

Public Health Research During Disasters

June 13, 2014

PARTNERING WITH THE COMMUNITY TO ENABLE ACCESS AND BASELINE DATA

David Lakey, M.D.

Commissioner

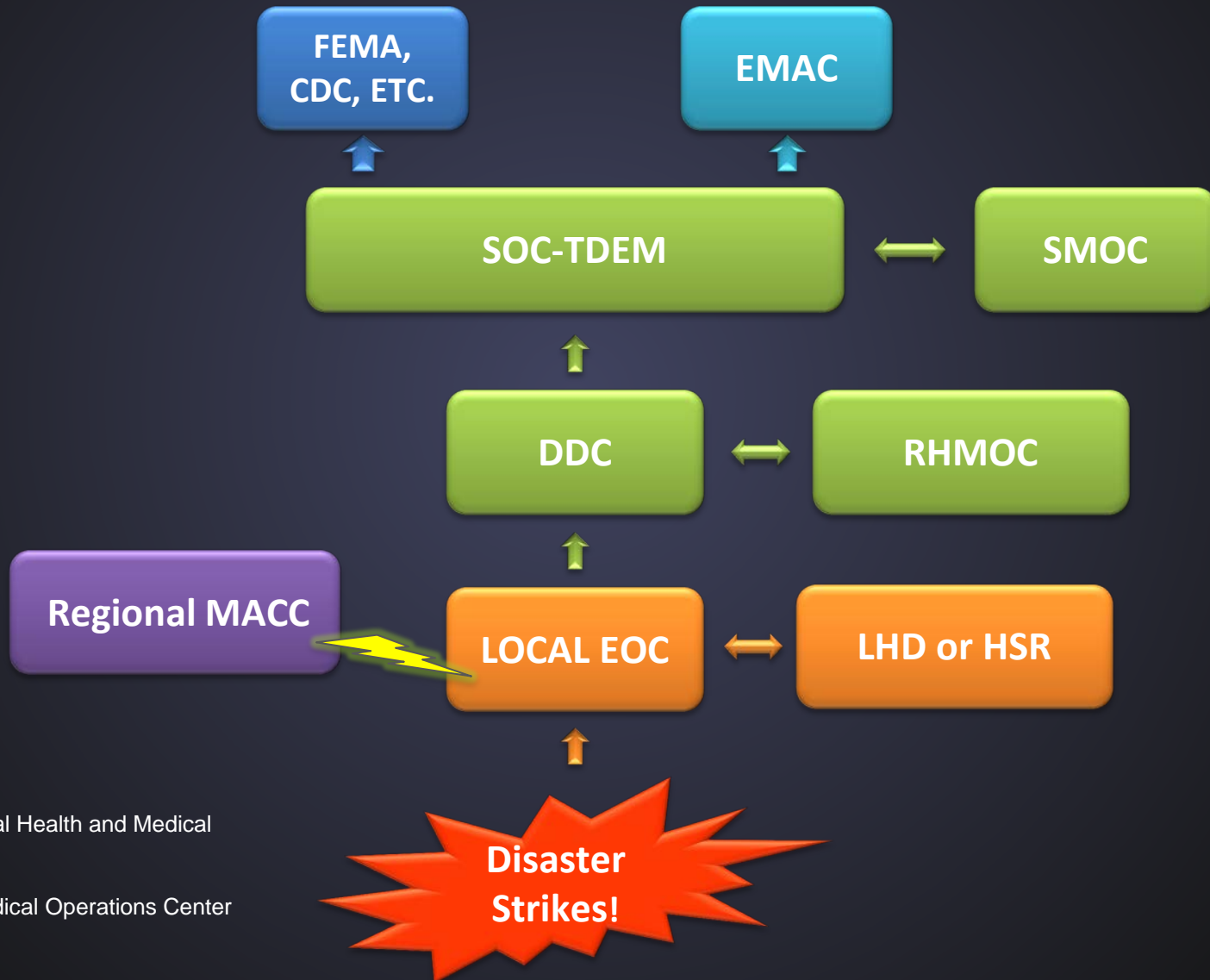
Texas Department of State Health Services



