CHAPTER 2

Nursing Leadership in Disaster Preparedness and Response

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ABSTRACT

Nurses serve as leaders in disaster preparedness and response at multiple levels: within their own homes and neighborhoods, at disaster scenes, and the workplace, which can vary from a health care facility, in the community, or at the state, national, or international level. This chapter provides an overview on theories of leadership with a historical context for nursing leadership; setting the context for nursing leadership in disaster preparedness and response. Although few research studies exist, there are numerous examples of nurses who provide leadership for disaster preparedness and response. To define the current state of the science, the research studies cited in this chapter are supplemented with case studies from particular disasters. The major finding of this review is that nursing leadership in disaster preparedness and response is a field of study that needs to be developed.

INTRODUCTION

The purpose of this chapter is to review the research literature regarding nursing leadership in disaster preparedness and response. A literature search was conducted in July 2011 using the databases MEDLINE/PubMed, CINAHL Plus, Web

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of Science/Social Sciences Citation Index, and Scopus. The search terms used were either used alone or in combination: *leadership*, *leader*, *disaster*, *preparedness*, *emergencies*, and *nursing and nurses*, which yielded 106 articles after excluding those not in English and not specific to nursing leadership during a disaster. A subsequent search was conducted in September 2011 to sharpen the focus to center on crisis leadership. The databases searched were PsycINFO, MEDLINE/PubMed, CINAHL Plus, and the Center for Creative Leadership's (CCL) Website. The search terms used included *crisis leadership*, *disaster*, and *emergencies and nursing*, which resulted in 44 articles published in English. Additional articles were identified by hand searching the bibliographies of the articles included in this review. Most articles reviewed were not research studies. Relevant nonresearch studies are summarized to provide context for nursing leadership in disaster preparedness and response. There were only two relevant research studies and five doctoral dissertations. Articles that evaluated nursing leadership lessons learned for specific events were also included.

To set the context for nursing leadership in crisis situations, this chapter begins with an overview of the theories of leadership. Nursing leadership in disaster preparedness and response from a historical context is briefly described. The articles included in this review incorporate nursing leadership both in the United States and internationally. Figure 2.1 shows graphically that nurses provide leadership at multiple levels, whether that is at the disaster scene or in their own homes, in a health care facility or in a community in which they work, or at other levels (state, national, or international). Although there are few research studies, there are many examples of nurses who provide leadership for disaster preparedness and response. The research studies cited in this chapter are supplemented with case studies and anecdotal information to define the current state of the science for nursing leadership during disasters. The major finding of this review is that nursing leadership in disaster preparedness and response is a field of study that needs to be developed.

LEADERSHIP THEORIES AND CRISIS LEADERSHIP

Definition of Leadership

Definitions of leadership vary, but there are certain components that are central to the concept of leadership. Leadership, first and foremost, involves a *process* that occurs between the leader and his or her followers. The second component of leadership involves *influence*, which is concerned with how a leader affects his or her followers. The third component is that it occurs in *groups*. Groups are made up of individuals that have a common purpose. The fourth and final component of leadership is concerned with accomplishing *goals*. It is the leader that is responsible for directing a group of individuals toward accomplishing some task or outcome (Cotton, 2009; Stogdill, 1974).

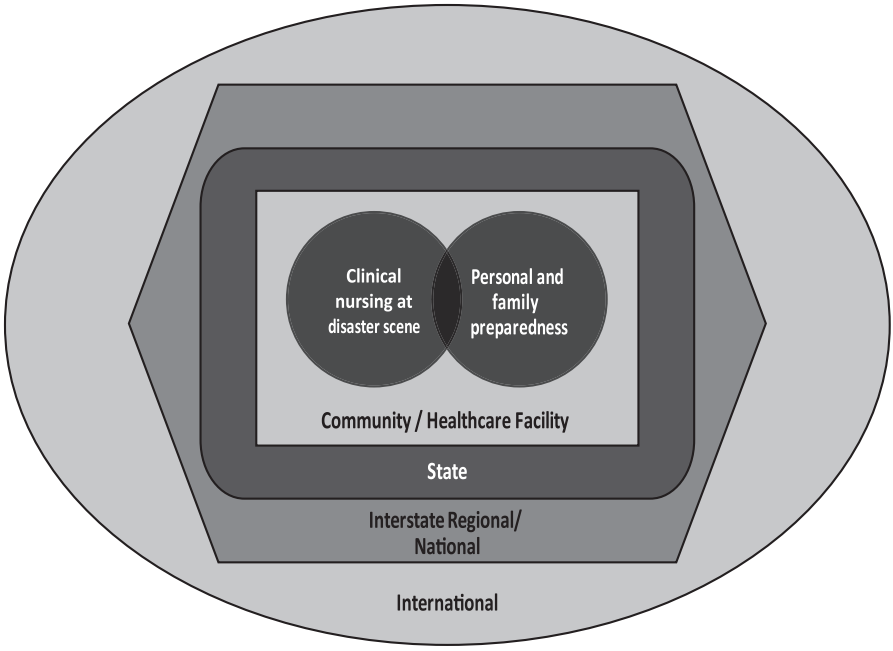

FIGURE 2.1 This outlines the various ways in which nurses provide leadership during disasters. Nurses are leaders within their own homes assuring that their families have a disaster supply kit and a plan. As the largest health care workforce, nurses provide leadership in clinical care for disaster victims at the scene of an emergency and their places of employment in the community, the hospital, or other locations. Nurses provide leadership at multiple levels including state, regional, national, and international.

