

Hurricane Katrina Lessons Learned

RELIANT CITY

The Houston Katrina Shelter Operations

Frank E. Gutierrez

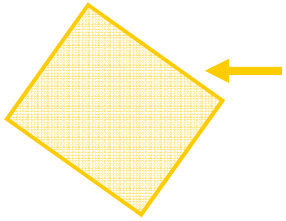
Coordinator

Harris County Office of Homeland
Security and Emergency Management

- Katrina's evacuation plan functioned relatively well for motorists but failed to serve people who depend on public transit.
- Rita's evacuation plan failed because of excessive reliance on automobiles, resulting in traffic congestion and fuel shortages.

Todd Litman-Victoria, BC, Transport Policy Institute

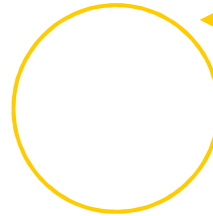
31 August 2005 -- 7:00 AM
Stakeholders Meeting



**Initial processing &
triage (D-MAT)
Over 65,000 evacuees**



**Reliant Center,
8,000 residents**



**Dome,
17,000 residents**



**Reliant City
Town Center**

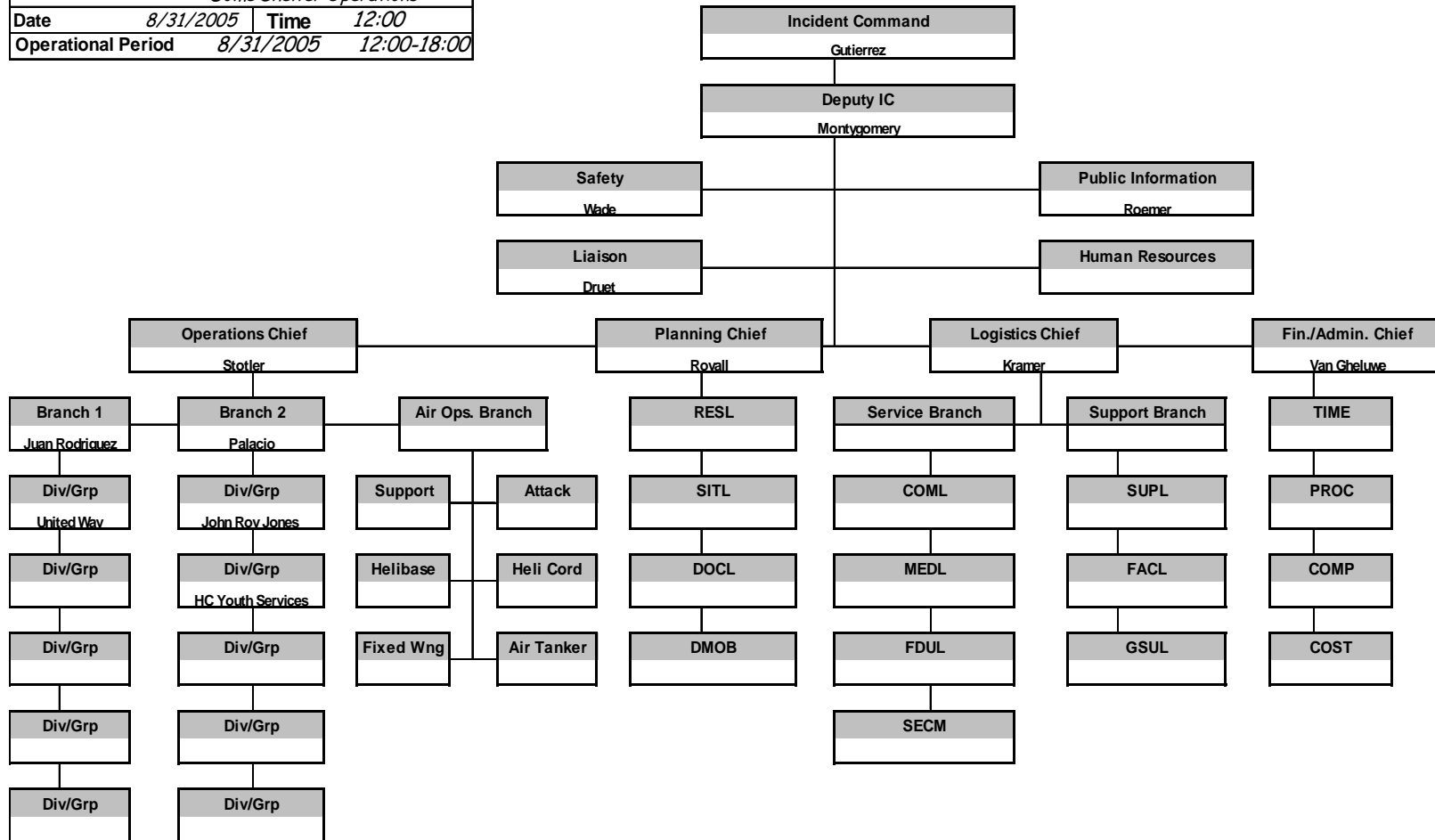


**Reliant Arena
2,000 residents**

**38,000 evacuees
to other
locations**

Incident Name	<i>Dome Shelter Operations</i>		
Date	<i>8/31/2005</i>	Time	<i>12:00</i>
Operational Period	<i>8/31/2005</i>		<i>12:00-18:00</i>

