

Infectious Disease Issues Associated with Hurricane Katrina (HK)

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New Orleans

- Largest city in LA
- Almost 500,000 residents (greater NO area 1.3 million)
- 67% African American
- Median income for a family \$32 K
- Almost ¼ below poverty line
- Significant portion of NO is 1-10 feet below sea level



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Impact of Katrina Greater than 'Just' a Hurricane

- 80% of New Orleans was flooded
- 60-80% of the population was evacuated
- No power or water
- Media coverage questioned Federal response
- Public health infrastructure gone
- Think of post-tsunami Banda Aceh or post-earthquake Haiti



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Public Health Issues Associated With Natural Disasters

- Water Quality
- Wounds
- Solid Waste Disposal
- General Sanitation (debris removal)
- Vector Control
- Immunizations (workers and population)
- Close-quarter, densely populated living conditions
- Disruption of access to medical services



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Priorities

- Surveillance
- Support re-building PH infrastructure
- Support planning for enhanced PH

Support, not supplant!



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CDC Commitment

- Agency-wide response from August 25, 2005 through January 1, 2006.
- Residual , focused assistance continued past these 129 days.
- 1,324 staff deployed; mainly to the Emergency Operations Center, but also to impacted states/cities



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Planning Challenges

- Lack of clear predictability of future (e.g., population of New Orleans = 150K? 450K?)
- Evolving mission and competing priorities
- Multiple overlapping planning processes, commissions, organizations, Agencies, etc.
- Sustainability after our departure



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New Orleans population estimates

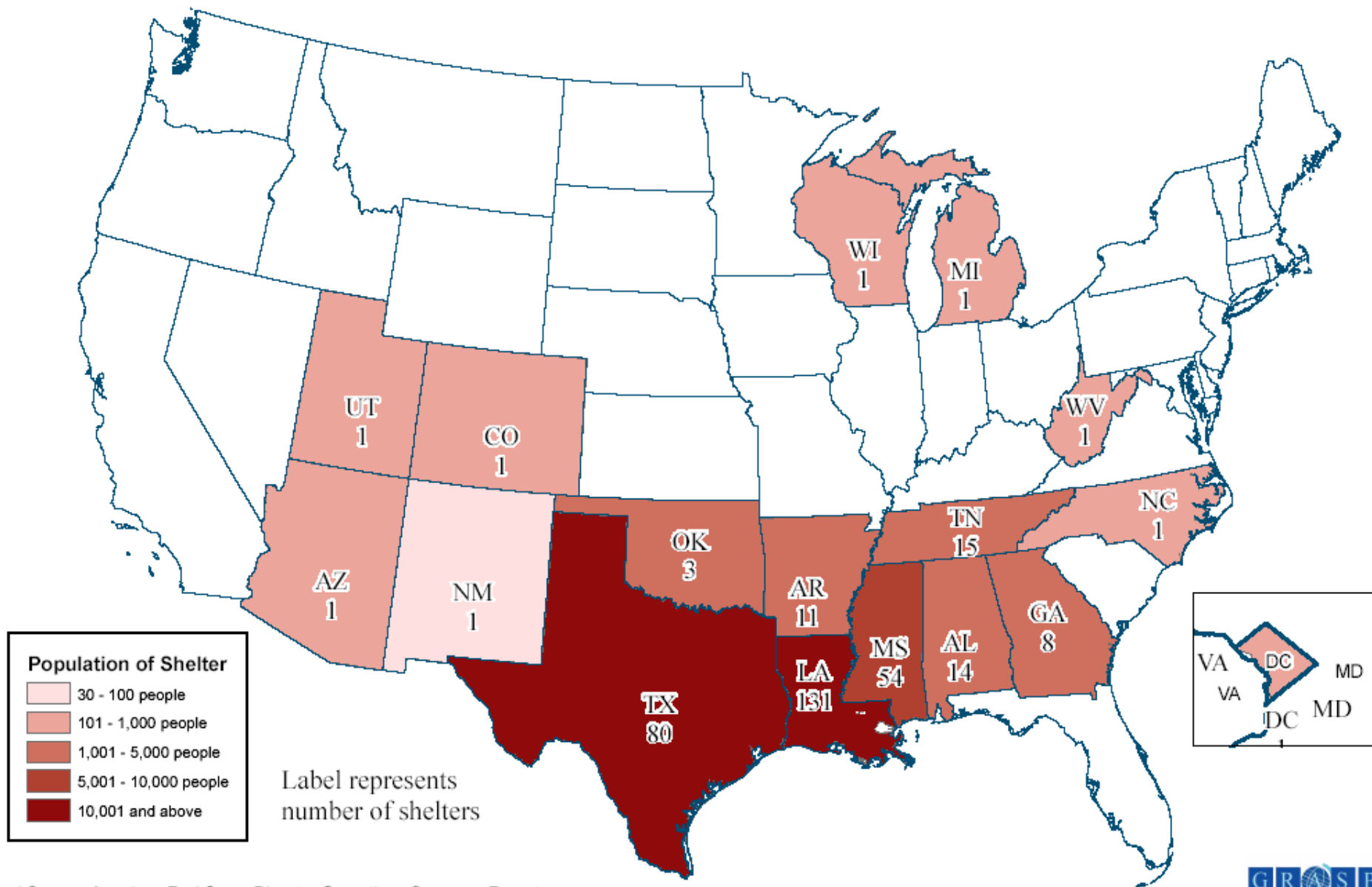
- pre-Katrina – 484,674 (2000 US Census)
- October 2005 – 127,800
- December 2005 – 134,400
- January 2006 – 181,4000