Theories of Leadership

The earliest research about leadership was based on the study of men who were considered great leaders and who arose from aristocracy. This *great man theory* argues that a few people are born with the necessary characteristics to be great, and they can be effective leaders in any situation (Marriner-Tomey, 2009). The *trait theory* of leadership became popular in the mid-1940s and was based primarily on the "great man" theory, but it differed by taking the position that leadership qualities can be identified and taught (Marquis & Huston, 2005). *Situational theory* rose to prominence during the 1950s, expanding on "trait theory" with the caveat that leader traits vary and are determined by the particular situation (Sullivan, 1995). What was lacking in these early theories of leadership was the ability to predict which leadership behaviors would be most effective in specific situations.

In *situational leadership theory*, the leader looks at the different variables surrounding the situation to make the best choice of leadership style (Marriner-Tomey, 2009). The leader will alter the style of leadership based on an analysis of the follower's readiness, meaning the level of motivation and competence an individual has for an assigned task. The leader assesses the follower's capacity to complete the assigned task and provides the appropriate leadership behavior that best meets the needs of the follower in the given situation.

Transformational leadership theory recognizes that for leaders to be effective, the organizational culture needs to change (Grohar-Murray & DiCroce, 2003). With this leadership style, both the leader and the followers have the same purpose, and they raise one another to higher levels of performance. The transformational leader mobilizes others and grows and develops with the followers. In practice, establishing and maintaining both organizational and personal trust with others represents the fundamental strategy of the transformational leader (Grohar-Murray & DiCroce, 2003).

Integrative leadership theory concludes that the leader, the follower, and the situation all influence leadership effectiveness (Marriner-Tomey, 2009). Leaders need to be aware of their own behavior and influence on others, they need to recognize the individual differences of their followers (characteristics and motivations), they need to understand the structures available to perform specific tasks, and they need to analyze the situational variables that impact the ability of followers to complete tasks, including environmental factors. With integrative leadership, the leader considers all of these factors using a "wholistic" approach to oneself and others, and adjusts his or her leadership style through adaptive behavior (Marriner-Tomey, 2009).

Similar to the evolution seen in the general theories of leadership, there has also been an evolution in the literature specific to nursing leadership. No longer is a "born" nurse leader viewed as effective in all situations (Sullivan, 1995). There is growing consensus that different styles of nursing leadership are needed depending on the situation. As an example, in a crisis situation in which the followers have little or no knowledge or experience (e.g., patient in cardiac arrest), an autocratic style of nursing leadership may be most appropriate, where the leader takes total control, issues directives, and excludes group decision making (Sullivan, 1995). Alternatively, in noncrisis situations, less autocratic styles may be appropriate. The thoughtful study and implementation of transformational leadership is recommended for implementation in health care organizations because it is congruent with nursing's values and organizational requirements (Grohar-Murray & DiCroce, 2003). Accountability for practice is a hallmark of these organizations. Decision making and communication are shared equally in institutions that support transformational leadership (Sullivan, 1995).

Crisis Leadership

Large-scale disasters starting in the late 1970s gave rise to much of the available literature on crisis leadership. These disasters included

- Tylenol's cyanide poisonings,
- National Aeronautics and Space Administration's Challenger and Columbia tragedies,
- Metropolitan Edison's Three Mile Island nuclear disaster,
- Exxon's Valdez oil spill,
- 2001 terrorist attacks, and
- Hurricane Katrina.

These events established crisis leadership as a new and rapidly developing field. A recent review found that 80% of existing literature has been published since 1985, establishing crisis leadership as a relatively new area of inquiry (Pauchant & Douville, 1993). Because of its recent development, the study of crisis leadership lacks an overall conceptual paradigm, is highly fragmented, covers a wide range of complex variables, and has been studied through the lens of numerous disciplines including economics, history, psychology and philosophy (Pauchant & Douville, 1993). Few data-based studies exist, and more analytical works result from attempts by researchers to synthesize anecdotal information. These analytic works are practitioner oriented rather than theoretical and are derived primarily from consultants hired to resolve crises for large corporations and governmental entities (Jones, 2010).

The definition of *crisis leadership* identifies three essential components: communication, clarity of vision and values, and caring relationships (Klann, 2003). Leaders who develop, pay attention to, and practice these qualities are better able to handle the important human dimension of a crisis. *Crisis management* focuses on planning; controlling; leading; organizing; and motivating prior to, during, or after a crisis. Crisis management is different than crisis leadership. With crisis leadership, the leader provides vision and influence in a noncoercive manner to provide strategic decision making and guidance across the phases of the crisis. Crisis leadership includes crisis management but extends beyond to cultivate the followers' desire to achieve a vision and mission in a time of crisis (Porche, 2009; Weiss, 2002).

When a disaster strikes, crisis leaders need to remind people of their strengths despite the fear and anxiety provoked by the event (Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Seeger, Sellnow, & Ulmer, 2003). By quickly offering information that is needed to make decisions, the crisis leader will empower people to help themselves and their loved ones survive. In a crisis, the crisis leader will be judged by the content of official messages, the speed of the communication,

and the perception of their credibility (Peters, Covello, & McCallum, 1997; Seeger et al., 2003). Leaders strongly influence the ability of individuals, organizations, communities, and nations to cope with and recover from crises (Mitroff, 2004). Crisis leaders approach the public as equals in the disaster situation by empowering their health-risk decision making (Fischer, 1998; Reynolds, 2009; Sandman & Lanard, 2004; Seeger et al., 2003; Ulmer, Sellnow, & Seeger, 2007).

