Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities

Japanese Nursing Association

CONTENTS

Background of Formulating the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities"

We believe that there are many lessons to be learned from the series of events that followed the Great East Japan Earthquake. For the purpose of effective learning, Japanese Nursing Association (JNA) promptly visited afflicted areas to identify local situations, and conducted surveys on delivery facilities. We also held a "Symposium on Disaster Preparedness in the Perinatal Period" on February 4, 2012.

Survey on delivery facilities suggested that only a few facilities had formulated manuals concerning actions to be taken in the event of disaster during delivery. Even if they had manuals, they were for the entire medical institution, and limited to actions taken by the entire hospital.

At the symposium, highly specific opinions were exchanged. Participants of the symposium not only shared what happened at the time of disaster, but also confirmed what this disaster meant to healthcare providers related to the perinatal period, what should be learned from this disaster, and required changes and actions following this disaster.

We believe that a message will be conveyed to people in the afflicted areas, when we examine and share the meaning of this disaster, take actions, and learn lessons putting ourselves in their places, if we are allowed to say so.

Even people who live in places remote from the afflicted areas will be able to share this disaster through narrations by people who experienced it, and to sympathize and empathize with their experience. That will be the time when we can say lessons have been learned from these incidents.

As a step for taking actions based on lessons learned, we at JNA put up a working group under the review committee concerning the establishment of safe and reassuring environment for child delivery, and formulated the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities".

We formulated the guidelines for preparation, not a manual itself, because we assumed that manuals would be prepared in different manners, depending on the roles and functions of delivery facilities. At first, we intended to prepare "Guidelines for the Development of Disaster Preparedness Manuals for the Perinatal Period". However, manuals for perinatal care would call for examination on measures at NICU and MFICU. In this survey and symposium, we deemed that it would be necessary at first to clarify measures at most delivery facilities, in order to identify required response during delivery.

These guidelines are intended to provide clues for people who prepare manuals, so that they will image what manuals would be required in the event of disaster at delivery facilities.

We suppose that it will be critical to formulate a manual that describes support to mothers and children, and to pregnant and puerperal women at the time of disaster, including care on a community basis.

The guideline covers an approximately three-month period from the occurrence of a disaster. The guidelines consist of Chapter 1, which describes how to prepare a manual to ensure daily preparedness; Chapter 2, which focuses on a manual required immediately

following a disaster, and Chapter 3, which supports the preparation of a manual required for providing medium- and long-term support.

These guidelines do not mention NICU and the evacuation of newborns, who are highly dependent on medical care. Instead, the guidelines are focused on the occasions of delivery at delivery facilities. In addition, Chapter 3 describes what can be done by midwives for mothers and children who are forced to continue living in shelters over a prolonged period. We hope that manuals will be prepared with adequate considerations to support more reassuring lives for people who are living in shelters.

One of the lessons learned from the disaster is that we should be ready “at normal times, in everyday life, and as daily habits”. Interviews with people from afflicted areas indicated that quick decision and response to the disaster was only possible when there was a manual, and when it was followed by routine drills. This experience taught us that people were able to take action when the disaster occurred because they prepared enough through a manual and participated in drills.

We urge that manuals should be quickly prepared. Then you should conduct drills at individual facilities, referring to these guidelines. Of course, many people may think that they actually wanted a manual itself, rather than guidelines for preparing one. However, it often happens that only writers of a manual are familiar with it, while others do not know very well about it.

We believe that all related persons who live in places remote from the afflicted areas should, as their own tasks, participate in the process of formulating a manual for their facilities. That will be the time when we can say actions have been taken based on the lessons learned from the disaster.

Even if a situation that is not described in the manual occurs, each of us must make appropriate decision on the spot, and take action quickly. A manual only presents basic principles. It is essential that we take reasonable action even if a situation that exceeds basic principles occurs. While the guidelines state that chain of command and other details should be established, each individual must make decision by themselves once a disaster occurs. Routine drills are also important for both newly graduates and experienced midwives to make appropriate decision on the situation. We must be able to act before being directed.

We hope that routine drills for decision making should be incorporated into the manual for your facility, based on these guidelines.

May the afflicted areas be restored at the earliest possible date.

January 31, 2013

Toshiko Fukui
Executive Officer
Japanese Nursing Association

Process up to the Formulation of the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities"

In response to the great disaster that occurred on March 11, 2011, we quickly decided to examine care for women and mothers and children in afflicted areas, as a key midwifery project in fiscal 2014. We formulated and implemented plans based on this key project. Details of this project are described below:

I. Overview

In the extensive and grave damage caused by the earthquake, support to pregnant and puerperal women and newborns was not necessarily adequate. Based on this experience, we conducted a questionnaire survey aimed to identify the present status and requirements concerning disaster reliefs and disaster preparedness at delivery facilities. This survey revealed that the formulation of disaster preparedness manuals at delivery facilities was an urgent requirement. Thus we selected the formulation of the guidelines for the preparation of disaster preparedness manuals as the purpose for our project. In the meantime, we held "Following the Great East Japan Earthquake – Symposium on Disaster Preparedness in the Perinatal Period" to promote extensive information sharing and exchange concerning required disaster preparedness in the perinatal period. In this symposium, it was agreed that the preparation of "Disaster Preparedness Manuals for Delivery Facilities" was urgently required.

End of March, 2011	It was revealed that response to a disaster at delivery facilities was inadequate, and that environment surrounding mothers, children and newborns at shelters was poor.	
June 2011	National Midwife Exchange Assembly 2011	Report on "Present Status of Support to Pregnant and Puerperal Women following the Great East Japan Earthquake"; Questionnaire survey on disaster preparedness was made
July 2011	Survey on the activity status of the Midwifery Function Committee, Prefectural Nursing Associations, 2011	Surveyed the present status and requirements concerning response to a disaster and related networks
Sep. to Nov. 2011	Prefectural Nursing Associations and members of the Midwifery Function Committee	Collected disaster preparedness manuals at delivery facilities
Feb. 2012	Held "Following the Great East Japan Earthquake – Symposium on Disaster Preparedness in the Perinatal Period". Preparation of the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities" by the Japanese Nursing Association was mentioned. The symposium was reported by NHK (Japan Broadcasting Corporation.)	
Apr. 2012	In response to the symposium on disaster preparedness, a working group was established, and the formulation of the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities" was started.	
Aug. 2012	Opinions were invited concerning the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities".	
Dec. 2012	NHK reported on the formulation of the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities" (rebroadcasted by NHK Fukui, January 2013.)	
Feb. 2013	The "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities" was completed.	

II. Description of Activities

1) At the National Midwife Exchange Assembly 2011, a report was made on the "Present Status of Support to pregnant and Puerperal Women following the Great East Japan Earthquake," and conducted a questionnaire survey concerning related countermeasures.

Naoko Nakane, Head Nurse of the maternity ward at the Japanese Red Cross Medical Center, made a report on the "Present Status of Support to pregnant and Puerperal Women following the Great East Japan Earthquake". Following the Great East Japan Earthquake, support to pregnant and puerperal women and newborns turned out a blind spot in emergency medical care. Based on this experience, midwives from Japanese Red Cross took the

leadership in establishing a midwifery center for taking care of pregnant women and newborns. It was also reported that the outpatient unit conducted checkups for pregnant women and for newborns aged one month. Support activities in delivery were undertaken at the ward. It was considered necessary that information collected through relief activities following the Great East Japan Earthquake should be shared by related people, including local governments that undertake counter-disaster measures.

Among participants of the exchange meeting, 164 replied in the questionnaire survey, uncovered that a disaster preparedness manual was not formulated in nearly half of the maternity wards. Disaster drills were not conducted at 35% of maternity wards, and 26% of participants had not participated in facility-wide disaster drills.

2) A survey was conducted on the present status and requirements concerning response to a disaster and related networks, as part of the survey on the activity status of the Midwifery Function Committee, Prefectural Nursing Associations, 2011.

The most frequently mentioned requirement was counter-disaster networking, followed by the formulation of disaster preparedness manuals at maternity wards and in response to extensive disasters, and by evacuation drills at maternity wards. The survey also uncovered that it was difficult to secure human resources to be dispatched for disaster relief, due to the shortage of midwives.

3) Disaster preparedness manuals at delivery facilities were collected through Prefectural Nursing Associations and members of the Midwifery Function Committee.

The questionnaire described above uncovered that it was urgently required to formulate disaster preparedness manuals at delivery facilities, toward the provision of safe and reassuring delivery environment. Therefore, disaster preparedness manuals at maternity wards were collected from 74 delivery facilities in 22 prefectures from September to November 2011, for the purpose of analyzing the present status of disaster preparedness manuals.

