







# **New Horizons in Disaster Management**

Medical Reserve Corps

November 20, 2016



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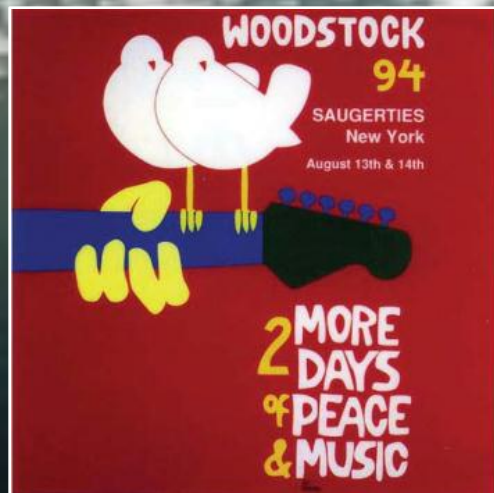
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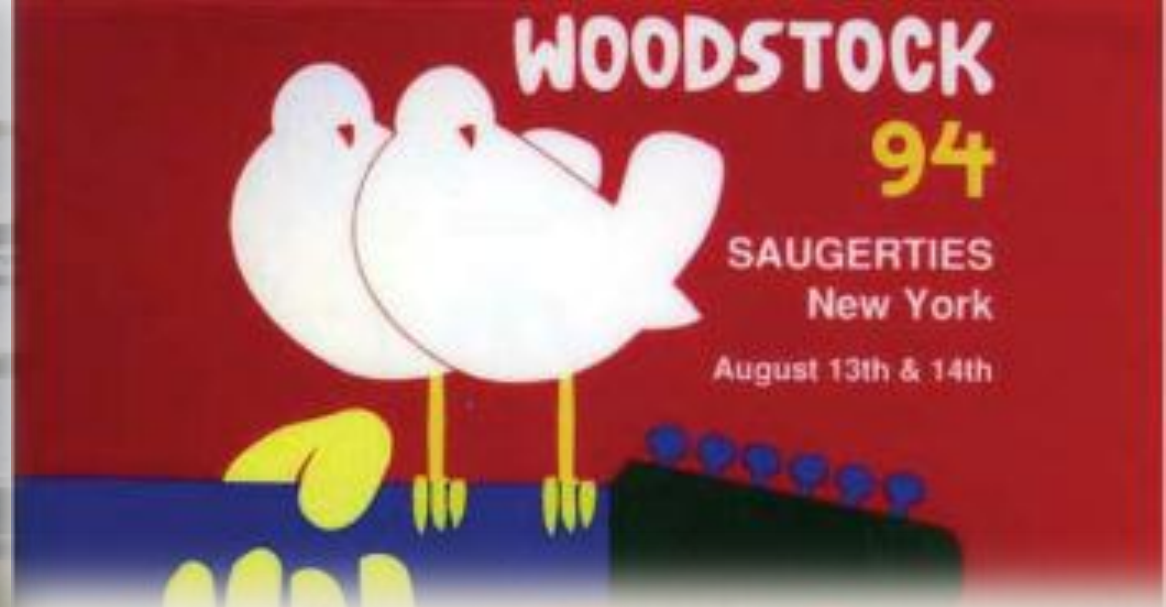


Which camp is at higher risk for cholera?









2 MORE  
DAYS  
of PEACE  
& MUSIC

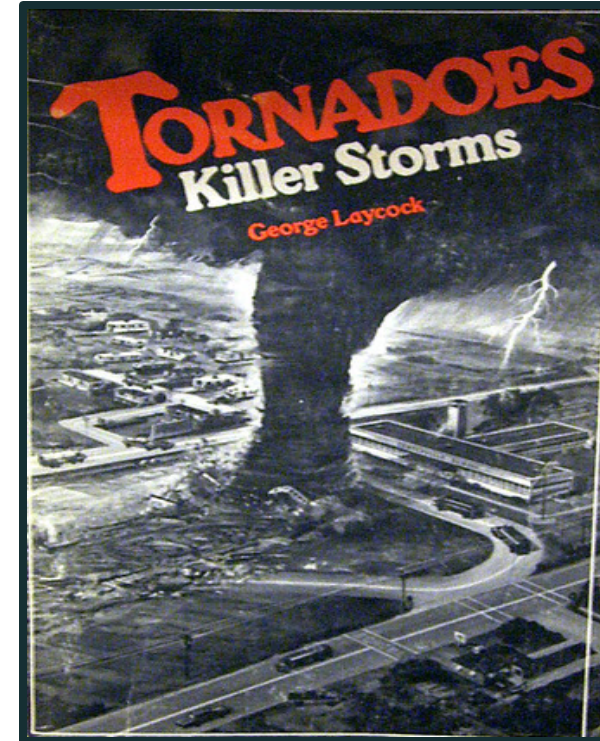
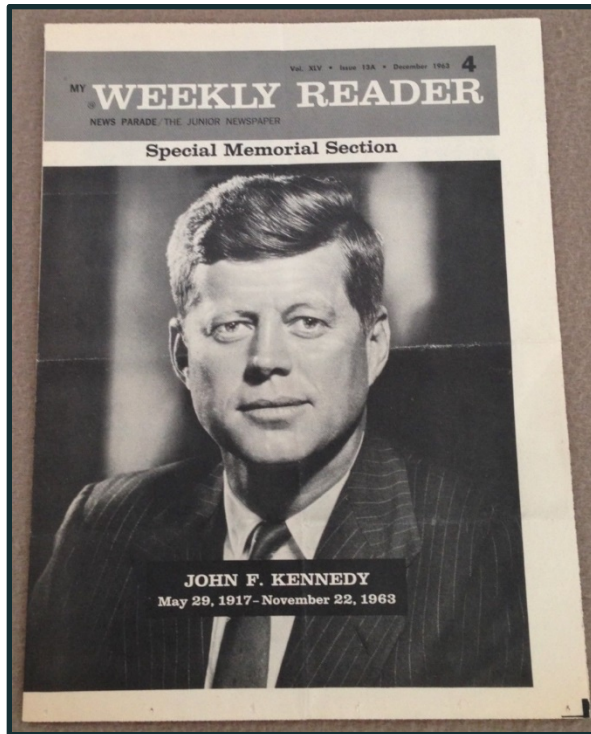








# A story of disaster risk reduction...



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15 years later...



