

# **Developing Care Strategies for the Psychologically Impacted and the Distressed**

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# Surge Capacity Planning for Stress Injuries

- Mental Health Casualties – what are they
- Psychological and behavioral responses of populations that are important a) for surge capacity planning and b) for sustaining *Surge Capability*—sustaining the people/health of responders
- Special needs to sustain alternative care sites, home care, telephone support lines
- Manage surge by decreasing the surge – messaging, & nuanced and personalized health information

# Haddon Matrix

	Agent: Malaria	Vector: Mosquito	Population: Person
Pre			
During			
Post			

# Haddon Matrix

	Agent: Malaria	Vector: Mosquito	Population: Person
Pre			
During			Surge: Capability Capacity
Post			

# Psychological and Behavioral Intervention Matrix (Bio)

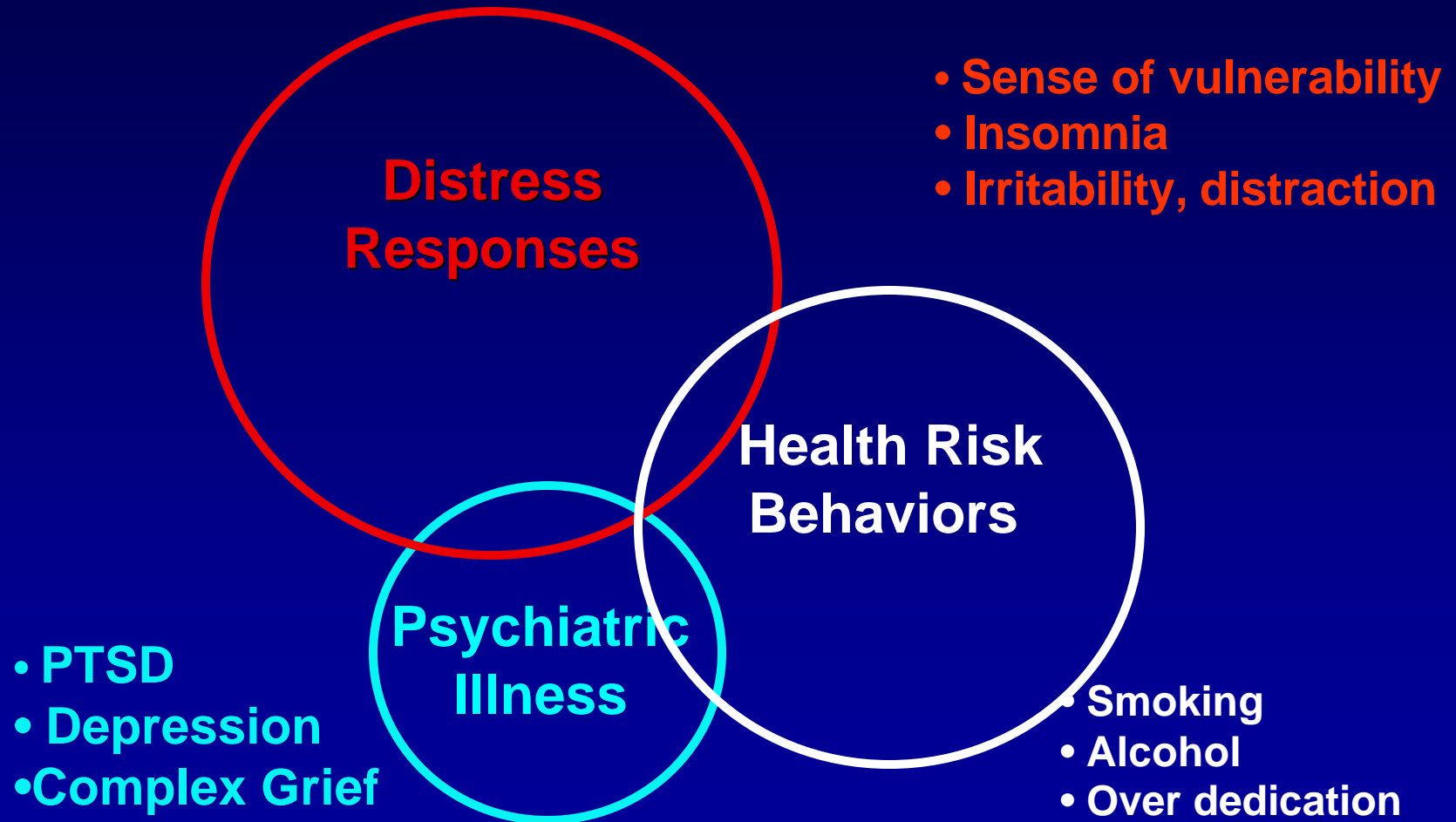
Agent:  
Anthrax/Terror

Vector:  
Terrorist/Mail

Population:  
Person

Pre	<ul style="list-style-type: none"> <li>-Premedication</li> <li>-vaccination</li> <li>-Air detection sys</li> </ul>	<ul style="list-style-type: none"> <li>-Airport Screening</li> </ul>	<p><b>Preparedness Behaviors</b></p> <ul style="list-style-type: none"> <li>-Participation in Vaccination</li> <li>-Information/plan.</li> </ul>
During	<ul style="list-style-type: none"> <li>-Specific medication rx</li> <li>-supportive rx</li> <li>-Masks/Cover</li> </ul>	<ul style="list-style-type: none"> <li>-Security</li> <li>-Detectors</li> </ul>	<p><b>Response Behaviors</b></p> <ul style="list-style-type: none"> <li>-Quarantine</li> <li>-Evacuation</li> <li>-Grief Leadership</li> <li>-Social Distancing</li> </ul>
Post	<ul style="list-style-type: none"> <li>-rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>-Justice system</li> </ul>	<p><b>Recovery Behaviors</b></p> <ul style="list-style-type: none"> <li>-Help seeking</li> <li>-Specific Rx's</li> </ul>

# Mental Health Responses to Disasters and Public Health Emergencies



# Those who believe they are ill, exposed or injured seek care

## SCUD missile Attacks in Israel

1059 people presented to ER

234 direct casualties (22%)

825 behavioral - stress casualties (78%)

anxiety (n=544, 51%)

autoinjected without exposure

7 suffocated due to incorrect use of gas mask

## Aum Shinrikyo Sarin Gas Attack (Tokyo, 1995)

11 people died

Over 5000 sought care.

