



Disaster Medicine and Public Health Preparedness: At the Cross Roads of Medicine and Public Health

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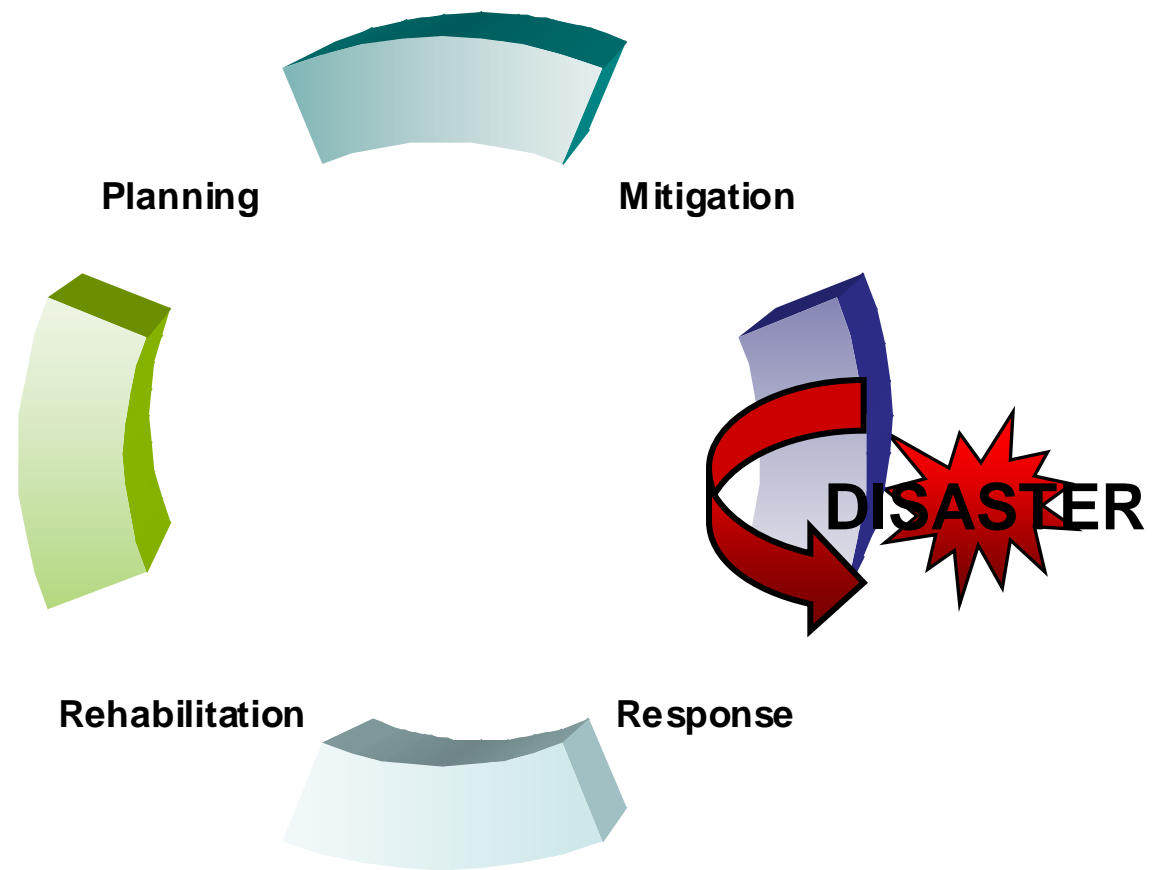
Defining a Disaster

Risk = Hazard * Vulnerability





Preparedness: A Systems Approach





Why do we need Disaster Education?

- Disasters impact the entire health system
- Cut across all health professions
- Require unprecedented collaboration from disparate professions in an immediate way
- Need to mitigate against excess mortality and morbidity





Why is there a need for specialization?

- Natural Disasters are increasing due to Climate Change
- Globalization has increased the risk of Communicable Disease such as Pandemic Influenza
- Globalization has increased the threat of Terrorism





Criteria for a Natural Disaster

- 10 or more people reported killed
- 100 people reported affected
- Declaration of a state of emergency
- Call for international assistance

