

# CASE STUDY NORTH CAROLINA MOBILE HOSPITAL

## Capability Overview

- Eight mobile hospitals with immediate deployment capabilities, including medical staff
- Unique collaborative partnership between government and private sector that has been tested and verified through training, exercise, and real world deployments
- Successful deployments for Hurricane Katrina and May 2014 Mississippi tornadoes

## Description

Having extensive experience in response and recovery efforts to major hurricanes along the North Carolina coast with Hurricanes Hugo (1993), Dennis and Floyd (1999), and Irene in 2011, North Carolina is no stranger to seeking assistance and outside resources from other states. Since 1996, EMAC has provided states with the mechanism to share resources during disasters. Following the massive nationwide response for the events on September 11th, 2001, their own experience with major hurricanes and appreciating the mutual aid received from other states through EMAC enabled the North Carolina Office of Emergency Management to begin building capabilities to facilitate better response and recovery efforts for their own citizens as well as have the ability to help other states in need during disasters. Utilizing federal grant money, the state purchased eight completely outfitted mobile hospital units. The units were developed with standardization in mind so each piece was independent, yet fit together as a bigger unit. The mobile units enable North Carolina to provide a medical contingency care capability asset that can be deployed anywhere in the nation to augment or temporarily replace a fixed/field medical facility that has been damaged or destroyed.

Following the purchase of the mobile units, the state entered into agreements with eight of the North Carolina trauma hospitals to provide medical staffing for each unit in the event of a deployment. These agreements enable the state to use their own government assets in collaboration with private sector medical personnel to deploy in one package to any requesting state, and legally cover the hospital staff as state assets during a deployment. The units each have a 50-bed capacity (400-bed capacity if linked together) and require a small team of logistical support to maintain/operate each unit, along with the designated medical staff needed while deployed. The units are transported on tractor trailers to the selected site and set up with a goal of being fully operational within 48 - 72 hours of arrival. The intent is to have the teams provided by North Carolina initially operate the mobile unit, while at the same time train local hospital staff to eventually take over and run the mobile unit with their own medical personnel. North Carolina regularly trains and exercises their hospital staff to ensure each team is prepared and familiar with the mobile units.

FEMA took immediate notice of the capability North Carolina was building. Seeing the value in the private/public partnership and incorporating it into a deployable resource, FEMA purchased an additional mobile unit (MDH) and assigned the asset to North Carolina Office of Emergency Medical Services (NCOEMS). The MDH is unique in that it relies on federal agencies, state agencies and private organizations working together in response to critical medical needs during a disaster. The MDH can deploy with or without medical staff leveraging the existing MOU's North Carolina Office of Emergency Management has in place with their hospitals and their mobile units. Both FEMA's MDH and one of North Carolina's Mobile Hospital Units have been deployed to real world events.

North Carolina first deployed the capability in August 2005 during the aftermath of Hurricane Katrina to Waveland, Mississippi. The mobile hospital was a brand new asset for North Carolina at that time and had never been used for a disaster situation before Katrina. Originally slated to deploy to New Orleans, members from the North Carolina state medical assessment team and Carolina health care centers detoured their deployment caravan to Waveland. Using impromptu resources including security and fencing, the deployment team was able





to set up a twenty-four hour on-site medical treatment and triage facility. Logistical challenges included facilities, communication, electricity, biomed waste, and water purification; however, the team came up with solutions and provided staff housing, tents, portable electricity, and waste separation procedures. The overall eight week deployment and set up of the Waveland temporary medical facility included 500 total personnel from North Carolina who cared for 7,500 patients from minor urgent care to life threatening illnesses.

This EMAC deployment tested all aspects of this asset in ways that it could never have been accomplished via exercise or training. The initial deployment of the unit for Katrina provided North Carolina with the opportunity to make changes in advance of future deployments, with the most noteworthy being the attachment of Logistics and Finance units to the hospital for procurement and record-keeping requirements. During this deployment, lessons were learned and best practices were identified which have now been incorporated as a national standard for EMAC interstate deployment initiatives.

Following Katrina, consideration was also given to planning and coordinating with the other states in FEMA Region IV to purchase and build compatible units, allowing a regional team to deploy seamlessly to a large-scale disaster. This concept was identified as a best practice at Katrina After Action Conferences<sup>4</sup>.

Most recently, the FEMA MDH deployed to Winston County in Mississippi after an EF-4 tornado destroyed and damaged dozens of businesses and homes, including the Louisville, MS hospital. The hospital includes a 21-bed emergency department featuring an X-ray unit, a pharmacy, a clinical lab, a medical supply unit and a logistical support unit. Staffed by Louisville, MS physicians, nurses and support personnel, a 12-bed intensive care unit functions with three operating rooms (one with a C-arm and operating microscope), a six-bed post-op recovery room and a rapid response unit. Mississippi currently has three mobile hospitals previously used after Hurricane

Katrina; however, these hospitals are tents which are impractical for long term use. The North Carolina mobile unit has a hardened outer shell more suited for long-term deployments.

As a result of North Carolina's commitment to building their own capacity and capability to be prepared for immediate augmentation of medical facilities in the event of a disaster, a best practice has been identified. The collaboration between the public and private sector, the flexibility in the scale of deployment (one unit, or all eight to increase surge capacity), and the integration of trained private sector medical personnel is a model for other states.

## Recommendations

The North Carolina Office of Emergency Management indicated that because of a lack in local disasters, they were able to focus on capacity and capability building. Being a hurricane-prone state with four nuclear power plants adds to the readiness posture as well as the assets. Not having to focus on active response and recovery efforts enabled them over time to commit money, time and resources to building capabilities. Along with the Mobile Hospital Units, they have also worked at enhancing swift water search and rescue resources which were most recently deployed during Hurricane Sandy.

Over the years, North Carolina has incorporated state and local emergency management and mutual aid partners into exercises, projects, training, and deployments which continues through EMAC to other states in need.

States should identify what resources are needed and commit to long term planning, training and exercise to enhance their own state capabilities. By doing this, the current mutual aid system will be continuously enhanced.

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**North Carolina** wanted to *develop* an **ASSET** that was diversified enough to be **used** at the *local level* for small responses, **mobile enough** to move **quickly** to pair up with other assets **across the state** to expand and contract as the **need arose for medical support**.  
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– Carolyn Freitag,  
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