

Health Disaster Management: Guidelines for Research and Evaluation

Marvin Birnbaum, MD, PhD

Elaine Daily, RN, BS, FCCM

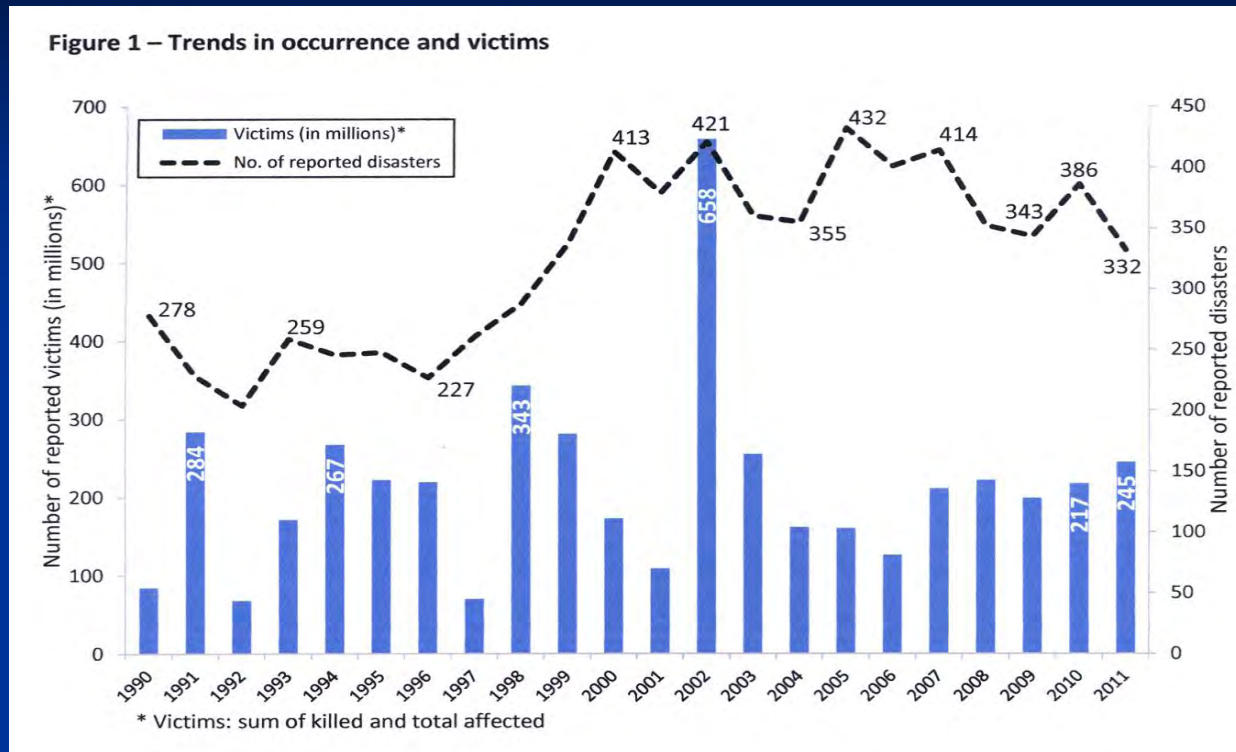
September 2012

Disaster Evaluation/Research

Objectives:

- Recognize need for structure in evaluation/research
- Understand the difference between epidemiological and interventional research
- Understand the importance of the:
 - Conceptual Framework and Definitions
 - Longitudinal Framework
 - Transectional Framework and Basic Societal Systems
 - Operational Framework
 - Preparedness Framework
- Apply these frameworks to disaster evaluation and research using any methodology

Number of Disasters Worldwide



- Disasters defined in the CRED database (one or more):
 - ≥ 10 people killed
 - ≥ 100 people affected (require immediate assistance; incl. displaced/evacuated victims)
 - Declaration of State of Emergency
 - Call for international assistance

Top 10 Disasters from Natural Hazards by Deaths in 2011

■ Japan	19,975
■ Phillipines	1,933
■ Brazil	978
■ Thailand	896
■ India	852
■ United States	809
■ China	746
■ Turkey	655
■ Pakistan	511
■ Colombia	313

Source: EM-DAT: OFDA/CRED International Disaster Database www.em-dat.net

Top 10 disasters by number of victims (2011)

■ China	159.3 million
■ India	12.8 million
■ Philippines	11.7 million
■ Thailand	11.2 million
■ Pakistan	5.4 million
■ Ethiopia	4.8 million
■ Kenya	4.4 million
■ Somalia	4.0 million
■ Brazil	3.7 million
■ Mexico	3.7 million

Source: EM-DAT: OFDA/CRED International Disaster Database www.em-dat.net

Mortality

- **Direct Deaths**
- **Indirect Deaths**

Prior to 1989,
most published papers
consisted of
narrative, anecdotal
descriptions
with little or no
structure

