

Central Arkansas Response to Medical Evacuations Related to Hurricane Gustav

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Abstract

As the result of being activated under the auspices of the National Disaster Medical System (NDMS) following Hurricane Katrina, the Little Rock medical community received, processed and cared for numerous evacuees from the New Orleans area. Their efforts prompted the key players to form an entity called the Metropolitan Hospital Emergency Management Group (MHEMG) with the stated goal of more efficient and effective care of evacuated patients should a similar situation arise in the future. With the determination of numerous lessons learned, the MHEMG used their past experience to once again step into the breach following Hurricane Gustav. The result was a massive improvement in their NDMS role as a valued resource of national significance.

Providing adequate medical care to patients during disruptive and difficult circumstances can often be a major challenge. Hospital systems can be overwhelmed with victims in various stages of need and often find their ability to meet the immediate needs of victims hampered almost to the point of degrading to minimal levels. Care for the most critical of the unfortunate victims of disasters is often found wanting in light of what most consider the golden rule of disaster assistance. In a recent document on hospital surge issued by the Joint Commission on Accreditation of Healthcare Organizations this standard was expressed in poignant terms; “Positioning a hospital emergency room near the site of every potential disaster is impossible, yet a patient with

serious injury needs to be transported to surgery within the “golden hour” after the injury occurs for the best chances of survival” (Brick & Carlton, 2006, p. 2). This golden rule represents a best case standard of care that all health care professionals seek to provide but often find they are frustratingly unable to apply. A recent situation involving evacuees from the Gulf Coast illustrates the point.

During Hurricane Gustav the National Disaster Medical System (NDMS) was activated to facilitate the evacuation of patients from New Orleans, Louisiana to Little Rock, Arkansas where local emergency medical service providers and hospitals created a reception center to triage, treat and then transport these patients to the most appropriate facility. While the ability to coordinate and track disaster victims during an evacuation is clearly an overwhelming task at the scene as well as the reception site, there were several lessons learned during this disaster that could help enhance future evacuations from hurricane prone areas as well as from other areas. NDMS, focusing on patient movement as opposed to being comprised of response teams, was originally designed to handle catastrophic events and overwhelming military casualties. Patient tracking following a major hurricane was well within the scope of the system.

As Hurricane Gustav headed for landfall along the Louisiana coastline in late August of 2008, hospital officials in New Orleans began making preparations for what is now being called the largest pre-storm medical evacuation in American history (Fink, 2008). This began the process of bringing the NDMS online to begin supplementing local capabilities in their efforts to deal with at risk patients in areas affected by natural disasters. Under the NDMS, the Department of Health and Human Services (HHS) is tasked under the National Response Framework ESF #8 with assisting in moving patients

to unaffected areas and facilitating definitive medical care in those host areas (National Disaster Medical System, n.d.).

Little Rock Implements Lessons Learned

For the second time in history, Little Rock, Arkansas became a host area for medical treatment of evacuated patients. After studying the response efforts of the local medical community as the result of Hurricane Katrina, in which the city became the first host area in the nation to be activated under the NDMS, the implementation of lessons learned brought a much quicker and more efficient response when the community was again called upon to assist in a national effort.

Efforts in the central Arkansas medical community during Hurricane Katrina prompted members of that community to organize themselves into a preparedness and response entity known as the Metropolitan Hospital Emergency Management Council. An after action review following Katrina resulted in the formation of a Hospital Liaison Officer position within the Incident Command System (ICS) organization under which they would operate. The task of the Hospital Liaison Officer was to assist the Incident Commander (IC) in the coordination and placement of disaster patients at local hospitals as well as to ensure a quick turnaround of EMS units due to limited resources. Under this position, a team of hospital representatives was deployed in advance as a hospital liaison team to the patient reception site at the Little Rock National Airport, the site selected by the NDMS Federal Coordination Center (FCC) as the reception site, and established a live communication network between all hospital reception sites and hospital command centers.

The development of the Hospital Liaison Officer position was the result of discussions within the area medical community and culminated with the development of the following set of objectives focusing on the immediate needs of the area medical facilities:

- Serve as eyes and ears of hospitals on site and, relay information between Incident Commander and a hospital command center(s).
- Update regional bed counts throughout an event (i.e. after every flight).
- Coordinate directly with the Transportation Officer to evenly distribute patient volume and resolve specialty care issues.
- Maintain the METRO Hospital Communications Net during an event.
- Advise hospital receiving sites of patients who were en-route.

Healthcare facilities in the Central Arkansas region worked intensely to develop a community response capability to disasters following Hurricane Katrina. The addition of the hospital liaison position to the local ICS structure was the direct result of feedback garnered following their first deployment under the NDMS.

Patient Arrival Begins

The Little Rock response began with the Little Rock Federal Coordination Center of the National Disaster Medical System receiving an official Alert Notice from the Department of Health and Human Services of the possibility that they would need to begin preparations for the reception of evacuees from the Gulf Coast. The official Activation Notice came on Friday August 29, 2008 stating that they could possibly have inbound patients as early as noon on the 30th. In conjunction with the activation notice, it was learned that the State of Louisiana had declared an emergency and implemented their

Medical Institution Evacuation Plan. Notice went out to local partners in the Little Rock area and patient reception equipment began to be transported to the Central Flying Service Hangar at the Little Rock National Airport to begin the set up of the reception site.

