Development of Disaster Nursing as Solutions to Global Issues from Japan

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Disaster Nursing in Japan

Care for DRR (減災ケア)

EpiNurse

Public Health Self Caring

Flood, Mabi town, 2018
Disaster and Nursing in Japan

Characteristics of Disaster
- Natural and man-made disasters
- Composite, diversified, prolonged

Death Toll in Asia from Disaster
- more than half of the world (2011)

Disasters in Japan
- Unresolved issues from the Great East Japan Earthquake
- Imminent Nankai (South Sea) Earthquake
- Climate Change
- Tokyo Olympic 2020

Nurses
- Approx. 19.3 million nurses in the world
- 1.5 million employed in Japan

Education in Japan
- 234 universities offer nursing degrees (out of 800 total public and private universities)

Research
- Japan Society of Disaster Nursing
- World Society of Disaster Nursing
- WHOCC

HUMAN SECURITY MEASURES
Now or Never
Background of Disaster Nursing in Japan

1890 Red cross Nursing in Japan launched
Many work but No report

1854–56 Crimean War

1995 : Hansin Awaji Earthquake
Sarin gas attack on the Tokyo subway system

Disaster Nursing Network funded by national research grant

1997 Japan Society of Disaster Nursing launched

2003-2006 Center of Excellence (COE) program "Disaster Nursing in a Ubiquitous Society in Japan", University of Hyogo
⇒ WHO Research Collaborating Center for Disaster Nursing and Emergency Management

2007 International Council of Nurses Develop the Framework of the Disaster Nursing Competencies

2010 World Society of Disaster Nursing And held first conference (Chair H. Minami

2011: Great East Japan Earthquake
Japan Society of Disaster Nursing
Development of definition of disaster nursing

The systematic and flexible utilization of knowledge and skills specific to disaster-related nursing, and the promotion of a wide range of activities to minimize the health hazards and life-threatening damage caused by disasters, in collaboration with other specialized from disaster prevention, initial and medium and long-term.

(Japan Society of Disaster nursing, 2002)
Number of Abstract
Annual Conference of Japan Society of Disaster Nursing

Oral  Poster

2011 Great East Japan EQ
2007 Chuetsu-oki EQ
2004 NiigataChuetsu EQ

(Kanbara et al., 2019)
World Society of Disaster Nursing

UNWCDRR Public Forum
3.15.2015

What's New

2015.4 [Report] Public Forum on the Third UN World Conference on Disaster Risk Reduction (WCDRR)

2015.4 At the UN World Conference on Disaster Risk Reduction in Sendai, Japan, a new global Sendai Framework for Disaster Risk Reduction over the next 15 years is adopted.

Sendai Framework for Disaster Risk Reduction 2015-2030
Sendai Declaration
http://www.wcdnr.org/uploads/Political_Declaration_WCDRR.pdf

2015.1 Public Forum on the Third UN World Conference on Disaster Risk Reduction (WCDRR) will be held on March 15th 2015 (SUN) by WSDN and ICN.

2014.1 The 3rd International Conference of WSDN, 2014
PDF: wcdn2014.pdf

2011.3 Thank you very much for your warm hospitality and support provided by Japan.

World Society of Disaster Nursing, World Society of Disaster Nursing World Society of Disaster Nursing
Health and Medical Care Needs in Disaster

1. Injuries and diseases caused by disaster events
2. General medical needs
3. Environmental risk caused by disaster events
4. Control and mid-long term care of adverse health influences indirectly caused by disaster

1. Reaction to emergency mass casualty
2. Health management of disaster victims and evacuees
3. Care of people in need of considerations during disaster
4. Maintenance and reconstruction of community health and medical care system

