

## **Hurricane IKE Public Health Ready and Responsive**

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The Galveston County Health District (Health District), overseen by a policy-making board and responsible for public health and health care services for fourteen (14) local jurisdictions, faced numerous public health challenges during evacuation and immediately after the storm. Coastal historical experience and on-going preparedness planning were put into action as a result of Hurricane Ike.

On September 13, Hurricane Ike made landfall in Galveston County with a storm surge of 15 to 20 feet. The storm that changed projected paths several times since it was first identified, resulted in estimated damages of 25 billion dollars, 16 confirmed deaths to date, 89 missing persons as of October 22, extensive flooding, and significant loss of public health and medical infrastructure. Areas of greatest impact include Bolivar Peninsula, Galveston Island, San Leon, Bacliff, Kemah, Clear Lake Shores, and the Freddieville neighborhood of Hitchcock. *(For an interactive panoramic view of damages, see <http://www.hawkeyemedia.com/BOLIVAR/>)*

Mandatory evacuation orders were issued by county elected officials on September 11, 2008. By this time, the Galveston County Emergency Operations Center (EOC) had been fully activated. The Health District had two staff members to man the County EOC building (24/7) and to communicate with emergency staff regarding status of the hurricane and its immediate consequences. 120 buses were staged in Texas City; ferry operations ceased; and tide gates in Texas City were closed. Health District ambulances, with state assistance, evacuated persons with medical special needs, nursing homes, and the University of Texas Medical Branch (UTMB) Neonatal Intensive Care Unit. High risk medical patients were flown to hospital locations in Texas and Oklahoma, and the Coast Guard began rescues of persons stranded by high water on Bolivar Peninsula.

The Health District played a number of critical roles, immediately and in the first several weeks following the hurricane. While our overall responsibility was to lead health and medical responses in 14 jurisdictions, actions included the following: continuous ambulance services; environmental inspections (e.g., food, water, septic systems, sanitation, etc.); public vaccinations; animal rescues; public information & health advisories; active surveillance of hurricane-related injuries and diseases; primary care; and providing health and medical support of a Galveston Island shelter.

Most significant of all challenges were the loss of public health infrastructure in several jurisdictions. Most pronounced was the loss of medical care, especially on Galveston Island. Galveston Island, with a population of about 57,000 prior to the storm, remained closed to residents until September 24<sup>th</sup>, due to various critical infrastructure losses and known public health threats as an immediate consequence of the storm. Furthermore,

most private clinics were damaged and closed. UTMB, the referral hospital for the state of Texas and the Island's largest employer and hospital system, was closed due to flooding and significant damage with little hope for a speedy recovery. Also, the financial constraints of UTMB, known prior to the hurricane, threatened immediately with impending changes that could severely limit its long-term ability to provide care to the uninsured.

While the future range of UTMB services and resources remain unclear, it is clear that uninsured persons in Galveston County no longer have access to specialty care and hospital care. Pending a feasible solution, an uninsured health care crisis, with a significant economic impact, is imminent.

When the City of Galveston allowed residents to return to the island on September 24, the Galveston County Health District issued a public health advisory: <http://www.HealthDistrict.org/press/2008/Public-Health-Advisory-For-Galveston%20Island-0908.pdf>.

Residents hoping to return to the island were clearly advised that there were no hospital services, no emergency department, and limited primary care clinics. Furthermore, there was severely limited electrical power, no safe public drinking water, and non-functional sewage systems - creating additional health and safety risks beyond the obvious destruction. Thus, the advisory recommended that certain persons not return to the island until the public health & medical care infrastructure was restored.

The public was further informed on how to be prepared for a return to the island. They were advised to bring with them supplies to protect them from a variety of injuries and public health threats. The advisory also specifically addressed drinking water safety, boil water advisories, tetanus vaccination recommendations, food safety, disinfection and decontamination. Additional hazards addressed included risks of fires/explosions, electrical hazards, debris injuries, carbon monoxide poisoning, stray and wild animal bites, rodent control, toxic odors, mold safety, fallen trees & chain saw safety, automobile safety without traffic lights and with roadway debris, mosquito precautions, and cell phone limitations. Finally, the public was advised to stay calm and alert in what was sure to be a very emotional experience to see their property and community the first time after the hurricane.

There were many other challenges identified and addressed throughout the County jurisdiction. Over 15,000 residents and first responders were vaccinated. There was one confirmed case of tetanus in an unvaccinated resident who sustained a nail picture injury. Community assessments identified that traditional sources of public information (TV and newspaper) were unavailable and/or limited, decreasing their effective reach of citizens. Therefore, the Health District established a phone bank that received thousands of calls and subsequently developed jurisdiction-specific fliers that were distributed door-to-door and handed out at point of Distribution (POD) sites. There were a variety of primary care needs addressed by the Health District's federally qualified health centers. Needs varied from medication refills, assistance to displaced UTMB patients with a variety of specialty health concerns; injuries/wound care, respiratory infections, and hurricane-related mental health conditions. Island EMS

ambulances were impacted by the lack of a local emergency department and often resulted in long transports to the nearest trauma center in Houston.

Another initial challenge was access to Bolivar Peninsula. Initially, Bolivar was flooded and impossible to reach by Ferry or land. There were reports of snakes, wild animals, alligators, and potential looters. Hurricane survivors and first responders on Bolivar needed vaccinations and a variety of supplies. A public health team, accompanied by local law enforcement, reached the peninsula by boat to assess the environment, collect soil and water samples for testing, and to assess the needs of any survivors and first responders. A follow-up trip, by helicopter, allowed the team to vaccinate first responders, deliver supplies, and perform an aerial assessment of damages.

The last challenge was managing the health and medical needs of the Galveston Island shelter, quickly formed by the City of Galveston for a growing number of displaced residents. The Health District worked with Red Cross staff to survey residents daily for medical conditions and symptoms of potential communicable diseases. Most challenging were shelter residents with medical special needs returning from other locations in the state to an island with severely limited medical infrastructure and to a shelter not equipped for such care. The Health District, along with state nurses and case workers, worked long and courageously to find them alternative housing; however, many refused the limited options available to them. These residents did not want to be separated from their family members and needed to be close to their homes in order to begin putting their lives back together (e.g. work with Federal Emergency Management Agency (FEMA), Housing and Urban Development (HUD), landlords, insurance companies, etc). With time and effort, many were assisted. A smaller shelter population relocated to the island airport pending further work to secure short-term or long-term housing for those displaced.

In closing, I give great thanks to Department of State Health Services (DSHS) Commissioner, Dr. David Lakey for his leadership in assuring that state resources played a supportive role to the Health District. In addition, I am grateful to our federal liaison, Captain William Griem, for his problem solving abilities and for coordinating federal resources with local authorities. As we journey into long-term recovery challenges, I am proud of Galveston County's response to Hurricane Ike and of our State and Federal partners for their support. With pride, I thank Galveston County Health District's staff for demonstrating readiness and responsiveness to a public health disaster.



One of the tents comprising the shelter on Galveston Island.



Via Helicopter, a public health team stopped to vaccinate first responders on the peninsula



Assessing survivors found on Bolivar at initial visit. There were living under a raised elementary school with minimum food, water, and personal effects.



Health District Public health team takes photo with Texas flag found in debris by accompanying army helicopter personnel. Pictured are Pam Jahnke, RN, Dr. Dana Beckham, Dr. Mark Guidry, & Dr. Cassandra Arceneaux. The team also included two DSHS staff, Neil Pascoe, RN, & Doug Hammaker.