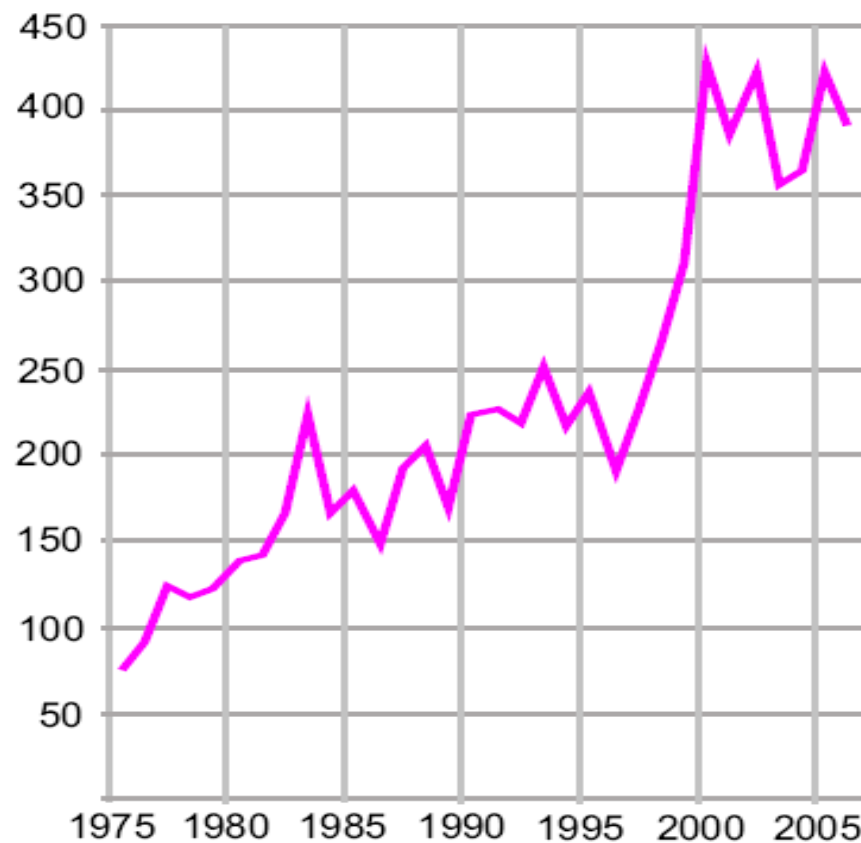
- <http://www.em-dat.net/>





Natural Disasters

Time trend of natural disasters⁽¹⁾, 1975-2006



(1): Natural disasters = Country-level disasters

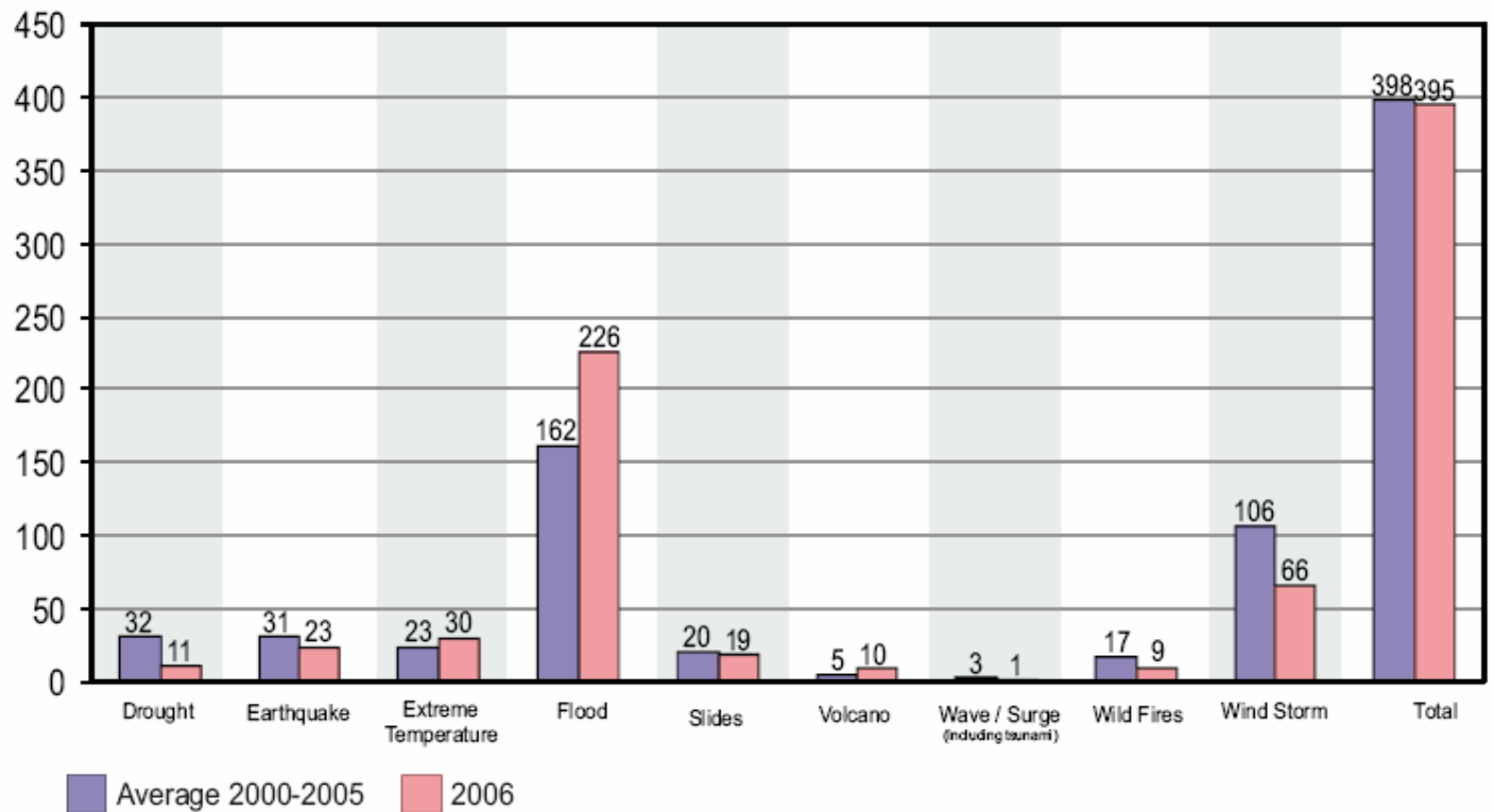


<http://www.em-dat.net/>



Comparative Review of Natural Disasters

Natural disaster occurrence by disaster type



<http://www.em-dat.net/>



Health Facility Assessment

Pakistan Earthquake

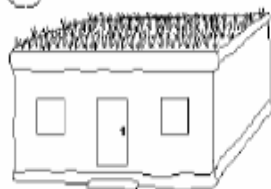
Date of visit: _____ (dd mm yyyy)	Compiled by: _____	Organization: _____
District and subdistrict: _____	Name of town or city: _____	GIS coordinates: _____

Population being served: _____

1. Infrastructure

	<i>Details</i>
Type of health facility	
Level of damage (see categories below)	
Water and sanitation infrastructure - No. functioning toilets/latrines - Water source (piped, well, etc) - Incinerator	

