

Arkansas Department of Health: Responding to the Health Needs of Katrina Evacuees

*A Case Study in Assessment and Policy Development, Mid-America Regional Public Health
Leadership Institute*

ARKANSAS TEAM:

Dr. Namvar Zohoori, MD, PhD
Rupa Sharma, MPH
Sharon Donovan, MHSA

BACKGROUND

On August 29th 2005, one of the strongest hurricanes ever recorded hit the city of New Orleans. It was the sixth-strongest hurricane ever recorded and the third strongest hurricane on record that made landfall in the United States. The storm surge caused several breaches in levees around the city. Most of the city was subsequently flooded, as the breached drainage and navigation canals allowed water to flow from the lake into low areas of the city and Saint Bernard Parish. The storm surge also devastated the coasts of Mississippi and Alabama, making Katrina the most destructive and costliest natural disaster in the history of the United States, and the deadliest hurricane since the 1928 Okeechobee Hurricane. The total damage from Katrina is estimated at \$81.2 billion (2005 U.S. dollars), nearly double the cost of the previous most expensive storm, Hurricane Andrew. As a result of the evacuation following Hurricane Katrina, the New Orleans' population was redistributed primarily across the southern United States. Arkansas received approximately 60,000 evacuees after Katrina arrived. Texas initially took more than 100,000 evacuees, many of them to Houston's Astrodome and other sites in southern Texas. However, evacuees from Houston had to move again, many to Arkansas', Fort Chaffee. States as far away as Arizona, Utah and West Virginia also accepted evacuees, but no place took a larger percentage of its own population than Arkansas. Arkansas saw a 2.5% jump in its population during the period.

ARKANSAS PUBLIC HEALTH EMERGENCY RESPONSE

On September 10th 2005, the Arkansas National Guard mobilized Western Arkansas Reserve Valley Medical Corps (MRC) team to conduct triage of thousands of Katrina evacuees at Fort Chaffee. During the triage the evacuees received medical exams, food and drinks before they were transported to their next destination (i.e. shelter, hospital, relatives etc). The evacuees were placed in approximately 182 shelters across the state with the number varying at times as the smaller shelters closed when they were relocated. The Division of Health (DOH) in collaborating with Center for Disease Control and Prevention (CDC) sent teams to shelters to ensure sanitation and to conduct epidemiological surveillance. The team assessed short and long-term health needs of evacuees in coordination with county offices of Department of Health and Human Services (DHHS). DHHS worked with Wal-Mart and Walgreens to ensure adequate supply of medications. DHHS also partnered with University of Arkansas for Medical Sciences (UAMS), Arkansas Hospital Association (AHA), and Arkansas Health Education Centers (AHEC) to make health care services available to the evacuees.

SURVEILLANCE / HEALTH ASSESSMENT IN SHELTERS

According to the Emergency Support System 6 (ESF-6) of Arkansas Department of Emergency Management (ADEM), DOH Epidemiology (EPI) Branch mobilized a team of epidemiologists to

conduct health assessment in 32 larger shelters. The EPI Branch in collaboration with the visiting CDC Response Team developed health assessment and surveillance protocol and provided quick orientation to the EPI response team. The team consisted of epidemiologists and volunteers from University of Arkansas Medical School (UAMS). The primary objective of the health assessment was to determine the evacuees' health concerns and provide referral to services if necessary especially for acute health conditions. Another objective was to establish an ad hoc surveillance system to monitor disease clusters in the shelters. An interviewer questionnaire was developed and tested quickly. Only shelters that held more than 100 evacuees were selected for the assessment. The interviews were administered to adult evacuees that were willing to participate. Information on children was obtained from a parent or a guardian. Many of these adults were not able to give information on the exposure of their children, as many of them were separated from their children during the hurricane. There were 1,174 completed interviews from 32 shelters throughout the state. Data was managed in MS Access and analyzed using SAS.

