



Public Health Practice Grand Rounds
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Mid-Atlantic Public Health Training Center
Center for Public Health Preparedness
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**Disaster Preparedness:
Public Health Infrastructure and
Perspectives on Community Resilience**

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Presentation Objectives

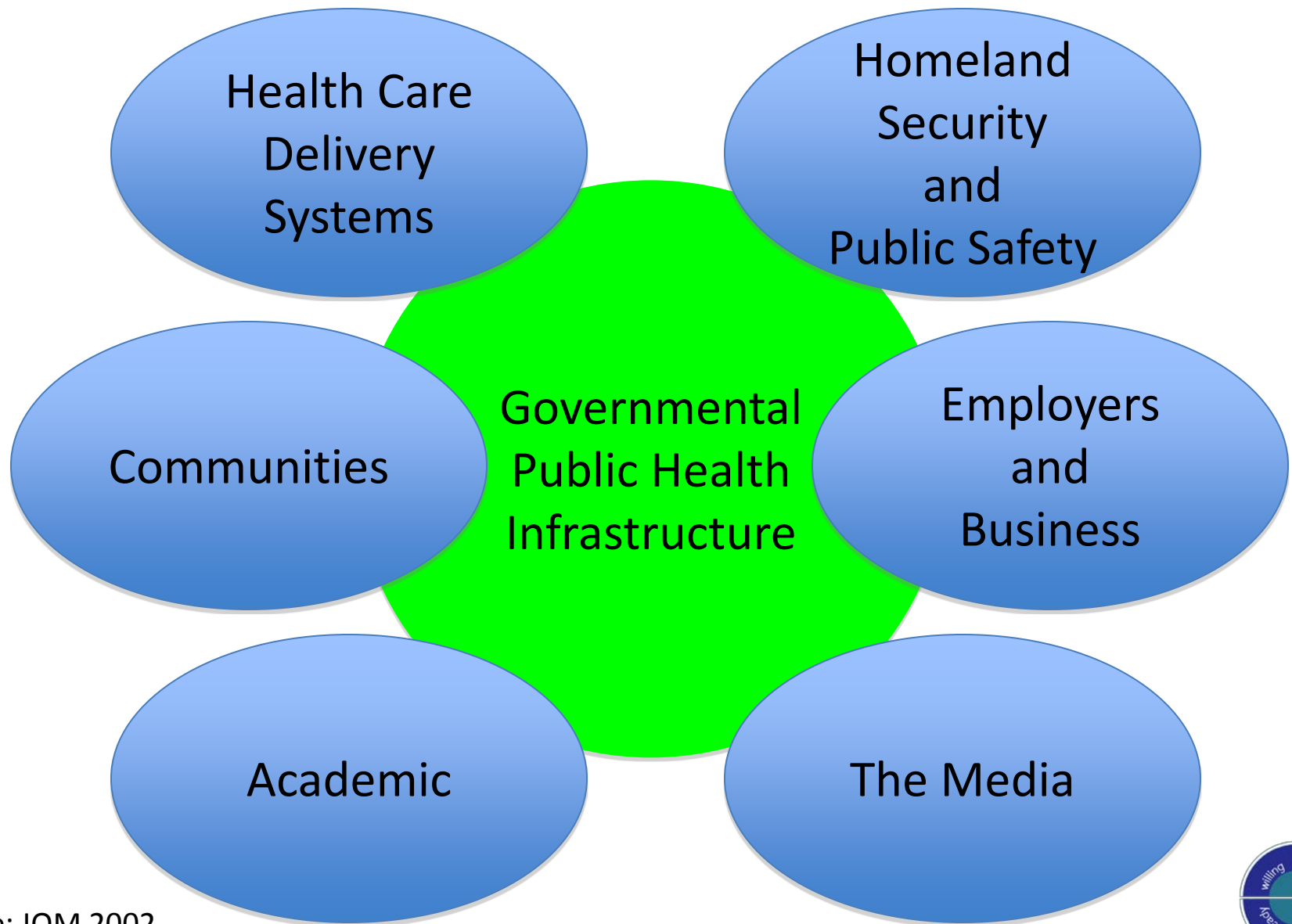
1. Describe the influences of perceived threat and efficacy on willingness to respond in public health emergencies.
2. Describe emergency scenario-specific patterns of response willingness.
3. Identify potential interventions to enhance response willingness within the public health emergency preparedness system.