Effective crisis leadership boils down to responding to the human needs, emotions, and behaviors caused by the crisis (Klann, 2003). Effective crisis leaders respond to the emotional needs perceived by those experiencing the crisis. People are more apt to follow a leader who is reassuring and who can meet their primary needs (Reynolds, 2009). Crisis leaders use integrative leadership and adapt the style of leadership to the given situation to ensure success (Hersey & Blanchard, 1969; Xavier, 2005). Comprehensive emergency management requires leaders to consider not only the immediate crisis response but also leadership for hazard mitigation and disaster preparedness and recovery. These components are intertwined and require a flexible leadership approach that is different than the approach needed during the actual emergency response (Waugh & Streib, 2006). What this means is that a crisis leader needs to be cognizant of the possibility that other leadership approaches may be more effective during the different phases of a crisis (Cotton, 2009).

NURSING LEADERSHIP AT MULTIPLE LEVELS

Figure 2.1 outlines the various ways in which nurses provide leadership during disasters. From a preparedness perspective, nurses are leaders within their own homes for *personal and family preparedness*, assuring that their families have a disaster supply kit and a plan for responding to the threats that are likely to occur in their community. As the largest health care workforce, nurses provide leadership in caring for disaster victims whether that is caring for disaster victims at the *scene of a disaster*, providing care to the broader *community*, or caring for victims at their place of employment such as a *health care facility*. Nurses are increasingly providing leadership at the *state*, *regional*, *national*, and *international* levels where they lead planning and policy efforts to enhance the preparedness of the nation to respond to disasters. The history of nursing leadership in crises provides the context for understanding the ways in which nurses provide leadership at multiple levels.

History of Nursing Leadership in Crises

Pioneer Nurse Leaders

Nurses have served as crisis leaders during wars, disasters, and epidemics; demonstrating vision, courage, and endurance in managing some of the worst

circumstances imaginable. A discussion of nursing leadership in crises would be incomplete without mentioning the pioneer nurse leaders.

At the request of the British government, Florence Nightingale and a corps of 38 trained nurses cared for sick and injured soldiers during the Crimean War (a conflict between the Russian Empire and an alliance of Britain, France, and the Ottoman Empire in the mid-1800s). Nightingale's clinical work is often cited as heroic, but it was her employment of statistics and her skills as a leader, advocate, and administrator that led to a dramatic decline in mortality during this war (Cohen, 1984).

At the beginning of the American Civil War (1861–1865), teacher and nurse Clara Barton cared for wounded soldiers. As the war continued, she demonstrated tremendous political leadership and willpower, developing innovative systems of care such as moving nursing to the front lines. Over the span of 17 years, she went on to organize the American Red Cross in 1881. She was instrumental in the U.S. Senate adopting, in 1882, the first Geneva Convention to protect the sick and wounded in wartime (Barton, 1922).

Recognizing the leadership role of clinical nurses in saving lives on the battlefield, the Surgeon General, in 1901, requested that the nurse corps become a permanent corps of the U.S. Army Medical Department (Army Reorganization Act, 31 Stat. 753). Jane A. Delano, who served as the second superintendent of the U.S. Army Nurse Corps, expanded the capability of the nation to respond to disasters by founding the American Red Cross Nursing Service in 1909. She also served as the first president of the American Nurses Association, an organization created to represent the interest of the growing profession of nursing. As a result of Delano's leadership, there were more than 8,000 registered nurses available to meet the needs of wounded soldiers when the United States entered World War I in 1917.

Disasters Where Nurses Demonstrated Individual Clinical Leadership

In 1918 and 1919, the Spanish influenza outbreak sickened one of every four Americans, caused more than 500,000 deaths in the United States, and more than 40 million deaths worldwide. The U.S. Public Health Service (PHS) and the Red Cross appealed to nurses—retired, private, and students, and women with any type of nursing experience—and they responded, leading efforts to mitigate this public health emergency and risking their lives to care for those who were ill (Schoch-Spana, 2001).

During World War II (1941–1945), more than 59,000 American nurses served in the U.S. Army Nurse Corps. Using systems of care similar to those developed by Clara Barton, these nurses worked closer to the front lines than they ever had before. Within the "chain of evacuation," these nurses served

under fire in field and evacuation hospitals, on hospital trains and ships, and as flight nurses on medical transport planes. Because of the personal risks assumed by these nurses and the clinical leadership they demonstrated, they contributed to the extremely low postinjury mortality rate among American military forces in every theater of the war. Fewer than 4% of the American soldiers who received medical care in the field or underwent evacuation died from wounds or disease (Tomblin, 1996).

During the Cold War period after World War II, the primary national threats concerned the advent of nuclear weapons, fallout, and the possibility of bacteriological and chemical warfare. In 1954, the U.S. Department of Health, Education, and Welfare (DHEW) was given responsibility for developing requirements, plans, and operating procedures for an emergency medical stockpile program and for preparing national emergency plans and preparedness programs for health services and civilian health manpower (Federal Civil Defense Act of 1950). These responsibilities included development of national plans for coordinating with professional organizations to prepare and mobilize nurses to serve in clinical leadership roles during health emergencies.

The Disaster Relief Act of 1974 directed the Secretary of the U.S. Department of Health and Human Services (HHS, formerly DHEW) to provide medical response capability (including nursing care) for catastrophic disasters. In 1980, the Department of Defense initiated the Civilian Military Contingency Hospital System through which civilian hospitals were enlisted to provide reserve beds to treat American military casualties if military capacity proved inadequate (Beary, Bisgard, & Armstrong, 1982). The program began to recruit hospitals but ran into resistance from groups concerned that the government was preparing for nuclear war (Day & Waitzkin, 1985).

