Surviving Katrina:
How Touro Infirmary Met the Challenges of the Disaster!

Paula McCreary MT(ASCP)
Technical Manager
Pathology Department
Touro Infirmary
New Orleans, LA
159 year old non-profit private
• 560 beds
• 280 occupied beds
• History of progress in medicine
• History of surviving many challenges: yellow fever, Civil War, 2 World Wars, healthcare

Lab Business – Pre Katrina

Hospital Laboratory
  • Routine clinical and anatomic path services
  • Inpatient and outpatient

Outreach Services Laboratory (1990)
  • Subsidiary (for profit)
  • 2 outpatient draw stations
  • 19 nursing homes

Core Laboratory (2003)
Outreach Billed Charges

Year


K/Month

$100 $200 $300 $400 $500 $600 $700 $800

Touro’s Core Lab

- Chemistry
- Hematology
- Coagulation
- Urinalysis
- Serology
- Flowcytometry
- POCT*

>30K Billable 22+ FTE
Disaster Plan

Lab Hurricane plan

Essential Personnel
- Mandatory for supervisors, managers and directors
- Alternating A and B List for bench staff
- Any immediate family

Supply Inventory

Katrina’s Timeline

Tuesday August 23
- First advisory, TS12 formed

Wednesday August 24
- Strengthened, Katrina now the 11 storm of 2005

Thursday August 25
- Category 1, winds 75 mph

Friday August 26
- 1am reclassified as a TS, max wind 45 mph, NW Key Largo
- 3am starts to re-strengthened immediately
- 5am hurricane strength, winds 75 mph
- 11:30am, winds now 100 mph

Governors of LA and MS declare “state of emergency”

Saturday August 27
- 5am, Category 3, winds 130 mph
**Disaster Plan Initiated**

Weekend staff on duty

Essential personnel required to report for 9am Sunday

Sunday

- 2am 145 mph
- 9:30am mayor issues mandatory evacuation
- 11am winds 175 mph, category 5
- “potentially catastrophic”, “some levees could be overtopped”

**Housing**

- >225 inpatients
- Family members in assigned areas
- >2000 people in the building
Preparations

- Move supplies from 1st floor
- Move equipment to 3rd floor
  - Chemistry analyzer
  - Hematology analyzer
  - Coagulation analyzer
  - Flowcytometer stored
Events

- Due to flood concerns IT decides to shutdown HIS at midnight
- **HIS to LIS downtime**
  - ATD, orders and results
  - Lab requests now on manual requisition
  - Result had to be charted
- Lab staff entered am orders into LIS.
- Lab was business as usual
Loss of Utilities

- Electricity
  - now on emergency power
- Phone communication
  - Telephones, pagers
- 3/8 Generators down

Lab is totally without power/AC
Crisis After the Storm

- Levees breached
- Anxiety increasing among staff (career vs. family)
- Safety concerns
- Looting in the area
- Potential for flooding to the 2nd floor
Figure 60. Drainage Pumping Station No. 6. View of interior looking east; in the foreground are 250 cfs vertical centrifugal pump motors. The remainder of the pumps are Wood screw pumps; in the foreground are two 12’ pumps, and in the background are four 14’ pumps.
Evacuations Begin

Mayor announced that water would be turned off
Mayor allowing residents to return
Only Hospital

- Touro is the only hospital able to reopen
- Coordinated effort
  - Military
  - FEMA
  - CMS
  - CDC
- Clean-up started

“How long will it take to get the lab back in service”
Lab Clean Up

- Count and discard inventory
- Acquire new inventory of blood products, media, reagents, QC, calibrators, consumables, collection supplies
  - FEMA to supply coordinated with military
  - Zip codes still in disaster zones
  - No mail, FedEx, UPS delivery possible
- Repair analyzers
  - Instruments not able to properly shutdown (power loss)
  - Loss of AC caused humidity (corrosion and rust)
  - CAP said re-validate
  - No patient samples available
- Staffing

Volume vs. Staffing

Staff categorized
  - Housing arrangements
  - Transportation
  - Skill set
  - Work any schedule
Lost younger staff
  - No Schools
Stop!

Mayor declares state of emergency and mandatory evacuation for hurricane Rita
Post Katrina Volume

End of Day Accession

No volume → More volume
Flex staff → Staff shortage
Consequences

Service issues
  - Sporadic TAT
  - Complaints from ED

Workflow issues resulting in batch testing
  - Serology, electrophoresis
  - Flowcytometry

Increase labor expense due to overtime

Solution

Implement Lab Automation
  - New chemistry budgeted
  - Working 5 FTE’s under budget
  - Need process improvement
  - Need tool help techs manage workflow
  - Need to manage data flow
Improvements

Reduced FTE from 22 to 17.9 and overtime expense

70% autoverification (untouched by tech)
30% reviewed in DL without need to go to LIS
  - LIS only needed for entering documentation comments

Improved TAT
  - Cardiac available in 25 to 30 mins
  - 11 min TAT on CBC

Standardized result review and sample rejection

Reduced sendout cost by doing more in-house
  - Added QTB, Free light chain
Lessons Learned

Disaster plan implementation on weekend with rapid progression
- Staged implementation
- Discharge patients
- No family member housing
- No pets

Lessons Learned

HIS Downtime placed additional burden on lab
- HIS now remote hosted
- New LIS implementation (redundant servers, different locations)

Loss of communication
- Satellite phone system

Loss of water supply
- Well installed for emergency water supply
Lessons Learned

Loss of emergency power
- Redundant generator system (back-up)

Staff concerns
- Decreased patient census will reduce workload and staffing needs
- Improved housing conditions for staff
- Disaster compensation for exempt staff
- Implemented lab automation

New Challenge

Outreach Billed Charges

<table>
<thead>
<tr>
<th>Year</th>
<th>K/Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>$100</td>
</tr>
<tr>
<td>1996</td>
<td>$200</td>
</tr>
<tr>
<td>1998</td>
<td>$300</td>
</tr>
<tr>
<td>2000</td>
<td>$400</td>
</tr>
<tr>
<td>2002</td>
<td>$500</td>
</tr>
<tr>
<td>2004</td>
<td>$600</td>
</tr>
<tr>
<td>2006</td>
<td>$700</td>
</tr>
<tr>
<td>2008</td>
<td>$800</td>
</tr>
<tr>
<td>2010</td>
<td>$900</td>
</tr>
</tbody>
</table>
Questions