



SCHOOL OF PUBLIC HEALTH
UNIVERSITY AT ALBANY State University of New York

**University at Albany
Center for Public Health Preparedness
Grand Rounds Series**

March 8, 2007

**Addressing Health Care
Needs in Disasters:
The Houston Experience**

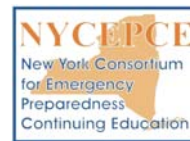


Hurricane Katrina, 2005

Guest Speaker

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Evaluation

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**Nursing Contact Hours,
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Objectives

1. Describe the key challenges in conducting a large-scale (>30,000 evacuees) rapid health assessment of individuals acutely displaced by Hurricane Katrina.
2. Discuss several challenges in addressing the acute and chronic health care needs of large numbers of evacuees in Houston's large shelters.

Cont.

Objectives

3. Describe lessons learned from the Katrina "experience" in Houston's large shelters.
4. Offer observations and recommendations to improve disaster preparedness and response.

Considerations:

- Disasters are "local"; Response is "global"
- The health care and public health system must demonstrate bi-directional preparedness (send/receive staff and resources)

Cont.

Considerations:

- Another community's disaster can quickly become your community's urgency, with short and long-term impacts. Are you prepared?
- Planning together, training together and conducting drills and exercises together saves lives.

Katrina Strikes

8/29/2005 – Louisiana and Mississippi



Katrina Strikes

- Levees separating New Orleans from surrounding lakes breached
- At least 80% of city underwater by August 31
- Some areas under as much as 20 feet of water
- More than 1 million people displaced
- Loss of Life: >1,300 deaths



HOUSTON SHELTERS

- Houston Astrodome:
- On August 31, at least 25,000 evacuees expected from New Orleans, especially from Superdome
- Astrodome declared full as of September 2
- Reliant Center and Reliant Arena opened to additional 11,000 evacuees
- Houston opens GRB Convention Center as shelter
- 7,500 evacuees expected

Numbers of Evacuees

- ~150,000 residents of New Orleans and the Gulf Coast now reside in Houston area
- Distribution:
 - 27,400 residents in AstroArena (at peak census)
 - 6,400 residents in G. R. Brown (at peak census)
 - 20,000 residents (small shelters)
 - 57,000 rented hotel rooms
 - Private homes

Houston's Katrina Experience



Public Health and Health Care Charge

- Develop tools and methods to rapidly assess immediate health needs of evacuees, including issues of PH concern
- Identify chronic health needs exacerbated by disaster and displacement
- Address healthcare and public health surge capacity needs



Rapid Health Assessment

- Rapid Assessment form developed (Self-reported conditions)
- Initial assessments collected using paper tally forms
- Simplified format (tick marks) to “rapidly” collect data
- Data analyzed; entered into computer and emailed to LHDs



Rapid Health Assessment

- Daily paper collection of large numbers of data at multiple shelter sites precluded rapid analysis (including trend analysis) and transmittal electronically to Local Health Departments
- Move to electronic data collection reduced project time from approximately 6 hours to 3.5 hours for training, data collection, data analysis and reporting



Paper Form

GEORGE R. BROWN CONVENTION CENTER
HURRICANE KATRINA TRACE TALLY FORM

D/W: _____ Your Name: _____
 Date: _____ AM/PM COLOR: RED BLUE YELLOW GREEN
 Em: _____ AM/PM SECTION # _____
 BLOCK: 1 2 3

| DECONTAMINATOR | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------|---|---|---|---|---|---|---|---|---|----|
| NO PROBS | | | | | | | | | | |
| FEVER | | | | | | | | | | |
| HAUSEA | | | | | | | | | | |
| VOMITING | | | | | | | | | | |
| DARRHEA | | | | | | | | | | |
| BLOODY DARRHEA | | | | | | | | | | |

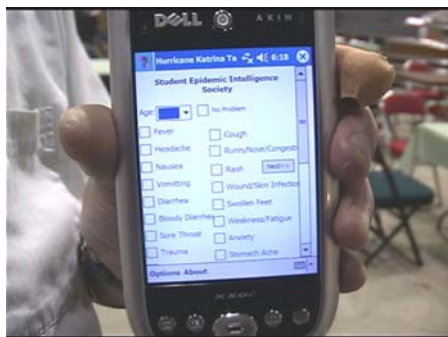


Rapid Health Assessment Paper form

- **Plusses**
 - Inexpensive
 - No mechanical parts
 - No training required
 - Low chance of data loss
- **Minuses**
 - Bad handwriting
 - Broad data only
 - End of day tallying
 - Time consuming
 - Interpretations
 - Human error

PDA's

- **Plusses**
 - One form per person
 - “Force” fields
 - Quick tallies
 - Reliability
- **Minuses**
 - Reliability?
 - Small screen
 - Fear of Technology
 - Some training needed
 - Keyboard
 - EXPENSIVE!



