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Health Care

Emergency Management: Preparing for All Hazards

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**Intro**

Emergencies occur in health care facilities in a variety of different forms. Natural disasters such as hurricanes, tornadoes, or blizzards; or technological disasters such as loss of computers, loss of phone systems, or loss of electricity can significantly impact an organization’s ability to function and provide medical care to its patients. Man-made disasters such as outbreaks or epidemics, train derailments, or airplane crashes can create a situation where health care facilities see a huge influx of patients into their emergency departments in a short period of time.

Some disasters result in the need to open more and different types of acute care beds. For example, a biological contamination affecting a large number of people could require the need for more specialized beds than might normally be available. Long-term care facilities in any given region might receive patients from a long-term care unit of a local hospital. By moving patients to a remote long-term care facility, the beds in a hospital wing or building could then be used for specialized or acute care beds.

Disasters could alter a facility’s structure, utilities, staffing, supplies, communications, safety, security, and medical care services. These functions must be addressed in every emergency management plan to ensure the safety of patients, staff, and visitors during an event and throughout the recovery.

Some of the more recent specific instances where health care facilities were notably impacted include hurricanes Alison, Katrina, and Sandy, tornadoes in Joplin, MO and Moore, OK, the Boston marathon bombing, and different outbreaks such as SARS and the current spread of Ebola. All of these events have provided valuable information for health care facilities as they prepare for future events of perhaps an even larger magnitude.

What follows is a summary of recent regulatory developments regarding emergency preparedness, and then an overview of *NFPA 99, Health Care Facilities Code*, requirements for developing an emergency management program.

**Current Regulatory Developments**

The Office of the Inspector General issued a report in September, 2014 following up on hospital emergency preparedness and response during Superstorm Sandy. That report included a survey of 174 Medicare-certified hospitals in declared disaster areas during Superstorm Sandy and site visits to 10 hospitals in areas most affected by the storm. The report indicates that the majority of the hospitals were able to shelter in place during the storm, while seven percent were forced to evacuate. Power outages resulted in 69 of the facilities experiencing electrical utility outages requiring the need for backup generators which were not a reliable power source in 28 of the 69 facilities. The report also indicated that each of the 172 hospitals reported participating in at least one community-wide emergency preparedness activity in the year prior to the event and all but 1 of the hospitals reported that their written emergency plans were useful during Sandy. One of the recommendations from the report was that The Centers for Medicare and Medicaid (CMS) should develop guidance to hospitals to ensure that they can meet patient surge from evacuating hospitals and surrounding communities.
Suggestions for this included drills and exercises focusing on short-term and long-term patient surge, planning for additional supplies and equipment and accessibility to vendors and resources during disasters. The report further recommended that CMS include guidance on sufficiency and training of medical staff to prepare them for maintaining patient care over extended periods of poor conditions.

When the above mentioned report was released, CMS had already issued a related Notice of Proposed Rule Making (NPRM)\(^2\) in December, 2013 that would apply to 17 CMS provider and supplier types and require that all have an emergency management program. The NPRM states that the proposed rule addressed three key essentials needed to ensure that health care is available during emergencies. These are; safeguarding human resources, ensuring business continuity, and protecting physical resources. According to the NPRM, current regulations for Medicare and Medicaid providers and suppliers do not adequately address these key elements. The proposed program is based around four key elements which have been identified as risk assessment and planning, policies and procedures, communications plan, and training and testing. As of the writing of this, the public comment window on the NPRM has been closed for many months and there is no word on when rule will be finalized.

While all of that shakes out, Chapter 12 of NFPA 99, already contains requirements for an emergency management program for health care facilities that largely entails all of the details specified in the CMS proposed rule. The chapter is written so as to apply to both new and existing health care facilities and has been developed to aid in developing, maintaining, and evaluating effective emergency management programs in health care facilities. What follows is an overview of the requirements for the design and implementation of an emergency management program in accordance with NFPA 99. Following the requirements in that section will prepare facilities for disasters or emergencies of any kind and will also prepare health care facilities to for the final CMS rule if and when it is published.