At the same time, HHS planners became increasingly concerned that the nation did not have sufficient capacity to deliver a medical response during catastrophic disasters. This concern led to a recommendation to establish a single national system for military and civilian response. In 1981, President Ronald Reagan established the Principal Working Group on Health. This led to the formation of the National Disaster Medical System (NDMS) in 1984, a partnership among HHS, the Department of Defense, the Veterans Administration, and the newly formed Federal Emergency Management Agency (Brandt, Mayer, Mason, Brown, & Mahoney, 1985).

In 1989, Hurricane Hugo struck the Caribbean, hitting St. Croix especially hard. The NDMS was activated for the first time, deploying two disaster medical assistance teams (DMATs), including a full complement of nurses who staffed a 106 bed field hospital. Providing care in these austere conditions, volunteer nurses demonstrated clinical leadership in treating 294 victims, admitting 38 patients,

and airlifting 8 patients (Bern, 1998). The first domestic use of NDMS was in 1992 when Hurricane Andrew hit South Florida as a Category 4 hurricane. Over the course of a few weeks, 15 DMATs from 11 states were deployed to South Florida. These teams included nearly 600 federal volunteer nurses, physicians, and support staff. They provided primary health care, emergency medical services, mental health services, and outreach to more than 17,000 patients (Burkholder-Allen, Rega, & Budd, 1994).

Nurses rose to the occasion to care for the victims of terrorism on U.S. soil. In 1995, domestic terrorists bombed the Murrah Federal Building in Oklahoma City, killing 167 people, including children at the on-site day care center (Anteau & Williams, 1997). Even though the World Trade Center in New York City was attacked with a truck bomb in 1993, it was the act of terrorism which occurred on September 11, 2001 that changed the nation. On that date, Al-Qaeda terrorists hijacked commercial airliners and flew them into both World Trade Center towers in New York City and the Pentagon in Arlington, Virginia. A fourth aircraft crashed in Shanksville, Pennsylvania, short of its intended target. The NDMS and U.S. PHS Commissioned Corps nurses officers responded to the events of September 11, setting in motion the broadest emergency response conducted by HHS to date (Babb & Beck, 2001). Although PHS nurses participated in many deployments before September 11 (Debisette, Martinelli, Couig, & Braun, 2010), this particular deployment accelerated the transformation of the PHS Commissioned Corps because people came to realize the tremendous leadership potential of a uniformed service of 6,000 health care professionals (Knebel et al., 2010).

Soon after the terrorist attacks of September 11, letters laced with anthrax began appearing in the U.S. mail. Five Americans were killed and 17 were sickened in what became the worst biological attacks in U.S. history (Gursky, Inglesby, & O'Toole, 2003). Nurses demonstrated clinical leadership, working alongside epidemiologists and investigators to protect and inform the public. For example, PHS nurses were called upon to dispense postexposure prophylaxis to U.S. Postal Service employees and congressional staff who had been exposed to anthrax spores.

In 2005, Hurricane Katrina made landfall as a powerful Category 3 storm in the Gulf Coast, with its greatest impacts in Louisiana and Mississippi. Hurricane Katrina was followed within weeks by hurricanes Rita and Wilma. These disasters will long be remembered for the disruption of whole communities, the loss of life, and the chaos that ensued. Most of New Orleans' hospitals and other health care resources were destroyed or inoperable. Nurses in hospitals and nursing homes did the best they could to protect their patients until help arrived (Bernard & Mathews, 2008; Franco et al., 2006; Laditka et al., 2008). Nurses

and other health care providers were deployed to the Gulf Coast through NDMS, PHS, American Red Cross, and countless other avenues to provide medical assistance. These nurses provided leadership in the face of substantial challenges, making triage and treatment decisions for patients whose numbers far exceeded supplies and personnel (Debisette et al., 2010; Klein & Nagel, 2007). This was the most massive patient assessment, stabilization, and evacuation operation in U.S. history (U.S. Government Accountability Office, 2006).

In the spring of 2009, a new flu virus (H1N1) spread quickly across the United States and the world. The U.S. government coordinated a public health emergency response within the states that helped limit the impact of the outbreak. Considerable planning had already been done for a potential H5N1 flu pandemic. Despite differences in the H5N1 planning scenarios and the actual H1N1 pandemic, many of the systems established through pandemic planning were used and useful for the 2009–2010 pandemic response. Through planning, administering programs, providing bedside care, and organizing immunization clinics, nurses demonstrated leadership and were engaged at the local, regional, and national level (Lessler et al., 2009).

Nursing Leadership in the Community and Beyond

Public health nurses provide leadership in the community to improve disaster plans and response activities. The Association of State and Territorial Directors of Nursing published a position paper that provides policy guidance describing the roles and actions public health nurses must assume to protect the health and safety of communities, families, and individuals during emergencies (Jakeway, LaRosa, Cary, & Schoenfisch, 2008). Public health nurses serve as leaders to develop policy and preparedness plans and provide frontline disaster health and core public health services during disasters. They also serve in leadership and management roles in emergency operations centers. Competencies for public health nursing leaders have been defined (Gebbie & Qureshi, 2002).

Because public health nursing leaders could be faced with health threats of catastrophic proportions like an influenza pandemic, they should consider best practices in leadership, successful leader influences on followers, and the communication processes involved. If leading is the exercise of influence on others to accomplish a goal (Yukl, 2002), leadership in public health may be challenging to influence people to take the actions recommended. For public health leaders who do not have reward or coercive power over the public to obtain behavioral compliance, they must rely on transformational leadership skills.

Crises are emotion-laden events, and managing these emotions will be critical. In a community setting, a lack of transformational leadership will make

it more difficult for public health leaders to mobilize the community to do more with less self-interest (Sivanathan & Fekken, 2002). Interventions are needed to optimize the leadership and communication styles employed by public health nursing leaders during a crisis. A first step may be to analyze transformational leadership and rhetorical sensitivity levels (concern for self and others without being rigid; Reynolds, 2009). Through this analysis, expectations of public health nursing leaders during crises could be explored.

