Introduction to Disaster Management

Tulane Emerging Scholars
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Before we dive into it....

- Name a few types of disasters.
- What is disaster management?
- What is public health emergency preparedness?
Public Health Emergency (Preparedness)

• Often defined as much by their health consequences as by their causes and precipitating events.

• Proposed definition focuses on situations “whose scale, timing, or unpredictability threatens to overwhelm routine capabilities.”

• The definition is also aligned with the all-hazards approach to preparedness instead of focusing on a “disaster du jour” and thus allows for the optimal development of capabilities across scenarios and better prepares communities for the broad spectrum of potential risks.
Important concepts

• PHEP should include:
  – Prevention, protection, mitigation, response, and recovery strategies
  – Operational capabilities (i.e., the ability to quickly execute preparedness tasks
• PHEP requires continuous improvement, including frequent testing of plans through drills and exercises and the formulation and execution of corrective action plans.
• PHEP also includes the practice of improving the health and resiliency of communities.
In Hollywood today...

- 28 Days Later
- 28 Weeks Later
- Outbreak
- Contagion
- The Andromeda Strain
- The Crazies
- I Am Legend
WHEN THERE'S NO MORE ROOM IN HELL, THE DEAD WILL WALK THE EARTH.

DAWN OF THE DEAD

IN THEATERS MARCH 19
www.DawnOfTheDeadMovie.com

FEAR THE WALKING DEAD

THE WALKING DEAD

A NEW ORIGINAL SERIES
SUNDAY OCT 31 10/9c | amc
(recent) Disasters & the Environment

- We know all too well about Hurricanes Katrina and Gustav
- Fukushima nuclear disaster (describe events leading to this crisis)
- Sandy (2012) destroyed 300,000 homes and left 8.5M without power
- Ebola virus outbreak – 11,000+ deaths (28,000+ cases)
- Swiss Re study on 616 MSAs where approx 25% of the world’s population reside:
  - Flooding poses a threat to 379M, earthquakes threaten 283M, 157M threatened by strong winds
- An Atlantic Basin tropical system in **January** of 2016
- Zika Virus reemergence – 41,000+ in US and territories
- Approximately 90 tornadoes in southeast US in 2 days (January 2017)
- 1st ever ESF 3 tornado in New Orleans in March 2017
- DOT estimates – 200 derailments in next 20yrs – 10 minimum in urban areas
- 3 major hurricanes at one time in the Atlantic Basin in 2017
  - Nearly 3 Cat 5 storms in same 2017 season (Irma, Maria, and near-miss Jose)
- 2017 Hurricane Season:
  - Hurricane Harvey: approx. 60in of rainfall over Houston, TX (~$125B in damages); 19T gallons
    - Equals 20+” of rain over an area larger than 10 states; 30+” over area size of MD; in 4 days, that’s equal to total volume of water flowing over Niagara Falls in 15 days; covers entire state of Arizona in over 1 foot of water.
  - Hurricane Irma: strongest storm on record in open basin; catastrophic damage across islands on path to Florida. Storm was wider than entire state of Florida as a Cat 3 at landfall on mainland.
  - Hurricane Maria: devastated PR and USVI; left thousands+ without power for weeks/months due to fragile infrastructure and powerful storm combination.
- Continuing to see a shifting climate? Further exacerbation of underlying conditions?
Speaking of Hurricanes...

- When is Atlantic Hurricane Season?
  - June 1 - Nov 30

- Describe the categorization of tropical weather from the Atlantic Basin.
  - Depression – tropical storm – cat 1 up to Cat 5

- Where do hurricanes originate?
  - Storms have a tendency to originate in certain areas depending on the time of season and environmental conditions.

- Do slower storms pose a greater risk?
  - Movement of the system itself can also be troubling (in addition to the strength of the storm). For example, slower-moving storms tend to bring more rainfall to an area.

- What is the cone of error?
  - Projected path of storm

- What side of the storm is typically most powerful?
  - They spin counterclockwise and the east side is typically the strongest.

