

Measuring Hospital Preparedness for Pandemic and Mass Casualty Events: What is important to measure?

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Background

- Desire to assess healthcare system preparedness
- Pandemic and All-Hazards Preparedness Act (PAHPA)
 - Enacted in 2006
 - Requires tracking and congressional reporting
- This project aims to develop measures of hospital emergency preparedness within topics identified as important

Initial assessment of field

- Initially searched literature and government or accreditation sources for measures of preparedness
- Few measures
 - Many guidelines, checklists, and standards
 - Little evidence base available to aid in choosing measures based on guidelines
 - Guidelines may not translate easily to measures
 - Measures include Joint Commission standards, VA assessment tool, Johns Hopkins/AHRQ drill performance evaluation tool

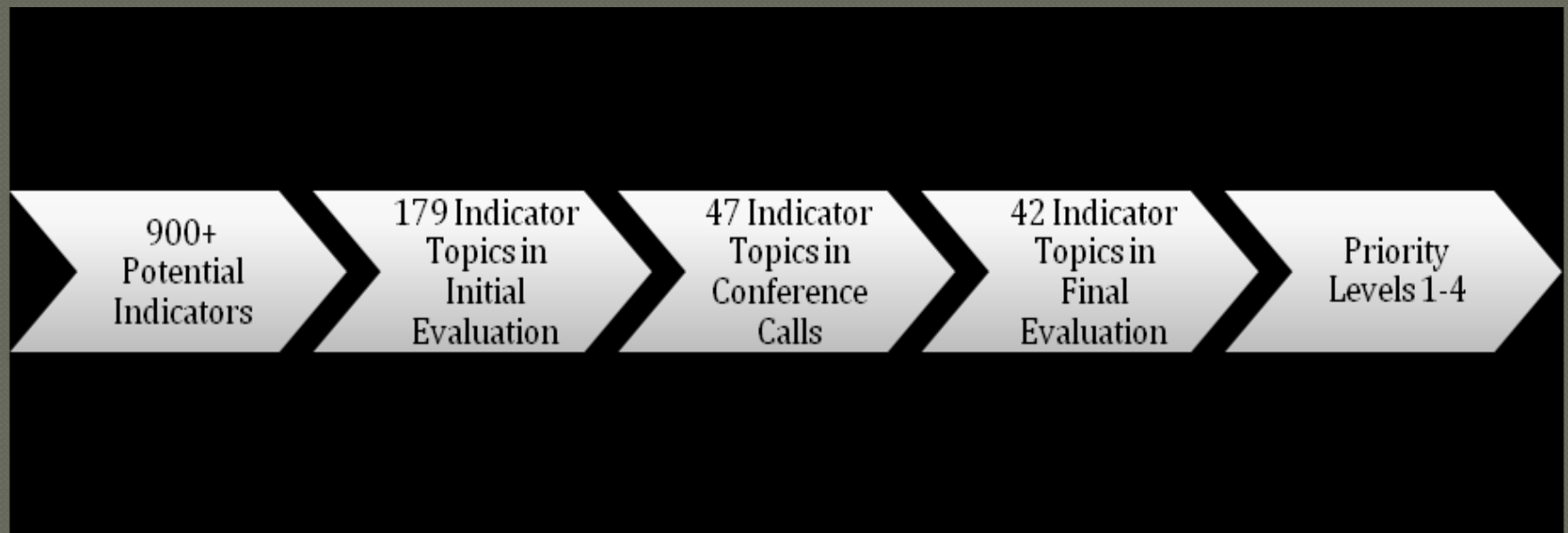
Methods

- Review to identify guidelines, checklists, etc.
- Group together like guidelines to identify general topics
- Topics evaluated by expert panel (nominal group technique)
 - 43 panelists assigned to 3 duplicative panels
 - Rated topics on importance to include in report, participated in call, then re-rated subset of topics
 - Each call summarized and shared with other panels
 - Only highest rated topics moved to next step
 - Final rating also included set-building task
 - Ratings used to prioritize topics (priority level 1-4)

Methods

- **Priority Level 1 (Highest level of support)**
 - Median of ≥ 4 with agreement AND $>50\%$ of panelists included the topic in ideal set
- **Priority Level 2 (High level of support)**
 - Median of ≥ 4 with mixed (“indeterminate”) agreement AND $>50\%$ of panelists included the topic in ideal set
- **Priority Level 3 (Moderate level of support)**
 - Median of ≥ 4 with agreement or without agreement or disagreement (“indeterminate”) AND $\leq 50\%$ of panelists included the topic in ideal set, OR
 - Median of 3 with indeterminate agreement AND $>50\%$ of panelists included the topic in ideal set
- **Priority Level 4 (Lowest level of support)**
 - Any median with disagreement AND $\leq 50\%$ of panelists included the topic in ideal set, OR
 - Median of < 4 with any level of agreement AND $\leq 50\%$ of panelists included the topic in ideal set

Methods



Results: What makes a set?

