



Hospital Staffing and Surge Capacity During a Disaster Event

Recent disasters like the Northeast Blackout of 2003 and Hurricane Katrina have given NAPH member hospitals firsthand experience activating complex surge capacity plans. Just last year, Harborview Medical Center handled an influx of 50 limited English proficiency patients with carbon monoxide poisoning during the December 2006 Seattle wind-storm. Without power to charge cell phones, language interpreters were difficult to reach, yet hospital personnel were able to identify patients, coordinate lab tests, and provide necessary language services. Harborview's experience is a good example of the challenges that safety net hospitals face during a disaster surge.

Hurricane Katrina heightened interest among NAPH members in the role of safety net providers during an emergency. In response, the National Public Health and Hospital Institute (NPHHI) launched the 2006–2007 Emergency Preparedness Study. Preliminary results released in September 2006 created a greater demand for more information and

knowledge-sharing among members, leading to the second phase of the study in which NPHHI staff surveyed 60 NAPH members in one-to-three-hour-long structured interviews from December 2006 to April 2007. The survey covered a range of topics, from air purification systems to “worried well” management, and its findings indicate that NAPH members have multiple concerns about emergency preparedness planning. That said, NAPH members have made surge capacity and caring for staff a priority. This research brief will describe key findings regarding NAPH member surge capacity provisions and staffing strategies as identified in NPHHI's 2006–2007 “Emergency Preparedness Survey,” including:

- Structural surge capacity plans;
- Provisions for staff and their families;
- Identifying and credentialing additional health care professionals; and
- Emergency preparedness training strategies for hospital personnel.

Defining Surge Capacity

Surge capacity is defined as a health care system's ability to expand quickly to meet an increased demand for medical care in the event of bioterrorism or other large-scale public health emergencies.¹ Because disaster events create an imbalance between the supply and demand for resources,² surge capacity planning is a way for hospitals to diffuse increased need for medical care. Effective surge capacity requires the coordination of multiple resources, including beds, supplies, equipment, physical structure, and staff.³ It also relies upon the coordination of hospital policies to mobilize staff and, in some cases, other outside agencies. Perhaps the most important component of surge capacity is staffing,⁴ which refers to physicians, nurses, mental health staff, emergency medical technicians, and public health professionals.⁵

Hospitals have specific benchmarks for surge capacity staffing established by the federal Health Resources and Services Administration (HRSA) and implemented at the state level. Specifically, states must create a response system that allows for:

- Triage, treatment, and disposition of 500 adult and pediatric patients per one million population who suffer from acute illness or trauma requiring

hospitalization from a biological, chemical, radiological, or explosive terrorist incident;

- Immediate deployment of 250 or more additional patient care personnel per million in urban areas; and
- Immediate deployment of 125 or more additional patient care personnel per million in rural areas.⁶

Daily Surge Versus Emergency Surge Capacity Plans

Daily emergency department (ED) surge capacity, measured both by available staff and clinical space, is a concern for NAPH member hospitals, many of whom operate at full capacity on a regular basis.⁷ When most hospital EDs receive more patients than they can handle, they can choose to go on diversion and disperse less serious cases to other hospitals. However, in the NPHHI survey, 24 percent of NAPH members report never going on diversion, often because they are the only source of care or the only trauma center in the area. Indeed, 36 percent of NAPH members are the only Level I trauma center in their counties.

The ability to manage daily surge, adequate amounts of space, and staffing directly affects how hospitals will handle patient surges during an emergency. While both daily and disaster surge necessitate coordination of multiple issues, the latter requires coping with these issues on a larger scale. ED overcrowding is a critical daily surge issue that impacts, yet differs from a mass influx of trauma cases combined with possible hospital

