



CHAPTER 1

INTRODUCTION TO DISASTERS AND DISASTER NURSING

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NURSES ARE OFTEN CALLED UPON to provide aid and care during a variety of disaster events, including war environments, complex emergencies with displaced populations, large-scale disasters that disrupt the normal delivery of health care to the community, and local emergencies that temporarily strain resources. In these settings, nurses utilize their unique skills, abilities, and understanding of the community to the betterment of the population by striving to deliver the highest attainable level of care that the adverse circumstances allow.

OBJECTIVES:

- Define disasters and disaster nursing.
- Describe the characteristics of disaster nursing: and
- Understand the phases of a disaster and nursing's role during each phase.

The critical thinking and problem-solving skills of nurses, coupled with their flexibility and adaptability, help provide the methods for managing the difficulties that arise during disasters, such as shortages of supplies and staff and failures in communication. Although no two disasters are exactly the same, and nurses often must be able to improvise and adapt their care practices, they must be well-versed in their potential role to effectively deliver care in a disaster. This preparation comes through education in relevant disaster topics, skills acquired through hands-on practice, interaction with preparedness procedures, and a firm understanding of local and regional capabilities and resources.

Nurses possess the necessary coordination and delegation skills which, when coupled with their care management experience, positions them to serve

capably in healthcare leadership roles during disasters. Nursing leadership may be provided through established leadership roles or through the spontaneous assumption of a leadership role by a nurse identifying and taking action to solve a particular problem.

Nurses, therefore, should be well-prepared for their potential role in a disaster setting and should participate in all phases of a disaster to the fullness of their capabilities.

DISASTERS

During disaster events, people may be without power, shelter, communication, food, and water. Emergency response capabilities can quickly become overwhelmed due to the magnitude of the damage. Injured members of the community may be unable to find transportation to healthcare facilities as the local emergency medical services (EMS) may not be able to gain access to victims or may be overwhelmed by the sheer mass of those in need. Healthcare facilities may be damaged directly during the impact and be unable to provide emergency services, or they may need to be evacuated. Those healthcare facilities that remain operational soon become inundated with more arriving patients than they have the staff or space to manage.

These events, typically, are called “disasters” by the media and by the affected community. However, many of these events are more accurately classified as an accident or an emergency if the local emergency resources, though potentially overwhelmed initially, are able to quickly manage the situation without requiring resources from other communities.¹

Disasters are events that inflict significant damage to life or property and that substantially overwhelm the local community’s resources. In some cases, the magnitude of the damage can even prevent the community from responding.

HEALTHCARE DISASTERS

Considering the increasing population density and escalating development in disaster-prone areas, the potential of disasters to impact health care is growing. A healthcare disaster is defined as: “a precipitous or gradual decline in the overall health status of a community with which it is unable to cope with adequately without outside assistance.”¹

Healthcare disasters involve a failure of the normal provision of healthcare. This may be caused by direct damage to healthcare facilities or by the large influx of patients during a disaster that overwhelms the existing healthcare services and requires outside assistance. Although opinions differ regarding classifying events such as armed conflicts or ongoing humanitarian crises as disasters,² they also can result in conditions that limit or prevent the delivery of health care.

DISASTER NURSING

Nurses comprise the largest healthcare workgroup in most countries and are at the forefront of the healthcare response to disasters. From the work of Florence Nightingale in the Crimean War to the recent care provided by nurses in the aftermath of Hurricane Katrina in 2005 and the Asian tsunami of 2004, nurses historically are linked to the provision of care during crises. Unique additions to the knowledge base of nursing, coupled with the distinct dilemmas that must be properly managed during the different phases of a disaster, necessitate the distinction of disaster nursing as its own individual specialty.

The International Council of Nurses (ICN) defines nursing as follows:

Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well, and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles.²

THE GOAL OF DISASTER NURSING is ensuring that the highest achievable level of care is delivered through identifying, advocating, and caring for all impacted populations throughout all phases of a disaster event, including active participation in all levels of disaster planning and preparedness.

Disaster nursing provides this care, advocacy, and promotion of health within the context of a disaster. Disaster nursing is provided in numerous environments and settings, each with unique conditions with which disaster nurses must be familiar. Essential nursing abilities needed for the appropriate management of disaster victims include critical thinking, adaptability, teamwork, and leadership. Proper patient care and management in disaster settings mandates an understanding of both individual care and mass patient care. Nurses cannot be unprepared when the health care of their community is in need.

CHARACTERISTICS OF DISASTER NURSING

Caring for the Community During a Disaster

The disruptions in a community resulting from the impact of a hazardous event have varying impacts on nursing and the provision of health care. These impacts may be short- or long-term, based on the magnitude of the damage to the community and the ability of local resources to readily address and meet

the healthcare needs of the community without additional resources. During a medical disaster, nurses must be aware of the potential hindrances in delivering care and the modifications necessary to provide this care.

