The Power of Partnerships: Managing Emerging Infectious Diseases

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Emory University Hospital

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Part 1

Discuss the national preparedness and response infrastructure and readiness program that will be used to manage the next high consequence infectious disease (HCI) incident

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Program Director, Serious Communicable Diseases
Emory University Hospital

Learning Objectives

- Examine the potential gaps in U.S. preparedness for a special pathogen outbreak/epidemic
- Define the ideal future state of U.S. preparedness for a special pathogen outbreak/epidemic
- Describe the current threats and status of U.S. preparedness for a special pathogen outbreak/epidemic
Role of NETEC

National Ebola Training and Education Center (NETEC)

NETEC’s mission: To increase the capability of United States public health and health care systems to safely and effectively manage individuals with suspected and confirmed special pathogens

For more information, visit www.netec.org or email info@netec.org

Role of NETEC (cont.)

Through the 5-year project period and in collaboration with ASPR, CDC and other stakeholders, the NETEC will:

• Create readiness metrics
• Conduct peer review readiness assessments of regional and state assessment hospitals (AHs) and Ebola treatment centers (ETCs), as requested by state health departments
• Create, conduct and maintain educational courses, resources and tools
• Develop a repository for education resources, announcements, links to key information and exercise templates at www.netec.org
• Provide technical assistance to public health departments and health care facilities
• Create a research infrastructure across the 10 regional Ebola and other Special Pathogen Treatment Centers (ESPTCs)
Clinical Care

- **No Proven Therapeutics**
  - Unclear availability of experimental agents
  - Limited safety or efficacy data in humans
  - BUT, we received SIGNIFICANT support and advice from CDC, FDA, and medical and scientific colleagues throughout the world

- **Daily Viral Load Monitoring**
  - Progressive declines in viral loads correlated with improvements in clinical condition
  - Had very low level of nucleic acid detection for several days despite resolution of symptoms
What is “Supportive Care?”

• CDC’s Definition:
  • Providing intravenous fluids and balancing electrolytes
  • Maintaining oxygen and blood pressure
  • Treating other infections if they occur

• Our Simplified Definition:
  • “Keeping the patient alive long enough for them to develop the antibodies needed to resolve Ebola viremia”

Supportive care was an adventure!
Staff & Environmental Safety

- Single patient room with a private bathroom
- Dedicated medical equipment
  - Disposable, when possible
- Personal protective equipment (PPE)
- Provider-centered practice

Gaps in the U.S. Health Care System

- Additional patients later medically evacuated to the U.S.
- Confirmed positive cases occurred in Dallas and New York, including patient who had recently returned from West Africa and two secondary infections among health care workers

December 2014: Congress appropriated emergency supplemental funding to build a healthcare system adequately prepared to respond to future patients with Ebola
Identify, Isolate and Inform

- Travel history to a geographical area where a pathogen of concern is present within the known incubation period
- Contact with a confirmed person with a highly infectious disease
- Presenting signs and symptoms in addition to a positive travel history and/or contact with a person confirmed to have the disease
- Persons without signs and symptoms but have traveled to a country where the disease is widespread
Identify (cont.)

Early Recognition is Key!

Identify — Screening Tools

- Screening — what does that look like?
- How is it kept up to date?
- Paper or electronic?
- How will you handle those more difficult to screen?
  - Language barriers
  - Disabilities (i.e., hard of hearing, low vision, developmental, physical)
**Isolate**

Administrative Controls: Policies & procedures, Checklists, Signage

Environmental Controls: Isolation rooms, Infection control plan

Physical Controls: PPE, Communication, Room location

**Inform**

- Who needs to be notified?
- Whose role is it to notify individuals?
- Who has access to the notification call tree, if that exists?
- Who has the authority to initiate the call tree?
Lessons Learned

• Take a travel history for every patient
• Supportive care is key and requires:
  • Excellent nursing
  • Aggressive electrolyte repletion and nutrition
  • Advanced life support: mechanical ventilation & dialysis
• Preparation is critical:
  • Laboratory
  • Personal protective equipment training
  • Communication
  • Waste management
• Survivors require ongoing follow-up care

Part 2:

Identify some of the major HCl incidents that have occurred in or affected the U.S. in the last two decades, and the lessons that be can applied to future events

Carter Mecher, MD
Senior Medical Advisor
U.S. Dept. of Veterans Affairs, Public Health
High Consequence Infectious Diseases (HCIs)

Those infectious diseases that would have a profound impact on the public, health care and public health operations, and national security. These include clinical or epidemiological events caused by biological agents that are of enough significance from their potential severity, magnitude, or novelty to affect multiple facilities and require national or regional special education, modification of specific procedures, special protective equipment, special requirements for cleaning/disinfecting contaminated areas and disposal of materials and/or markedly enhanced reporting activities.