HEALTH ASSESSMENT FINDINGS

Of the 1,174 evacuees interviewed, 81% were African American, 13% were White, 3% were Native American, 1% was Asian and 2% were classified as other. Approximately 4% were of Hispanic ethnicity. Forty five percent were female and 55% were male. Seventy nine percent were age 19 and above with 21% below the age of 19. Ninety nine percent of the evacuees were from Louisiana. The commonly noted exposures in the aftermath of Katrina were, wading or standing in flood water, drinking tap water in affected area, breathing smoke or fumes, swallowing flood water and stepping on nails or sharp objects. Sixty five percent of the evacuees stood in or waded through flood waters, 17% had reported drinking tap water in affected areas, 17% reported breathing in fumes, 13% reported swallowing flood water and 8% reported stepping on nails or sharp objects. Most of the evacuees had pre-existing chronic conditions such as high blood pressure, depression, asthma, heart disease, diabetes, hepatitis and epilepsy. Sixty five percent of the children (0-18 years) and 88% of the adults (19+ years) reported to have at least 1 current health condition. Approximately 61% of the interviewed were in need of immediate medical services.

The most urgent unmet need reported among the evacuees was oral pain (78%) that needed immediate treatment. Forty four percent reported depression as another urgent unmet need. Forty six percent of the interviewed reported painful swelling that needed immediate attention, 44% reported rash and 24% reported flu-like symptoms. Forty three percent reported the type of mental health condition that needed treatment. Arthritis and Hypertension was the most commonly reported chronic disease condition. Thirty six percent of those that reported to have arthritis needed immediate treatment with 27% of those interviewed with hypertension needing immediate treatment. Fifty percent of those that reported having tuberculosis needed immediate treatment. Fifty six of the children who reported having some sort of rash needed immediate treatment. Forty four of the children who reported flu-like symptoms also reported needing immediate treatment. Evacuees needing attention for conditions such as sexually transmitted disease (STD) and HIV/AIDS were referred immediately to the DOH AIDS/STD Program for follow up. They were also referred to DOH and DHS for services such as Women Infant Children (WIC) services, immunizations, family health, housing and medication.

During this project, the role of epidemiologists was to conduct the health assessment and provide referrals to public health services. However, upon completion of the health assessment many evacuees expressed that the interaction made them 'feel good'. Many evacuees were able to utilize the services referred to them for mental health counseling. They were able to share their thoughts with epidemiologists and ask questions during the one on one interview,

something that they were not able to do with the volunteers. Based on the information shared / reported during the interview the epidemiologists were able to provide referrals, make recommendations to shelter volunteers about the evacuees needs. They continued to monitor infectious disease activities through the shelter outbreak surveillance system. Each epidemiologist was assigned to a contact person at one or more shelters. The contact person was responsible to monitor evacuees health status and report to the epidemiologist by phone in case of an event.

CHALLENGES ENCOUNTERED AND LESSONS LEARNED

The Epidemiology Branch encountered challenges during this project primarily due to the unexpected nature and magnitude of the emergency leading to some gaps in the response. The challenges were as follow.

- The epidemiologists' team, team leaders, line and method of reporting were determined within a very short period of time before the project began.
- There was no written protocol for surveillance and health interview of such nature. The interview questionnaire had to be created and tested a day before the activity began. Selecting right questions and prioritizing health conditions (both chronic and acute conditions) was difficult due to the lack of a protocol.
- The data base for the management of interview data had to be developed within a very short time and corrections were continually made as the interview forms were corrected.
- The list of shelters, shelter addresses and the contact person information were incomplete. All shelter facilities had to be called individually to make contact with the person in charge and set up appointments for the visit later in the day. It took longer than expected to get the number of evacuees who were staying in the shelter. This information was important to select the shelter to be visited.
- Not all epidemiologists were trained for field work of this nature and magnitude. An orientation was organized within a short time to provide guidance on how to - conduct interviews, establish a disease/symptom surveillance contact at the shelter, notify shelter authority if evacuees needed immediate help during or after the interview, and stay on call to monitor disease activity after the completion of interviews. The information on shelter contact, hours of operation, driving directions, and services referral (phone numbers, addresses) was also provided during the orientation.
- The timely reporting of disease / symptom to epidemiologists was difficult due to the busy schedule and turnover of on-duty shelter volunteers.
- Many evacuees had preexisting chronic conditions that needed medical attention. The presence of health department employees in the shelter created a false sense of hope that they would receive care for those conditions. It was difficult for epidemiologists, given the evacuees circumstance, to let them know that that was not the case.

