**INTRODUCTION / STUDY QUESTION**

- Disaster triggers an influx of patients
- Rapid recall of staff is a key limiting factor in hospital surge capacity.¹
- Our hypothesis is that most institutions have fragmented systems for staff recall.
- The process in which individuals are contacted one at a time via pages, emails, and phone calls is slow, inefficient and resource intensive.
- Our objective is to survey Anesthesiology departments of U.S. children’s hospitals and propose / develop an improved disaster recall system.

**METHODS**

- 50 Anesthesiology departments in U.S. children’s hospitals were surveyed to understand their approaches.
- 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.
- A web application was developed to store and maintain staff contact information. It allows designated staff to activate the alert in the event of a disaster and for testing. Responses are automatically recorded and tallied in real time.

**RESULTS**

**FIG 1. IN THE EVENT OF A DISASTER, DO YOU HAVE A SYSTEM IN PLACE IN YOUR DEPARTMENT TO RECALL CRITICAL STAFF? IF SO, WHICH OF THE FOLLOWING BEST DESCRIBES YOUR SYSTEM?**

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes. Automated messages via a messaging app (TigerText, Wickr, etc.)</td>
<td>16%</td>
</tr>
<tr>
<td>Yes. Automated text messages to cell phones</td>
<td>28%</td>
</tr>
<tr>
<td>Yes. Manually call or text members of staff</td>
<td>52%</td>
</tr>
<tr>
<td>No system is in place</td>
<td>28%</td>
</tr>
</tbody>
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**Summary of survey results:**

- Only 32% of respondents (8/25) have an automated recall system (Fig 1).
- Of those, only 13% (1/8) can record a response (Fig 2).
- Majority of respondents believe their system is adequate (60%, 15/25).

Based on these results, we determined that an automated system would be beneficial. We developed a system to automatically and simultaneously contact each member of the anesthesiology department, alert them to the disaster, and request their return to the hospital. Responses are automatically recorded and tallied in real time in a secure, reliable, multiplatform interface. Frequent testing the current test site ensures reliability and accuracy.

**DISCUSSION**

- Detailed contact list is maintained and updated on a monthly basis (Fig 3).
- System is frequently tested.
- Messages are initiated and deployed via a web-based server to PSTN.
- Responses are displayed real time via pattern recognition and displayed in a mobile friendly interface (Fig 4).
- Many surveyed children’s hospitals lack disaster recall systems altogether, or have labor intensive protocols.
- 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 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**