TARTU ÜLIKOOL
1632

Health emergencies

Ave Põld, DD, stud.MScIH

LECTURER, UNIVERSITY OF TARTU, ESTONIA

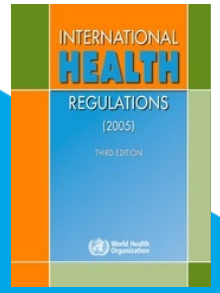
WHO Classification of Hazards

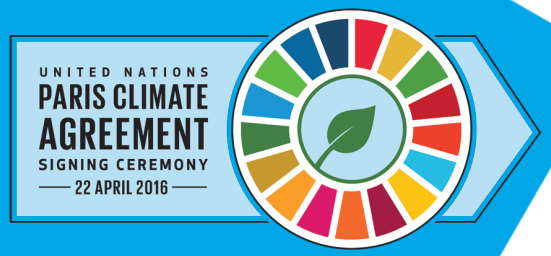
GENERIC GROUPS[1]	1. NATURAL						2. HUMAN-INDUCED[2,3]		3. ENVIRONMENTAL
GROUPS	1.2 HYDRO-METEOROLOGICAL						2.1 TECHNOLOGICAL	2.2 SOCIETAL	3.1 ENVIRONMENTAL DEGRADATION[17]
SUBGROUPS	1.1 GEOPHYSICAL[4]	1.2.1 HYDROLOGICAL[4]	1.2.2 MTEOROLOGICAL[4]	1.2.3 CLIMATOLOGICAL[4]	1.3 BIOLOGICAL[5]	1.4 EXTRATERRESTRIAL[4]			
MAIN TYPES -*SUBTYPES* [SUB-SUBTYPES]	Earthquake: - *ground-shaking* Tsunami Mass movement (geophysical trigger): - *landslide* - *rock fall* - *subsidence* Liquefaction Volcanic activity: - *ash fall* - *lahar* - *pyroclastic flow* - *lava flow*	Flood: - *riverine flood* - *flash flood* - *coastal flood* - *ice jam flood* Mass movement (hydro-meteorological trigger): - *landslide* - *avalanche (snow)* - *mudflow* - *debris flow* Wave action: - *rogue wave* - *seiche*	Storm: - *extratropical storm* - *tropical cyclone* [cyclonic wind, cyclonic rain, cyclone (storm) surge] - *convective storm* [tornado, wind, rain, winter storm, blizzard, derecho, lightning, thunderstorm, hail, sand/dust storm] Extreme temperature: - *heatwave* - *coldwave* - *severe winter condition* [e.g. snow/ice, frost/ freeze, dzud][6] Fog	Drought Wild fire: - *land fire [e.g. brush, bush, pasture]* - *forest fire* Glacial lake outburst (flood)	Airborne diseases Waterborne diseases Vector-borne diseases Foodborne outbreaks[7] Insect infestation:[4] - *grasshopper* - *locust* Animal diseases Plant diseases Aeroallergens Antimicrobial resistant microorganisms Animal-human contact - *venomous animals* [snakes, spiders]	Impact: - *airburst* - *meteorite* Space weather: - *energetic particles* - *geomagnetic storms* - *shockwave*	Industrial hazards:[8] - *chemical spill* - *gas leak* - *radiation* [radiological, nuclear] Structural collapse: - *building collapse*[8,9] - *dam/bridge failures* Occupational hazards - *mining* Transportation:[8,11] - *air, road, rail, water, space* Explosions Fire[8] Air pollution:[9] - *haze*[10] Infrastructure disruption: - *power outage*[11] - *water supply* - *solid waste, waste water* - *telecommunication* Cybersecurity Hazardous materials in air, soil, water:[12,13] - *biological, chemical, radiological* Food contamination[7]	Acts of violence Armed conflicts:[14] - *international* - *non-international* Civil unrest Stampede Terrorism: - *chemical, biological, radiological, nuclear, and explosives*[15,16] Financial crises: - *hyper-inflation* - *currency crisis*	Erosion Deforestation Salinization Sea level rise Desertification Wetland loss/ degradation Glacier retreat/ melting Sand encroachment

Figure. WHO classification of hazards. (WHO, 2019)