systems failure like power outages or flooding.⁸

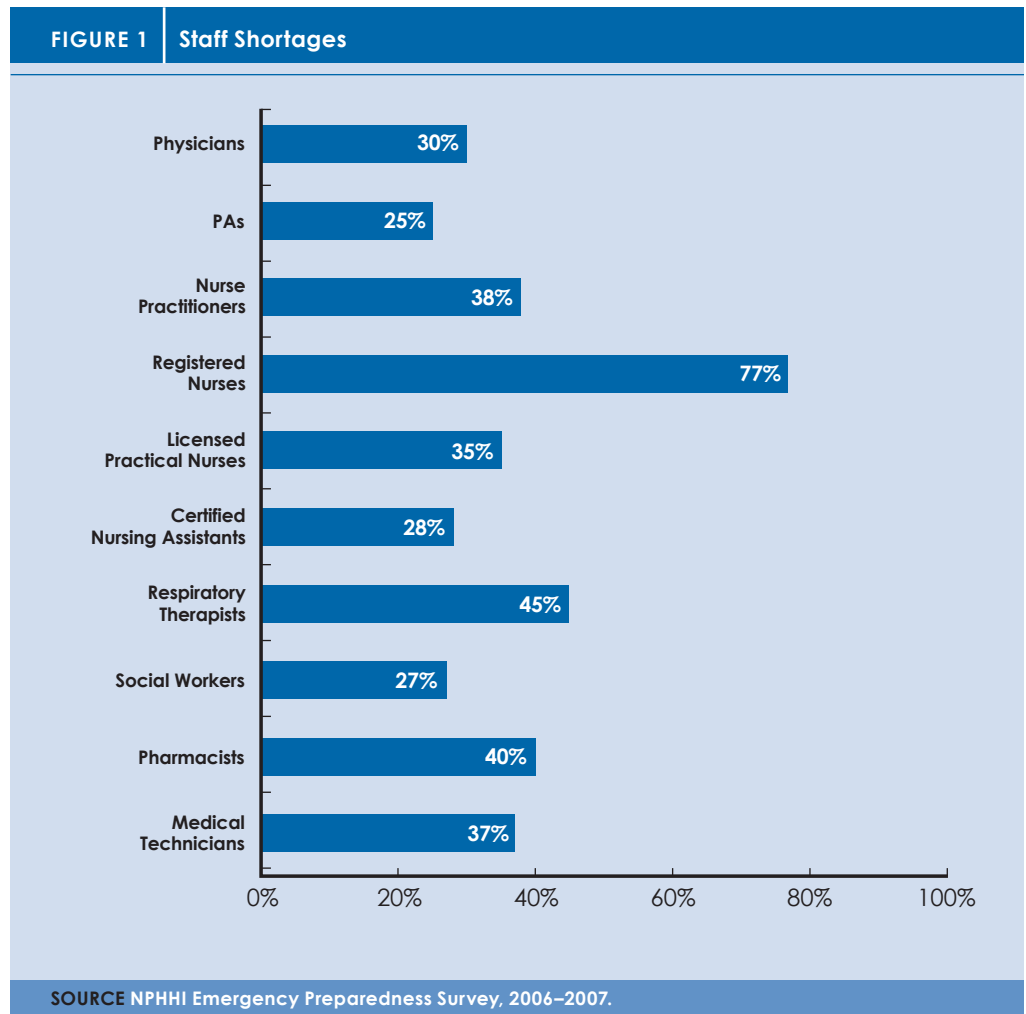
Staffing Concerns

While comprehensive disaster surge plans address the need to increase space for a sudden rush of patients, sufficient physical capacity requires an emergency staffing plan. The NPHHI survey indicates that the number of licensed (i.e., theoretically available) beds exceeds the number of operational (i.e., staffed) beds at members' facilities by an average of 100 beds. This makes staffing the essential factor

in transforming possible into realized capabilities and illustrates how nurse and emergency physician shortages profoundly affect a hospital's ability to manage surge capacity.⁹

Survey Suggests Health Professional Shortages Augment Staffing Difficulties for NAPH Members

National health professional shortages mean that staffing is a struggle for most hospitals during normal operations. The American Hospital Association's 2006 *Workforce Trend Watch* notes that there will be a shortage of over one million nurses by 2020.¹⁰ Nurses



are particularly essential to surge capacity because they are usually the initial point of contact for patients during a disaster.¹¹ Given that average nurse vacancy rates are almost twice as high for public hospitals as hospitals nationally,¹² this problem disproportionately affects public hospitals (survey data shows 77 percent of NAPH members currently report a shortage of registered nurses—see Figure 1). Furthermore, since hospitals must find and pay for substitute personnel while regular employees are being trained for an emergency, these shortages cause many hospitals to struggle to train workers on critical equipment used only during emergencies, such as decontamination showers.

Survey Finds NAPH Members Include Provisions for Staff, Their Families, and Pets

Researchers believe that purposeful absenteeism will be a significant barrier to ensuring adequate staffing levels during a disaster. According to health care employee attitudinal surveys, many employees are unwilling to report to duty during a disaster because of fear and concern for the safety of their families and themselves.¹³ Data suggest that purposeful absenteeism is expected to increase during a pandemic flu disaster to more than 40 percent,¹⁴ and in the event of mass exposure, one-fourth to one-third of the workforce may be deliberately absent for a period of time.¹⁵

When NAPH member hospitals were asked about whether they had

incentives or provisions to encourage health care workers to report to work in the event of a major infectious disease outbreak, 55 percent responded that they do. More than 50 percent of surveyed members plan to provide essential medications to staff and their families. Because access to pandemic flu medication is limited, emergency planners hope medication distribution will reduce absenteeism during a flu outbreak. Other provisions used by hospitals to encourage staff to report to work during an infectious disease outbreak include paid time off, housing for family members, and financial incentives.