## Goiana Brazil (Cesium 137 source found in abandoned equip)

249 contaminated, 4 died

113,000 sought screening



# **Response Behaviors and inconvenient aspects of human behavior**

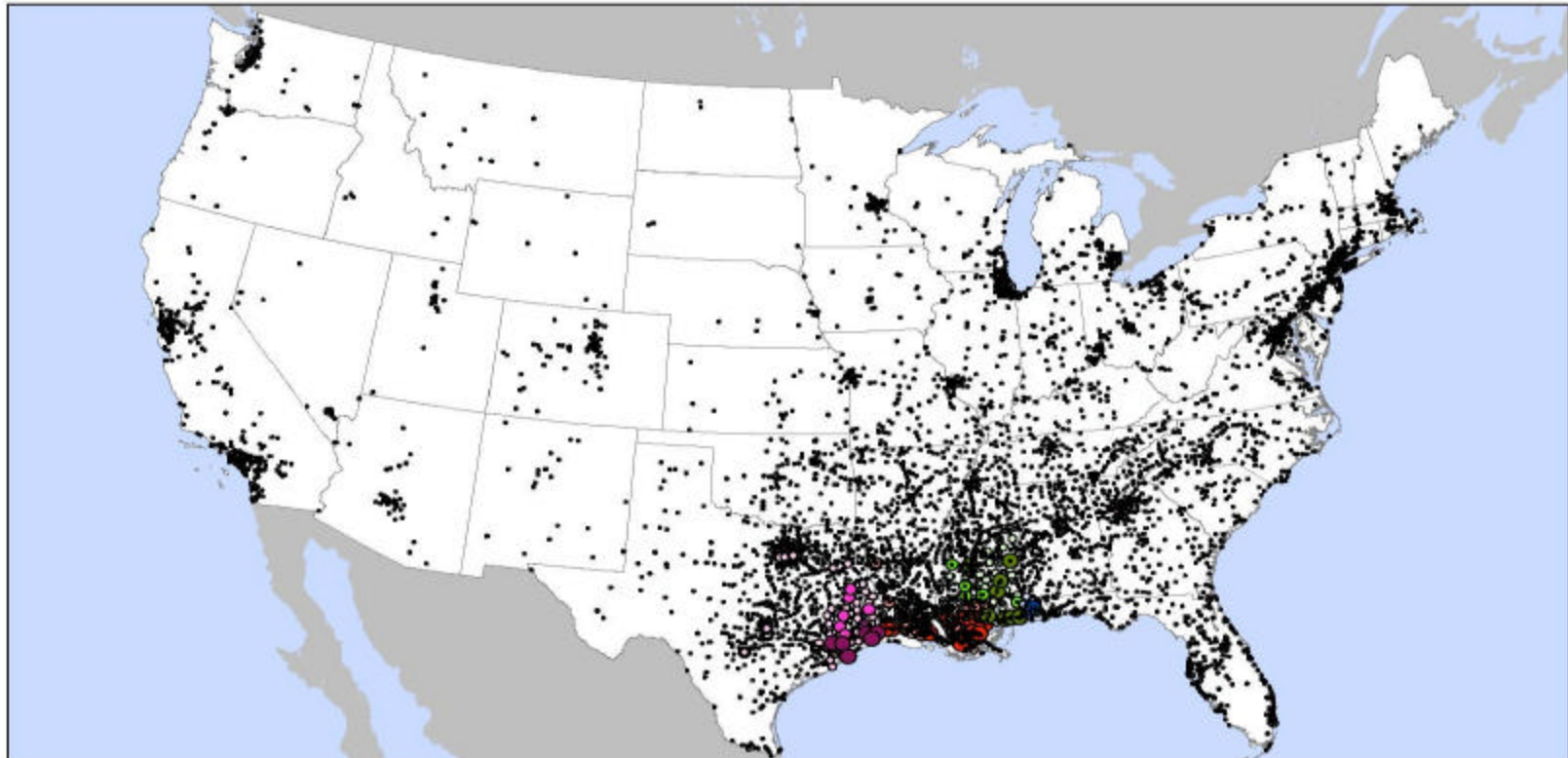
**Evacuation**

**Shelter in place....**

**Convergence**

**Migration**

### Locations of Katrina/Rita Applicants from Louisiana, Mississippi, Alabama, and Texas as of 10/31/05



Map Not To Scale

Data provided by  
Recovery Division IA Management Cell

The figures contained on this map  
are based on the best available data.

**\*\* Cities with less than 5 applicants not shown\*\***

#### Legend

##### Applicants per city

- Less than 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- Greater than 10,000
- DR-1604 Mississippi
- DR-1606 Texas
- DR-1605 Alabama
- DR-1603 and DR-1607 Louisiana

