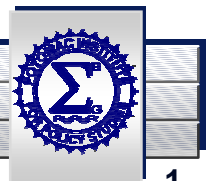


# Behavioral Aspects of a Biological Terrorism Incident

A Presentation to the Association for  
Politics and the Life Sciences Convention  
Atlanta, Georgia

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# Outline

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- **Behavioral Aspects of Disasters**
  - Behavior Theory Regarding Disasters
  - Example Historical Natural Disasters
  - Two Biological Disasters
    - » 1918 Flu Pandemic
    - » 1994 Plague in Surat, India
- **Hypothetical US Anthrax Scenario**
- **Conclusions**

# Behavioral Aspects of Biological Terrorism

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- **Behavioral Impact of Biological Terrorism May Outweigh Strictly Medical Impact**
  - Germs, Disease Particularly Frightening (Stokes and Banderet '97)
    - » Dread of Unseen, Unknown. Insidious. Penetrating (Kai Erikson, '94)
- **Public Expectations Based on Movies, Richard Preston**
  - Anthrax Hoax Trend, Overreactions to Them Emblematic
  - May Believe Government has More Resources than it does
  - Media Role Critical in Impacting Perceptions
- **Technological and Deliberate Disasters Provoke More Fear than Natural Disasters (Fischer, 1998)**
  - Feeling Out of Control
- **Other Important Factors in Disaster Reactions**
  - Children Involved
  - Fear of Escape Closing

# **“Disaster Myths”**

## **Suggested by Fischer (1998)\***

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- **Panic Flight**
  - Usually Reasoned Withdrawal or None
- **Looting**
  - Primary Activities of National Guard to Direct Traffic, Clear Debris
- **Price Gouging**
  - Mostly by Outsiders
- **“Contagion”**
  - Those who converge to scene also engage in looting, price gouging
- **Martial Law**
  - Rarely Invoked

\*Henry Fischer. *Response to Disaster: Fact Versus Fiction & Its Perpetuation*. 2ed. Lanham, MD; University Press of America; 1998.

# **“Disaster Myths”**

## **Suggested by Fischer (Continued)**

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- **Psychological Dependency of Survivors/ Disaster Shock**
  - Many Relief Efforts Spontaneous
- **Evacuation Behavior Assumed to be Anti-Social**
  - Generally Orderly
- **Shelters Will Be Used**
  - Only on an As-Needed Basis
- **Death, Injury and Damage Estimates**
  - Typically Significantly Exaggerated

HOWEVER: Media Expects Disaster Myth Behavior and Features it in their Reports, Especially in “Soft News” After Blame-Fixing Has Taken Place

# Urban Evacuation Examples

(Drawn from Zelinsky and Kosinski, 1991)

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## Evacuation Did NOT Take Place

- Chile (Earthquakes)
- Thessaloniki, 1978 (Earthquake)
- Pozzuoli/Naples 1983 (Volcano)
- Rabaul, Pacific 1984 (Volcano)
- Nevado Ruiz, Colombia (V) 1985
- Jerusalem (Military) 1948
- US/World Flu Pandemic 1918

## Example Factors in Decision

- Naturally Occurring or Industrial
- Official Sanction to Evacuate
- Perception of Control
- Portrayal in Media

## Evacuation Took Place

- El Asnam, Algeria '80 (Eqk)
  - ~50K/65%
- Bhopal (I&II) 1984 (Chem)
  - Up to 800K, 80%
- Chernobyl (I&II) '86 (Radio)
  - ~500K, 20%
- Three Mile Island '79 (Radio)
  - ~150K, 40%
- Surat, India 1994 (Plague)
  - Up to 400K, 30%
  - (Source: Shah, 1997)

# City Example: Philadelphia Flu Pandemic 1918

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- **Up to 5,000 Die in Worst Week**
  - Illness Takes Victim Suddenly; Many Succumb at Home
  - Dead Brought Out to Curb for Pickup, Trench Burial
- **Pandemic Crested after Public Liberty Bond Rally**
- **No Effective Medicines (Some Home Remedies)**
- **No Safe Place to Go (Although Cities Hardest Hit)**
- **Some Used Masks (eg, San Francisco)**
- **Not Lead Story in Press, Public Communications**
  - War Bonds and Patriotism Lead Themes
- **Significant Helping Behavior Expressed**
- **No Panic or Evacuation**

Source: L. Iezzoni. *Influenza 1918*. NY; TV Books; 1999.

