



A Summary of MCEER
Reconnaissance Efforts

MCEER RESPONSE

HURRICANE GUSTAV RECONNAISSANCE: LESSONS LEARNED BY NEW ORLEANS HOSPITALS FROM KATRINA TO GUSTAV

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This reconnaissance trip, undertaken following Hurricane Gustav, was funded by the National Science Foundation and MCEER. It provided the team with a unique opportunity to return to New Orleans to collect and compare information on the operations of the city's acute care hospital system following Hurricane Gustav. Both authors had previously participated in an extensive NSF/MCEER-sponsored reconnaissance effort following Hurricane Katrina (see Arendt and Hess, 2006), and this trip enabled them to determine if the hospital system had become more resilient. A companion MCEER Response report provides an aerial and ground remote sensing survey of infrastructure damage.

On September 1, 2008, Hurricane Gustav made landfall near Cocodrie, Louisiana, about 70 miles southwest of New Orleans, Louisiana. New Orleans was better prepared in 2008 for Hurricane Gustav than it was in 2005 for Hurricane Katrina, though many questioned the strength of its battered levee system. Still, Hurricane Gustav passed over New Orleans leaving minimal structural damage in its wake. The nearly two million people who had evacuated in advance of Hurricane Gustav began returning to the city as of September 4, 2008. Of the 10 acute care hospitals in the New Orleans area, including hospitals in Jefferson and Orleans Parishes, all but two had remained open throughout Gustav. Of the two that temporarily closed, one was evacuated pre-storm to a larger facility, and one was evacuated post-storm, when an emergency generator failed. Overall, the acute care hospital system in the New Orleans area appears to have fared better during Hurricane Gustav than it did during Hurricane Katrina.

PURPOSE

The primary purpose of this field research is to determine whether New Orleans hospitals benefited from the harsh lessons offered by Hurricane



Figure 1. Ochsner Baptist, formerly Memorial Medical Center, in uptown New Orleans.

Katrina and if they took steps in the three intervening years to become more resilient against disasters. The research investigates all acute care hospitals in the New Orleans area about two weeks after Hurricane Gustav made landfall. Perhaps more than most organizations, hospitals must learn from their disaster experiences and implement policy changes to strengthen their resiliency against predicted and unpredicted events (Quarantelli, 1985).

The 15 acute care hospitals that dotted the New Orleans healthcare landscape before Hurricane Katrina were devastated by the storm and subse-

quent flooding that affected about 80 percent of the city. Since then, about half of the hospitals have closed or been subject to ownership changes (see Table 1).

Acute care hospitals in the New Orleans area were prepared to be self-sufficient, in some cases for up to a month.

The research reported here examines whether Hurricane Katrina was a “turning point” for New Orleans acute care hospitals. Unfortunately, the only way to know if a disaster is a turning point is retrospectively, in the wake of a subsequent disaster. We suggest that Hurricane Gustav represents the first true test of whether New Orleans acute care hospitals learned the lessons taught by Katrina (Rodriguez & Aguirre, 2006). The research

also examines the extent to which the hospitals developed and implemented improved emergency preparedness and response policies and procedures in the wake of Katrina.

While the physical damage caused by Hurricane Gustav in the New Orleans area was not as severe as the damage associated with Hurricane Katrina, hospital emergency plans were operationalized, hospital Incident Command Centers (ICCs) were established, and hospitals evacuated patients. These conditions provide a “natural experiment” for pre/post research to investigate hospital emergency preparedness and outcomes.