LESSONS LEARNED AND NEW ENDEAVOURS:

After the completion of the project the EPI Branch held meetings with the team to review the project activities and identified gaps and anomalies. As a result, the team felt that there was an immediate need for the EPI and Public Health Preparedness and Response (PHPR) branches and the CD Program to review and determine if existing DOH policies and procedures were adequate to successfully execute an EPI response to an emergency health event. While the review of DOH policies and procedures is ongoing, the EPI Branch is striving to achieve following objectives.

- Recruit epidemiologists to form teams and provide basic emergency response training. Trainings include Disease investigation and surveillance, Incidence Command System (ICS), National Incidence Management System (NIMS), and also Radiation Dose Assessment for preparedness epidemiologists as a secondary function etc.
- Develop protocols for epidemiological screening, surveillance/monitoring and develop and test questionnaires relevant to known public health events.
- Determine software programs for the management and analysis of health event data. Train epidemiologists to enhance their proficiency in using these software systems.
- Involve epidemiologists in triaging scenarios and define their roles during a triage.
- Maintain electronic countermeasure activity data.
- Develop and maintain electronic inventory of partner agencies, shelter facilities, places of worship, hospitals, nursing homes, pharmacies, retail stores, laboratories, clinics etc.
- Develop and maintain electronic inventory of health care providers including doctors, dentists, optometrists, nurses, mental health counselors, social workers etc.
- Develop a system that will allow follow-up of individuals impacted by the event.

In addition to the above activities, the PPHR epidemiologists have been leading the Public Health Information Network (PHIN) Compliance Committee consisting of five work areas including Early Event Detection (EED), Outbreak Management (OMS), Communications and Partner Alert (CPA), Countermeasure and Response Administration (CRA), and Lab Communication (LC). The vision of this committee is to integrate these systems to detect health events early, notify partners on time, track countermeasure activities and better monitor individuals impacted by the health event. Currently the EPI Branch is conducting gap analysis of the agency policies and procedures. It is working closely with PPHR and CD program nurses to determine the need for new policies, procedures and data sharing agreements between entities to support the activities of a PHIN compliant integrated system mentioned above.

- Epidemiologists role in preparedness and response

The EPI Branch has hired three full time and two part time epidemiologists to perform PPHR activities. The full time epidemiologists oversee PHIN Compliance committee. The part time epidemiologists are trained to perform chemical dose assessment during environmental disaster and participate in the avian flu preparation and response. Through FEMA, all epidemiologists are receiving basic trainings in ICS, NIMS, Strategic National Stockpile (SNS), and Point of Dispensing (POD). The Arkansas DOH is in the process of providing other epidemiologists, managers, nurses, lab professionals the basic trainings in disaster preparedness and response. A triage protocol is being developed which consists of a list of physicians, epidemiologists, lab professionals, IT and communications staff. The protocol defines the role of these professionals during an emergency. The communications branch receives emergency calls 24/7/365 and the staff duty officer forwards the calls to appropriate on call physician and the physician handles the emergency with the assistance of other on call officials depending on the type of emergency. The emergencies by nature are primarily infectious disease, environment, or injury related.

- Systems supporting surveillance.

Arkansas State law mandates routine reporting of many communicable diseases. CD Policy and Procedure (CD P&P) manual guides the case surveillance and contact follow-up activities. The CD surveillance program currently uses National Electronic Disease

Surveillance system (NEDSS) based system to manage / analyze reported data. The NEDSS based system complies with PHIN standards. Thirteen disease agents including category 'A' agents are immediately notifiable to the DOH. The policies dictate the use of standard surveillance forms and interview questionnaires for surveillance and outbreak management respectively. However there are no standard forms or questionnaires for some of the emergency health events. Currently the CD Surveillance Program is using NEDSS to detect disease aberrations as early as possible. The EPI Branch is working with the hospital systems in Arkansas to have their participation in reporting syndromes/sub syndromes to enhance early detection of diseases. The implementation of OMS is being evaluated. It's a system developed by CDC as part of the PHIN standards requirement. The OMS will allow efficient management and analysis of disease/health survey data during a health emergency as well as link information with Counter Measure and Response Administrations (CRA) data to track progress of those impacted by the event.

