

Chapter 1.3

Historical developments in Health EDRM policy and research: the case study of Japan

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Learning objectives

To understand the importance of research evidence for health emergency and disaster risk management policy and practice, considering **Japan as a case study**, in order to:

- Review **historical examples** of disaster impact and response relevant to health.
- Discuss how **changes in health risks** and resilience affect disaster impacts, and how disasters affect health risks.
- Explain **improvements** in the methods used to assess and minimize health impacts of disasters.

Science of Disaster Risk Reduction

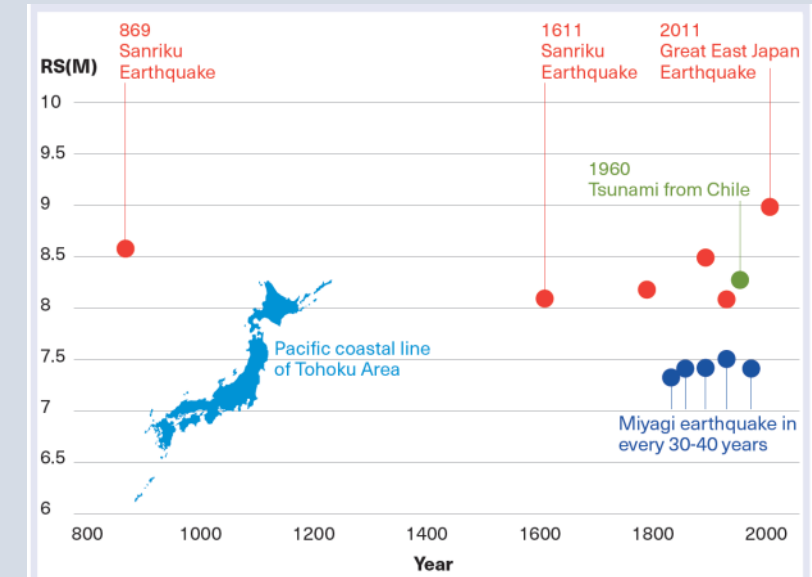
- Disaster Risk is a function of Hazard, Exposure, Vulnerability and Coping Capacity.
- As a disaster-prone country, Japan has developed a disaster risk reduction (DRR) policy and programme to manage the risks of the large-scale disasters.
- After the onset of a disaster, communities need to put an enormous effort into response, recovery, rehabilitation and reconstruction; reducing risks and anticipating or preparing for the next hazard event.
- Cyclical events can spiral into higher levels of risk and worse situations in future without “Building Back Better” and will worsen if this fails.

Health aspect of Sendai Framework for Disaster Risk Reduction 2015-2030

- Research and investment in Health EDRM is important for identifying and managing risk through cycles of disasters, and are priorities in the Sendai Framework.
- This chapter shows how the environment for conducting Health EDRM research has improved in Japan following historical events and the transformation and expansion of the country's disaster medical system.
- These experiences are relevant to policy and programme development in other countries.

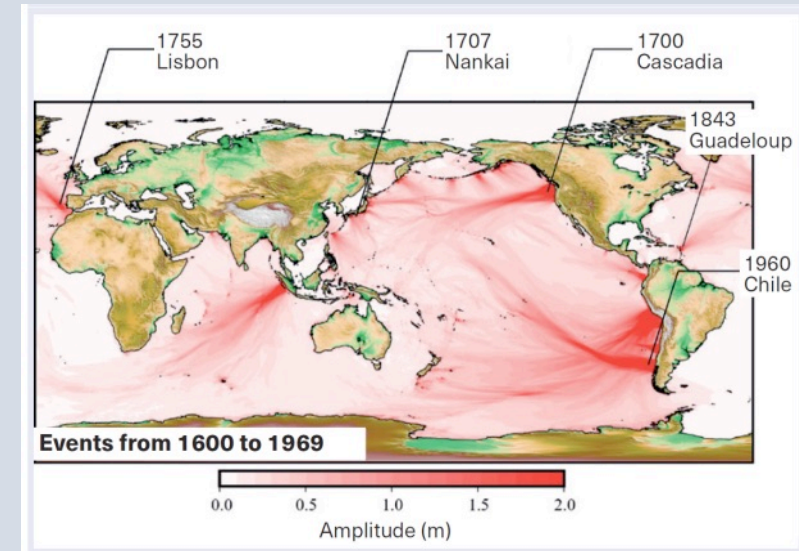
Case study: *Using the history of disasters to understand disaster risk*

- Japan has a long history of documented disasters.
- Since the 869 Jogan Tsunami, the Tohoku Area has had repeated earthquakes, with high energy earthquakes causing tsunami.
- This increased the anticipation and preparedness for the 2011 Great East Japan Earthquake, but the tsunami exceeded expectations.



