

## Commentary

# Hurricane Katrina – one hospital's experience

Robert G Aucoin

Pharmacy Clinical Specialist, Pediatrics/PICU, Department of Pharmacy, Our Lady of the Lake Regional Medical Center, Baton Rouge, Louisiana, USA

Corresponding author: Robert G Aucoin, [raucoin@ololrm.com](mailto:raucoin@ololrm.com)

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### Abstract

Hurricane Katrina came ashore in Louisiana at approximately 07:00 hours on Monday, 29 August 2005. The storm washed away a swathe of the Louisiana coastline, destroyed large portions of the city of New Orleans, and forever changed the state of Louisiana. Our Lady of the Lake Regional Medical Center in Baton Rouge, Louisiana was one of the receiving hospitals for evacuees from the New Orleans area. This commentary briefly describes the hospital's preparation before the storm and the activities during and immediately after the storm came ashore. Author commentary of the process is included to cover anticipation of the patient surge, transport of critical patients, and communication across all agencies – interhospital, local, state, and federal. It is beyond the scope of this report to judge the performance of agencies outside Our Lady of the Lake Hospital.

### Introduction

Hurricane Katrina came ashore in Louisiana during the early morning hours of 29 August 2005. The coastline of Louisiana, the city of New Orleans, and the heart of the state changed that same day. This is a brief account of one hospital's role before, during, and after the storm.

Our Lady of the Lake Regional Medical Center (OLOL) is the dominant health care institution in the Greater Baton Rouge area. It is also the largest private medical center in Louisiana, with 763 licensed beds. In a given year, OLOL treats approximately 25,000 patients in the hospital and serves about 350,000 persons through outpatient locations with the assistance of almost 900 physicians and 3000 staff members. The pediatric emergency department sees approximately 25,000 children every year. The adult side treats more than 75,000.

OLOL has a disaster plan in place as part of the general care program. This disaster plan is geared toward natural and man-made disasters that occur in the immediate area. Disaster drills are carried out on a regular basis. There is a

disaster call tree in place throughout the organization, including a command and control structure to deal with immediate needs. These plans have been in place for years and are updated on a regular basis.

### Critical apprehensions – anticipation of a surge in patients

On Sunday, 28 August, the first Administrative Report (Katrina Update I) was issued by Mr Kirk Wilson, President and Chief Operating Officer of OLOL, at 12:00 hours. The following is an excerpt.

“Katrina is a category V storm. Hurricane force winds may well extend to Baton Rouge area by as early as 7 a.m. Monday. New Orleans and many of the parishes south and east of Baton Rouge are evacuating. We expect to receive hospital to hospital transfers out of the New Orleans area for patients who cannot be sent further north. We may also receive unofficial direct patient transfers in the ER [emergency room]. Some hospitals in New Orleans may attempt to stay open. Those that do send patients may send staff with them if possible. This is all being coordinated at a regional level by the Office of Emergency Preparedness [OEP]. Accordingly we will need as many staff here this evening and tomorrow as possible to assist with the influx. Special needs shelters are set up for vent or oxygen dependent home care and nursing home patients and are being coordinated through OEP ...”

The disaster call tree was activated. Preparations were made to house those staff members who were able to report to work but who would be prevented from returning home because of storm conditions. Provisions were also made for child care. This was for the children of staff who could not place their children with alternate care.

ECU = emergency care unit; ER = emergency room; FEMA = Federal Emergency Management Agency; OEP = Office of Emergency Preparedness; OLOL = Our Lady of the Lake Regional Medical Center; OR = operating room; PICU = pediatric intensive care unit.

There was more information specific to internal operations and plans for the immediate future. The plan for caring for a surge in patient population was in place. The 'immediate future' was envisioned to be 48 hours.

### **Critical supplies, personnel and preparation for the patient surge**

Our hospital's preparation began months before the storm blew ashore on 29 August 2005. A comprehensive disaster plan was in place with regular updates. The immediate storm preparation began several days before the storm. On Friday, 26 August, plans were put in place for the weekend and beyond. At this point Katrina was coming in the general direction but the storm could easily change course and strike the coastline many miles to the east or west of New Orleans. A hospital Command Center was established in our main administrative area.