These 74 facilities included eight facilities at comprehensive perinatal care centers, 22 facilities at local perinatal care centers, ten facilities at other hospitals, two facilities at clinics, and 32 facilities with unknown categories. Other 20 facilities reported that they had no disaster preparedness manuals for maternity wards.

Items included in the disaster preparedness manuals of maternity wards were classified, and divided into three steps, “Daily preparedness,” “Response immediately following a disaster,” and “Medium- and long-term supports (to life in shelters, etc.),” in accordance with the course of time. “Daily preparedness” comprised four categories, 11 sub-categories, and 30 items. “Response immediately following a disaster” comprised five categories, 19 sub-categories, and 46 items. Description on response immediately following a disaster was divided into three patterns for weekdays, for holidays, and for night. “Medium- and long-term supports (to life in shelters, etc.)” comprised two categories and 21 sub-categories.

These items were listed through extensive tabulation of all manuals from the 74 delivery facilities. Contents of specific disaster preparedness manuals substantially varied among facilities. For example, indication concerning evacuation methods and emergency items was very vague at some facilities, while other facilities detailed from priorities for evacuation to specific methods for keeping newborns warm. The volume also varied from a single sheet to 32 pages.

Facilities that had manuals with detailed and abundant description tended to include action plans for different roles (e.g. action cards and flowcharts over the course of time), checklists on the status of damage, and other reference documents. Visual tools were also used, including photos, illustrations, and large fonts.

Persons included in the scope of receiving midwifery care vary by the functions and roles of each facility in perinatal care, and items included in the disaster preparedness manual also differ accordingly. The primary role of midwives is to protect mothers and children, and a specific disaster preparedness manual should be formulated in each facility. In the meantime, most disaster preparedness manuals assumed fires in the facility, not an extensive disaster such as the Great East Japan Earthquake. It is also required in the future to formulate a manual for protection against a disaster that affects the entire community.

For the purpose of achieving more specific description in the disaster preparedness manual of each facility, it is required to imagine possible outcomes and examine specific required actions, on a precondition that a disaster beyond the assumption *does* occur. It is critical to assume specific cases with the tightest staffing or clinical conditions (e.g. during surgical operation or during delivery), and sort out required decision-making and actions by midwives. It is also necessary to separate problems that can be resolved within the facility (e.g. relationship with the ward and other departments) from those that can be resolved through cooperation with local governments and other medical institutions, thereby clarifying required local cooperation.

4) "Following the Great East Japan Earthquake – Symposium on Disaster Preparedness in the Perinatal Period" was held.

This symposium was aimed at inviting reports from the afflicted area and from a relief team related to care to women, particularly mothers and children and their families, in the afflicted area, and presenting initiatives by JNA concerning guidelines for the development of disaster preparedness manuals for the perinatal period. While facilitating broad information sharing and opinion exchange concerning required disaster preparedness in the perinatal period, the symposium was also aimed at enabling the establishment of safe and reassuring delivery environment. As many as 207 participants, mainly midwives and nurses and including some educators, came to the symposium, exceeding the capacity of the hall. They broadly exchanged opinions concerning daily preparedness and required relief and midwifery care at the time of disaster, for the purpose of protecting pregnant women, babies and infants, who are particularly vulnerable to disasters.

Date & time:	Saturday, February 4, 2012; 10:00 – 15:20
Venue:	JNA Hall, Japanese Nursing Association
Program:	Keynote speech: "Proposals through the Great Earthquake – What Occurred during and following the Great East Japan Earthquake, and What Actions Have Been Taken" Katsuyo Yagihashi, Director of Nursing Department, Suzuki Memorial Hospital Project report: "Disaster Preparedness Manuals for the Perinatal Period" Yumiko Miyagawa, Member of the Midwifery Function Committee, Japanese Nursing Association Symposium: "Local Activities for Protecting Women, Particularly Mothers and Children, in the Afflicted Areas" Chair: Hatsumi Taniguchi, Member of the Midwifery Function Committee, Japanese Nursing Association - "Reports from University Hospitals in the Afflicted Areas" Yuko Tsuda, Head Nurse, Fukushima Medical University Hospital - "Establishing Reliefs for Caring Women, Particularly Mothers and Children, in the Afflicted Areas" Masayo Takada, Professor, Kobe City College of Nursing - "Collaborative Activities for Protecting Women in the Afflicted Areas – Required Agility and Delicacy" Yukari Igarashi, Assistant Professor, St. Luke's International University
Participants:	207 (mainly midwives and nurses who work for maternity wards and NICU, and including some educators)

In the keynote speech, Katsuyo Yagihashi, Director of Nursing Department, Suzuki Memorial Hospital, which is located in Miyagi Prefecture, reproduced situation at the hospital from immediately following the earthquake on March 11, using photos. The rapidly changing situation was brought home to participants, and they recognized the importance of prompt decision-making and actions by midwives with an outlook for upcoming situations. Essential utilities (electricity, water, gas and telecommunications) were shredded down, and it took ten days before all those utilities were restored. Based on the experience that medical care was sustained even over those ten days, Ms. Yagihashi reported on response at the time of disaster and daily preparedness. The tsunami that followed the great earthquake was of a scale beyond expectation. Related problems pointed out by Ms. Yagihashi included that 1) there was no evacuation manual for a tsunami; 2) because female staff accounted for the majority at the maternity ward, support from male office workers was required for evacuation; 3) the food storage was located on the first floor (which was relocated to the highest floor afterwards); 4) the private power generator was out of order; and 5) patients who had their bed fence lowered could not find anything to grip at instantly. It is too late to take measures against these problems when the disaster has occurred. Ms. Yagihashi pointed out the importance of daily promotion of breastfeeding, and of identifying available hours of simultaneous use of the private power generator by the operating theater and the delivery room.

From the viewpoint of managers, Ms. Yagihashi pointed out the necessity of identifying remaining functions at the hospital, and determining clear priorities for immediate actions to be taken, taking into account the possibility of evacuation. At the same time, because communication with outside becomes difficult once informational functions are interrupted, Ms. Yagihashi pointed out the necessity of establishing relationship with the local community, and identifying the locations of food and goods stock that can be accessed at the time of disaster.

In the project report: “Disaster Preparedness Manuals for the Perinatal Period,” it was reported that the role of midwives was to protect women, mothers and children and their families, and that the Japanese Nursing Association would formulate and disseminate the “Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities,” based on experience during and following the Great East Japan Earthquake.

At the symposium, a reporter from the afflicted area pointed out the importance of cooperation with the local community even in the midst of confusion, for providing information and continuous nursing to mothers and children who move to their relative’s homes for shelters after leaving the hospital. A reporter from a relief team described reliefs provided at shelters based on the characteristics of women, particularly pregnant and puerperal women, and mothers and children, at the time of disaster. In a living environment at shelters, opinions of women were not incorporated into decision-making in many cases. It was reported that parents of small children felt hesitant, and that pregnant and puerperal women had difficulty standing in long queues for food distribution. It is critical to ensure cooperation not only with midwives, but also with key persons, such as female leaders of neighborhood associations, who would take care of women, particularly mothers and children. The reported cases included an activity where an information brochure was put in the relief goods for women to facilitate health consultation for them, describing health problems that women may face (e.g. how to keep cleanliness around the vulva, menstrual periods, menopausal disorders, urinary incontinence), and raising awareness against sexual harassment. It was emphasized that relief activities required agility for responding to the needs of sufferers that change over time, and delicacy with considerations of psychological difficulties that they have. It was pointed out that continuous relief activities required cooperation by many related persons, involving not only midwives and healthcare professionals, but also local government staff and volunteer organizations.

III. Leveraging Lessons Learned from the Great East Japan Earthquake

Following the Great East Japan Earthquake, initiatives have been taken at many delivery facilities toward the formulation of disaster preparedness manuals. In this context, the number of requests for participation that exceeded the capacity of venue, combined with the questionnaire response rate as high as 78%, demonstrates that this symposium, specialized in the perinatal period, highly satisfied the needs in terms of its content and period that the symposium held. The results of the questionnaire survey indicated that the sharing of detailed experience at the afflicted areas through this symposium vividly emphasized the necessity for formulating specific disaster preparedness manuals, and provided an occasion for midwives to refresh their recognition on the roles of midwifery and on the necessity for cooperation with the local community.

As a 2012 project, the Japanese Nursing Association will formulate and disseminate the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities," toward the establishment of safe and reassuring delivery environment. At the same time, it is necessary to continue underlining the necessity for preparing disaster preparedness manuals, because the questionnaire survey results at the symposium uncovered that the rate of facilities that did not have, that had no plans for, or that had not reviewed a disaster preparedness manual reached 16.8%.