Clam/precaution phase | Acute phase | Recovery phase
## Research Priority by Delphi study (Kanbara, 2010)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Urgent(%)</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q03</td>
<td>Disaster nursing support for vulnerable people</td>
<td>82.5</td>
<td>33</td>
<td>119</td>
</tr>
<tr>
<td>Q18</td>
<td>Inventory of electric generators in the community (for the use of artificial respiratory equipment in the field)</td>
<td>72.5</td>
<td>29</td>
<td>82</td>
</tr>
<tr>
<td>Q24</td>
<td>Developing a manual for nursing support during acute disasters</td>
<td>67.5</td>
<td>27</td>
<td>95</td>
</tr>
<tr>
<td>Q17</td>
<td>System of cooperation during non-disaster times and support systems during times of disaster</td>
<td>60.0</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Q20</td>
<td>Disaster preparedness education in general hospitals</td>
<td>57.5</td>
<td>23</td>
<td>44</td>
</tr>
<tr>
<td>Q50</td>
<td>Co-operation between hospitals, universities and bodies in the community that are concerned with disaster relief effort</td>
<td>57.5</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>Q32</td>
<td>Post disaster telephone triage system</td>
<td>50.0</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Q52</td>
<td>Creating a support network for displaced people who have lost their homes</td>
<td>45.0</td>
<td>18</td>
<td>62</td>
</tr>
<tr>
<td>Q51</td>
<td>Establishing a cooperative system between hospitals</td>
<td>45.0</td>
<td>18</td>
<td>39</td>
</tr>
<tr>
<td>Q21</td>
<td>Contents and methods of disaster prevention drills according to health condition</td>
<td>45.0</td>
<td>18</td>
<td>41</td>
</tr>
<tr>
<td>Q55</td>
<td>Proposal for policy making that reflects experience in the field</td>
<td>42.5</td>
<td>17</td>
<td>51</td>
</tr>
<tr>
<td>Q40</td>
<td>Information management in times of disaster</td>
<td>42.5</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>Q11</td>
<td>Reduction of fatigue and improvement of efficiency among nurses in the disaster area</td>
<td>40.0</td>
<td>16</td>
<td>56</td>
</tr>
<tr>
<td>Q06</td>
<td>Support for children and their family</td>
<td>40.0</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>Q39</td>
<td>Establishing a system for sharing information for inquires about the welfare of victims of disaster</td>
<td>37.5</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>Q56</td>
<td>Comparison of awareness between nurses with disaster experience and those without</td>
<td>32.5</td>
<td>13</td>
<td>40</td>
</tr>
</tbody>
</table>
<Past Achievements>
Immediate Response
Relief in Acute Phase
DMAT • Training Dispatched Nurses
Lesson leaned from Past Disaster” based Relief Work

Challenges & Tasks
Trans disciplinary work
Long-term Recovery
Community-based
Seamless & Continuous Support
Comprehensive approaches
Policy Recommendation
Disaster Ethics
University of Kochi Graduate School
Cooperative Doctoral Program for
Disaster Nursing Graduate School of Nursing

For our Future,
For our Life,
Inter-curriculm

[Step 3]

Thesis examination

research paper / dissertation

[Step 2]

Qualifying Examination

- Business development model
- Industry and government internship
- System reform project
- Overseas participation programs and projects
- Courses in senior nursing and practical training; disaster research
- Global leader in disaster training exercises

[Step 1]

Preliminary Examination

- Knowledge about current research and issues
- Hands-on exercises at base hospitals and disaster sites
- Foundation courses in nursing, disaster nursing, interdisciplinary subjects

course work through online and offline systems

Enrollment

World Society of Disaster Nursing, International Council of Nurses, International Red Cross, United Nations, WHO

Disaster Base Hospitals and social welfare council

JICA

WHO Cooperation Center, Japan Society of Nursing Academies, Japan Association of Nursing Programs in Universities

Public office • JICA
Health Emergency and Disaster Nursing (HEDN)

- the world’s first journal on disaster nursing
- Online-based
- From people engaged in disaster nursing in various fields
  (educators, researchers, clinicians, students, and activists)
- Accepts a wide range of papers
  Original research (qualitative, quantitative, historical research, case studies, literature reviews etc.), activity reports, editorials, commentaries, book reviews, and videos
CARING FOR DISASTER RISK REDUCTION, 減災ケア
The number of survivors in shelter, injured people, and damages to public health. It is based on the report by Japanese government on the 2016 Kumamoto earthquake. The number of the refugees most in Kumamoto was 110,816. The shelter most in Kumamoto was 723. The number of the people with slight injury was 95,052. The number of the severe injury was 723. The number of deaths was 375. The refugee most in Kumamoto was 43,238.
Paradigm of Care for DRRs “GENSAI” care