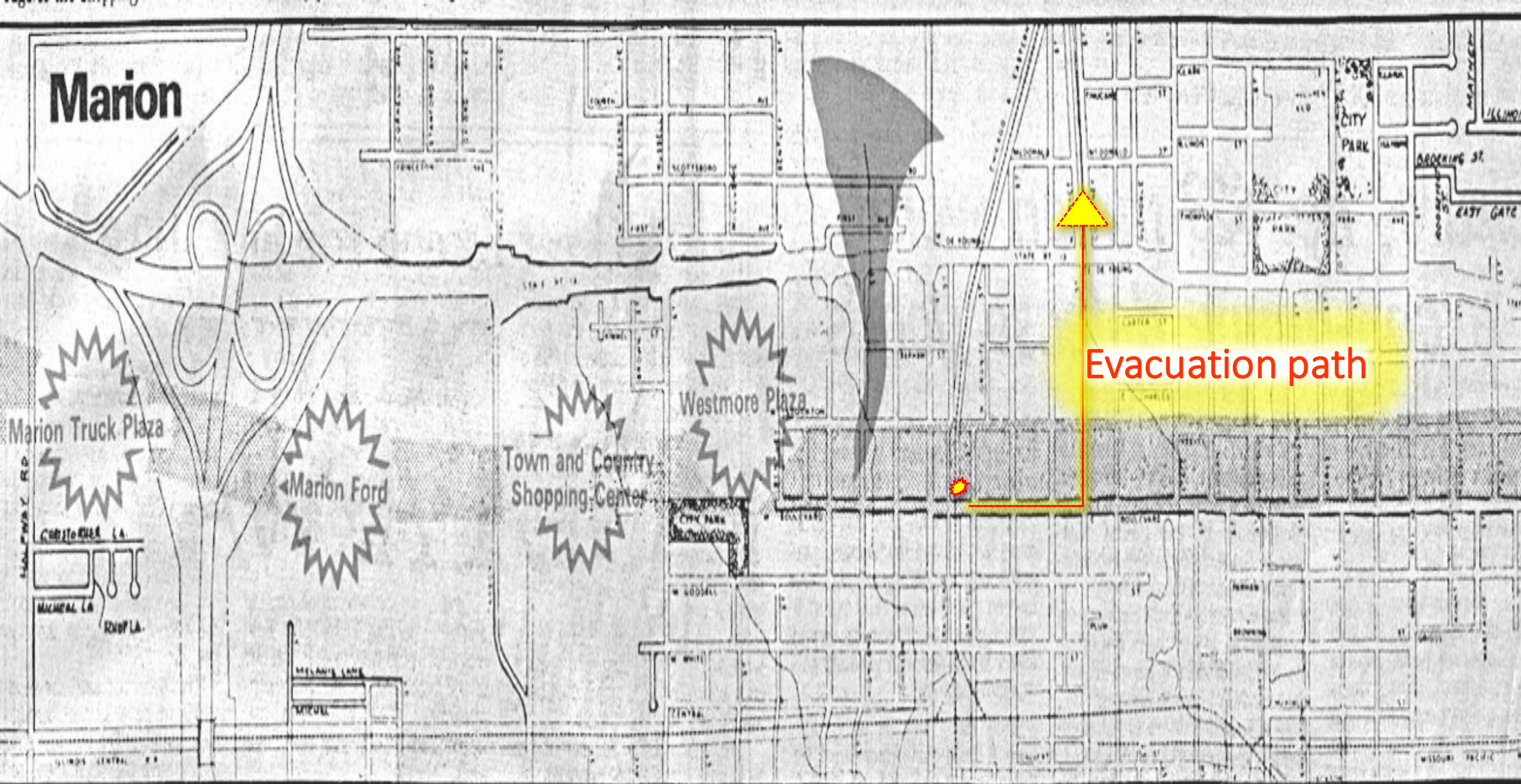
December 1981



# Memorial Day 1982







Marion, where the afternoon twister cut its deadly path, going east parallel to Illinois 13 along Stockton and Boulevard avenues



Before...

December 1981



# After





All deaths occurred  
during the impact phase <sup>1</sup>

Duclos PJ, Ing RT. Injuries and risk factors for injuries from the 29 May 1982 tornado, Marion, Illinois. Int J Epidemiol. 1989 Mar;18(1):213-9.