Lessons Learned

Preparing and Responding to HCIs
Lessons

- Understanding and communicating risk
- Applying what we can learn from past events
- Leveraging/repurposing existing systems

Understanding and Communicating Risk

Risk Communication
Processing Information Under Stress
Perception of Risk and Outrage Factors
HCI Threats
When People are Concerned, Stressed or Upset:

- They want to know that you care before they care about what you know
- They have difficulty hearing, understanding and remembering information
  - When people are stressed and upset, they typically process information at four grade levels below their average grade level
  - They focus most on what they hear first
  - They often focus more on the negative than the positive
  - Key messages expressed in 27 words, 9 seconds, 3 messages
- The gaps between risk perception and reality often become wider
  - Risk = Hazard + Outrage Factors

Source: Vincent Covello http://centerforriskcommunication.org/  
Outrage Factors

- Voluntariness. Involuntary or imposed vs. voluntary
- Controllability. Under the control of others vs. under the control of the individual
- Familiarity. Unfamiliar vs. familiar
- Fairness. Believed to be unfair or to involve unfair processes vs. fair
- Benefits. Unclear, questionable or diffused personal or economic benefits vs. clear benefits
- Trust. Associated with individuals, institutions or organizations lacking in trust and credibility vs. those that are trustworthy and credible

Outrage Factors (cont.)

- **Media attention.** Receive considerable media coverage vs. activities that receive little
- **Accident history.** History of major accidents or frequent minor accidents vs. no such history
- **Reversibility.** Potentially irreversible adverse effects vs. reversible adverse effects
- **Personal stake.** Viewed by people to place them (or their families) personally and directly at risk vs. appear to pose no direct or personal threat
- **Ethical/moral nature.** Ethically/morally objectionable vs. ethically neutral activities


Outrage Factors (cont.)

- **Catastrophic potential.** Potential to cause a significant number of deaths and injuries grouped in time and space vs. potential to cause deaths and injuries scattered or random in time and space
- **Understanding.** Poorly understood vs. well understood or self-explanatory
- **Uncertainty.** Relatively unknown or highly uncertain vs. relatively well known to science
- **Delayed effects.** Delayed effects vs. immediate effects
- **Effects on children.** Children specifically at risk
- **Effects on future generations.** Threat to future generations
- **Victim identity.** Identifiable victims vs. statistical victims
- **Dread.** Evoke fear, terror or anxiety vs. not arouse such feelings or emotions
- **Human vs. natural origin.** Generated by human action, failure or incompetence vs. caused by nature or "Acts of God"

### Human to Human Transmission (Ro)

#### Lethality
- Glanders: H5N1
- Inhalational Anthrax: H7N9
- Melioidosis
- Botulism
- Tularemia: Lassa
- Zika
- Cutaneous Anthrax
- Ebola
- Marburg
- Smallpox
- Crimean-Congo
- Pneumonic Plague
- SARS
- 1918 Pandemic
- 2009 H1N1