① None / Minor



② Moderate



③ Severe



④ Destroyed



California Wildfires





Short-term Issues

- 500,000 people evacuated using reverse 911 system
- 70,000 required temporary public sheltering
- Food, water, sanitation
- Smoke and Fire Exposure
- Hospital surveillance of respiratory and burn patients





Evacuee outpatient prescription history

- drug name and dosage
- quantity and day supply
- name of pharmacy that filled the script
- name of provider who wrote the script

Available patient clinical alerts

- drug interaction alerts
- therapeutic duplication alerts
- elderly alerts

Clinical Pharmacology® drug reference information

- drug monographs
- interaction reports
- drug identifier tool





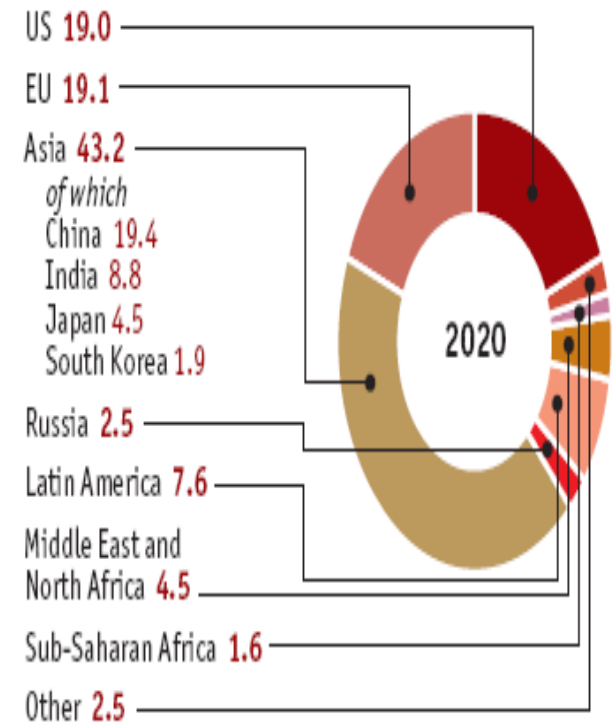
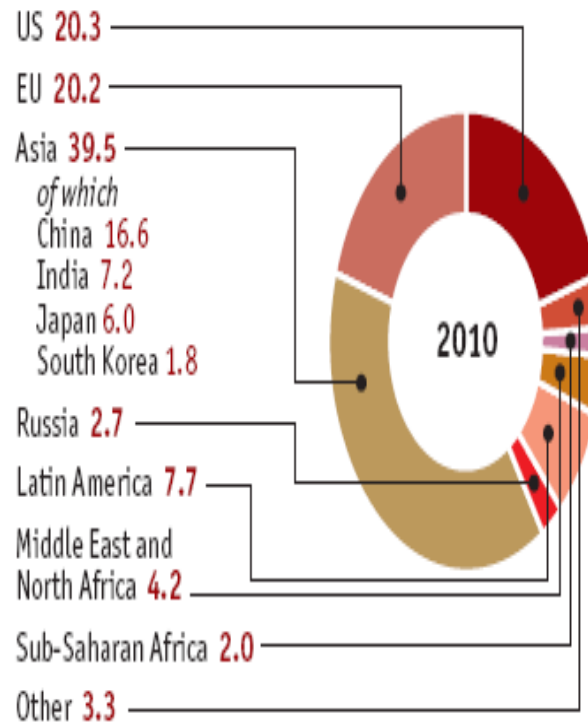
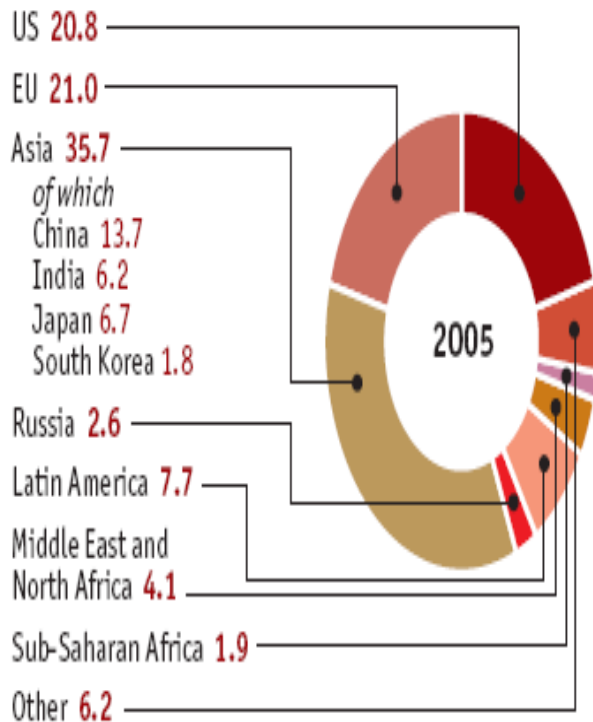
Long-term Issues

- Respiratory morbidity and mortality due to smoke and particulate exposure
- Mental health morbidity and mortality
- AMA coordinated a meeting with respective private and public stakeholders to consider these issues.
- Ongoing efforts to monitor these issues.



Globalization: Closing the Economic Gap between Developing and Developed Nations

Share in world GDP (at PPP)
(%)



Note. The EU is expected to have 28 states in 2010 and 33 in 2020.

Source: Economist Intelligence Unit.





