Responding to Natural Disasters and Terrorism: The Role of State Injury Programs

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STIPDA Annual 2006
Saratoga Springs, NY
September 21, 2006

What is ASTHO?

• The national organization representing the state and territorial public health agencies of the 50 States, US territories, and DC

• ASTHO’s members are the chief health officials in all 50 states, 6 territories, and DC

• ASTHO has 18 affiliated organizations, representing key SHA divisions and officials

Purpose

• Describe injury morbidity and morbidity patterns associated with major disasters

• Indicate partnership and collaborative opportunities with State Health Agencies

• Describe SHA pre & post-disaster activities

• Lessons learned and ongoing challenges
The Injury Burden of Disasters

- Over 1000 Fed. declared disasters since ’72
  - More than 50 in Texas, many in CA, FL, AL, LA
  - Since 1980, 65 events have totaled $1 bl+ total costs

- 2004: 369 deaths, 2,428 injuries
  - most after the event

- Most common: MV, falls, chainsaw, animal bites, CO

- Suicide is relatively rare
  - Protective factors; social cohesion; psych first aid

Mental Health Burden

- Mass violence results in worse MH outcomes than natural disasters

- Floods typically produce the worst results, followed by hurricanes

- Most individuals recover within 3 months; MH reactions are temporary and normal
  - 25-30% of victims develop PTSD

- Up to 14% increase in suicide rate over 4 years in counties experiencing disasters
Hurricane Andrew and Youth Suicide
- 13-24 year olds in high impact area: 15 suicides 16 mos. after Andrew, 7 in 16 mos. before
  - Increase from 26 to 32 in “low impact” area
  - 66% post-Andrew suicides among boys
- 25% of South Dade County residents met PTSD criteria 6 months after hurricane
- Depression/avoidance prevalent for 30 months
  - Need for ongoing outreach/prevention
  - 12% of impacted residents lost health insurance after the storm

1993 Midwest Floods, Iowa & Missouri

Domestic Violence, 1993 Midwest Floods
- 9 Months following the 1993 Midwest Floods:
  - 14% of women reported domestic violence
  - 26% reported emotional abuse; 70% verbal
- 39% of abuse victims developed PTSD
  - 17% of non-abused developed PTSD
- 57% of women experiencing post-flood abuse developed major depression
  - 28% of non-abused women w/ depression
Oklahoma City Tornado, 1999

- 58 tornadoes in 1 day statewide
  - F5 Tornado in OKC
- 512 treated for injuries in hospitals; 40 died
  - 39 post-storm injuries
- 71% of injuries, 95% deaths directly related to the tornado
- Common injuries: fractures, cuts/lacerations, many concussions, other brain injuries
  - lots of falling, flying debris


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Opal and Floyd, GA, NC, 1995 and 1999

- Opal: 27 deaths (all but 3 injury-related)
  - Falling trees most common cause of death, often leading to MV crashes, or cars colliding with trees

- Floyd: 52 deaths (all but 4 injury-related)
  - Most deaths were drowning, also many MV deaths

- Other common hurricane-related injuries:
  - Fire/burns, electrocution, poisoning, hypothermia, CO

Mental Health

MH Impacts of Major Disasters

- Up to 14% increase in suicide rate over 4 years in counties experiencing disasters
  - Protective factors are crucial

- 25-30% of victims develop PTSD
  - Estimates of up to 250,000 Louisianans to develop "significant" MH problems
  - Women, children, those with previous history are at higher risk for PTSD post-disaster

- Many Andrew survivors showed signs of PTSD up to 10 months following the storm
Hurricane Katrina, Louisiana & Mississippi, 2005

Hurricane Katrina

• Injury most common category for health-care visits, Sept 5-22; 58% of all health care visits
  – 135 visits daily; 532 on 9/8/05
  – 1,800 Katrina-related deaths

• Post Katrina in New Orleans (first half of 2006): 3X increase in suicide, 37% increase in homicide
  – 19% of police and 22% of firefighters with PTSD
  – 27% with major depression

• 9% of patient encounters in Evacuation Centers for MH—depression, anxiety, etc
  – 7% of post-Katrina hospital admissions MH-related
  – 158,000 MH referrals in Louisiana
  – 500,000 in LA estimated to need MH services

Oklahoma City Bombing, 1995
Oklahoma City Bombing

• 759 injuries, 167 deaths
  – 88% of building occupants injured
  – 162 died at the scene
    • Common causes of death: Multiple trauma (122), head trauma (24), chest trauma (13)
  – 59% of survivors treated in EDs; 14% admitted
    • $5 million in acute medical costs
    • 506 soft tissue injuries (lacerations, puncture wounds, etc—18 severe), 60 fractures, 9 serious burns, 4 serious internal organ injuries
    • 80 head injuries (8 severe), 33 concussions
    • 210 cases of hearing damage

• 45% of victims experienced some form of psychological disorder
  – 34-41% showed signs of PTSD
    • Among PTSD victims, 76% had same-day onset
    • Most common symptoms included “being jumpy or easily startled” and “recurring distressful thoughts”
    • 94% indicated “avoidance and numbing”
    • 63% of bombing victims sought counseling

Oklahoma City (cont’d)

• 3 years post-bombing, good outcomes:
  – Only 3% divorced; 90% engaged in the same or more leisure/social activities