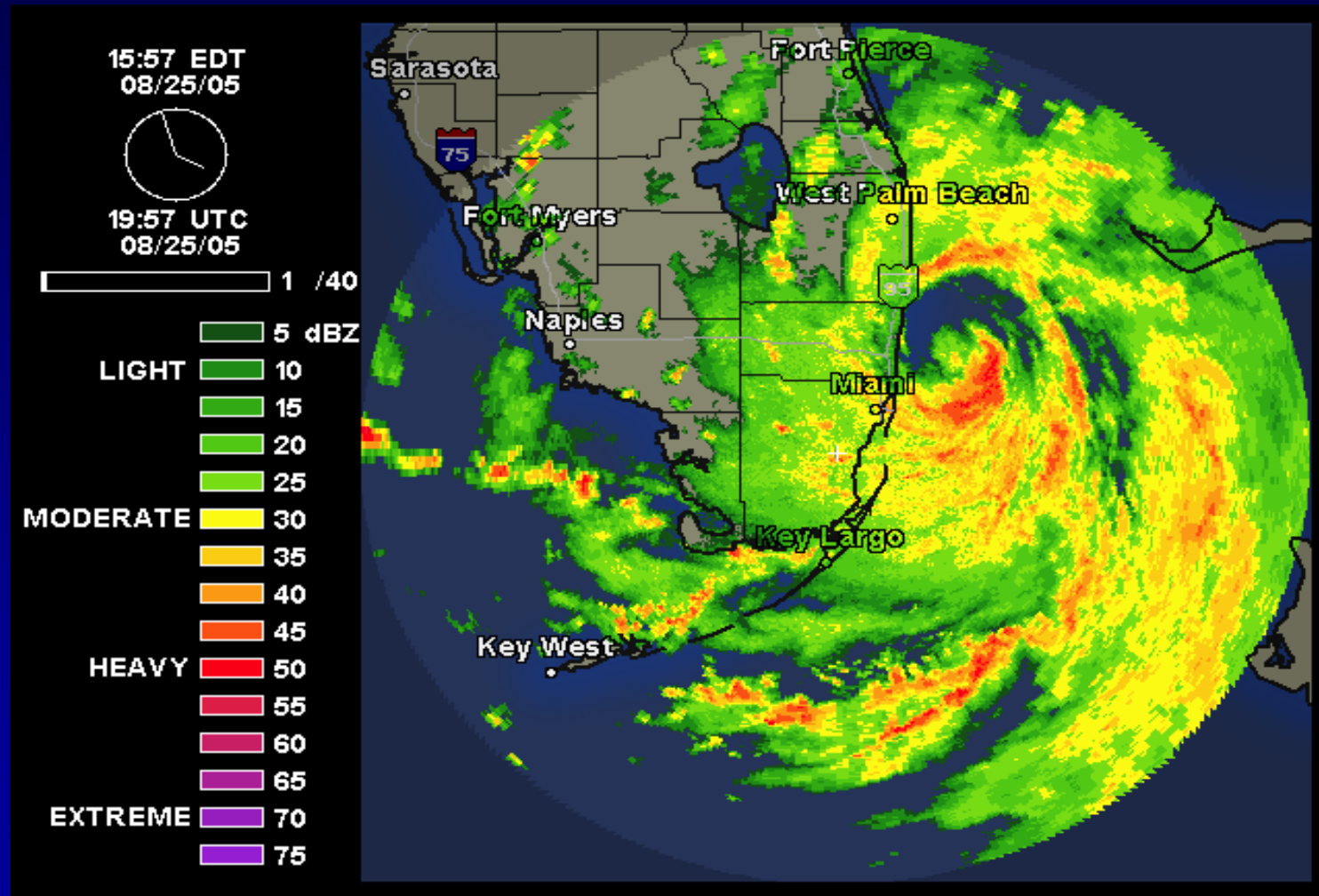


**FEMA**

Recovery Division  
Washington, DC  
11/02/05 -- 11:10:00 EST

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# Hurricane Katrina 2005



# Hurricane Katrina (2005)

Evacuation (N=1043)

**25% of NOMA did not evacuate (500,000 people)**

**Of New Orleans Residents who did not evacuate-approximately 40% did not want to go and 40% were unable to go (34% due to money) (compared to 67.3% /24.5% in other areas)**