Texas 2008 - 2013 Response Events

- **Hurricanes & Tropical Storms**
 - Dolly, Gustav, Ike, Alex & Eduard
- **San Angelo**
 - Yearning for Zion Ranch
- **Epi Investigations**
 - Raw vegetables, TB, Mercury
 - Salmonella, Measles, Mumps, Cyclospora, Pertussis
- **Foodborne Outbreaks**
- **Compound Pharmacy Investigation**
- **H1N1 Pandemic**
- **Bastrop Wildfire**
- **West Nile Virus**
- **West Fertilizer Plant**
- **Unaccompanied Minors**

Texas ESF-8 Organizational Structure



RHMOC: Regional Health and Medical Operations Center

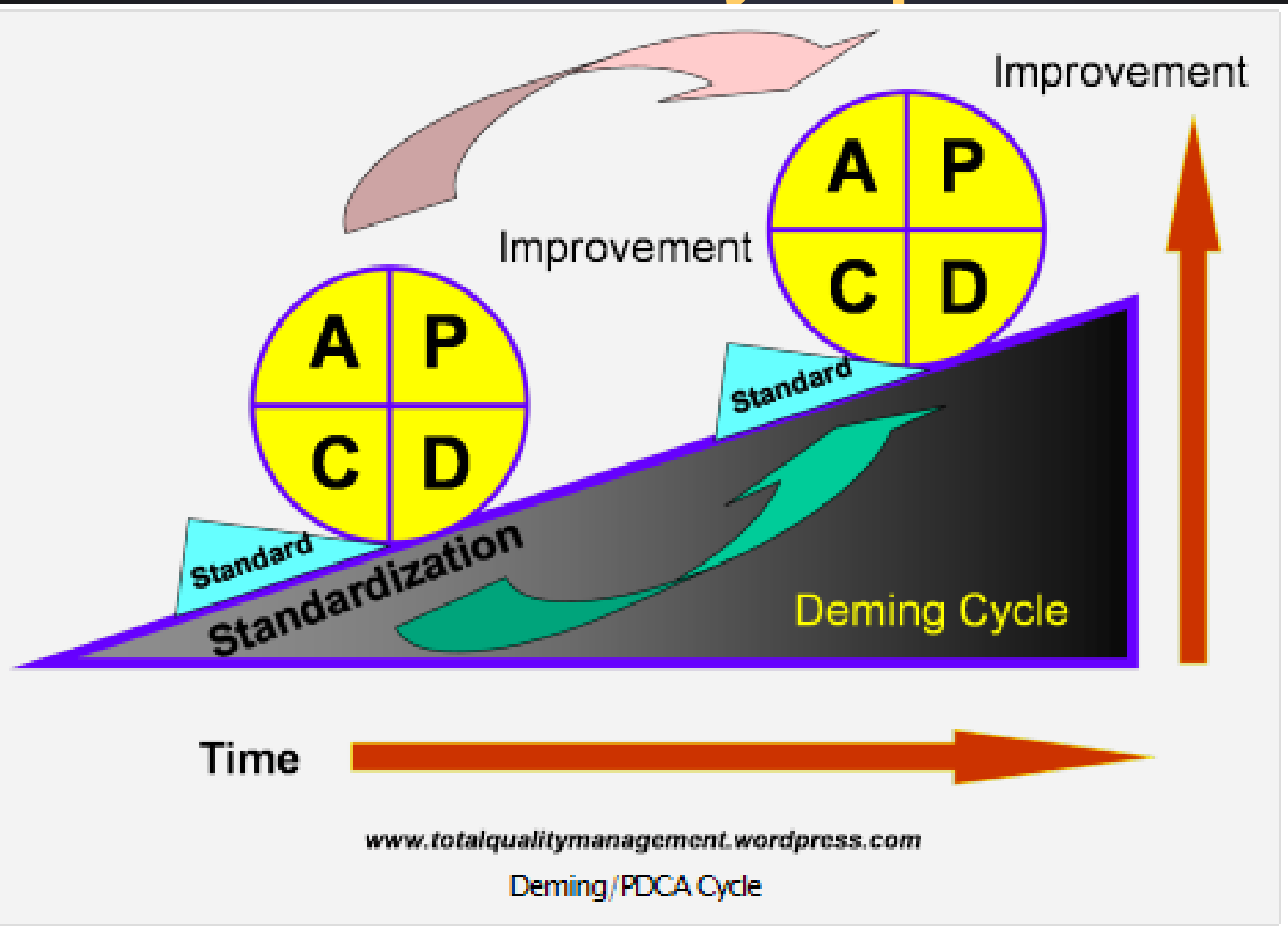
SMOC: State Medical Operations Center

Emergency Support Functions

Emergency Support Function (ESF)	Primary Agency
1. Transportation	TDCJ
2. Communications	DIR
3. Public Works & Engineering	TxDOT
4. Firefighting	TFS
5. Direction & Control	DPS / GDEM
6. Shelter & Mass Care	The Salvation Army
7. Resource Support	TBPC
8. Health & Medical	DSHS