Return



Agency Representatives	
Name	Agency
<i>COH</i>	<i>White</i>
<i>HC</i>	<i>Lehr</i>
<i>Citizens Corps</i>	<i>Sloan</i>
<i>HCDE</i>	<i>Pinter</i>

ICS-207

Technical Specialists	
Name	Specialty

HOUSTON CHRONICLE

Date: SUN 09/11/05

Section: A Page: 1 Edition: 2 STAR

“HOW A CITY WAS BUILT IN LESS THAN 24 HOURS”

Facing the daunting task of converting the aging and semi-retired Astrodome into *a city* for 23,000, Houston managed to deliver the shelter in 19 *hours* . We'll give you a step-by-step account of how it was accomplished. PAGE A25...

Situation Report

- Harris County will open the Astrodome as a mass shelter.
- Prepare for 23,000 - 25,000 “Superdome” evacuees.
- Most evacuees will be “Special Needs” citizens with an unknown spectrum of medical conditions.
- Expect first buses early Thursday morning (1 September) .

Resources Needed

- **23,000 – 25,000 cots**
- **Showers and restrooms**
- **Replacement clothing**
- **Multiple meals per day**
- **Comfort kits**
- **Blankets**
- **Hundreds of staff**
 - **Medical triage**
 - **In-processing**
 - **Shelter management**

Medical Resource Needs

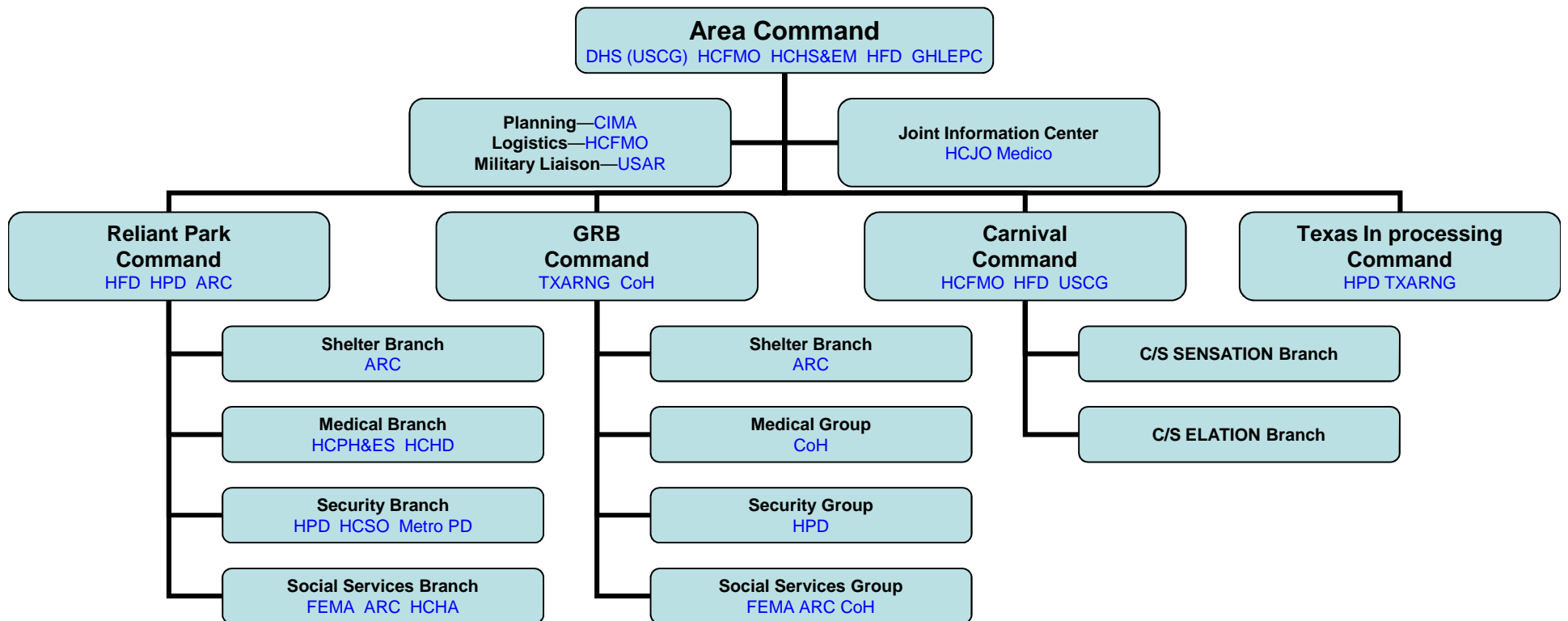
- **A 100,000 square-foot Clinic**
 - 16 examining rooms
 - 4 isolation rooms
 - 20 hospital beds – observation/holding
 - 15 mental health spaces
- **Emergency Department Equipment**
 - 40 gurneys or stretchers
 - 2 ob/gyn tables and kits
 - general medical supply cache
 - 10 wheelchairs
 - 2 cardiac crash carts
 - portable oxygen
 - portable x-ray machine
- **Five ambulances**
- **Three Security Officers**
- **Medical waste disposal**
- **Large supply of medical forms and portable file cabinets**