**Of all those who did not evacuate –  
62% “didn’t think the storm would be bad”**

# **Hurricane Katrina (2005)**

## **Mental Illness at 5-8 Months (N=1043)**

**Screen for Anxiety or Mood Disorders in the  
past 30 days (K6) in Disaster Region ( $p < .001$ )**

**30.7% vs 15.7% (NCS-R)**  
**(O.R= 2.0-2.4)**

**[18 months 33.9% of Dis Region ]**

**11.3% vs 6.1% Serious Mental Illness**  
**19.9% vs 9.7% Mild to Moderate M.I.**

# **Psychiatric Illness and Behavioral Responses to Disaster and PHE**

**(primary Dx or comorbidity)**

- **Delirium/OBS/Psychosis**
- **Mourning**
- **PTSD**
- **Depression**
- **Unexplained somatic symptoms (MUPS/MIPS)**
- **Sleep disturbances**
- **Increased use of alcohol & cigarettes**
- **Traumatic/Complex grief**
- **Increased family violence & conflict**
- **Overdedication to the group**
- **Helplessness & guilt**
- **Identification with the victim**

# Psychiatric Outcomes in Rescue Workers

	ASD	PTSD	DEP.	Alcohol Use Disorder	Any Disorder
<b>Sioux City*</b>	26%	17%	22%		40.5%
<b>Oklahoma City**</b>		13%	12%	25%	38%
<b>Bushfire***</b>		13%	9%		

\* Fullerton et al., *AJP*, 2004 (ASD 1 wk; PTSD, Dep. 13 mos.)

\*\* North et al. 2002 (N=176; 34 mos. Dep. Is approximate) 47% had lifetime alcohol abuse/dependence. 54% with PTSD had another disorder.

\*\*\* McFarlane & Papay, 1992 (42 mos.)

# Opportunities, Gaps and Needs

The majority of psychological casualties do not require emergent 24-72 hour hospital care in a mass casualty incident

Planning for distress in those who are injured is necessary. (i.e. where will family go who come with the injured? Where is the room for mourning?)



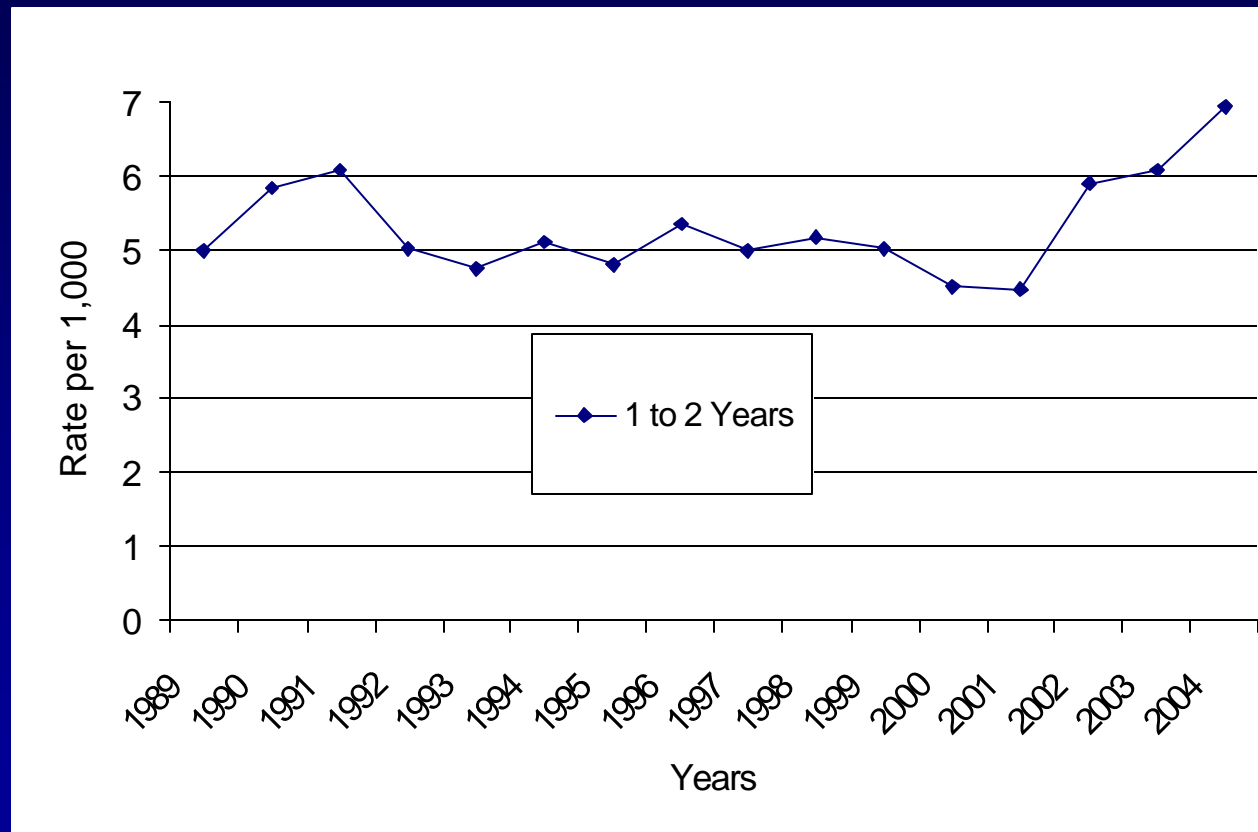
# Opportunities, Gaps and Needs <sup>(2)</sup>