May 1982

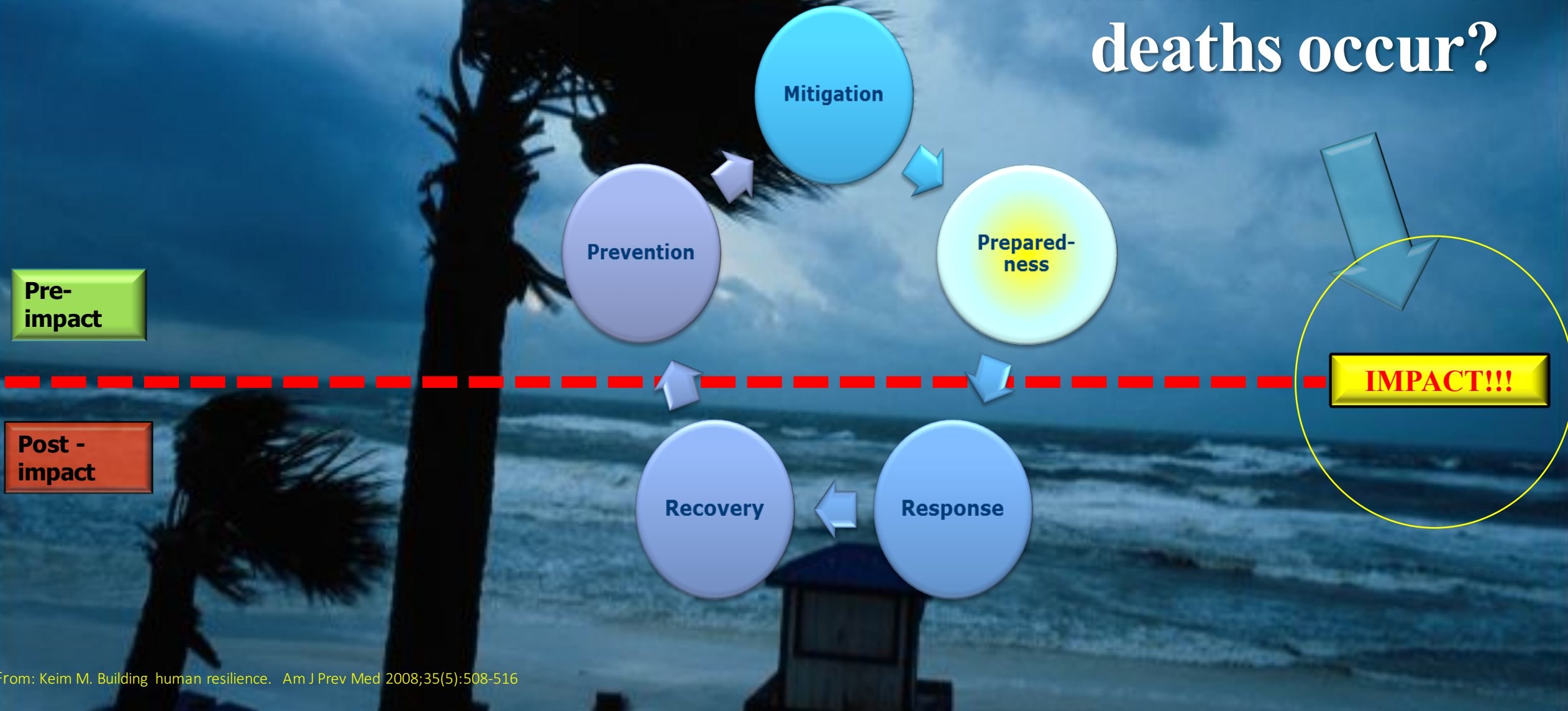






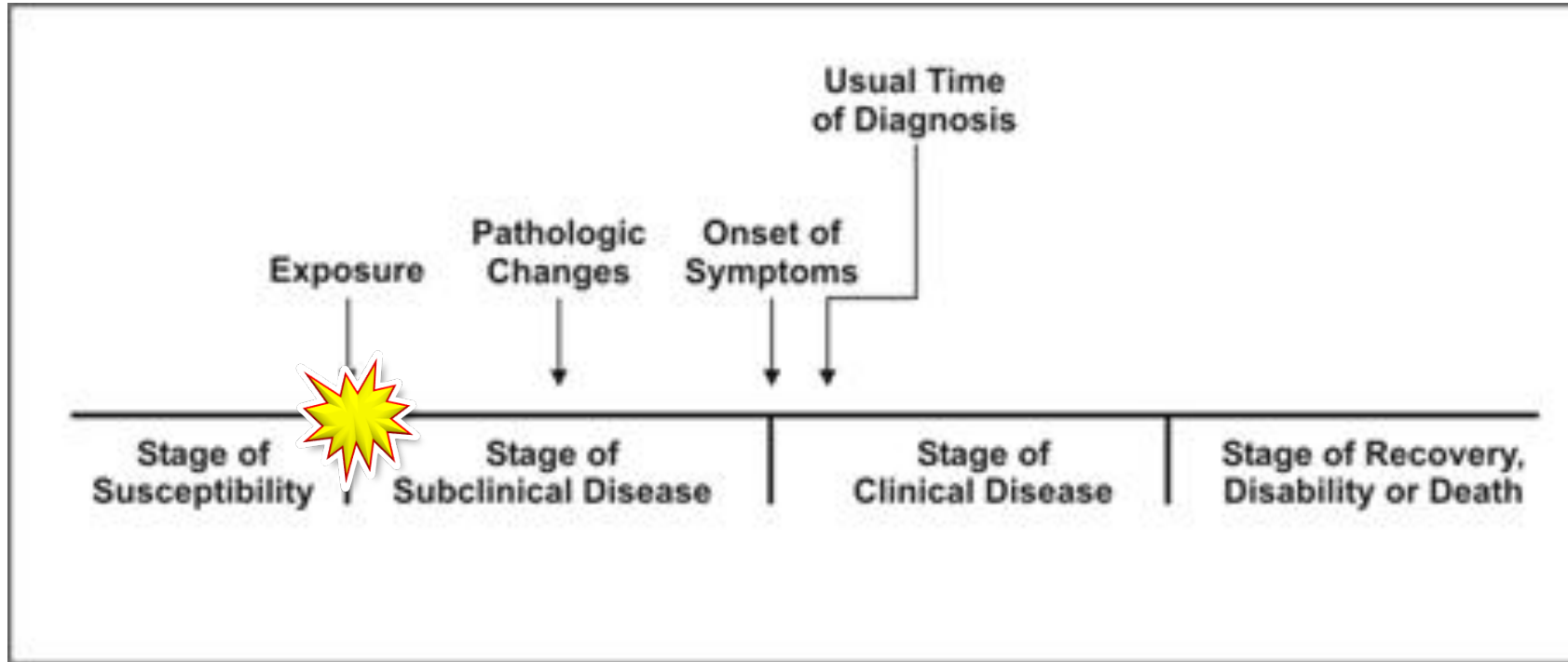


# When do most disaster-related deaths occur?





# Natural history of disaster-related injuries



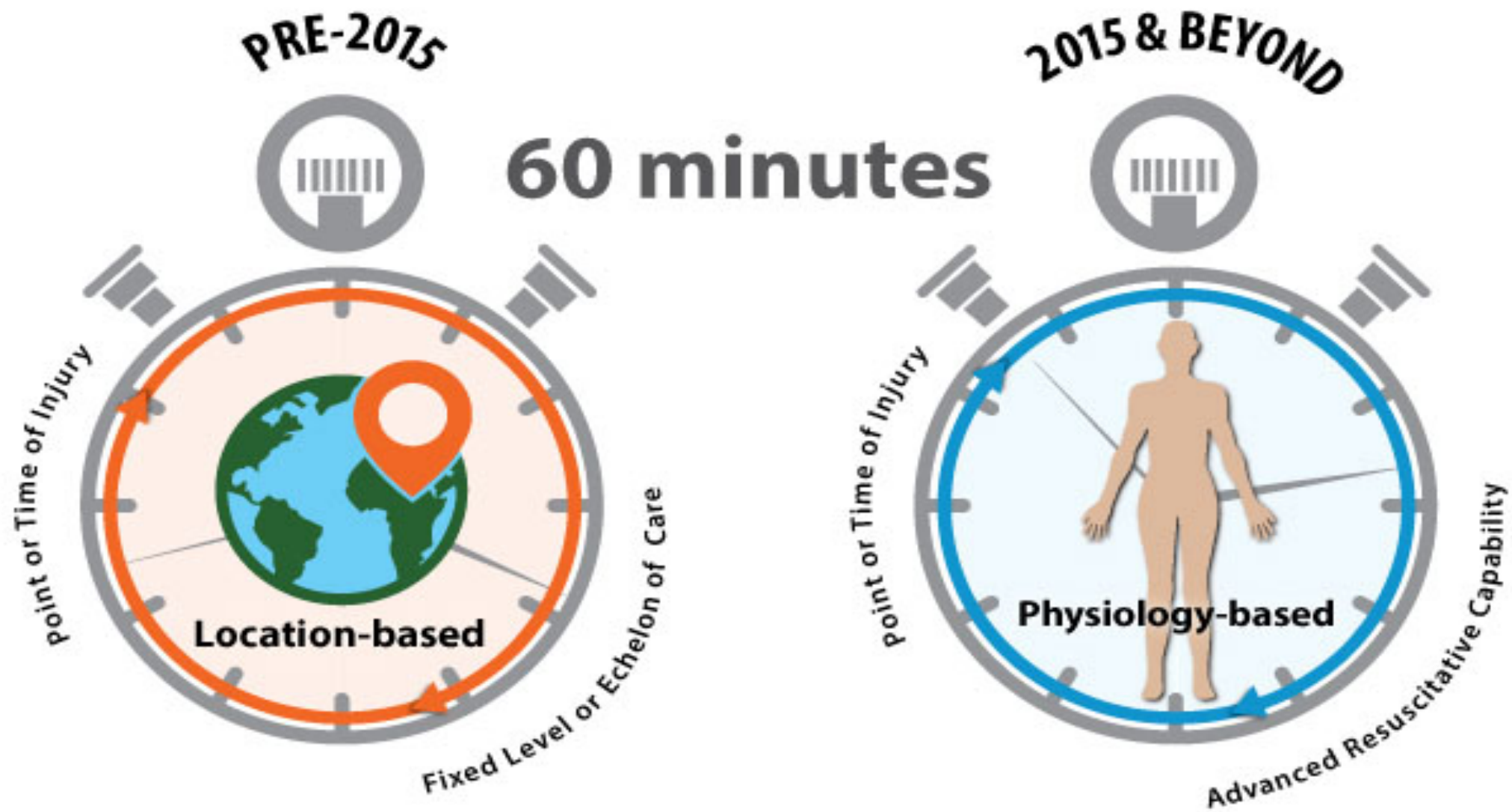
Seconds to minutes

“The Golden Hour”

**EXTREMELY BRIEF INCUBATION PERIOD**



## Evolution of "Golden Hour" after Combat Injury



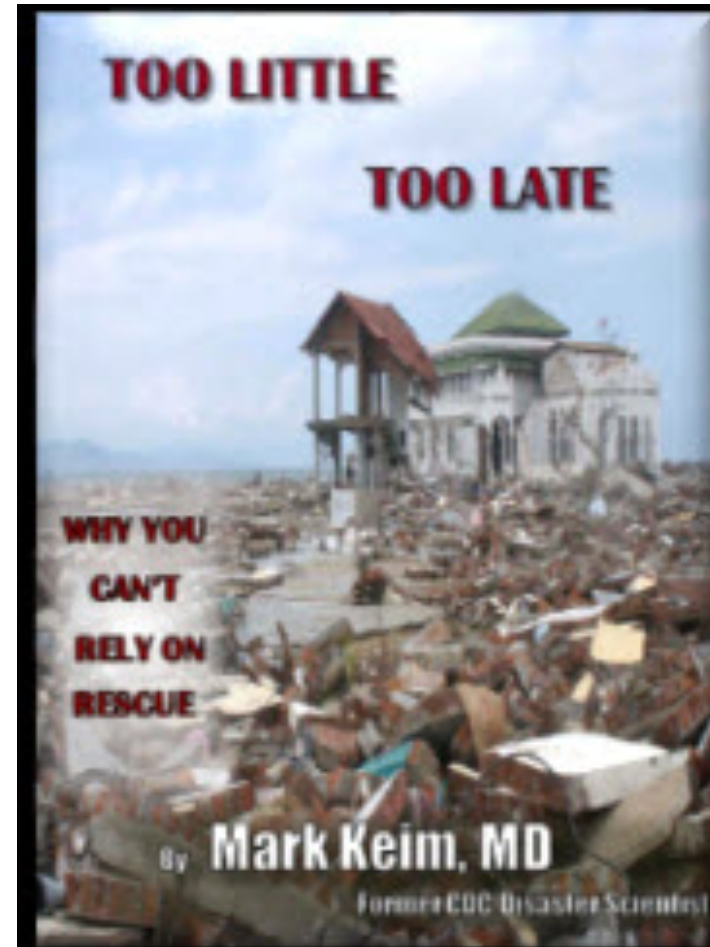


# 10 reasons why disaster rescue is often **TOO LITTLE, TOO LATE**

## REASON #7 (out of 10)

Most disaster deaths  
occur during the disaster  
impact when even local  
rescue is impossible to  
deploy

Available via free download at:  
[www.disasterdoc.org](http://www.disasterdoc.org)





# Why Zika Needed An Ounce of Prevention

Congress delayed the fight to fund the virus—a decision that comes at the cost of public health and potentially billions for the U.S. economy.



VANN R. NEWKIRK II | APR 29, 2016 | POLITICS

## Emergency Response, Doctrinal Confusion, and Federalism in the Deepwater Horizon Oil Spill

Article (PDF Available) in  