- Tracking disease outbreaks.

CD policies and procedure manual guides the routine disease outbreak management process. The EPI Branch is working in coordination with ID program and PHPR to evaluate current policies and performing gap analysis to determine what new policies are required to enhance disease outbreak investigation. The new OMS is designed to be used as part of CDC's overall outbreak management strategy. OMS was originally developed to support response to Category A Bioterrorism and Chemical Terrorism events. It implements standard forms and user interface controls to capture information on demographics, case investigations, and exposure contact relationships for persons, animals, events, travel events, vehicles, objects, organizations, other organisms, and locations. It allows the collection of information specific to a particular outbreak or event, such as risk factors, clinical and laboratory observations, and treatment data. It has data exchange capability and can synchronize data collected on disconnected laptops to other laptops with OMS installed.

- Communications and Partner Alert system (CPA) to access provider information.

HAN: PHPR maintains Health Area Network (HAN) system which ensures that each community has rapid and timely access to emergent health information. A team of trained professional responds to emergency calls 24/7/365. HAN is a national program which provides health information and the infrastructure to support the dissemination of that information at the State and Local levels. The HAN System currently directly and indirectly transmits health alerts, advisories, and updates to vast majority of recipients.

EPI-X: All DOH epidemiologists have access to Epi-X which is another important web-based communication and alert system for public health professionals. Through EPI-X, CDC officials, state and local health departments, poison control centers, and other public health professionals can access and share preliminary health surveillance information - quickly and securely. Users can also be actively notified of breaking health events as they occur. These experts are engaged in identifying, investigating, and responding to health threats. All DOH epidemiologists have access to this system.

PHIN Directory: Having current and up-to-date contact information for public health and health care personnel is critical for preparedness communication needs. In the past, every system contained its own list of people and organizations, and each of these lists was individually maintained leading to many issues of accuracy, and utility. The enhances public health partner communication and collaboration capabilities by ensuring standards-based

exchange of contact information on public health and clinical care personnel among relevant agencies. Each partner is responsible for maintaining information on their own people and sharing appropriate information with other partners.

- Countermeasure and tracking and follow-up of services provided.

The CRA is a web-based application developed by CDC to manage specific actions taken to prepare for or respond to health events through the administration of various countermeasures to protect the health of potentially exposed people and provide for protected public health response teams. Countermeasures include vaccination and other types of drug prophylaxis, as well as non-drug actions such as patient follow up activities and isolation and quarantine monitoring. The recipients of the countermeasures may include potential responders from the public and private sector, identified exposed individuals, and the general public. CRA collects data associated with administration of multiple types of countermeasures as part of a public health campaign and links it other systems.

CONCLUSION:

Arkansas DOH has made significant progress in the area of disaster preparedness and response, as a result of 9/11 and disasters such as Hurricane Katrina in recent years. Development of an integrated information system is one of the most important initiatives of federal and state public health agencies that have been proven to be critical in detecting and managing an adverse health event. Like other states, Arkansas DOH has been able to utilize federal funds to make significant progress in developing plans / strategies, policies, and trainings for disaster preparedness and response. Hurricane Katrina provided an opportunity to DOH to assess and evaluate the readiness of the agency as a whole and the readiness of the smaller units within the agency. PPHR Branch cannot operate in isolation and hope to achieve the goals and objectives. It is important for the smaller units within the agency to work together as well as work with outside entities such as FEMA, ADEM, UAMS, AHA, LRFD, and LRPD etc. The most important lesson Arkansas learned from Katrina was that - the disaster may not hit your state directly but you'll still feel the impact.

REFERENCE:

- Archive; Public Health Response to Katrina, Arkansas Division of Health (DOH), Arkansas Department of Health and Human Services (DHHS).
- Website; Public health Information Network (PHIN), Center for Disease Control and Prevention (CDC).
- Website; Morbidity Mortality Weekly Report (MMWR), Center for Disease Control and Prevention (CDC).