**Planning for distressed who believe they are injured/exposed/ill is necessary to sustain surge capability: at hospital, alternative care sites, home care and in the community.**

**Planning for the stress effects on the responder workforce is critical to sustain capability.**

- **work absences**
- **work/rest cycles**
- **cross training**
- **use of medical care extenders**
- **use of volunteers**

# Stress Effects of Disaster: U.S. Army Child Neglect Rates Age 1-2 year olds, 1989-2004



# Planning to Sustain Surge Capability in Responders

- **Mourning**
- **PTSD**
- **Depression**
- **Unexplained somatic symptoms**
- **Sleep disturbances**
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# **We are a diverse population: Cross Cultural Differences are Critical for Behavioral Interventions in Catastrophic Event Planning and Response**

- Control versus Freedom
- Perceived/Expectation of equity – “safety net” of social services
- Endemic Terrorism – Family & Community
- Trust in Government

# Tools to Sustain Capability

**Hospital and Alternate Care Staff Capability –  
work/rest, team leadership, family contact**

**Training in managing “fear and anger”- customer  
service training.**

**Home caregiver needs – hotline for home caregivers**

**Support for Telephone support/information line  
personnel**

# Addressing the Distressed: Tools of Population Level Behavior Change

- Education
- Marketing/Motivating
- Risk Communication
- Leadership
- Policy
- Law

