Preparing for the Psychological Consequences of Terrorism

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Omaha, Nebraska
## Living in a Fearful World

### Societal Concerns

<table>
<thead>
<tr>
<th>Tuberculosis</th>
<th>Anthrax</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV/AIDS</td>
<td>Serial Rapist</td>
</tr>
<tr>
<td>War</td>
<td>West Nile Virus</td>
</tr>
<tr>
<td>Snipers</td>
<td>SARS</td>
</tr>
</tbody>
</table>
Living in a Fearful World

Societal Concerns

Psychological Injury

Physical Injury

Sociocultural Injury
Worst Case Scenarios?
March 17, 2003

Should President Bush have said “terrorists could kill hundreds of thousands of innocent people in the country” and “wreck destruction of a kind never before seen on this earth.”

Terrorists evoke horror.

How likely is an unprecedented catastrophe?

Why dwell on worst case scenarios?
Worst Case Scenarios

The probability of a terrorist attack in the USA is high but the risk to any one person is quite low.

These scenarios distort the proportional likelihood

Responsible risk assessment avoids this strategy
What is Risk?

Wide Spread Anxiety

- Toxic threats: industrial chemicals and pesticides.
- Vehicles and smoke stacks fouling the air.
- Dental fillings, aluminum pots, electromagnetic fields.
- Terrorism: Biological Warfare.
Definitions

Hazard is a potential harm

Hazards are sometimes confused with risk

A risk is the probability that the potential danger of a hazard will be realized

If a person is not exposed to a hazard, however dangerous, there is no risk
Types of Hazards

- Chemical
- Physical
- Biological
- Radiological
- Cultural
Risk/Hazard Assessment

Example:

A fire is a hazard but the risks vary tremendously –

- Next door?
- Down the block?
- Or ½ mile away next to a pesticide plant?
Chesapeake Bay

- Laboratory scientist studying properties
- Manufacturer defending against liability
- A worker who believes she became ill from exposure
- A consultant charged with cleanup
- A family concerned that the water is too polluted to drink
- A public health official attempting to counsel the community.
Experts believe that societal risks have never been less. Individuals believe that they face more risks than ever before and the risks will be greater in the future.
Self Assessment Test

1. Industrial explosion releases toxic chemicals
2. Radioactive radon gas released from the soil seeps into homes
3. Deposits of buried hazardous wastes
4. Pollution of air in home and office

What is the difference between Risk and Uncertainty?

**Risk** can be calculated: the probability of winning the lottery,

**Uncertainty** arises when the odds of success or failure are incalculable: weighing the economic and political consequences of war.
If you remember the Werner Heisenberg Uncertainty Principle (1926)

“uncertainty is unavoidably introduced into the measured qualities by the measurement itself.”

Preparedness: The more we study possibilities the more uncertain we become. The better prepared we become.
Differences Between Individuals and Experts

**Experts:** use probability and populations. Odds of harm occurring to a % of a population and the severity of damage

**Goal of the expert:** to protect the greatest number of people the greatest amount of time

**Individuals:** analyze the consequences of an event occurring independent of its likelihood

**Goal of an individual:** is to be protected at all times
## Characteristics of Hazard Assessment

<table>
<thead>
<tr>
<th>Low Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voluntary</strong></td>
<td><strong>Involuntary</strong></td>
</tr>
<tr>
<td>(not wearing seat belts)</td>
<td>(a nearby garbage dump)</td>
</tr>
<tr>
<td><strong>Familiar</strong></td>
<td><strong>Unfamiliar</strong></td>
</tr>
<tr>
<td>(second hand smoke)</td>
<td>(food irradiation)</td>
</tr>
<tr>
<td><strong>Natural</strong></td>
<td><strong>Artificial</strong></td>
</tr>
<tr>
<td>(radon)</td>
<td>(X-ray)</td>
</tr>
<tr>
<td><strong>Controllable</strong></td>
<td><strong>Uncontrollable</strong></td>
</tr>
<tr>
<td>(personal habit)</td>
<td>(natural disaster)</td>
</tr>
<tr>
<td><strong>Not Dreaded</strong></td>
<td><strong>Dreaded</strong></td>
</tr>
<tr>
<td>(one causing emphysema)</td>
<td>(causes cancer)</td>
</tr>
<tr>
<td><strong>Diffuse in Time</strong></td>
<td><strong>Focused in Time</strong></td>
</tr>
<tr>
<td>(kills 500 over year)</td>
<td>(kills 500 per decade but all at once)</td>
</tr>
</tbody>
</table>