### Table of Viral Pathogens

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>CFR</th>
<th>Ro</th>
<th>US Cases</th>
<th>Global Disease</th>
<th>Vaccine</th>
<th>Antibiotic</th>
<th>Antiviral</th>
<th>Antitoxin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ebola</td>
<td>25%–90%</td>
<td>1.0–2</td>
<td>4 cases</td>
<td>26,646 cases &amp; 11,323 deaths 2014-16</td>
<td></td>
<td></td>
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<tr>
<td>Marburg</td>
<td>24%–88%</td>
<td>-</td>
<td>1st/only case in 2008</td>
<td>Since its discovery in 1967, 571 cases and 470 deaths</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Crimean-Congo</td>
<td>10%–60%</td>
<td>10</td>
<td>1 case in US Soldier in Afghanistan 2009</td>
<td>Since its discovery in 1967, 140 outbreaks involving more than 5,000 cases</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Lassa</td>
<td>1%</td>
<td>-</td>
<td>6 cases since 1969</td>
<td>Discovered in 1969, 100,000–300,000 cases and 5,000 deaths per year</td>
<td></td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Smallpox</td>
<td>30%</td>
<td>3-7</td>
<td>Eradicated</td>
<td>Eradicated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MERS-CoV</td>
<td>35%</td>
<td>0.7</td>
<td>-</td>
<td>2,040 cases since 2012</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SARS-CoV</td>
<td>10%</td>
<td>2.5</td>
<td>29 cases 2002-03</td>
<td>3,098 cases 2002-04</td>
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<td></td>
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<tr>
<td>H5N1</td>
<td>53%</td>
<td>&lt;&lt;1</td>
<td>-</td>
<td>859 cases since 2003</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>H7N9</td>
<td>19%</td>
<td>&lt;&lt;1</td>
<td>-</td>
<td>1,582 cases since 2013</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pneumonic Plague</td>
<td>16%</td>
<td>24</td>
<td>cases 1995-2005</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Cutaneous Anthrax</td>
<td>&lt;1%</td>
<td>-</td>
<td>0 cases 2012-16</td>
<td>x</td>
<td>x</td>
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<td></td>
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<tr>
<td>Inhalational Anthrax</td>
<td>45%</td>
<td>-</td>
<td>0 cases 2012-16</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Botulism</td>
<td>5%–10%</td>
<td>-</td>
<td>808 cases 2012-16</td>
<td>x</td>
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<tr>
<td>Tularemia</td>
<td>&lt;2%</td>
<td>-</td>
<td>1,048 cases 2012-16</td>
<td>x</td>
<td></td>
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<tr>
<td>Glanders</td>
<td>&gt;50%</td>
<td>-</td>
<td>last naturally acquired case in US in 1942; 3 cases in lab workers since 2000</td>
<td>x</td>
<td></td>
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<tr>
<td>Melioidosis</td>
<td>12%</td>
<td>-</td>
<td>52 cases 2008-13</td>
<td>x</td>
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U.S. Citizen Travel to International Regions 2016

<table>
<thead>
<tr>
<th>Regions</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>YTD</th>
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<tbody>
<tr>
<td>Europe</td>
<td>415,470</td>
<td>396,246</td>
<td>312,603</td>
<td>776,049</td>
<td>1,486,550</td>
<td>1,677,000</td>
<td>1,654,382</td>
<td>1,526,022</td>
<td>1,475,414</td>
<td>1,395,120</td>
<td>795,585</td>
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<td>Caribbean</td>
<td>588,205</td>
<td>585,467</td>
<td>309,877</td>
<td>687,703</td>
<td>462,990</td>
<td>453,359</td>
<td>290,805</td>
<td>645,390</td>
<td>416,918</td>
<td>493,179</td>
<td>361,985</td>
<td>7,092,671</td>
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<td>Asia</td>
<td>434,381</td>
<td>505,227</td>
<td>475,577</td>
<td>446,300</td>
<td>445,050</td>
<td>457,294</td>
<td>460,124</td>
<td>386,250</td>
<td>455,655</td>
<td>485,442</td>
<td>425,252</td>
<td>4,223,913</td>
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<tr>
<td>South America</td>
<td>151,576</td>
<td>150,319</td>
<td>163,677</td>
<td>145,179</td>
<td>160,869</td>
<td>162,321</td>
<td>196,009</td>
<td>178,300</td>
<td>129,117</td>
<td>131,988</td>
<td>136,772</td>
<td>1,781,067</td>
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<tr>
<td>Central Africa</td>
<td>204,338</td>
<td>292,786</td>
<td>222,246</td>
<td>222,197</td>
<td>227,876</td>
<td>310,272</td>
<td>322,404</td>
<td>238,250</td>
<td>146,172</td>
<td>161,173</td>
<td>188,861</td>
<td>2,005,490</td>
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<tr>
<td>Middle East</td>
<td>53,540</td>
<td>72,794</td>
<td>58,529</td>
<td>47,180</td>
<td>31,723</td>
<td>38,121</td>
<td>29,885</td>
<td>32,478</td>
<td>47,094</td>
<td>59,178</td>
<td>59,325</td>
<td>622,493</td>
<td>934,943</td>
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<td>Africa</td>
<td>26,709</td>
<td>22,481</td>
<td>31,709</td>
<td>36,720</td>
<td>33,065</td>
<td>36,010</td>
<td>41,895</td>
<td>32,333</td>
<td>30,666</td>
<td>25,412</td>
<td>23,685</td>
<td>328,753</td>
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Cumulative Number of Human Infections of Avian Influenza A(H5N1) and A(H7N9) by Year

H7N9 Overtakes H5N1 Numbers in Five Years

Cumulative Number of Human Infections of Avian Influenza A(H5N1) and A(H7N9) by Year

http://travel.trade.gov/view/m-2016-O-001/index.html
## Zika in U.S.