At the *health care facility level*, nurse executives provide leadership to assure that the needs are met for both existing patients and those who require care because of the consequences of a disaster. During disasters, increased stress levels, information overload, situational chaos, disruption of services, casualties, and distractions with crowds and media all hamper lines of communication. It is the responsibility of the nurse executive to be assertive and take the lead in these situations.

Building on lessons from the 2001 terrorist attacks, Fahlgren and Drenkard (2002) discuss the leadership role of the health care system nurse executive in preparing for and responding to disasters. These authors believe that by maintaining a state of readiness through assessment, planning, implementation, and constant evaluation (a framework built on the nursing process), nurses are providing leadership and service to their community. In a companion article, Drenkard, Rigotti, Hanfling, Fahlgren, and LaFrancois (2002) apply the nursing process (assessment, planning, implementation, and evaluation) as an organizing framework for an all-hazards approach to disaster planning in health care facilities. Many process improvements were implemented in a large not-for-profit health care system following the terrorist attacks in the National Capital Region in 2001. The nurse executive was a key partner in the improvements that were made (Drenkard et al., 2002).

The Department of Veterans Affairs (VA) Office of Nursing Services chartered a collaborative effort with the VA Emergency Management Strategic Healthcare Group (EMSHG) and the National Nurse Executive Emergency Preparedness Workgroup to review disaster-related staffing procedures. One of the initial tasks of the group was to delineate disaster deployment activities and competencies to ensure quality nursing care. Core competencies were developed for nursing leaders and clinical staff (Coyle, 2007). The competencies were designed to prepare VA nurse leaders to respond to disasters in the communities they serve and to prepare staff nurses to safely deploy in support of disaster operations. The nurse leader competencies are consistent with excellence in nursing care and improved patient outcomes.

The next level where nurses provide leadership is the *state*, where nurses manage grant programs to promote preparedness for public health and hospitals.

For example, many nurses serve as the coordinators for the Public Health Emergency Preparedness (PHEP) and Hospital Preparedness Program (HPP) grants. The Centers for Disease Control and Prevention's (CDC) PHEP cooperative agreements provide funding to states, territories, and eligible municipalities to strengthen health departments' abilities to respond to all types of public health incidents (CDC, 2012). The HHS Office of the Assistant Secretary for Preparedness and Response's (ASPR) HPP funding supports building more resilient communities and to improve surge capacity and enhance community and hospital preparedness for public health emergencies (ASPR, n.d.a). For fiscal year 2010, PHEP provided nearly $700 million in funding to support public health preparedness (CDC, 2010) and HPP provided $390.5 million to help hospitals and other health care organizations strengthen the medical surge capability across the nation (ASPR, n.d.a).

At the *national* level, nurses serve in key leadership roles in disaster preparedness and response. ASPR was created when the Public Health Service Act was amended by the Pandemic and All-Hazards Preparedness Act (PAHPA) of 2006 after Hurricane Katrina. Its mission is to lead the country in preparing for, responding to, and recovering from the adverse health effects of emergencies and disasters by supporting communities, strengthening health and response systems, and enhancing national health security (ASPR, n.d.c). There are several senior nurses within ASPR who are leaders in policy, preparedness planning, response, and recovery.

Military nursing has evolved beyond the army nurse corps to include other armed forces. At the national level, these military nurse corps are joined by nonmilitary Federal nurses and the American Red Cross to comprise the national nursing workforce. The national nursing workforce is represented by the Federal Nursing Service Council (FNSC). The FNSC includes the nurse leaders of the air force, American Red Cross, army, VA, navy, and PHS, representing more than 125,000 nurses with a beneficiary population exceeding 8.5 million. The Council brings together its collective leadership to advance and strengthen professional nursing practice among federal agencies and the American Red Cross (U.S. PHS, n.d.). One of the Council's priorities is to determine ways to maintain the readiness of federal nurses to fill clinical roles during domestic disaster deployments.

At the *regional* level, ASPR has Regional Emergency Coordinators (RECs) stationed throughout the nation who provide leadership for preparedness and response, facilitating the work of state and tribal colleagues in public health emergency preparedness. They serve as ASPR's foremost regional leaders to represent ASPR in support of community resiliency and regional integration of

public health and medical preparedness, response, and recovery. Nine of the 34 RECs are nurses (ASPR, n.d.b).

The HHS Office of the Assistant Secretary for Health (ASH) has Regional Health Administrators (RHAs) who serve as the senior federal public health officials and scientists in the region to foster all-hazards preparedness activities for the department (ASH, n.d.). In actual public health emergencies, ASPR and the ASH may request an RHA to serve as a senior consultant to the response. Several of the RHAs are nurses.

Nursing leadership in disaster preparedness and response is evident internationally as well. The Lillian Carter Center for International Nursing in Atlanta brought together chief nursing officers and chief medical officers from 70 countries to foster partnerships among key national health leaders (Salmon, 2005). The focus of the meeting was biological threats to health with one of the purposes being to create a joint plan for advancing preparedness against these threats.

In 2006, the World Health Organization (WHO), in collaboration with the International Council of Nursing (ICN), hosted a consultation regarding the contributions of nursing and midwifery in emergencies (WHO, 2007). Because nurses are the comprehensive primary health care providers in most countries, they may also be the first responders during emergencies. The attendees at the consultation recommended that WHO advocate for the inclusion of nurses and midwives in disaster planning activities within ministries of health. In the United States, this is already occurring within HHS; but in many countries, nurses are not often at the table to influence policy and planning (WHO, 2007).