[A scene from the symposium]

[Partially modified, quoted and reproduced from:]

Japanese Nursing Association
A Report of Disaster Reliefs following the Great East Japan Earthquake
'Initiatives by the Japanese Nursing Association following the Great East Japan Earthquake'
Chapter III "7. Examination on Care for Women, Particularly Mothers and Children, in the Afflicted Areas"
pp. 121 to 127, May 31, 2012

Chapter 1

Preparing a Manual for Daily Preparedness

In order to prepare for disasters, it is necessary to renew the mindset of related persons, to classify daily routine, and to conduct periodic checks and drills. Examine the following five points, and prepare a manual for daily preparedness.

Five points for daily preparedness against disasters

1. Fostering recognition among physicians, midwives, nurses, and other related professionals through education
2. Preparing, checking, and maintaining a disaster preparedness manual
3. Disaster drills
4. Fostering recognition among pregnant, puerperal and postpartum women and their families
5. Cooperation with the local community and government

1 Fostering recognition among physicians, midwives, nurses, and other related professionals through education

1 Clarifying response at the time of disaster and the division of roles among related professionals

Confirm the state at your facility on the following checkpoints, and correct any inadequate points. Also establish a system for periodic checks. All related professionals should participate in this process.

Check

- ☐ Confirm safety at your facility and at other facilities nearby.
- ☐ Align with other local facilities.
  - ➡ **Ensure interaction and exchange of information resources with other facilities nearby on a regular basis.**
- ☐ Clarify the division of roles between the comprehensive perinatal care center and the local perinatal care center (discuss with the local government.)
  - ➡ **It is necessary to establish systems for sending support staff to the disaster and emergency outpatient units, accepting mothers who are transported from outside, etc.**
- ☐ Staffing assuming the establishment of a perinatal triage booth, and clarify the roles as physician and the roles as midwives.
  - ➡ **Response to pregnant, puerperal and postpartum women should be undertaken in a separate area from the triage booth for injured/sick persons. Put up a midwifery section to accept pregnant, puerperal and postpartum women around the clock, in case a large number of them visit the hospital at the time of disaster.**

Lessons learned **Following the Great East Japan Earthquake, pregnant women from other facilities nearby visited the emergency outpatient unit, and were mixed with injured/sick persons, causing confusion. Triage drills for pregnant and puerperal women are required.**

2 Education to midwives concerning disasters

It is highly important that midwives should have knowledge and skills concerning disasters. Midwives should participate in seminars on disasters, and acquire knowledge and guidelines for action. Collect information concerning disasters and response, based on lessons learned from the Great Hanshin Earthquake, the Great East Japan Earthquake, etc., and examine measures required at your own department.

It becomes completely impossible to do routine operations during disaster times. Take everyday care to enable response to a disaster at any time, and acquire knowledge and skills for safe assistance to delivery even in the midst of confusion. Try to, and take training to acquire delivery techniques independent of medical devices at normal times.

Confirm the following checkpoints to classify and improve routine operations at your facility, and prepare a manual.

Check

1) Techniques for assistance to delivery in a position other than the dorsal position (acquisition is preferable)

- ☐ Enhance knowledge and skills for assistance to delivery at a place other than the delivery table.
- ☐ Acquire skills that enable assistance to delivery under any circumstances and in any places.

Lessons learned **Delivery tables could not be used at some facilities following the Great East Japan Earthquake.**

- ☐ Participate in seminars on flexible delivery styles and in seminars at other facilities. Also have seminars held at your own facility.
- ☐ Put up an in-hospital midwifery section. Ensure that techniques for delivery without the presence of attending physicians should be acquired.

2) Strengthening midwifery diagnosis and midwifery techniques

- ☐ Consider that the true capabilities of midwives can be exercised at the time of disaster.
- ☐ Foster abilities to feel the patient with your own hands and five senses for examining, through daily care to pregnant, puerperal and postpartum women.
- ☐ Through the course of delivery, foster techniques for identifying the progress of delivery, by listening to the heart beat of the fetus using a Traube, simplified Doppler stethoscope, normal stethoscope, etc., by using Leopold's maneuvers or pelvic examination, and by observing the facial expressions of the pregnant woman, regions of labor pain, etc.
- ☐ Achieve effective and continuous operation of the midwifery outpatient unit.

➡ **Introduce an in-hospital midwifery system. At a facility without a midwifery outpatient unit, proactively examine the establishment of such a unit.**

Lessons learned **Because physicians were mostly needed to treat injured/sick persons following the Great East Japan Earthquake, midwifery outpatient units were effective in accepting pregnant and puerperal women from other facilities.**

- ☐ Clarify the roles of each task on a regular basis, ensure that your department can effectively accept reports, and no interrupt actions of reporting, notification, and consultation, which tend to be compromised at the time of disaster.

3) Childcare support in a rooming-in system

- ☐ In principle, the mother and the baby should be kept in the same room during hospitalization to ensure integrated maternal care.
- ☐ It is essential to provide postpartum women with orientation for rooming-in and explanation on how to use newborn sling at the time of disaster.

Lessons learned **The rooming-in practice and the disaster orientation program to pregnant, puerperal and postpartum women led to prompt evacuation following the Great East Japan Earthquake. The disaster occurred exactly when staffs were discussing the discontinuation of this orientation program, assuming that no disaster would happen. In fact, the continued routine drills took effect.**

4) Assistance for establishing breastfeeding at an early stage

- ☐ At the time of disaster, essential utilities are interrupted, and it becomes difficult to access water and baby formula. It also becomes difficult to clean feeding bottles. (It usually takes a long time until the utilities are restored.)
- ☐ Provide lactation guidance during hospitalization, so that breastfeeding can be established at an early stage.
- ☐ Also provide pregnant women with explanation on the promotion of breastfeeding, as an approach preparing for disasters.

Reference (in Japanese only)

- The Japanese Association of Lactation Consultants, La Leche League Japan, and the Breastfeeding Support Network of Japan, jointly established "Joint Special Committee for Childcare Support at the Time of Disaster."
  http://www.llljapan.org/binfo/saigai_iinkai.html
  - For mothers (PDF, 97 KB)
  http://www.llljapan.org/dl/dl.php?dl=hisai_mother
  - For the media (PDF, 132 KB)
  http://www.llljapan.org/dl/dl.php?dl=hisai_media
  - For local supporters (PDF, 182 KB)
  http://www.llljapan.org/dl/dl.php?dl=genchistaff
- "Consultation for Breastfeeding at the Time of Disaster – Guidebook for Supporters," Version 3, revised on June 2011
  http://www.llljapan.org/binfo/hisai_support.html#saigaienjo
- "Guidelines concerning Nutrition for Infants at the Time of Disaster," Revised Edition
  http://www.unicef.or.jp/kinkyu/japan/pdf/japan20110406_02.pdf

3 Establishing and disseminating counter-disaster networks for mothers and children

Cooperation within the facility, outside the facility, and with the local government turn out highly useful. Confirm such local cooperation, and map them in the manual.

It is necessary to conduct a drill against an extensive disaster at an interval of one year or so.

4 Identifying information tools that can be used

Each facility should identify, in advance, more than one means for collecting and presenting information. Examples of such means are listed below. Examination by related persons is necessary, because the quantity and quality of information collection and presentation vary by the roles and functions of the delivery facility.

Check

- ☐ Check the disaster message service for cell phones: NTT (Nippon Telegraph and Telephone Corporation) "Disaster message phone service 171."
- ☐ Utilize the Internet, Twitter, Facebook and other tools.
- ☐ Use 1 seg mobile TV.
- ☐ Secure charging devices, and check how to use them on a regular basis.

➡ **Ensure that devices are charged at any time.**

2 Preparing, checking, and maintaining a disaster preparedness manual

At the time of disaster, nursing managers and deputy nursing managers must promptly confirm the safety of staff, the safety of pregnant, puerperal and postpartum women and newborns, and the status of damage. Based on these confirmations, nursing managers and deputy nursing managers must allocate human resources, and direct evacuation and tasks to be prioritized. Formulate and periodically review a manual on a regular basis, so that appropriate actions can be taken at the time of disaster.

A disaster preparedness manual should include specific guidelines for action that suit your own facility.

1 Confirmation on earthquake resistance and fire resistance

Extended or additionally reinforced parts of a ward building are relatively fragile, and often cause problems at the time of disaster. It is necessary to check, in advance, for required maintenance in your own facility, and to identify extended or additionally reinforced parts in your facility buildings and examine what measures should be taken.

Lessons learned

In a facility, the part that joined the new building with the old building was destroyed by the Great East Japan Earthquake.
It was difficult to secure access within the building, because of the cabinets that fell down and of the chemicals and medical devices that jumped out of cabinets.