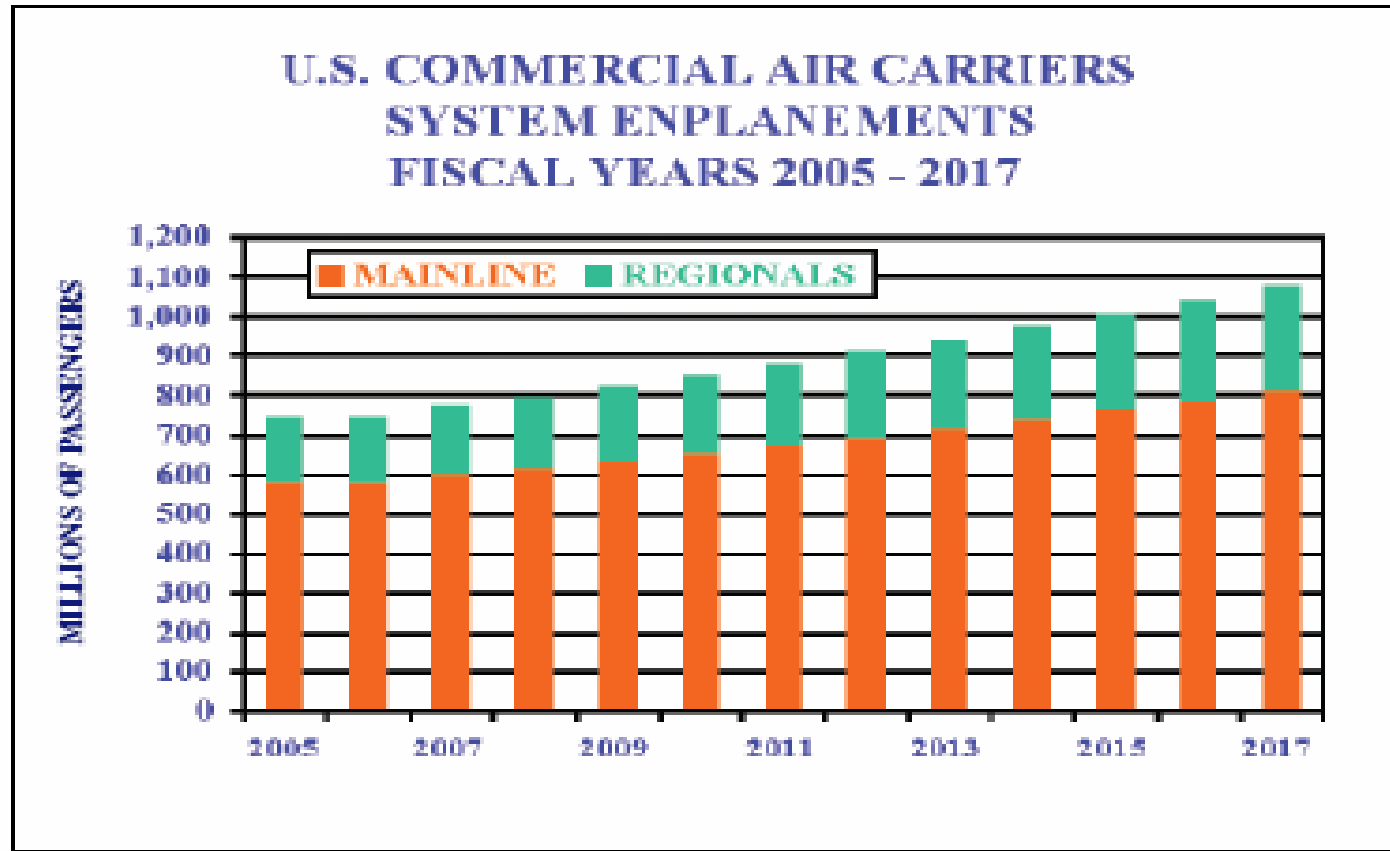
I thought globalization is good right???

Globalization	Developing Country	Unintended Consequences
Rapid Industrialization	Need for Energy Deforestation ↑Consumption	Greenhouse Gases Climate Change ↑Natural Disasters
Urbanization	Overpopulation	Denser Populations ↑Risk Infectious DZ ↑Risk of Pandemic
Trade and Commerce	Lenient barriers to production. Laissez-Faire	Defective Products Toothpaste, Toys ↑Risk of Toxic Expo ↑Risk of Pandemic
Communication	Sharing of Ideologies	↑Risk of Global Terrorism





Travel projections until 2017





Infectious Disease and Globalization:

- Urbanization (Developing Countries)
- Overpopulation
- Increased Travel
- Climate Change Impact



