The Texas Public Health Response to the West, Fertilizer Plant Explosion

Working Together for a Healthy Texas

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West, Texas

- Established as a railroad and farming town
- Settled by Czech and German farmers
- 20 miles north of Waco
- A popular stop along Interstate 35...famous for Kolaches
West Fertilizer Company

- West Fertilizer Company established in 1958
- Employed about 10 full time staff
- The plant held 27 tons of anhydrous ammonia and 270 tons of ammonium nitrate (AN)
  - 1947 Texas City Disaster = 4,600,000 lbs of AN
  - 2013 West Fertilizer Plant = 540,000 lbs of AN
  - 1995 Oklahoma City Bombing = 5,000 lbs of AN
Plant Explosion

- Wednesday, April 17th, 2013
- West Fertilizer plant fire
- 7:29 pm, Local volunteer firefighters respond
  - Volunteer firefighters from West and Abbott
  - An experienced Dallas Fire Department Captain
Plant Explosion

- EMT Students evacuated nearby residents
- Nursing Home patients relocated to west wing of the building
- Firefighting efforts concentrate on cooling Ammonium Nitrate and Anhydrous Ammonia storage
Plant Explosion
The Impact

7:53 PM: “There has been an explosion….many people down…”
• Explosion is felt more than 30 miles away and registers as a 2.1 magnitude earthquake
• Blast crater is 10 feet deep and 100 feet wide
• Flaming debris causes fires over a half mile
West Fertilizer Company - Before
West Fertilizer Company - After
The Impact
The Impact

- 700 Homes in West
  - 350 homes impacted
  - 142 destroyed
  - 51 major damage
  - 27 minor damage
  - 130 otherwise affected
  - West Rest Haven Nursing Home had 128 residents evacuated to local and regional care facilities; the facility was destroyed.
The Impact
The Impact
Immediate response led by Dr. George Smith who had been supervising evacuation of nursing home patients

Immediate Response

7:59 PM: “All Call” issued by 911 dispatchers
Immediate Response

- Mutual aid arrived at approximately 8:15 PM
- Limited radio and cell phone capability at the scene
- 2 different staging areas established without coordination
  - Football field (1/4 mile from blast site)
  - Community Center (1 mile)
Patient Surge

Receiving Hospitals

- Hillcrest Baptist Medical Center 123 patients treated (28 admitted, 5 ICU)
- Providence Health Center 87 patients treated (21 admitted)
- Hill Regional Hospital 42 patients treated
- Scott & White Memorial Hospital 3 patients treated (2 ICU)
- John Peter Smith (JPS) 3 patients treated
- Parkland 2 patients treated
- McLane Children's 2 patients treated (1 PICU)

Every patient that made it to a staging/triage area at the scene survived.
Patient Surge

96% of those injured by the West explosion were seen in:

- Hillcrest Baptist Medical Center, a fully-accredited, 396-bed acute care facility in Waco, TX including a Level II Trauma Center (135 patients)
- Providence Health Center, a 301-bed acute care medical center in Waco, TX (111 patients)
- Hill Regional Hospital, a 116-bed acute care facility in Hillsboro, TX (42 patients)
“Both Hillcrest and Providence Hospitals kicked into gear with a response I didn’t think possible. Patients were treated in a timely manner, and medical staff did a great job of getting people into the system fast.” - Bradford Holland, MD

Waco Physician
Hillcrest Hospital Response

- Hillcrest registered and treated over 100 victims in 4 hours
- 28 Admissions, 5 ICU patients, 8 Emergent Surgeries
- More than 50 nursing home patients
Hillcrest Hospital Response

- No official notification to hospitals
- Anecdotal phone reports from EMS and DPS personnel to RAC staff and Trauma Program Manager
- “Code Alert” issued at 8:28 PM
- “Code Green” issued at 8:40 PM
- First patients arrive via DPS patrol car at 8:40 PM
Walking wounded necessitated opening of additional triage area
Hillcrest Hospital Response

- 4 active treatment areas
  - ED (Red – Trauma surgeons)
  - PACU/OPPS (Yellow – General surgeons)
  - ICU (Red/Yellow not likely to need emergent surgery – Pulm/CC)
  - Outpatient Clinic (Green)

- Stable patients requiring admission were sent to Med/Surg floor (Hospitalists).

- Staff/Surgeon/Anesthesia capacity for 11 ORs.

- All patients were evaluated and dispositioned in under 5 hours.

- S&W Memorial activated their Incident Command System for back up.
Hillcrest Hospital Response

- Over 250 additional employees and physicians were at the hospital by 9:00 PM
- EMS ground transported 13 red, 30 yellow, and 47 green patients
- 94 CT scans and 129 x-rays in less than 4 hours
- 131 patients with injuries related to the explosion were seen in the ED over the next several days
- Over 13,000 phone calls were received by the Hillcrest over 24 hours after phone number displayed on CNN crawler
Media response was “immediate, intrusive, and relentless”
Regional Response

- Heart of Texas Regional Advisory Council (HOTRAC, Our HPP Contractors) were activated to coordinate regional response resources and data collection

- The Regional Medical Operations Center (RMOC) was stood up at 8:15pm

- The RMOC was staffed by HOTRAC, Waco-McLennan County Public Health District, & DSHS Region 7
Emergency Medical Task Force
## Emergency Medical Task Force Leadership Team

