

# Assessment of Hospital Management and Surge Capacity in Disasters

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## Abstract

**Background:** Hospital administrators play a key role in the effective management of surge capacity in disasters, but there is little information available about the characteristics required to manage this.

**Objectives:** In this study, we aimed to identify characteristics of hospital administrators that are important in the effective management of surge capacity in disasters.

**Materials and Methods:** This was a qualitative study. Semi-structured purposive interviews were conducted with 28 hospital administrators who had experience working in surge situations in hospitals during disasters. Framework analysis was used to analyze the data.

**Results:** Three themes and 12 subthemes were identified. The themes were as follows: 1) crisis managerial characteristics, 2) personal characteristics, and 3) specific requirements.

**Conclusions:** In this study, some characteristics that had a positive impact on the success of a manager in a hospital surge situation were identified. These characteristics ought to be taken into account when appointing hospital administrators and designing training programs for hospital administrators with the aim of being better prepared to face disasters.

**Keywords:** Characteristics, Hospital Administrators, Surge Capacity

## 1. Background

In recent years, the number of natural and manmade disasters has increased drastically, with a concomitant increase in impact on the community (1, 2). Given the key role of hospitals in providing medical care for disaster victims, and the difficulties in providing adequate services, methods such as dealing with hospital surge capacity (HSC) have proven to be very effective (3, 4). The achievement of optimal hospital disaster capacity depends on effective management.

Disaster planning and specific organizational structures such as a “hospital incident command system” (HICS) can support the effective management of HSC (5). Nevertheless, given the unpredictable nature of disasters, conditions can occur that may not conform to predicted plans and structures (6, 7). This magnifies the importance of qualified administrators for the effective management of HSC in difficult and unpredictable conditions.

Accordingly, hospital administrators must possess particular characteristics. However, there is currently little information available regarding the characteristics that allow hospital administrators to perform well in a disaster. Previous studies in this area have primarily focused on identifying professional skills in the nursing disciplines (8-

11).

Though some public organizations and NGOs, such as the World Association for Disaster and Emergency Medicine, and the Colombia University School of Nursing, have published lists of characteristics and skills required of health professionals in disasters; these only contain specialized and professional skills required of personnel and not those required of administrators (12, 13). Moreover, “all-hazard” approaches have been ignored, and the only definitions of the required characteristics are in the field of bioterrorism (14). Thus, the authors believe that the information about the capability of hospital administrators to performance effectively in the event of a surge following a disaster is inadequate.

## 2. Objectives

This study was conducted to assess the effectiveness of hospital administrators to cope with surge capacity in disasters based on their experience.

## 3. Materials and Methods

This was a qualitative study. The hospital administrators (n = 63) of three universities of medical sciences (UMS)

Tehran, Iran, and Mashhad were the study population. The desire to participate and having an experience of at least one surge situation were the inclusion criteria of the study. The majority of the administrators (63) met these criteria. Therefore, we randomly selected managers to participate in the study and continued our study until we reached data saturation; 28 hospital administrators participated in the study.

A researcher performed the interviews; the interviews were performed in their offices at the beginning or end of their work shifts. Interviews were conducted face-to-face using a semi-structured interview guide, which was designed according to the study objectives and the relevant literature. The interview guide was prepared and agreed upon by all members of the research team before the interviews began. Each interview questioned, experience in managing a hospital during a surge following a disasters and characteristics required by the hospital administrator that would result in the effective management of a surge situation.

Interviews were conducted between November 2014 and March 2015 and were between 45 and 85 minutes in duration.

Recorded interviews were transcribed verbatim and underwent preliminary analysis on the same day. After 28 interviews, data saturation was reached. In this study; data were analyzed using framework analysis, which included 7 stages: transcription, familiarization, coding, developing a working analytical framework, applying the analytical framework, charting, and interpretation (15). Accordingly, interviews were transcribed by one of the researchers. The research team carefully read each interview transcript to become familiar with the content of the interviews. To avoid bias, two researchers from different fields and different perspectives coded the first four transcripts. During the next stage, all members of the research team identified themes to form the initial analytical framework. The initial framework was then applied to the transcripts. During the final stage, we charted data into the framework matrix and interpretation was conducted.

The interview texts and extracted codes were provided to the interviewees so they could judge whether the texts and extracted codes correctly reflected their statements, and their feedback was used to modify the data (16). All of the study stages and processes, from start to end, were carefully recorded.

#### 4. Results

All participants were male. The average age of the participants was 46.3 ( $\pm$  3.8) years. The participants had a mean of 22.8 ( $\pm$  3.4) years work experience in a hospital.

Twenty three participants (82%) were GPs, two (7%) had a master's degree, two (7%) had a bachelor's degree, and one of the participants had a PhD. Most of the interviewees had experienced surge situations more than once. The participants had a variety of experiences of working in hospitals during various surge situations caused by a broad range of disasters. Three themes and 12 subthemes emerged from the analysis of data, and these are presented in Box 1.

Box 1. Identified Themes and Subthemes

#### Themes

##### Crisis Managerial Characteristics

Having the skills to lead and manage team works

Having knowledge of plans for HSC

Having full knowledge about HICS

Having the skills for maintaining unity of command

Having the skills for psychological management

Having a high level of managerial experiences in surge situations

##### Personal Characteristics

Autocratic personality

Manager, as well as a leader

Not a stay-in-office manager

Calm and collected

##### Specific Requirements

Being a local manager

Having along work history at the intended hospital

#### 4.1. Theme 1: Crisis Managerial Characteristics

The majority of participants believed that regardless of the type of the disaster, the ability to lead and manage a team is a necessary skill for hospital administrators during HSC.