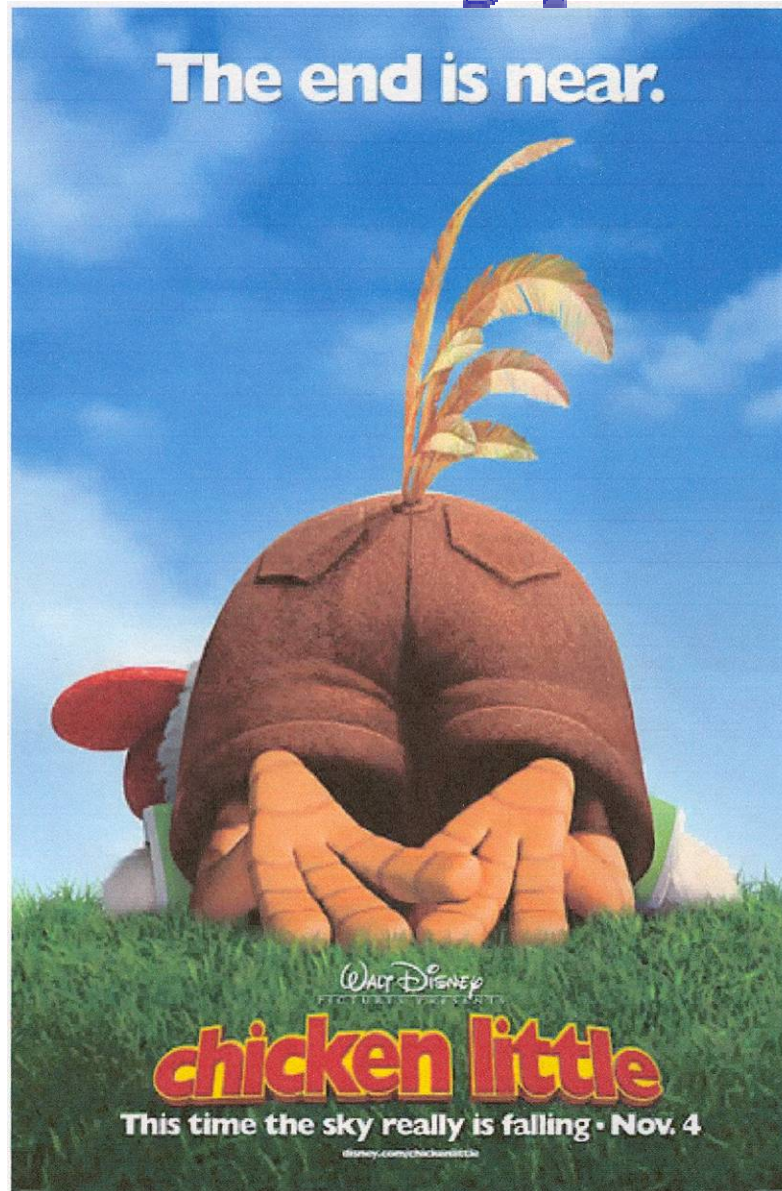


Overpopulation: Feed Me!!!

- Pollution
- Improper Waste Disposal
- Depletion of Natural Resources
- Overcrowding/ Slums: Mixing of Human and Animal populations
- Increased Consumption



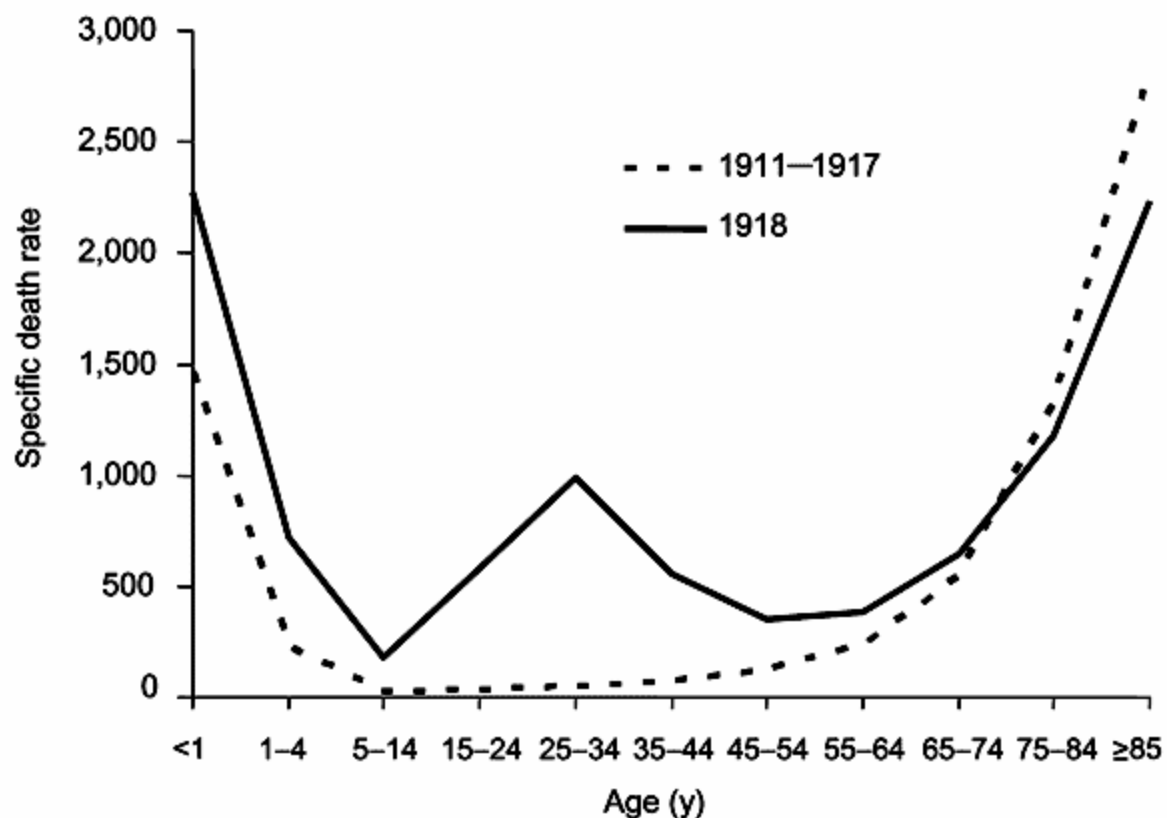
What's All The Hype About?