Appended Data

| Site | Date | Start Time | End Time |
|------|----------|------------|----------|
| 1 | GR Brown | 9/13/2005 | 18:20 |
| 2 | GR Brown | 9/13/2005 | 18:23 |
| 3 | GR Brown | 9/13/2005 | 18:25 |
| 4 | GR Brown | 9/13/2005 | 18:25 |
| 5 | GR Brown | 9/13/2005 | 18:33 |
| 6 | GR Brown | 9/13/2005 | 18:33 |
| 7 | GR Brown | 9/13/2005 | 18:34 |
| 8 | GR Brown | 9/13/2005 | 18:34 |
| 9 | GR Brown | 9/13/2005 | 18:34 |
| 10 | GR Brown | 9/13/2005 | 18:36 |
| 11 | GR Brown | 9/13/2005 | 18:37 |
| 12 | GR Brown | 9/13/2005 | 18:37 |
| 13 | GR Brown | 9/13/2005 | 18:39 |
| 14 | GR Brown | 9/13/2005 | 18:39 |
| 15 | GR Brown | 9/13/2005 | 18:41 |
| 16 | GR Brown | 9/13/2005 | 18:41 |
| 17 | GR Brown | 9/13/2005 | 18:41 |
| 18 | GR Brown | 9/13/2005 | 18:42 |

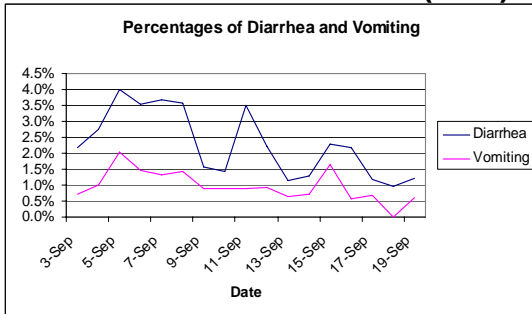


Rapid Health Assessments

- **George R. Brown**
 - Total of 5,448 interviews (9/5-9/16/05)
 - Average 447 per night
 - Range 836 to 176
- **Reliant Complex (Astrodome, Arena, Center)**
 - Total of 29,478 interviews (9/2-9/19/05)
 - Average 1,734 per night
 - Range 3,203 to 487
 - GI outbreak identified ~700 cases of Norovirus (9/5/05) (Assessments critical in monitoring course of outbreak)
- **Other Shelters:** Ex. San Antonio



GI outbreak (9/5): Norovirus identified within 36 hours (TCH)



Rapid Health Assessment Houston Summary Health Problems Encountered

- Diarrhea/vomiting
- Respiratory disease (cough/sore throat)
- Skin infections/invasive soft tissue disease
- Exacerbation of chronic illness in patients who have no medication
 - Diabetes, Asthma, Heart disease, Psychiatric diagnoses...

Health Care/Public Health Providers at Shelters

Reliant Complex and George R. Brown Convention Center

- UT Health Science Center, Houston
- Baylor College of Medicine – Texas Children’s Hospital
- Harris County Hospital District
- MHMRA

Cont.

Health Care/Public Health Providers at Shelters (Cont.)

- Harris County Public Health and Environmental Services, Houston Department of Health and Human Services
- UT School of Public Health, Center for Biosecurity and Public Health Preparedness
- Tulane University, Texas A&M, Oklahoma, UTMB, Texas Medical Rangers
- University/Agency/Community Volunteers - multiple

TCH (Reliant Complex): Typical Conditions

- Foot lacerations
- Sprains, strains, fractures
- Asthma
- Dehydration/malnutrition
- Rashes
- Fever and colds
- Chronic illness needing maintenance
- Psych issues: Post Traumatic Stress
- Social: Abandoned children

TCH (Drs. R. Feigin, P. Sirbaugh)

Early Considerations:

- Expect crowded conditions
- Expect infectious diseases (GI, URI, Skin...) due to exposure to contaminated floodwater, etc.
- Anticipate PH sanitation/environmental measures to be implemented (including isolation)

Sanitation:

Plan to:

- Post signs/announcements regarding hygiene (hand gels widely distributed, etc.)
- Provide constant cleaning of shower and toilet areas
- Limit food/drink in cot areas
- Appropriate dispensing of bottled cold drinks
- JIT training for volunteers/staff (multiple reporters of health issues, especially diarrhea)

Challenges/Successes

- “Rapid” health assessments
 - Emphasis on “rapid”
 - Data/analyses/graphs electronically to LHDs
- Link data to action
 - Infectious Disease containment
 - Rapid analysis of information
 - Link to individual/s and location within shelter

Lessons Learned/ Re-Learned

From Ordinary to Extraordinary...

- Expect misinformation
 - Plan regular internal/external communication as often as 2-4x/day (NIMS)
- Plan for immediate needs under given circumstances:
 - Shelter, sanitation, food, water, security, health care
- Plan for next tier of needs:
 - Psychological effect, school needs of children, medical home

Lessons Learned/Re-Learned

- Responder skills/experiences and commonalities in training (All hazard preparedness) make a difference
- Communication – preceding relationships; planning, training and responding together

Lessons Learned/Re-Learned

- Rotate staff
- Manage influx of helpers
- Know players – solid relationships with response partners
- Strengthen relationships
- Create new partners
- Have a sound exit strategy

Lessons Learned/Re-Learned

- Utilize strengths of Helpers – Clergy, Barbers, Beauticians...
- Remember the human element – stressful for victims, staff, volunteers; Grief; Missed events; Birthdays, Anniversaries
- Remember: We are fortunate when we can return to our own homes and family



Always—the Human Element



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April 12, 2007

From Teachers to Leaders In Crisis

Roseann Samson, Ed.D
Assistant Superintendent, Charlotte Co.
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