardized and consistent with mutually agreed upon doctrine. More attention should be given to rigorous, scientific evaluation of the effectiveness of existing emergency preparedness training programs and the development of systems of metrics for measuring capacity and performance. These have significant implications for future research in this area. Although it

is impossible to prevent future incidents, it is possible to set in place an emergency preparedness system that allows for activities to prepare for and respond to future emergencies, minimizing public health consequences.

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