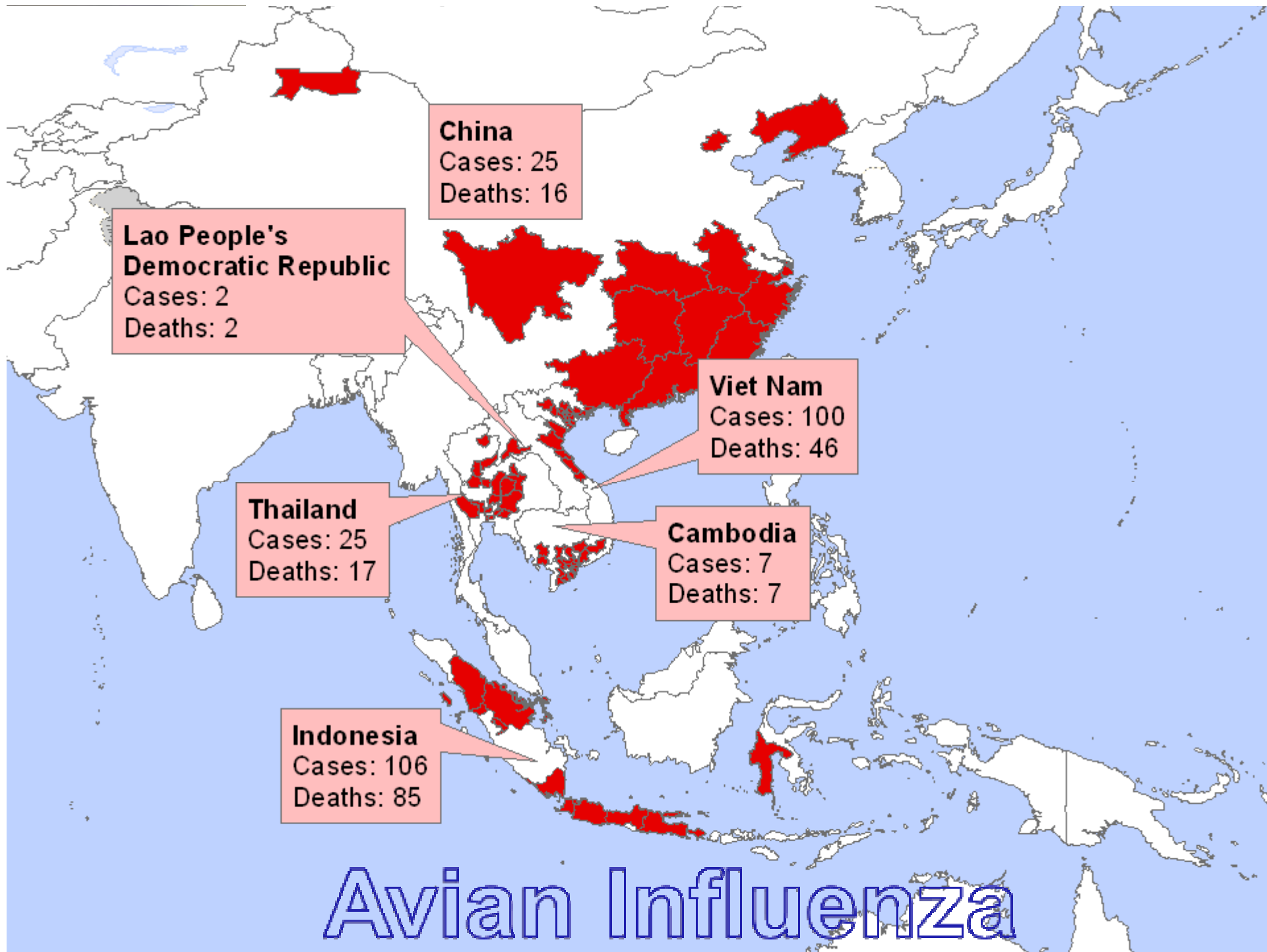




Historical Consequences

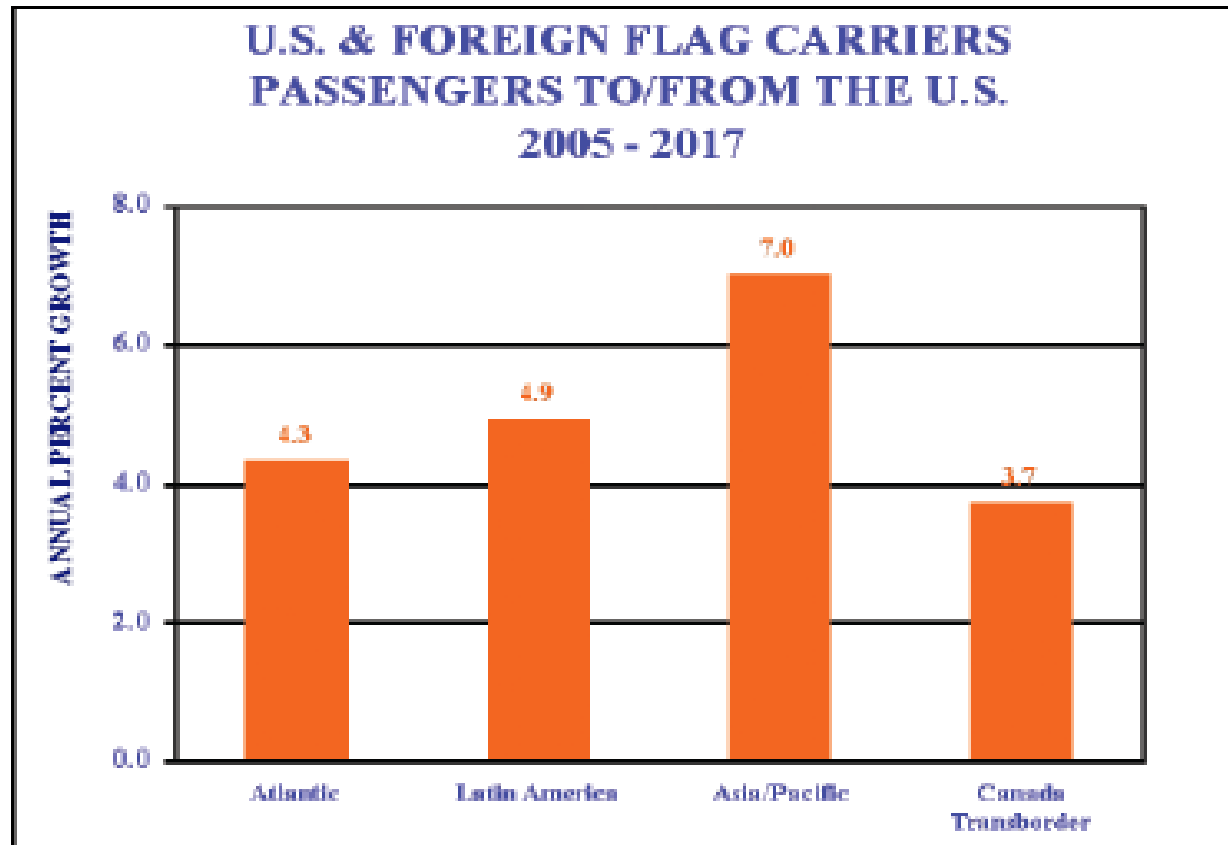
Name	Date	Deaths	Subtype
Spanish	1918-1920	40 million	H1N1
Asian	1957-1958	1-1.5 million	H2N2
Hong Kong	1968-1969	.75-1 million	H3N2