DOI: 10.2307/23015116 · Source: *Journal of Federalism* 41(3):471-493 · June 2011 with 288 Reads

## International Business Times

### Hurricane Sandy Anniversary 2014: Billions Of Dollars In Federal Aid Still Unpaid

BY ANGELO YOUNG

ON 10/29/14 AT 8:04 AM

## Needless delays frustrate thousands of Hurricane Sandy victims still waiting for city aid: investigation

## Who's to Blame for Delayed Response to Katrina?

By ABC NEWS · NEW ORLEANS, Sept. 6, 2005

In New Orleans, those in peril and those in power have pointed the finger squarely at the federal government for the delayed relief effort.

The World

## Indonesia Aid Efforts Delayed

Mistrust of authorities compounds problems of disaster relief.

April 02, 2005 | Oki Rahmatna Tiba and Bruce Wallace | Sp

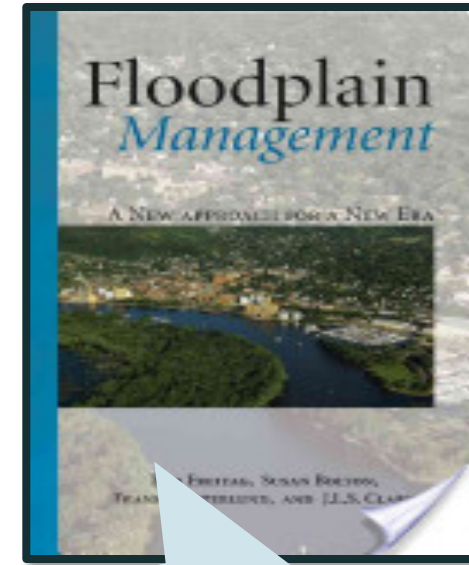
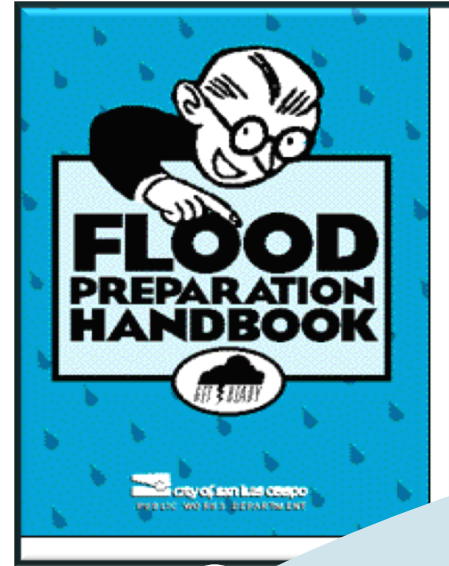
## Slow Ebola response cost thousands of lives: MSF

HEALTH NEWS | Mon Mar 23, 2015 2:43pm EDT

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# An Evolution in Approaches



Response

Preparedness

Risk Management

(ISO 31000)



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# What is risk?

