Hurricane Katrina: Laboratory Preparedness Redefined

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The Role of the Public Health Laboratory in Louisiana

- Organizationally located in the Office of Public Health which is part of the Department of Health and Hospitals
- The Four OPH Laboratories provide Services to 35 Statewide Public Health Programs
  - Public Health Surveillance and Epidemiologic Testing
  - Environmental Testing related to health issues.
  - Forensic Testing
    - LRN/FERN Testing
    - Louisiana Sanitary Code Enforcement
  - Direct Patient Care Testing for Public Health Programs and 73 Public Health Clinics
What is the Pre-Hurricane Role of the Louisiana PH Laboratory

• Secure facilities and equipment in Labs in areas that may be impacted.
• Have staff available in the Emergency Operations Center and in Non-impacted Labs.
• Move Staff, Supplies and Equipment to Laboratories in none effected areas if needed.
• Remaining Laboratory Staff is to be available to support other Health Department activities such as Special Needs Shelters.
What is the Pre-Hurricane Role of the Louisiana Department of Health/Office of Public Health

• Emergency Preparedness Planning for Health Issues.

• If the Governor declares at state of emergency DHH/OPH has several responsibilities:
  – Stand-up the Public Health Emergency Operations Center (EOC) in Baton Rouge Louisiana.
  – Stand-up Special Needs Medical Shelters; provide medical staff, equipment and supplies.
  – Close & Evacuate DHH Operated Inpatient Facilities
  – Work with Louisiana Hospital and Nursing Home Associations to provide space for patients in special needs shelters as hospitals and nursing homes evacuate.
Role of the Louisiana Department of Health/Office of Public Health During and Post Hurricane

• Operate Special Needs Shelters

• Deployment and Pre-positioning of:
  – Search and Rescue and EMS Assets
  – Disaster Medical Assistance Teams (DMAT)
  – The SNS (Strategic National Stockpile)
  – The Disaster Mortuary Operations and Response Team (DMORT).
Hurricane Katrina Friday August 26
Friday August 26, 2005

- New Orleans Laboratory Staff (4th, 7th & 8th Floors of the New Orleans State Office Building)
  - Verified Communications-Recall Lists, checked equipment
    - Pagers
    - Cell phones
    - 800 MHz State Police (LSP) radios
  - Secured equipment not in use (powered down, covered with plastic)
  - Made arrangements to return on Saturday to secure equipment that was left operating.
  - Staff were making personnel emergency plans.
Hurricane Katrina
5AM Saturday August 27
Saturday August 26, 2005

• Managers and Supervisors returned and shut down remaining lab equipment and removed files needed for short term operation.

• State and OPH EOC are Operational
  – Checked that they had contact lists and that communications were working.

• Verified Building Security w/Capitol Police.

• New Orleans Lab secured and closed at 2 PM
Landfall at Barrier Islands
August 29 as a CAT 4
Monday August 29, 2005

- Lab Director and Assistant Director present in the Shreveport Lab. Two Lab Scientists at the EOC in Baton Rouge.

- 8 AM Lost Communications-
  - Land Lines, Cell Phones, Wireless Internet and Pagers with 504, 225 and 985 area codes unreachable.
  - 800 MHz Radios needed for Evacuation and Rescue.
  - IT in New Orleans (email/LAN) worked until 9-1-05 (ran out of diesel fuel).
  - Blackberry PIN to PIN and text messaging continued to work.

- 1 PM First Reports of Levee Breaches and Widespread Flooding; Massing of People at Super Dome and Convention Center.
At this point both New Orleans Main OPH Lab and Amite Regional Lab are out of service (no phone, H2O or electricity).

This represented a 70% loss of OPH Lab space and equipment. (100% in NO and Amite)

About 10% of New Orleans staff have checked in; most have been forced to evacuate outside of the state of Louisiana.
What was Expected Post Hurricane of the Louisiana PH Laboratory

- Resume all Pre-Hurricane Testing
- Provide microbiological testing of all potable water supplies to re-open facilities.
- Provide testing for enteric and respiratory pathogens for evacuees in shelters and first responders on a 24/7 basis.
- Provide expanded Arbovirus testing to flooded areas; WNV, SLE, EEE
Immediate Post Hurricane OPH Laboratory Issues

- Relocation of testing from New Orleans to the Two Remaining PH Laboratories or to other Laboratories.
- Assess Status of Amite and New Orleans Labs.
- Need equipment to replace NO Lab Capacity especially Real-time PCR, Mass Spectroscopy.
- Need reagents and supplies.
- Need CLIA, FDA and EPA License Changes to Move Testing.
- Need Pathologist/Pathology Support.
- Need to Locate Laboratory Staff.
Immediate Post Hurricane
Louisiana PH Laboratory Highest Priorities

• Reestablish Microbiological testing of Drinking Water (2 million people w/o potable water in a >90º F/90% RH environment).

• Reestablish Statewide Newborn Screening.

• Reestablish Real-time pathogen detection for Enteric, Respiratory and Arboviral Pathogens.
View of the Front Entrance of the Louisiana State Office Building facing Loyola Avenue on September 5, 2005
View of the Front Entrance of the Louisiana State Office Building toward Loyola Avenue on September 5, 2005
View from Employee Entrance of the Louisiana State Office Building toward LaSalle Street on September 5, 2005
Hurricane Rita
September 20, 2005
Post Hurricane Rita

- Lake Charles Regional Laboratory out of Service.
- Many staff who had evacuated New Orleans to western Louisiana and eastern Texas have relocated and their whereabouts are once again unknown.
The Aftermath
Lakeview Apartment Building
OPH Laboratory Current Facility Status

• The building that housed the Louisiana OPH Main Laboratory facility will be unusable for at least 2 years.
  – All supplies, culture collections and reagents were lost.
  – Large Equipment can not be removed due to lack of elevators.

