Foundations of Global Health

Natural Disasters and Humanitarian Issues

The situation on the ground remains dire and people should be under no illusions that the crisis is over. ~President Barack Obama on Haiti Earthquake

There are two big forces at work, external and internal. We have very little control over external forces such as tornadoes, earthquakes, floods, disasters, illness and pain. What really matters is the internal force. How do I respond to those disasters? ~Leo Buscaglia

Get off your ass and get down here to fix the goddamn biggest disaster in the nation's history. ~New Orleans mayor Ray Nagin requests faster US federal government assistance following Hurricane Katrina
Learning Objectives

- Understand the difference between Natural Disasters and Complex Emergencies
- Be familiar with the Key Terms
- Understand some of the health issues that arise from disasters
- Be familiar with some critical aspects of humanitarian aid
Goals of Humanitarian Response

1. prevent and reduce excess morbidity and mortality

2. promote a return to normalcy
Importance of Complex Emergencies and Natural Disasters

• Increase
  – Death
  – Illness
  – Disability
  – Economic Costs
Key Terms

• Disaster
  
  “an occurrence, either natural or man made, that causes human suffering and creates human needs that victims can not alleviate without assistance”

  See page 248 in text
• Complex Emergency (CE)
  – “situations affecting large civilian populations which usually involve a combination of factors, including war or civil strife, food shortages, and population displacement, resulting in significant excess mortality” pg. 248
• **Refugees**
  - A person who is outside their country of nationality
  - well-founded fear of persecution because of their race, gender, religion, nationality, or membership to a particular social or political group
  - unable or unwilling to seek the protection or return to their country for fear of persecution.
  - Subgroup of Displaced Persons
• Internally Displaced People (IDP)
  – People who flee or are forced to migrate during a disaster or complex humanitarian emergency leave their homes, but stay in the country.
  – Local government is responsible for them
Key Terms

- **Crude Mortality Rate**
  - The proportion of people who die from a population at risk over a period of time.
  - Unusually expressed *per 10,000 population per day*
    - Example: a mortality rate of 9.5 in a population of 10,000 would mean 95 deaths *per year* in that entire population.
Key Terms

• Attack Rate
  – the proportion of the exposed population at risk who become infected or develop clinical illness during a defined period of time.
  – *Total number of cases/population at risk*
  – Usually expressed as a percentage
    • Example: 30 people out of 100 were positive for cholera. The attack rate in this population is 30%
Natural Disasters

• Types
  – Droughts
  – Hurricanes
  – Typhoons
  – Cyclones
  – Tsunamis
  – Earthquakes
  – Volcanoes
Natural Disasters

- 90% of deaths occur in low and middle income countries
- Greater impact on poor people
- Poor at greater risk
  - Subpar housing
  - Can’t afford to live somewhere else
Natural Disasters

- Infrastructure damage
  - Water supply
  - Sewage system
  - Roads/Transportation
  - Hospitals
Health Burden of Natural Disasters

• Limited Data

• Earthquakes
  – High injuries in short time span
  – Increased risk for orthopedic disabilities
  – Mental health problems (PTSD)
  – Homelessness
Health Burden of Natural Disasters

- Related to Disaster Type
  - Tsunamis
    - Most deaths are from drowning
    - Increase diarrheal disease, respiratory infection, skin disease
  - Volcanoes
    - 90% of deaths are due to mud, ash, and floods.
Complex Emergencies (CE)

- **History**
  - 1975-1985: there were 5 CE’s
  - End of 1990’s: 40 CE’s per year
  - 2001: more then 14 million refugees and 20 million IDP’s in the world
  - CE’s in the last decade have had greater health impacts then natural disasters
CE Features

- Long lasting
- Food Shortages
- Loss of Health Facilities
- Damage water supply
Health Burden of CE

- Limited Data
- 320,000 – 420,000 deaths per year
- Rwanda (1994)
  - 500,000 – 1 million deaths from genocide related trauma
Health Burden of CE

• Infrastructure Damage
  – 1.7 million more people died in Democratic Republic of Congo
Health Burden of CE

- Women and Children
  - Children die 2-3 times more in the beginning of CE
  - 50% of deaths in the Democratic Republic of Congo
  - UNICEF estimates 1.5 million children killed since 1980
  - 25% of women in Azerbaijani reported sexual violence against them during 3 months of civil fighting in 2000.
Causes of Death in CE

• IDP/Refugee camps
  – #1 cause of death is diarrheal diseases
    • Example: Cholera can have a 3-30% mortality rate in refugee camps
  – Respiratory infections
    • Poor housing
    • Overcrowding
Causes of Death in CE

– Measles
  • Risk of death increased by malnutrition and lack of vaccination
  • 30% mortality rate