(Kanbara 2015)

Primary Health Care
Human Security

Community participation
Appropriate technology
Multi-sectional

Care

Health
Diseases
Syndrome
Illness
Symptoms

Environment
Food
Water

Cure

Paradigm of Care for DRRs “GENSAI” care

(Kanbara 2015)
Pathogenesis & Surveillance system

Public Health Center

Ministry of Health

(C) SPEED
Example
- Fever
- Cough
- Eye irritation
- Loose stools
- Fractures
- Edema …

(D) Early Warning Alert and Response System (EWARS)
Example
- Influenza Like Illness
- Severe Acute Respiratory Infection
- Diarrhoea
- Acute Bloody Diarrhoea
- Suspected cholera

SPEED

EWARS

Hospital

Mobile clinic

Shelter

Preparation

Environment  Behavior  Symptom  Syndrome  Disease

outcome
Pathogenesis & Surveillance system

(A) Living Environment Assessment
Example
- Type of shelter
- Water source
- Kitchen
- Toilets available
- Hand-washing facilities
- Clothing
- Source of light (electricity)
- Acceptable spacing
- Health care

(B) Physical Assessment

Example
- Fever
- Cough
- Eye irritation
- Loose stools
- Fractures
- Edema

(C) SPEED
Example
- Sleep
- Face
- Trauma
- Weight
- Body temperature
- BP
- Pain

1 month after Quake
Once a month

(D) Early Warning Alert and Response System (EWARS)
Example
- Influenza Like Illness
- Severe Acute Respiratory Infection
- Diarrhoea
- Acute Bloody Diarrhoea
- Suspected cholera

Detected only by diagnosis in Public Hospital

Preparation Environment

Shelter

Mobile clinic

Hospital

Behavior

Symptom

Syndrome Disease

WHO

Ministry of Health

J-rapid Monitoring tool Kit
EpiNurses use ICT Toolkit to assess living conditions and provide crucial yet hard-to-collect evidences of health threats on disaster site.
2011 東日本大震災-----

Shelters

2013 台風ヨランダ（フィリピン）-----

Official report

Structured Data

Unofficial report

---------2016 熊本地震
Global and Trans-disciplinary Team Work

From Japan Lesson learned

Interdisciplinary

Nursing Science
Epidemiology

Geography
Information Technology
Health Informatics
Anthropology
Disaster Science

Globally

Philippines
Nepal
Congo
Indonesia
EpiNurse Project

Epidemiology + Local Nurses for Disaster Risk Reduction
Objective

• To provide an open framework that can easily provide information for data sharing with other sectors
• For nurses to assess the extent of the emergency in living environment and the communicable disease threats to the population in disaster camp
Activities

- Rapid Assessment
  a. Location
  b. Care needs (WASH, Food, Non Food, Shelter, Health)
  c. vulnerability and hazard
- Data information sharing (Plug into WHO-MDS)
- Minimum First aid & nursing care
-
Mobile app for EpiNurse with geotagging

Dialog/communication

Living Environment Assessment

Indicator Data
ONA io DB

Internet cloud service

Living Environment Assessment

Picture

Background maps

Geospatial data service

EpiNurse Center

Convert

EWARS

SPEED

Health Risk Assessment

Map-based visualization

Direct Care by EpiNurse

Donor

MOH

Care

Report

Dialog/communication
Visualization of “EpiNurse information”

EpiNurse Center
Nepal Nursing Association

(A) Living Environment Assessment
Example
- Type of shelter
- Water source
- Kitchen
- Toilets available
- Hand-washing facilities
- Clothing
- Source of light (electricity)
- Acceptable spacing
- Health care

