ASPPH Presents Webinar Series

Using Exercises to Measure Preparedness

Thursday, August 6, 2015
11:00 am - 12:00 pm Eastern
Method for Submitting Questions

Join the Conversation...

- You can ask questions in writing anytime during the webinar.

- Simply type them in the “Questions” field on the right side of your screen.
Today’s Presenters

Paul Biddinger, MD, FACEP
Vice Chairman, Emergency Preparedness, Department of Emergency Medicine, Massachusetts General Hospital; Director of Emergency Preparedness Research, Evaluation and Practice Program, Harvard T.H. Chan School of Public Health

Elena Savoia, MD, MPH
Scientist, Department of Biostatistics; Deputy Director, Harvard T.H. Chan School of Public Health Preparedness and Emergency Response Learning Center (PERLC)
Using Exercises to Measure Preparedness

August 6th 2015 11:00 AM
Paul D. Biddinger, MD FACEP
Elena Savoia, MD MPH
Acknowledgements

We gratefully acknowledge funding support from the U.S. Centers for Disease Control and Prevention (CDC) supplement to grant number 5PO1TP000307-05 (Linking Assessment and Measurement to Performance in Exercises and Drills - Preparedness and Emergency Response Research Center) and 1U9OTP000307-05 Preparedness & Emergency Response Learning Center.

The content of this lecture as well as the views and discussions expressed are solely those of the speakers and do not necessarily represent the views of any partner organizations, the CDC or the U.S. Department of Health and Human Services nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.
Learning Objectives

1. Describe the use of exercises to measure preparedness,
2. Understand the strengths and limitations of the measurement approach to exercise performance,
3. Become familiar with the use of an online tool, available to practitioners, to improve the quality of data collection and exercise evaluation.
Webinar structure

PART A – What does it mean to create an exercise for evaluation purposes?

PART B – What are the strengths and weaknesses in the measurement approach to exercise performance?

PART C – Walk trough our online exercise evaluation tool

PART D - Results from field testing

Q&A
Background

Exercises that simulate emergency scenarios are widely accepted as a major component of every well-established preparedness program.

Unfortunately, the variability in the quality of the exercises conducted and the lack of standardized processes to measure performance have limited the value of exercises in improving preparedness efforts.
How can we define Exercise Performance Measurement?

The process of **collecting, analyzing and reporting** information regarding the performance of a **public health or healthcare system and its components** in responding to a public health threat during an exercise.
Our experience
PART A

An exercise well-suited for evaluation purposes!
Conceptual Model: Key Elements of Exercise Performance Measurement

The Purpose
- Accountability
- Quality Improvement

The Exercise
- Type of Exercise
- Quality of Exercise (Scenario, participants etc.)

The Unit
- The Unit of Observation
- The Unit of Analysis

The Instrument
- The Instrument Structure
- The Measures
- Measurement Properties
- Reliability
- Validity
- Feasibility
- Utility

Key element 1: the purpose of the measurement

Accountability vs Quality Improvement

Are health systems prepared?
Are levels of preparedness improving?
Quality Improvement

What went well?
What went wrong?
Where was the plan inadequate?
Key element 2: the characteristics of the exercise

Participants

Scenario

Timeframe
PART B
Key element 3: the unit

...of observation

Public health or Healthcare

...of analysis
Key element 4: the instrument

±2 pounds
Measurement Properties

Reliability and Validity
The Measures and the Evaluation Form

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
</tbody>
</table>

Likert Scale

Yes? No?

Narrative
Inter-Rater Reliability

Object or Phenomenon

70% With our form

observer 1

observer 2
Validity

Face

Content

Criterion
PART C
Let’s take a look at our tool: The Online Exercise Evaluation Database
Online Exercise Evaluation Tool

- You have access to exercise performance measures tested for reliability and validity
- You have access to more than 500 different performance measures
- You can download the measures into an evaluation form
- Very soon you will be able to use the analytical feature to generate basic outputs based on your exercise data.
What Types of Measures are Available To You?

A goalkeeper’s performance:
TASKS AND ACTIONS!

A public health system performance:
TASKS AND ACTIONS!
What Types of Measures Are Available To You?