The interviewees stated that in a hospital surge situation, administrators require knowledge of all components of the hospital disaster plan, especially specific plans and strategies for surge capacity.

A strong opinion among participants was that full knowledge of the HICS is the most important requirement for any manager to be able to effectively manage a hospital at the time of a surge.

Participants believed that double or multiple hospital commands at the time of a disaster is a threat to the full and proper implementation of surge capacity plans. Thus, irrespective of the cause, which may be internal or external, hospital administrators especially senior administrators should be able to maintain a unity of command in surge situations.

Responders argued that stressful working conditions in surge situations are a major challenge for hospital administrators. They stated that the knowledge and skill of a manager in the psychological management of employees can ease this challenge.

#### 4.2. Theme 2: Personal Characteristics

Most of the participants believed that at the time of a surge, subordinates needed to be managed in an autocratic way.

Participants stated that administrators who play a leader's role in managing their subordinates will perform better at the time of a surge.

The interviewees stated that the presence of administrators on the scene alongside subordinates at the time of a surge is not only important in terms of better management, and it can also boost the morale and motivation of employees. Participants believed that a calm and collected manager will be successful at the time of a surge.

#### 4.3. Theme 3: Specific Requirements

Responders repeatedly stated that, given the weaknesses in the transportation and road systems (which worsen during a crisis), and the key role played by administrators in emergencies, only local administrators (whose residence is in close proximity to their workplace) can ensure that they are present promptly in their hospital at the time of a surge in a disaster. Having worked at a particular hospital for a long time was another requirement that most participants believed administrators involved in HSC should possess.

A manager who has worked in a hospital for a long time has a fuller and more in-depth knowledge of hospital resources that helps him to better manage resources during a surge in a disaster. Furthermore, having worked at the same place for a long time, and being known in the hospital and the community, positively affects his or her ability to mobilize external resources and local facilities to provide surge capacity.

## 5. Discussion

This study was aimed at identifying the characteristics of a hospital administrator that affect the management of surge capacity during a disaster. Participants' experiences showed that the ability to effectively manage teamwork. The results of a study by Endacott et al. (17) showed that teamwork is an important area that needs improvement in nursing. Another important characteristic of hospital administrators in surge situations was having knowledge of

the HSC plan. Clearly, administrators act as the main steering component of the hospital (in normal circumstances as well as in disasters), and must therefore be familiar with prior hospital plans and strategies to cope with surge capacity. In other studies that were conducted to identify the skills required by health workers in disasters, it was found that an understanding of the hospital disaster plan was considered a training requirement for employees (5, 18).

In the present study, having full knowledge of the HICS was identified as another characteristic required of administrators in a surge situation. The training program of the agency for healthcare research and quality also emphasizes learning and having knowledge of the HICS by all hospital personnel (19).

According to the participants' belief, an important and common problem at the time of a surge is a lack of unity of command, which can be a serious barrier to the provision of surge capacity. Thus, the manager's ability to prevent multiplicity of command and maintain unity is highly important. Lessons learned from past disasters have shown that weakness and confusion in the hospital command is a major healthcare management problem in disasters and emergencies (20, 21). In a case study by Carresi, pre-hospital and hospital emergency performance in a subway bombing incident in Madrid was analyzed (22). The results revealed a weakness in the management of healthcare due to non-clarity of command and a multiplicity of sources issuing commands. Taking measures to maintain unity of command and prevent the appearance of several decision-making bodies was also one of the lessons learned in the evacuation of hospitals during Hurricane Katrina (23).

It was also identified that it is important for administrators to possess a high level of managerial experiences in surge situations. Other studies have also shown the importance of this characteristic at the time of a surge (24, 25).

Another characteristic identified was having the skills for psychological support and management of personnel. The present study results coincide with those found in a survey study conducted after an earthquake in east Japan, which showed that a large number of relief workers from different organizations who helped earthquake survivors, including firefighters and nurses, experienced symptoms of psychological disorders. Accordingly, it was recommended that all relief workers should be trained to identify and manage psychological problems (26).

Autocratic management style was identified as a desirable attribute of a manager at the time of a surge. In his study, Cuny suggests different management styles for different stages of a disaster, and recommends a directive style as the most effective in the first phase, which would include HSC (27).

Leadership was identified as another useful attribute

for hospital administrators during a surge, a characteristic which has also been emphasized in emergency and disaster healthcare management literature. The literature explicitly states that all administrators should be able to assume a leadership role in providing care for casualties (28, 29).

Being on the scene was also identified as a characteristic required by HSC administrators. Given the unpredictable nature of events in disasters, the presence of a manager on the scene can help ensure a better understanding and assessment of the situation and enable solutions to problems to be found. The results of a study by Bornemann-Shepherd et al. (30) showed that the presence of a manager in an emergency department at the time of a patient surge was highly beneficial.

In the present study, participants stated that calmness and the ability to control emotions was another important personal attribute that hospital administrators should possess during a surge. A study reporting on lessons learned from the events of September 11th clearly state that the hospital operations leader at the time of a disaster should be calm (31).

The proximity of the hospital administrators' residence to their workplace was also identified as important, as it allows the hospital administrators to ensure their timely presence in a disaster situation. A study by Watson et al. (32) showed that one barrier to the rapid arrival of healthcare workers to a hospital at the time of a disaster was the lack of a safe means of reaching their workplace.

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## Footnotes

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