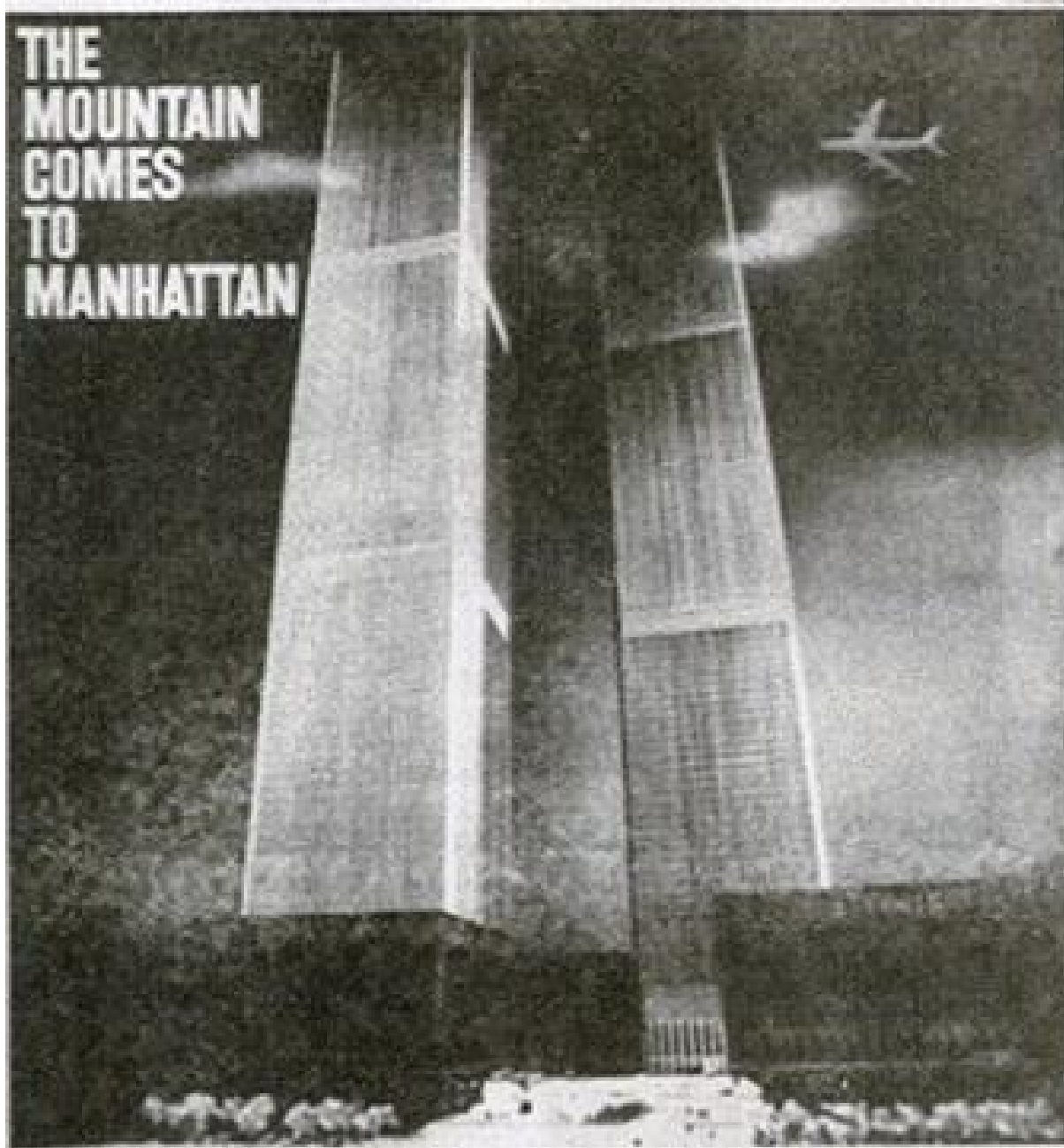






Greatest Growth: Asia/Pacific and Latin America







Global Terrorism: Influence of Globalization

- Internet has become a significant recruitment tool.
- Enabled people with like minded ideologies to have a virtual relationship.
 - Real threat is not only Al-Qaeda but Al-Qaeda “Inspired” Groups.
- Terror strategies can be easily shared
 - Example Bomb building
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WMD STATE AND LOCAL TRAINING REQUIREMENTS