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Distribution of Evacuation Centers and Census by State September 14, 2005



* Source: American Red Cross Disaster Operations Summary Report

Surveillance Challenges

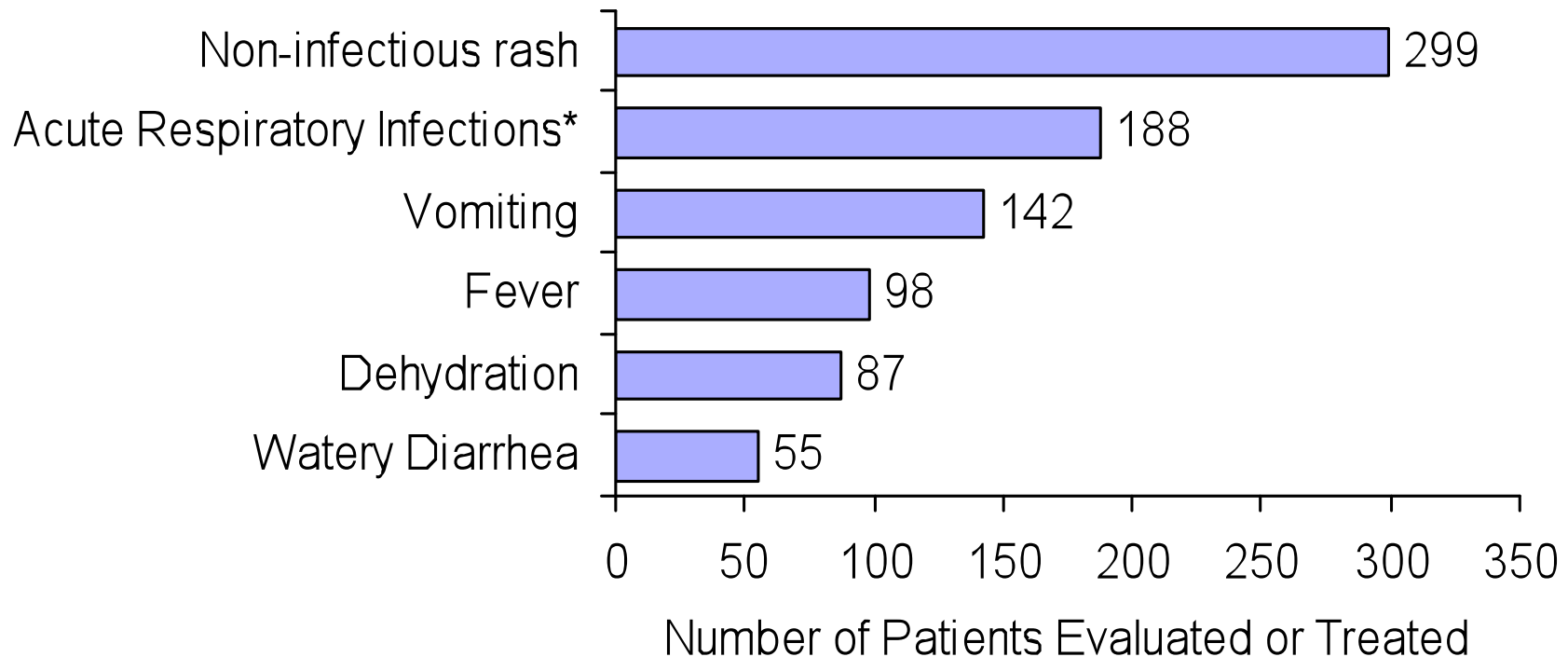
- Disruption of Public Health and Medical Infrastructure
 - ◆ Displaced personnel
 - ◆ Damaged laboratory and other facilities
 - ◆ Affected power and telephone service
- Large numbers of Evacuation Centers (EC) with need for longer operation
- Multi-state HK effects and evacuee displacement
- Lack of single registration source for evacuees