For the night of Sunday, 28 August, the hospital was fully staffed even though our patient census was less than normal. Medical management and medical staff did a wonderful job of discharging those patients who could safely be discharged so that the census on Monday morning was less than 500. This gave the hospital great flexibility to accept and manage the maximum number of patients/evacuees. All systems within the hospital were ready.

On the preceding Friday and Saturday (26 and 27 August), the pharmacy placed a large order from our principal supplier. The Saturday order was to be delivered on Monday in the early morning hours before the storm made deliveries impossible.

On Sunday, the hospital's operating room (OR) suites as well as the OR Pharmacy Satellite were opened for those surgeries that were scheduled for Monday morning and could be completed early without jeopardizing patient care or safety. All elective procedures in the OR, catheterization laboratory, imaging/magnetic resonance imaging/special procedures, sleep laboratory, and electroencephalography were canceled for Monday.

At 04:00 hours on Monday morning, Katrina Update II was posted. This was a recap of the first Update given to managers the day before. Again, specific internal operational directives were given to all units within the hospital as well as our ambulatory clinics.

Hurricane Katrina made landfall in the early morning hours of Monday, 29 August. By 12:00 hours on Monday, 29 August, Katrina was a category IV storm with maximum sustained winds of 125 miles/hour. The eye of the storm was north of Slidell, Louisiana. Winds in the Baton Rouge area were expected to drop to below 30 miles/hour by mid-afternoon or early evening.

By noon, hospitals in New Orleans were on emergency power and many had sustained significant damage.

Transport from New Orleans to Baton Rouge was hampered by the high winds and rain. All transfers and hospital bed allocation was now being coordinated through the OEP by a member of OLOL administration. The principal role of our hospital at this time was to support those parishes with mandatory evacuation and hospitals yet to evacuate. At this point, everyone in the hospital, from senior administrators to service personnel, expected a large influx of patients to arrive at any time.

At this juncture it would be beneficial to describe my assessment of our Command Center and the interaction with OEP. From conversations with physicians and our government liaison, it is clear that there was a lack of throughput of information between our hospital and individuals within OEP and FEMA. Our hospital had personnel positioned with local government and we were calling in our bed status every 2 hours. However, because of lack of communication with New Orleans and its hospitals, our government officials, and local authorities, there was no coordination between supply of beds and need in the affected areas. Evidence of this is the number of open beds available versus the number of patients flown to hospitals further north and out of state. The constant refrain from all OEP and other government officials was that they did not know 'how many people were in the water'. There was reluctance at several levels to send patients to our hospital because they all thought that at some point a surge of 300+ patients would present to Baton Rouge for treatment. Beds would be at a premium.

The emergency care unit (ECU) continued to see a large number of patients. The vast majority of these patients were from Baton Rouge. Our patient census continued to be approximately 500. The administration and staff waited for the influx of patients throughout the night.

### **Critical transportation of patients into the hospital**

On Tuesday afternoon we had still not seen the tidal wave of patients that had been expected for more than 24 hours. OEP estimated at this time that in excess of 300 inpatients from six different hospitals would need to be evacuated from New Orleans. This was after the levee broke in New Orleans and the massive flooding had begun.

"Our Lady of the Lake – Hurricane Katrina Update

*12 noon Wednesday, August 31, 2005*

#### **The situation**

The situation at OLOL continues to intensify as we handle the large volume of patients presenting in our ER as well as the community patients we already serve. We have been notified by OEP that we will begin receiving numerous evacuees from the New Orleans hospitals around 3:00 this afternoon.

### **The next 24 hours**

We have set up an Assessment/Admissions Center for these hospital to hospital transfers in our Chronic Care Center to help keep our ER from being overloaded. Patients will be quickly assessed and triaged and moved immediately up to available space on our nursing units. We report available beds to the state every two hours so they can send us the number of patients we can handle. We have enacted all teams to prepare for this surge of patients over the next 24 hours and possibly beyond."

The transport of patients out of New Orleans was coordinated by OEP and FEMA. The hospital also made arrangements to accept patients both through our ECU and an auxiliary triage center adjacent to the ECU.