▲ Corridor in front of the labor room at Suzuki Memorial Hospital immediately following the earthquake

Checkpoints to be confirmed are as listed below:

Check

- ☐ Identify equipment at your facility and its quakeproof structure.
- ☐ Identify the structure of your facility, location, and firefighting equipment.
- ☐ Confirm the parts of buildings that have been extended or additionally reinforced. Take further reinforcement measures immediately if necessary.
- ☐ Identify the materials, earthquake resistance, and fire resistance of walls, curtains, glass parts, etc.
- ☐ Confirm the sprinklers, fire shutters, and fire alarms.
- ☐ Confirm how to use the fire shutters, hydrants, and fire extinguishers.
- ☐ Fixate cabinets to prevent falls. Sliding doors should be used for cabinets.
- ☐ Attach scatter-proof film to glass doors of cabinets.

2 Medical devices that should be prioritized

A power outage may occur at the moment of disaster, and medical devices may become unusable immediately. To prepare for such cases, establish measures against a power outage in advance.

Checkpoints to be confirmed are as listed below:

Check

- ☐ Always identify the status of use of oxygen devices, medical gases, artificial respirators, incubators, etc.
- ☐ Always have some transfusion pumps, syringe pumps, artificial respirators, and incubators connected to emergency power systems.
- ☐ Confirm the switching of oxygen devices, medical gases, etc. to uninterruptable power supplies, and the emergency power systems.
- ☐ Ensure that oxygen devices can be used with piping when patients can remain in the facility/ward, and can be switched to oxygen cylinders at the time of evacuation.
- ☐ Check the number of oxygen cylinders.

3 Locations of and how to use firefighting equipment and apparatuses

Confirm the locations where firefighting apparatuses are installed. Get familiarity with how to use them, and ensure daily preparation and inspection so that people can efficiently use them at the time of emergency.

Confirm the following checkpoints for firefighting equipment and apparatuses.

Check

- ☐ Identify information concerning essential utilities.
- ☐ Confirm how to use private power generation pumps, and the duration of supply.
- ☐ Confirm the outlets that can be switched to the emergency power systems.
  - ➡ **Are red, white, black, and green outlets* distinguishable?**
- ☐ Confirm that chargeable devices are charged.
- ☐ Confirm how to inspect and use emergency alarms, fire extinguishers, and hydrants.

* In Japan, types of medical outlets are colored as follows:
White: Outlets that are only fed by commercial power supplies
Green: Outlets that are fed by A.C. uninterruptable power supplies apparatuses
Red: Outlets that are fed by emergency power supplies
Brown: Outlets of an ungrounded wiring system

☐ Identify goods and chemicals that may start fire, and check measures to prevent their fall.

➡ **Chemicals should be stored in containers that can prevent their fall. Counter-fall measures should also be taken for oxygen cylinders.**

4 Confirmation of evacuation routes

In order to prevent collision with evacuees from other wards, observe instructions from the Disaster Control Headquarters, and exchange information between wards as necessary. Confirm the following checkpoints on evacuation routes:

Check

☐ Secure and confirm emergency evacuation routes.
☐ Confirm and secure access within the building. (e.g. Are there any obstacles in the way?)
☐ Take safety precautions for cabinets and doors.

➡ **Use tension rods and door locking devices.**

☐ Confirm posted materials and media for the indication of evacuation routes.
☐ Notify the routes to pregnant, puerperal and postpartum women and their families.
☐ Explain about the routes in antenatal classes.
☐ Indicate the routes in the guide to hospitalization.
☐ Explain about the routes at the pre-hospitalization orientation.
☐ Explain about the routes to postpartum women at the start of rooming-in.

5 Confirmation on guidance at the time of evacuation

Explain to patients that they should observe instructions from hospital staff at the time of evacuation.

Lessons learned **Immediately following the Great East Japan Earthquake, some patients were panicked and tried to get out of the hospital.**

Confirm the following checkpoints, and provide prior explanation to pregnant, puerperal and postpartum women on guidance at the time of evacuation.

Check

☐ Establish priorities for people to be evacuated, based on the basic information of patients.
☐ Prepare more than one evacuation routes.
☐ Ensure routine triage among patients who need to be carried on a stretcher, patients who need assistance when moving, and patients who can move by themselves.
☐ Confirm how to guide the evacuation of newborns that are under control in the newborn nursery.
☐ As preparedness, determine the division of roles in each working shift among staff who are on duty at the time of disaster.

6 Measures to be taken around the bed and fixation of equipment

Examine and determine how to fixate beds, cots, incubators, medical carts, etc., based on quakeproof or base-isolated structures of facility buildings, and on floor conditions (e.g. wooden flooring, carpeting.) It will be useful to refer to preceding studies.

Lessons learned **In the Great East Japan Earthquake, medical devices and beds that rolled on the floor caused secondary damage.**

Reference

■ Shaking table vibration test on quakeproof performance
- When the casters of an incubator are freed:
  While it is advantageous against fall, the amount of movement will become fairly large.
- Two of the four casters of an incubator are locked diagonally:
  It is more advantageous against fall than locking all four casters.

Reference document: Building Research Institute, Ministry of Construction, "Shaking Table Experiments concerning the Quake Resistance of Medical Devices," Construction Research Report. No. 108, 1986.

7 Identifying goods that can be used at the time of power or water outage

It is recommended to list instruments and utensils that can be used without electricity. Examples of such goods and instruments are listed below:

Check

☐ Prepare lanterns, flashlights, and headlights.

Lessons learned **Following the Great East Japan Earthquake, car batteries were utilized for response.**

☐ Identify and stock battery cells that suit necessary instruments.
☐ Prepare Traubes, simplified Doppler stethoscopes, and normal stethoscopes.
☐ Prepare pregnancy calculators.
☐ Prepare suturing kits and other utensils required for delivery.
☐ Prepare forceps delivery utensils and disposable ventouses.
☐ Prepare blankets, leg warmers, pocket warmers, heat retaining sheets (SANSTATE), and other heat retaining goods.
☐ Prepare wrapping materials to be used for retaining heat and cleanness.
☐ Prepare suction balls (valve syringes) and oral suction catheters for amniotic fluid aspiration.
☐ Prepare portable toilets (newspapers can be used for various purposes.)
☐ Prepare rubbing alcohol hand disinfectants to keep clean and disinfect during water outage.
☐ Stock food and water, drugs and hygiene products.
☐ Check and identify the items and quantities in stock at your facility and ward.
☐ Prepare emergency food and water for staff and patients.

➡ **Provision to families of patients should be determined based on the situation.**

Lessons learned **Drinking water and food that were in stock were provided to families, but there were limitations.**

8 Listing activities to be entrusted to volunteers

It turns out useful at the time of disaster to list, in advance, activities to be entrusted to volunteers as preparedness for emergency, even though it may be difficult to conceptualize such activities in the preparatory stage.

It is recommendable to list requests to make, assuming proposals for volunteering by healthy evacuees, students from affiliated schools, etc.

9 Preparation of action cards

"Action cards" indicate specific roles and assigned tasks of individual staff members and volunteers in case of emergency. By acting as indicated in the action card, each individual is expected to efficiently undertake required operations, regardless of their assigned roles. Details will be described in the next chapter. Key checkpoints are as listed below:

Check

- ☐ Prepare action cards for staffs respectively in charge of postpartum women and newborns, of pregnant and puerperal women and delivery, of NICU, of GCU, and of MFICU.
  - ➡ **Assign staffs with different roles, such as team leader, guide, early firefighting, goods takeout, etc.**
- ☐ Confirm the system for requesting assistance in your facility.
  - ➡ **At a large facility, plan how to allocate emergency support staff (assignment of first-aid tasks.)**

10 Preparation of a damage checklist

It is recommendable to prepare a checklist for identifying damage to staff, buildings and equipment in case of emergency. Details will be described in the next chapter. Key checkpoints are as listed below:

Check

- ☐ Confirming safety of inpatients and staff, the number of persons should be clarified for identifying damage situation of buildings.
- ☐ Prepare a form indicating checkpoints for essential utilities.
  - ➡ **Ensure actions based on the reporting, notification, and consultation systems on a regular basis.**

11 Establishing emergency contact networks

Communication at times of emergency is prone to confusion. It is required to establish and disseminate contact networks in advance. Checkpoints that should be confirmed in the preparation of contact networks are as listed below:

Check

- ☐ Conduct periodic emergency communication drills to disseminate and maintain emergency contact systems.
- ☐ Prepare mailing lists as necessary.