Nothing gets done without a 213

KATRINA

GENERAL MESSAGE		
TO:	POSITION:	
FROM:	POSITION:	
SUBJECT:	DATE: 09/ /05	TIME:
MESSAGE: Requests for materials MUST include the quantity, any known parameters and a place of delivery. (What) Request must include reason for requesting. (Why) How soon do you need it? (When) Where does it go? (Where)		
SIGNATURE:	POSITION: (Who) CELL PHONE NUMBER:	
REPLY: <input type="checkbox"/> Approved by, date and time:		
DATE:	TIME:	SIGNATURE/POSITION:

Houston Megashelter Organization



News Media

Donations and Shopping

**Unified Command in the
Incident Command Center**

Clinic & pharmacy

Message boards

School Registration

Showers and Laundry Facilities

60,003 Volunteers !!!

Animals

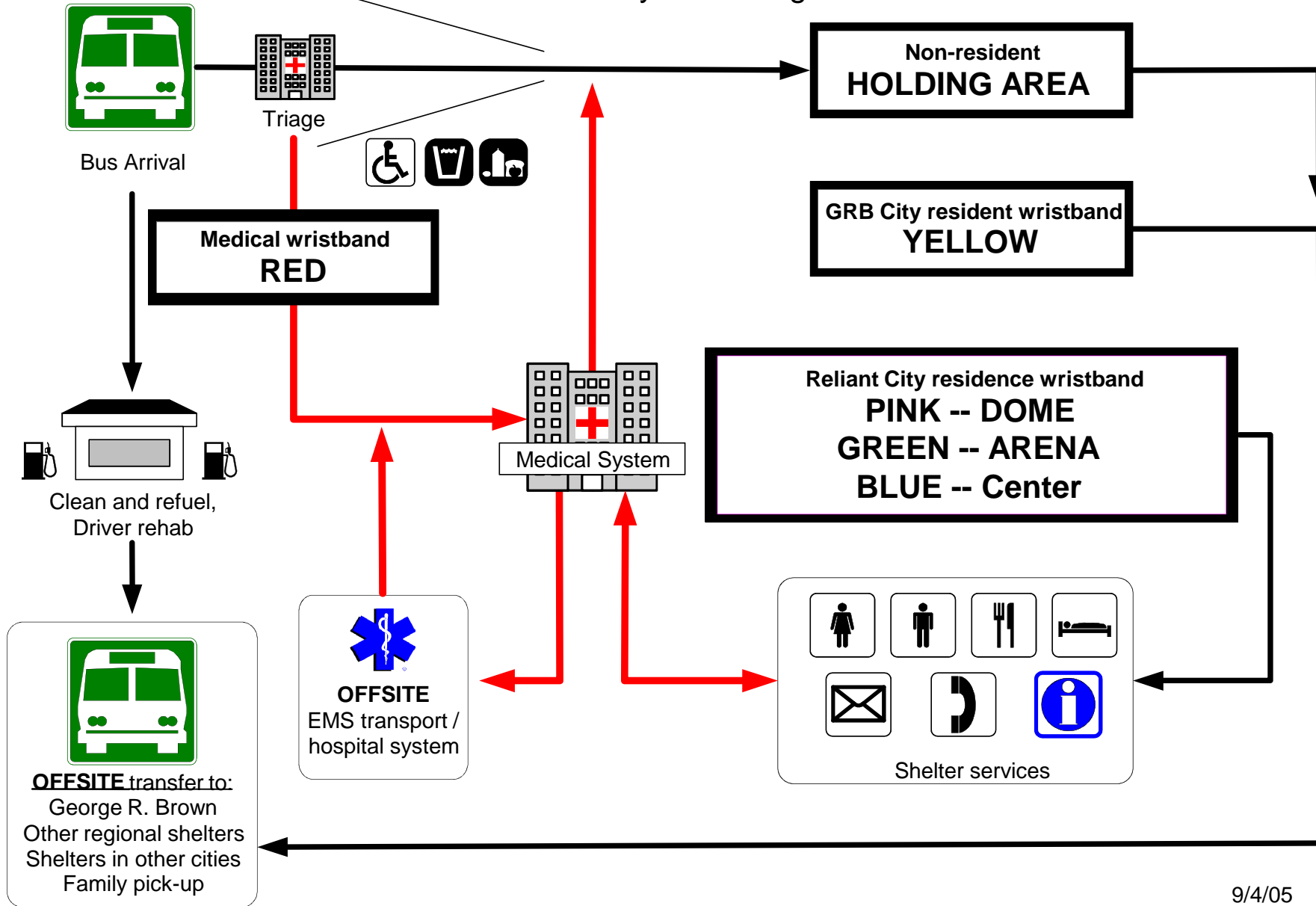
Child support room

Relocation Activities

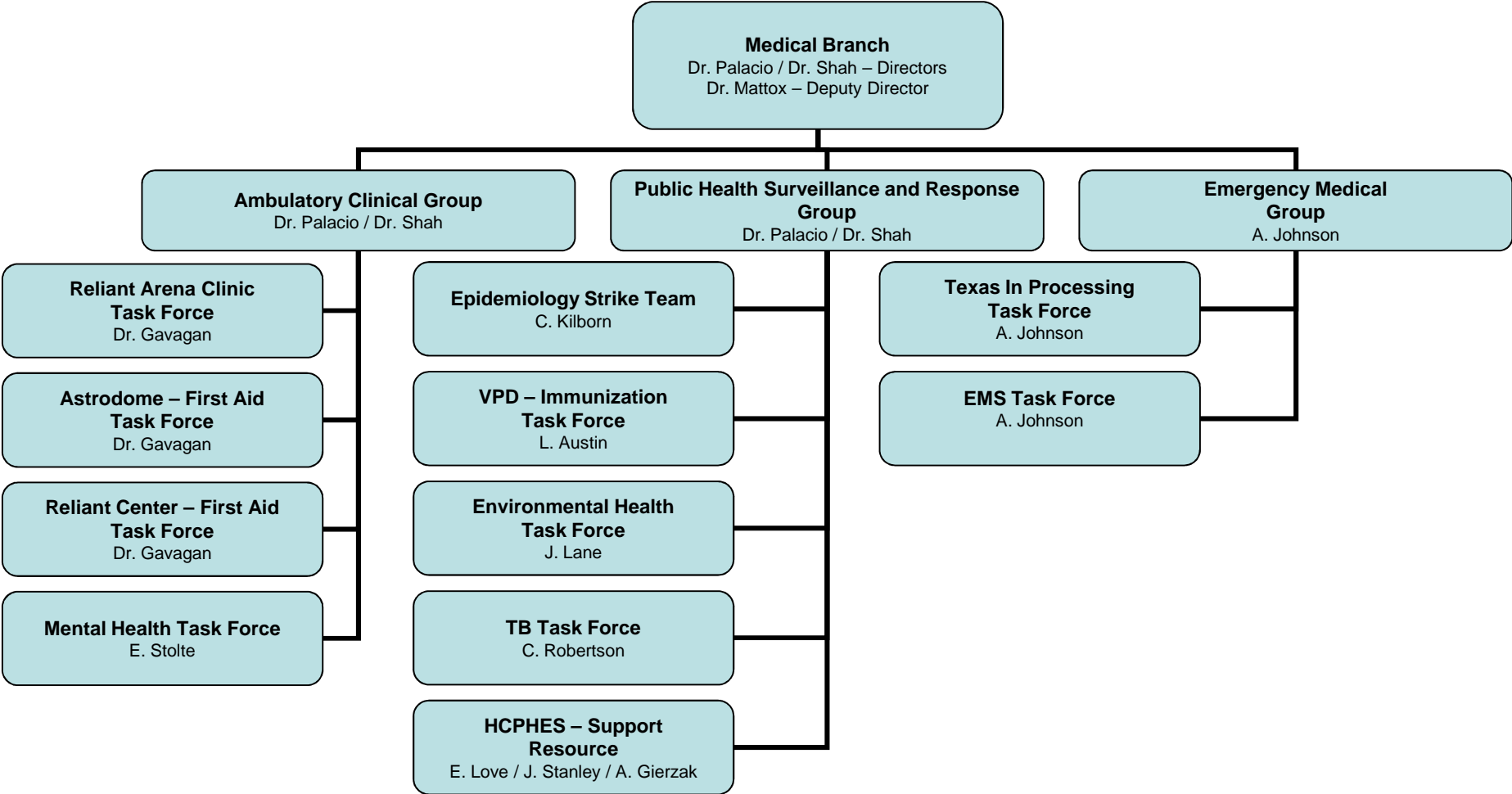
START

Reliant City Operation

Preliminary Screening and Assessment