- What is the City’s plan in response to a hurricane threat?
  - Refer to your guides. Basically, mandatory evacuation for NOLA is triggered by a Cat 3 or stronger storm with NOLA inside the cone of error/uncertainty.

- Describe a few challenges with hurricanes
Examples of defining the situation:

International Federation of the Red Cross (credit for above diagram as well): **Disaster Management** can be defined as the organization and management of resources and responsibilities for dealing with emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters.

From the National Academies of Science:
*The challenge of disaster management is reducing the harm disasters cause to society, the economy, and the lives of individuals and communities. That task requires disaster managers to reduce uncertainty, to calculate and compare costs and benefits, and to manage resources, often on a much larger scale and at a much faster pace than are supported by methods and means for solving ordinary problems.*
Resilience

• Defined by the NAS:
  – the *ability to prepare and plan for*, absorb, recover from, and more successfully adapt to adverse events.
  – Enhanced resilience allows better anticipation of disasters and better planning to reduce disaster losses—rather than waiting for an event to occur and paying for it afterward.
Activity

“Ability to prepare and plan for.....”

How do we plan for threats?

• What are the 3 top threats we face in New Orleans?
• Taking these, what are the top 3 public health challenges each of these present?
(Initial, post-DHS creation)
National Planning Scenarios

#1 – Nuclear Detonation – IND
#2 – Biological Attack – Aerosol Anthrax
#3 – Biological Disease Outbreak – Pandemic Flu
#4 – Biological Attack – Plague
#5 – Chemical Attack – Blister Agent
#6 – Chemical Agent – Toxic Industrial Chemical
#7 – Chemical Attack – Nerve Agent
#8 – Chemical Attack – Chlorine Tank Explosion
#9 – Natural Disaster – Major Earthquake
#10 – Natural Disaster – Major Hurricane
#11 – Radiological Attack – RDD
#12 – Explosive Attack – Bombing Using IED
#13 – Biological Attack – Food Contamination
#14 – Biological Attack – Foreign Animal Disease
#15 – Cyber Attack

See any Environmental, Public Health or Medical connections with any of these?
Disaster Case Study: Ebola Virus Disease


- https://www.youtube.com/watch?v=0dA-Ls9lw24
Recap of Video

• Challenges
• Quarantine
• Isolation
• Contract Tracing
• Personal Protective Equipment (PPE)
National Preparedness Goal

• Presidential Policy Directive (PPD) 8 in 2011
  – Strengthens and continues concepts initially embedded in HSPD 8 (2003)

• A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk”

• What does this mean to you?
Core Capabilities

- To address the threats and hazards that pose the greatest risk, the National Preparedness Goal describes 32 core capabilities

  - Planning
  - Public Information and Warning
  - Operational Coordination
  - Forensics and Attribution
  - Intelligence and Information Sharing
  - Interdiction and Disruption
  - Screening, Search and Detection
  - Access Control and Identify Verification
  - Cybersecurity
  - Physical Protective Measures
  - Risk Management for Protection Programs
  - Supply Chain Integrity and Security
  - Community Resilience
  - Long-Term Vulnerability Reduction
  - Risk and Disaster Resilience Assessment
  - Threats and Hazard Identification
  - Critical Transportation
  - Environmental Response/H&S
  - Fatality Management Services
  - Fire Management and Suppression
  - Infrastructure Systems
  - Logistics and Supply Chain Management
  - Mass Care Services
  - Mass Search and Rescue Operations
  - On-Scene Security, Protection and LE
  - Operational Communications
  - Public Health, Healthcare and EMS
  - Situational Assessment
  - Economic Recovery
  - Health and Social Services
  - Housing
  - Natural and Cultural Resources
Mission Areas

• Each core capability is tied to a capability target (performance measure)

• Each core capability is associated with one or more of the five homeland security mission areas:
  1. Prevention
  2. Protection
  3. Mitigation
  4. Response
  5. Recovery
5 Mission Areas

As described by DHS:

1. **Prevention**: prevent, avoid or stop an imminent, threatened or actual act of terrorism

2. **Protection**: protect our citizens, residents, visitors and assets against the greatest threats and hazards in a manner that allows our interests, aspiration and way of life to thrive