METHODOLOGY

The research employs quick response methodology to gather information via semi-structured, face-to-face interviews, observation of behaviors and facilities, and document acquisition. This qualitative approach provides a rich, context-aware

Table 1. Current Status of New Orleans Area Acute Care Hospitals

Facility	Ownership	Katrina Damage	Current Status	Post-Gustav Interviews September 2008
Chalmette Medical Center	Investor-owned (Universal Health Svcs)	Extensive	Demolished	Not possible
Meadowcrest Hospital (now Ochsner Westbank)	Investor-owned (Tenet)	None	Purchased by Ochsner	Yes
West Jefferson Medical Center	Not-for-profit	Limited	Open	Yes
East Jefferson General Hospital	Not-for-profit	Limited	Open	Yes
Ochsner Medical Center	Not-for-profit	Limited	Open	Yes
Tulane-Lakeside Hospital	Investor-owned (Hospital Corporation of America)	None	Open	Yes
Children’s Hospital	Not-for-profit	Limited	Open	Yes
Lindy Boggs Medical Center	Investor-owned (Tenet)	Extensive	Sold; slated for demolition	Not possible
MCL/NO Charity Hospital	Public	Extensive	Closed	Not possible
MCL/NO University Hospital	Public	Extensive	Open	Yes
Memorial Medical Center (now Ochsner Baptist)	Investor-owned (Tenet)	Extensive	Purchased by Ochsner	Yes
Methodist Hospital	Investor-owned (Universal Health Svcs)	Moderate	Closed	Not possible
Touro	Not-for-profit	Limited	Open	Yes
Tulane University Hospital	Investor-owned (Hospital Corporation of America)	Moderate	Open	Yes
Veterans Administration Hospital	Federal government	Extensive	Closed	Not possible

understanding of the decision making by hospital executives in the New Orleans area. We traveled to New Orleans from September 14-18, 2008, just two weeks after Gustav made landfall in Louisiana. Conducting interviews within this time frame increased the probability that “perishable” data would be gathered before memories faded and perceptions of effectiveness were altered (Neal & Webb, 2006).

PRELIMINARY FINDINGS

The findings of the current research are reported using the seven themes identified in earlier reports on New Orleans area acute care hospitals after Hurricane Katrina (Arendt & Hess, 2006; Hess & Arendt, 2006). That research relied on field data gathered within six weeks of Hurricane Katrina, in October, 2005. The themes were derived from interview data, observation, and document analysis. They address a variety of issues, including: constructing resilient building systems, planning to be self-sufficient, networking, staffing, communicating emergency plans before a disaster, communicating after a disaster, and leading effectively.

CONSTRUCTING RESILIENT BUILDING SYSTEMS

Lesson from Hurricane Katrina:

Hospitals should have power and water supplies independent of municipal utilities.

Apparent outcome during Hurricane Gustav:

Since Hurricane Katrina, most of the larger hospitals¹ have either dug wells or made arrangements to have supplies of potable water delivered in advance of impending hurricanes. Likewise, all of the larger hospitals have installed additional generators, moved generators to higher ground, moved generator switches to higher locations, or made arrangements to have portable generators delivered



Figure 2. After Katrina, an additional well was drilled at the Ochsner Medical Center main campus in Jefferson Parish.

in advance of potential storms. All of the larger hospitals have taken steps to connect air conditioning systems to their emergency power, recognizing the necessity of air conditioning for staff and patient physical well-being and morale in the heat and humidity of New Orleans. During Hurricane Gustav, no hospital staff or patients were unnecessarily inconvenienced or their safety threatened due to lack of power or water.

PLANNING TO BE SELF-SUFFICIENT

Lesson from Hurricane Katrina:

Hospitals should expect to operate independently—without relying on external assistance—during an emergency.

Apparent outcome during Hurricane Gustav:

Many of the hospitals now keep greater quantities of fuel and needed supplies (e.g., food, medicine) pre-storm. Hospitals also strengthened shelter-in-place plans and strategies to further reduce census counts during an impending hurricane. The larger hospitals installed helipads to facilitate air evacuation. During Hurricane Gustav, none of the hospitals’ staff or patients were unnecessarily inconvenienced or their safety threatened due to lack of supplies or inability to evacuate pre-storm. Still, the hospitals’ ability to evacuate post-storm was not tested by Hurricane Gustav, as the city did not experience the widespread flooding that occurred after Hurricane Katrina. Consequently, it is not possible to conclude with certainty whether