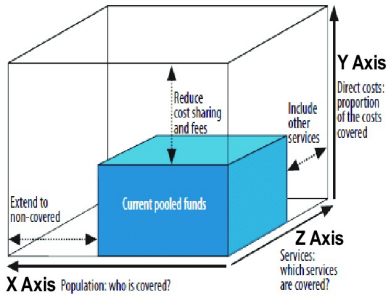
TARTU ÜLIKOOL
1632

Global frameworks related to health, emergencies and disasters

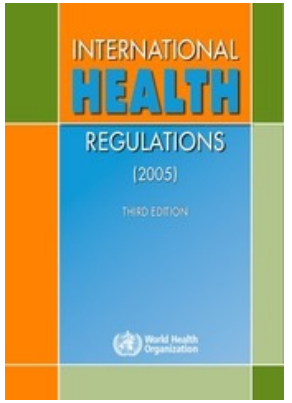




- The SDGs
- The International Health Regulations (IHR 2005)
- The Sendai Framework for Disaster Risk Reduction 2015-2030
- The Pandemic Influenza Preparedness (PIP) Framework
- The World Organization for Animal Health (OIE) Performance of Veterinary Services (PVS Pathway)
- The Paris Agreement on Climate Change
- The Global Health Security Agenda (GHSA)
- Universal Health Coverage (UHC) 2030.



TARTU ÜLIKOOL
1632



The International Health Regulations

"The IHR is the only international legal treaty with the responsibility of empowering the World Health Organization (WHO) to act as the main global surveillance system. " (Youde J. 2010)

- First adopted by the World Health Assembly in 1969 and last revised in 2005.
- Mid-19th century: the interference of plague, yellow fever, smallpox and particularly cholera to global trade and commerce (Howard-Jones, N. 1975)
- 14 International Sanitary Conferences (1851-1938) the first of them organized by the French Government in 1851 to standardize international quarantine regulations against the spread of cholera, plague, and yellow fever.

The International Sanitary Conferences

- The outbreak of the Second cholera pandemic in 1829 prompted European Governments to appoint medical missions to investigate the causes of the epidemic.
- Proposal to convene an international conference to standardize quarantine requirements against exotic diseases.
- The fact that the conference took place established the principle that health protection was a proper subject for international consultations
- The conferences played a major role in the formation of the World Health Organization in 1948.

(Howard-Jones, N. 1975)

Figure. Cholera in the early 19th century when bacteria nor antibiotics had yet been discovered. ((Howard-Jones, N. 1975)

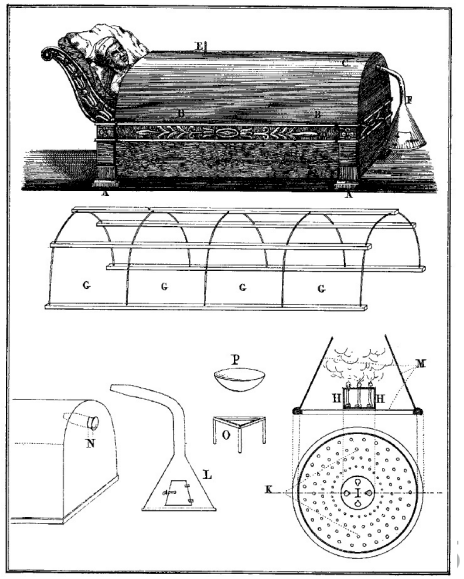


Figure. Hot and cold treatment. ((Howard-Jones, N. 1975)

TARTU ÜLIKOOL
1632

What are PHEICs?

The 2005 IHR recognized that certain public health incidents, extending beyond disease, ought to be designated as a **Public Health Emergency of International Concern (PHEIC)**, as they pose a significant global threat.

- States have a legal duty to respond promptly to a PHEIC (Wilder-Smith, A. 2020).
- The WHO should be notified if any two of the four following questions are affirmed:
- Is the public health impact of the event serious?
- Is the event unusual or unexpected?
- Is there a significant risk for international spread?
- Is there a significant risk for international travel or trade restrictions?