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Surveillance at New Orleans Area Hospitals* for Conditions with Infectious Disease/Epidemic Potential, September 9-20, 2005



*represents 5 hospitals (West Jefferson, East Jefferson, Ochsner, Northshore, and St. Charles Parish); Total of 3,750 patients seen during reporting period

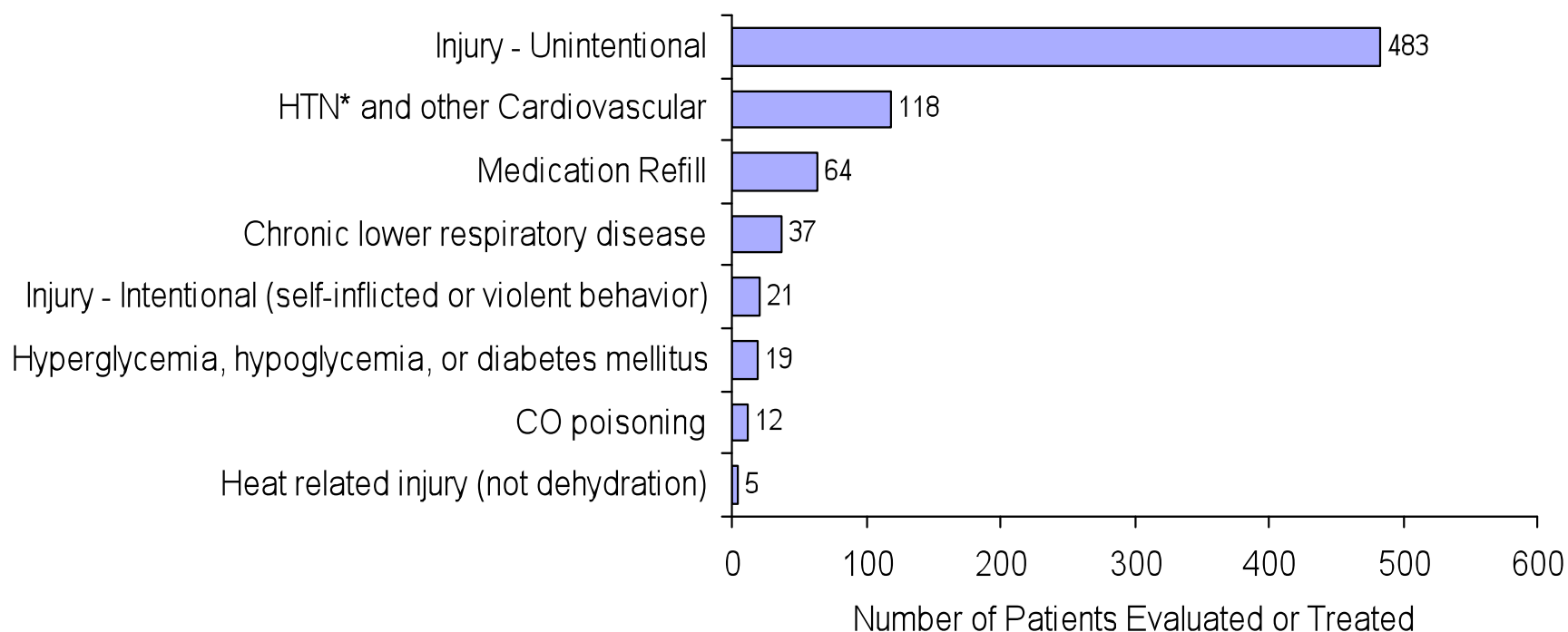


Source: LA DOH and Greater New Orleans
Public Health Response Team

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**Surveillance at New Orleans Area Hospitals* for Injury/Chronic Disease/
Other Conditions, September 9-20, 2005**