ESF Desk	Primary Agency
9. Search & Rescue	TEEX
10. Hazardous Material & Oil Spill Response	TCEQ
11. Food & Water	HHSC
12. Energy & Utilities	PUC
13. Law Enforcement	DPS
14. Recovery	TDEM
15. External Affairs	Governor's Office

Continuous Quality Improvement



Texas DSHS Peer-Reviewed Articles on Public Health Preparedness

- **Nearly 50 scientific articles since 2004**
 - About a third of the articles include the use of poison control data.
- **Topics**
 - Hurricanes (Ike, Rita, Katrina, Dolly)
 - Infectious Disease Outbreaks (H1N1, West Nile, Salmonella St. Paul)
 - Mass Prophylaxis
 - Wildfire related deaths
- **Journals**
 - MMWR, JAMA, NEJM
 - Disaster Med Public Health Prep,
 - Prehospital Disaster Medicine
 - Clinical Toxicology
 - Journal of Transportation Safety & Security
- **Authors**
 - Written by DSHS regional and central office staff from a variety of programs
 - Frequently academic co-authors

Negative Research Experiences

- Yearning for Zion Ranch
 - April 2008 Raid
 - Sheltering
 - 466 children
 - 110 mothers
- Hundreds of responders including
 - TX Department of State Health Services
 - Mental Health
 - EMS
- Inappropriate media sharing



Negative Research Experiences

- Hurricane Ike
 - Category 2 storm, 110 mph winds
 - Landfall near Galveston, Texas.
 - 15 counties under mandatory evacuation
 - 74 fatalities
- Negatively biased requests for information



Successful Research: Tracking Injury Deaths Related to Hurricane Ike, Texas (2008)



Hurricane Ike Mortality Surveillance

- Study Objectives
 - Report on deaths attributed to Hurricane Ike
 - Describe the cause of deaths, and
 - Identify strategies to prevent or reduce future hurricane-related mortality
- Data Sources
 - Medical Examiners
 - Justices of the Peace
 - Coroners
 - Forensic Center
 - Hospitals
 - Regional epidemiologists



(AP Photo/David J. Phillip)

Hurricane Ike Mortality Surveillance

- 74 deaths reported
- Majority of deaths were indirectly related to the hurricane
- Results indicated that injury was the leading cause of death
 - Carbon Monoxide Poisoning
 - Drowning
 - Hit by fallen trees



(David J. Phillip-Pool/Getty Images)

Successful Research: West Fertilizer Plant Explosion Epidemiological Injury Investigation (2013)



West Explosion Epidemiological Investigation

- Study Objective
 - Describe physical injuries and fatalities
 - Modelled after investigations following the Oklahoma City bombing and the 2011 Alabama tornadoes
- Lead Agency: Waco-McLennan County PHD
 - Partners included DSHS Health Service Region 7, DSHS Central Office, and the Centers for Disease Control and Prevention (CDC)
- Data sources:
 - Medical examiner
 - Death certificates
 - Hospitals
 - Urgent care clinics
 - Survivor interviews