# Preventive Health

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Modifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, Sex, Family History</td>
<td>No</td>
</tr>
<tr>
<td>Workplace, Education</td>
<td>Partially</td>
</tr>
<tr>
<td>Home/Community</td>
<td></td>
</tr>
<tr>
<td>Tobacco, Diet, Alcohol/Substance use</td>
<td>Yes</td>
</tr>
<tr>
<td>Stress, Social Support</td>
<td></td>
</tr>
<tr>
<td>Sexual Practice</td>
<td></td>
</tr>
</tbody>
</table>
ACCIDENTS are not random events. They are predictable. They can be prevented.
Citizen Preparedness for Terrorism

- Deal with our anxiety.
- We won’t die in a terrorist attack but we will watch on CNN and must explain to children.
- Routinization and understanding of terror prevents paralysis by fear.
- This strips terrorists of their power.
There are no dumb questions!

Confidence

Perseverance

Caring

Teamwork

Common sense

Problem solving
“That which ought to be the most noble and the most becoming to those who are really educated, release from perturbation, release from fear—freedom. We must not believe the many, who say that only free people ought to be educated, but we should rather believe the philosophers, who say that only the educated are free.”

_Epictetus: The Discourses_

Roman Philosopher and Former Slave Discourses (101AD)
Tyrants and autocrats have always understood that literacy, learning, books and newspapers are potentially dangerous.

1671: British Royal Governor of Colony of Virginia

I thank God there are no free schools nor printing; and I hope we shall not have (them) these (next) hundred years; for learning has brought disobedience, and heresy, and sects into the world, and printing has divulged them and libels against the best government.
If Washington Irving’s character Rip Van Winkle were to return to New York City from his 100 year slumber in the Catskills – investigating our TV, radio, movies, newspapers, magazines, comics and many books – he might conclude that we focus solely on sex, murder, rape, superstition and consumerism.
## Tabloids, TV Talk Shows, Movies

### Pseudoscience/Superstitions

<table>
<thead>
<tr>
<th>Astrology</th>
<th>Ghosts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Foot</td>
<td>ESP</td>
</tr>
<tr>
<td>Loch Nessie</td>
<td>Unlucky number 13</td>
</tr>
<tr>
<td>UFOs</td>
<td>Witches</td>
</tr>
<tr>
<td>Aliens</td>
<td>Extraterrestrials</td>
</tr>
</tbody>
</table>
Dumbing Down of America
Decay in the content of the influential media
Lowest common denominator programs
The Six O'Clock News

- The thirty second sound bites
- Rarely Science
- Progress in medicine and technology
- When did the president last say something intelligent about science?
We Must Transform the Role of the Newspapers, Television, Internet

No matter how sincere, no matter how deeply felt, facts are truly more comforting than fantasy.

A fundamental understanding of the findings and methods of science must be available on the grandest scale.... It is insufficient to produce a small highly competent group of professionals.
It is not the function of our government to keep the citizen from falling into error; it is the function of the citizen to keep the government from falling into error.

US Supreme Court Justice
Robert H. Johnson 1950
The science of the future must be comprehensible to the leaders and the people

**Biology:** The genome, evolution

**Chemistry:** Nerve agents, carcinogens

**Physics:** The planets, nuclear energy
Science alerts us to the perils introduced by our world altering technologies.

Science teaches us about the deepest issues of origins, natures and fates of our species, of life, of our planet and universe.

The gift of science may be to know where, when and who we are.
The rate of change in science is responsible for confusion and lack of faith

- No longer true
- Partially true
- Difficult to understand
- Social revolution; disquieting to those who can’t keep up

Science

Experimental results

Data

Observations

Measurements

Possible explanations
Humans may desire absolute certainty; They may pretend to have achieved it. Throughout history the goal of science is to achieve improved understanding.
Science

Independent analysis: controlled experiments

- Could this logic be distorted?
- Is there a deficit in approach/reasoning?
- Substantial debate from all perspectives
- Don’t depend on “Authority”; no anecdotes
- Quantify
- Simplify – strength of evidence
Avoidable human dilemmas are caused not so much by stupidity as much as by ignorance, particularly ignorance about ourselves. The attraction of pseudoscience and superstition are great dangers.

Science like democracy is an imperfect instrument, but they are the best weapons against ignorance and injustice. The whole idea of the democratic application of skepticism is that everyone should have the essential tools to effectively and constructively evaluate claims to knowledge.
As children tremble and fear everything in the blind darkness, so we in the light sometimes fear what is no more to be feared than the things children in the dark hold in terror.