*5 hospitals (West Jefferson, East Jefferson, Ochsner, Northshore, and St. Charles Parish); Total of 3,750 patients seen during reporting period

Source: LA DOH and Greater New Orleans Public Health Response Team



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Top Conditions Identified in LA Shelter Needs Assessment (USPHS and ARC)

Condition	Incidence per 1,000 residents
Hypertension/ Cardiovascular	108.2
Diabetes	65.3
New Psychiatric Conditions	59.0
Pre-existing Psychiatric Conditions	50.0
Rash	27.6
Asthma/ COPD	27.5
Flu-like/severe respiratory symptoms or Pneumonia	26.3
Toxic exposure	16.0
Other infections*	15.6
Diarrhea	12.8



*TB, hepatitis, pertussis, varicella, rubeola, encephalitis, meningitis, other serious communicable illness of outbreak concern

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Main Categories of Infectious Diseases Seen Post HK

- Gastrointestinal
- Wound infections
- Respiratory
- Skin infections



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Diarrhea/Gastroenteritis

- Norovirus
- *Vibrio cholera*, non O1, non-O139
 - ◆ 3 cases, no deaths
- *Vibrio cholera* O1, nontoxigenic
 - ◆ 3 cases, no deaths
- nontyphoidal Salmonella



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Wound Infections

- *Vibrio vulnificus*
 - ◆ 14 cases* (3 deaths)
- *Vibrio parahaemolyticus*
 - ◆ 3 cases* (2 deaths)

*Number of cases reported
as of September 14, 2005

FIGURE 3. Primary septicemic skin lesions caused by *Vibrio vulnificus*



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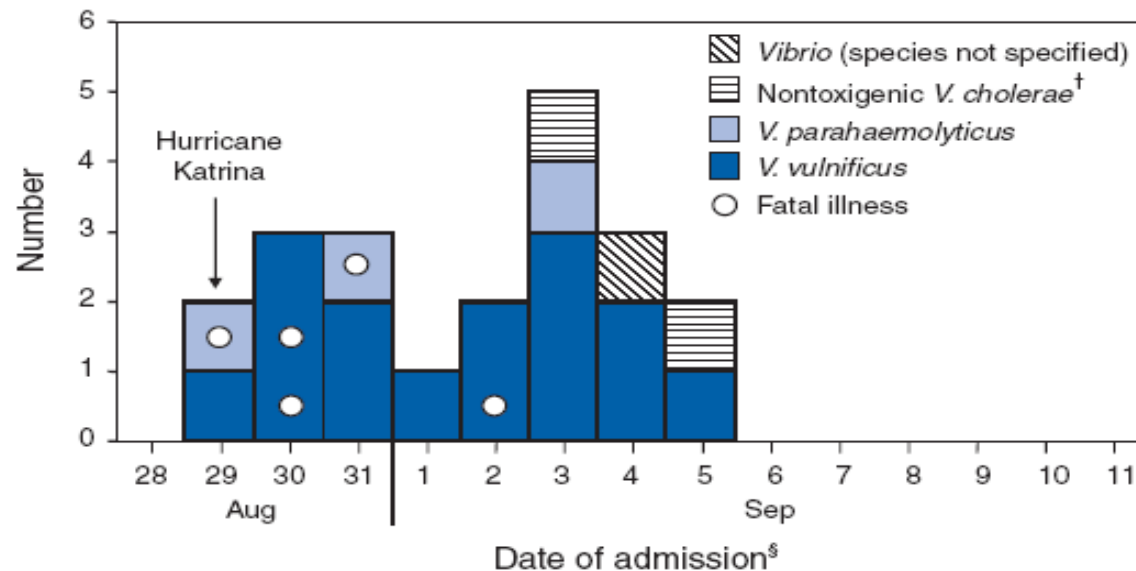
From: CDC. *Vibrio* Illnesses After Hurricane Katrina --- Multiple States, August--September 2005. MMWR September 14, 2005 / 54(Dispatch): 1-4



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FIGURE 1. Cases of post-Hurricane Katrina *Vibrio* illness among residents of Louisiana and Mississippi,* by date of hospital admission — United States, August 29–September 11, 2005



* N = 22; Alabama, a third state under surveillance, reported no cases.

[†] Nontoxigenic *V. cholerae* illnesses represent infections entirely distinct from the disease cholera, which is caused by toxigenic *V. cholerae* serogroup O1 or O139.