4,774,000



1,659,000



1,793,000



50,000



2,280,000



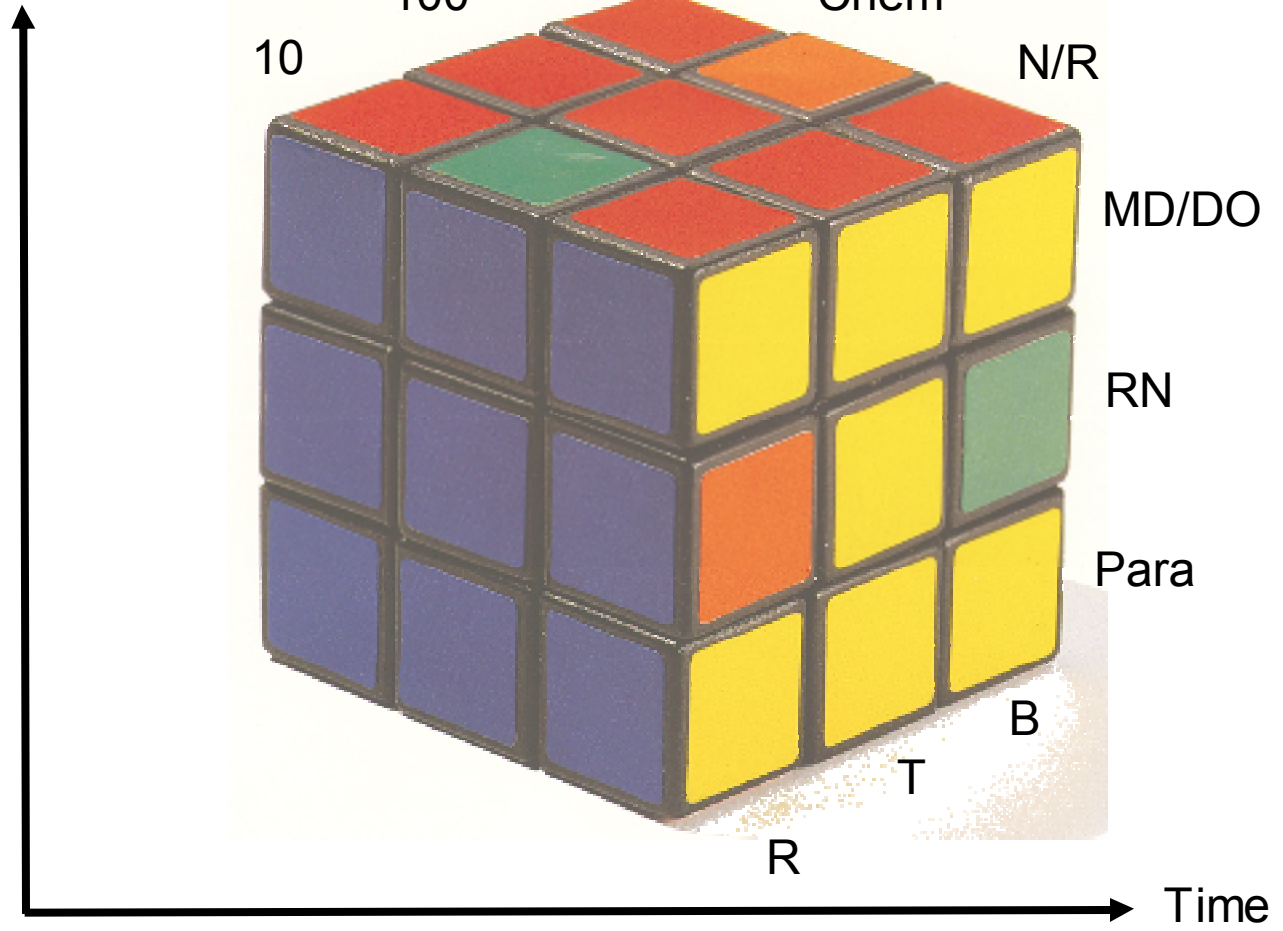
485,000

... Plus federal and private responder
training requirements





Geo-Climatic



Competencies





Goals

- Create an educational framework that would meet the practical needs of *all* health system responders.
- Consistency and common lexicon among all learners and level of responders.
- Create a framework that would allow for scientific evaluation and assessment.



Learning Matrix



Competency Domains	Core Competencies	Health System Level of Proficiency		
		Informed Worker/Student	Practitioner	Leader
1.0 Preparation and Planning	1.1 Demonstrate proficiency in the use of an all-hazards framework for disaster planning.	1.1.1 Describe the all-hazards framework for disaster planning. 1.1.2 Explain key components of your regional, community, institutional, and personal/family disaster plans. 1.1.3 Explain the motives, tactics, and reasons for terrorism in modern society.	1.1.4 Summarize your regional, community, office practice, and institutional disaster plans. 1.1.5 Explain the purpose of, and your role in, community and institutional disaster exercises and drills. 1.1.6 Conduct hazard vulnerability assessments for your office practice, community, or institution.	1.1.7 Create, evaluate, and revise disaster plans, exercises, and drills for your region, community, or institution to address identified disaster risks and vulnerabilities.
	1.2 Demonstrate proficiency in addressing the health-related needs, values, and perspectives of all ages and populations in community and institutional disaster plans.	1.2.1 Identify individuals (of all ages) and populations with special needs who may be more vulnerable to adverse health effects in a disaster	1.2.2 Delineate medical and mental health issues that need to be addressed in community and institutional disaster plans to accommodate the needs, values, and perspectives of all ages and populations.	1.2.3 Create, evaluate, and revise policies and procedures for meeting the health-related needs of all ages and populations in community and institutional disaster plans.



National Disaster Life Support Program

- Core Disaster Life Support
- Basic Disaster Life Support
- Advanced Disaster Life Support
- National Disaster Life Support Educational Consortium






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Announcing:

- First comprehensive and authoritative journal in disaster medicine
- Unified approach—drawn from all specialties and disciplines
- A bridge between clinical response and public health
- Rigorous peer-review by an editorial board representing the wide spectrum of disaster medicine and preparedness response
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Photo by Thomas Kirsch, MD, MPH, FACEP

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