Recognizing the urgent need to accelerate efforts to build the capacities of nurses in the midst of continued health threats and disasters, the ICN and WHO published a "Framework of Disaster Nursing Competencies" (ICN & WHO, 2009). The ICN and WHO (2009) aptly wrote: "The sporadic nature of disaster nursing education has resulted in a workforce with limited capacity to respond in the event of a disaster, develop policy, educate or accept leadership roles" (p. 28). Graduate programs have been developed in the United States, Europe, and Asia to prepare nurses as experts in disasters, addressing issues such as leadership, education, and policy roles. However, more programs are needed to prepare and sustain an international workforce of nurses to undertake education and leadership roles (WHO, 2007). A focal point for these efforts is the WHO Collaborating Center for Nursing in Disasters and Health Emergency Management. The Center promotes research on disaster preparedness, response, and recovery and plays a leading role in developing a network for nursing and other health professionals involved in health emergency management (WHO, n.d.).

SUMMARY OF RESEARCH STUDIES

Research Findings

Although nurses serve as leaders in many aspects of disaster preparedness and response, there are few studies of nursing leadership in crises. Articles were identified as research if they evaluated nursing leadership as part of postevent after action analyses or lessons learned or used research methods to investigate aspects of nursing leadership in disasters. There were five doctoral dissertations (Cotton, 2009; Foster, 2007; Jones, 2010; Porche, 2009; Reynolds, 2009), eight lessons learned analyses (Demi & Miles, 1984; Dennis, 2007; Drenkard et al., 2002; Fahlgren & Drenkard, 2002; Hynes, 2006; Johnson, 2002; Priest, 2009; Sheetz, 2010), two qualitative research studies (Peltz et al., 2006; Shih et al., 2009), and one facilitated discussion (Rego & Garau, 2008).

Dissertation Research

The findings from the dissertations by Cotton (2009) and Reynolds (2009) are described in earlier sections of this manuscript and will not be repeated here. The dissertations by Foster (2007), Jones (2010), and Porche (2009) will be described here. Foster conducted a study of the Top Officials Exercise 2 (TOPOFF2) in 2003, at which the exercise scenario was a bioterrorism attack in Chicago. The exercise involved more than 100 federal, state and local agencies and institutions, and provided an opportunity to examine leadership, communication, and conflict resolution issues among multijurisdictional crisis response agencies.

Although the study is not specific to nursing, it examined leadership, communication, and conflict management processes in emergency events as they relate to the effectiveness of multijurisdictional crisis teams. The main findings of this study are that by having a better understanding of how emergency response groups are led, how they communicate with each other, and how they manage conflict, there will be a greater probability of saving lives and reducing property loss in the future (Caro, 1999; Dynes & Warheit, 1969; Foster, 2007; Lindell & Perry, 1992; Quarantelli, 1988, 1995). Identifying the type and nature of an emergency helps define the scope of leadership required among responding agencies. An emergency can be a single catastrophic event, such as hurricane Katrina or may grow and be identified slowly such as an outbreak of a contagious disease (Quarantelli, 1987). An example of a slowly developing emergency was the anthrax attacks of 2001. In this event in which several people died from anthrax exposure, it took weeks before authorities determined the source (Argenti, 2002). Regardless of the type of emergency, effective leadership is a critical component of the response effort (Foster, 2007).

The dissertations by both Porche (2009) and Jones (2010) examined leadership during Hurricane Katrina. Porche conducted interviews of 14 formal and informal leaders from a private acute health care facility. The narrative analysis identified the following crisis leadership characteristics: ability to leverage knowledge, skills, practical experience, and leadership acumen, irrespective of hierarchy or authority, to provide effective crisis leadership to manage the emergency response, plan during the crisis aftermath, and resume the provision of health care services. Once individuals emerged as crisis leaders, these leaders displayed behaviors and characteristics of a crisis leader, engaged in crisis management, promoted teamwork, and maintained communication throughout the situation.

Crisis leaders were described as critically thinking and being *decisive* even when there was limited factual information. They maintained a personal *calm* manner, which also had a calming effect on others. The crisis leader was highly *visible and accessible* throughout the institution; they were everywhere from the board room to the front line engaging in multiple activities—*multitasking*. Their continual presence assisted with maintaining a central mission to maintain safety, meet basic needs, and evacuate everyone from the crisis situation. Through their *decisive manner*, *focused mission*, *and positive attitude*, they presented a vision that everyone was going to be evacuated and remain safe. The crisis leader was not appointed. The role assumption of crisis leader was *autonomous*.

As the organizational conditions continued to deteriorate, the leadership challenges changed. To endure this situation, the crisis leaders had to have the *physical strength* and *stamina* to withstand the long hours of work, lack of rest, continual heat, and lack of hydration and nutritional support. The dedication of the crisis leaders was evident in their *selfless commitment*. These leaders were present until the end and were the last individuals to be evacuated. These individuals placed the needs of others above their personal needs. Throughout the crisis, the crisis leaders maintained a positive attitude (Porche, 2009).

Jones (2010) conducted interviews with seven high-ranking leaders of local, state, and federal organizations that were in positions of leadership prior to, during, and following Hurricane Katrina. Again, the findings are not specific to nursing but have implications for nursing leadership in crises. The findings suggest that individuals aspiring to leadership roles should learn about the situational leadership model, and because it is frequently used to train leaders within organizations, it should be made available for all to study. As for crisis leadership, research shows that there is not necessarily a certain style of leadership best suited for a crisis but rather a combination of styles. The leadership style used by leaders during a crisis should be the style, manner, and approach needed to provide direction, implement plans, and motivate people.