Risk is the *probability* that an event will occur.



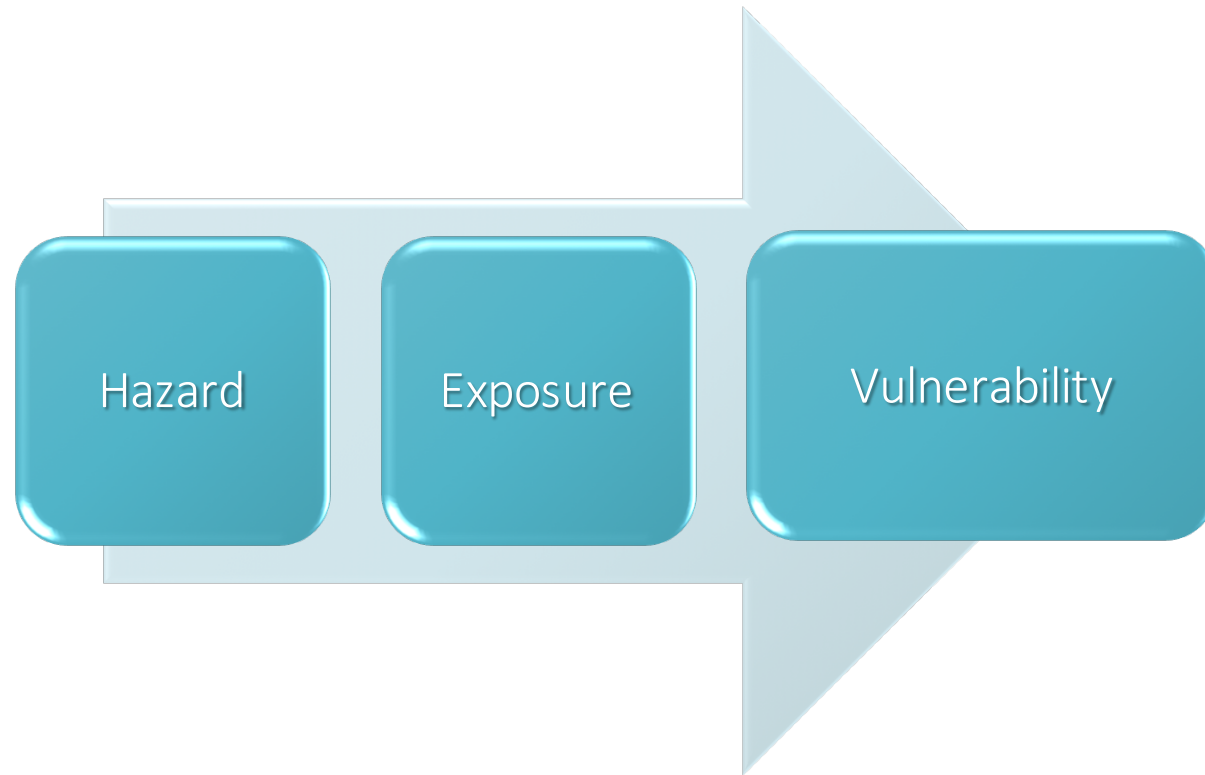
In epidemiology (the study of health risk determinants) it's used to express the *probability* that a particular *outcome* will occur following a particular **exposure**.



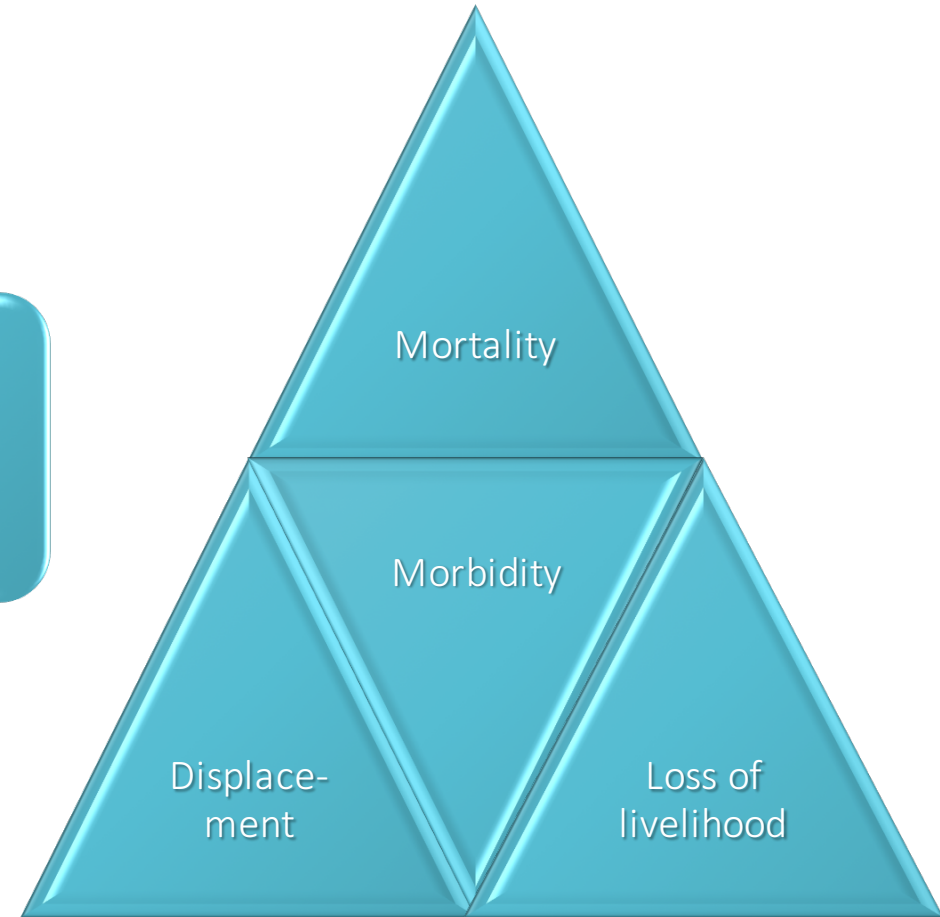
# Causes



# Effects



Risk Reduction



Risk Acceptance



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# Disaster risk reduction (DRR) for health