# Psychological First Aid: Fostering Resilience and recovery

**Safety** - be safe, feel safe

**Calming** – rest, relax, sleep

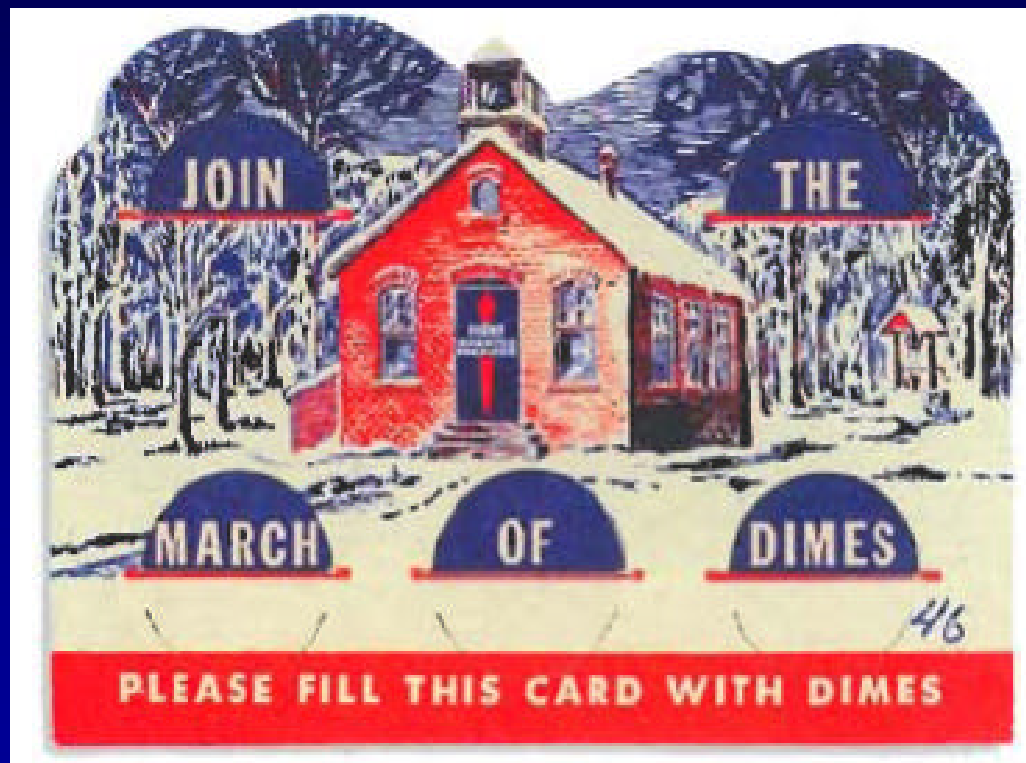
**Efficacy** – skills and confidence

**Connectedness** – social support  
emotional and instrumental

**Hope** - optimism



# Public Education and Preparedness



# Make Information Nuanced

Example: Estimate of odds that home fallout preparations will be effectively used

Odds of nuclear attack anywhere in the US within 10 year physical lifetime of shelter = .05

