

Disaster Recall: Optimizing Hospital Surge Capacity

Presenting Author: Ali Hassanpour, M.D. Texas Children's Hospital, Baylor College of Medicine, Houston, Texas

Co-Authors: Franklyn Cladis, M.D., Peter Davis, M.D.

Introduction/Study Question: When disaster strikes, and triggers an influx of patients, rapid recall of critical staff is a key limiting factor in the surge capacity of a hospital.¹ At most institutions, staff recall in the event of a disaster involves a fragmented communication system in which everyone is contacted separately via a combination of pages, emails, and phone calls. This process is slow and inefficient, making it less than ideal for disaster management. Our objective is to create an efficient system that, in the event of an emergency, would alert critical staff simultaneously and recall them to their posts.

Methods: A survey of Anesthesiology departments in U.S. children's hospitals was created to determine if the departments have a disaster recall system in place. If so, details regarding the existing systems were sought. Text messaging, or short messaging services (SMS), is a preferred method of communication during and immediately after a disaster.² Multiple tests were performed to determine the most reliable technique to deliver a message to the Public Switched Telephone Network (PSTN) which delivers text messages. In addition, a web application was developed to store and maintain staff contact information, allow designated staff members to activate the alert, record and tally responses, and perform post-disaster analysis.

Results: A disaster alert system was developed and deployed at a large children's hospital. The system could easily and rapidly contact critical members of the anesthesiology department, inform them of a disaster situation, request their return to the hospital, and record a response. Responses of all staff are automatically recorded and tallied without human intervention in real-time. This system is secure, reliable, multiplatform, easy to use and readily accessible. It is frequently tested at the current test site to ensure all staff receive the text-messages and responses are accurately recorded.

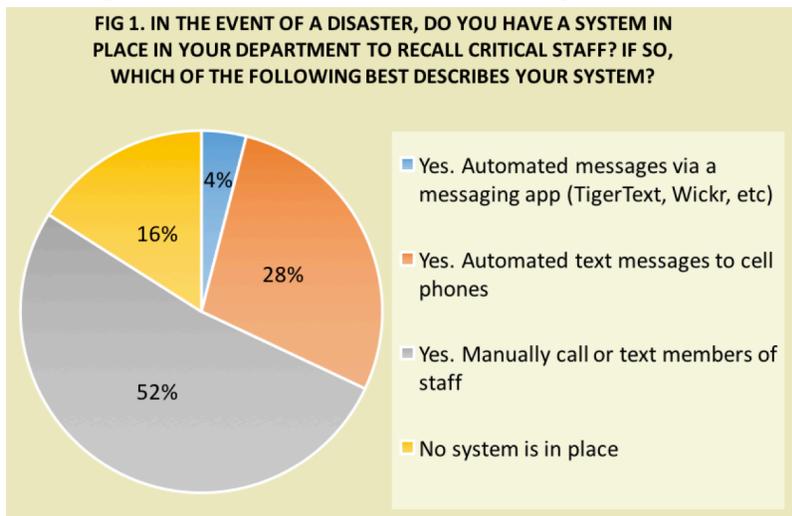
Discussion: Many children's hospitals lack disaster recall systems altogether, or have systems and protocols in place that are inefficient for disaster situations because they are time consuming, prone to interruptions and may lead to inadvertent omissions of critical staff. This is a major limiting factor in the surge capacity of the hospital. Further, when responses are manually recorded, real-time reporting and post-disaster analysis are limited. We investigated many different approaches to sending text-messages, and found that a

dedicated SMS server via a reliable SMS gateway is currently considered the most reliable method. Email based text messaging techniques are no longer considered reliable as they have a high latency and failure rate due to abuse by spammers.

References:

1. Watson, Samantha K, James W Rudge, and Richard Coker. "Health Systems' 'Surge Capacity': State of the Art and Priorities for Future Research." *The Milbank Quarterly* 91.1 (2013): 78–122.
2. Revere, Debra et al. "Exploring Bi-Directional and SMS Messaging for Communications between Public Health Agencies and Their Stakeholders: A Qualitative Study." *BMC Public Health* 15 (2015): 621.

Disaster preparedness survey of 50 Anesthesiology Departments in U.S. Children's Hospitals



Disaster Alert Software