### U.S. Background Data (excludes U.S. territories)
  - Live Births: 3.999 million
  - Induced Abortions: 1.103 million
  - Fetal Losses: 1.053 million
- Annual Infant Deaths (2013): 23,440

### Zika in U.S. (cont.)
- Annual Birth Defects: **120,000** (3% of children born in the U.S.) have a birth defect
  - Baseline Congenital Zika phenotype (2013-14): 28.8 per 10,000 births (11,500 cases/yr)
    - Brain abnormalities or Microcephaly: 15 per 10,000 births
    - Neural tube defects and other early brain malformations: 8.8 per 10,000 births
    - Eye abnormalities without mention of a brain abnormality: 3.1 per 10,000 births
    - Consequences of CNS dysfunction without mention of brain or eye abnormalities: 1.7 per 10,000 births
- Annual Incidence Guillain-Barré Syndrome: **3,000-6,000** cases annually in U.S.
Zika in U.S. (cont.)

Zika Outbreak in U.S. — 2016-17 (excludes U.S. territories)

- Pregnant women in U.S. with any laboratory evidence of possible Zika virus infection, 2016-2017: 2,155
- Liveborn infants with birth defects in U.S. of Zika+ mothers, 2016-17: 95
- Pregnancy losses with birth defects in U.S. of Zika+ mothers, 2016-17: 8
- Guillain-Barré syndrome (GBS) associated with Zika in U.S., 2016-17: 15

Baseline Congenital Zika Syndrome Incidence: https://www.cdc.gov/mmwr/volumes/66/wr/mm6608a4.htm

Applying What We Can Learn From the Past
Excess Pneumonia and Influenza Mortality Over 1913–1917
Baseline in Philadelphia and St. Louis,
Sept. 8 – Dec. 28, 1918

Richard J. Hatchett et al. PNAS 2007;104:7582-7587

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Statement by the President on Today’s Meeting to Discuss the 1976 Flu Outbreak
THE WHITE HOUSE
Office of the Press Secretary

FOR IMMEDIATE RELEASE JUNE 30, 2009

Statement by the President on Today’s Meeting to Discuss the 1976 H1N1 Flu Outbreak

"Today I joined Health and Human Services Secretary Kathleen Sebelius, Education Secretary Arne Duncan, Homeland Security Advisor John Brennan and other senior advisors to meet with a select group of individuals who could speak knowledgeably about the lessons learned from the 1976 influenza so that we can further prepare this nation for the possibility of a more severe outbreak of H1N1 flu."

Meeting participants (with roles in 1976):

- Hon. F. David Mathews, former Secretary of Health, Education and Welfare (HEW)
- Hon. William Howard Taft IV, former General Counsel, HEW
- David Sencer, MD, former CDC Director
- Walter ("Walt") Dowdle, MD, former CDC Virology Division Director
- David Hamburg, MD, former President of the Institute of Medicine; current FDA Commissioner
- Peggy Hamburg’s father
- Harvey Fineberg, MD, Co-author, The Swine Flu Affair: Decision-Making on a Slippery Disease; current President of the Institute of Medicine
Consequences of Catastrophic Bioterrorism

Past Experience: 2001 Anthrax Attacks

<table>
<thead>
<tr>
<th></th>
<th>Number that received antibiotic treatment</th>
<th>Number of illnesses</th>
<th>Number of deaths</th>
<th>Decontamination</th>
<th>Direct Economic Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>via letters</td>
<td>30,000</td>
<td>22</td>
<td>5</td>
<td>3 Buildings</td>
<td>$1B</td>
</tr>
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</table>

Wide Area Aerosolized Release?

