Faculty Disclosure

Nanci Nagel, BS, BSN, RN. CEN, CFRN, EMT-P

Ms. Nagel has listed no financial interest/arrangement that would be considered a conflict of interest.
LESSONS LEARNED FROM HURRICANE IKE

Nanci Nagel
BS, BSN, RN
CEN, CFRN, EMT-P
SESSION OBJECTIVES

Participants will be able to identify two issues regarding

- Special medical needs in patient evacuation
- Participants will be able to discuss sufficiency of care versus standard of care in disaster situation
Crazy Dave and

................the best laid plans....
A bit of background:

TXMAT
- Texas Medical Assistance Team – special ops
- Different in concept from Federal DMATs
- Assist...advise....assess......*get dirty.....*
Hurricane IKE

Satellite Image

Image from the Space Station
A little history lesson

H. Gustav made landfall:
Sept 1st, 2008

H. Ike made landfall:
Sept 13th, 2008
Gustav Leftovers??

Consider the following

- There was less than two weeks between storms
- Most of the southeast quadrant of Texas evacuated to east Texas and the DFW area
  - Not all evacuees had returned home.
  - Not all evacuees behaved nicely
  - Not all impacted hospitals played fair
Gustav’s lessons

- UT Tyler School of Nursing
  - Established a medical special needs shelter
  - Staffed with Nursing Faculty and nursing students
    - On campus in the Patriot Center
      - Unique experience
      - Clinical hours
      - Faculty supervision

- other state and federal assets used area churches and schools
Gustav’s Lessons

- Shelter Cots: average height 18 inches
  - Ergonomic nightmare
    - Some totally disabled patients
    - Physical caregiver strain
    - Obese patients
    - Elevate HOB?
    - Vent patients?

- Where’s the Muscle? Where’s the safety?
Gustav’s lessons

- Evacuee’s “Stuff”
  - (clothes, pets, family)

- Mental Health issues
  - Pre-existing
  - Exacerbation
  - Regression
  - s/p previous evacuation..territorial
Gustav’s lessons

- Repatriation:
  - I came “healthy”, but now I’m sick
  - New hospital admit
  - Evacuated hospitals refusing repatriation transfers
    - Not being transferred to “higher level of care”
    - Less Medicare days available
    - Not my patient…not my problem
    - Patient’s left behind by families
Gustav’s Lessons
Almost there...I promise

- Mental Health issues

- “What do you mean the storm is heading straight for us?” and the domino effect

- Para transit repatriation

- Miscommunication and Ego contests
  (Hard to believe, isn’t it)
The other domino effect...

- Before and During H. IKE
  - East Texas initially refused shelter patients
  - Tyler specifically refused Federal Assets
  - Dallas and Ft Worth refused federal assets not because of issues, but they felt they could “hold their own”.

- Evacuee burnout
  - “They were wrong about the last storm……”
Sept 8th H-120
and the “fun” begins...?

- **ISSUE:**
  - The state of Texas had been in “disaster mode” since H. Dolly (mid-July).
  - Disaster Fatigue (personnel and responders)

- **TxMAT Incident Management Team**
  - DSHS Austin
  - Multi-Agency Coordination Center (MACC)
Just when do we evacuate?

- Most medical insurance plans won’t pay for a patient evacuation until H-48.

- Air Ops are usually discontinued between H-36 and H-24 (depending on weather conditions).
Just when do we evacuate?

- Ground transportation issues
  - Contra-flow traffic
  - Buses (Gen Pop and Special needs)
  - POV/ Ambulances
  - Fuel
  - TIME!!!!!!!!!!
1500 buses x 40 seats = 60,000 seats

400 Ambulances
ALS/BLS unknown
Air Operations

Issues:
- Fly Time
- Weather Conditions
- FXW versus Rotor
- Civilian versus Military
- State Asset Vs Federal
Civilian Rotor Operations

- Misused resource?
  - IFR vs VFR
  - Patient Transport Capabilities
    - Weight limitations
    - High Risk OB
    - Double Load Capable?
  - State Asset vs Federal Asset
Military Fixed Wing

- TX Air National Guard
- 5 C130s
- Transported at 1/3-1/2 Patient load.
  - Obese patients
  - Patient’s “stuff”
  - Wheel chairs
  - Pets
And exactly who do we evacuate?

