Updating Public Health Emergency Preparedness Competencies Using Needs Assessment and Training Development Information

South Central Center for Public Health Preparedness

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Defining Competency

- A competency is an operationalization of knowledge, skill, ability, or other characteristics (Mirabile, 1997)

- Competencies serve as indicators of future work performance or potential performance (Shippmann et al., 2000; Gebbie, 2004)

Development of Competency Sets

- As industries target competency, competency sets are developed
  - Competency Modeling

- Existing Emergency Preparedness Public Health Competency Sets
  - Columbia University School of Nursing/CDC BT Competencies
  - Other, less targeted sets (e.g. Council on Linkages)

Need to Expand PH Competencies

- Factors that reduce the vitality of existing competency sets
  - Time
    - Each competency set is frozen in time
    - Represent a snapshot in time
  - Knowledge
    - Accuracy is limited to understanding of the situation at that time
      - Increase in knowledge/understanding (we learn more and more everyday)
      - Situations change (validity is not forever)

The Problem: Stagnation

- Competency sets are developed based on the current state of knowledge, current parameters – which is an inherent limiting factor
- What happens when knowledge advances, views shift?
- What happens when parameters change?

Proposed Solution: Update Ageing Competencies

- When competency sets begin to age, in order to stay current, they must be renewed
  - Start over again?
  - Update what we already have?
    - How?

What we did to update the PH EP competency set:

- Look to existing SME developed training to see what the SME's in the field identify as important
- Map these training objectives onto existing competency sets
- Content code what does not map onto existing sets to see if it is coherent and salient to the field
- Develop these new content areas into additional competencies in order to update the existing competency set.

Testing the Technique

- Public Health Emergency Preparedness Competencies

- SCCPHP's SME developed training

Validating Success

- Re-map: Map new Expanded Competency Set to a second set of PH EP courses

- Via recent PH EP needs assessment, map identified needs to original vs. Expanded Competency sets

What did we find?

- Existing training objectives did not all link to existing competencies.

Coverage Totals by Course from Initial Competency – Course Objective Matrix

Course ID	Group	# of Objectives	Combined Competency Set Coverage	Objectives Not Accounted For	Additional Coverage from Expanded Competency Set
1	1	12	6	6	2
2	1	11	0	11	9
3	1	16	13	3	0
4	1	3	1	2	2
5	1	10	0	10	9
6	1	9	8	1	1
7	1	9	6	3	3
8	1	9	7	2	2
9	1	11	4	7	7
10	1	12	9	3	3
11	1	29	6	23	20
12	1	37	5	32	32
13	1	18	12	6	2
14	1	11	11	0	0
15	1	9	6	3	3
16	1	6	5	1	1
17	1	3	2	1	1
18	1	6	6	0	0
19	1	5	5	0	0
20	1	7	3	4	4
21	1	8	3	5	4
	Sum:	**241**	**118**	**123**	**105**

What else did we find?

- Objectives that are not strongly linked to existing competencies can subsequently be content coded into one or more additional relevant competencies.

Hypothesis 2 Support

Additional Competencies Developed from Course Objectives
Develop Emergency Response Communication Network
Recognize and respond appropriately to psychological aspects of emergencies
Describe the Fundamentals of Terrorism
Recognize biological agents and resulting symptoms and respond appropriately to biological threats
Recognize chemical agents and resulting symptoms and respond appropriately to chemical threats
Recognize radiological agents and resulting symptoms and respond appropriately to radiological threats
Recognize and employ effective counterterrorism techniques
Identify and assess health risks resulting from terrorist activities
Identify abilities & limitations of other responders/agencies and use this knowledge in subsequent decision making
Apply safe work practices and avoid unnecessary risk

Some validation results:

- The expanded competency did a much better job of linking/accounting for future needs assessment information.

Hypothesis 3 Support

Expanded Competency Set			Total of Linkages per Competency	Grand Totals of Linkages per Competency Set
Combined Competency Set	CDC 1	**Describe Public Health Role**	**1**	**43**
	CDC 2	**Des Chain of Command**	**9**	
	CDC 3	**ID & locate plan**	**3**	
	CDC 4	**D&D functional role(s)**	**15**	
	CDC 5	**Demo comm equip use**	**5**	
	CDC 6	**Des Comm Role in Emer Resp**	**7**	
	CDC 7	**ID personal limitations**	**1**	
	CDC 8	**Recognize events**	**0**	
	CDC 9	**Solve problem & evaluate**	**2**	
	Council 1 - 4		**0**	
Newly Identified Competencies	SCCPHP 1	Develop com network	**17**	**35**
	SCCPHP 2	Psych aspects of emergencies	**18**	
	SCCPHP 3	Fundamentals of terrorism	**0**	
	SCCPHP 4	Biological threats	**0**	
	SCCPHP 5	Chemical threats	**0**	
	SCCPHP 6	Radiological threats	**0**	
	SCCPHP 7	Counterterrorism	**0**	
	SCCPHP 8	Health risk assessment	**0**	
	SCCPHP 9	Identify abilities of others	**0**	
	SCCPHP 10	Work place safety	**0**	

More validation results:

- Re-testing the new expanded competency set with new course objectives
  - Utilizing objectives that were not developed with the expanded competency set in mind
  - Second set of training objectives linked to the expanded competency set much better than the original competency set.
  - *Is this a circular argument?*

Coverage Totals by Course from Second Competency – Course Objective Matrix

#	Group	# of Objectives	Combined Competency Set Coverage	Additional Coverage from Expanded Competency Set
1	2	3	3	0
2	2	11	11	0
3	2	9	4	5
4	2	7	5	2
5	2	40	30	10
6	2	10	2	8
7	2	11	4	7
8	2	23	23	0
9	2	17	12	5
10	2	24	11	13
11	2	11	9	2
	Sum:	166	114	52

Conclusions

- The updating technique appears to be effective for Public Health Emergency Preparedness Competencies for the South Central Center's course objectives

- The technique can and should be re-applied as often as feasible

  - The technique needs to be validated under varying conditions to see if it generalizes

  - Continued validation will make the existing set stronger and keep it fresh