  Lessons learned **Following the Great East Japan Earthquake, it took time until cell phone lines and landlines were restored. In the meantime, there was a report that e-mail could be used, while there were cases where e-mail traffic got confused in large cities.**
- ☐ Establish contact networks with clear priorities, depending on the distance from the hospital, family conditions (e.g. unmarried persons, presence of children), and other conditions of individuals to be contacted.
  - ➡ **Clarify priorities for calling in accordance with the scale of disaster.**
- ☐ Establish respective emergency contact networks for different shift schedules.
  - ➡ **Assume two patterns for day shift on weekdays and for day shift on holidays or night shift.**

12 Confirmation on shelters and emergency contact information

It is preferable to confirm the following checkpoints:

Check

- ☐ At a large facility, cooperation with the Disaster Control Headquarters in the facility should be confirmed.
  - ➡ **Confirm the chain of command and cooperation between the hospital and the department.**
- ☐ Assume more than one facility that can be used by the Control Headquarters at the time of disaster.
  - ➡ **At a disaster base hospital, its roles as a local base hospital should be confirmed in advance. At other hospitals, cooperation with the disaster base hospital should be confirmed in advance.**
- ☐ Confirm evacuation areas nearby.
- ☐ Confirm methods for communication with the regional and municipal governments.
- ☐ Collect information on local disaster preparedness concerning pregnant, puerperal and postpartum women.

Examples **In Bunkyo Ward, Tokyo, Atomi University was designated as an evacuation area for pregnant, puerperal and postpartum women and newborns.**

13 Posting specific methods for carrying patients and newborns

It is recommendable to confirm, in advance, methods for carrying patients and newborns in case of emergency evacuation, and post to indicate them in locations that can be easily seen. Checkpoints to be confirmed are as listed below:

Check

- ☐ Carrying patients using sheets.
- ☐ Carrying patients over stairs.
  - ➡ **Instructions for removing transfusion and photos of carrying help easy understanding.**
- ☐ Carrying newborns, using newborn evacuation belts, newborn slings, and/or emergency blankets.
  - ➡ **Put the name card of each newborn into its covering.**

Lessons learned **A facility happened to conduct a disaster drill on the day before the Great East Japan Earthquake occurred. Because postpartum women at the facility actually attached slings to their newborns during the drill, and confirmed how to use them, they could efficiently use and evacuate at the time of disaster.**

▲ Newborn evacuation belt

<For three babies>

▲ Emergency blanket

14 Preparedness for the transportation of mothers and newborns

Assume more than one facility that can be used by the Control Headquarters at the time of disaster, and make efforts to establish cooperation in person with other facilities nearby by holding local network meetings, etc. Such meetings are usually attended by executives, so also make occasions for frontline staff to gather.

It is preferable to confirm the following checkpoints on a regular basis:

Check

- ☐ Confirm rules for coordinating on the transportation of patients and newborns with other facilities nearby.
- ☐ How to contact the accepting facility as a requesting facility.
- ☐ Cooperation with the fire department, police, and Self-Defense Forces.
- ☐ How to establish an accepting system as an accepting facility.

Reference (in Japanese only)

- ■ "The Japan Society for Premature and Newborn Medicine and the Japanese Neonatologist Association: Procedures for the Restoration of Newborn Care at the Time of Disaster," prepared in March 2012, Ver. 2, edited by the Working Group for the Procedures for Restructuring Newborn Care at the Time of Disaster
  http://jspn.gr.jp/pdf/tejyunsho_ver2.pdf
- ■ On the website of the Japan Society for Premature and Newborn Medicine, NICU-related notification sheets, checklists, etc. are published.
  http://plaza.umin.ac.jp/~jspn/shinsai/index.html

3 Disaster drills

1 Conducting disaster drills assuming a fire

A system must be established so that disaster drills should be conducted without fail in each department. Key checkpoints in the conduct of drills are as listed below:

Check

- ☐ Conduct periodic evacuation drills.
  - ➡ **Plan at least three separate evacuation drills in a year with different disaster scenarios.**

    Lessons learned **Evacuation was efficiently guided at a facility that had conducted at least three periodic disaster drills in a year.**
- ☐ Also conduct tabletop exercise as necessary.
- ☐ Plan more than one evacuation route, and actually evacuate through those routes in a drill.
- ☐ Involve inpatients in the drill.

2 Conducting disaster drills assuming an earthquake

Conduct a simulation assuming an earthquake in the region of your facility. Together with physicians, examine necessary response based on the background of pregnant, puerperal and postpartum women (gestational age, complications, etc.)

It is preferable to clarify the following checkpoints on a regular basis. It is necessary to image and train actions to be taken at the time of disaster, rather than deferring such examination until a disaster occurs, because details of a disaster are unknown until it occurs.

Check

- ☐ Conduct periodic evacuation drills.
  - ➡ **Because an earthquake is an extensive disaster, partial drills on the chain of command, information collection and presentation, etc. should also be conducted as appropriate, and led to comprehensive drills.**
  - ➡ **Drills with scenarios involving local residents and local government officials help participants closely experience cooperation with the local community.**
- ☐ Establish rules at your facility concerning triage for inpatients at the time of disaster.
- ☐ Response to puerperal women in the process of delivery in the case of damage to your facility.
- ☐ Establish criteria for premature discharge from the hospital for postpartum women.
- ☐ Response to pregnant women with their delivery dates approaching.

3 Three-minute simulation before work

It is important to confirm and simulate actions to be taken at the time of disaster every day, even briefly. It is recommendable to identify and routinize checkpoints to be confirmed.

Check

- ☐ Confirm the roles and actions assigned to individual staffs before work starts every day, referring to their respective action cards.
  - ➡ **Such confirmation must be incorporated into operations in each working shift.**
- ☐ Inspection of emergency items.
  - ➡ **Include the inspection and replenishment of emergency items into routine operations, and ensure periodic inspection.**

4 Seminars: Participation in disaster symposiums, etc.

Recognition of staff is enhanced by holding periodic seminars and participating in external conferences and symposiums. Ensure continuous learning through annual planning on seminar participation or by other means. Recognition and practice are further strengthened by planning study meetings at your facility or at nearby facilities.

4 Fostering recognition among pregnant, puerperal and postpartum women and their families

1 Roles of the Mother and Child Health Handbook as an information source at the time of disaster

Emphasize the necessity of carrying around the Mother and Child Health Handbook* on a regular basis.

*: The Mother and Child Health Handbook is a tool for promoting maternal health, in which healthcare providers enter and refer to, and parents can also enter and manage, health records as necessary from the pregnancy through to the postpartum period, and from the newborn period through to the infancy. In Japan, the municipal governments issue the Mother and Child Health Handbook to all pregnant women who reside in the municipality and report their pregnancy.

2 Improve recognition on disaster preparedness through antenatal classes and pre-hospitalization orientation

It is important to enhance recognition not only among staff, but also all persons who may be in the facility at the time of emergency. It is necessary to prepare for a disaster through antenatal classes, pre-hospitalization orientation, etc. Some examples are provided below:

Check

- ☐ Provide pregnant, puerperal and postpartum women with information to enhance recognition on daily disaster preparedness.
- ☐ Promote breastfeeding.
  - ➡ **Provide information on breastfeeding during pregnancy, and give prenatal instructions. Promote breastfeeding also for the purpose of protecting babies from gastroenteritis and diarrhea that spread at the time of disaster.**

    Lessons learned **Problems that followed the Great East Japan Earthquake included the outage of power, water and other essential utilities; uncertainty about time required before the essential utilities would be restored; shortage of feeding bottles and disinfected goods; and shortage of distributed supplies (unavailability of baby formula.)**
- ☐ Explain about intervention care toward the establishment of breastfeeding at an early postpartum stage.
- ☐ Explain about how to prepare emergency items.

  Lessons learned **At some hospitals, 500-mL plastic bottles were included in the list of items to be prepared before hospitalization, based on experience of the Great East Japan Earthquake.**
- ☐ Explain about the possibility of delivery during disaster.
- ☐ Explain about how to contact the hospital at the time of emergency.
- ☐ Urge pregnant, puerperal and postpartum women to confirm how to contact their families at the time of emergency.
- ☐ Explain about what to wear at the time of hospitalization.
  - ➡ **Select shoes that are easy to put on and walk in.**

    Lessons learned **Following the Great East Japan Earthquake, people found that slippers easily came off and tended to cause injury. Boots and mules cannot be used for evacuation. It is desirable to use sneakers wherever possible (in some inpatient facilities, sneakers are sold at stands for inpatients.)**
- ☐ Explain about the possibility of premature discharge from the hospital.
- ☐ Explain about the basic disaster policies at your facility.
  - ➡ **Notify pregnant, puerperal and postpartum women and their families beforehand that the safety and protection of pregnant, puerperal and postpartum women and newborns at the time of disaster or when essential utilities are interrupted.**

    Lessons learned **Following the Great East Japan Earthquake, a large number of families of pregnant, puerperal and postpartum women gathered at the hospital, calling for the distribution of meals to them, resulting in food shortage.**

5 Cooperation with the local community and government

1 Establishing cooperation with local medical institutions, jointly with physicians

For the purpose of ensuring efficient coordination on the transportation of patients and newborns on a regular basis, it is necessary to establish local networks in person.

