

patient care demands. Conceptually, a surge system consists of three components: (1) “stuff” (supplies and equipment); (2) staff (personnel); and (3) structure (physical space and management infrastructure). Additional research is needed to quantify the “science of surge”.

Discussion: Disaster planning for situations in which the number of patients exceeds the maximum capacity of the existing operational systems at a given point in time often is geared toward the acquisition of more “stuff”, such as like pharmaceuticals or ventilators. While “stuff” is one important component of surge capacity, planners also should assess the availability of appropriately skilled personnel. In industrialized societies, the necessary materials and physical space usually are available readily. However, the management infrastructure (incident management system) required to coordinate these resources and apply them in an effective manner to mitigate a disaster and optimize patient outcomes often is lacking. The goal of surge capacity research is to develop benchmarks that measure preparedness, evaluate current protocols, and create new, improved protocols. Disaster preparedness models intended to increase surge capacity should use an all-hazard approach. Various models should be compared in order to optimize patient care outcomes and financial feasibility.

Conclusion: Surge capacity is a concept and a system intended to increase patient treatment capabilities and improve health outcomes during and after a disaster. Adequate “stuff”, staff, and a structure comprise an effective surge system that coordinates essential elements in order to increase patient care capacity in a disaster.

Keywords: all-hazards; benchmarks; framework; preparedness; supplies; surge capacity

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Surge Capacity Planning in Western Australia

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Perth, Western Australia (WA) has had a coordinated hospital disaster plan since 1999. This plan included coordinating all of the resources of both private and public hospitals. However, the Madrid bombings in 2004 and the London bombings in 2005 prompted that plan to be reviewed, and significant progress has been made toward reaching the required goal of being able to care for 1,000 casualties.

Although much emphasis has been placed on bed capacity, it is unrealistic to expect to have significant number of beds empty at any given time. Not only is this not financially viable, it is anticipated that available beds would soon be filled by well-meaning clinicians wanting to care for their patients. Consequently, WA has developed a number of alternate arrangements as part of their surge capacity plan. These arrangements include: (1) formalizing agreements with private hospitals; (2) working with the community nursing and medical services; (3) developing a

stock of critical care equipment; (4) identifying alternate areas within hospitals for care of critically ill patients; and (5) developing uniform decanting protocols for the hospitals to use.

The revised plan has been developed for mass-casualty incidents, and also has been modified to enable relevant aspects of the plan to be activated in the event of infrastructure failure at a major hospital in Perth requiring hospital evacuation.

Obviously, it is difficult to evaluate this plan in real time. However, a recent 500 patient surge capacity exercise in Perth utilizing the Emergotrain System positively reinforced the revised plan.

Keywords: hospital; planning; preparedness; surge capacity; Western Australia

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Disaster Management and Hospital Preparedness:

“The Krefeld Model”

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Fire, earthquakes, floods, or a mere disruption of electricity may be sources of hospital disasters whose management requires careful preparation and planning.

After an evacuation exercise in 1998, the disaster preparedness plan of Klinikum Krefeld, a 1,100-bed hospital in Germany, was evaluated. The basic requirements for a new, or updated plan included: (1) having successful leadership and communication in the hospital during an incident; (2) having elevator-independent patient transport capability; and (3) having a continuous education program for all staff.

The Krefeld disaster preparedness model contains a coordinating physician from one of the hospital’s anaesthesia stand-by services. The coordinating physician works together with coordinating executive nurses and executive technicians to provide knowledge, and answer questions and provide leadership during critical incidents. This addresses the first basic requirement of the preparedness plan.

During the 1998 evacuation exercise, an elevator-independent patient transport system using a rescue carry sheet with four to five carriers was estimated to take approximately one minute per floor to transport patients from the hospital; the time to evacuate an entire building could take hours. Using an evacuation drag sheet (Järven, Sweden), it is possible to transport many patients personnel-free; the system can be disposed by the incident commanding staff to those locations with minimal staff.

These new concepts of hospital incident leadership, patient transportation, and staff education are intended to improve the management of a critical incident in a hospital.

Keywords: disaster management; evacuation Germany; hospital preparedness; leadership

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