• The Amite Lab and Lake Charles Labs have returned to service and had only minimal damages.
Louisiana PH Laboratory Current Personnel Status

• No staff members were lost to the storm; several OPH staff members lost family to the storm.

• Of 84 pre-storm staff members in New Orleans:
  – 28 (33%) have returned to work for the OPH Lab
  – 23 (27%) currently work for other state agencies
  – 33 (40%) have either retired, resigned or been released from civil service.

• 44 (52%) of OPH Laboratory Staff Members became homeless due to Katrina
  – As of the end of May 2006 only one staff member has received a FEMA trailer.
Louisiana PH Laboratory Current Testing Status

- University of Iowa Hygienic Laboratory is performing Newborn Screening.
- Texas Department of Health and Human Services Laboratory is performing Tuberculosis testing and will begin performing safe drinking water testing in July 2006.
- Arkansas Public Health Laboratory will begin performing drinking water testing in July 2006.
- The Alabama Public Health Laboratory has agreed to perform LRN/bioterrorism testing for Louisiana.
- The USEPA Laboratory in Houston has been performing trace metals testing on drinking water. EPA also provided mobile laboratories to performing drinking water testing.
- The Clinical Laboratories of the Louisiana State University School of Medicine in Shreveport have been performing a wide variety of clinical testing and have provided pathology services.
- The FDA provided a mobile laboratory from their Arkansas facility to assist with water testing needed to reopen Louisiana fisheries.
How did the Pre Hurricane Emergency Plan Work?

- Communications were disrupted or failed.
- Staffing issues arising due to having many displaced/homeless employees.
- Support from FEMA and EMAC was hard to access.
- Plan didn’t provide enough redundancy for critical services.
- The time frame of our planning was too short term.
- US Postal Service ceased to function in affected areas.
Communications Issues

- Emergency plan had insufficient redundancy and diversity.
  - Most state issued phones and pagers had telephone area codes in impacted areas (504 & 225).
  - No way to prioritize phone system usage all circuits quickly became overloaded.
  - 800 MHz. radios
    - Lost power in effected areas.
    - Radios were needed for SAR and EMS use.
  - Very few satellite phones were available.
  - Lack of interoperability between CB, private radios and the various jurisdictions involved.
Staffing Issues

• Currently: Staff who evacuated make their own arrangements. Staff were required to call in as soon as possible.
  – Staff had difficulty calling in due to communications issues.
  – Many staff members evacuated out of state and were unavailable to work for extended periods of time.
  – When staff were needed to work in certain areas no housing or transportation was available in those areas
  – Long term homeless has hampered return to duty
EMAC

- Emergency Management Assistance Compact (agreement between states)
- Any capability of member states can be shared with member states.
- Removes the need for contracts, solves licensing issues and liability issues.
How did EMAC work for Louisiana’s Public Health Lab?

• EMAC request for Newborn screening resulted in an agreement with Iowa that has allowed screening of Louisiana specimens since Katrina.
  – Request was approved promptly and specimens were being sent within days of approval.

• EMAC requests for assistance with testing of drinking water for chemicals and for Tuberculosis testing were not approved.

• EMAC seems to primarily work for EMS and Law Enforcement. Good at bringing people to your state. EMAC has not worked well for SPHL.
The Future of EMAC

• EMAC represents the best way for Public Health Laboratories to provide surge capacity to both the SPHL and the Acute Care Hospital Laboratories.
  – EMAC and SPHL need to interact before events. Contacts between staff needs to be ongoing.
  – System needs to have a clear policy on what services are covered and how they can be accessed.
    • Received conflicting instructions on how to access services.
  – EMAC Needs to work directly with laboratories to streamline procedures for laboratory EMAC requests.
FEMA

- Requests have been made to FEMA for assistance with temporary lab space and assistance with shipping specimens to contract laboratories.
  - No requests have been approved or funded to date (nine months post event).
Lesson's Learned - Planning Issues

- Time Frame- Our previous planning was for short term-1 week
  - Need to have both short and long term approaches
    - Short term for weathering the storm (1-2 weeks).
    - Long term to cover loss of a complete facility.

- Communications….has to be a nationwide approach to assure interoperability…has to include Public Health, Hospitals, Nursing Homes in addition to Law Enforcement and EMS.
Lessons Learned Continued…

• Address emergency power to assure that it is sustainable for at least a week.
  – Preferably should be sufficient to run the entire laboratory.

• Back-up all laboratory records (patient records, procedure manuals, purchasing and personnel) to mirrored electronic central databases.

• Have senior laboratory staff remain in local area or be able to report to a secure location in a short time frame.
Positive Experiences?

• Yes,
  – We received a hundreds of offers of assistance.
  – Vendors provided supplies and equipment often free of charge. They also trained lab staff in regional labs.
  – Both APHL and CDC staff assisted in locating resources and contacts.
  – Staff from CLIA, CDC, EPA, and FDA were very helpful in assisting us in meeting regulatory requirements and for setting up remote labs.

• I had the chance to work with a group of people who continued working even though they knew that they had lost everything.
Credits

• Photographs
  – Andrew McLemore

• Louisiana DHH/OPH Emergency Operations information and slides
  – Dr. Roseanne Prats

Hurricane Tracking

NOAA website