**Responsibilities**

NFPA 99 identifies where the responsibilities for the enforcement, support, and execution of the emergency management of the program lay. It’s required that senior management actively participate in and support emergency management planning and must provide the required resources to support and develop the plan. Senior management must also appoint a program coordinator who will establish an emergency management committee to manage all aspects of the plan. The emergency management committee should be composed of members from many different disciplines within the organization; some of the positions and areas to be represented in the committee are detailed in Figure 1.
Hazard Vulnerability Assessment
The emergency management program needs to be based on an “all hazards” approach through the use of a hazard vulnerability assessment (HVA). This first requires that the facility identify hazards that pose a threat to the facility and can affect the demand for its services. The hazards that need to be considered include natural hazards, human-caused events, and technological events as illustrated in Figure 2.
Such conceptual planning should focus on issues, such as severe weather typical in the locale, situations that can occur due to close proximity of industrial, government, or transportation complexes, or earthquake possibilities due to local seismic activity. Planning should also incorporate knowledge available in the emergency management research about how individuals, small groups, organizations, communities, and societies behave during emergencies.

Second, the facility must prioritize the hazards which have been identified with input from the local community. The code identifies nine areas where the analysis of the hazards must consider as shown in Figure 3.

![Vulnerability Analysis](image)

*Figure 3 Areas where HVA must Analyze Potential Impact*

Once the HVA has been completed and the hazards prioritized, the planning phase can truly begin. There are four phases detailed in the emergency management program for a health care facility that are detailed in NFPA 99. These are mitigation, preparedness, response, and recovery.
Mitigation
The first of the four phases is mitigation. Mitigation involves finding ways to eliminate or lessen the effects of a particular emergency. An example of this is locating critical utilities in flood-prone areas at levels above the historical high water marks. Mitigation is the preferred method to prepare for hazards identified in the HVA, however properly doing so for every possible situation is not practical both from a logistical as well as a financial standpoint. What NFPA 99 requires is that the facility develops and implements a mitigation strategy for priority hazards identified by the HVA. This approach allows health care facilities to identify the activities which will provide the greatest impact in reducing risk and then focus on completing those activities. If an organization successfully implements its mitigation strategy from year to year and the mitigation activities are impactful, it should impact the following year’s HVA when analyzing the potential impact of the hazard being protected against.

Preparedness
While mitigation strategies can take time to accomplish, preparing for emergencies of any kind is something that health care facilities can effectively begin to do as soon as an HVA is completed. One of the most important things for a health care facility to have prior to a disaster is an inventory of assets and resources on-site that would be needed during an emergency. With this knowledge, the facility needs to identify the resource capability shortfalls from 96 hours of sustainability. This is not to say a facility needs to have 96 hours of standalone sustainability, but they do need to evaluate where the inventory would stand at that point. It should be determined where mitigation activities that can prevent these shortfalls are both necessary and feasible. The facility is required to establish a protocol for monitoring the quantity of its resources and assets as they are utilized.
Preparing for a variety of disasters involves the creation of an emergency operations plan (EOP). NFPA 99 requires that a facility write an EOP that describes a command structure and seven critical functions within the facility during an emergency. The seven critical functions that are to be included in the EOP are shown in Figure 5.

![Figure 5: Seven Critical Functions to be Included in an Emergency Operations Plan](image)

NFPA 99 provides greater detail for each of these critical functions and the considerations and strategies that should be made for each. For example, under communications, the code requires that the facility plan for initial and ongoing communication of information and instructions to staff, communication with external authorities, communication with patients and their families, the community and the media, when and how to communicate patient information to third parties, establishment of a backup communications system, and cooperative planning with other local or regional health care facilities. While each of these considerations only take up one sentence of code requirement, the planning and execution of each can take a large amount of work on account of the facility in order to implement an effective plan.

The final considerations in the construction of an EOP, once planning for each of the seven critical functions is completed, is to develop a standard command structure that is consistent with the community and should also be consistent with the National Incident Management System (NIMS) as
outlined in NFPA 1600®, Standard on Disaster/Emergency Management and Business Continuity Programs. A reporting structure that is consistent with the command structure must also be put in place. The facility needs to include plans for activation and deactivation of the response and recovery phases including what the process to do so entails and who has the authority to make those decisions. Plans must be developed for how to respond when the facility cannot be resupplied from outside sources. Possibilities in these cases include resource conservation, service curtailment, and partial or total evacuation. Finally, alternative treatment sites to meet the need of the patients must be included in the plan in the case where certain services become unavailable or where partial or total evacuation may be necessary.

Testing Emergency Plans and Operations and Staff Education
The best executed HVA and finely constructed EOP will have little effect in an emergency if the staff of a facility are not clear in their roles and educated on the overall plan. The code requires that each facility implements an educational program in emergency management. This program needs to include an overview of the components of the emergency management program and concepts of the incident command system. This general overview education is required to be conducted at the time of hire for new employees. More detailed training on staff’s specific roles and responsibilities must be conducted upon appointment to a department/staff assignment or position, and annually thereafter. Those who will perform as incident commanders or will be assigned to specific positions within the command structure must be trained and familiar with the ICS and the particular levels at which they are expected to perform.

