Wildfire – Related Deaths
Texas, March, 2006

"Tragically, the Largest Loss of Life Among Civilians in the US Since 2003"

David Zane
Texas Department of State Health Services
Outline

The 2006 Texas Panhandle Wildfire

Wildfire Prevention Methods

Potential Roles of Injury Programs in Disaster Response

Selected Concepts of Public Health Preparedness
Texas Panhandle Wildfire

- March 12 – 20, 2006
- Largest wildfire in state history
- ~ 1 million acres burned
- 8 communities evacuated (population of 4,072)
Wildfire

• $16 million estimated losses

• 89 structures destroyed

• ~4,300 head of livestock killed

• 2,000 miles of fencing destroyed
Public Health Response

• **Wildfire Mortality Surveillance**

  – Regional and state public health preparedness staff members began mortality surveillance and initiated an investigation to characterize the associated deaths
Case Definition

Any death, directly or indirectly, associated with the wildfire among civilians or firefighters (volunteers or paid)
Case Finding

- Initial Phase
  - local emergency management
  - Justice of the Peace (coroner)
  - Texas Department of Public Safety
  - newspapers

- Post-Impact Phase
  - death certificates
Results

• 12 human deaths
  – 14 to 94 years of age (*median* - 48 years)
  – 8 males and 4 females

• 11 civilians and 1 volunteer firefighter
Results

- All 12 decedents were injured on first day between 1:30 p.m. and 7:00 p.m.
- All civilians deaths (11) died on first day
- Firefighter sustained injuries on first day and died in April
- Injuries in 4 rural counties within 45-mile radius
Results

• Manner of death
  – Accidental \( (n=12) \)

• Immediate cause of death
  – Smoke inhalation \( (n=8) \)
  – Blunt force trauma \( (n=4) \)

• Underlying cause of death
  – Superheated air \( (n=4) \)
  – Vehicular accident/collision \( (n=4) \)
5 separate incidents
Incident 1  \((1:30 \text{ pm, within 5 minutes of the wildfire start})\)

- 4 deaths
- 9 car collision on Interstate 40
- The collision was caused by reduced visibility because of blowing smoke, sand, and dirt from a wildfire
- Local officials closed 90 miles of the highway for 9 hours because of heavy smoke
Incident 2 (3:00 pm)

- 2 deaths
- Rescuers attempted to evacuate an older couple from their home
- A neighbor came to the home to assist with the evacuation
- Rescuers were able to place the wife into a rescue vehicle and her husband into the neighbor’s vehicle
- Both the man and his neighbor, for some reason, returned to the home and were overcome by flames from the advancing wildfire
Incident 3 (6:00pm)

- 1 death
- Elderly man refused attempts by emergency responders to evacuate him from his home
Incident 4 (6:30 p.m.)

- 4 deaths

- Oil rig workers were driving to work when their vehicle veered off a pasture road in reduced visibility conditions caused by smoke from a wildfire

- The vehicle was trapped in a ravine

- They fled the vehicle and used a cell phone to contact a coworker, telling him they were having trouble breathing and could not see
Incident 5 (7:00 p.m.)

- 1 death
- Volunteer firefighter
- Driving a water truck in a field where graders had moved brush, leaving the ground softened
- When flames approached, the firefighter attempted to escape by backing up the truck, which turned over and rolled down a 60-foot ravine
Limitations

• Some deaths directly or indirectly attributable to the wildfires might have been missed

• Some deaths might have occurred outside of the investigation period
Summary

- Wildfires can spread rapidly, and even in sparsely populated areas, multiple fatalities can occur within a brief period.

- 11/12 deaths occurred within 7 hours of the start of the fires.

- Tragically, the most civilian deaths (11) associated with wildfires in the U.S. since 2003.

- Wildfire deaths are preventable.
Wildfires…a growing hazard

- Approximately 8 million acres in 40 states burned in 2004
- An annual average of 17,615 wildfires (2000-2007)
- 184 firefighter deaths were associated with fighting wildfires (1995-2004)
Recent Wildfires

- **Last Week** - Colorado Fires (3 deaths)
- **Last Few Months** - Texas (89% of state counties threatened)
- **2007** - California (10 deaths)
- **2007** - Greece (89 deaths)
Wildfire deaths can be prevented!

- Preparedness and disaster planning are essential
- Create "defensible spaces"
Wildfire Prevention Messages Exist!

• Available from:
  - State Public Health Authorities
  - State Forest Service
  - U.S. Fire Administration
  - FEMA
  - CDC (podcasts too!)
Key Prevention Messages

• Adhere to warnings and evacuation orders

• Avoid traveling through smoke on roadways

• Have an exit strategy

• Avoid the path of the wildfire

Clint Rollins, USDA Natural Resources Conservation Service
What to do During a Wildfire?

- Information available on:
  - Survival in a Vehicle
  - If You Are Trapped at Home
  - If Caught in the Open
Excellent Source!