- Cause of the disaster
- Number of persons killed, injured, displaced
- Number and type of interventions that were applied
- After-action reports by responding agencies
 - Many biased and self-serving;
 - For organizational use only
 - Activities not related to goal/outcome

Goals in Disaster Research and Evaluations

1. Understand the epidemiology of disasters to:
 - Identify factors common to all disasters, regardless of type
 - Identify patterns that may contribute to disaster mitigation, preparedness, and management
2. Evaluate interventions to:
 - Determine those with optimal effectiveness, efficacy, and benefit to the affected/at-risk population
 - Determine those with highest level of efficiency at lowest cost
 - Determine other effects

Current Problems in Disaster Research and Evaluations

- No structure for the comparison of information on disasters
- No consistent use of terminology
- Information widely dispersed and not indexed
- Difficult if not impossible to do an RCT
- Difficult to prove cause:effect

Other Problems in Disaster Research and Evaluation

- Although predictable, many events strike unexpectedly
- No two disasters are exactly the same
- Geographic differences
- Population and cultural differences
- Lack of funding
- Research/evaluation a low priority in times of crisis

Impediments in Disaster Research

1. Lack of uniformly accepted, standardized *definitions*
2. Lack of a framework to provide a *structure*
3. Lack of endorsed set of *indicators* for evaluation of specifics

Evidence

Evidence-based vs. Evidence-informed

Evidence-based vs. Best-available

Evidence-based vs. *Eminence*-based

Because we lack
evidence, disaster
responses can be
anything...

Donated Medical Supplies to Bosnia

- 1) Many inappropriate for setting (50-60% of the 34,000 tons of donation were inappropriate)
- 2) 28-36% unsorted - required resources to sort/repackage
- 3) 20-25% useless or unusable

Estimated value of inappropriate donations = \$24,990,000 (not incl tax break)

Cost to recipient country = \$34,000,000 to handle/destroy



Ties for Balkan refugees

Hurricane Andrew

- South Florida's unwanted donated clothes:
 - 17 feet high
 - Covered 5 acres
 - Incinerated or went to landfills
- Tons of donated paint, thinner, and other hazardous material went to a landfill



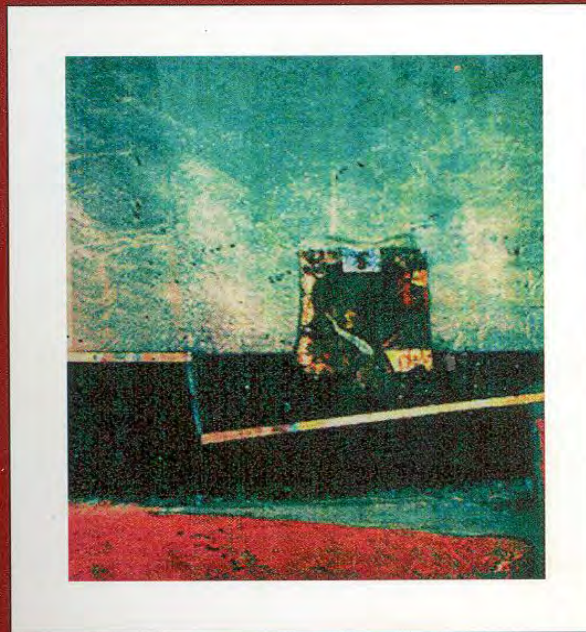
Disaster Research/Evaluations needed to:

- Prevent as many disasters as possible
- Decrease the impact of future events
- Develop evidence for standards/best practices

HEALTH DISASTER MANAGEMENT
**GUIDELINES FOR EVALUATION
AND RESEARCH IN
THE UTSTEIN STYLE**



Task Force on Quality Control of Disaster Management
↻
The World Association for Disaster and Emergency Medicine
↻
The Nordic Society for Disaster Medicine



Disaster Research/Evaluations

When information is placed into a common structure, it is possible to:

- Compare events
- Compare damages
- Compare functional changes
- Compare societies
- Evaluate and compare interventions
- Develop evidence → standards/best practices

Data Gathering

- Quantitative
 - Controlled, experimental
 - Longitudinal
- Qualitative/Evaluative
 - Surveys
 - Questionnaires
 - Interviews
- Combination - Epidemiological
- Case Studies

Measurements vs. Assessments

- Measurements are quantitative
- Assessments may be quantitative **and/or** qualitative **or** both
- Both are a *process* for obtaining data
- Both are based on indicators
- Indicators may be quantitative **or** qualitative

Identify Commonalities

	Society A	Society B
Disaster X	Disaster X in Society A	Disaster X in Society B
Disaster Y	Disaster Y in Society A	Disaster Y in Society B

Summary

- Structure
- Common Terminology
- Evidence