If attack happens in US, it will be in my city = .2

If attack happens in my city, wind will be blowing toward my house = .2

If wind is blowing toward my house, I will be home: 0.3

If I am at home, a timely alert will be issued: 0.5

If alert is timely, I will hear it in time to take shelter: 0.5

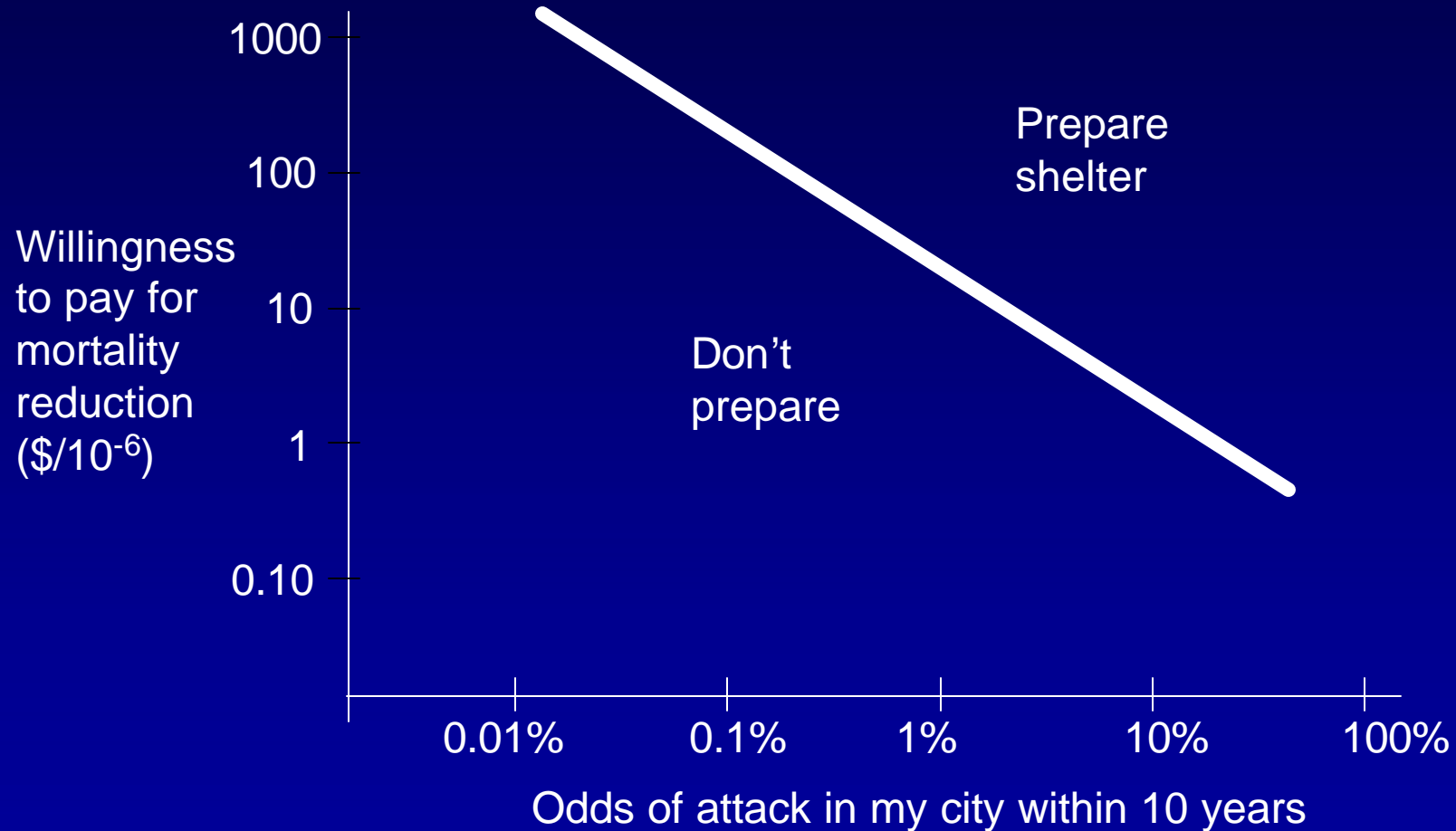
If I hear it, I will decide to shelter rather than flee: 0.5

If I decide to shelter, my shelter will save me: 0.5

Overall odds that shelter will save my life → 4 in 100,000

Cost-effectiveness:  $\$2k/4 \times 10^{-5}$  ~ \$50 million per life saved

# Break-even point for investing in shelter preparation if fallout protection is only use



# More Nuanced Advice

Fallout arrival	Distance from blast	Risk from unsheltered exposure during first hour of fallout	Risk from 90% effective shelter during first hour of fallout	Recommendation
< 15 min.	< 4 km	Acutely fatal for all	Acutely fatal for most	Shelter in deepest space reachable within minutes.
15-60 min.	4- 10 km	Acutely fatal for most. Quadruple cancer risk for the few survivors.	Acutely fatal for some. Doubling of cancer risk for survivors.	Travel only if certain that better shelter can be reached before fallout arrives. Use extra time to fortify shelter space.
30-90 min.	10-20 km	Acutely fatal for some. Doubling of cancer risk for survivors.	20% additional cancer risk.	Travel if risk of exposure to fallout seems worth the benefit. Use extra time to fortify shelter space.
1-3 hours	20-50 km	20% additional cancer risk	2% additional cancer risk	Travel if risk of exposure to fallout seems worth the benefit. Failure to reach shelter before fallout arrives has health consequences that are significant, but not acutely fatal.
> 2 hrs	50-100 km	5% additional cancer risk	< 1% additional cancer risk	Sufficient time exists for travel to get home, collect family members, and/or flee.

# **What my grandson always reminds me.**

**Information is for a person not for an event**

**People are different**

**Even those that take care of others need sleep, rest, connectedness and hope**