Whether the precipitating event is a relatively small multiple-casualty incident or a catastrophic event, the provision of health care can, at least temporarily, be overwhelmed. Nurses may be called upon to care for large numbers of patients, often at a rapid pace. Without proper planning, the response can become chaotic, resulting in less effective care delivery. Nurses must properly triage patients, ensure appropriate distribution of available nursing staff to maximize care delivery, and coordinate the appropriate distribution and placement of essential supplies and equipment.

With healthcare resources overwhelmed, the ability to provide the usual standard of care may not be possible. Unless regional plans have identified acceptable levels of care during a disaster, the nurse may face the difficult task of determining what constitutes reasonable care for the patients with the given resources. The balancing act between legal and ethical concerns and what nurses are physically capable of providing is a difficult one.

Providing nursing care during a disaster also necessitates coordinating care with other agencies and disciplines within the healthcare system, and maintaining the functionality of the healthcare facility itself. Some important roles of the nurse during a disaster are overseeing the transfer of patients to regional hospitals located away from the disaster-impacted area, assigning supplemental healthcare workers, and obtaining needed supplies.

The scope of care provided by nurses also may expand in response to a disaster. Based on the magnitude of the event, the community may be in need of food, water, and shelter. Public health nurses as well as nurses not routinely involved in addressing these basic survival needs may be called upon because of the severity of the conditions or because normal public health functions have been damaged. Nurses also may be needed to practice outside of their healthcare facility as first responders on the scene or to care for vulnerable populations during a disaster.

An ineffective nursing response can negatively impact the community's outcome from a disaster by failing to appropriately match nursing resources with need. Nurses must be well versed in strategies for overcoming disaster-induced adversities, and fully understand the different roles they may be required to embrace in order to deliver care effectively in a disaster setting.

Personal Impact

In a disaster, nurses may witness and be affected by troubling images around them. Regardless of the emotions elicited by these images, nurses' perseverance in providing needed care in times of a disaster is vital to the community's outcome.

Nurses working in disasters also may experience losses of their own. Due to a lack of communication or the pressing need of their duties, they may not know the status of their family or friends. The nurse's family, in turn, may not know the welfare of the nurse until after the disaster has abated.

There also may be increased physical demands during a disaster, such as working long shifts in abnormal, difficult conditions. One quandary for health-care workers in disasters is providing care to others while taking measures to care for their own needs. Nurse leaders must incorporate care for the nurses into disaster planning. This should include strategies for rotating staff, measures to obtain and provide information about family to the nurses on duty, and ensuring the availability of immediate support for those having difficulty coping. Nurses, in turn, must understand how a disaster could affect them, both immediately and in the long-term, and develop coping strategies and support networks to care for themselves and their colleagues within the nursing community.

Adverse Conditions

The nature of a disaster can cause adverse environmental conditions, such as flooding or high winds. Structural damage from events such as earthquakes can render the healthcare facility a potentially unsafe environment. Weather conditions, e.g., flooding, can result in the closing of community medical centers and hospitals, and in difficulties in receiving and evacuating patients. These weather conditions and the damage they cause, also can hamper the arrival of assistance and increase the isolation of the affected community from healthcare response. Nurses working in disasters should be aware of potential hazards and incorporate these considerations into planning and response.

Lack of Recognition

In some parts of the world, nurses are not allowed to voice their ideas nor are they allowed to participate in administrative decision-making. This may be more pronounced in the arena of disaster healthcare, in which planning and response decisions may be made by other disciplines, and in which disaster nursing may not be well-integrated. This results in a detrimental delivery of care to the community during a disaster. The importance of the contributions of nurses often is not understood by other members of the medical community or by other sectors of the community despite the fact that, in many instances, nurses may be the only healthcare workers providing care in a community. Frequently, they are at the frontlines of a disaster, and have significant insight into the immediate needs of the community.

Nurse representatives must be included in discussions concerning their community and regional healthcare disaster plans, and their input should be mandated and integrated by emergency planners and healthcare leaders. The active cultivation of nursing insight and innovative thinking into disaster

planning and preparedness will ensure that nursing care will be provided, to the good of the community.

Critical Thinking

Critical thinking and problem-solving are crucial skills in managing the effects of a disaster. Nurses begin learning critical thinking skills early in their careers as they assess and determine patient needs, then apply and adapt nursing care to meet those needs. The application of critical thinking to the disaster setting is one of nurses' substantial strengths and, if properly directed, can be of substantial value to the overall healthcare response.

With a strong knowledge base of the community and its potential resources, nurses are in a key position to assist with the necessary problem-solving required during a disaster. Possible problems to address include creating alternate ways to obtain needed supplies when the normal routes are unavailable, or determining non-traditional locations to position bases of community care to serve the disaster-affected population.