[§] Date of admission was not available for one Louisiana resident. In cases that did not require hospitalization, the date represents the first contact with a health-care provider for the illness.

From: CDC. *Vibrio* Illnesses After Hurricane Katrina --- Multiple States, August--September 2005. MMWR, September 14, 2005 / 54(Dispatch);1-4



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Respiratory Diseases

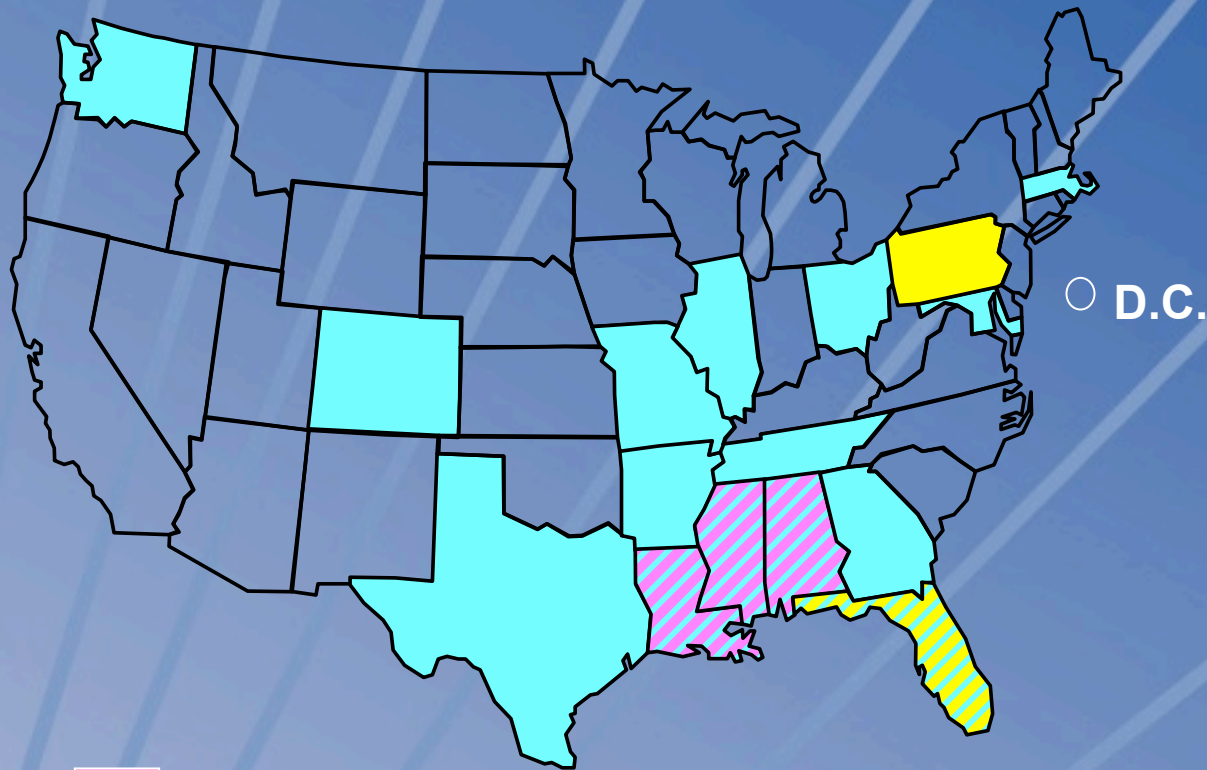
- Upper and lower respiratory infections
 - ◆ Pertussis
 - ◆ Respiratory syncytial virus
 - ◆ Streptococcal pharyngitis
- Tuberculosis (TB)
 - ◆ ~ 9 evacuees evaluated as suspected TB cases
 - ◆ Only 2 confirmed to have TB (1 pulm, 1 extrapulm)



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Location, by State, of TB Patients Displaced by Hurricane Katrina (as of Sept 30, 2005)



○ D.C.