¹As of this report’s writing, the organization of acute care hospitals in New Orleans consists of larger, primary hospitals and smaller, subsidiary hospitals. For example, the larger, primary hospitals are: Children’s Hospital, East Jefferson General Hospital, MCL/NO University Hospital, Ochsner Medical Center, Touro, Tulane University Hospital, and West Jefferson Medical Center. The smaller, subsidiary hospitals are: Ochsner Baptist, Ochsner Westbank, and Tulane-Lakeside. The larger, primary hospitals have significantly more beds and more robust facilities.

the hospitals' contracts with surface and air transportation providers would have been sufficient to ensure timely evacuation.

NETWORKING

Lesson from Hurricane Katrina:

Hospital staff members should build strong and dependable networks with local, regional, state, and national sources of assistance (both governmental and private).

Apparent outcome during Hurricane Gustav:

Since 2005, acute care hospitals in the New Orleans area have forged strong bonds that support collaborative emergency preparedness planning. All of the larger hospitals belong to and are actively involved in the Metropolitan Hospital Council of New Orleans, which is associated with the state-

wide Louisiana Hospital Association. Since Hurricane Katrina, there have also been increased opportunities for collaboration involving state and federal agencies and organizations. Regional and statewide systems for patient tracking and census counts have been developed and implemented. Programs at the federal, state, regional, and local level intended to ensure collaboration and consistency in practice have been adopted. All of the administrators interviewed spoke positively of their collaborative experiences. All of the hospital administrators interviewed had high praise for the Metropolitan Hospital Council, followed by somewhat less sanguine perceptions of state and federal agencies' involvement in pre-storm evacuation procedures and outcomes.



Figure 3. Most hospitals in New Orleans, including MCL/NO University Hospital and Tulane University Hospital in the Central Business District, and Touro Infirmary in the Garden District, stayed open during Hurricane Gustav.

STAFFING

Lesson from Hurricane Katrina:

Hospitals should continue to hire the best staff members and be certain that those staff members are on site when needed.

Apparent outcome during Hurricane Gustav:

All hospitals revised their hurricane plans—paying special attention to staff assignments for the “activation team” and “recovery team”—in the wake of Hurricane Katrina. Staff members at all of the hospitals were encouraged to evacuate their family members rather than have them at the hospital in response to revised hurricane plans to reduce the number of people sheltering in hospitals. Each of the hospitals also reported a greater presence of police officers, National Guard, and other individuals capable of providing security. Overall, the acute care hospitals in the New Orleans area did a commendable job of ensuring adequate staffing and of reassuring staff members that they would be safe during and after a hurricane. Virtually all staff members reported as needed, people complied with family member or pet policies, and staff members were generally satisfied.

Hospital administrators’ experience with Hurricane Katrina helped them to plan for and adapt to Hurricane Gustav.

COMMUNICATING EMERGENCY PLANS BEFORE DISASTER STRIKES

Lesson from Hurricane Katrina:

Hospitals should plan for the worst and be certain that all staff members know their roles and expectations during an emergency.

Apparent outcome during Hurricane Gustav:

Revised emergency preparedness, response, and recovery plans were created and vetted by members of hospitals’ top management teams and standing committees that included staff from throughout the hospital. All of the hospitals engaged their employees in annual discussions of hurricane planning, usually during the month of



Figure 4. Incident Command Center at a New Orleans hospital.

May. The acute care hospitals in the New Orleans area use some version of the Hospital Incident Command System (HICS) (formerly, the Hospital Emergency Incident Command System or HEICS), which establishes a hierarchy of reporting relationships for use in an emergency. In addition, several of the hospitals have created pre-established Incident Command Centers (ICC), permanent locations that physically co-locate key decision makers with needed computers and communication equipment. As a result, staff members were generally satisfied with revised emergency plans, suggesting that they knew what to expect and that what they expected largely occurred.

COMMUNICATING IN THE WAKE OF DISASTER

Lesson from Hurricane Katrina:

Hospitals should anticipate communication breakdowns within their facilities and with the outside world.