Background

A Spectrum of Public Health Emergency Threats

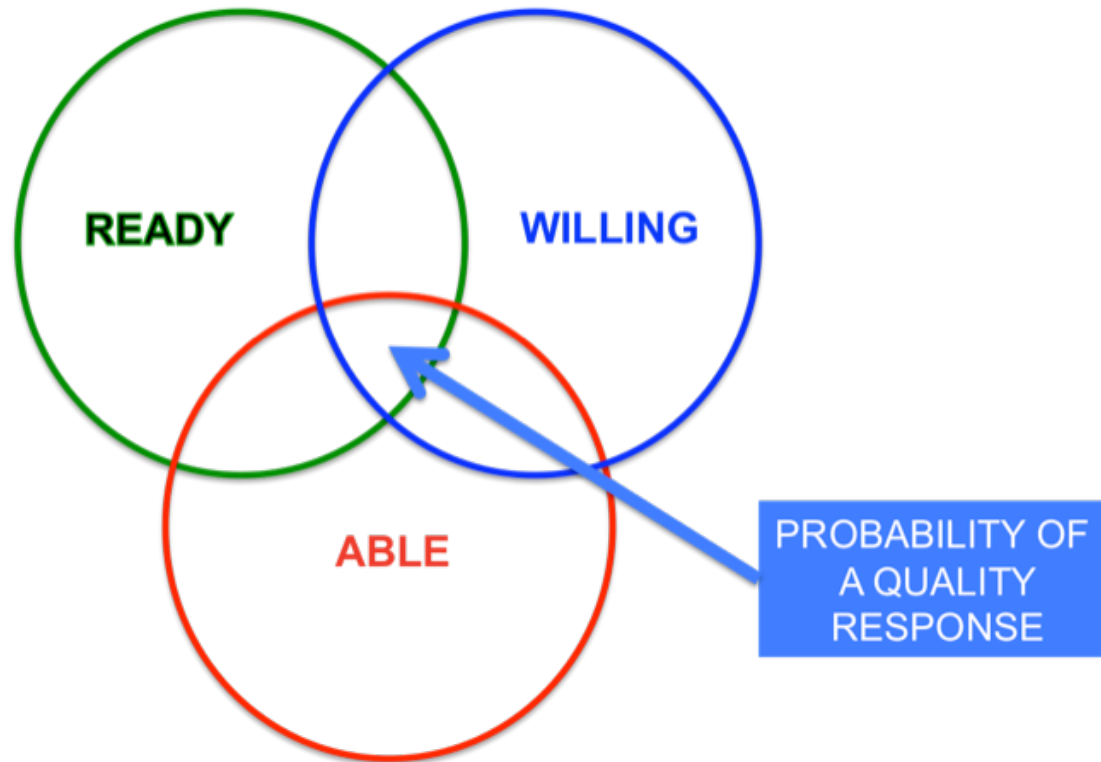


Public Health Emergency Preparedness System



RWA Framework

- Collectively comprises necessary/sufficient elements for public health emergency preparedness response systems



“Willingness” to Respond

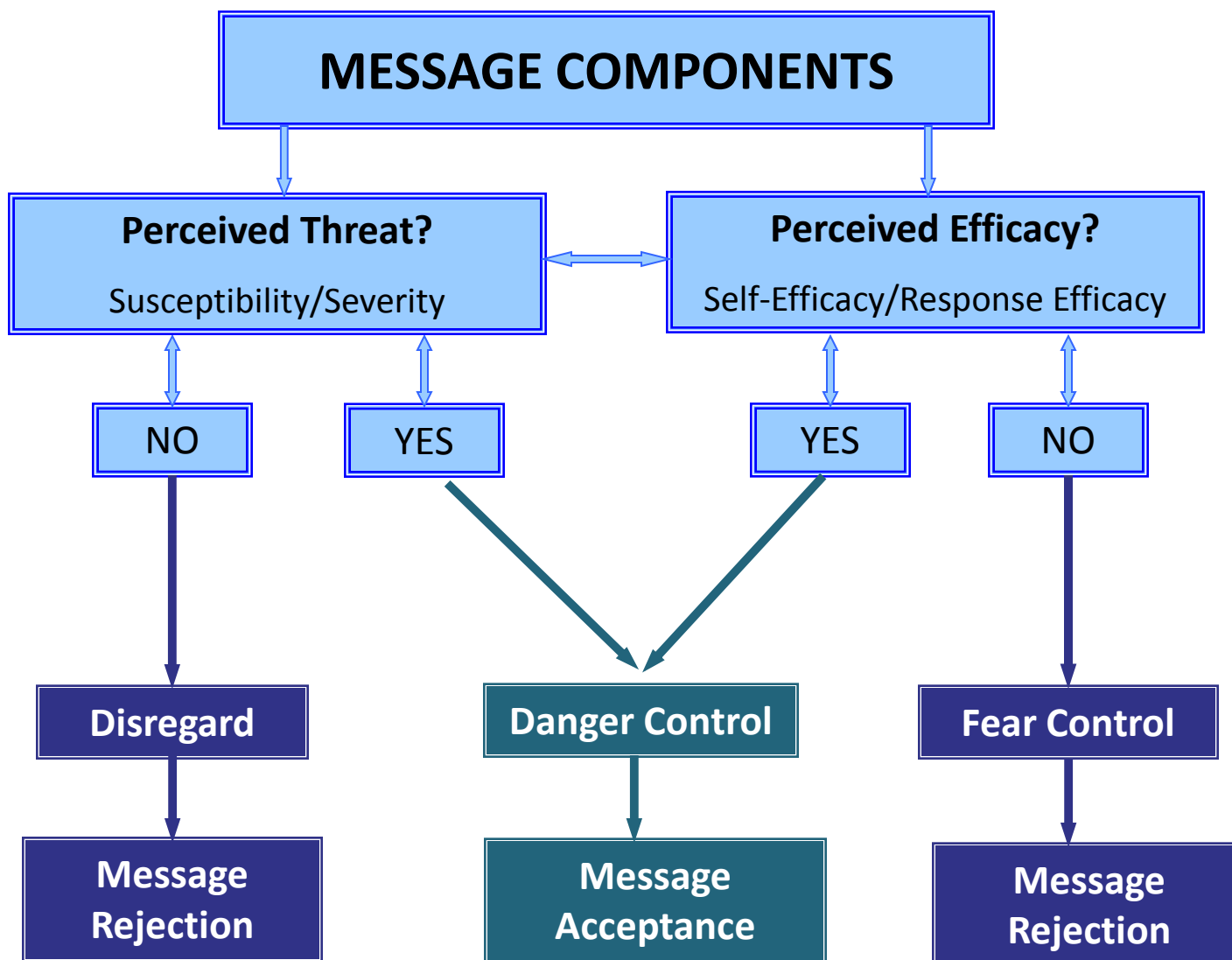
- State of being inclined or favorably predisposed *in mind*, individually or collectively, toward specific responses
- Numerous personal and contextual factors may contribute
- Beliefs, understandings, and role perceptions
- *Scenario-specific*

