Improving Disaster Preparedness in an Era of Scarce Resources

A View from California

R. Steven Tharratt, MD, MPVM
Director, California Emergency Medical Services Authority
Disasters in California

- Long history of disasters.
- Pioneered some aspects of response.
  Master Mutual Aid System
  Standardized Emergency Mgmt. System
- Local organization at the county level (58)
- 6 mutual aid regions.
Health Disasters In California

- Joint responsibility of the California Emergency Medical Services Authority (EMSA) and the California Department of Public Health (CDPH)
  - EMSA - 31 local EMS agencies (LEMSA's)
  - CPDH - 61 Local Health Departments
- Work as partners
- Concept of time in disasters.
What do we mean by “Scarce Resources”?

Scarce resources = austere care, crisis care, disaster care?

- OR -

Scarce resources = $42 billion budget shortfall in California: 2008-2010
Leverage of Existing Systems

- Hospital bed status - Build "THE SYSTEM"
  Locals can't find the time to report.
  Hospitals consider the data proprietary.
  "Show us the money".
  How many emergencies require that level of comprehensive information in the early hours?
“Eavesdrop” on the Local Systems

- All local EMS systems use one of 3 computerized status tracking systems.
- Most systems regional in nature.
- EMSA asked for permission to access local systems in an emergency.
- Requires collation of data for larger emergencies.
Response Teams: MRC’s → DMAT’s
Where is the “sweet spot”?

- **Cal-MAT’s**
  - Based on DMAT program.
  - Used within California for fire response.

- **California’s mobile field hospitals.**
  - 3 - 222 bed capability.
  - Cal-MAT “opens” the personnel component.
  - Augmented with DMAT / MRC members.

- **Leverages “Disaster junkies” who want a defined regional response.**
Health Disasters in Missouri

- Lead responsibility rests with the Missouri Department of Health and Senior Services in conjunction with state and local partners
  - 114 Autonomous Local Public Health Agencies
  - 171 Public Safety Answering Points
  - 215 Licensed Ground Ambulance Services
Regionalization Activities

- Regionally located assets
- Regional Ethics Committees
- Regional LPHA Contracts
Regionalization Activities

- Regional response plan for BioWatch
- Regional Planning for Scarce Resource Allocation
- Regional Homeland Security Advisory Councils
Public Private Partnerships

- Scarce Resource Allocation Committee
- Ready in 3 Materials
- Missouri Hospital Association
- Missouri Funeral Director’s Association
- MOP3
- Faith-Based Initiative
Exercising More While Spending Less

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Harvard School of Public Health
Center for Public Health Preparedness

Massachusetts General Hospital
Exercise Design

The quality of an exercise dramatically affects:

- The experience of the participants
- Affects motivation for future exercises
- Affects training of participants
- The ability to learn useful lessons
Exercise Design

- Quality can be significantly improved with:
  - Early focus on objectives
  - Early focus on evaluation
  - Broad and appropriate representation
  - Use (and nurturing of) of available expertise
Setting Objectives

- Begin your exercise planning with a limited number of specific, measurable objectives
- Set priorities
- Be realistic
- Avoid “objective creep”
Focus on Evaluation

- Evaluation of exercises is often an afterthought

- Exercises need to be designed so you know whether/how you met your objectives

- Need:
  - Evaluation materials
  - Evaluators

<table>
<thead>
<tr>
<th>EPIDEMIOLOGY &amp; SURVEILLANCE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIATORS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Receive and respond to urgent case reports.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Investigate and track reported cases.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Laboratory capacity (i.e., rapid identification of novel influenza strains), including ability to ship specimens to state or CDC lab.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Link with and share data among different surveillance systems (e.g., state IDES, CDC, other communities and states, local hospitals, etc.).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Step up surveillance capacity in time to initiate containment protocols.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Please list any specific successes or challenges related to epidemiology and surveillance that your team experienced in responding to the exercise scenario, as well as proposed actions to address any deficiencies.
Encourage Broad Representation

- Horizontal and vertical participation is essential
- Need appropriate level of representatives at the table
- Competing exercise programs mean you have to spend time to get time
Use Available Expertise

Many resources are available for exercise design and evaluation:

- LLIS
- HSEEP Toolkit
  - Design and development system
- BTCreate (NACCHO)
- HSPH-CPHP toolkit
- Columbia Exercise Toolkit
- AHRQ hospital exercise toolkit

Local emergency response partners
Local academics
Your own staff
Pitfalls

- Heavy reliance on outside resources
- Irrationally setting objectives / letting others set your objectives for you
- Failing to include/participate with other partners
- Not making exercises a routine part of the preparedness process
- Not fixing the problems you find
What Is The Greatest Cost of An Exercise?