<table>
<thead>
<tr>
<th></th>
<th>Number that will need antibiotic treatment</th>
<th>Number of illnesses</th>
<th>Number of deaths</th>
<th>Decontamination</th>
<th>Direct Economic Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 kg</td>
<td></td>
<td></td>
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</tbody>
</table>
**Anything to Learn from 2014-15 Chikungunya Outbreak?**

**States reporting Chikungunya virus disease cases – U.S. 2014**

**Chikungunya Cases Puerto Rico 2014-15 by Week**

Presumed and Laboratory Confirmed

*Chikungunya not a notifiable disease in 2004

**Zika Outbreak 2016-17**

**States reporting Zika virus disease cases – U.S. 2016**

**Zika Cases Puerto Rico 2016-17 by Week**

Suspected and Laboratory Confirmed
Comparison of Zika (2016-17) and Chikungunya (2013-17) — The Americas

U.S. Citizen Travel to Caribbean, South America and Central America by Month, 2016 (June and July are peak months)

U.S. Citizen Travel to International Regions 2016

<table>
<thead>
<tr>
<th>Regions</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
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<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td>Caribbean</td>
<td>588,825</td>
<td>649,461</td>
<td>800,877</td>
<td>687,300</td>
<td>641,506</td>
<td>859,390</td>
<td>890,789</td>
<td>641,685</td>
<td>418,605</td>
<td>451,979</td>
<td>302,982</td>
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<tr>
<td>South America</td>
<td>152,076</td>
<td>160,312</td>
<td>183,677</td>
<td>142,179</td>
<td>169,089</td>
<td>202,822</td>
<td>198,099</td>
<td>178,209</td>
<td>120,157</td>
<td>123,983</td>
<td>124,772</td>
<td></td>
</tr>
<tr>
<td>Central America</td>
<td>358,706</td>
<td>360,766</td>
<td>350,366</td>
<td>322,167</td>
<td>257,874</td>
<td>319,173</td>
<td>315,404</td>
<td>318,578</td>
<td>146,179</td>
<td>161,373</td>
<td>188,361</td>
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</tbody>
</table>

U.S. Citizen Travel: http://travel.trade.gov/view/m-2016-O-001/index.html
Leveraging/Repurposing Systems Regularly Used Under Normal Conditions

VA Payroll Data and VA Nursing Scheduling Software (unscheduled sick leave)
USPS Home Delivery of Antibiotics

Monitoring Health Care Staffing

- During the 2009 H1N1 pandemic, no system existed to monitor health care worker absenteeism in a timely enough manner to be useful
- VA absenteeism data derived from payroll was available biweekly with a several-day lag
- Identifying trends in absenteeism and sick/unplanned leave in near real-time could contribute to surveillance activities and help assess impact and operational readiness
Monitoring Health Care Staffing (cont.)

- Enhancing surveillance and ensuring operational readiness are not only critical capabilities for pandemic preparedness; these capabilities are important for other potential threats and natural disasters.

- Nurses are the “backbone” of our health care system and account for nearly 1/3 of entire VA workforce. Hence, the interest in leveraging 24/7 nursing staffing systems to monitor near real-time absenteeism.

- Although no system existed in 2009 to capture and track this data in a timely manner, existing systems used by inpatient nursing for 24/7 scheduling and staffing could be leveraged and repurposed with minimal effort.

Comparison of VA Sick Leave Rates by Pay Period vs. ILI Rates by Week October 2004 — April 2017
Comparison of Daily Inpatient Nursing SL (6K Nurses) vs. ILI

Combined Daily Nursing Sick Leave Rates 15 VA Sites

CDC Influenza-Like Illness (ILI) Rate

Hurricane Irma
A VA Medical Center in Florida: Data from Nursing Scheduling/Staffing

Daily Nursing Total Hours Worked and Unscheduled Leave

Daily Nursing Total Hours Worked and Overtime/Comp Time
USPS Home Delivery of Antibiotics

Part 3:

Describe a national health care system’s approach that facilitates interdisciplinary, interagency and intergovernmental planning and coordination

Pete Brewster
Program Manager
Office of Emergency Management
Veterans Health Administration
Department of Veterans Affairs

• Second-largest U.S. government department
• 5 Administrations
  – Veterans Health Administration
    • 142 health care systems with 900+ outpatient clinics from Puerto Rico to Guam
    • 300,000 employees
    • 6.8M unique patient encounters
    • 9M enrollees
    • Major transformation of the VA health care service delivery system is ongoing