Apparent outcome during Hurricane Gustav:

The acute care hospitals in the New Orleans area took steps to maximize their ability to communicate both within their facilities and with the outside world. Hospitals bought satellite phones and computers that required little training or expertise, cell phones with area codes outside the New Orleans area, and 800mh radios. Intranet and Internet information was housed on servers outside the New Orleans area. Employees outside the hospital had access to 1-800 numbers that they could call for updates (e.g., when they should return). Hospitals stayed in close touch with each



Figure 5. Two hospitals in New Orleans, Methodist Hospital in New Orleans East, and MCL/NO “Big Charity” in the Central Business District, have been closed since Hurricane Katrina.

other and with their Designated Regional Coordinator through phones and through the EMS system technology. Consequently, communication within hospital facilities and between the hospitals and external organizations was possible and perceived to be effective. Still, Gustav was not a full test of the hospitals’ communication abilities, as none of the hospitals suffered significant power loss. All continued to have Internet access, for example, making communication between hospitals and between state and federal agencies straightforward.

LEADING EFFECTIVELY

Lesson from Hurricane Katrina:

Having planned for the worst, hospital executives should be poised to lead.

Apparent outcome during Hurricane Gustav:

Hospital administrators’ experience with Hurricane Katrina helped them to plan for and react to Hurricane Gustav. Many hospital administrators appeared to be mindful of what a hurricane might bring in terms of physical damage to facilities and in terms of emotional damage to patients and staff. Taking action before, during, and after Hurricane Gustav helped administrators to make hospitals’ physical facilities and human assets more resilient. The generally positive outcomes—staff members who were present and satisfied, patients who survived, physical facilities that withstood hurricane winds, generators that provided power continu-

ously—suggest that the leaders of New Orleans acute care hospitals learned Katrina’s lessons.

CONCLUSIONS

While the physical damage caused by Hurricane Gustav in the New Orleans area was not as severe as the damage associated with Hurricane Katrina, hospital emergency plans were operationalized, hospital Incident Command Centers were established, hospitals evacuated fragile patients pre-storm, and hospitals were dealt severe financial blows as revenues dropped (e.g., no elective surgeries, reduced patient census) and costs increased (e.g., overtime labor, additional perishable supplies). New Orleans residents reacted to the threat that Hurricane Gustav posed by evacuating from the city in larger numbers than they evacuated during Hurricane Katrina. While 60,000 people were stranded in New Orleans after Katrina (U.S. Governmental Accountability Office, 2006), more than 90 percent of the New Orleans population was said to have left during Hurricane Gustav in response to a mandatory evacuation order (Lawrence & Callebs, 2008).

As was the case during Hurricane Katrina, several acute care hospitals were once again the focus of media attention. This time, however, the attention was not directed at the number of patients, staff, and family members stranded by widespread flooding. Instead, the attention was directed at the apparently positive outcomes of

decisions made by hospital officials since Katrina. One especially significant decision made by the hospitals was to evacuate a large share of inpatients and minimize the number of patients, staff, and family members who sheltered in place (Sloane & Roesgen, 2008).

Although preliminary information suggests that the acute care hospitals in the New Orleans area performed well before, during, and after Hurricane Gustav, the event was not a full test of emergency plan revisions prompted by Hurricane Katrina. To the extent that Hurricane Gustav represents a partial test of lessons learned from Hurricane Katrina, the evidence suggests that hospitals performed well, thanks to extensive emergency preparedness and response activities undertaken and executed in the three years since Hurricane Katrina. Acute care hospitals in the New Orleans area were prepared to be self-sufficient, in some cases for up to a month. At the same time, these same hospitals had developed and nurtured a regional perspective on emergency preparedness, response, and recovery in the three years since Hurricane Katrina.

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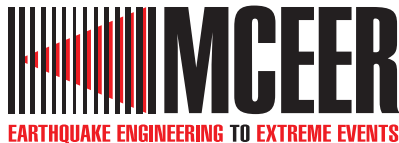
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