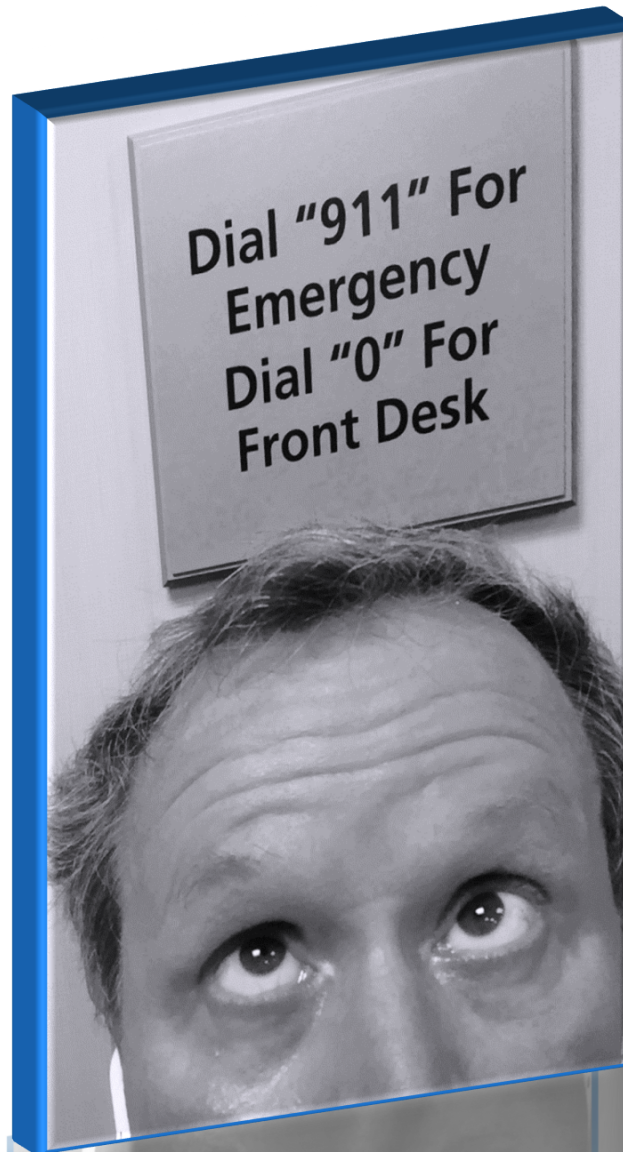
What is DRR?

- Preventing disaster-related adverse health impact **before** it happens
- Deals with the **root cause**

• Why DRR?

- Majority of disaster deaths occur during impact phase
- More effective in reducing mortality
- 4-7 times more cost effective





Simple is good



# What is a hazard?

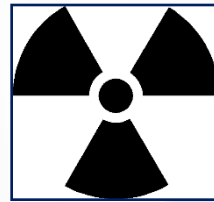
“A dangerous phenomenon, substance, human activity or condition that **may cause loss of life, injury or other health impacts**, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage”

**Translation:**  
**“Dangerous stuff”**



# Examples of hazards

Floods



Radiation

Earthquakes



Typhoons



Biologicals



Tornadoes



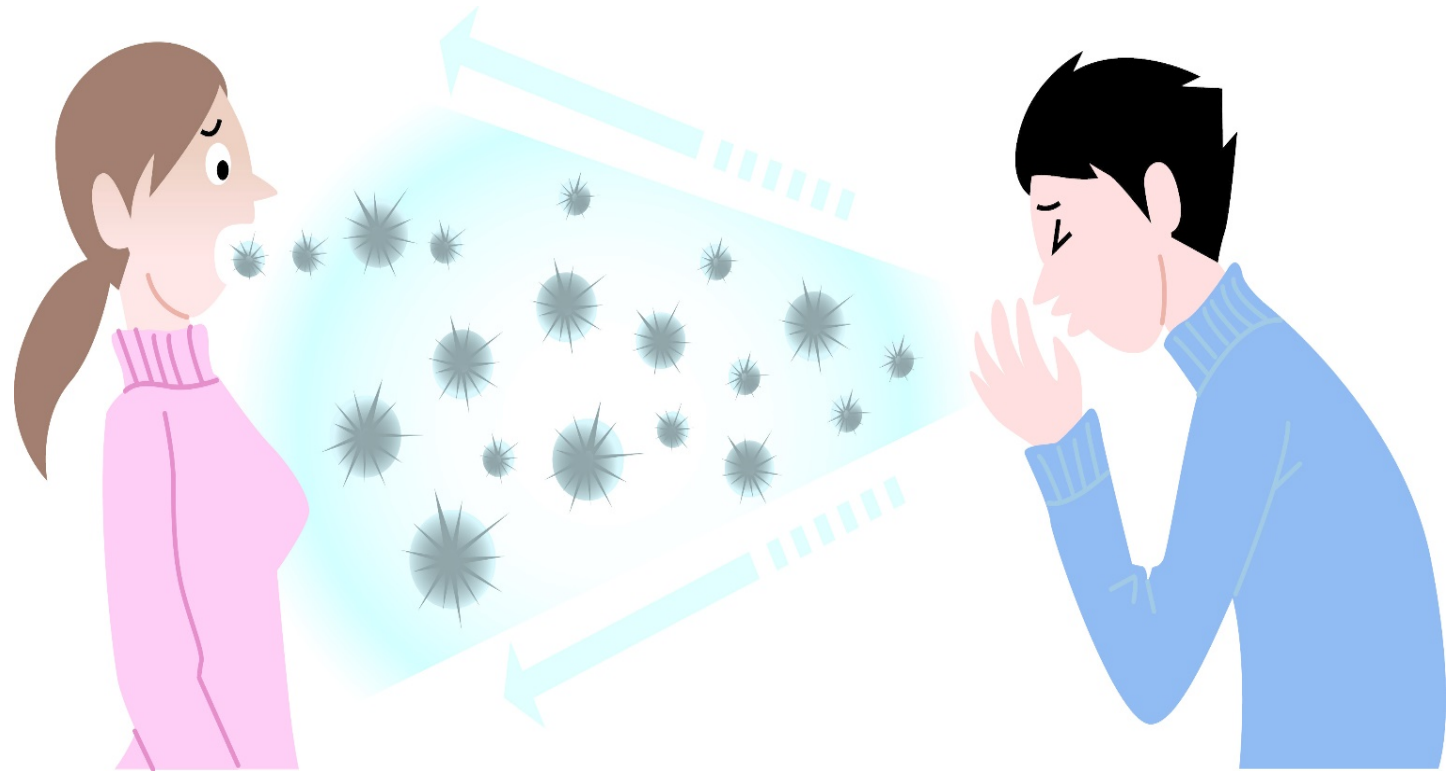
# What is exposure?

