



Mississippi Goes Green: The State's SNS Response to Katrina

Mississippi has the unique distinction of being the only state to receive, stage, store and distribute the Strategic National Stockpile (SNS) 12 Hour Push Packageⁱ and to receive and distribute inventoryⁱⁱ purchased through the Centers for Disease Control and Prevention's (CDC) national buying power in response to a disaster. While in the midst of planning for its graded full-scale SNS exercise, real life, in the form of Hurricane Katrina, provided a true test of the Mississippi Department of Health's (MDH) ability to manage the SNS. The state's SNS response to Katrina earned a green rating from the CDC and, more importantly, provides an example of successful SNS planning as well as lessons learned for public health preparedness generally.

The MDH requested the Push Package from the CDC on September 1, 2005 following widespread damage to health facilities due to Hurricane Katrina. Within 12 hours, eight 18-wheel trucks carrying 132 cargo containers filled with pharmaceuticals and other supplies arrived in Mississippi. Within another 12 hours, the MDH had distributed SNS assets to nine critical treatment centers – eight coastal hospitals as well as one in Hattiesburg. As the response to Hurricane Katrina continued, the MDH expanded the definition of treatment center beyond hospitals to include Disaster Medical Assistance Teams (DMAT), community health centers, private clinics, church clinics, and any other clinic with a physician on staff which was providing free care to Mississippi residents. Within 72 hours of receipt by the state, medical inventory supplied through



Figure 1. Damage to Hancock County Health Department Following Hurricane Katrina. *Photo courtesy of Mississippi Department of Health.*

ⁱ The SNS 12 Hour Push Package is a supply of medical materiel appropriate for response to a wide variety of threats that can be shipped from CDC to an affected location within 12 hours of the decision to deploy.

ⁱⁱ Once the nature of an incident is understood, an affected state can request specific inventory, including pharmaceuticals and other needed medical supplies, from CDC. These supplies can be drawn from inventory already included in the SNS or CDC can rapidly negotiate their purchase.

the federal SNS program was distributed to an additional 32 hospitals, four DMAT units and several clinics based on a systematic needs assessment performed by MDH staff. More than a month after Katrina made landfall, the MDH continued to process three to ten requests per day from treatment centers needing supplies. All of this was possible due to the planning that the MDH had already done.

Prior to Hurricane Katrina, the MDH had signed memoranda of understanding with functional warehouses to be Receipt, Stage and Store (RSS) sites for SNS assets. When the MDH requested SNS assets from the CDC, the state SNS coordinator called the selected warehouse and confirmed its ability to serve as the RSS site. Because that warehouse was running on generator power, a second warehouse was also secured as backup if needed. During 17 days of round-the-clock RSS operations, the MDH was able to count on the warehouse for space, equipment, and staff as well as the use of their trucks and all of the associated maintenance. While the warehouse employees handled the warehousing functions, the lead pharmacist and other state health agency staff assigned to the RSS were able to focus their attention on inventorying supplies as they were delivered, ordering supplies outside of the SNS inventory, and applying their expertise about the supplies.



Figure 2. Damage to Hancock Medical Center Following Hurricane Katrina. *Photo courtesy of Mississippi Department of Health.*

Another important planning element relates to inventory management. While waiting for the Push Package, the MDH received a list of the inventory that would be included. The MDH input that information in its inventory management system and had pick lists ready as soon as the Push Package arrived. This enabled the MDH to rapidly get assets out the door and on the way to hospitals. Additionally, the MDH created “starter kits” with medical inventory to supply a 50 bed hospital. These starter kits were rapidly distributed throughout the state and then targeted to individual hospitals.

As in other disasters, private donations were a mixed blessing following Hurricane Katrina. While the donations had the potential to fill important supply gaps, knowledgeable personnel such as physicians, nurses and pharmacists were needed to sort these supplies.

Through an informal relationship, the University of Mississippi School of Pharmacy contacted the MDH and offered to help. The school and the state health agency worked out an arrangement whereby the donations were delivered to the school. As supply needs were identified, the state's SNS coordinator faxed orders to the school. Instructors and students sorted the supplies and filled orders which were then picked up by the MDH's courier service and delivered to treatment centers. This collaborative relationship enabled the distribution of much-needed medication for chronic illnesses while freeing up MDH staff to focus on other medical relief tasks.

Staff from the MDH also found the state's centralized public health system to be an advantage during the response. While the coastal area bore the brunt of Katrina's wrath, the entire state felt the storm's impact. The state health agency was able to pull staff from all nine public health districts in the state to participate in the response. State health agency staff could be redistributed geographically and could relieve staff in areas or in roles with the greatest need. Particularly helpful were the district surveillance nurses who had been trained to be the SNS dispensing leads in each of the nine health districts. Their unique training made them indispensable back-ups in managing operations at the health agency's command center. The state SNS coordinator and several other SNS-related staff were able to be at the public health command center at all times to manage requests for SNS assets and run operations. A public health team consisting of a lead pharmacist and personnel for inventory management and logistics were available to manage inventory and process requests at the RSS. Additional pharmacists were required from both the MDH and the Public Health Service. The CDC's Technical Advisory Response Unit (TARU) was on site the entire time the RSS was open to provide support to MDH staff. The depth of staff available allowed these key personnel to focus their efforts on essential response elements.

Though the SNS was designed primarily for response to a biological or chemical event, the MDH and the CDC proved during the Hurricane Katrina response that it is also well suited for a natural disaster.



Figure 3. Damage to Hancock Medical Center Following Hurricane Katrina. *Photo courtesy of Mississippi Department of Health.*

Three key lessons emerged from Mississippi's experience receiving and distributing the SNS:

1. *Relationships are priceless.* Through a mix of formal and informal relationships, the MDH was able to rapidly deploy SNS assets to areas of critical need, manage private donations, and target resources statewide. While a state may be able to accomplish these goals without strong relationships, Mississippi proved that having these relationships results in a better and faster response.
2. *Practice makes perfect, or at least successful.* The MDH trained intensely for a year prior to Hurricane Katrina in anticipation of its scheduled CDC-evaluated SNS exercise. The state health agency and its partners had defined roles, established working relationships, and clear outcomes that all agreed to work toward. The training that occurred in preparation for the exercise paid off when real life events took over.
3. *Trained staff is essential.* Mississippi would not have been able to respond to Katrina the way it did without the investments made in preparedness training for health agency staff. The state had enough staff depth to man the extended response time. Staff from partners such as the warehouses and the University of Mississippi supplemented the MDH in key areas. Throughout the entire response, the state health agency could count on support and technical assistance from CDC staff.

While these three lessons are drawn from Mississippi's experience with the SNS, they also apply to the state health agency's overall response to Hurricane Katrina. These lessons learned probably come as no surprise to state health agency staff engaged in preparedness efforts, but they confirm that investments made in building public health preparedness capacity lead to positive impacts during real emergencies.

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