- **Command/General Staff**
  - ICS 100, 200, 300, 400 certs, with position-specific certs as well
  - Must have EMS/ER/IMT management experience
  - Full Comms package to communicate with all Groups and Local EOC/DDC/DSHS/GDEM-SOC
  - Logistics package to support all Groups

### 5 Ambulance Strike Teams
- 5 Ambulances in each Strike Team (25 total ambulances)
- Each Strike Team has assigned Strike Team Leader
- Teams are pre-identified
- No Notice Regional deployment
- State-wide tasked mission assignments

### 2 AMBUSes
- AMBUS(es) capable of transporting 16-20 litter patients at one time.
- DSHS licensed as a specialty Ambulance
- Assigned to EMS agencies that will deploy 4 paramedics
- No Notice Regional deployment
- State-wide tasked mission assignments

### Mobile Medical Unit
- 16-32 bed capacity
- Able to provide emergency stabilizing care and transfer
- Fully staffed with EM physicians, ER nurses, Paramedics, techs, pharmacy, logistics, clerical and other support
- 6-12 hour launch time for 72 hr deployment

### 5 RN Strike Teams
- 5 RN’s in each Strike Team (25 total RN’s)
- Each Team has pre-assigned Strike Team Leader
- 4 ER Strike Teams
- 1 Specialty area (Burn, OB, ICU, Pedi, NICU, etc)
- Approx. 72 hr deployment
Texas Emergency Medical Task Forces (EMTFs)
State Response

- 3 AMBUSs
  - 2 were demobilized upon arrival
  - One AMBUS remained on-site
- One Type 2 Mobile Medical Unit (MMU) deployed with staff.
- Treated citizens that had not gone to the hospitals and some responders until demobilization two days later.
State Response

Two mortuary trailers were deployed with a mortuary team

- Stored and transported deceased to Dallas for identification; the team and trailers were demobilized two days later

Two Medical Incident Support Team (MIST) members

- Assist in the coordination of medical transportation with hospitals and nursing home patients
Public Health Issues

- Responder health and safety issues
- Public health messaging accomplished to reduce post explosion health risks for residents returning to their homes during recovery
- Mass fatality support including:
  - Mortuary team
  - Mortuary trailer
- Family Assistance Center established in West to provide support for the families of the deceased
Disaster Behavioral Health

Local Mental Health Authority (LMHA)

Populations Served
- Survivors
- Homeowners
- Business Owners
- School Staff
- Children
- Elderly
- Non-English Speakers
- First Responders
- Law Enforcement
- Fire/EMS
- Public Health Professionals
- Volunteers
- LMHA Clients
- Formal Services

Service Locations
- Family Assistance Center
- Shelters
- Incident Command
- Re-Entry
- Bereaved
- Affected Populations
- Shelter Workers
- First Responders
- Local Officials
- Incident Command
- Leadership / Liaisons
- Affected Populations
- Law Enforcement
- Escorts
April 17-29, 2013 = 1,040 encounters
Average duration = 15 to 29 minutes
The most significant risk categories being:
- 67% vehicle or major property or other financial loss
- 60% home damage
- 36% witnessed death / injury or life was threatened
- 33% evacuated quickly
- 24% have family / friend missing / dead
• 86% responded with the **Emotional** reactions of:
  • sadness, tearful
  • anxious, fearful
  • irritable, angry
  • numb, disconnected

• 42% responded with the **Behavioral** reactions of:
  • agitated / jittery / shaky
  • on guard / hyper vigilant
  • extreme change in activity
  • isolation / withdrawal
Disaster Behavioral Health

- 32% responded with the **Cognitive** reactions of:
  - difficulty concentrating
  - intrusive thoughts, images
  - preoccupied with death / destruction
  - difficulty making decisions
- 31% responded with the **Physical** reactions of:
  - difficulty falling or staying asleep
  - fatigue, exhaustion
  - eating problems
  - worsening of health problems
• Heart of Texas Region MHMR Encounters:
  • June=50+, July=150, August=120, September=65-70
  • Types of encounters: Ten different groups, individual services, and a camp for children

• Reactions reported:
  • Depression and anxiety primary concerns
  • Influx of clients at the three month anniversary mark
  • Numbers dropped off dramatically when school started however there has been a recent increase in numbers
An ongoing epidemiological investigation is underway exploring the West injuries
- Medical abstraction of cases at area hospitals and urgent care facilities
- More individuals than previously known are being identified who were injured from the explosion
- Local and Regional Health Department staff have finalized abstract for submission to the Preparedness Summit
First Responder Remembrance

- Morris Bridges, West Volunteer Fire Department
- Perry Calvin, Navarro Mills Volunteer Fire Department
- Jerry Chapman, Abbott Volunteer Fire Department
- Cody Dragoo, West Volunteer Fire Department
- Kenny Harris, Dallas Fire-Rescue
- Jimmy Matus, West business owner
- Joey Pustejovsky, West City Secretary, West Volunteer Fire Department
- Cyrus Reed, Abbott Volunteer Fire Department
- Kevin Sanders, Bruceville-Eddy firefighter
- Doug Snokhous, West Volunteer Fire Department
- Robert Snokhous, West Volunteer Fire Department
- William "Buck" Uptmor, Jr., businessman