### **When the surge occurred**

On Wednesday afternoon (31 August) the pediatric intensive care unit (PICU) received a call from Children's Hospital in New Orleans. Children's Hospital was transferring patients, physicians, and other support clinicians to OLOL immediately. The first patients arrived in our ECU in the early afternoon. They were triaged to one of three units: PICU, the Oncology Department, or the General Pediatrics floor. A total of 18 patients arrived from Children's Hospital. Along with the patients were two cardiovascular surgeons, a nurse coordinator, and two perfusionists. There were also simultaneous transfers from Ochsner Hospital in New Orleans. Three of the PICU admissions were postoperative hearts. One was preoperative and in urgent need of surgery; this patient was subsequently transferred to another hospital.

The transfers took a total of 8 hours. It is unclear how many trips the ambulances made to and from New Orleans to complete the transfer. By the early morning hours on Thursday, 1 September, the transfers were complete. The patients had been triaged to their respective units. At this point all of our pediatric beds were full.

All needed clinical staff were on hand and available during these transfers. Additional staff and physicians were called in to help care for the patients the following day. The acuity of the transferred patients was much higher than normal for our PICU. Although we have a level 1 PICU, we do not perform open heart surgery in our hospital. Also, on the Pediatric Hematology/Oncology Unit the acuity increased because of the influx of complicated oncology patients from both Children's and Ochsner Hospitals. All of the resources of OLOL Children's hospital were put into play to care for these patients.

It should be noted that during the 6 days from 28 August to 2 September the pediatric ER saw more than 484 patients and admitted 63 of these. These numbers do not include the hospital to hospital transfers.

By noon on Thursday, 1 September, the pace of admissions and transfers was stabilizing at near record levels. The hospital census stood at 500. Pediatrics was full but moving patients through the system.

The final Katrina report for the week was sent at 14:00 hours on Friday, 2 September. In this report Mr Wilson gave a breakdown of the ongoing activities of the medical center and the plans for the upcoming Labor Day weekend. The hospital command center was still in operation and would remain so for the next several days. They continued to assist in the flow of patients through our facility and correspond with OEP.

### **Prologue - aftermath**

It is all about communication. There is no substitute for solid lines of communication and command within an institution and between institutions during times of crisis. During Hurricane Katrina our primary lines of communication were severed or overwhelmed. The redundancies built into our communications between hospitals and with local officials crumbled.

In hindsight there were many things that could have been done to prevent the communications breakdown at the local, state, and federal levels. It is beyond the scope of this commentary to delve into those possibilities and corrections. OLOL had internal and external communication abilities throughout the storm and beyond. The larger problem was communication with facilities and individuals who had been cut off due to flooding and storm damage. That problem will take longer to solve.

Although our hospital is 80 miles from New Orleans, we were greatly affected by the storm and more by its aftermath. High winds that lasted longer than 8 hours and rain caused massive power outages in the city. Along with the power went the cell phone towers and pager towers. Cell phones were useless, beepers became useless, and computers with Internet connectivity supplied by cable companies were useless. The best, and in most cases, only communication was via the much maligned 'land line' phones.

At no point during the week of 28 August was our hospital overwhelmed with patients or in short supply of any critical item. Although we experienced a spike in activity with the arrival of patients from Children's Hospital and Ochsner Hospital, we were still able to accommodate the influx and care for the children.

The Emergency Child Care Center for staff was opened on Sunday, 28 August, and remained in operation 24 hours a day until 19:00 hours on Friday, 2 September. This service was a great comfort to staff with small children. The Child Life Specialist and volunteers took care of hundreds of children during this time.

## **Conclusion**

We were always ready and willing to help anyone who came to our door. Following the disaster, our ECU was extremely busy with all manner of emergencies. The number of admissions from the ECU was lower than expected because of the decreased severity of the cases seen and our ability to move patients through our system.

The mission of the Hospital stood the test. The care we gave to the patients rose to the level that has become an expectation in the community.

## **Competing interests**

The author(s) declare that they have no competing interests.

## **Acknowledgment**

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