When issues related to direct patient care and care management arise, the value of nurses' critical thinking skills becomes unequivocal. Ineffective triage, unrecognized injuries or changes in a patient's condition, lack of documentation, and poorly managed transfers to the operating room or to regional hospitals all can negatively impact the community outcome. Nurses have the ability to recognize these and similar complications of disaster response, and affect corrective action through their critical thinking and problem-solving skills.

These same critical thinking skills are major contributions nurses can bring to all levels of disaster planning, preparedness, and evaluation. Perceiving gaps in current disaster plans and envisioning improvements for greater functionality are valuable components of nurses' critical thinking capabilities. Although these strengths of nursing may be overlooked because of the difficulty in defining or measuring them, nurses in disaster settings should fully utilize these skills toward the improvement of the care delivered and, ultimately, of the overall disaster response.

Adaptability

Because of the rapidly changing circumstances during a disaster, adaptability is essential. Flexibility and adaptability increase the nurse's capacity to function efficiently and effectively during disaster events.

Nurses may need to provide care in a crowded emergency department (ED), or at the scene of the event, or in a quickly converted hospital cafeteria, or in a makeshift tent. During a disaster, healthcare locations are not static and nurses may need to shift locations multiple times as the conditions change.

Shortages of, and problems with, equipment also necessitate adaptability. Nurses may be required to provide care without the usual provisions. Dim or

no lighting, lack of electrical power, and difficulties with communication systems are issues that nurses may face and have to adapt to during a disaster; these conditions may be intermittent and require frequent re-assessments and adaptations.

Creativity often emerges during the process of adaptation as nurses combine their critical thinking skills with the needs of the current situation. For example, shortages of supplies may lead to improvised methods of sharing the limited equipment between patients, or using a different method or resource to perform the same function. Improvisation is spontaneous, but must be grounded in solid nursing knowledge and experience to provide the appropriate modifications for the situation.

Flexibility related to the variety of assigned or improvised tasks nurses perform will be needed; these tasks may range from direct patient care to leading the healthcare facility or community disaster effort. Some of these roles are developed well before the disaster through careful disaster planning; other roles develop spontaneously because of an identified need during a disaster. These roles also may change abruptly, and the nurse may be adapting hastily, moving from one role to the next in response to the shifting needs.

Leadership

Nurses must fully utilize their leadership abilities to coordinate and organize efforts during all stages of a disaster. Nurses in leadership positions are necessary not only to properly manage other nurses involved during a disaster, but also to address the overall healthcare response.

In a disaster response, nurse leaders oversee the effectiveness of that response; they are the coordinators who use their experience and knowledge to shape the disaster effort — coordinating personnel as well as supplies and resources. They may reallocate nurses, supplies, and equipment to fill gaps in the response effort, or reinforce areas that are being overwhelmed, e.g., redirecting patient flow in the hospital to prevent patients from bottlenecking unnecessarily while they await treatment. These changes often are made as the nurse leader interacts with other services and refines the response effort.

Community-wide responses, such as the establishment of shelters or fever clinics, also are implemented through nursing leadership. The nurse leader ensures that the healthcare facility — be it hospital, medical clinic, or community center — is adequately and appropriately addressing the needs of the community. Critical to this effort is the involvement of nurse leaders in all disaster planning and preparedness to ensure that their leadership experience is incorporated before a disaster occurs. Utilizing nurses' management knowledge and experience will help disaster planners and hospital administrators foresee problems and correct them well before these problems negatively impact the response.

Ideally, nursing roles and positions in disasters are pre-established by careful disaster planning. However, in the absence of a designated leader, a nurse who begins to coordinate and delegate responsibilities in an attempt to overcome an identified response shortcoming may spontaneously assume a leadership role. The individual nurses who solve problems related to a multitude of issues throughout the disaster response also demonstrate nursing leadership skills. Without strong leadership, the effectiveness of the disaster response will be severely limited. Nurses possess the necessary coordination and delegation skills which, when coupled with their care management experience, position them to capably serve in healthcare leadership roles during disasters.

During a disaster, the population is in a period of need and there is no large group of healthcare workers better poised to care for them than nursing. Nurses must clearly understand and practice beforehand their potential role in a disaster and have the necessary disaster education and skills to be in a position of readiness. Nursing knowledge and care skills coupled with their strengths of flexibility, teamwork, critical thinking, and leadership will be crucial in addressing the healthcare needs of the disaster.

Nursing in the Phases of Disasters

Disaster management encompasses the efforts to deal with hazards and the disasters they may produce. It is divided into three phases: preparedness, relief response and recovery. Each phase is an integral component of a holistic approach to an effective healthcare response. To be truly successful in their role of providing care during disasters, nurses must be involved integrally in all phases.