## Exposure

Any condition which provides **an opportunity** for a hazard to contact the body

Translation:

“Ewwww...”



Links JM, Principles of Exposure, Dose, and Response Johns Hopkins University, 2006



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“The characteristics  
and circumstances of  
a (person) that make  
them

*susceptible*

to the damaging  
effect of a hazard”

Translation...

*“Could get  
hurt”*

What is  
vulnerability?





# Reducing exposures

Floodplain management

- *Dams, levees, weirs*

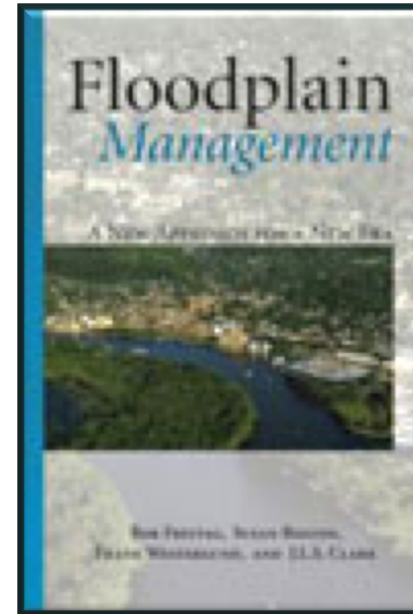
Population protection measures

- *Evacuation*
- *Mass care*

Land use planning and regulation

Building codes

PPE, sanitation/hygiene



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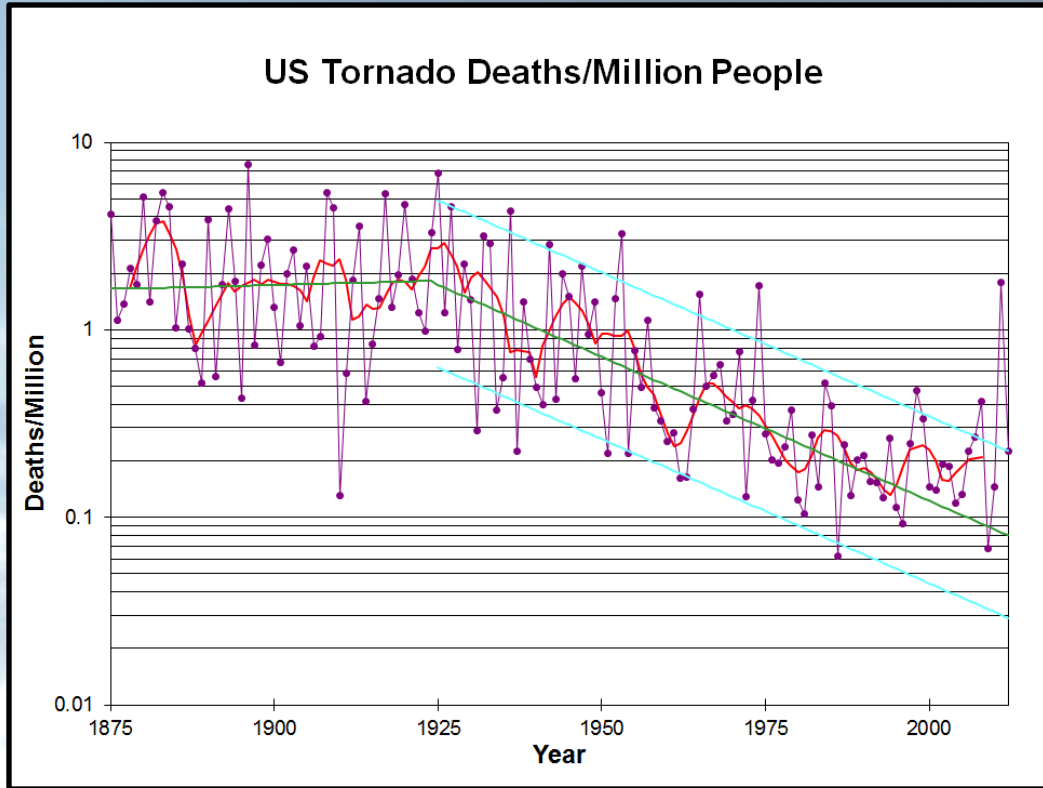
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# Tornado death rates are decreasing in the US



Brooks H, Doswell C. Deaths in the May 1999 OK City Tornado from a Historical perspective. *Weather and forecasting*. 2002;17: 354-61

## WHY?

### LESS EXPOSURE

- Improved forecasting and early warning
- Improved communication
- Changes in construction

*NOT because of the health sector*

*(Blasphemy!?)*



# Reducing vulnerability

Health promotion

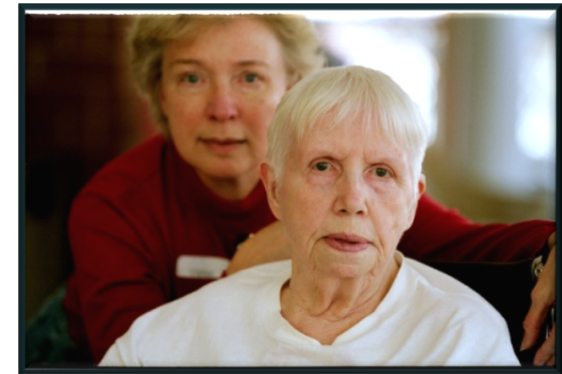
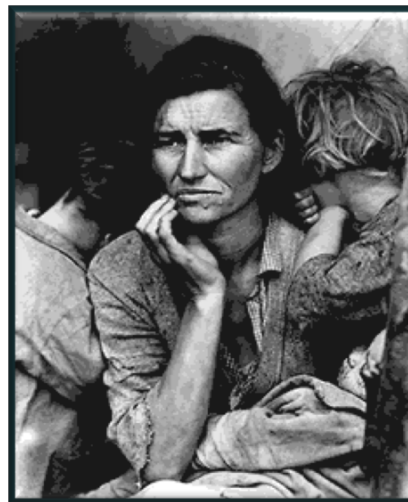
Health care