VA Missions and Priorities

<table>
<thead>
<tr>
<th>Missions</th>
<th>Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient care</td>
<td>Suicide prevention</td>
</tr>
<tr>
<td>Medical education</td>
<td>Greater choice</td>
</tr>
<tr>
<td>Research</td>
<td>Modernization</td>
</tr>
<tr>
<td>Contingency support</td>
<td>Efficiency</td>
</tr>
<tr>
<td>Homelessness</td>
<td>Timeliness</td>
</tr>
</tbody>
</table>
VA Contingency Authorities

- Humanitarian assistance
- Sharing of health care resources
- Vaccination of first responders
- VA-DoD Contingency Hospital System
- National Response Framework
  - National Disaster Medical System
- VA Emergency Preparedness Act
  - Comprehensive Emergency Management Program

Comprehensive Emergency Management Program

- Mission: Optimize Veteran access and continuity of health care, community support and organizational recovery from emergencies and adverse events through systemwide unity of effort
- Business Case/Value: Emergency management maximizes access to health care service delivery during emergencies through collaboration, integration, risk assessment, and planning and regulatory compliance
Challenges During the Ebola Virus Disease (EVD) Crisis

- Establishing the overall health care system structure, function and linkage
- Understanding the necessary environmental controls and PPE requirements
- Acquiring the needed PPE
- Developing guidance to bridge knowledge gaps
- Effectively communicating risk to employee unions
- Providing useful training and exercises

Evolving the EVD Response into an HCI Preparedness Program

- Blending VHA into the HHS preparedness and response framework
- Involving leadership to set realistic readiness requirements and reserve capabilities
- Continuing communications between national-level and facility-level subject matter experts
- Providing funding for capability development
### Evolving the EVD Response into an HCI Preparedness Program (cont.)

- Leveraging education, training and exercise opportunities
- Working to link internal programs and subject matter experts related to HCI
- Developing approaches useful in responding to any type of biological incident
- Keeping core elements “warm”

### Keeping Core Elements Warm

- Clarify roles and responsibilities
- Address gaps in policy/guidance/training/resources
- Set practical medical facility readiness requirements to include linkage with health care coalitions
- Jointly develop pre-plans and training/exercise products
Keeping Core Elements Warm (cont.)

- Participation in federal interagency discussions
- Strategic systemwide capabilities
- Processes for:
  - Impact assessment and gap analysis
  - Transitioning from steady state to response
    - Policy Coordinating Entity/technical advisors
  - Rapid acquisition of needed supplies and equipment
  - Communications with leadership, employees and patients

Why Emergency Management Organizations are Important Partners

- Provide the overall organizational structures and processes for planning, incident management and coordination
  - Preparedness system and outputs (plans, training & exercises)
  - National Incident Management System/Standardized Emergency Management System
  - Emergency Management Assistance Compact/Master mutual aid agreement
- Serve elected officials with jurisdictional authority
  - Issue declarations and exercise other police powers
- Have a high level of experience with uncertainty
  - Facilities, communications systems, personnel and equipment can be applied to a wide variety of incidents and events
Disasters Change Normal Organizational Routines

- Off-duty personnel are called in
- Personnel are reassigned to new duties
- Everyday procedures & priorities are altered
- Organizations share tasks & resources
- Involvement of non-emergency responders
- Crossing of jurisdictional boundaries
- Non-routine tasks are created
- Damage to normal response tools & facilities
- Formation of new organizations

Source: Auf der Heide

Managing an Incident Involves Two Sets of Demands That Occur at Once

- Pre-Impact Preparedness
- Care for the Injured or Ill
- Protection against Continuing Threat
- Maintaining Continuity of Operations
- Providing for Welfare Needs
- Restoration of Services

Agent-Generated Demands

- Alerting, Notifications & Warning
- Ongoing Situation Assessment
- Mobilization
- Incident Management & Coordination
- Crisis Communications
- Reporting

Response-Generated Demands

Source: Quarantelli
Managing an Incident Involves Two Sets of Demands That Occur at Once

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- Incident Management & Coordination
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- Reporting

Five Common Challenges Organizations Face in Emergencies

- Mobilization
- Information Processing
- Task Assignment
- Decision Making
- Inter-organizational relationships

Source: Quarantelli
Thank you!

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