Lessons learned **Following the Great East Japan Earthquake, a university hospital that had been designated as a comprehensive perinatal care center undertook triage for the transportation of mothers.**

Consider incorporating the following checkpoints into the manual:

Check

1) Establish systems for medical cooperation and disaster cooperation.

- ☐ Ensure cooperation between the tertiary facilities and the primary and secondary facilities (hold local cooperation meetings at least once a year.)
  - ➡ **If such meetings are held at present, examine formulating a manual for them. If such meetings do not exist, aim at holding a local cooperation meeting (network meeting.)**
- ☐ Tertiary facilities (or the local government) should take the initiative in listing maternity facilities by district.
  - ➡ **Identify facilities that do not handle delivery (to request for and acquire cooperation for manpower, drugs, and hygiene products at the time of disaster.)**

2) Establish rules for the transportation of pregnant and puerperal women at the time of disaster among local medical institutions.

- ☐ Ensure coordination on transportation, taking into account how to secure medical materials, drugs, and human resources at the time of disaster, as well as intervention with an open system when necessary.

3) Establish cooperation with local public health nurses and midwives.

- ☐ Determine in advance the procedures and methods for sharing information on shelters, on support to pregnant and puerperal women who have lost homes, on pregnant women at shelters, etc.
- ☐ Establish cooperation in person through exchange meetings with local residents on a regular basis.

Lessons learned **Following the Great East Japan Earthquake, a large number of local public health nurses and midwives provided assistance to postpartum women, newborns, and their families, through visits to newborns following their premature leave from the hospital, consultation service on childrearing, psychological care, and other supports.**

4) Confirm cooperation and contact with the local government.

- ☐ Put up contact information about the local government.
- ☐ Examine more than one contact method and share them with the local government.

Chapter 2

Preparing a Manual Required Immediately Following a Disaster

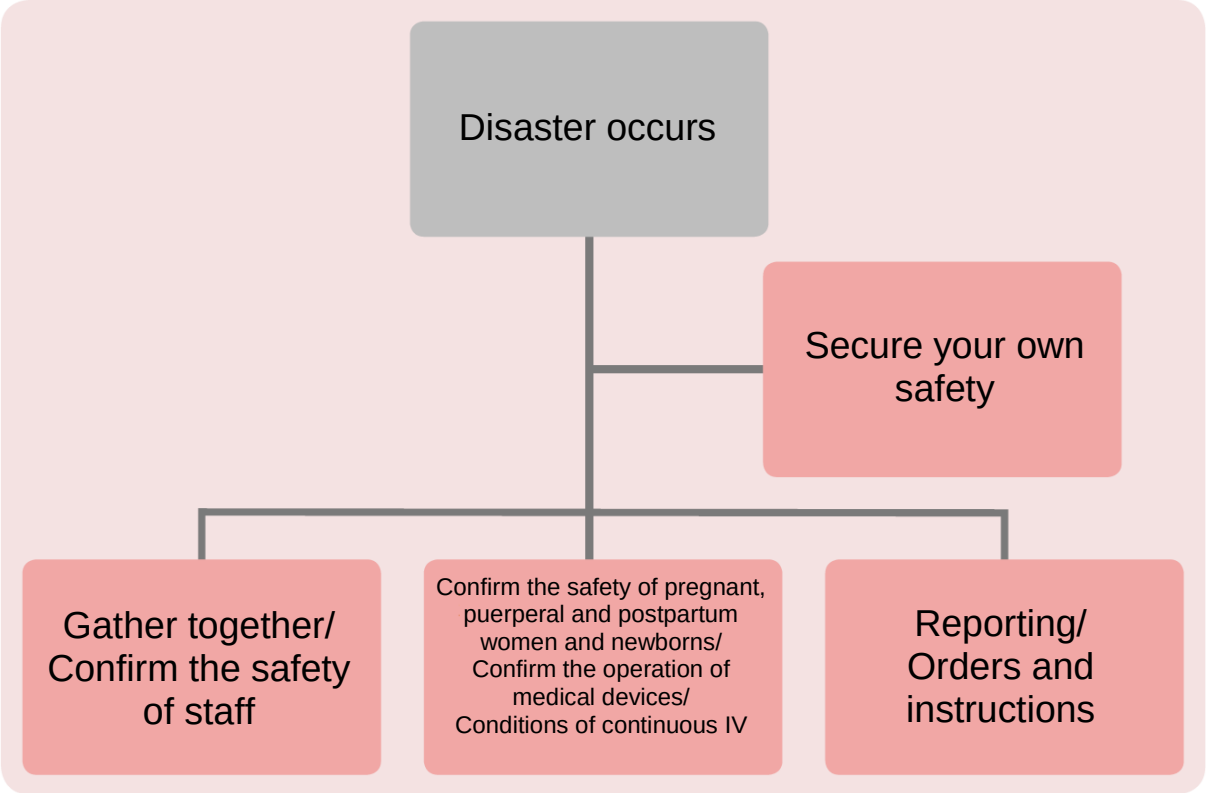
Immediately following a disaster, people are often confused by complicated information, manpower securing, and other problems. To cope with such problems, it is required to prepare and disseminate a manual beforehand, and conduct drills based on it, so that related persons can take appropriate actions in the event of disaster. Refer to the following nineteen points, and incorporate them into your manual.

Nineteen points for a manual required immediately following a disaster

1. Procedure for action to be taken at the time of disaster
2. Ward floor plans and evacuation routes in the hospital
3. Emergency response organization and communication methods
4. Actions to be taken by the leader and members
5. Division of roles
6. Chain of command
7. Action cards
8. Damage checklist

9. Cope with threatened miscarriage and threatened premature delivery during continuous intravenous infusion
10. Coping during delivery
11. Triage
12. Division of roles between midwives and nurses
13. Evacuation and guidance at the time of disaster
14. Emergency items
15. How to provide midwifery care in the absence of essential utilities
16. Basic response in each department
17. Assessment of medical care capabilities at the maternity outpatient unit
18. Accepting inpatients
19. Deal with the families of patients

1 Procedure for action to be taken at the time of disaster



Check

- ☐ When a disaster occurs, secure your own safety at first.
  - ➡ **This is to ensure that you can undertake relief activities for pregnant, puerperal and postpartum women and newborns, and prevent secondary damage.**
- ☐ In order to ensure that the chain of command functions effectively, the staff should gather in designated areas, which should be specified and shared among the staff in advance.
- ☐ Confirm the whereabouts and safety of the staff, and divide the roles among them.
  - ➡ **Take measures to visibly indicate the division of roles, by using a bulletin board posting, for example. Ensure that off-duty staff will be able to deal with appropriately.**
- ☐ Confirm damage condition based on the checklist.
  - ➡ **It is recommendable to prepare action cards (see Examples on pages 34 and 35.)**

2 Ward floor plans and evacuation routes in the hospital

- ◆ Indicate emergency exits and evacuation routes
- ◆ Indicate emergency power systems
- ◆ Indicate the locations of fire extinguishers

Check

- ☐ In each department, open the nearest possible emergency exit.
  - ➡ **E.g. Emergency exits of the ward, doors of the hospital rooms, doors of the delivery rooms, doors of the sick babies rooms.**
  - ➡ **In the case of fire, close the doors once patients have evacuated the rooms. Do not open the fire doors once they are closed.**
- ☐ At the time of power outage, confirm the operation of medical devices and secure power supplies.
  - ➡ **Confirm that electricity has been switched to the emergency power systems.**
- ☐ Get familiar with the locations and operation of fire extinguishers on a regular basis.
- ☐ When the evacuation instruction is given, confirm the routes and guide people. Observe the in-hospital broadcast and other instructions, because the evacuation routes and methods may vary depending on the damage conditions and the locations of fire.

3 Emergency response organization and communication methods

Communication methods

◆ Telephone, PHS, facsimile, messengers

⇒ What should be done when these media are not available, or if manpower is short?

◆ How to share the collected information

⇒ Utilize boards, bulletin boards, etc.

* It is essential that all related persons know the designated locations and methods where information is shared.

1 Response organization at the time of disaster

Check

☐ Observe prior agreements at the hospital.

Examples

1) **All staff members should voluntarily gather to the hospital in the event of an earthquake with an intensity of X on the Japanese seismic scale.**
2) **Staff who cannot gather should notify their safety to the head nurse of their ward.**
3) **The head nurse of the ward and chiefs should voluntarily gather in the event of an earthquake with an intensity of Y to Z on the Japanese seismic scale.**
4) **Observe instructions from the hospital for the establishment of Disaster Control Headquarters and other actions.**

2 Means for communication at the time of disaster

Check

☐ Determine methods for communication in the ward in advance.