Hospitals also expect staff to stay for long periods of time during an emergency.¹⁶ For example, hospital staff remained at Charity Hospital for six days during Hurricane Katrina.¹⁷ Of the members surveyed, 80 percent reported having sleeping areas for staff during a disaster. NAPH members also plan to provide staff members with shower facilities, hygiene kits, communication resources, and psychosocial support.

To address concerns that staff may stay home to take care of children, 73 percent of NAPH members include in their emergency plans various types of support for staffs' dependent family members. Specifically, 70 percent of NAPH members will offer some combination of daycare, housing, and food for staffs' children, and 37 percent include similar provisions for staffs' elderly relatives.

Staffs' pets have also become a major concern for hospital emergency

planners. In additional efforts to combat intentional absenteeism, the Federal Emergency Management Agency (FEMA) has imposed new funding requirements: to receive the maximum amount of available federal funds, states will be required to make provisions for pets during a disaster.¹⁸ During Hurricane Katrina, Lindy Boggs Medical Center housed 45 dogs, 15 cats, and 2 guinea pigs during the Hurricane.¹⁹ Twenty-three percent of NAPH members have followed suit and now include pet care in their disaster plans.

Survey Finds NAPH Members are Prepared to Identify and Credential Additional Staff

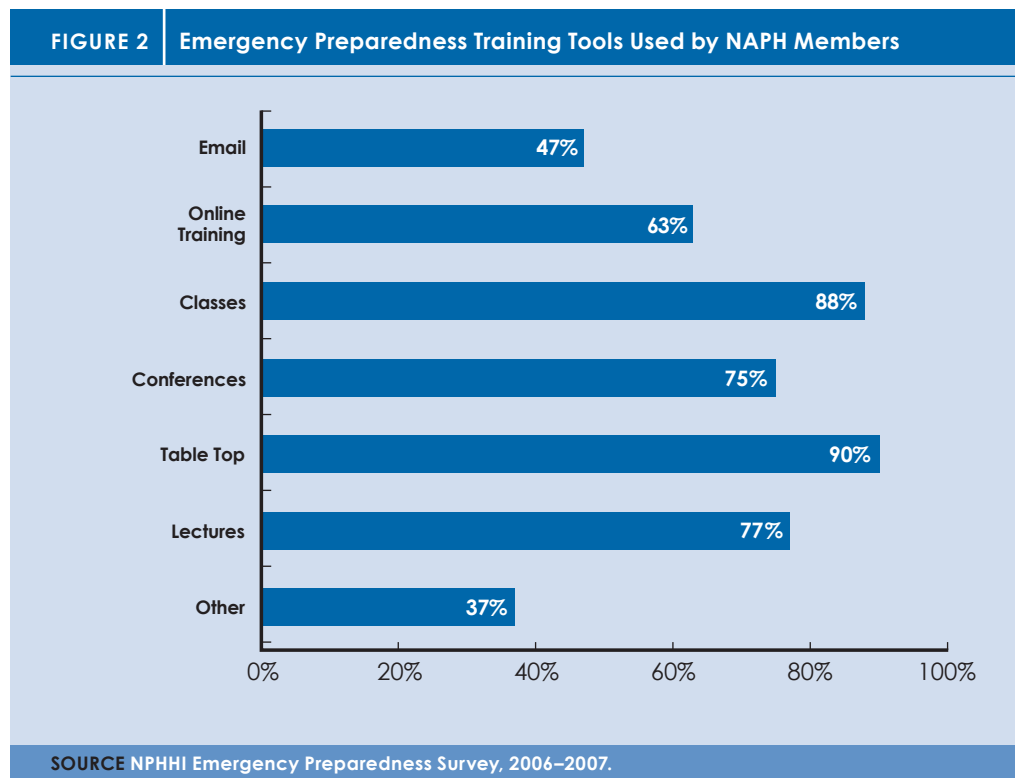
Hospitals plan to increase staff available during an emergency by identifying and credentialing outside health care volunteers. As a result of September 11, 2001, states have been given funding by the federal Human Resources and Services Administration (HRSA) to develop an Emergency System for Advance Registration for Volunteer Health Professionals (ESAR-VHP).²⁰ The purpose of the ESAR-VHP is to identify health care practitioners during a disaster and to share pre-registered, credentialed health care professionals across state lines.²¹ The program started in 2004 with ten pilot states (Texas, Minnesota, Wisconsin, Missouri, Illinois, California, Ohio, West Virginia, Massachusetts, and Connecticut) and is currently being implemented nationally.²²

The pressure to identify and credential health care volunteers is

evident in the data collected from the NPHHI Emergency Preparedness survey. Nearly 92 percent of NAPH members report plans to credential outside volunteers during a disaster, including physicians (85 percent), nurses (78 percent), and pharmacists (68 percent). Hospitals also reported the ability to identify and credential respiratory therapists, psychologists, and emergency medical technicians. NAPH members are confident that they will be able to obtain necessary clinical support during an emergency; indeed, 83 percent of NAPH members report that they expect they will have a sufficient supply of trained staff in an event that increases patient load by 25 percent or more.

