

Developing Metrics To Measure Emergency Medical Response Capabilities

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Overall Objective

- To measure emergency medical preparedness for a catastrophic event at the local, regional and national level

Background

“The panel has noted time and again that preparedness cannot progress until it is defined. While many aspects of preparedness have been defined, there is no accepted strategic definition.”



Gilmore Commission, Fifth Annual Report, 2003



Background

Characteristics of Existing Surveys

Instrument & Purpose	Developer	Type	Target	Items	Mode
BT & MC Preparedness	NCHS	Generic	Hospital	83	Self
BT Preparedness	AHRQ	Generic	HC facility	213	Self
BT Preparedness	GAO	Generic	Hospital	?	Self
MC Checklist	APIC	Generic	HC facility	252	Self
Hospital Integration	JCAHO	Generic	Hospital	57	Self
NPS Preparedness	CDC	specific	Pub Health	125	Self
Smallpox Vaccination	CDC	specific	Pub Health	36	Self



Background

Dimensions of Preparedness Measured By Surveys

Dimension	NCHS	AHRQ	GAO	APIC	JCAHO	CDC/ NPS	CDC/ SV
Response Plan	√	√	√	√	√		√
Surge Capacity	√	√	√	√	√		
Incident Mgmt	√	√		√	√	√	
Educ & Training	√	√	√	√		√	√
Surveillance		√		√	√	√	
Communications			√	√		√	√
Security			√	√		√	√
Logistics				√		√	
Integration in CEP	√	√	√	√	√	√	



Gaps in Existing Measures

- No standardized definition
- Lack of a conceptual framework
- Not quantitative
- Little evidence of reliability or validity
- Single facility level
- Not appropriate for all hazards



Project Aims

- Define medical preparedness (MP)
- Develop a conceptual framework for MP
- Develop MP instruments
- Evaluate validity of MP instruments



Medical Response Capabilities

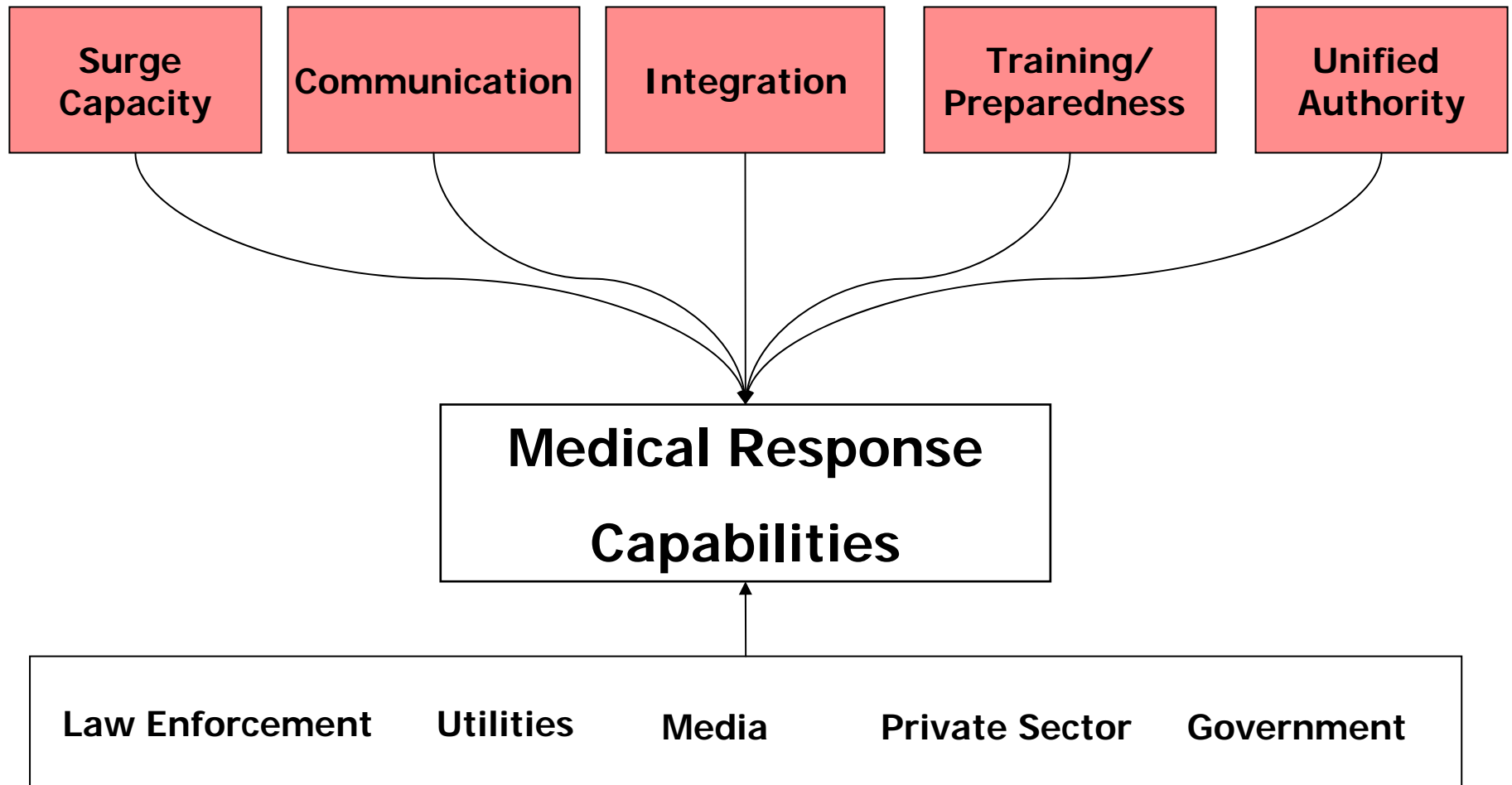
- Rescue and stabilize victims
- Provide definitive medical care
- Diagnosis and agent identification
- Decontamination of victims
- Mass immunization/prophylaxis
- Assessment of health care needs/resources
- Fatality management
- Evacuation and quarantine decisions

Dimensions of Medical Preparedness



- Surge Capacity
- Communication
- Integration
- Unity of Authority
- Training/Planning

Conceptual Model of Medical Preparedness





Surge Capacity

- Systems
 - Mutual aid agreements
- Staff
 - Volunteer healthcare professionals
- Stuff
 - Stockpile of equipment, supplies, drugs
- Structure
 - Laboratories, alternative care sites



Methods

- Develop MRC Instruments
 - Type
 - Self-rated
 - Performance-based
 - Generic and incident specific scales
 - Quantitative and objective
 - Reliable and valid



Methods

- Develop MRC Instruments
 - Focus groups
 - Expert panels
 - Site visits
 - Statistical analyses
 - Reliability and validity
 - Simulations and modeling



The Nation's Challenge

“We must develop a response capability across well-established silos and transform the traditional workplace into an integrated incident command system in the face of an emergency.”

RAND 2004



Model of Surge Response Capability

$$\text{Surge Response Capability} = \frac{\text{Surge Capacity}}{\text{Surge}}$$

$$\text{Surge Response Capability} = \frac{\text{System} * \text{Space} * \text{Staff} * \text{Supplies}}{\text{Event} * \text{Influx} * \text{Resource Demand}}$$