Case study: *Using the history of disasters to understand disaster risk*

Through history, tsunami have struck virtually every coast in the world, making it important to assess and understand hazards using historical events rather than relying solely on recent experiences.



Large-scale disasters prompt policy changes to address health needs

1923 Great Kanto Earthquake

- >> Building Code revised

Earthquakes, tsunamis, typhoons and torrential rains

- >> **Disaster Countermeasures Basic Act (1961)**

1995 Great Hanshin Awaji Earthquake

- >> Building Code revised again

- >> National Disaster Medical System

2011 Great East Japan Earthquake

- >> Disaster medical system revised

- >> Nuclear Emergency Response Guidelines

Case study: *Development of disaster nursing support system*

- In the 1995 Great Hanshin Awaji Earthquake, it was difficult to meet the main medical needs in the acute phase, which were treatment of trauma (such as crush syndrome) and severe burns, because 98% of 180 hospitals and 84% of 1809 clinics were damaged.
- The Japan Nursing Association (JNA) called on volunteer support nurses from across Japan and sent hundreds to the affected area.
- Since then, JNA established the volunteer nurse dispatch system for the response to disasters and Japanese academia has increased disaster nursing capacity through curricula.

Case study: *Development of an acute mental health support system*

- Since 1995, the Government of Japan has organized annual workshops for disaster mental health, including treatment for Post-Traumatic Stress Disorder (PTSD), which have been attended by 12,000 mental health professionals.
- National guidelines state that most psychological symptoms after a disaster are natural, common and transient reactions; that psychological debriefing might not be effective for preventing PTSD, and that Psychological First Aid (PFA) is recommended as a psychosocial counter measure immediately after a disaster.

Case study: *Development of a long-term mental health support system*

- A traumatic stress care centre was established five months after the 1995 Great Hanshin Awaji Earthquake to provide mental health consultations, including outreach visits and group activities.
- In 2004, the centre was reorganized as the Hyogo Institute of Traumatic Stress: the first institute in Japan specializing in PTSD treatment, research and training.
- Building on its work, mental health care centres for long-term psychosocial support were established after the 2004 Niigata Chuetsu Earthquake, 2011 Great East Japan Earthquake and 2016 Kumamoto Earthquake.

The National Disaster Medical System

Established after the 1995 Great Hanshin Awaji Earthquake, the **National Disaster Medical System** includes:

- Disaster Base Hospitals
- Disaster Medical Assistance Team (DMAT)
- Staging Care Unit (SCU) and wide area transportation
- Emergency Medical Information System (EMIS)

Additional components after the 2011 Great East Japan Earthquake

- Disaster medical coordinators
- Disaster Psychiatry Assistance Team (DPAT)
- Disaster Health Emergency Assistance Team (DHEAT)
- Japan Disaster Rehabilitation Assistance Team (JRAT)
- Mother and Child Health Liaison
- Hemodialysis Liaison

- Improvement of EMIS
- Standard disaster medical record/ Surveillance and reporting system (J-SPEED)

Case study: *Development of health data management systems*

- After the 2011 Great East Japan Earthquake, a joint committee was established and started a project to develop a standardized format for medical data collection.
- J-SPEED became the standard for DMAT for daily surveillance reporting and data-oriented decision making, and formed the basis of Minimum Data Set (MDS) for international EMT initiatives in WHO.

Case study: *Cohort studies to evaluate longitudinal effects of a disaster on affected communities*

- Local governments and academic institutes in the affected regions collaborate on a cohort study to investigate the health of residents.
- The **Fukushima Health Management Survey** by the Fukushima Prefectural Government and the Fukushima Medical University alleviates residents' concerns over radiation and facilitates appropriate health care for residents in the Fukushima Prefecture.
- The ethically approved research uses a standard data structure.

Case study: *Long-term follow up using registers and biological data*

- Tohoku University initiated the **Tohoku Medical Megabank Project** to restore community medical services in the areas heavily damaged by the 2011 Great East Japan Earthquake and to establish an advanced medical system to support large-scale medical information technology.
- An integrated biobank was established to determine the influence of the disaster on people's health and to more generally promote large-scale research with voluntary contribution of participants.