Six events were declared PHEIC between 2007 and 2020:

- the 2009 H1N1 influenza pandemic
- Ebola (West African outbreak 2013–2015, outbreak in Democratic Republic of Congo 2018–2020)
- poliomyelitis (2014 to present)- the longest PHEIC
- Zika (2016) - first arboviral PHEIC
- COVID-19 (2020 to present)

TARTU ÜLIKOOL

The emergency cycle

Many health emergencies can be prevented before they cause damage. A key activity in prevention is adequate risk communication.

- ❑ Vaccination
  - Measles
  - COVID-19
- ❑ Infection prevention & control
  - Emerging viruses
  - Antimicrobial resistance
  - Vector-borne & parasitic diseases

PREVENT

PREPARE

Country-level preparedness means that all sectors and systems are prepared to manage risks.

- ❑ Assess risk and capacity
- ❑ Develop \ revise emergency operations plan
  - National action plan
  - All-hazard national health emergency response plan
  - Contingency plans developed for priority hazards
- ❑ Implement

RESPOND

Effective emergency response means life-saving health interventions are implemented to ensure that affected populations have timely access to quality health services.

RECOVER

Once the peak of a crisis has passed, WHO remains on the ground to support ministries of health in sustaining their efforts.

- ❑ After Action Reviews (AAR)

Figure. Emergency cycle (WHO EURO)

Based on the following World Health Organization materials:
"Emergency cycle." World Health Organization EURO.
"A strategic framework for emergency preparedness. " WHO (2016)

TARTU ÜLIKOOL

WHO Strategic Health Operations Centre (SHOC)

Ungraded	A public health event or emergency that is being monitored by WHO but that does not require a WHO operational response.
1 Grade	A single country emergency requiring a limited response by WHO, but that still exceeds the usual country-level cooperation that the WHO Country Office (WCO) has with the Member State. Most of the WHO response can be managed with in-country assets. Organizational and/or external support required by the WCO is limited. The provision of support to the WCO is coordinated by an Emergency Coordinator in the Regional Office.
2 Grade	A single country or multiple country emergency, requiring a moderate response by WHO. The level of response required by WHO always exceeds the capacity of the WCO. Organizational and/or external support required by the WCO is moderate. The provision of support to the WCO is coordinated by an Emergency Coordinator in the Regional Office. An Emergency Officer is also appointed at headquarters to assist with the coordination of Organization-wide support.
3 Grade	A single country or multiple country emergency, requiring a major/maximal WHO response. Organizational and/or external support required by the WCO is major and requires the mobilization of Organization-wide assets. The provision of support to the WCO is coordinated by an Emergency Coordinator in the Regional Office(s). An Emergency Officer is also appointed at headquarters, to assist with the coordination of Organization-wide inputs. On occasion, the WHE Executive Director and the Regional Director may agree to have the Emergency Coordinator based in headquarters. For events or emergencies involving multiple regions, an Incident Management Support Team at headquarters will coordinate the response across the regions.

Figure. WHO internal grading system for emergencies (World Health Organization, 2017)

Figure. A View from the WHO SHOC room (World Health Organization)

References:

- Youde J. (2010) The International Health Regulations. In: Biopolitical Surveillance and Public Health in International Politics. Palgrave Macmillan, New York. https://doi.org/10.1057/9780230104785_7
- Howard-Jone, Norman (1975) "The scientific background of the International Sanitary Conferences". World Health Organization; Geneva, p. 13.
- Annelies Wilder-Smith, MD, Sarah Osman, MPH, Public health emergencies of international concern: a historic overview, Journal of Travel Medicine, Volume 27, Issue 8, December 2020, taaa227, https://doi.org/10.1093/jtm/taaa227
- World Health Organization EURO. Emergency cycle. Accessed 23.11.2021 from: https://www.euro.who.int/en/health-topics/health-emergencies/pages/about-health-emergencies-in-the-european-region/emergency-cycle
- A strategic framework for emergency preparedness. Geneva: World Health Organization; 2016. Licence: CC BY-NC-SA 3.0 IGO.
- Health Emergency and Disaster Risk Management Framework.Geneva: World Health Organization; 2019. Licence: CC BY-NC-SA 3.0 IGO.
- Emergency response framework – 2nd ed. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.