# City Example: Surat, India

## Plague Outbreak 1994

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- **150 Cases, 28 Fatalities**
- **800K Doses Tetracycline On Hand; Millions More Rapidly**
  - Many Residents Took it Initially, Then Stopped
- **Doctors First to Flee (Up to 70% by One Survey)**
- **Population Flight, Mostly to Relatives' Homes**
  - Reached Many Population Centers Across Subcontinent
  - Some Refugees Discriminated Against, Some Not
  - Return Started in Days
- **Not Widespread Looting**
  - Some Pharmacies Destroyed
- **Coping Behavior**
  - Cleanup of Garbage (Some Moved it to Neighbors')
  - Massive Insecticide Spraying

Source: G. Shah. *Public Health and Urban Development*. New Dehli; Sage; 1997.





# Significant Differences

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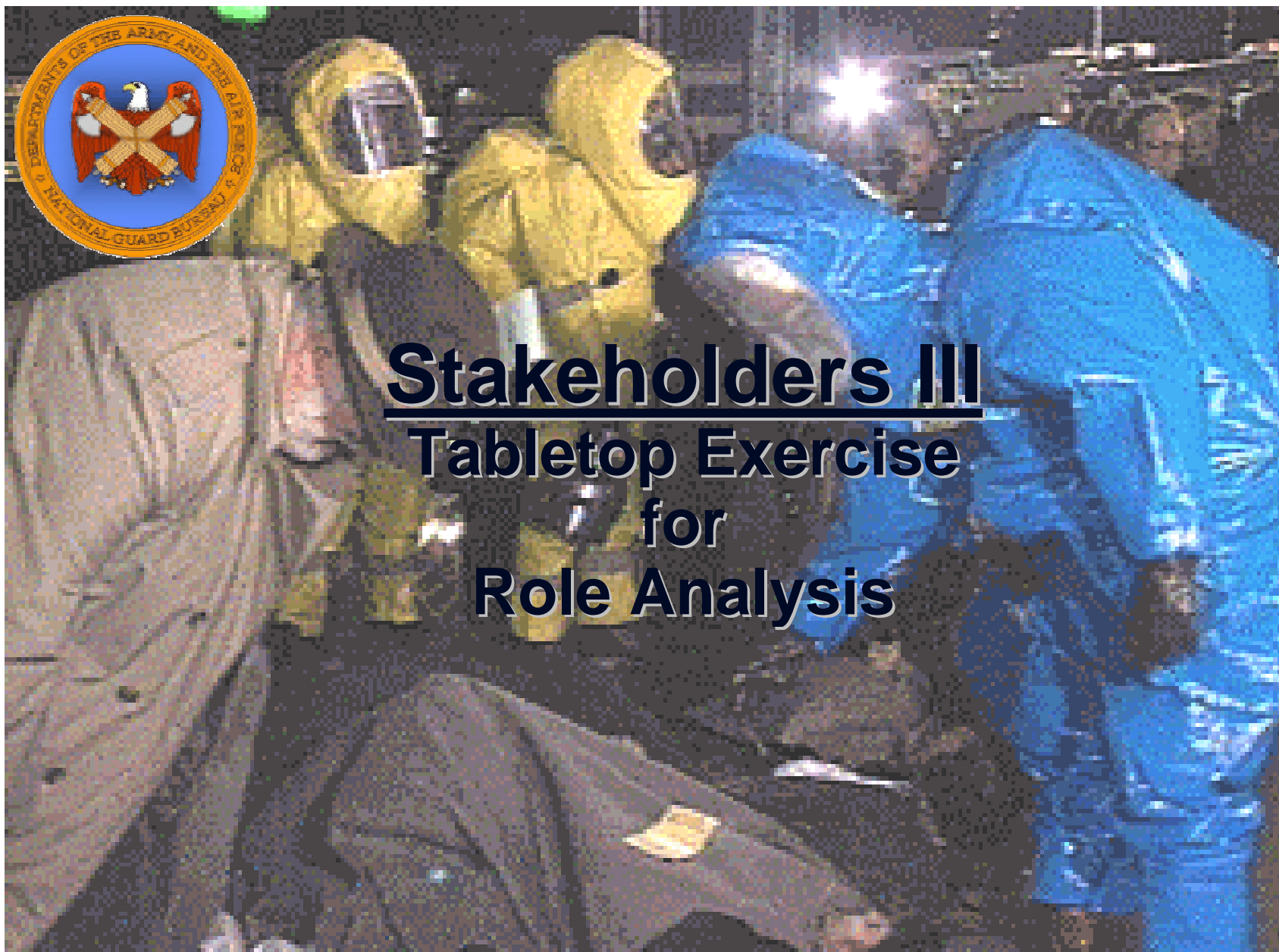
- **1918 Flu Pandemic**