As part of the initial alert, hospitals throughout the state were asked to begin updating bed availability using the statewide electronic bed status system known as EMResource. With the activation of the reception site these reports began to be made available to the Air Force Transportation Command headquartered at Scott Air Force Base, Kansas. By noon on Saturday August 30th the Little Rock NDMS reception site was fully activated with personnel from local hospitals and emergency agencies.

Metropolitan Emergency Medical Services (MEMS), the local EMS provider, posted personnel and assets at the hangar to await inbound patients. Mutual aid EMS organizations throughout the state responded to assist MEMS. Area hospitals activated additional personnel and awaited patient arrival.

The Air Force Transportation Command (USTRANSCOM) was then contacted to determine when the Little Rock NDMS Reception site could expect receipt of patient manifests and patients. Very little information was immediately available from USTRANSCOM and calls were then made to the Veteran Administrations Emergency Management Strategic Healthcare Group (EMSHG), an NDMS partner, for additional information on patient movement. There was no information available from EMSHG as well. Calls were then made directly to the Designated Regional Coordinators (DRCs) at the marshalling points in Louisiana. The DRCs information indicated that no patients had been moved and no aircraft were in place yet. The Little Rock NDMS reception

personnel and hospitals were then informed that it would be several hours before patients would arrive (Oxner, 2008).

The first flight arrived at 10:57 p.m. Saturday evening, some 11 hours after initial reports of expected arrival. The next aircraft arrival came early Sunday morning August 31st with additional flights through the day as shown in Table 1.

Table 1

Little Rock Federal Coordinating Center Inbound Patient Data for Hurricane Gustav

Aircraft Type	Arrive Date	Arrive Time	Litter	Ambulatory	Load Total
C – 130	8/30/08	10:57 p.m.	17	3	20
C – 130	8/31/08	4:25 a.m.	13	3	16
C – 17	8/31/08	7:48 a.m.	7	0	7
C – 130	8/31/08	10:15 a.m.	24	3	27
C – 17	8/31/08	1:00 p.m.	22	0	22
C – 130	8/31/08	2:00 p.m.	11	0	11
C – 130	8/31/08	2:30 p.m.	24	0	24
C – 130	8/31/08	4:40 p.m.	11	3	14
C – 130	8/31/08	7:50 p.m.	12	1	13
C – 17	8/31/08	7:55 p.m.	28	0	28
C – 17	8/31/08	8:10 p.m.	7	8	15
C – 130	8/31/08	9:20 p.m.	13	5	18
C – 130	8/31/08	9:21 p.m.	8	2	10
Patient Totals			197	28	225

Adapted from the minutes of the National Disaster Medical System Hurricane’s Gustav and Ike After Action Review Meeting conducted on September 18, 2008 as compiled by Rex Oxner.

A vexing issue arose with the arrival of the first flight which plagued NDMS participants throughout the active mission window. Flight manifests were many times incomplete and incorrect. The first flight manifest arrived at the reception site at 12:29 a.m., approximately 2 ½ hours after the initial flight arrived. The manifest indicated 33 patient names but only 20 patients were actually on the flight. The final total manifested

number of patients was to end up at 150 with a number of duplications on the manifests and numerous names omitted. The lack of accurate manifests made efforts to track patients extremely difficult as the manifest patient number is currently used to track the patient through the system. Flight crews from the NDMS flights were often faced with developing and providing hand written manifests whenever possible (Oxner, 2008).

Flights continued to arrive throughout the day Sunday. Each flight was met by triage teams with patients being off-loaded and moved to the triage area for assessment with subsequent handoff to transportation for routing to most appropriate facility. Operations ran routinely throughout the day up to the final flight arrival at 9:21 p.m. All patients were cleared from triage stations with transportation completed at 10:10 p.m. Sunday evening.

The Hospital Liaison team integrated with the Airport Patient Reception Group to provide a number of services. Liaison Officers provided continuously updated bed availability information to the Transport Officer and had the ability to speak directly with individual hospitals to determine specialty availability without delaying transport. Feedback from hospitals allowed the Liaison Team and Transport Officer to modify patient distribution patterns of each group of arriving patients to accommodate hospitals with temporary volume issues. The Liaison Team provided each facility with advanced notice of aircraft arrival and the type and category of patient being transported to individual facilities. Hospital Liaisons provided direct communication between the Little Rock reception site and area hospitals through the METRO Hospital Net. After action reviews included analysis of patient distribution as shown in Table 2 (Oxner, 2008).

