Disasters and Health Crises

Luca Ragazzoni
Global Challenges:
- Environmental Emergencies
- Natural Disasters
- Epidemics
- Refugees
- Conflicts
- Terrorism
A serious disruption of the functioning of a community or a society at any scale due to hazardous events* interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

*The manifestation of a hazard in a particular place during a particular period of time.

Annotations: The effect of the disaster can be immediate and localized but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighbouring jurisdictions, or those at the national or international levels.

Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction adopted by the UN General Assembly on February 2nd, 2017.
# WHO Classification of Hazards

## Glossary of Health Emergency and Disaster Risk Management Terminology

### Generc Groups

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<th>1.2 Hydro-Meteorological</th>
<th>1.3 Biological</th>
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### Example Hazards

- **Human-induced Hazards:**
  - Industrial hazards: industrial accidents, chemical spills, gas leaks, radiation.
  - Structural collapse: building collapse, dam/bridge failures.
  - Occupational hazards: mining, transportation.
  - Environmental degradation: acts of violence, deforestation, salinization, sea level rise, desertification, wetland loss, glacier retreat.

- **Natural Hazards:**
  - Space weather: energetic particles, geomagnetic storms, shockwave.

- **Geophysical Hazards:**
  - Earthquakes, landslides, volcanic activity.
  - Tsunamis, flash floods, drought.

- **Meteorological Hazards:**
  - Thunderstorms, wild fires, heavy rainfall.

- **Climatological Hazards:**
  - Heatwaves, cold waves, severe winter conditions.

- **Biological Hazards:**
  - Animal diseases: anthrax, rabies.
  - Plant diseases: crop failure, forest dieback.

- **Technological Hazards:**
  - Nuclear accidents, radiological hazards.

- **Societal Hazards:**
  - Cybersecurity, information technology.

- **Environmental Hazards:**
  - Air pollution, water pollution.

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*Glossary of Health Emergency and Disaster Risk Management Terminology, World Health Organization 2020*
Natural Disasters
Disasters caused by
Natural Hazards
Sharp increase of the number of recorded disaster events by comparison with the previous 20 years.

Increased frequency of extreme weather events including heatwaves, droughts, flooding, winter storms, hurricanes and wildfires.

Interplay between risk drivers such as poverty, climate change, air pollution, population growth in hazard-exposed areas, uncontrolled urbanization and the loss of bio-diversity.
Total number of disaster deaths in Europe over the period 2000-18: 146,822 of which 137,306 (94%) due to heatwaves.
EMERGING AND RE-EMERGING INFECTIOUS DISEASES

TECHNOLOGICAL DISASTERS

Fig. 1: Occurrence of Technological Disasters 1980-2019 (EM-DAT Database)

Fig. 2: Occurrence (a) and total affected people (b) per Disaster type for Technological Disasters 2000-2019

Fig. 4: Top 10 countries, occurrence Technological Disasters 2000-2019 (EM-DAT Database)
ARMED CONFLICTS

ARMED CONFLICT BY TYPE, 1946-2020

- EXTRASTATE
- INTERSTATE
- INTERNATIONALIZED INTRASTATE
- INTRASTATE

Based on UCDP 21.1 data
84 MILLION
Forcibly displaced people worldwide

While a full picture is yet to be established, UNHCR estimates that global forced displacement has surpassed 84 million at mid-2021.

48.0 MILLION
are internally displaced people (Source: IDMC, as of end-2020)

26.6 MILLION
are refugees (as of mid-2021)

68%
originate from just five countries

More than two thirds of all refugees under UNHCR’s mandate and Venezuelans displaced abroad come from just five countries (as of mid-2021).

Syrian Arab Republic  6.8 million
Venezuela  4.1 million
Afghanistan  2.6 million
South Sudan  2.2 million
Myanmar  1.1 million

39%
hosted in five countries

Turkey hosts the largest number of refugees, with 3.7 million people. Colombia is second with more than 1.7 million, including Venezuelans displaced abroad (as of mid-2021).

Turkey  3.7 million
Colombia  1.7 million
Uganda  1.5 million
Pakistan  1.4 million
Germany  1.2 million

35 million
are children

An estimated 35 million (42%) of the 82.4 million forcibly displaced people are children below 18 years of age (mid-2021).

1 million
children were born as refugees

Between 2018 and 2020, an average of between 290,000 and 340,000 children were born into a refugee life per year.

142,900 refugees returned or were resettled

Some 126,700 refugees returned to their countries of origin during the first half of 2021 while 16,300 were resettled (with or without UNHCR’s assistance).

85%
hостed in developing countries

Developing countries host 85 per cent of the world’s refugees and Venezuelans displaced abroad. The Least Developed Countries provide asylum to 27 per cent of the total.
## HEALTH EFFECTS

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<th>Population’s health</th>
<th>Health care system</th>
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<td><strong>Direct effect</strong></td>
<td>- Physical injury and death</td>
<td>- Structural and nonstructural damages to hospitals, clinics, and health care centers</td>
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<td>- Increased risk of communicable diseases</td>
<td>- Injury, illness, death, and loss of personnel</td>
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<td>- Acute illness (carbon monoxide poisoning, respiratory problems, etc.)</td>
<td>- Disruption of service delivery</td>
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<td>- Heat-related illness, hypothermia, and burns</td>
<td>- Overload of trauma cases</td>
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<td>- Increased morbidity and/or mortality in chronic diseases</td>
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<td>- Emotional or psychological effects</td>
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<td><strong>Indirect effect</strong></td>
<td>- Impaired or delayed access to health services because of service interruption or overload</td>
<td>- Damage to external infrastructure that health system relies upon, including road and transportation, electricity, water, natural gas, and telecommunications</td>
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<td>- Loss of normal living conditions (damage to housing, business, social life, etc.)</td>
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A wide range of physical and mental health outcomes should be monitored several months or years after an earthquake.

Our study found evidence of:

- **increased mortality rates** from the 1st month to up to 3 years after an earthquake for:
  - all causes
  - myocardial infarction
  - stroke
- modest **increase of glycated haemoglobin** from 2 to 12 months after an earthquake.
- **increased** probability of **bleeding ulcers**
- **increased rate of suicide**
DISASTER MEDICINE

Disaster medicine is the area of medical specialization serving the dual areas of providing health care to disaster survivors and providing medically related disaster preparation, disaster planning, disaster response and disaster recovery leadership throughout the disaster life cycle.

- Prehospital system/care (EMS)
- Family medicine
- Hospitals
- Public health system
- Ministry of Health

All the entities of the Health System play a role in each different phase of the Disaster Cycle.
Clinical Care

- prehosp care, treatment and transport
- standardised case management
- referral thresholds, rules for denial
- emergency and primary care
- maternal health

Public Health

- rapid epidemiological assessment
- environmental health
- hazardous material handling and safety
- epidemic preparedness
- outbreak investigation
- communicable disease control
- immunisation program
- disease surveillance
- health policy and personnel planning

PUBLIC HEALTH INFRASTRUCTURE

Health System Capacity

- Prehospital system (EMS)
- Family medicine
- Hospitals
- Public health system
- Ministry of Health

All the entities of the Health System play a key role in disaster management
COVID-19 RESPONSE IN TAIWAN

Fast & Proactive Response
Transparency & Trust in Policy Making
Frequent & Effective Communications
Big Data & Technology

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Sendai Framework for Disaster Risk Reduction 2015 - 2030
Thank you.

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