3. **Mitigation**: reduce the loss of life and property by lessening the impact of future disasters
5 Mission Areas

4. **Response**: respond quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of a catastrophic incident

5. **Recovery**: recovery through a focus on the timely restoration, strengthening and revitalization of infrastructure, housing and a sustainable economy, as well as the health, social, cultural, historic and environmental fabric of communities affected by a catastrophic incident
### National Preparedness Goal 32 Core Capabilities

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Protection</th>
<th>Response</th>
<th>Recovery</th>
<th>Mitigation</th>
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</thead>
<tbody>
<tr>
<td>Planning</td>
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<td>Operational Coordination</td>
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<td>Public Information &amp; Warning</td>
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<td>Intel and Information Sharing</td>
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<td>Infrastructure Systems</td>
<td>Infrastructure Systems</td>
<td>Community Resilience</td>
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<td>Screening, Search &amp; Detection</td>
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<td>Critical Transportation</td>
<td>Economic Recovery</td>
<td>Long-term Vulnerability Reduction</td>
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<tr>
<td>Interdiction &amp; Disruption</td>
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<td>Environmental Response/Health &amp; Safety</td>
<td>Health &amp; Social Services</td>
<td>Risk &amp; Disaster Resilience Assessment</td>
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<td>Forensics &amp; Attribution</td>
<td>Access Control &amp; Identity Verification</td>
<td>Fire Management &amp; Suppression *</td>
<td>Housing</td>
<td>Threat &amp; Hazard Identification</td>
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<td>Cybersecurity</td>
<td>Fatality Management</td>
<td>Natural &amp; Cultural Resources</td>
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<td>Physical Protective Measures</td>
<td>Mass Care Services</td>
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<td>Risk Management For Protection Programs &amp; Activities</td>
<td>Mass Search &amp; Rescue Operations</td>
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<td>Supply Chain Integrity &amp; Security</td>
<td>On-Scene Security, Protection, and Law Enforcement **</td>
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<tr>
<td>Operational Communications</td>
<td>Logistical &amp; Supply Chain Management **</td>
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<tr>
<td>Public Health, Healthcare, &amp; Emergency Medical Services **</td>
<td>Situational Assessment</td>
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Problem Solving Activity

• Planning is a vital component of each of those mission areas.
• What does “planning” mean to you?
• Where would you begin?
• Who would you involve?
National Response Framework

- Helps planners/operators, per se, solve problems (address them in a similar manner)
- The purpose of the National Response Framework (NRF) is to ensure that all response partners:
  1. Understand domestic incident response roles, responsibilities and relationships
  2. Response effectively to any type of incident
- The framework is always in-effect, and is scalable, flexible and adaptable to improve response
- Initiated National Incident Management System and Incident Command System to accomplish these NRF elements
National Response Framework

• The NRF has five main doctrines:
  – Engaged Partnership – leaders at all levels developed shared response goals and align capabilities so that no one is overwhelmed in times of crisis
  – Tiered Response – incidents are always local
  – Scalable, Flexible and Adaptable – as incidents change in size, scope and complexity, the response must adapt
  – Unity of Effort – command and control is via Unified Command
  – Readiness to Act – readiness is a collective responsibility
Incident

**Execute emergency operations plan (EOC activation)**

**Declare a local State of Emergency**

**Issue warnings and evacuation notices**

**Establish Incident Command**

**Conduct sizeup and damage assessment**

**Identify incident objectives/begin tactical operations**

**Manage incident resources**

**Activate mutual aid and assistance agreements**

**Request State assistance**
Emergency Support Functions (ESF)

- Within the NRF, functional areas of the homeland security enterprise are grouped into 15 basic ESFs
- ESFs are activated based upon need and size of incident
- ESFs, like NRF, is adaptable: basic 15 are standard but can be expanded based upon local need
- ESFs provide the basic structure/layout for Emergency Operations Center (EOC)
  - as well as possible organization of the Emergency Operations Plan (by becoming basis of capability/capacity assessment and responsibility cross-walk)
Emergency Support Functions (ESF)