NAPH Members Train for Emergencies

Because disaster events are relatively rare, staff do not have regular experience with emergency equipment and protocol. Therefore, regular staff training is crucial to effective response to a disaster surge. All NAPH members provide emergency preparedness training for staff at least once a year, and 57 percent train staff upwards of three times annually. However, there is no standard curriculum for emergency response training of health care workers,²³ and disaster training topics and methods can vary greatly from one NAPH member to the next (see Figure 2). The most common training method among NAPH members is “table-top” exercises (i.e. role-play of a disaster event), (91 percent). Other



common training methods include classes (88 percent) and lectures (77 percent). Although issues covered in emergency preparedness training differ by geographic region, some potential disaster scenarios are consistent across the country. The most common include:

- Terrorist attack,
- Infant abduction,
- Bomb threat,
- Fire, and
- Electrical or generator failure.

NAPH Members Have Plans to Increase Physical Space During a Disaster Surge

Augmenting patient space is often the top priority when creating a comprehensive disaster plan. NAPH members approach this issue in several ways (see Figure 3): 87 percent plan to use

associated ambulatory care sites and 73 percent plan to transform non-clinical areas of the hospital, like board rooms and waiting areas, into patient areas. In addition, 66 percent of NAPH members plan to use external alternative care sites such as schools, churches, or other community facilities. A total of 63 percent report having both a cache of equipment and a staffing plan for these locations, which frequently are the result of collaborative efforts with local departments of health and other agencies. Just over half of the hospitals surveyed report receiving community support for their alternative care sites.

Conclusion

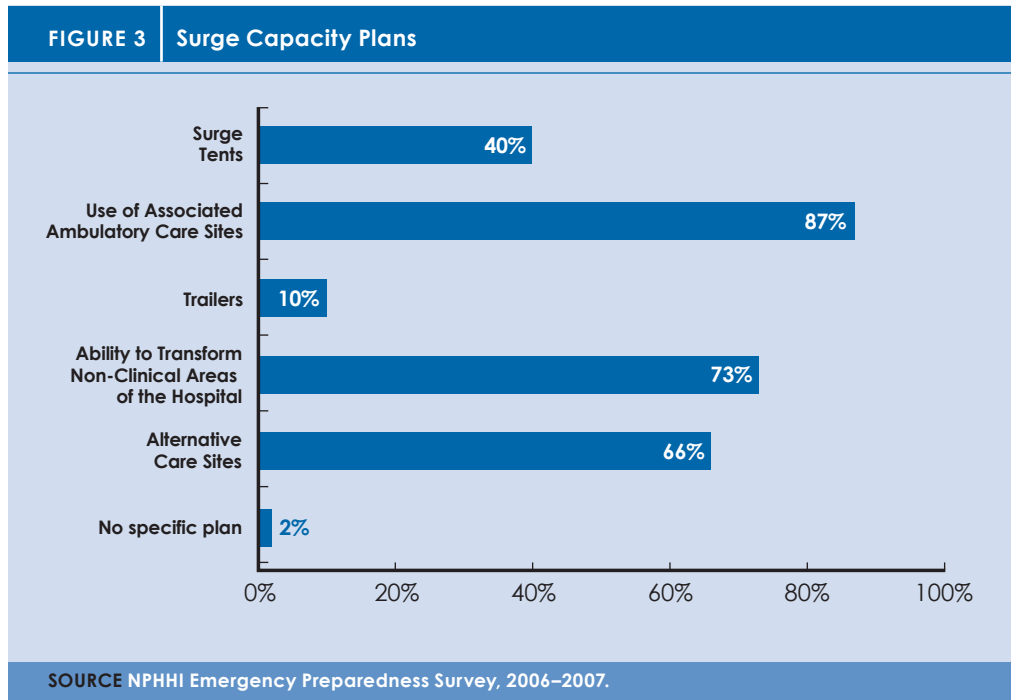
Comprehensive surge capacity plans are essential to anticipating and reacting to a disaster event. Surge capacity refers

to the coordination of supplies, structure, and most importantly, staffing. Adequate numbers of hospital workers affect the number of operational beds and, ultimately, the number of patients that can be cared for during an emergency. NAPH member hospitals use many strategies to ensure adequate staffing during an emergency, including daycare for employees' children, housing for their pets, and access to medication supplies for workers and

their families. NAPH members have also created plans to identify and credential volunteer staff and to train staff on emergency preparedness equipment and protocol.

Despite inherent challenges in caring for vulnerable populations during an emergency, NAPH members are developing innovative disaster surge capacity staffing plans to ensure essential care to their communities in times of greatest need. ■

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Notes

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