150 GENERAL TASKS

Task X

- Action 1: yes/no
- Action 2: yes/no
- Action 3: yes/no
- Action y: ...

500 ACTIONS

1...2...3...4...5...6...7...8...9...10
Exercise Evaluation Tool

Emergency Preparedness Exercise Evaluation Tool

The Emergency Preparedness Exercise Evaluation Tool was created to help evaluators capture data during a disaster exercise. Public health and healthcare agencies will find this database helpful in developing exercise evaluation forms for the optimal evaluation of their preparedness exercises.

Generate Evaluation Form
(Without logging in)

Take the Online Training on Using this Tool

http://phasevtechnologies.com/studies/lamps/index.php
### Emergency Preparedness Exercise Evaluation Tool

#### Public Health and Healthcare Capabilities
- [ ] Community Preparedness
- [ ] Community Recovery
- [ ] Emergency Operations Coordination
- [ ] Emergency Public Information and Warning
- [ ] Healthcare System Preparedness
- [ ] Healthcare System Recovery
- [ ] Information Sharing
- [ ] Medical Countermeasure Dispensing
- [ ] Medical Material Management and Distribution
- [ ] Medical Surge
- [ ] Non-Pharmaceutical Interventions
- [ ] Public Health Laboratory Testing
- [ ] Public Health Surveillance and Epidemiological Investigation
- [ ] Responder Safety and Health
- [ ] Volunteer Management

#### Incident Response Stage
- [ ] Incident Recognition
- [ ] Notification
- [ ] Activation/Mobilization
- [ ] Incident Response
- [ ] Recovery

© 2014 Phase V Technologies, Inc. All rights reserved.
<table>
<thead>
<tr>
<th>Notification of appropriate agencies of a hazardous materials incident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified how entities would be notified of a hazardous materials incident</td>
</tr>
<tr>
<td>Identified what agencies should be notified of a hazardous materials incident</td>
</tr>
<tr>
<td>Identified who would be responsible for notifying appropriate agencies of a hazardous materials incident</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notification to first responders and key stakeholders of decision to activate surge plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified all key stakeholders across all disciplines</td>
</tr>
<tr>
<td>Identified back-up methods to communicate with first responders and key stakeholders</td>
</tr>
<tr>
<td>Identified how decision to evacuate would be disseminated to first responders and other key stakeholders</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notification to first responders and key stakeholders of decision to evacuate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified all key stakeholders across all disciplines</td>
</tr>
<tr>
<td>Task Description</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Identified how decision to shelter in place would be disseminated to staff</td>
</tr>
<tr>
<td>The entity had a procedure or protocol to ensure confirmation of shelter in place order was received throughout the facility</td>
</tr>
<tr>
<td><strong>Notification to staff of decision to activate downtime procedures</strong></td>
</tr>
<tr>
<td>Followed procedure or protocols to notify staff of Activation/Mobilization of downtime procedures</td>
</tr>
<tr>
<td>Identified appropriate person/personnel to implement notification process</td>
</tr>
<tr>
<td>Message included type of downtime, actions to be taken, and the potential length of downtime</td>
</tr>
<tr>
<td>Used pre-defined messages to notify staff of Activation/Mobilization of downtime procedures</td>
</tr>
</tbody>
</table>

© 2014 Phase V Technologies, Inc. All rights reserved.
Please complete this evaluation form.

This form is designed to assess the emergency response capabilities required to respond to the situation presented during this exercise.

| Observed Agency or Entity Name: |
| Location:                     |

For the evaluator, please answer the following questions about your training or experience:

1. Length of time you have been involved directly or indirectly in emergency preparedness activities?
2. Number of public health or emergency preparedness trainings you attended in the past year?
3. Have you been formally trained in the incident command system (ICS)?