Poverty reduction

Community planning

Immunization

Education



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# National Prevention Strategy



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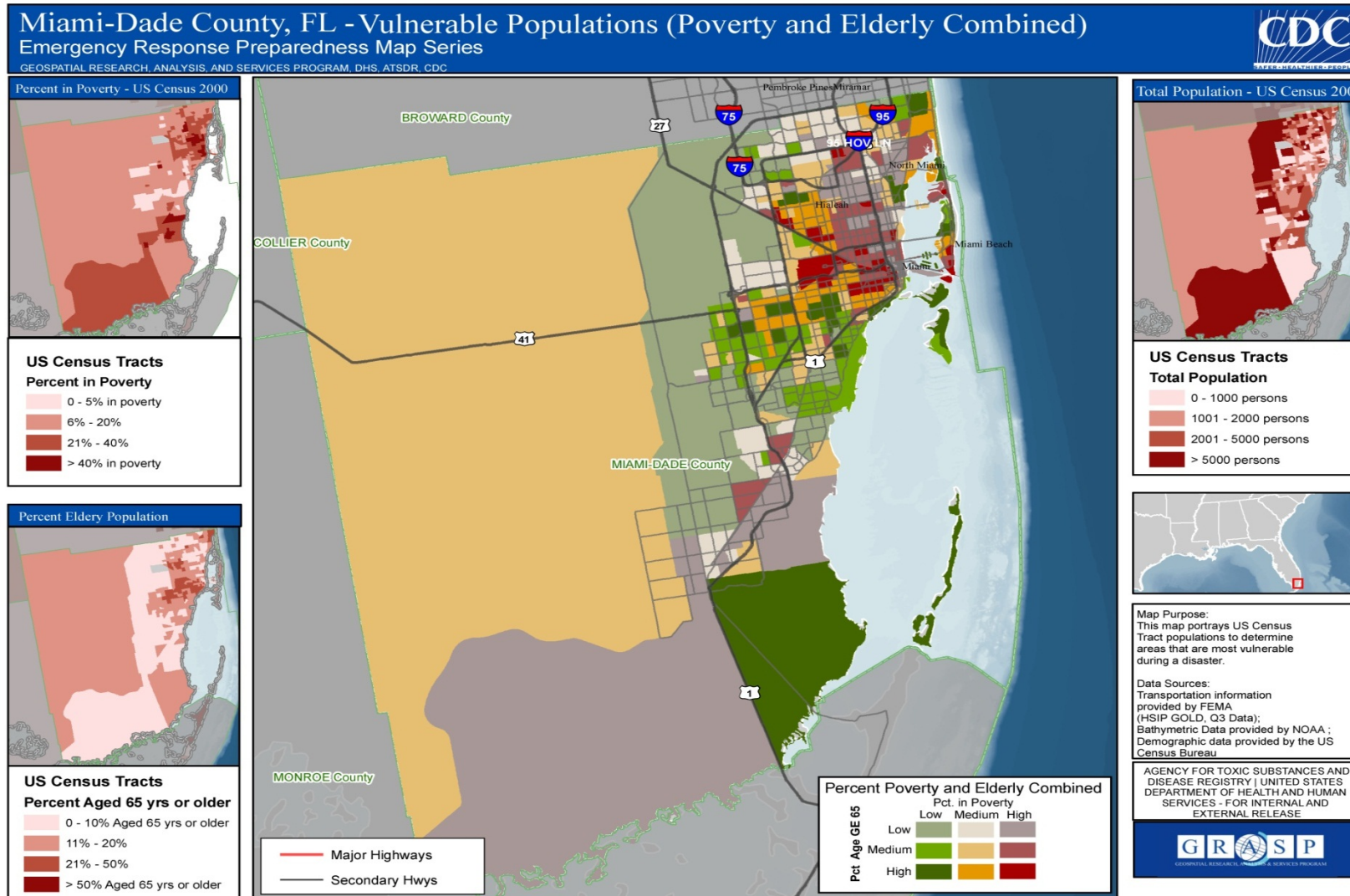
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# Mapping human vulnerability



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# Join us!



## #switch2sendai

Sendai Framework for Disaster Risk Reduction 2015-2030





WHO website links to  
DisasterDoc Blog

World Health Organization

Health topics Data Media centre Publications Countries Programmes Governance About WHO

### Humanitarian Health Action

- Humanitarian Health Action
- Crises
- Technical guidelines
- Key policy documents
- Donor centre
- Global network
- Health Cluster

#### International Day for Disaster Reduction (IDDR): 13 October 2016

Vaccination campaign Central African Republic 2015

International Day for Disaster Reduction (IDDR), held every 13 October, celebrates how people and communities around the world are reducing their exposure to disasters and raising awareness about the importance of reining in the risks that they face.

This year marks the launch of the new "Sendai Seven" campaign, centred on the seven targets of the Sendai Framework, the first of which is reducing disaster mortality. The target for IDDR 2016 is reducing mortality and "Live to Tell" is the slogan.

**Live to Tell**  
International Day for Disaster Reduction  
13 OCTOBER 2016

**LIVE TO TELL ...A life saved is the greatest benefit of reducing disaster risk**

The stories below highlight examples of WHO's work towards risk-reducing, life-saving activities undertaken at local and national level with a focus on the most vulnerable. These stories also show how WHO's work for emergencies is helping to implement the health aspects of the Sendai Framework for Disaster Risk Reduction.

Coordinating Emergency Medical Teams provides predictable and timely response  
Using existing disease surveillance systems for early detection and prevention of outbreaks.

Myanmar rolls out mass polio immunization campaign

WHO's disease investigation and rapid response system in post-quake Nepal

#### Related links

- UNISDR story on How Nigeria won the fight against Ebola
- How do people die in disasters and what can be done? A short paper to support IDDR 2016
- Visit the UNISDR International Day for Disaster Reduction page

Humanitarian health action > Events

World Health Organization

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Employment  
Feedback

WHO Regional Offices  
WHO African Region  
WHO Region of the Americas  
WHO South-East Asia Region  
WHO European Region

# Why should MRC lead DRR?

Adaptation to disasters occurs at the community level

**MRC** can play an active role in reducing disaster risk by:

Reducing susceptibility

*“Health people”*<sup>12</sup>

Reducing exposure

*“Healthy homes”*<sup>12</sup>

Increasing resilience

*“Healthy communities”*<sup>12</sup>



<sup>12</sup> Srinivasan S, Creating healthy communities, healthy homes and healthy people. Am J Public Health 2003;93:1446-50.



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[DisasterDocAcademy.com](http://DisasterDocAcademy.com)

# Thank you

*For more info see*

**<http://disasterdoc.org>**

