Medical Analysis of the Human Loss in Gorkha Earthquake

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We are with the people affected by the Nepal (Gorkha) Earthquake and all affected areas in Japan.

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http://aso1592.jp/photos/photo/0928.jpg

http://ganref.jp/m/mitinoku/portfolios/photo_detail/56f6f6d23d5473a92e6bd27e10536729
Concept

Disaster Risk Reduction
Similarity of disease and disaster

Genetic factor

Environmental factor

Disease

Courtesy of
Prof. Masayuki Yamamoto
Tohoku Medical Megabank Organization

Division of International Cooperation for Disaster Medicine
Similarity of disease and disaster

Vulnerability & Capacity

Hazards

Disaster
- Life, Health
- Properties
- Family
- Community
Disaster Risk Reduction

- Know your risk
- Reduce your risk
- Prepared to act

To reduce the disaster risk,

\[ \text{Risk} = \frac{\text{Hazard} \times \text{Vulnerability}}{\text{Capacities}} \]
Gorkha Earthquake

Health Indicators and Preparedness in Nepal
Cause of death in disaster

- Epidemic: 16566 (52%)
- Landslide: 4476 (14%)
- Flood: 3320 (10%)
- Fire: 1328 (4%)
- Accident: 1280 (4%)
- Thunderstorm: 1091 (3%)
- Earthquake: 882 (2%)
- Cold wave: 595 (1%)
- Structural collapse: 414 (1%)
- Other: 1310 (4%)
Trend of death by epidemics
INFORM risk and resilience assessment

**Southern Asia**
Low income

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<th>Rank</th>
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<td>Coping Capacity</td>
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**Eastern Asia**
High income

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<td>Vulnerability</td>
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<td>Coping Capacity</td>
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### INFORM model

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<th>Risk</th>
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<tr>
<td><strong>Dimensions</strong></td>
<td><strong>Hazard &amp; Exposure</strong></td>
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<tr>
<td><strong>Categories</strong></td>
<td>Natural</td>
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<tr>
<td><strong>Components</strong></td>
<td>Earthquake, Tsunami, Flood, Tropical cyclone, Drought</td>
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- Deteriorates health
- Health promotion reduces

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Health, which is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity, is a fundamental human right.

The attainment of the highest possible level of health is a most important worldwide social goal whose realization requires the action of many other social and economic sectors in addition to the health sector.

http://www.who.int/publications/almaata_declaration_en.pdf
Gorkha Earthquake

Medical and public health perspective of health damage
Human damage in Nepal

Data source: WHO Health Cluster Bulletin
## Good practices and gaps

1. **Dignity, autonomy and resilience of people in Nepal**
   - Constitution: 2015/9/20
   - Relief aid through Nepali Government
   - Recovery and reconstruction by people in Nepal

2. **Preparedness and response in health sector was successful**
   - HOPE program by Tribhuvan University
   - Coordination of Emergency Medical Team by Ministry of Health and Population
   - Prevention of infectious disease by hospitals and local governments
   - Rapid establishment of sub-clusters
     - Trauma
     - Care for mothers and Children
     - Rehabilitation
   - Mental health care for affected people and relief providers

3. **Basic health level should be improved**
   - The biggest cause of death by disaster is Epidemics
   - Prevalence of Water sanitation is still low
   - Daily power outage
   - Rapid urbanization in Kathmandu
   - Health insurance coverage

4. **Safe hospitals and schools should be increased**
   - Seismic strengthening in big hospitals are improved
   - Insufficient stockpile of emergency water and foods
   - Discrepancy between Kathmandu and remote area
HOPE: Hospital Preparedness for Emergencies

- Overview of Disasters
- Disaster Risk Management
- Disaster Epidemiology and Patterns of Injury
- Hazards
- Structural Components
- Non Structural Components
- Functional Collapse of Hospitals
- Pre- Hospital Care
- TRIAGE
- Emergency Department
- Principles of Disaster Medicine
- Hospital Emergency Incident Command System (HEICS)
- Hospital Preparedness Planning
- Techno-Industrial Disasters
- Complex Emergencies
- Mass Casualty Incident
- Mass Gathering Event
- On-Site Medical Care
- Psychosocial Consequences of Disaster
- Inter-agency Coordination
- Hospital Internal Disaster
- Mass Fatality Management
- Disaster Risk Communications
- Resource Management
- Epidemics and Emerging Infections
- Return to Normal Health Operations

Program for Enhancement of Emergency Response (PEER)
Coordination of Emergency Medical Teams

Health Cluster Meetings
- Ministry of Health and Population
- WHO
- Domestic Medical Team
- Foreign Medical Team
- Donors

Affected People
- Trauma Guidelines
- Reproductive Health Guidelines
- Rehabilitation Guidelines
- Precaution of Infectious Disease

STAND DOWN!

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International Federation of Red Cross and Red Crescent
National Red Cross
Japanese Red Crescent
JICA, JDR
National Government
Foreign Medical Teams
Doctors without Borders
NGO
Result of coordination

Nepal Earthquake, 2015: Who does What Where When (4Ws) in Health

- 170 agencies
- 2218 Health Cluster activities

Injured
- less than 100
- 101 - 500
- 501 - 1000
- 1001 - 2000
- 2001 - 4000
- more than 4000

Completely damaged health facilities
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- more than 40

Partially damaged health facilities
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- more than 40

Data as of 25 May 2015
Socio-economic impact of injuries

• More than 20,000 injuries were treated according to the Trauma Guidelines.
  – No un-necessary amputation was performed
  – Children, youth (Age 6-18) and older citizens over 60 of years attributed one in six of trauma patients.
  – 60% Bone fracture
  – 13% Spinal cord injuries
  – 11% Head injuries

– Additional facilities and long-term care (step-down) are needed for rehabilitation and psychosocial support
Medical and public health needs and capacity

Healthcare Capacity

Health Promotion
Environmental health
Smoke cessation
Nutrition
Accessibility

Health Needs

Injuries
Non-communicable diseases
Infectious disease

External relief aid
Local Health Care Providers
Self-Help

Before
Emergency Onset
After

Years
Months
Weeks
Days

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International Research Institute of Disaster Science

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hope
TOHOKU UNIVERSITY
Age distribution in Japan and Nepal

Japan

Nepal

World Health Rankings
http://www.worldlifeexpectancy.com/country-health-profile/
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Change the concept of Risk Reduction

Needs

Top 3 priorities for communities (UN Survey)
1. A good education
2. Better healthcare
3. An honest and responsive government

Paradigm Shift

Climate Change
Rapid urbanization
Poverty
Lack of resource
Loss of biodiversity

Change of Risk

Better access
Resilient Community
Safe Hospital
Safe School
Mental and Physical
Communication
Effective Response
Quality of Life
Injury Illness disability
Hazard-proof Structure
Early Warning
Funding and Development

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