Facilities are required to test their EOP at least twice per year. The testing can be done through functional or full-scale exercises or through real events, with the exercises being as realistic as possible and based on the priorities identified by the HVA. For facilities expecting to receive patients in an emergency, an influx of volunteered or simulated patients must be tested at least annually. It is important that annual exercises also include community integration and an assessment of sustainability to best simulate what realistic conditions will be. This is another instance where only a small portion of code language will require a large effort. The planning and execution of these exercises will take a great deal of work from all different areas of a health care facility and the representatives of the emergency management team will need to play an important role in getting buy in from all of the different groups within the facility. It is only when everyone is on the same page that the exercises will be most beneficial to all, while also being careful to not diminish the level of care provided to the existing in-patient load of the facility.

While much can be gained from just conducting the exercises themselves, a careful review and critique will yield much greater results for the facility. The code requires that exercises be monitored by at least one designated evaluator who has knowledge of the facility’s plan and who is not involved in the exercise and that the facility conduct a debriefing session no more than 72 hours after the conclusion of the exercise or event. The debriefing must include all key individuals involved in the plan, including observers, administration, clinical staff, and appropriate support staff. During this debrief, the response
to the exercise or actual event must be critiqued for deficiencies and areas for improvement are to be identified. Where opportunities for improvement are identified, they must be incorporated in a facility’s improvement plan and those improvement must be evaluated in future exercises.

Response
Once the organization has declared an emergency at the facility, it has entered the response phase. Usually this is immediately followed by the activation of the command structure and the implementation of tasks associated with the job action sheet. The command structure is designed to be flexible and modular, allowing for organizations to activate only the positions and job action sheets that are needed to respond to the event.

During the response phase, it is essential that the organization establish routine communication sessions to ensure that all command staff report on the status of the division, needs of the division, and status of the tasks associated with the job action sheets for the division. The response phase will continue until the demand caused by the disaster decreases to the point where an organization can return to normal operations.

The code requires that as part of the response, medical surge capacity and capability be planned for. This includes implementing a detailed triage process to ensure that patients most needing treatment are prioritized and that those who pose a risk to either themselves or others can be properly dealt with.

Recovery
One of the most difficult things following a disaster that significantly affects a facility is the ability to recover back to the level that existed prior to the event. It is very important that consideration of the steps that it will take to fully recover from an emergency or disaster are well understood ahead of time. NFPA 99 requires that plans reflect measures needed to restore this operational capability. The financial impact of the time to recover must also be considered both in regards to restoration costs and possible cash flow losses associated with the disruption. The leadership of a facility is expected to accept and accommodate federal, state, and local assistance that will be beneficial for recovery of operations. The code states that recovery cannot be deemed complete until infection control and decontamination efforts are validated.

Administration
The key to a successful emergency management program requires ongoing maintenance. Updates to the HVA allow organizations to adapt to changes in their environment. Lessons learned from actual events or exercises allow organizations to modify the EOP to ensure growth and improvement in order to meet the challenges of emergency management. NFPA 99 requires that the facility modify its HVA, EOP,
supply chain, and other components of the emergency management program as a result of exercises, real events, and at least on an annual basis. All drills, exercises, and training that is required by the code must be written records and those have to be maintained for a minimum period of 3 years.

In order for a health care facility to be prepared for disasters of any origin, it requires a detailed understanding of what hazards pose threats to the facility and what the potential impacts can be, then it requires mitigation strategies, preparedness planning including the response and recovery phases, and then, perhaps most importantly, is the continuous upkeep of the program. It has been mentioned in several locations previously that there are many times when the facility’s HVA and EOP should be revisited and updated. The emergency management program is something that needs to be actively maintained and if the program is robust, it will result in the need to constantly revisit and reassess where the plan stands as a result of changes. Figure 6 below shows how the emergency management program development process continually evolves over time and ongoing monitoring is vital to make sure that it is up to date and that the facility, in its current state, is ready for a disaster or emergency.
References

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About National Fire Protection Association (NFPA)
NFPA is a worldwide leader in fire, electrical, building, and life safety. The mission of the international nonprofit organization founded in 1896 is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. NFPA develops more than 300 codes and standards to minimize the possibility and effects of fire and other hazards. All NFPA codes and standards can be viewed at no cost at www.nfpa.org/freeaccess.