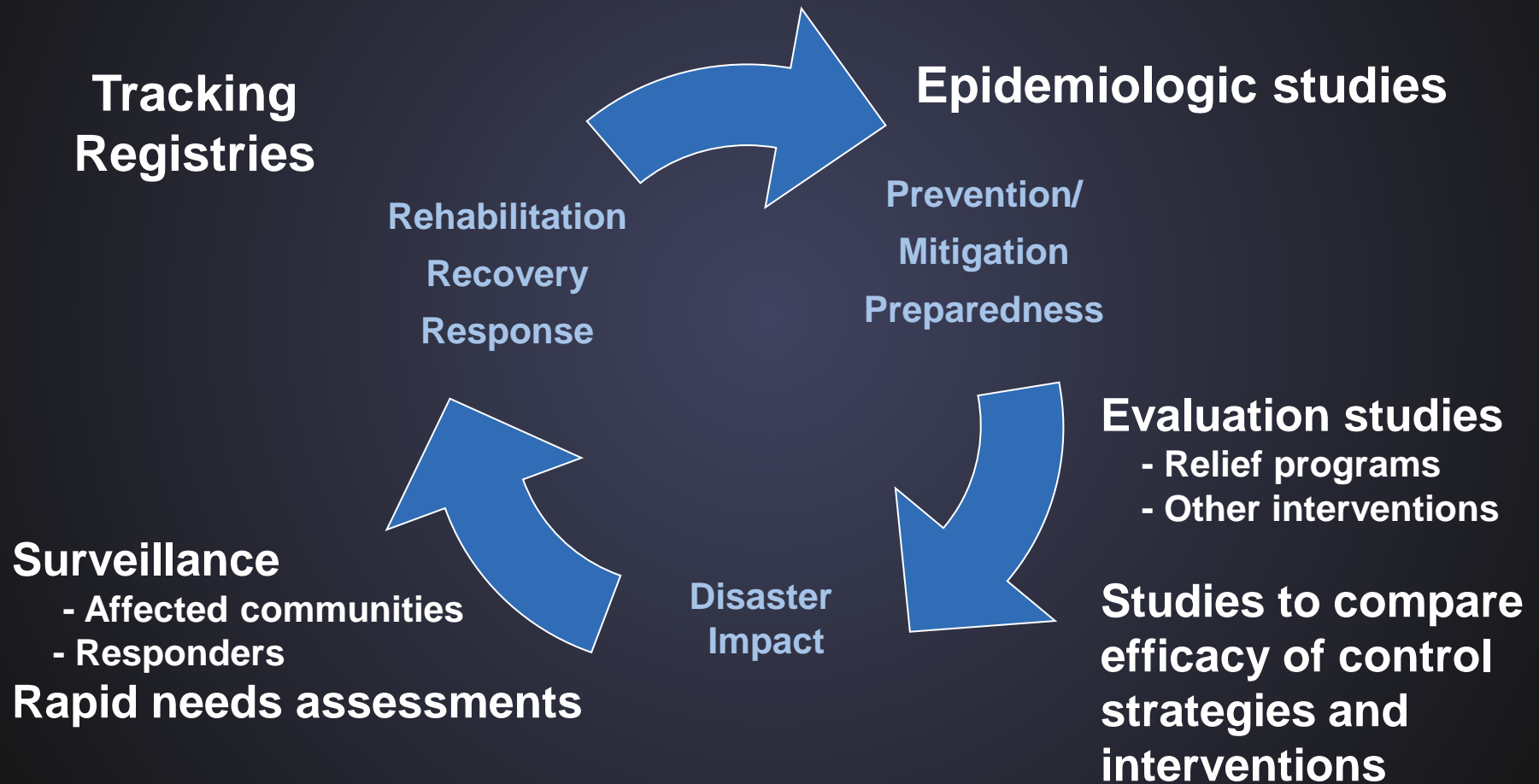
West Explosion Epidemiological Investigation

- Collaboration between local, regional, state, and federal agencies
- Results:
 - Injury Characteristics
 - Resource Needs and Distribution
 - Predictions of injury types and medical resource needs (e.g., blood products, imaging studies) anticipated
 - Communication priorities for affected individuals
- Outcomes
 - Characteristics of fatalities and injuries, injury maps, and injury rates by location