Number of emergency response exercises (tabletops, functional or full-scale) attended in past three years:

<table>
<thead>
<tr>
<th>Representation of senior management perspective and decision making</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of entity resources and capabilities</td>
<td>12 3 4 5</td>
</tr>
<tr>
<td>Special expertise within the agency/field engineers, etc.</td>
<td>12 3 4 5</td>
</tr>
<tr>
<td>Knowledge of existing emergency plans and procedures</td>
<td>12 3 4 5</td>
</tr>
<tr>
<td>Coordination and inter-agency relationships with others outside of the agency</td>
<td>12 3 4 5</td>
</tr>
<tr>
<td>Information management</td>
<td>12 3 4 5</td>
</tr>
<tr>
<td>Personnel/asset management</td>
<td>12 3 4 5</td>
</tr>
<tr>
<td>Exercise Date:</td>
<td>Specific Action</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Communicated information accurately</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Discussed what information would be disseminated to external partners</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Discussed when and how information would be disseminated to appropriate external stakeholders/partners per existing protocols or procedures</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Discussed who would develop information</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Disseminated information in a timely fashion</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Disseminated information to appropriate external partners per existing protocols or procedures</td>
</tr>
</tbody>
</table>

Identified appropriate partners per existing protocols or procedures

List how message was disseminated
Please fill out the following section:

Please describe 3 successes and 3 challenges you observed regarding the ability to recover from the incident.

Please describe 3 actions or 3 changes that could have been taken to recover from the incident.
PART D: Field testing

practice makes perfect
Field testing of the tool: January-September 2014

- 14 agencies (4 hospitals + 10 public health agencies) from 8 states

- Structured interviews were conducted with all users (exercise planners) to:
  1) Assess the use of the tool during exercise evaluation planning efforts,
  2) Compare the tool with other instruments of evaluation and
  3) Determine how results can be used for after action reporting purposes.
Field testing

- **Total number of exercises**: 23 [1 workshop; 10 tabletop; 4 drills; 4 functional; 4 full scale]
- **Average number of exercise players**: 34
- **Average number of evaluators**: 5
- **Top 3 capabilities tested**: Emergency Operations Coordination; Emergency Public Information & Warning and; Information sharing
- **Purpose of the exercise**: 80% was for both performance assessment and training
Our end users background

- Average number of years in emergency preparedness: 13
- Training in HSEEP: 70% (Yes) ; 30% (No)
- All users had experience in planning an exercise
  - Average number of exercise planned in the last 3 years: 7
- 90% have experience in creating exercise evaluation form
- 85% have experience in evaluating an exercise
- 85% have experience in writing after action report
Interview Results

- 93% of users found the evaluation toolkit helpful in creating evaluation forms for their exercise(s)
- 93% of users would use it again

Reason(s) cited for liking the toolkit:
- Applicability of metrics
- Alignment with target capabilities (HPP and PHEP)
- Provided guidance on what was needed for evaluation
- Useful for exercise development
- Ability to customize

Reason(s) cited for not liking the toolkit:
- Required too much customization
Interview results

• 43% of users used the toolkit for other purpose other than evaluation purpose
  ➢ Exercise development
  ➢ Training
  ➢ Evaluation of real world incident (One user plans to use it for this purpose)

• 72% of users liked the final evaluation form that was generated from the toolkit.
• 93% of users found the data collected with the evaluation form helpful in generating an AAR
Comparison with other instruments

- Which evaluation instrument method do you prefer?
  72% HSPH; 21% HSEEP; 7% Other

- Which instrument do you think will best allow you to measure changes/improvement over time?
  79% HSPH; 7% HSEEP; 14% Other

- Which instrument do you think best captured the root causes that positively and negatively influenced performance during the exercise?
  79% HSPH; 7% HSEEP; 14% Other

- Which instrument do you think is easier to use?
  65% HSPH; 21% HSEEP; 14% Other
If you are interested in using the toolkit:

http://phasevtechnologies.com/studies/lamps/index.php

If you need assistance or are interested in participating in a cohort of users please contact: eprep@hsph.harvard.edu
Questions and Comments?

Join the Conversation...

[Image of a webinar interface with a question box and a send button]
Thank you!

See the webinar event page on the ASPPH website for a link to the archived webinar:

http://www.aspph.org/event/aspph-presents-using-exercises-to-measure-preparedness/
Coming Attractions...

Check the ASPPH Events webpage for announcements about future ASPPH Presents webinars

http://www.aspph.org/events/