(B) Physical Assessment
Monitoring tool Kit

(B) Nursing Assessment Sheet
Example
- Sleep
- Face
- Trauma
- Weight
- Body temperature
- BP
- Pain

Only Emergency Phase
Mobile clinic
Hospital

Early Warning Alert and Response System (EWARS)
Example
- Influenza Like Illness
- Severe Acute Respiratory Infection
- Diarrhoea
- Acute Bloody Diarrhoea
- Suspected cholera

Output indicator using Apps by EpiNurse

Total Number EpiNurse reported

<table>
<thead>
<tr>
<th>Health issues</th>
<th>Total cases</th>
<th>Under 5 years</th>
<th>Above 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever (F)</td>
<td>152</td>
<td>5.94</td>
<td></td>
</tr>
<tr>
<td>High blood pressure (HBP)</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence of use of alcohol (A)</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical complaints (PC)</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleep</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Face</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td>156</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body temperature</td>
<td>121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP</td>
<td>152</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>152</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Capacity Development of Local Nurses

- Literacy of Disaster Risk Reduction
- Primary Health Care (PHC)
- Network for Social Capital

GIS Mapping of Primary Health Care

Living Environment Assessment

A of Primary Health Care

Visualization of GIS Mapping

Ministry of Health

Health Facility

Type of shelter

Hospital

Warmer and cold storage

Mobile clinic

Health care

Toilets available

Kitchen

Type of shelter

Living Environment Assessment

Assessment Sheet
She said
Emergency Drill Experience No
Disaster experience thunderstorm and accident in the hospital.
WASH training by WHO one year before Quake

Aftermath of Disaster
Doctors, CMA and nurses were so busy.
No foods to cook.
PHC knows about the disaster management but they are not prepared, didn’t know whom to co-ordinate
We have very less manpower

Daily there are about 150 patient and 4 to 5 critical patient to bed.
We have about 45 delivery cases in a month
Other hospitals are difficult to access due to geographical reason.

EpiNurse as informant
Working experience on site: 16 years
She can speak local language and know their culture

EpiNurse as monitor
Mapping
Health and Environmental Assessment

<table>
<thead>
<tr>
<th></th>
<th>Adequate number of toilets</th>
<th>Hand-washing</th>
<th>Soap</th>
<th>clean food</th>
<th>Kitchen</th>
<th>waste storage</th>
<th>Acceptable spacing</th>
<th>Acceptable cleanliness</th>
<th>Blanket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Toilet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EpiNurse works as care giver
Need not report up and inhospitalization but need direct care and common medication
• **Innovative PROJECT** that uses modern communication technologies and
• **Offer tailor-made solutions for disaster risk problems**
• **Take people-centered approaches**
• **Combination** of bottom-up approaches with top-down frameworks.
• **Multi-stakeholder partnerships** (different sectors, different sizes, different organizational background, PPPs).
REASONING why EpiNurse

- **Trust:** Calls to get to safety have a profound impact on people's everyday lives.
- The best and most innovative technology is of little use if messages are not taken seriously by the recipients.
- **The target group – the people at risk,** must be prepared so that they can understand and use the new technology.
- **Critical mass:** an Information Communication Technology (ICT) must reach a large number of people in the target region.

Warnings should be reliable and that there is trust between the sender and the recipient.
<table>
<thead>
<tr>
<th>Positioning</th>
<th>Vulnerability/Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASH</td>
<td></td>
</tr>
<tr>
<td>• Water source</td>
<td></td>
</tr>
<tr>
<td>• Water distribution system</td>
<td></td>
</tr>
<tr>
<td>• Water storage</td>
<td></td>
</tr>
<tr>
<td>• Toilet facilities</td>
<td>Sanitation –</td>
</tr>
<tr>
<td>Food</td>
<td></td>
</tr>
<tr>
<td>• Food supply and calorie intake</td>
<td></td>
</tr>
<tr>
<td>Non-food items</td>
<td></td>
</tr>
<tr>
<td>• Essential items for daily living blankets, bedding lighting, heating/air-conditioning equipment</td>
<td></td>
</tr>
<tr>
<td>Shelter</td>
<td></td>
</tr>
<tr>
<td>• Status and need for temporary shelters</td>
<td></td>
</tr>
<tr>
<td>• Covered area</td>
<td></td>
</tr>
<tr>
<td>Photo</td>
<td></td>
</tr>
</tbody>
</table>
Critical issue faced on Community Monitoring
(Difficulties of People centered & bottom up approach)