➡ **Exchange your e-mail address with the head nurse, because telephone lines are subject to interruption in many cases. Also expect that e-mail traffic may also get congested, take various measures including the establishment of a contact network and informing the head nurse after summarizing reports from a small group of staff.**

☐ Also examine the use of the “Disaster message phone service 171,” and of the “Disaster message board web 171” for cell phones and smartphones (one-way notification only.)

➡ **Examine and disseminate communication methods among related persons, expecting that people will become less easily contacted following a disaster, depending on the extent of damage caused.**

3 Means for communication and information exchange within the ward

Check

- ☐ List the means for notification within the ward (e.g. in-hospital phone, in-hospital PHS, in-ward PHS, facsimile, messengers), together with the PHS numbers of the head nurse, chiefs, nursing aides, etc.
- ☐ Determine how the collected information should be shared.
  - ➡ **Utilize boards, bulletin boards, etc.**
- ☐ Examine and determine details that describe of collected information on board for division of roles, etc.

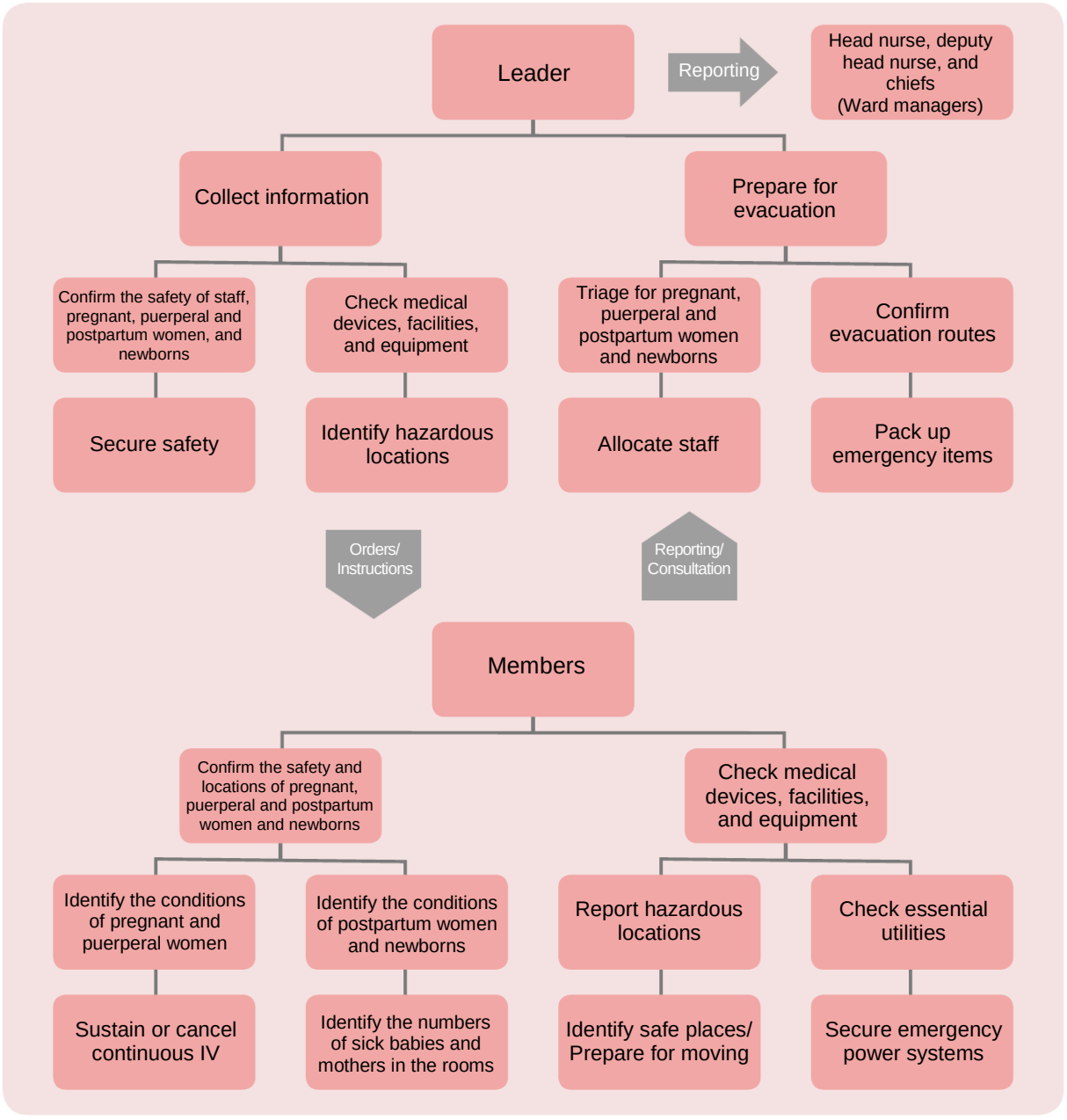
Examples

Leader OO (now packing up emergency items)
XX in charge of Room A: Patients confirmed; Now checking the room
YY in charge of Room B: Confirmed three mothers with their children in the room
XX in charge of Room C: Treating an injured person

It may be convenient to attach action cards on the board.

Names of off-duty staff members who have gathered to the hospital
Member DD is in the newborns room!
Member EE has a PHS FFFF at hand.
Has requested the Disaster Control Headquarters to send a relief team! , etc.

4 Actions to be taken by the leader and members



Check

☐ List necessary actions, divided into a) reporting and consultation and b) orders and instructions.

5 Division of roles

Examine the roles of the leader and of members that are common to all work shifts, and the roles of the leader and of members that are specific to the night shift, where the workforce is relatively small.
Involve physicians and other related persons in this examination and determination process.

2 Roles of the leader

Check

- ☐ Confirm the safety of staff.
- ☐ Integrate collected information.
  - ➡ **Prepare for reports from members.**
- ☐ Confirm the whereabouts of members.
  - ➡ **When any members are missing, ask other members to confirm or confirm by yourself.**
  - ➡ **Be sure that some members are present at the gathering place, or put up a board, etc.**
- ☐ Report to the ward managers.
  - ➡ **The (deputy) ward managers should, in turn, report to the (deputy) hospital managers.**
- ☐ Orders and instructions.
  - ➡ **Provide instructions to on-duty staff, allocate the members who have gathered, confirm instructions from the Disaster Control Headquarters, and convey them to the staff.**
- ☐ Upon instructions for evacuation:

Examples ▶▶▶ **Check emergency items.**

Check pregnant, puerperal and postpartum women (newborns and puerperal women during delivery) who need to be carried on a stretcher, and those who need assistance when moving.

Allocate staff and prepare for the evacuation of mothers and children.

Interrupt continuous IV for pregnant and puerperal women (confirm necessary oral medication.)

3 Roles of members

Check

- ☐ Take actions under the instructions of the team leader and the managers.
- ☐ Confirm the safety and locations of pregnant, puerperal and postpartum women and newborns.
  - ➡ **Respond calmly to pregnant, puerperal and postpartum women.**
- ☐ Check mothers and babies in the same room.
- ☐ Identify pregnant and puerperal women and newborns under IV.
- ☐ Interrupt medical tests and similar activities.