And the chase begins…
Chasing Our Tails

- Early on…heading to the Valley
- Later: heading to Corpus
- Just kidding..heading to the “bad lands” (very rural)
- No wait..Corpus
- …..Bad Lands…(sigh of relief)
- H-48    DEAD ON FOR HOUSTON

370 miles of Coastline

NOT INCLUDING INLAND DANGER ZONES
## Let's talk numbers.....2006 data

<table>
<thead>
<tr>
<th>FACILITY TYPE</th>
<th>NORTH</th>
<th>SOUTH</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>HOSPITALS</em></td>
<td>37</td>
<td>23</td>
<td>60</td>
</tr>
<tr>
<td>ICU</td>
<td>164</td>
<td>129</td>
<td>293</td>
</tr>
<tr>
<td>CCU</td>
<td>65</td>
<td>84</td>
<td>149</td>
</tr>
<tr>
<td>Peds &amp; PICU</td>
<td>55</td>
<td>14</td>
<td>69</td>
</tr>
<tr>
<td>NICU</td>
<td>91</td>
<td>86</td>
<td>177</td>
</tr>
<tr>
<td>Total Vents (included in above)</td>
<td>157</td>
<td>153</td>
<td>310</td>
</tr>
<tr>
<td>General Med/Surg Wards</td>
<td>722</td>
<td>717</td>
<td>1439</td>
</tr>
<tr>
<td>Post Discharge Census</td>
<td>1097</td>
<td>1030</td>
<td>2217</td>
</tr>
<tr>
<td><strong>Transportation of Hospitals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Ambulances</td>
<td>487</td>
<td>235</td>
<td>722</td>
</tr>
<tr>
<td>Air Ambulances</td>
<td>123</td>
<td>20</td>
<td>143</td>
</tr>
<tr>
<td>Buses</td>
<td>45</td>
<td>26</td>
<td>71</td>
</tr>
</tbody>
</table>
More numbers....

<table>
<thead>
<tr>
<th><strong>HOMEBOUND MSN</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1-3 MSN</td>
<td>9544</td>
<td>4173</td>
<td>13717</td>
</tr>
<tr>
<td>Level 4-5 MSN</td>
<td>4260</td>
<td>2505</td>
<td>6765</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Transportation of MSN</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Buses (All 1-3)</td>
<td>9544</td>
<td>4173</td>
<td>13717</td>
</tr>
<tr>
<td>Para Transit Vehicles (50% 4-5)</td>
<td>2130</td>
<td>1252</td>
<td>3382</td>
</tr>
<tr>
<td>Ambulances (50% 4-5)</td>
<td>2130</td>
<td>1253</td>
<td>3383</td>
</tr>
</tbody>
</table>
Shelter in Place!!!!!

Remember those transportation issues we discussed...

Due to the limited time to evacuate
Evacuation of Houston determined by zip code

Galveston Island expecting catastrophic damage. “Certain Death”
Task Force IKE
Situation

A catastrophic hurricane has made landfall on the Texas Coast resulting in substantial damage and service interruptions.
Assumptions

Essential Services are disrupted in impact area

Communications in area are disrupted

Rotary wing aviation operations will be possible after passage of tropical storm force winds

There will be victims in the area requiring rescue and shelter
MISSION

Task Force IKE deploys as soon as conditions allow to:

- re-enter and secure the impact area
- provide emergency search and rescue
- assess damages
- synchronize local, state, and federal response
- aid in restoration of essential services
- support state and local continuity of government
- begin immediate mass care and recovery operations
Best Laid Plans

- Task Force Ike
  - Planned Base of Operations
    - Ford Park, Beaumont, TX

OOOPS............Completely Flooded
Plan B:
Galveston ISLAND

Only one road connects to the mainland....
Alternative:
Ball High School
Galveston, TX

Issues:
Shelter of last resort
Flooded during storm

Oops again?
Tables used to block flooding?

Sewage backflow because of flooding and low water table

Toilets out of order

Overwhelming odor of sewage and mold
Some were waiting
“I have been trying to keep it clean.”
Others came later

Hospital discharges and more!
Just the facts:

- 300 people waiting upon arrival of TFI
- MSN patients mixed in with Gen Pop
- Timeline for transportation unknown
- Area wide communication issues
More facts:

- Over 1200 people triaged and evacuated less than an 8 hour period.
- This includes: Gen Pop, MSN and pets
- Trauma triage doesn’t work with MSN patients!!
How do you triage/treat this?

**Trauma**
- Altered Mental Status: Priority
- Dialysis: Delayed
- Immuno-compromised: Delayed

**Medical**
- Dialysis: Depends
- Immuno-compromised: Priority
“We can manage...”
The ambient temperature is in the mid to high 90’s
There has been wide spread flooding.
Electricity not expected for 6-8 weeks

Commercial and Personal medications are compromised.
The level one trauma facility is reduced to minimal operations
Civilian Air Ops not readily available
Military Air Ops mostly SAR– no medical personnel

Two to three hour trip via ambulance to closest Houston medical centers

(remember: Houston is a disaster zone also)
“Here is my medication list.’
Oh yes ...and the pets....

Lions and tigers and bears...not quite, but dogs, cats, rabbits, parrots and ferrets.
And death came knocking at my window?
No!!! I’m not going!!
Questions