• Best outcomes among responders/ME
  – Community support; focus on positive; spent more time with friends and family
  – This includes ME volunteers/altruism
Oklahoma, Murrah Building Bombing

- **Project Heartland**—1st ever US program to respond to short-term mental health needs of terrorism victims
  - Provided crisis counseling, support groups, evaluation, education, and referrals
  - Collaboration between OK DMHSAS, OK DOH, OK Civil Mgmt Office, FEMA, & Red Cross
  - Proactive! Staff went to homes and business to reach those not seeking care
  - 10,500 Oklahomans served in 2 years

9/11 Terrorist Attacks, NYC and DC, 2001

- **Project Liberty** provided counseling to residents of NYC & 10 NY counties until 2004
  - Provided crisis counseling; referrals to disaster-related services; and education
  - Aimed to alleviate immediate stress; help understand feelings; and restore pre-9/11 level of functioning
  - Services to NYC firefighters and kids ongoing
  - Funded by SAMHSA, run by NYS OMH
  - Over 1 million New Yorkers utilized Project Liberty
  - Immediately after 9/11, OMH deployed over 2,500 crisis counselors; 400 DOH employees provided support

New York State, 9/11
Hurricanes Jeanne, Frances, Ivan & Charley, FL 2004

Florida, 2004 Hurricanes
- FL DOH added 30 questions to BRFSS to address hurricane-related health impacts
- DOH Staff Debriefs found:
  - DOH insensitive to staff's personal needs
  - Staff felt “threatened” with job loss if they evacuated with their families
  - Staff felt out of communication loop
  - Staff felt they couldn’t do their jobs well—because of limited supplies and poor logistics
  - Overall sense that MH/stress of staff was not recognized/addressed

State Efforts
Role of State Health Agencies

- Lead in most states for carrying out public & mental health functions (Emergency Support Function 8)
- Pre/post risk communication and public education
- Collect and analyze data; rapid needs assessments
  - Inform future policy, programs, and prevention
- Identify risk factors for Injury morbidity/mortality
- Develop injury epi toolkits, GIS, etc
- Embed injury prevention via incident command system
- Deploy personnel, in coordination with other agencies
- Develop relationships with key stakeholders
- Document how injury epi was used post-disaster and aided recovery/response

Components of State Disaster Plans

- Assess PH/MH needs
- Provide direct PH/MH services
- Coordinate Epi Investigations
- Coordinate stress/MH debriefing for responders
- Coordinate/lead PH/MH public education
- Coordinate crisis counseling/psych first aid
- Train/use Disaster Health Assessment Teams
- Provide support to medical facilities and locals
- Ensure continuation of care in hospitals
- Assist locals in maintaining special needs shelters
- Ensure patient privacy/confidentiality

Texas Disaster Response Programs

- DSHS Disaster Mental Health Team coordinates
  - Crisis counseling
  - Stress Management
    - Education on causes and symptoms of acute stress
  - Education and Training
    - Train staff on MH needs of victims and responders
  - Emergency Management
    - Technical assistance; advises plan development
  - Critical Incident Stress Management
    - Counseling/MH services to responders and staff
Texas, Katrina Evacuation Center Assessments

- Developed “Surveillance Summary Form” for evacuation center medical staff to report to locals
  - Reported total number experiencing symptoms and total number referred for:
    - Injuries; anxiety; depression; drug/alcohol abuse; withdrawal; acute psychosis; suicidal or homicidal behavior; etc
- DSHS used assessments to provide direct resources and target resources

Louisiana, Hurricanes Andrew and Katrina

- Almost immediately following Andrew and Katrina, LA OPH began PH/epi assessment
  - Both efforts in collaboration with CDC and ARC
  - Information gathered in interviews and data collected from evacuation centers, ERs, coroners, and other records
- Post Katrina evaluation indicated up to 45% of victims with signs of PTSD
  - 25-30% of residents with significant MH issue
- LA DMH began immediate crisis counseling, including rapid assessment for PTSD

Iowa, 1993 Great Flood

- IDPH began rapid PH assessment as soon as flooding became catastrophic
  - Surveyed locals to assess injury, illness, and admissions to MH & SA treatment
  - 2 counties reported increases in SA treatment; 9 counties with more MH admissions
- Collaboration with CDC
  - Weekly surveillance to distribute resources and assess/ID long-term health needs
- Flood’s long-term recovery and mass destruction fuels rumors and stress
  - Underscores need for surveillance and public education
Lessons Learned

• Inter-agency collaboration is crucial
  – Formal Plans and MOUs are important
  – Most states lack SOPs for disasters

• Public Education/Risk communication needed BEFORE the event
  – Response phase presents teachable moments

• Injuries often more likely in before and after a storm/other event, rather than during

• Though most MH reactions are temporary, long-term tracking is necessary

Lessons Learned (cont’d)

• State epi capacity often insufficient to respond to vast data collection needs after disasters
  – Medical records often incomplete after disasters
  – Human, financial, and equipment capacity often limited during and after a disaster
  – Standard data collection procedures often lacking

• Events in Rural Areas exacerbated by limited infrastructure and personnel

• Coordinated state/federal approach necessary to address the myriad issues in a disaster

For More information

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