Source: California Office of Environmental Health Hazard Assessment, EPA, etc
Potential Roles of Injury Programs in Disaster Response
STIPDA members have disaster response experience

- **Man-Made Disasters**
  - Train Wrecks/Tank Explosions
  - Gas/ Oil Spills
  - Bombings
  - Ammonia Spills
  - Refinery/Oil Industry Plant Explosions

- **Natural Disasters**
  - Floods
  - Wildfires
  - Tornadoes
  - Hurricanes/Tropical Storms
  - Heat
Disaster Resolution

• Recommendation: Each state establish and maintain expertise in disaster epidemiology
Potential Roles

- Epidemiology & Surveillance
- Prevention & Control Measures
- Research Recommendations
(2007)
Injury Surveillance Workgroup # 5

- Each state and territory should establish and maintain expertise in disaster surveillance and epidemiology... and collaborate with the state all hazards preparedness programs.
Selected Key Concepts of Public Health Preparedness

- National Response Plan
- State Emergency Management Plan
- Emergency Support Functions
- Incident Command Structure
# 1 - National Response Framework

- A guide to how the Nation conducts all-hazards response

- Sharpens the focus on who is involved in emergency management - outlines roles/responsibilities of various entities

- State Gov’t – “To supplement and facilitate local efforts before, during, and after events”
# 2 - State Emergency Management Plans

- Plan applies to all State agencies, boards, commissions, and departments assigned emergency responsibilities in this plan.

- Provide guidance and direction in the conduct of emergency response and disaster recovery activities.
# 3 - Emergency Support Functions (ESFs)

A **grouping of capabilities** into an organizational structure..... to provide the support, resources, program implementation, and services that are most likely to be needed to save lives and protect property.
Emergency Support Functions (ESFs)

- ESF #1 - Transportation
- ESF #2 - Communications
- ESF #3 - Public Works and Engineering
- ESF #4 - Firefighting
- ESF #5 - Emergency Management
- ESF #6 - Mass Care, Housing, and Human Services
- ESF #7 - Resource Support
- **ESF #8** - Public Health and Medical Services
- ESF #9 - Urban Search and Rescue
- ESF #10 - Oil and Hazardous Materials Response
- ESF #11 - Agriculture and Natural Resources
- ESF #12 - Energy
- ESF #13 - Public Safety and Security
- ESF #14 - Long-Term Community Recovery and Mitigation
- ESF #15 - External Affairs
**ESF 8 – Health and Medical**

<table>
<thead>
<tr>
<th>Primary Agency:</th>
<th>Department of State Health Services</th>
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</thead>
<tbody>
<tr>
<td>Support Agencies:</td>
<td>ARC, TAHC, DADS, DARS, HHSC, TCEQ</td>
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<td>Functional Annex:</td>
<td>Annex H</td>
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<td>Purpose:</td>
<td>Coordination of plans and emergency actions to provide supplemental and technical assistance to local governments in identifying and meeting the health and medical needs of disaster victims and emergency workers.</td>
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See State of Texas Basic Plan, Section III.

IV. CONCEPT OF OPERATIONS

A. STATE SUPPORT AND ASSISTANCE POLICY

1. State support and assistance will be provided when requested, as quickly and as efficiently as possible. Consistent with the priority of need, attempts to provide assistance will focus on providing supplemental assistance to local government(s) in identifying and meeting the health and medical needs of victims of a major emergency or catastrophic disaster. This support is categorized in the following areas:

   a. Community evacuation, health and medical assistance;
   b. **Assessment of health and medical needs**;
   c. Public health surveillance, disease prevention and control;
   d. Medical care personnel;
   e. Health and medical equipment and supplies, including pharmaceuticals and vaccines;
   f. Patient evacuation;
   g. In-hospital care, and hospital facility status;
   h. Food, drug, and medical device safety;
   i. Worker health and safety;
   j. Behavioral health;
   k. Public health information;
   l. Victim identification and mortuary services;
   m. Sheltering and care of persons with medical special needs;
#4 - Incident Command System Definition

ICS is the system used for Commanding, Controlling, and Coordinating the efforts of individual agencies as they work towards the common goal of stabilizing an emergency in an effort to protect life, property, and the environment.
Incident Command Structure
DSHS COMMAND STRUCTURE

Incident Command Officer
- Deputy
- PIO/JIC
- Liaison
- Safety Officer

Planning
- Finance
  - Professional Staff Scheduling
- Logistics
  - El Paso
    - HSR 9/10 ROC
- Operations
- Clinical/Medical
  - Clinic PM Shift
  - Clinic PM Shift
- Operations
  - Clinic PM Shift
- Nutritionist
- Vaccines/Medical Supplies
  - EPI
  - Shelter Surveillance
  - Staff MH
  - Guest MH
  - El Paso
  - El Paso

DSHS COMMAND STRUCTURE

“Yearn for Zion Ranch”
Eldorado/San Angelo Event
Did This Stick?

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Selected Concepts of Public Health Preparedness
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Questions?