- Geographic information of Tentative migration point
- Minimum Indicator for health security
- Availability of access to data
- Visualize uncountable data
- Update fluid situation
- Statistics disaggregated by characteristics relevant in community
- Ensure that no one is left behind
Capacity building: Map Reading and Map Making

Pre-community mapping

Post mapping
Capacity building: ICT training and system (app) orientation
Community nurses, field training
www.epinurse.org
FB page: EpiNurse
Concept Analysis of Gensai/ Bosai literacy (減災/防災リテラシー) in Japan

Individual characteristics
- Literacy
- Disaster experience
- Logical thinking within the framework of recognition

Locality
- Disasters frequently occurring in the neighborhood
- Disaster management activities in the community

Technology
- Information collection
- Evacuation
- Risk averting behaviors
- First aid care

Knowledge
- Type and mechanism of disaster
- Lessons learned from the past
- Danger points and expected damages in the neighborhood
- Evacuation point
- Evacuation method
- First aid method
- Knowledge for self-protection

Awareness
- Gravity of human lives
- Daily life
- Fear of disaster

Reduction of health risks
- Appropriate actions for security
- Appropriate behaviors for health
- Contribution to mutual assistance

Minimum Caring Communication
- Awareness of issues
- Respect for others
- Communication skills
- Reconciliation and resolution

Kanbara et al (2017)
FLOOD IN WEST JAPAN 2018
West Japan Flood, July 2018
About 2350 evacuees → Shelter outside the town → Relatives home

Flood damage:
- Medical institution 10/11
- Pharmacy 8/8
- Drugstore 3/3
- Super 5/5
- Convenience store 6/7

Total number of deaths: 51 (22 men and 29 women)
More than 90% of the causes of death are drowning
Average age 73.8

Evening July 8th

Google Map

Daytime temperature 37 C
Water shortage
Cable TV break up
Passing off

44.08km²
9006 households 22,797
(As of June 30,)
Day3 Medical Sector Meeting
Health Needs on Flood

- Evacuation
- Sanitation
- Surveillance
- Vector Control
- Injured Treatment
- Food Supply

Day

(WHO/PAHO: Short-term effects of major disasters; Natural Disasters: Protecting the Public's Health, 2000)
Daytime:
A reception slip/ necessary meal (supplies)

800 people?

Who can stay? By Arrival time? Priority? Care needs?

Night:
Abrasions, fatigue, anxiety
Dementia wandering

Vulnerability<>Resilience= Coexisting
Food:
Nutrition balance <> Hygiene
Required number << Vender Limited

Nutrition Balance >> Hygiene

Heat Attack....
Well and clean cloth for Water outage
Heat Attack Prevention
Everyone “taking a rest”, to stop emergency transportation
>>> Individual efforts of health care >> Primary health care · Public health
Mapping (difficulty)
Bottleneck of “Operation”

"I never imagine that ..........

"I think it is a good idea, but I can not decide”

“I can not decide, because of my first experience.”

".......Because of personal information"

I do not do because the neighbor do not do.

How to promote selfcare?
Access to live a healthy life
In chaos disaster affected area....
Disaster Log Book

Health Record/Medical Chart
Diary
Reminder of Administrative procedures
Calendar of Seasonal Health problem & Consciousness
Telephone directory
Challenge during Disaster Research as Human Science

Design thinking
Hypothesis for uncertainty

Pre-disaster data \( \Delta \)
Pilot study \( \times \)
Disaggregated Information
Hypothesis planning
Connect to counterpart
Budgeting

Ethical considerations
Implementation
Reliability
Validity
Publication for Revitalization

Human Security