- Government and Media Ignored or Downplayed It
- Sales of Liberty Bonds for WWI Dominate
- San Francisco: Prevention Method Identified
- Populations More Inured to Disease at that Time?

- **1994 Surat**

- Officials Announced Plague
- Panic Started with Doctors
- Spontaneous Evacuation Picked up by Media

- **Passivity of 1918 Unlikely to Repeat in Present Day**



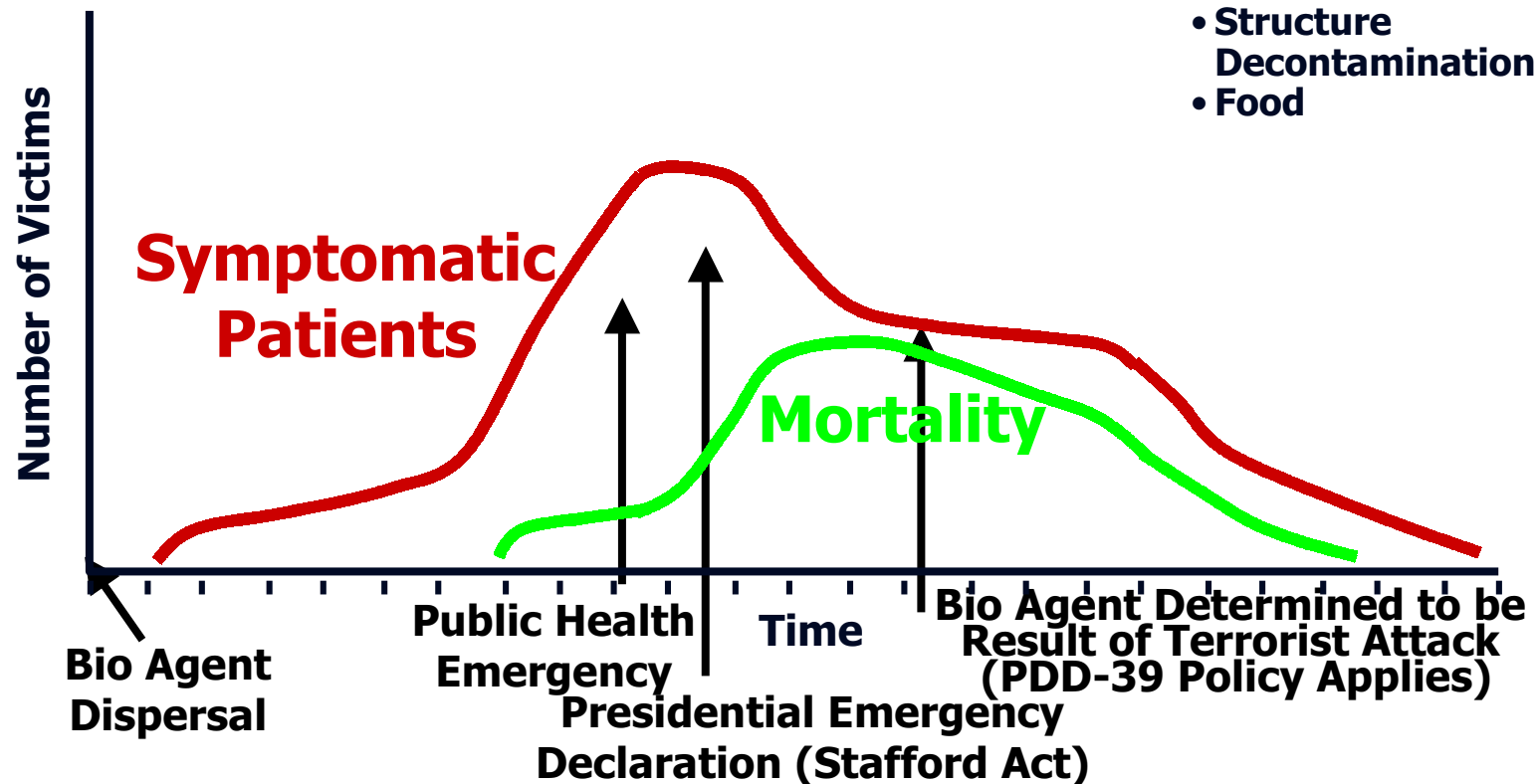
Sponsored by the National Guard Bureau, December 16-18, 1998