Preparedness

This phase involves the planning and preparedness activities performed prior to a disaster. Mitigation initiatives are specific preparedness strategies designed to reduce the losses from disasters, e.g., building earthquake-resistant hospitals. Planning begins with a hazard-vulnerability assessment, which is an analysis of the particular risks that a specific community and its healthcare system could face. Preparedness efforts are guided by these identified risks; in other words, planning focuses on preparing for those hazards that are most likely to occur in that given community.

Effective preparedness hinges on the development of a well-organized disaster response plan. In many countries, nurses are not allowed to contribute to this essential plan due to a lack of professional recognition and/or gender issues. However, when local or regional leaders work to design the healthcare response, nursing involvement is crucial to guide the planning toward effective health care during a disaster. Nursing expertise can guide plans by evaluating and

redesigning ineffective care strategies, assuring proper utilization of nursing potential, and ensuring efficient and cohesive patient flow throughout the healthcare facility and the community.

Training and practice are essential components of the preparedness phase. Drills provide an opportunity to identify areas within the disaster plans that need improvement. Education, coupled with the hands-on practical experience during drills, provide nurses with confidence in their capabilities by rehearsing and familiarizing them with their potential disaster roles and responsibilities.

Relief Response

The healthcare relief response to a disaster encompasses the broad scope of those actions intended to provide immediate health care to the community and begins with the initial notice of an impending or actual event. Often, the first notification of an event that healthcare facilities receive is not a radio call from an EMS crew on the scene, but, rather, the sudden, unannounced influx of arriving patients. Gradual onset events, such as emerging infectious diseases, tend to begin slowly but increasingly overwhelm healthcare resources as more patients develop symptoms and seek care. The ED triage nurse or the public health nurse may be the first to recognize the impact on health care and determine appropriate care as they call for the implementation of the emergency response plan. In the instance of chemical, biological, or radiological attacks or accidents, nurses may be involved in the immediate role of decontamination, setting up showers, and donning chemical suits and respirators.

Occurring simultaneously and in synergy with patient care, is the coordination of the response so that all of the healthcare facility's resources, including the nursing staff, are utilized to their fullest. This draws upon the work put into the disaster planning phase by following the procedures for establishing the hospital emergency operations center, implementing staff recalls, creating surge areas, and maintaining supply deliveries to the facility.

Outside of healthcare facilities, nurses also will be integrally involved in assessing community needs; providing shelter; food, and water; establishing and staffing vaccination or distribution centers; and providing psychosocial assistance. Additionally, nurses may be providing care at the scene of the event or at field hospitals established to administer supplemental care to the community.

Recovery

The focus of relief response efforts is the delivery of health care throughout the time of the community's immediate needs. Gradually, this phase will give way to the recovery phase of the disaster, with a decline in the number of patients in urgent need of care, and the arrival of outside resources to augment the healthcare capacity of the community. Recovery efforts are directed to rebuilding the

basic societal functions of the community, including rebuilding the healthcare system to ensure adequate mechanisms are in place to effectively provide and monitor the ongoing health needs of the community.

Disaster healthcare recovery plans should incorporate the long-term support provided by the nurses who care for the individual needs of the population. Post-response nursing tasks include public health surveillance, establishing temporary clinics, guiding immunization programs, and ensuring that the ongoing health and survival needs of the community are met. Healthcare facility nurses may be providing care in tents or other temporary shelters for an extended period of time, if their facility sustained significant structural damage. Nurses also may be involved in providing psychological care to the community to assist its members with the grieving and coping processes. Nurses' knowledge of the community, coupled with their flexibility in providing a broad range of needed tasks, underscores the need for their extensive involvement in the recovery efforts to return the community to a pre-disaster state.

CONCLUSION

During disasters, nurses will be called upon to provide aid and care utilizing their unique skills, abilities, and understanding of the community. Without the care provided by nurses, the community is likely not to fare well. To be effective, nurses must be prepared; this preparation includes education in relevant disaster topics, skills acquired through hands-on practice, interaction with preparedness procedures, and a firm understanding of local and regional capabilities and resources.

DISASTER NURSING ADAPTABILITY: AUSTRALIAN TEAM IN THE MALDIVES POST-TSUNAMI 2004

The ability to adapt is critical during disaster relief responses. Supplies may not be available and improvisation to devise substitutes for infrequently used or unusual items may be required. Members of the Australian Team's relief response to the Maldives following the tsunami became creative in finding alternative items for missing needed supplies. Some examples of their creativity include:

- Using the large, rigid containers used to transport medical supplies as privacy screens and walls between treatment areas in a temporary ED;
- Using polyvinylchloride (PVC) body bags to store and transport sterile consumables to keep them clean and dry in humid, tropical conditions;
- Using 350 milliliter plastic water bottles as spacers for multi-dose inhalers used in the treatment of salt-water pneumonitis; and
- Using rigid plastic drink bottles as sharps containers at each patient's bed area.

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