When leaders need to be authoritarian, they should be. The same is true when they need to be participative and/or delegative, using the needed style when they have to. Although good leadership uses all three styles, with one of them normally being dominant, bad leadership tends to stick with one style (Clark, 1997). Using a combination of styles was found to be true with the high-ranking leaders who were interviewed for this study because they all spoke of changing and using leadership styles based on the situation and what needed to be accomplished (Jones, 2010).

Postevent Lessons Learned

Of the eight "lesson learned" manuscripts, Drenkard et al. (2002) and Fahlgren and Drenkard (2002) are described in earlier sections of the manuscript and will not be repeated here. Demi and Miles (1984) present data from the July 1981 skywalk collapse that occurred at the Hyatt Regency Hotel in Kansas City. The authors identify the leadership functions needed during disasters. They suggest a model for integrating these leadership functions with the nursing process functions of assessment, planning, intervention, and evaluation, an approach similar to what Drenkard and colleagues proposed. They apply this proposed model as a framework to organize data in the case study of the Hyatt disaster. The authors conclude that nurses provide leadership in all phases of a disaster and at all organizational levels. The nurses who were most effective leaders were those who held formal roles in the disaster response plan and who had disaster training. Gaps in effective use of resources were identified (e.g., air medical evacuation and use of some area hospitals). They also noted that nurses were not invited to participate in disaster planning and evaluation committees outside of hospitals and were not invited to participate in the follow-up evaluation program held on the first anniversary of the disaster.

The article by Johnson (2002) provides practical leadership lessons learned at one health care institution in the National Capital Region following the terrorist attacks on the Pentagon in 2001. Specific lesson learned are described. For example, the leadership of the disaster committee is crucial for success, and checklists were indispensable in helping to bring order to chaos.

Hynes (2006) discusses her observations during the severe acute respiratory syndrome (SARS) outbreak and the need for leadership competencies within the critical care setting. The crisis was managed most effectively when interdependence and group cohesion were valued and present. Hynes recommends that critical care nurses who are involved in pandemic influenza planning should advocate for education and training to support them in assuming clinical leadership roles, especially conflict management. The benefits of computerized simulation technology are described.

Following Hurricane Katrina, the campus of a small, private, historically black institution was completely destroyed (Dennis, 2007). Dennis (2007) provides an anecdotal description of how information gleaned from the Leadership Enhancement and Development (LEAD) project assisted her as the university worked to create a new organizational structure and return to New Orleans.

Also within the context of Hurricane Katrina, Priest (2009) discusses the role nurse leaders can play in planning for catastrophic events. He emphasizes the importance of nurse leaders helping nurses understand the core values and ethics that will apply in disaster situations. What he identified as most important was having conversations about what constitutes a catastrophe, what nurses might expect in such an event, and how they would be expected to respond. Legal liability is briefly discussed. Priest states that a nurse leader must ask, "How should I apply my limited resources so that they can have the greatest impact and save the most lives?" (p. 50). To make such decisions requires a focus on core values. If nurse leaders focus on these core values when making decisions, those decisions will be made more effectively and consistently. The nurse leader must continue to be an advocate for his or her staff in this situation, ensuring that nurses have water, food, and rest to the extent possible.

Research Studies

From the literature searches and secondary sources reviewed, there were only two manuscripts that could be categorized as research in disaster leadership, both using qualitative research methods. The first article by Peltz et al. (2006), although not specific to nursing leadership, does focus on the Israeli Defense Forces Home Front Command's research team sent to study the response of the Thai medical system to the 2004 tsunami disaster (Peltz et al., 2006). The analysis of the Thai disaster management response was based on Quarantelli's (1987) 10 criteria for evaluating the management of community disasters. The research team met with Thai officials from the Ministry of Public Health and Air Force, the provincial governors and health officials, and provincial and district hospital staff and directors. The delegation also visited prehospital facilities, reviewed patient logs, and interviewed officials, health care workers, foreign volunteers, and injured victims. The three most important elements identified by the research team for effective disaster management were (a) the flow of information, (b) overall coordination, and (c) leadership. Examples of good leadership were identified within the ministry of health, the governor of the province, a clinical physician, the manager of one hospital and the royal family. In the hospitals in which leadership was less outstanding, doctors often lacked information and felt that the chaotic situation was not being controlled. Hospitals that conducted recent exercise drills performed better than those who did not. Peltz et al. identify several prerequisites for successful emergency

management including equipping the team leaders with leadership tools to enhance resilience and improve the response to their personal needs.

The second research study did focus specifically on nursing leadership. Shih and colleagues (2009) explored Taiwan's nurse leaders' reflections and experiences of the difficulties they encountered and the survival strategies they employed during the response to the SARS epidemic. The authors conducted in-depth focus group interviews with 70 nurse leaders from four Northern Taiwan hospitals involved in the SARS epidemic, and participants completed an open-ended questionnaire. Content analysis was undertaken and themes were generated. Five stages of the event were identified: facing shock and chaos, searching for reliable sources to clarify myths, developing and adjusting nursing care, supporting nurses and clients, and rewarding nurses. The qualitative data were further analyzed using Hobfall's concepts of conservation of resources. Additional themes were identified: (a) nurse leaders are important executors of interventions in health disasters; (b) emotional intelligence is required to effectively manage one's internal conflicts and interpersonal relationships; (c) sociopolitical and analytical skills are needed to foster participation, seek sanctions and support, marshal resources and facilitate decision making; and (d) building a support system to help manage conflicts between familial and professional roles. Adequate support from important persons (families, colleagues, and friends) and metaphysical strength (spiritual or religious beliefs) in times of intense strain and stress helped sustain the morale and motivation of nurses fighting SARS.