Patient reception and distribution at the Little Rock NDMS reception site went exceptionally well according to staff members. It was described as close to a textbook patient reception effort with direction and information from the Little Rock

Table 2

Central Arkansas Medical Facility Patient Distribution Data: Hurricane Gustav

Medical Facility	Number of Patients
Arkansas Children’s Hospital	2
Baptist Medical Center	42
Baptist Medical Center: North	25
Conway Regional Medical Center	9
Arkansas Heart Hospital	9
Jefferson County Regional Medical Center	6
North Metro	7
Saline County Medical Center	11
St. Vincent Medical Center	46
St. Vincent Medical Center: North	16
University of Arkansas Medical Center	24
Central Arkansas Veteran’s Hospital	28
Total	225

Adapted from National Disaster Medical System Hurricane’s Gustav and Ike After Action Review Meeting on September 18, 2008 as compiled by Rex Oxner.

Federal Coordination Center (FCC) coordinator who described it as excellent. The combination of adequate staff and sufficient ambulances allowed for quick assessment and disposition to receiving hospitals. Metro Emergency Medical Service and a the Hospital Liaison Team provided by the METRO Hospital Emergency Management Council co-operated closely to ensure even patient distribution and adequate notice to each facility about the type of patient being routed to their location. Follow up post-incident inquiries demonstrated that the percentage of patient distribution per facility closely mirrored initial bed availability. In other words, if a hospital reported having 20%

of the available beds in the system, they received close to 20% of actual patients distributed. Post incident follow up demonstrated that in all cases hospitals received fewer patients than they indicated they could take based on the initial EMS system report. No facility received more patients than they indicated they could handle.

MEMS and the METRO liaison team members also worked to see that patients were distributed according to specialty availability. The current NDMS structure only identifies broad patient/bed categories. A number of patients presented with dialysis or infection control issues and were routed to appropriate hospitals. Compared with the Hurricane Katrina response, this greatly reduced the need for subsequent transfers between hospitals, although a few did occur.

Post Incident Analysis

After final patient arrivals at area hospitals, NDMS support began to devolve. Repatriation was a significant concern highlighted after Katrina and was again evident following the Gustav response. The need continues to exist to extend the flow of patients through the continuum of care including Step-Down, Long Term Assisted Care, Skilled Nursing, and Alternative Care. As the relative minor damage to Louisiana hospitals became evident, facilities involved in both evacuating and receiving patients felt the need to quickly begin repatriation of patients. Some Louisiana hospitals began to contact Little Rock facilities in attempts to find patients and request their return.

Under the current NDMS structure, the lack of a policy, procedure, or vendor contract in place caused subsequent delays prompting hospitals to fill the void by seeking alternate methods to repatriate patients. Hospital case managers simply used normal discharge procedures which seemed to work well for the majority of patients.

As this situation evolved, hospitals expressed concern over the slow pace of patient movement out of their facilities and considered using a contactor such as CareFlite. This proved to be problematic due to the required documentation that must be prepared for each patient to be eligible for CareFlite travel. The primary stumbling block was the requirement for a Federal Emergency Management Agency (FEMA) number to be assigned to each patient or the lack of any pre-assignment of a FEMA number at the sending hospital. In an attempt to resolve the issue, the Arkansas Department of Emergency Management and the Arkansas Department of Health, in a joint effort with the Arkansas National Guard, arranged a repatriation flight which did result in a large number of patients being returned to New Orleans (Oxner, 2008).

Conclusions and Recommendations

Current NDMS plans do not include specific interaction with the receiving state health department thus leaving a void which could be filled by capable players able to function as a key component in the hospital emergency management arena under the NDMS structure. The updating of plans to include additional resources not originally contemplated in the initial process would seem a prudent measure. State health departments across the country have developed plans and procedures for public health and safety related concerns which should be considered in a medical evacuation scenario. Updates on the state level with regard to this type of scenario would place incoming patients in a much more organized and supportive environment.

The difficulty in tracking patients in transit by providing documentation, at least on a rudimentary level, should be immediately addressed. The development of a transit document in a short form which would include basic personal information, a description

of medical condition and a list of medications would prove helpful. A document developed at the release site and given to the patient to serve as an individual manifest could be provided by using existing facility databases and a simple, standardized, electronically derived evacuation transit form. These could stay with the patient through the evacuation process into the NDMS reception site and on to the eventual placement site.

Finally, the addition of a Hospital Liaison Officer into the ICS structure for medical evacuation scenarios proved invaluable in the Little Rock response. Other cities will no doubt be tasked under the NDMS in the future and be faced with similar coordination issues. The inclusion of representatives from qualified participating entities in the planning process to include not only the operational phase but the patient reception phase at the receiving facility will no doubt prove to be helpful. This would be a major step forward in providing the means for accomplishing the original goal of the NDMS of providing effective medical care in a stressful emergency situation and “provide a faster, better coordinated, and more capable national medical response” (Center for Enterprise Modernization, 2007, p. 7).

Despite multiple deployments, it is clear that the patient movement side of NDMS remains an incomplete program. Although several major changes have occurred within the system, issues with program activation, patient collection, and patient movement to the airhead remain. These resulted in delays in patient movement and caused the reception site to incur additional expense holding staff and equipment ready long before the first patient arrived. NDMS should anticipate the need to reimburse providers for

these costs. Prolonged “standby” status tires responders and degrades performance.
Given the nature of an evacuation, these delays may be unavoidable.

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