Medical Branch ICS Structure Operation Katrina

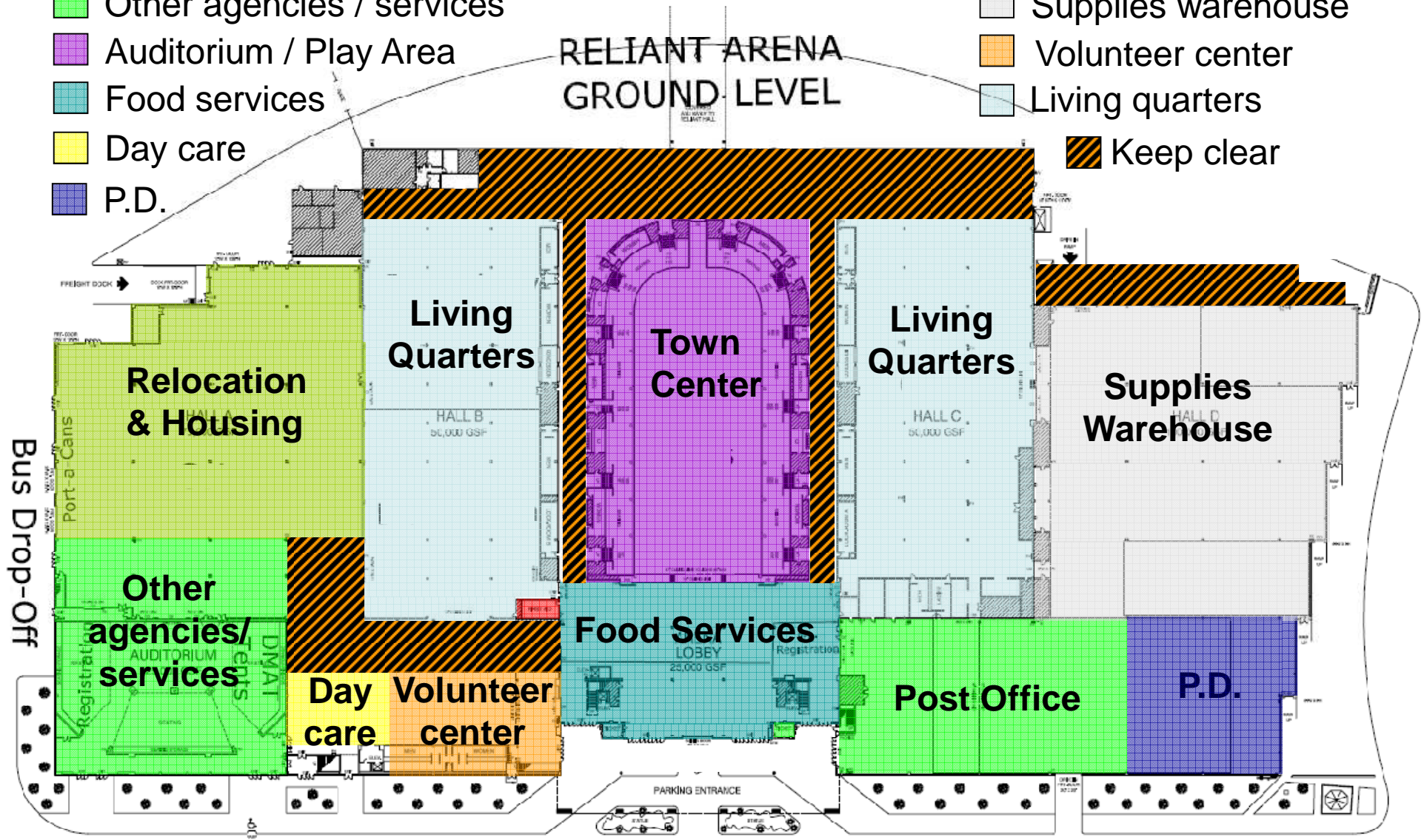


Medical Branch

- Over 5,000 licensed professionals
 - 40 DMAT from Austria
 - Contingency of Denmark doctors
 - 56 DMAT, CO-2
- 150 patients handled per hour
- Prescriptions in 20 Minutes
(over 15,000 provided in a two-day period)
- Eyeglasses in one hour
- Hearing aids
- 30-48 ambulances per shift
- 30 Mental Health professionals
- Education of the residents