**Johns Hopkins~Public Health
Infrastructure Response
Survey Tool (JH~PHIRST)**

JH~PHIRST: Design and Concept

- Johns Hopkins ~ Public Health Infrastructure Response Survey Tool (JH~PHIRST)
- Adopt Witte's Extended Parallel Processing Model (EPPM)
 - Evaluates impact of threat and efficacy on human behavior
- Online survey instrument
- All-hazards scenarios
 - Weather-related
 - Pandemic influenza
 - 'Dirty' bomb
 - Inhalational anthrax

The Extended Parallel Process Model (EPPM)



■ Threat Appraisal

■ Susceptibility

- *“A _____ disaster is likely to occur in this region.”*

■ Severity

- *“If it occurs, a _____ disaster in this region is likely to have severe public health consequences.”*

■ Efficacy Appraisal

■ Self-efficacy

- *“I would be able to perform my duties successfully in the event of a _____ disaster.”*

■ Response efficacy

- *“If I perform my role successfully it will make a big difference in the success of a response to a _____ disaster.”*

“Concerned and Confident”

- Four broad categories identified in the JH ~ PHIRST assessment tool:
 - Low Concern/Low Confidence (low threat/low efficacy)
 - Educate about threat, build efficacy
 - Low Concern/High Confidence (low threat/high efficacy)
 - Educate about threat, maintain efficacy
 - High Concern / Low Confidence (high threat/low efficacy)
 - Improve skill, modify attitudes
 - High Concern / High Confidence (high threat/high efficacy)
 - Reinforce comprehension of risk and maintain efficacy

Some Projects Launched to Date

- Hospital Workers
- Local Health Departments

Overarching findings

- “Concerned and confident” (HT/HE) profile is, in general, most strongly associated with WTR across all hazards
- Perceived efficacy outweighs perceived threat
- Compared to the other three scenarios, the dirty bomb scenario has consistently lower rates of agreement for willingness to respond and related constructs

Hospital Workers

Survey Distribution

- Survey distributed to all Johns Hopkins Hospital Workers (n=18,612)
- January – March 2009
- Response Rate = 18.4% (n=3,426)

Hospital Workers' Self-Reported Willingness to Respond

	Pandemic Influenza	Radiological ('dirty') Bomb
If required	82.5%	72%
If asked	72%	61%

Anesthesiology & Critical Care Medicine: Self-Reported Willingness to Respond by Professional Category

	Pandemic Influenza		Radiological ('dirty') Bomb	
	Physicians	Nurses	Physicians	Nurses
If required	95.7%	78.3%	85.0%	70.6%
If asked	84.5%	56.5%	82.4%	62.5%
Regardless of Severity	83.0%	50.0%	76.9%	43.8%