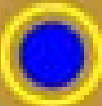
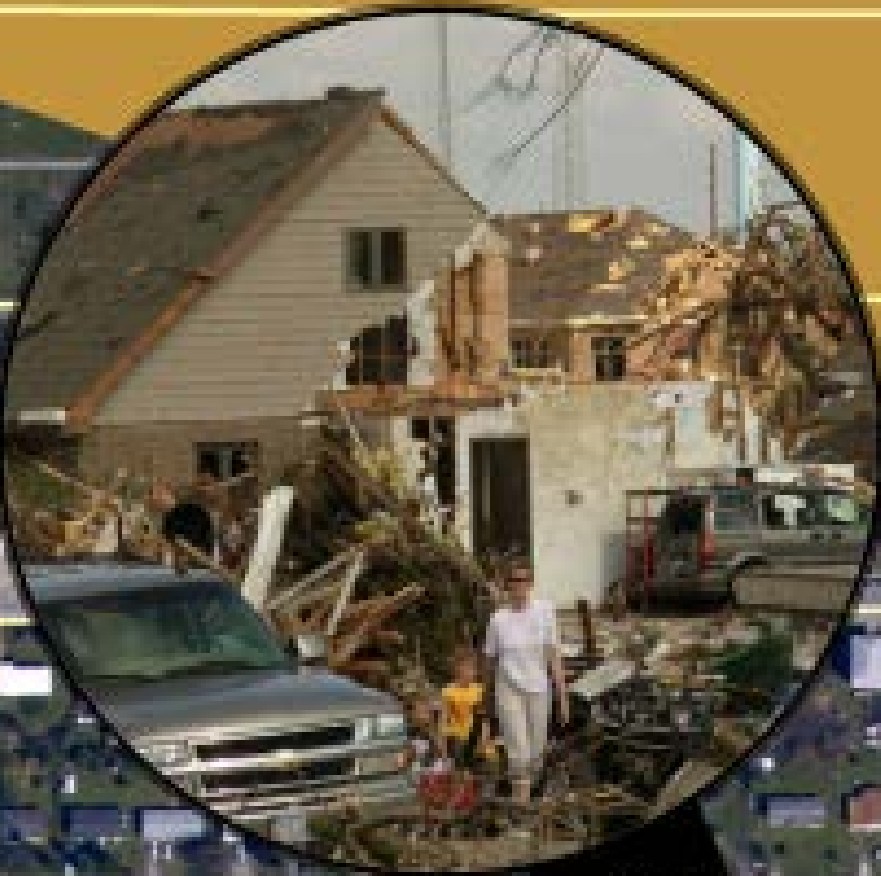
Relationship Building Lessons

- Partner early with stakeholders in the investigation-forming process to solicit expectations
- Combine efforts to make an investigation more useful to stakeholders and maximize resources
- Continue and expand pre-event partnerships to aid in collaboration during and after an incident
- Develop non-traditional partnerships (e.g., Texas State Fire Marshal) for public health

Disaster Epidemiology Actions in Disaster Management Cycle



Community Assessment for Public Health Emergency Response



CASPER

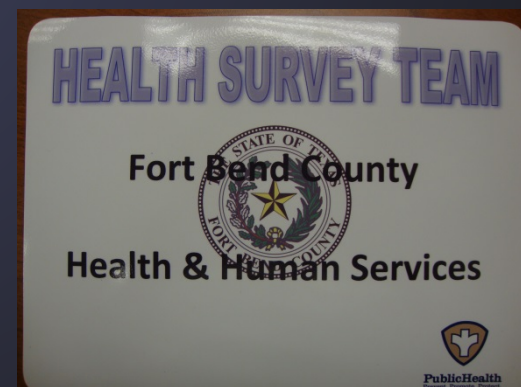
Community Engagement - Post Disaster

- Community Assessment for Public Health Emergency Response (CASPER) Team
- Epidemiologic technique rapidly provides low cost, household-based information about community needs
- Individual interviews in homes (sampled) about public health needs
 - Door-to-Door, household surveys
- Community members involved



CASPER Focus Areas

- Health Status
- Access to Utilities
- Access to Health Care
- Mental Health
- Evacuation Behaviors
- Messaging
- Recovery Needs



CASPERs in Texas

2005- 2013

- CASPERs are well-established
- Promoted in disaster response and planning in Texas
- Regional and local health departments sponsored 11 responses:
 - 8 post-disasters (*hurricanes, flood, wildfire*)
 - 3 non-disasters (*influenza, general public health*)

Benefits in Partnering with Academia

- Obtain baseline data
- Conduct studies
- Facilitate stakeholder meetings
- Workforce response surge capacity
- Assess training needs
- Provide technical assistance
- Collaborate on publications
- Offer formal student internship opportunities



Conducting Research During a Disasters

- Have clear objectives
- Partner with trusted researchers
- Include appropriate stakeholders
 - Public/Private
 - Local, State, Federal
- Coordinate with Incident Command Structure
- Avoid duplication of effort
 - Many VOADs conduct surveys
- Lessons from Community Based Participatory Research
- Understand the politics
- Be sensitive and respectful to those we are trying to serving



Thank You!