1. Transportation  
2. Communications  
3. Public Works/Engineering  
4. Firefighting  
5. Emergency Management  
6. Mass Care  
7. Logistics  
8. Public Health and Medical  
9. Search and Rescue  
10. Hazardous Materials  
11. Agriculture/Nat Resources  
12. Energy  
13. Public Safety/Security  
14. Long-Term Recovery  
15. External Affairs

- What might be an additional one you would consider at the local level in New Orleans? We discussed volunteers being extremely important and a vital element of the overall New Orleans landscape.
ESF 8: Public Health/Medical

• Led by HHS at federal level
• Functional areas include:
  o Assessment of public health/medical needs
  o Health surveillance
  o Medical care personnel
  o Patient evacuation
  o Patient care
  o Pharmaceutical delivery and security/safety
  o Behavioral health care
  o Vector control
  o Mass casualty and fatality management
• What do each of these mean to you?
• Who typically coordinates this function locally?
• Who else is an integral component?
<table>
<thead>
<tr>
<th>Match the Year...</th>
<th>...With the Incident or Event</th>
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<tbody>
<tr>
<td>1995x2</td>
<td>Andrew Speaker TB incident</td>
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<tr>
<td>1999</td>
<td>Ebola Virus Disease Outbreak (West Africa and US cases)</td>
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<tr>
<td>2001</td>
<td>Deep Water Horizon / MC 252 / BP Oil Spill</td>
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<tr>
<td>2003</td>
<td>H1N1 Influenza Pandemic</td>
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<td>2005</td>
<td>Hurricanes Harvey, Irma, Maria</td>
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<td>2007</td>
<td>Super Storm Sandy</td>
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<td>2008</td>
<td>Anthrax Attacks</td>
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<td>2009</td>
<td>Tokyo Subway Sarin Gas Attack</td>
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<tr>
<td>2010</td>
<td>Hurricane Gustav</td>
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<tr>
<td>2012</td>
<td>Creation of a Pharmaceutical Stockpile (why?)</td>
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<td>2013-2015</td>
<td>Oklahoma City Bombing</td>
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<tr>
<td>2014-2015</td>
<td>Hurricane Katrina</td>
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<tr>
<td>2017</td>
<td>Zika Virus Outbreak (US/Latin/Central/South American cases)</td>
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<td>SARS – severe acute respiratory syndrome</td>
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</table>
Local NOLA: Public Health Emergency Preparedness & Response

Office of Homeland Security & Emergency Preparedness
City of New Orleans
NOHSEP: An Overview

- Umbrella public safety agency in CNO/Orleans Parish, Louisiana
- Municipal agency responsible for the protection of life and property
- Operates and maintains Emergency Operations Center
New Orleans/Orleans Parish
City Emergency Operations Center (CEOC)

• During CEOC activation, the structure operates as a Multi-Agency Coordination Center/System (MACC/S) and expands to accommodate the Regional Coordination Center (RCC)
  – Brings in additional agencies based upon level of activation:
    • Level I – full activation (all necessary agencies)
    • Level II – usually only public safety
    • Level III – Crisis Action Team (CAT) - NOHSEP Staff
    • Level IV – Normal operations (day-to-day)
What is an EOC?

Brief video produced by the CDC to explain Emergency Operation Centers.

- [https://www.youtube.com/watch?v=RwtEp84tGYQ](https://www.youtube.com/watch?v=RwtEp84tGYQ)
Possible operational and org structure during emergency activations
Plans, which are constantly being modified, are organized in a “tiered” structure, increasing in specificity and decreasing in all-hazards applicability with lower tiers.

The above is a small selection of the larger framework from New Orleans...
New Orleans MCI MAB
18 beds/seats; 6 attendants; 9 wheelchairs
Case Study: Super Bowl

• 25 sub-committees, including public health/medical
• 15 exercises ranging from general response to specific ESFs (i.e. communications, tactical crisis response, critical infrastructure)
• 309 page “Public Health and Medical Plan” which covered everything from hospital surge to food safety to Biowatch
Influenza challenges

Pandemic Influenza

• https://www.youtube.com/watch?v=DdFCx8jbesQ