- Where began treatment
- Where now continuing treatment
- Where new case confirmed



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Skin Infections/Other

- Methicillin Resistant *Staphylococcal aureus* (MRSA)
 - ◆ 30 cases reported, 3 confirmed
- Tinea corporis
- Folliculitis
- Varicella
- Presumed viral conjunctivitis
- Others: scabies, head lice, arthropod bites, immersion foot, animal bites



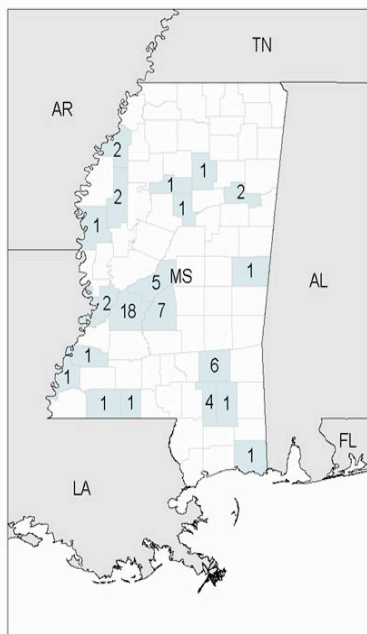
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Vector-borne Infections

Human West Nile virus cases by county, Mississippi, 2005*

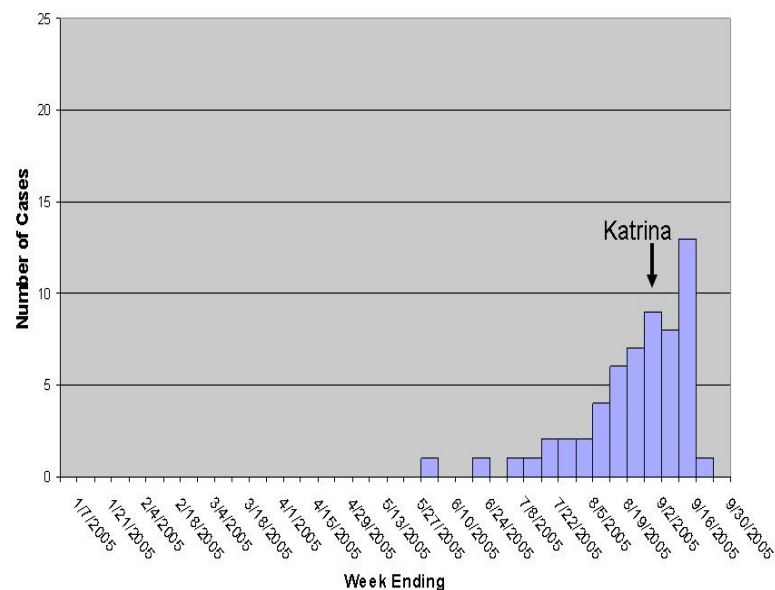
Adams	1
Amite	1
Calhoun	1
Clay	2
Coahoma	2
Forrest	4
Grenada	1
Hinds	18
Jackson	1
Jefferson	1
Jones	6
Kemper	1
Madison	5
Montgomery	1
Perry	1
Pike	1
Rankin	7
Sunflower	2
Warren	2
Washington	1
Mississippi	59



*Reported as of 10/3/2005

ArboNET CDC

Human West Nile virus cases by week of onset, Mississippi, 2005*



*Reported as of 10/3/2005

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Other Infectious Disease Challenges

- Continuity of HIV/AIDS Patient Care
- Recommended Responder Vaccinations
 - ◆ To address vaccine-preventable disease risks to responders
 - ★ Tetanus if not up to date
 - ★ Hepatitis B if patient care or exposure to bodily fluids
 - ★ If working in large ECs, other vaccines as recommended for evacuees



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Other Infectious Disease Challenges (Prevention)

- Recommended Evacuee Vaccinations
 - ◆ To ensure children, adolescents, and adults were protected by maintaining current, standard vaccine recommendations
 - ◆ To reduce likelihood of outbreaks of vaccine-preventable diseases in the large, crowded group settings



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Other Infectious Disease Challenges (Prevention)

- Recommended Evacuee Vaccinations
 - ◆ For routine vaccinations, assume up-to-date and follow schedule for age
 - ◆ For crowded group settings:
 - ★ Influenza ($\geq 6m$)
 - ★ Varicella ($\geq 12m$ unless history of chickenpox or record)
 - ★ MMR ($\geq 12m$ and borne 1957 or after, if no record of 2 shots)
 - ★ Hepatitis A ($\geq 2y$, one dose, unless history or record)



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Summary

- Infections consistent with those endemic to the affected regions and are predictable
- Only 1 outbreak of illness (diarrhea) resulted in a request for additional response assistance
- Longer-term displacement and medical system disruption presented treatment challenges for those on pre-hurricane treatment for infectious diseases and chronic illnesses
- Unified registration source for evacuees would assist with medical treatment/vaccine registry matching to assure continuity of care



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Questions?



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