◉ Most important factor

- Coverage of multiple but not necessarily all major aspects of preparedness
- Face validity of the topic

◉ Least important factor

- Use by a major national organization
- Data collection burden

Results: Number of indicator by priority level

Concept Area	PL 1	PL2	PL3	PL4	# Outliers	Total #
Behavioral Health	0	0	0	2	0	2
Communications	2	0	1	1	0	4
Community Integration	0	1	1	0	0	2
Continuity of Operations	1	0	0	0	0	1
Countermeasures, Supplies, and Personal Protective Equipment (PPE)	1	1	1	0	0	3
Decontamination	0	2	1	0	0	3
Disease Reporting and Surveillance	0	0	1	0	0	1
Emergency Management Procedures and Planning	1	2	0	0	0	3
Evacuation and Shelter in Place	1	2	3	0	0	6
Fatality Management	0	0	0	2	0	2
Patient Management and Care	0	2	0	0	0	2
Safety and Security	1	1	1	0	0	3
Staff and Volunteer Management	0	0	2	1	0	3
Staff Training	0	2	1	0	0	3
Surge Capacity	0	2	2	0	0	4
Total # Items Per Priority Level	7	15	14	6	0	42

Results: Concept Areas Covered by Highest Priority Topics

- Six out of 15 covered in highest priority
- Priority 1 and 2 covered all except
 - Staff and volunteer management
 - Fatality management
 - Disease reporting and surveillance
- Did not favor topics derived from guidelines from any single source, or from multiple sources

Priority One Topics

Indicator Topic	Median Rating (1-5)	Percent Including Topic in Set	Concept Area
Hospital's emergency operations plan (EOP) identifies a chain of command.	5	73.0	Emergency Management Procedures and Planning
Hospital has a plan for unsupported functioning/self sufficiency, including through the use of alternative sources of potable water and electricity, for 96 hours.	5	70.3	Continuity of Operations
Hospital has a plan for alternative means of communication or backup communication systems.	5	64.9	Communications
Hospital has a plan for coordinating all levels of communication, including both intra- and inter-organizational communication, as well as required technology.	4	75.7	Communications

Priority One Topics Continued

Indicator Topic	Median Rating (1-5)	Percent Including Topic in Set	Concept Area
Hospital has a plan specifically for protecting staff and other responders using countermeasures, supplies, and personal protective equipment (PPE).	4	64.9	Countermeasures, Supplies, and PPE
Hospital has a plan for safety and security of people, including staff, patients, and supplies, which may involve partnering with local law enforcement agencies.	4	54.0	Safety and Security
Hospital has a plan for evacuation, including transport of patients and information to alternate care sites.	4	51.4	Evacuation and Shelter in Place

Priority Two Topics

Indicator Topic	Median Rating (1-5)	Percent Including Topic in Set	Concept Area
Surge capacity is addressed at various levels in the hospital (i.e. not just in the emergency department) and with community partners.	5	78.4	Surge Capacity
Hospital's emergency operations plan (EOP) contains specific plans for communications.	5	67.6	Emergency Management Procedures and Planning
Hospital has a plan for treatment and management of contaminated persons.	4	64.9	Decontamination
Hospital has a plan for evacuation in general.	4	64.9	Evacuation and Shelter in Place
Hospital has a plan for tracking both patients and the deceased.	4	62.2	Patient Management and Care
Staff training is ongoing.	4	59.5	Staff Training

Priority Two Topics Continued

Indicator Topic	Median Rating (1-5)	Percent Including Topic in Set	Concept Area
Hospital inventory of equipment and supplies includes items such as vents, PPE, negative pressure isolation, ICU beds, decontamination showers, antidote kits, and pediatric equipment.	4	56.8	Countermeasures, Supplies, and PPE
Hospital has a plan for facility access control and staff is able to gain access to the facility when called back to duty.	4	56.8	Safety and Security
In ramping up for surge, hospital has the ability to increase physical space and resource capacity through tactics such as rapid discharge, home care, and alternate care sites.	4	56.8	Surge Capacity
Drills are executed in collaboration with other organizations.	4	54.1	Community Integration

Priority Two Topics Continued

Indicator Topic	Median Rating (1-5)	Percent Including Topic in Set	Concept Area
Hospital has a plan for decontamination that is specific to chemical/biological/radiological/nuclear/high-yield explosive (CBRNE) hazards.	4	51.4	Decontamination
Hospital's emergency operations plan (EOP) is modified based on exercises or actual emergencies.	4	51.4	Emergency Management Procedures and Planning
Criteria for evacuation and shelter in place decision-making are in place.	4	51.4	Evacuation and Shelter in Place
Hospital has a plan for modification of normal clinical activities (including specialized care) or standards of care as related to disaster response.	4	51.4	Patient Management and Care
Staff training incorporates the incident command system (ICS).	4	51.4	Staff Training

Process of Measure Development

Next Steps

- Identify measures within topic area
 - Focus on functional or outcomes measures
- Understand application of National Quality Forum measure evaluation framework to emergency preparedness
- Develop validation and implementation plan

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