- Time
A Game of Numbers
The Preparedness Balance Sheet

Maurice A. Ramirez, DO, PhD, BCDM, BCEM
Founder/President High Alert, LLC

Founding Chairperson
American Board of Disaster Medicine
A Game of Numbers

How Will This Affect the Balance Sheet?
Preparedness Balance Sheet
Event Response Model
## Preparateness Balance Sheet

### Event Response Model

<table>
<thead>
<tr>
<th>Costs</th>
<th>Dollars and Sense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>$1400/Licensed Bed</td>
</tr>
<tr>
<td>Staff Training</td>
<td>$3920/Licensed Bed/yr.</td>
</tr>
<tr>
<td>Salaries for Training</td>
<td>$1780/Licensed Bed/yr.</td>
</tr>
<tr>
<td>Resource Stockpiles</td>
<td>$1400/Licensed Bed</td>
</tr>
<tr>
<td>Externally Validated Drills and Exercises</td>
<td>$530/Licensed Bed/drill (2 per year)</td>
</tr>
<tr>
<td>Extra Personnel</td>
<td>$1350/Licensed Bed/day</td>
</tr>
</tbody>
</table>

**Total Cost =**

$10400/bed/yr
Preparedness Balance Sheet
Event Response Model

Benefits
- Joint Commission
- NIMS Compliance
- Legal Protection
- Qui Tam
- Sarbanes Oxley

Dollars and Sense
- $0.00
- $0.00
- Priceless

Total Revenue = $0.00
Preparedness Balance Sheet
Event Response Model

**Costs**
- Equipment
- Staff Training
- Salaries for Training
- Resource Stockpiles
- Externally Validated Drills and Exercises
- Response Personnel

**Benefits**
- Joint Commission
- NIMS Compliance
- Legal Protection
- Qui Tam
- Sarbanes Oxley

**NET LOSS =**
$10400/bed/yr
Preparedness Balance Sheet
Event Response Model
## Preparedness Balance Sheet

### Process Enhancement Model

<table>
<thead>
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**Total Cost =**

$11500/bed/yr
## Preparedness Balance Sheet

### Process Enhancement Model

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<th>Business Benefits</th>
<th>Dollars and Sense</th>
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<tr>
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<td>$0.00</td>
</tr>
<tr>
<td>NIMS Compliance</td>
<td>$0.00</td>
</tr>
<tr>
<td>Legal Protection</td>
<td>Priceless</td>
</tr>
<tr>
<td>Qui Tam</td>
<td></td>
</tr>
<tr>
<td>Sarbanes Oxley</td>
<td></td>
</tr>
<tr>
<td>Improved Customer Satisfaction</td>
<td>Priceless</td>
</tr>
<tr>
<td>Fewer AMA/LWOT</td>
<td></td>
</tr>
<tr>
<td>Increased Admits</td>
<td>One Admission per Bed/yr</td>
</tr>
</tbody>
</table>

### Dollars and Sense

- One Admission per Bed/yr
- $17,374/Licensed Bed/yr

### Total Revenue =

- $17,374/Bed/yr
### Preparedness Balance Sheet

#### Process Enhancement Model

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<tr>
<td></td>
<td>Targeted Response reduces cost of response</td>
</tr>
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**NET PROFIT = $5874/Bed/yr**
Preparedness Balance Sheet

- **Process Enhancement**
  - Process Analysis
  - Business Processes
  - Healthcare Processes
  - Income Streams
  - Daily Needs/Resources
  - Inventory
  - Benchmark Triggered
  - Targeted Process Enhancement

- **Event Response**
  - Vulnerability Analysis
    - Hazard Based
    - Kaiser Model
    - Income Insensitive
  - Centered on Recognized Events
  - Event Triggered
  - Untargeted Response and Expenditure
Preparedness Balance Sheet

- **Process Enhancement**
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  - Event Triggered Untargeted Response and Expenditure

- **Net Profit:** $5874/Bed/yr
- **Net Loss:** $10400/Bed/yr
Preparedness Balance Sheet

- The Return on Investment (ROI)
  - $16274/Licensed Beds/yr
  - $5874/Licensed Bed/yr Profit
- Improved Customer Satisfaction
- Fewer AMA's/LWOT's
- More Admissions
- Shorter Response Phase
- Quicker Return to Full Operations
- Greater Surge Capacity
Preparedness Balance Sheet

- Healthcare planning traditionally based on “same day last year” and “last time this happened” parameters.
- Healthcare disaster planning too often looks to change operational procedures.
- “Practice the way you will play”
  - Vince Lombardi
- “Play the Way You Will Play!”
  - Maurice A. Ramirez
Questions?