- 911 Calls Increase
- Hospital Admissions Up
- Dead Animals of Multiple Types

- Unexplained Infection Outbreak
- Data Assessment
- Investigation of Origins & Nature of Outbreak

- Pharmaceuticals
- Medical Treatment
- Mass Care
- Emergency Public Information
- Structure Decontamination
- Food



# How Can Lives Be Saved ?

## Reducing Deaths

**Awareness and specialist training for the medical community would assist in early detection.**

**Strategically placed resources**

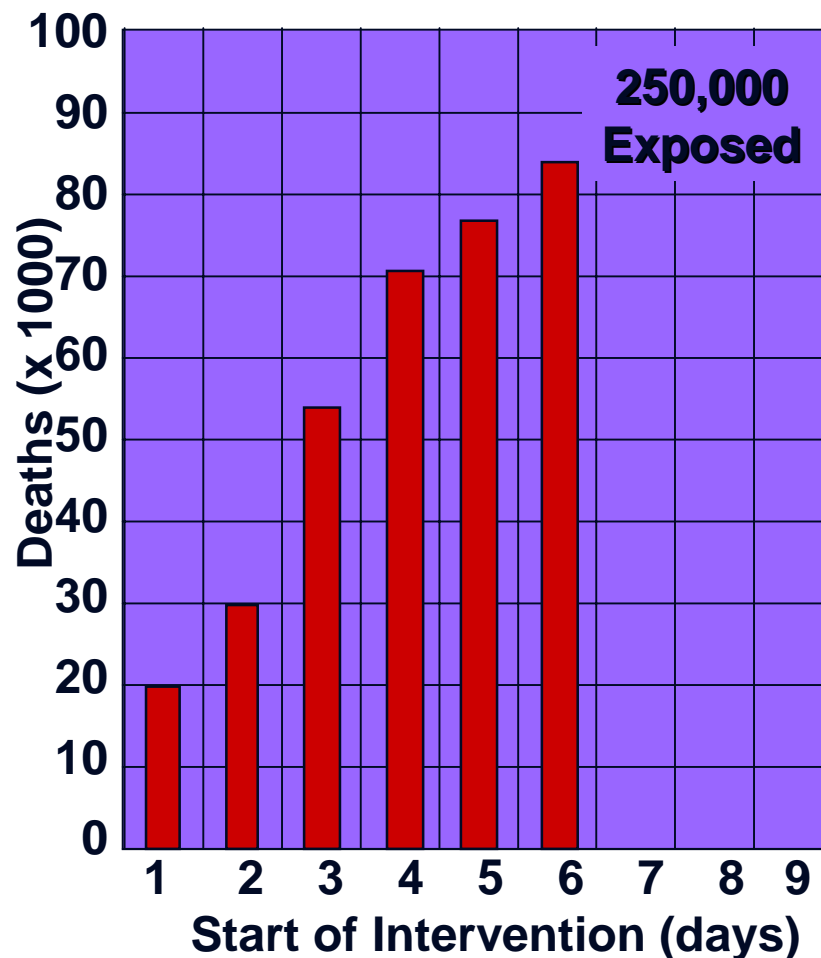
**Resource distribution plan and distribution assets**