Lucretius, On the Nature of Things. 60BC
Education

Start early

Universal high quality

Public health and public policy

Science will increase understanding

True risk assessment

Understand complex world

Personal responsibility

Continue for a lifetime
Living In a Fearful World

Societal Concerns

Education

Psychological Casualty

Physical Casualty

Sociocultural Casualty

Psychological

Physical

Sociocultural
MMRS Goals

- Unique response plans.
- Integrated immediate response structures.
- Local and regional support network.
- Integrate regional response systems into the planning process.
- Integrate local mass casualty plans.
- Collaboration of city planning agencies
- Initiate hospital NBC planning.
- Primary care and public health collaboration.
- Develop appropriate medical treatment protocols.
Preparedness: Emphasis and Concerns

- Most Federal, State and Local agencies have little experience collaborating.
- Develop real time seamless channels of inter and intra agency coordination and cooperation.
- Establish preparedness planning with honest intra agency and inter agency criticism.
- Achieve unity of purpose – evaluate areas of potential, bureaucratic dysfunction.
- Share expertise and capabilities “no unit is an island”
Preparedness

- Empowers local communities
- Permits Community flexibility
- Depends on rigorous continuing education and improvement
- Depends on shared responsibilities of governmental and nongovernmental agencies
Successful Preparedness Plan

Know your area

- Potential targets
- Mass transit
- Large public spaces
- Landmarks

Know your enemy

Potential toxins
Know your resources

Emergency response

- Containment
- Diagnostics
- Decontamination
- Treatment
- Transport

Hospitals

Antidotes
Charge to the Committee

With input from a workshop that addresses mental health issues that result as a consequence of terrorism:

- Identify gaps in knowledge and in planning, preparedness, and public health infrastructure for successful implementation of interventions.
- Identify a variety of approaches to intervention to limit adverse mental health consequences.
- Provide recommendations for options on how to optimize the public health response to long-term and short-term mental health consequences of terrorism.
Defining Psychological Consequences

- Distress Responses: e.g., Insomnia, Sense of Vulnerability
- Psychiatric Illness: e.g., PTSD, Major Depression
- Behavioral Changes: e.g., Change in Travel Patterns, Smoking, Alcohol Consumption
Unintentional vs Intentional Events

In 2001 – World death toll terrorism 4000 vs accidents (car crashes) 40,000 in USA

Concentrate on

► Seat belts
► Air bags
► Brakes
► Helmets
► Car seats
► Drinking
► Driver Age etc.
## Haddon Matrix

### Factors

<table>
<thead>
<tr>
<th>Pre-event</th>
<th>Human (Host)</th>
<th>Car (Vehicle/Vector)</th>
<th>Speeding without Seatbelt (Environment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver’s education</td>
<td>Building of cars with crumple zones and airbags</td>
<td>Guard rails and divided highways</td>
<td></td>
</tr>
<tr>
<td>Event</td>
<td>Use of seat belts</td>
<td>Activation of anti-lock breaks and deployment of airbags</td>
<td>Witness contact emergency medical services</td>
</tr>
<tr>
<td>Post-event</td>
<td>First aid</td>
<td>Use of emergency equipment to rescue victims</td>
<td>Emergency care and rehabilitation</td>
</tr>
<tr>
<td>End Result</td>
<td>Injured passengers</td>
<td>Damaged car</td>
<td>Damage to property and/or other cars</td>
</tr>
</tbody>
</table>
Cases

- Inhalational (11)
  - deaths (5)
- Cutaneous (11)
- Treatment
  - 10,000s
- Psychological!
A Public Health Approach to the Psychological Consequences of Terrorism

Application of a Public Health Model to the Psychological Consequences of Terrorism

<table>
<thead>
<tr>
<th>Epidemiologic Terms</th>
<th>Psychological Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent</td>
<td>Violent act or threat</td>
</tr>
<tr>
<td>Host</td>
<td>Affected individuals and populations</td>
</tr>
<tr>
<td>Vehicle or Vector</td>
<td>Terrorist and injurious agent, way terror is propagated</td>
</tr>
<tr>
<td>Environment</td>
<td>Physical and social env.</td>
</tr>
</tbody>
</table>
## An Example Public Health Strategy

<table>
<thead>
<tr>
<th>PHASES</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Affected Individuals and Population</td>
</tr>
<tr>
<td>Pre-event</td>
<td></td>
</tr>
<tr>
<td>Event</td>
<td></td>
</tr>
<tr>
<td>Post-event</td>
<td></td>
</tr>
<tr>
<td>Desired End Results</td>
<td></td>
</tr>
</tbody>
</table>
**TABLE 1-5 Matrix of Phases and Factors Involved in the Psychological Impact of Terrorist Attacks—World Trade Center (WTC) Attack, 2001**