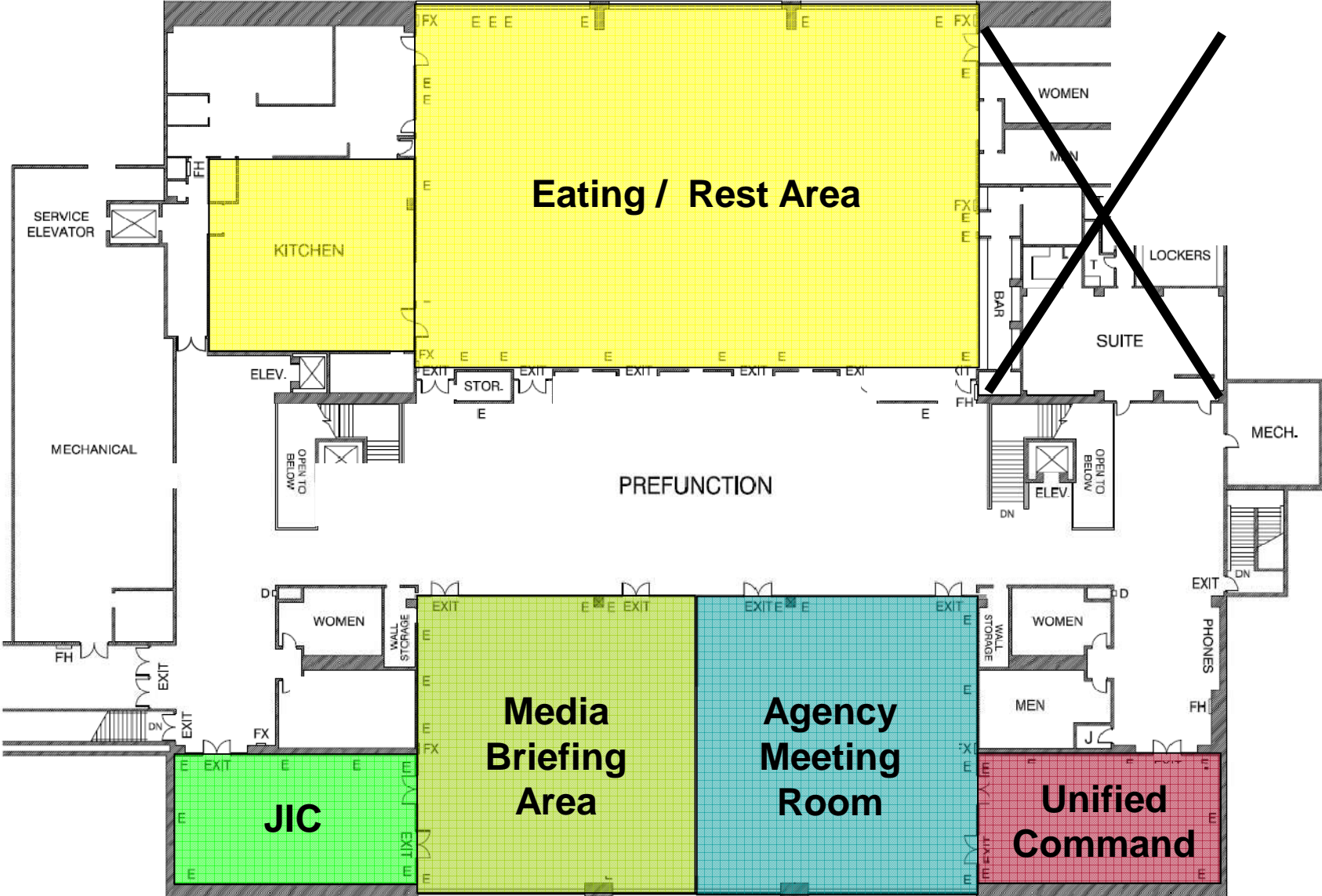
- Relocation & Housing
- Other agencies / services
- Auditorium / Play Area
- Food services
- Day care
- P.D.

- Medical
- Supplies warehouse
- Volunteer center
- Living quarters
- Keep clear



Plan Beginning 9/16

Reliant Arena 2nd Level



Achievements – Katrina page 1

- 25,000 on site
- 30,000 processed in triage—refresh
- Logistics: food, cots, showers
- Four established cities
- Security Team: HPD, outside agencies
- Fire/Fire prevention – EMS – Houston & outside agencies
- Phone Book
- Sister cities set up for relocation
- Education: schools
- Recreational site
- Visitation site
- Pharmacy facility
- Dental facility
- Medical facility – 150 patients seen per hour
- Social Services – HUD-Job Fair

Achievements – Katrina page 2

- 3 meals a day in place and working
- Bus Transportation
- Federal Assistance
- Volunteer Team – American Red Cross – 30,000 people
- Partnership with multi-agency interoperability
- Quality outreach – friend / neighbor
- Elderly and disabled Center
- Faith Based Support
- Wrist Band ID system in place and working
- Media
- Mental Health
- Work to demobilize the in-processing area in a timely fashion.