**Sustainment capability for vital community services**

**Awareness, acquisition and application of new technologies (e.g., sensors)**

**Decontamination plan, equipment & personnel**

**Public awareness**



# Public Perception of Anthrax Attack Once It is Reported in Press

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- **Belief that Flu-Like Symptoms Are Signs of Anthrax Disease**
  - And that Experts Say Up to 90% of Those Infected Will Die
  - Knowledge that Antibiotic Prophylaxis Is Required to Prevent Anthrax
    - » Antibiotics Needed **Before** or Immediately After Symptoms Present
  - Rapid Realization that Not Enough Antibiotics Available Locally
    - » Most Hospitals Keep Only Limited Amounts for Efficiency, Freshness
    - » Little Surge Production Capacity for Antibiotic of First Choice (Cipro)
  - Families React as a Group, Seeking Medicine for Any Member at Risk
- **Technical Experts Cannot Say Exactly Who Was Exposed**
  - Cannot Be Determined Until Symptoms Appear (i.e., Too Late)
  - Not Clear in Early Days if Danger of Exposure Has Stopped
    - » Possibility of Spore Reaerosolization, Restrike, or Continuing Attack
- **Prudence May Dictate Leaving Vicinity of Attack Rapidly**
  - Escape Area of Possibly Continuing Impact
  - Actively Seek Medicine (e.g., Outlying Hospitals, etc.)

# Future Anthrax Incident: Tentative Conclusions

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- **Significant Panic if Perceived Lack of Available Medicine**
  - Desperation Fueled by Knowledge that 90% of Symptomatic May Die
  - May Also Fear Continuing Source of Infection
  - Fears May Be Fed by Perception of Lack of Leadership, Planning
- **Accelerated “Reasoned Flight” to Suburbs for Treatment**
  - Tokyo Model: ~500 Gassed. 5,500 Casualties. 200+ Clinics Get Cases.
    - » “Worried Well” in Biological Attack May Far Outnumber Infected
  - Families Tend to Travel as a Group. Prefer to Stay with Relatives.
- **Some Looting and Destruction in Target City**
  - At Risk Initially: Hospitals; Pharmacies; Supermarkets (drugs, food)
- **Media Coverage Supports “Disaster Myth” Perceptions**
  - Extended Continuous Coverage Familiarized by OJ, but Moreso
  - Generates Tremendous Demand for Masks, Antibiotics Around Country
- **Credible Copy-Cat Threats Cannot Be Easily Dismissed**
- **Local Medical Disaster Creates Major National Impact**

# Needed to Prevent Panic

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- **Awareness and Planning by Locality**
  - Even a Small Release Could Have Massive Impact
- **Effective Biosensors to Determine Area at Risk**
- **Rapid Diagnostic Means to Determine Those at Risk**
  - Reassure Well, Start Treatment for Those Who Need It
- **Access to Sufficient Medical Resources for Treatment**
  - Secure, Mobile Stockpiles
- **Infrastructure, Planning to Support Mass Distribution of Antibiotics**