– Malaria
  • Highest risk in Sub-Saharan Africa
Causes of Death in CE

- Nutrition
- Malnourished at higher risk for disease
- Food scarcity
- Micronutrient deficiencies
  - Niacin
    - Can cause diarrhea
  - Vitamin A
    - Measles depletes vitamin A stores
- Measles depletes vitamin A stores
Addressing Health Issues during a Natural Disaster

- Assess needs immediately after the disaster (Situational Analysis)
- Take care of immediate trauma first
- Establish disease surveillance
- Provide food, water, and shelter
Assisting those without Resources

- Need cooperative relationship among partners
- Use evidence-based methods
- Involve affected communities
Key Players in Humanitarian Aid

- Community Health Workers
  - Intermediaries between community and humanitarian agencies
  - Collect demographic data
  - Provide first aid
  - Assist in mass vaccination campaigns
  - Identify sick and malnourished
Key Players in Humanitarian Aid

- International Agencies
  - Red Cross / Red Crescent
  - USAID
  - OXFAM
  - WHO
  - UN
  - Doctors without Borders
Protection for Humanitarian Workers

- Geneva Convention 1949
  - Considered non-combatants
  - Rights include:
    - Humane treatment
    - Access to food, water, shelter, medical treatment, communications
    - Free from violence to life and person
    - Hostage taking
    - Degrading treatment
Humanitarian Workers

• Issues
  – Geneva doesn’t guarantee access to affected area
  – Doesn’t provide armed escort
  – In 2008, 90% of deaths were from malicious violence
  – One third of deaths usually occur in the first 3 months of deployment
AID-WORKER DEATHS 2007-8

Deaths of UN civilian staff and non-Governmental Organisation humanitarian staff from malicious acts reported to UN Department of Safety and Security July 2007 - June 2008

SOURCE: UN
Disaster Preparedness Plan

- Identify vulnerabilities
- Develop scenarios
- Outline the roles of participating agencies
- Train and practice
Katrina - 2005

• Had disaster preparedness plan
  – Didn’t follow it

• Participating agencies knew their role
  – Local government officials:
    • in charge of evacuation (19 hrs before landfall)
    • Provide enough supplies for 3 days
  – Federal Emergency Management Agency (FEMA):
    • Resupply (took 5 days)
Haiti

- Dominican Republic was first to send aid
- With 24 hours Iceland sent a team and supplies
- Multinational aid effort
  - China, Qatar, Israel, U.S., etc
Addressing Health Issues in CE

- Hard to predict when they’ll happen
  - Civil conflict

- Primary prevention = stopping the violence

- Secondary prevention
  - Supply neighboring countries with adequate resources
  - Provide a safe environment where the health needs can be met (camps)
Critical Aspects of CE Aid

• Assessment and Surveillance
  – Conduct a situational analysis
    • Demographics, health, etc
  – Develop disease surveillance system
    • Keep death rate under 1/10,000 per day
    • Keep it Simple
      – Example: check the weight/height ratio in children under 5 for signs of malnourishment
Critical Aspects of CE Aid

• Safe and Healthy Environment
  – Personal Hygiene
  – Safe Water Source
    • No more than 500 meters away
  – Sanitation
    • 1 toilet per 20 people
    • No more than 50 meters from dwellings
Critical Aspects of CE Aid

• Safe and Healthy Environment
  – Shelter
    • 3.5 square meters of covered area per person
    • Focus on the safety of women
  – Education
    • How to wash your hands
Critical Aspects of CE Aid

• Food
  – Rations distributed by family unit
  – Vitamin A supplements for children
  – One of the most critical determinants of health outcomes
Critical Aspects of CE Aid

• Disease Control
  – Prevent epidemics
    • Vaccinate children from 6 mths-15yrs (measles)
    • Management of diarrhea
    • Treatment for malaria
Goma Zaire – Cholera Outbreak
Cholera Facts

• 25-50% of typical cases are fatal if untreated
• Transmission through fecally contaminated food and water
• Symptoms include watery diarrhea, dehydration and vomiting
• 1% acceptable death rate
Goma Cholera Epidemic

- Death rate was between 19.5-31.2%
- 85-90% of all reported deaths were due to diarrheal disease
- Estimated 10,000-20,000 deaths
- Epidemic lasted about 1 month

Cholera outbreaks result from drinking or eating food contaminated with Vibrio cholerae bacteria (shown in image).
Future Challenges

• Reducing the impact on health
• Develop common standards
• Emphasize cost-effective methods
In Summary

• Natural disasters and CE’s had a large impact on the health of a population
• After the initial disaster takes place there is a lot of aftermath that negatively impacts health
• Health impact can be reduced through proper planning
• Focus on reducing deaths, disability, and morbidity