Lessons Learned

- Start evacuations, earlier especially those who have no transportation
- Local Plans must stand up for at least 24-72 hours.
- Land Planning- Mississippi River has been used for many purposes-forgot potential for natural hazard

Hosting Areas

- Sheltering in large venues can be accomplished
- Are you prepared for the long term 6-12 months
- Can the local infrastructure financially afford to continue long term facilities
- Social hardships on both shelter personnel and evacuees
- What happens when evacuees return home
- What are final expenses to hotels\motels
- Will all expenses by host be reimbursed

Hurricanes Katrina-Rita AAR, After Action Report, 1/25/06

Introduction

1. Focus of AAR is what can we do to do it better the next time
2. Don't lose sight of results – Houston was the “shinning light” of the Response
3. Houston did “what needed to be done”
4. Focal point for two of largest natural disasters
5. Went through something we had not planned for – 2 disasters with mass evacuations
6. Katrina saturated the shelter spaces in and around Houston
7. Governor's Task Forcer results within a month
 - a. Regional Unified Command structure
 - b. Fuel resources
 - c. Special needs residents
 - d. Shelter hub system and local infrastructure – larger cities and metropolitan areas: i.e. Dallas, San Antonio, Austin new locations
 - e. Evacuation – planned and spontaneous

Hurricane notification and warning

1. Galveston County EOC did well internally, was not part of communication and coordination process – especially the congestion and traffic nightmare
2. City managers and mayors must be part of communication and coordination loop all the way to the end point – shared by other counties
3. Once the trigger on Houston was pulled, it locked up the rest of the evacuation plan
4. Directed shelter locations are a mistake – use FM’s freedom to travel wherever
5. “Everyone was scared” - government needs to reassure, guide, and direct citizens
6. Eliminate bottlenecks in small towns – “blinking” lights backed up everyone
7. Need first aid and sanitary stations along evacuations routes
8. State conference calls and weather conference calls were presenting conflicting information – media was hyping the storm, don’t need the state doing same
9. Rita was a large, predictable storm – decision making was fairly simple
10. National Weather service needs to be the single source of weather data
11. Poor information coming out of Louisiana into Texas State EOC
12. Communication process across the board needs to be improved

13. “Katrina effect” caused many to evacuate in Rita that otherwise would not have
Done so- media-driven
14. “Rita effect” may cause many to NOT evacuate in future storms
15. Good communications from Houston to evacuation point regarding air evacs
16. Media weathercasters contributed to public panic situation
17. Poor education of general public regarding evacuation plans
18. Elected officials need to be the voice – they have best information, sense of comfort, sense of responsibility.
19. Need to do a better job of educating the public
20. Is “run from the water, hide from the wind” a reliable model? Do we need to modify
21. Secondary roads had fuel and food, but were not approved evacuation routes
22. If you’re going to evacuate – leave early, leave often and plan your own evacuation
23. People on secondary roads were forced onto main evacuation arteries – is this good? Pouring water runs where it wants to go.
24. Information from State to Local EOC is good – disconnect is between government and citizens
25. Statewide public education programs needs to begin quickly

26. Unified RIMT state-wide, program in process with TFS
27. Department of Transportation can time some signals, but local PD or officials overrode settings
28. County conference call with cities
29. Liaisons between adjacent cities and counties
30. Roadside information signs about gas, water, etc. (Plans by DOT in place now)
31. Need PIO from every jurisdiction in the JIC to be sure information flows
32. Operational challenge is for smaller jurisdictions to participate in JIC, but cover other local responsibilities as well

Evacuation Routes

1. Locals feel that mandatory evacuation routes and shelters will not work
2. People are intelligent – let them seek their own evacuation route
3. People who need assistance should have it available
4. Conflicting information from PD officers assigned to intersections
5. Mandated and forced evacuation routes were coordinated by somebody, not a local decision

6. Fix disconnect between state and local evacuation plans and instructions
7. This is a “martial Law” event – requires serious authority and political will
8. Be ready for roadside vendors to provide food and other services (ON PLAN NOW)
9. In certain communities, mandated routes are required to prevent gridlock
10. Clearly identify evacuation zones and educate public
11. For the first time, the State had identified evacuation plans and evacuation hubs
12. Primary goal along main lanes is to keep traffic moving, and that may mean closing exits
13. Overall, the plan worked – it needs periodic review and improvements
14. Plan has to be for the good of most people, it may inconvenience or affect a small number of the population
15. Contra-flow along main evacuation routes – timing to be determined by the event
16. Bottleneck is not in areas that can benefit from contra-flow – its in the small communities where the choke points exist.
17. Contra-flow works, it gets the evacuees away from the coastal areas quickly
18. Evacuees need realistic expectations – medications, food, water, travel time, etc