Conclusion

- The long history of major disasters in Japan and substantial events in recent decades have provided the country with many opportunities to learn from the past to improve Health EDRM for the future.
- This has used evidence from many different types of research and has led to the implementation of the National Disaster Medical System.
- This has been refined as new evidence has accumulated, helping to ensure that disaster risk management, including prevention, preparedness, response and recovery, make an important contribution to the health of the nation, and encourages partnerships between policy makers, practitioners and researchers to lead to further improvements in the future.

Key messages

- Health EDRM requires the **continual enhancement of policies and programmes** using both historical evidence and up-to-date, reliable, scientific **evidence from research**. This requires high-quality research, which needs capacity building in research methods and timely, accurate and appropriately collected data.
- This chapter features Japan as an example of applying the principle of **Building Back Better** through spiral cycles of disasters. The **development of health systems and the health workforce** in response to the health needs identified in emergencies and disasters has improved data collection, assisted the management of survivors and produced a **better environment for research** and subsequent policy making.
- This chapter illustrates how **policy development and the enhancement of health systems** have built on evidence from before, during and after emergencies and disasters in Japan, and provides a practical example for other countries.

Further readings

Burkle FM. Challenges of Global Public Health Emergencies: Development of a Health-Crisis Management Framework. *Tohoku Journal of Experimental Medicine*. 2019; 249(1): 33-41.

Dr. “skip” Burkle argues that emerging risks can create health emergencies that overwhelm current decision-making capabilities. He argues that an all-phase view of the disaster cycle can effectively confront new risks such as climate change, unstable urbanization and biodiversity crises.

Suda T, Murakami A, Nakamura Y, Sasaki H, Tsuji I, Sugawara Y et al. Medical Needs in Minamisanriku Town after the Great East Japan Earthquake. *Tohoku Journal of Experimental Medicine*. 2019; 248(2): 73-86.

This epidemiological study used disaster medical records to clarify the overall characteristics of medical needs in Minamisanriku Town after the 2011 Great East Japan Earthquake, showing how disasters can reveal hidden medical needs in an aging society like Japan.

Further readings

UN/ISDR and WHO. Bangkok principles to implement the health aspects of Sendai Framework for Disaster Risk Reduction 2015–2030. 2016.

The authors describe the seven Bangkok Principles:

1. Promote health into disaster risk reduction (DRR) and DRR in health strategies.
2. Enhance cooperation between health and DRR.
3. Stimulate DRR investment, including in health facilities and infrastructure.
4. Integrate DRR capacity building into health education.
5. Incorporate health data into disaster risk assessments.
6. Advocate cross-sectoral collaboration for all hazards.
7. Promote coherence of policies.

References

- This chapter:** Egawa S, et al. Chapter 1.3: Historical developments in Health EDRM policy and research: the case study of Japan.
- History of tsunami:** https://irides.tohoku.ac.jp/media/files/archive/global_assessment_tsunami_hazards_400yrs.pdf
- Disaster Countermeasures Basic Act:** <https://www.adrc.asia/documents/law/DisasterCountermeasuresBasicAct.pdf>
- Life expectancy and INFORM disaster risk:** Journal of Disaster Research 2018: 13: 1049-61.
- 1995 Great Hanshin Awaji Earthquake:** Lancet. 347(8997): 307-9.
- Preventable disaster death:** Prehospital and Disaster Medicine. 2015: 30(2): 145-51
- Disaster nursing:** Japan Journal of Nursing Science. 2013: 10: 162-9
- Acute mental health support:** Lancet. 2011: 378: 317
- Long-term mental health support:** BMJ Open. 2019: 9(8): e030250.
- National Disaster Medical System:** Disaster Medicine and Public Health Preparedness. 2014: 8: 477-84
- Disaster Medical Coordinator:** Tohoku Journal of Experimental Medicine. 2017: 243: 1-9.
- Disaster Psychiatric Assistance Team:** Int J Environ Res Public Health. 2020: 17: 1530.
- Cohort study:** Disaster Medicine and Public Health Preparedness. 2015: 9(4): 374-81.
- Tohoku Medical Megabank Project:** JMA Journal. 2019: 2: 113-22.
- J-SPEED and MDS:** International Journal of Environmental Research and Public Health. 2019: 16(5): 893

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