<table>
<thead>
<tr>
<th>Phases</th>
<th>Affected Individuals and Populations</th>
<th>Terrorist and Injurious Agent</th>
<th>Physical and Social Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-event</td>
<td>Psychological unpreparedness for the attack</td>
<td>Vulnerability of aircraft to hijackers</td>
<td>Vulnerability of WTC to attack (structural, symbolic nature, height)</td>
</tr>
<tr>
<td>Event</td>
<td>Exposure to the violence of the attack</td>
<td>Aircraft turned into weapon of mass destruction</td>
<td>Towers collapse</td>
</tr>
<tr>
<td>Post-event</td>
<td>Inadequate assessment and treatment of psychological consequences</td>
<td>Numerous bomb threats</td>
<td>Relocation of Lower Manhattan residents</td>
</tr>
<tr>
<td>End results</td>
<td>Distress responses, behavioral change, psychiatric illness</td>
<td>Terrorists gain greater visibility</td>
<td>Disruption of support networks</td>
</tr>
</tbody>
</table>
## Public Health Strategy

### Factors

<table>
<thead>
<tr>
<th>Phases</th>
<th>Affected Individuals and Populations</th>
<th>Terrorism and Injurious Agent*</th>
<th>Physical and Social Environment</th>
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<tbody>
<tr>
<td>Pre—event</td>
<td>Physical</td>
<td>Physical</td>
<td>Physical</td>
</tr>
<tr>
<td></td>
<td>Psychological</td>
<td>Psychological</td>
<td>Psychological</td>
</tr>
<tr>
<td></td>
<td>Sociocultural</td>
<td>Sociocultural</td>
<td>Sociocultural</td>
</tr>
<tr>
<td>Event</td>
<td>Physical</td>
<td>Physical</td>
<td>Physical</td>
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</tr>
<tr>
<td>Desired End Results</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Finding: Ensuring Preparedness

The management of the psychological consequences of terrorism is a pressing public health issue.

- Interventions are needed for all phases.
- Interventions are needed for all factors.
- The present mental health system is not able to meet all the expected needs.
Finding: Workplace Preparedness

The workplace is a newly recognized and important environment for implementing preparedness planning.

New occupationally exposed groups include:
- construction workers
- postal workers
- utility workers
- public health workers
- children and teachers in schools
Finding: Training for Mental Health Providers

Many mental health professionals do not have specific knowledge in disaster mental health.

- Training and education for mental health professionals (including school-based)
- Training should include:
  - knowledge of psychological consequences
  - methods for response
Finding: Training for Other Professionals

Those outside the mental health professions, who may regularly interface with the public, can contribute substantially to community healing.

- Professionals including primary care, teachers, faith-based leaders (among others)
- Training should include:
  - knowledge of psychological reactions
  - supportive techniques
  - recognizing serious symptoms for referral
Finding: Psychological Consequences

Terrorism and the threat of terrorism will have psychological consequences for a major portion of the population.

- Research indicates psychological reactions develop in many
- Consequences should be addressed preventively and throughout the phases of an event
Gaps in the Current Infrastructure

- Coordination of agencies and services
- Training and supervision
- Public communication and dissemination of information
- Financing
- Knowledge- and evidence-based services
Finding: Research Needs

Research following terrorism events presents a multitude of practical and ethical challenges.

- Utilizing findings from other traumatized populations is not a substitute
- Support of disaster-specific and terrorism-specific research is necessary
- Improved cooperation and coordination can facilitate research
Integrate all emergency preparedness functions into public health structure and policy so that each day’s activities generate practical training experiences for emergency responses.
Use the Web!

www.gnyha.org
www.bt.cdc.gov/
www.hopkins-biodefense.org/

Latest update on outbreaks
Information on bio/chem/radiation agents
For physicians
For patients (also in Spanish)
Commonly asked questions/answers
Emergency contact numbers (212-POISONS)
1.800.222.1222
The success in preparing for naturally occurring or human initiated disasters will be severely impaired by excessive emphasis on financial considerations and a limited emphasis on public health.

The current assault of accountants and the lack of collaboration and competence among emergency preparedness personnel are more powerful forces than the bioterrorists.
Focus on:

Belief in Incident Command

Ending Insularity and Reluctance or Inability to Share
  - Disaster personnel
  - Policy makers
  - Emergency managers
  - First responders
  - Public health works
  - Physicians
  - Researchers

Ending Distrust and Territoriality

Creating a New Leadership
Ignorance more frequently begets confidence then does knowledge: it is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science.

Nonetheless, he knew that the tale he had to tell could not be one of a final victory. It could be only the record of what had had to be done, and what assuredly would have to be done again in the never ending fight against terror and its relentless onslaughts, despite their personal afflictions, by all who, while unable to be saints but refusing to bow down to pestilences, strive their utmost to be healers.

Albert Camus

The Plague