Evacuation Shelters

1. Security can “lock up” a local police force. People brought too many belongings – caused a “feeding frenzy” along the main highways in motels and hotels
2. Short-term vs. long-term requirements
3. Provide a clearly-defined mission and understand the limitations
4. Phasing down shelters is a difficult coordination effort and raised civil rights issues
5. Red Cross was not prepared for the flexibility required for Reliant-size shelter operations
6. Key partners are not trained and/or do not operate within NIMS or other ICS protocols
7. Shelter plans need to be flexible and based on NIMS
8. Temporary operating waivers and emergency operations
9. All agencies need to be NIMS trained and agree to operate within NIMS
10. Constructs for NIMS are in place, but elected officials need to buy in, support, and understand NIMS
11. Credentialing and sharing information was a concern
12. Differentiation between “evacuation shelter” and “evacuation center”

13. Need clear identification between agency reps and volunteers (Red Cross)
14. Match an appropriate shelter to “special needs” evacuees
15. “Opt in” registry of special needs patients
16. What is the determination of pet evacuation? “No pet” rule is appropriate in a shelter but the message needs to be consistent from all sources
17. Long-term mega-shelters become communities and cities, with similar problems, needs, services, and solutions. May require a municipal form of government. School and day care may be required
18. Consider multiple forms of communications within the shelter – multiple languages, illiteracy, and disabilities

Special Needs Population

1. Airlift limitations – compressed gas, motorized wheel chairs
2. Ellington Field is an excellent base for air lift operation, but need A/C terminal and baggage handling
3. Military airlift has more decision-making flexibility than charter airlift
4. TSA screening and baggage handling are chokepoints
5. Good faith commitment of ambulances is a no-win situation

6. Ambulance plans were built in silos: often used same EMS service as their transportation source
7. There is no State plan to coordinate ambulance transport services
8. There should be a prohibition for ambulances to have multiple contracts with multiple nursing homes unless there are enough resources to perform all services at the same time
9. The transportation system was simply overloaded to handle the entire load
10. Many homebound patients are not in “the system”, and were not identified until late in the event. Many do not have an evacuation plan
11. Everyday events do not stop during an evacuation. There is no EMS transport surge capacity
12. Many government agencies do not have any fuel reserves and cannot provide for their own vehicles in an emergency
13. Plans should include both evacuation and shelter-in-place options. Don't evacuate the ones who don't need to go.
14. Special needs patients may need special equipment – if a generator is required, make those provisions early in the process
15. Web-based entry system, with wristband/photo ID to enter evacuee information ONE TIME that follows the evacuee through the system

16. System started to break down about eight hours before the mandatory evacuation – this had the greatest effect on the special needs population
17. Define “essential personnel” and facilities – food, water, ice, and others

Medical Needs

1. Mass shelters need on-site medical facilities to reduce load to host community
2. Epidemiologists were able to observe, document, and identify vectors before severe outbreaks could occur. Required robust capability.
3. Mental health needs were difficult to address due to perceived stigma. Outreach programs and cot-to-cot interviews were needed to assess needs
4. Remember to address medical and mental health needs of responders and command staff, too
5. Medical waste disposal is a big issue, especially in mega-shelters
6. Wheelchair access is necessary throughout the shelter
7. Credentialing and reciprocity for docs and other medical personnel
8. Spontaneous medical branches can be problematic
9. Disaster Medical Unified Command System worked well for all the area.
10. Katrina/Rita fatality statistics are posted on the HC Medical Examiner website. Most had acute or chronic medical conditions prior to the evacuation

Donation Management

1. Red Cross can accept only new items. Donation plans need to understand that
2. A donation is just that – a donation It is not reimbursable by FEMA or any other level of government
3. Well-intentioned media releases can upset the best-laid donations plans
4. Large-scale corporate donations need to be verified and tracked. Vast truckloads and volumes can quickly overwhelm the donations receiving staff.
5. Consider legal documentation requirements (\$250 limit)
6. FEMA ignored donation center location advice of local authorities

Communications

1. Most widely used communications links were landline telephones, face-to-face communications, and Nextel/Blackberry systems
2. Nextel/Blackberry communications operate on the administrative channel and they remained “up” even when other communications links failed.
3. Personal cell phone bills are reimbursable, but billing cycles can cause cash flow problems
4. Command staff contact information should not be shared with the media. This creates a security issue in additions to clogging the communications pipeline.

5. Review shelter privacy and related legal rights of shelter residents regarding media access
6. All agencies represented in the ICP should be represented in the JIC to provide information as well as receive it
7. Rumor control was tough at times, even with scheduled IC meetings and press briefings
8. Independent media releases, conflicting information and lack of coordination between JIC and ARC communications group was an ongoing concern. The lesson learned is that ALL agencies must be part of the ICS and release information through the JIC
9. Single source responsibility for dignitaries worked well. (OEM handled this)

Emergency Management Plan

1. Partnerships were critical to the success of the mission and overall effectiveness
2. Long-term recovery includes updating plans in anticipation of future events
3. National Travel System worked well to get folks home or to their final destination
4. RLO system worked extremely well
5. Intel between LE agencies was excellent