Facilitated Discussion

The final article analyzed was a facilitated discussion. The CCL brought together a small group of "frontline" leaders—people who were involved in the crisis response during Hurricane Katrina in either formal or informal roles (Rego & Garau, 2008). These frontline leaders shared their stories with people who have expertise in public health, terrorism, and disaster-related crises. These discussants helped the group to put the Katrina experiences into a broader context of leadership in times of crisis. The design coupled right-brain activities such as storytelling and mind mapping with left-brain thinking to log insights and rank key lessons.

The findings suggest that organizations with adaptable and empowered cultures are likely to adapt well to the challenges inherent in a crisis. According to Rego and Garau (2008),

> when standard operating procedures and protocols no longer make sense and the chain of command is broken, or formal leadership is unable to absorb and make sense of a rapidly evolving situation, the leadership capability embedded in the organizational DNA is the reserve that is left to count on. (p. 48)

The authors point out the strong relevance of the field of complexity (e.g., "wicked problems") to crisis leadership. In times of crisis, people want to help. The challenge is to enable the connectivity that makes assistance more possible and more effective. A thread throughout the report is the importance of creative leaders implementing creative leadership solutions in times of crisis. The report emphasizes the importance of leadership development (vs. training) to support creativity and empowerment (Rego & Garau, 2008).

SUMMARY OF RESEARCH

The background on leadership theories and the historical context for nursing leadership across multiple levels (individual, community, facility, state, regional, national, and international) provides the framework from which to review the literature on nursing leadership in disaster preparedness and response. The literature review identified few research studies specific to the topic. Several of the general leadership theories—situational, integrative, and transformational—provide a useful way of conceptualizing disaster leadership. Crisis leadership is a relatively new field of study that incorporates the integrative leadership style. The central theme of the analysis is that leaders in disasters must be able to adapt their leadership style to the specific circumstances. Case studies from disasters describe nurse leaders as needing sociopolitical skills and emotional intelligence to be effective. Nurse leaders use values-based decision making to bring order to chaos, focus on the most important tasks, and maximize available resources to save lives. Ensuring the health and safety of the people you lead is crucial for success. Nurses will be a major component of the frontline response to any disaster, so nursing involvement and leadership in preparedness planning can reap benefits during the actual crisis. Crisis leadership skills can and must be developed to ensure that the nation has the crisis leaders we need to respond to the inevitable natural disasters and the increased risk of terrorism. To advance the science of nursing leadership in disaster preparedness and response requires going beyond synthesis of anecdotal information to more rigorous research methodologies.

RECOMMENDATIONS FOR FUTURE RESEARCH

The recommendations for future research fall into three areas: leadership training and development, theory development, and research methods and measures. Effective response to disasters requires strong leadership, strategic planning, and interprofessional collaboration (Littleton-Kearney & Slepski, 2008). Several schools of nursing have developed master's degree programs and postmaster's certificates in emergency planning and disaster response. Many of these programs

focus on helping nurses develop leadership skills for emergency response and disaster preparedness. Incorporation of disaster nursing leadership content in curricula of more programs is needed.

In addition to providing leadership training in graduate nursing curriculum, there is a need for crisis training for all professions that support the societal infrastructure which includes nurses (Austin, Martin, & Gregory, 2007; Carrel, 2005; Flin & Slaven, 1995; MacFarlane, Joffe, & Naidoo, 2006; Reynolds, 2004; Schoch-Spana, Franco, Nuzzo, & Usenza, 2007; Ulmer et al., 2007). Beyond classroom training, there is a need to study the effectiveness of alternative educational strategies such as scenario training, simulation technology, and field exercises. For example, in 2004, CDC's crisis and emergency risk communication (CERC) for leaders course was created to quickly fill a gap in public health crisis leadership training (Courtney, Cole, & Reynolds, 2003). The course used case studies and included taped interviews with leaders who had experienced major crises such as the 1995 Oklahoma City bombing and the September 11, 2001 World Trade Center attack (Reynolds, 2004). There is a need to develop and test innovative leadership development approaches that look beyond typical leadership theory to include chaos theory, solving "wicked problems," emotional intelligence, political skills, and creativity.

Attention should be given to testing theories of leadership in disasters, with particular focus on testing crisis leadership theory. As a new area of inquiry, the theory of crisis leadership requires better conceptual definition. A central tenet of disaster leadership is that no one leadership theory will allow leaders to be effective in all situations and they must be able to adjust their leadership style to the situation. Future theoretical development should investigate the effectiveness of different leadership styles in a range of disaster situations. Typical methodologies for theory development may not be adequate, so methodologies like the ones employed by the CCL will be needed (Rego & Garau, 2008).

Finally, there is a need to develop the research agenda for nursing leadership in disaster preparedness and response. Currently, the literature focuses primarily on anecdotal "lessons learned" and corrective action planning. More rigorous research methodologies need to be applied to questions that investigate nursing leadership during disasters across the multiple levels identified in Figure 2.1. Nursing leadership across all components of emergency management (mitigation, preparedness, response, and recovery) needs to be examined. There is a need to develop valid and reliable measures of leadership styles. With valid and reliable measures, it will be possible to investigate the styles that are most effective in specific scenarios. Nurses serving in disaster leadership roles in the United States should engage in collaborative research with their counterparts internationally.

Leaders influence the ability of the nation to cope with and recover from crises. By focusing on leadership skill development, theory generation, and more rigorous research methods, it will be possible to develop the science of nursing leadership in disasters, so nurses on the front lines of disasters will be better able to assume a leadership role.

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DISCLAIMER

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