Hospital Workers' Willingness to Respond and EPPM *if required*

Extended Parallel Processing Model Category								
	Low threat, Low Efficacy		Low threat, High Efficacy		High threat, Low Efficacy		High threat, High Efficacy	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Pan Flu	1.00	Ref.	13.09	7.67, 22.34	1.41	1.05, 1.90	9.25	5.94, 14.40
Dirty Bomb	1.00	Ref	12.90	7.80, 21.34	1.21	0.91, 1.63	7.12	4.91, 10.32

Key Findings in Hospital Workers

- Concerned and confident profile (HT/HE) vs LT/HE profile
- Perceived need for training high
- Nurses less likely to respond than physicians [OR(95%CI): 0.61 (0.45, 0.84)] in a pandemic influenza emergency
- Perceived threat had little impact on willingness in the radiological 'dirty bomb' emergency scenario

Potential Response Willingness Interventions for Hospital Employees

- Hospital-based communication and training strategies to boost employees' response willingness, including:
 - promoting pre-event plans for dependents;
 - ensuring adequate supplies of personal protective equipment, vaccines and antiviral drugs for all hospital employees;
 - **efficacy-focused training**

How Can We Further Address Willingness Gaps?

Curricular Intervention

- **Public Health Infrastructure Training (PHIT)**
 - Designed to address the attitudinal and behavioral gaps in willingness-to-respond
 - Objective: Extend levels of threat awareness, self- and response-efficacy
 - Goal: Increased system capacity with higher numbers of workers who are willing to respond to all hazards
 - Train-the-trainer format
 - Seven hours of content delivered over a 6-month period
 - Combines a variety of learning modalities in three phases of training
 - Face-to-face lecture and discussion; online learning; independent activities; case scenarios; tabletop exercises; role-playing; knowledge assessments; peer critiques

PHIT Curriculum: TOC

- Phase 1: **Facilitator-Led Discussion** (2 hours)
 - Part 1: Overview of Scenarios and Public Health's Role
 - Part 2: Emergency Scenario Contingency Planning
- Phase 2: **Independent Learning Activities** (3 hours)
- Phase 3: **Group Experiential Learning** (2 hours)
 - Part 1: Tabletop Exercise
 - Part 2: Role-Playing Exercise
 - Part 3: Debriefing

While the content and phases are mostly fixed, local contextual examples are encouraged & formats for training delivery are flexible and scalable to meet the unique needs of health departments

Pre- vs. Post-Intervention Data (Local Health Departments)

JH~PHIRST Baseline Comparisons to Resurvey: WTR (Severity)

Willingness-to-Respond: Regardless of Severity
Baseline – Resurvey 1 – Resurvey 2

	Weather-Related	Pandemic Influenza	Radiological ('dirty') Bomb	Anthrax Bioterrorism
CONTROL	82% ↓ 78% ↓ 75%	85% ↓ 84% ↓ 78%	60% ↓ 58% ↓ 55%	78% ↓ 67% ↓ 66%
INTERVENTION	79% ↑ 80% ↓ 79%	83% ↑ 85% ↓ 82%	57% ↑ 73% ↓ 71%	69% ↑ 77% ↓ 73%

JH~PHIRST Baseline Comparisons to Resurvey

Findings: Efficacy

Self-Efficacy

Baseline – Resurvey 1 – Resurvey 2

Self-Efficacy	Weather-Related	Pandemic Influenza	Radiological ('dirty') Bomb	Anthrax Bioterrorism
CONTROL	84% ↓ 80% ↑ 81%	87% ↓ 85% ↓ 82%	50% ↓ 52% → 52%	71% ↓ 68% ↓ 66%
INTERVENTION	83% ↑ 87% → 87%	85% ↑ 90% ↓ 87%	50% ↑ 79% ↓ 75%	66% ↑ 80% ↓ 79%

JH~PHIRST Baseline Comparisons to Resurvey

Findings: Efficacy

Response-Efficacy

Baseline – Resurvey 1 – Resurvey 2

Response-Efficacy	Weather-Related	Pandemic Influenza	Radiological ('dirty') Bomb	Anthrax Bioterrorism
CONTROL	85% ↓ 76% ↓ 74%	84% ↑ 86% ↓ 77%	69% ↓ 63% → 63%	78% ↓ 71% ↓ 68%
INTERVENTION	83% ↑ 86% ↓ 83%	85% ↑ 87% ↓ 85%	70% ↑ 82% ↓ 78%	76% ↑ 82% ↓ 79%

Key Focus Group Findings

- Participants reported **increased understanding of the importance of their roles in the context of a public health emergency response**, and the potential impacts on the health department and the community if they chose not to respond.
- **The importance of being confident in the safety of one's family** was discussed by participants in multiple clusters as particularly important related to response willingness.

Thank You

Questions?

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