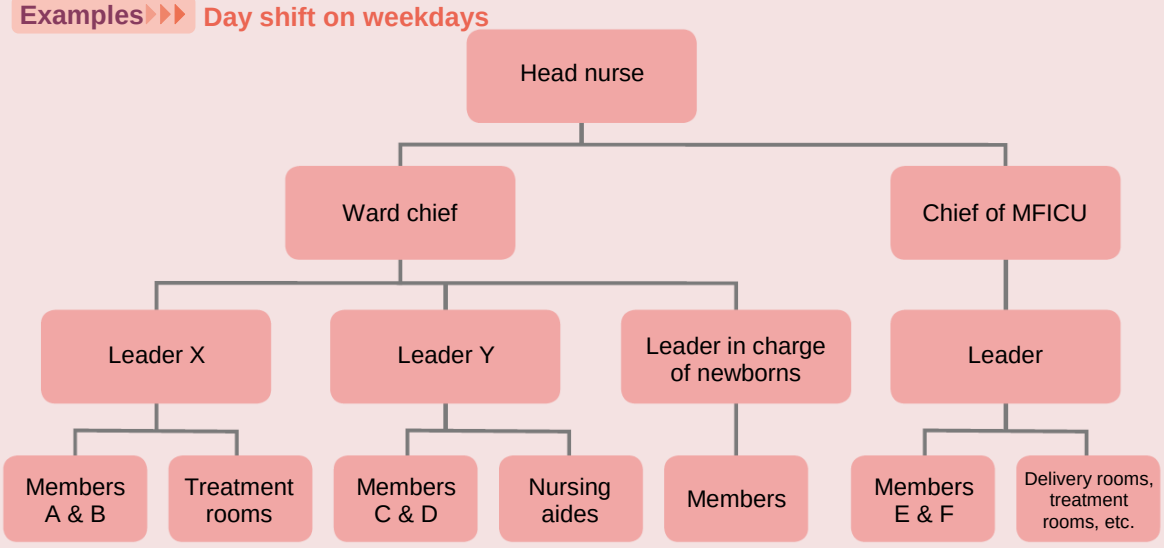
☐ Secure power supplies to transfusion pumps.
☐ Check the conditions of damage in the hospital rooms and in the ward.
➡ **Check for power or water outage and the interruption of other essential utilities, damage to or fall of walls and ceilings, broken window glass, etc.**
☐ When evacuation is required, guide people under the instructions of the managers and the team leader, taking priorities into account.
➡ **Prepare for the evacuation of mothers and children (e.g. equipment for the evacuation of newborns), assist persons who have difficulty in moving by themselves, confirm the safety of pregnant, puerperal and postpartum women and newborns in the evacuation area.**
☐ Roles of members in charge of the newborns room.
➡ **Keep cots and incubators away from the window glass, and move them to an area that is free from the risk of falling objects. Guide breastfeeding mothers to interrupt and secure the safety of babies.**
➡ **Confirm the operation of medical devices. Prepare for interrupting IV, and interrupt upon the instructions for evacuation. When oxygen inhalation is required, switch from the central piping to oxygen cylinders.**
➡ **Put clothes on babies in the incubators, and keep them warm. Babies looked after in a separate room should be taken to their mothers. Staff should take all necessary protective measures for babies whose mother has already left the hospital. If there are too many babies, call for assistance.**
➡ **Examine necessary measures to prevent the kidnapping of babies.**

6 Chain of command

1 Schematize the chain of command for the day shift on weekdays.

The head nurse should report to the physician.

Examples Day shift on weekdays



Check

☐ Examine the division of roles and cooperation in ward operations.

Examples ▸▸▸ **What should be done if the maternity ward and MFICU are adjacent?**

☐ The chain of command should not be one-way. Orders, instructions, and information should flow from the top to the bottom, while information and reporting should flow from the bottom to the top.

☐ Orders and instructions should be determined based on collected information. Utilize action cards for efficient and effective information collection.

☐ Describe the specific division of roles in each work shift.

☐ Also document the division of roles of physicians.

2 Division of the roles for the day shift on weekdays.

Check

1) Head nurse, deputy head nurse, and/or chiefs (ward managers)

☐ Identify conditions throughout the ward.

☐ Confirm evacuation routes, and pack up emergency bags.

☐ Report the conditions of pregnant, puerperal and postpartum women and newborns (including attendants and visitors), and of staff, to the nursing department.

☐ Check damage to equipment and fixtures in the ward.

☐ Confirm the safety of staff in the hospital and staff at home.

☐ Submit the damage checklist to the Disaster Control Headquarters.

☐ Secure the safety of pregnant, puerperal and postpartum women and newborns.

☐ Secure the manpower required for the maintenance of ward operations, and direct other staff to gather in the designated area.

☐ When evacuation is required, direct evacuation and guide people to the evacuation area under the instructions of the Disaster Control Headquarters.

➡ **Also examine the necessity of evacuation at the discretion of department managers, depending on the condition of damage.**

☐ Make final confirmation for the evacuation of pregnant, puerperal and postpartum women and newborns.

☐ Carry out the emergency bags.

☐ Identify the entire situation and report it to physicians.

☐ Report to the Disaster Control Headquarters when the evacuation of pregnant, puerperal and postpartum women, newborns, and staff has been completed.

2) Team leaders

☐ Confirm the safety of team members, and report the results to the ward managers.

➡ **Examine required information and methods for reporting to the ward managers, including the use of action cards and checklists.**

☐ Confirm the safety of puerperal and postpartum women and newborns (including attendants and visitors), and report the results to the ward managers.

☐ Keep open the entrance of the ward, the doors of the hospital rooms, the automatic doors of the delivery rooms, the entrance of the newborns room, etc.

☐ Check the equipment and fixtures in the ward, and report the results to the ward managers.

☐ Allocate team members to the hospital rooms.

☐ When evacuation is required, guide people under the instructions of the ward managers, taking priorities into account.

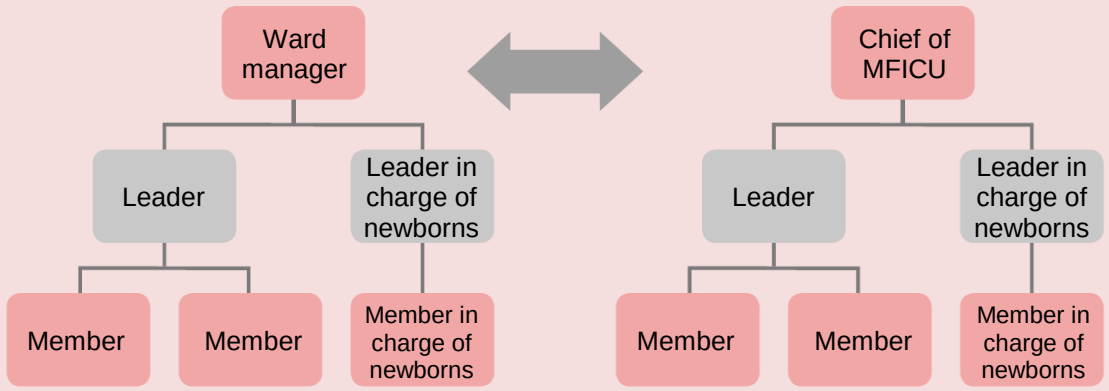
☐ Confirm the evacuation of pregnant, puerperal and postpartum women and newborns, and report the results to the ward managers.

3) Members

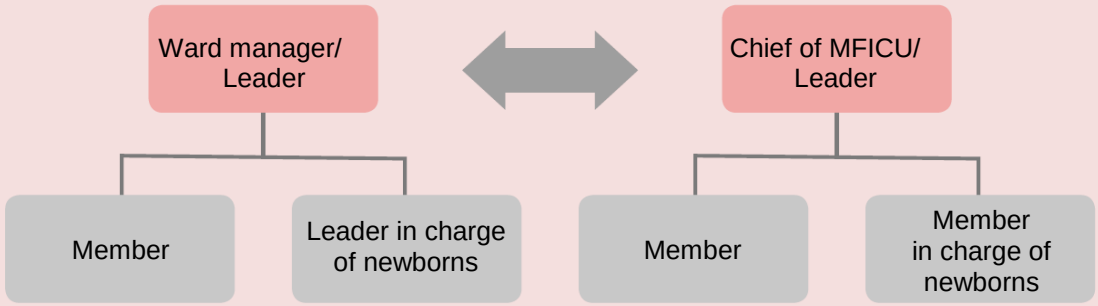
- ☐ Confirm and secure the safety of pregnant, puerperal and postpartum women and newborns (including attendants and visitors) under the instructions of the ward managers and the team leader.
  - ➡ **Behave calmly, so that pregnant, puerperal and postpartum women and newborns will not be worried or shocked.**
- ☐ When evacuation is required, guide people under the instructions of the ward managers and the team leader, taking priorities into account.
- ☐ Secure safety of pregnant, puerperal and postpartum women and newborns in the evacuation area.

3 Visualize the chain of command for the day shift on holidays and for the night shift.

Examples Day shift on holidays



Examples Night shift



Check

- ☐ Because the workforce is relatively small at night and on holidays, the division of roles among managers, leaders and members, as well as cooperation in each team, becomes more important.
- ☐ The leader or manager should integrate the collected information and report to the Disaster Control Headquarters.

4 Division of roles for the day shift on holidays and for the night shift

Check

1) Ward manager (Head nurse, deputy head nurse, and/or chiefs)

- ☐ Identify conditions throughout the ward.
- ☐ Confirm evacuation routes, and pack up emergency bags.
  - ➡ **Examine the storage area and details of emergency items, and disseminate them to staff, on a regular basis.**
- ☐ Report the conditions of pregnant, puerperal and postpartum women and newborns (including attendants and visitors), and of staff, to the head nurse on duty.
- ☐ Check damage to equipment and fixtures in the ward.
- ☐ Confirm the safety of staff in the hospital and staff at home.
- ☐ Submit the damage checklist to the designed unit (e.g. reception of the outpatient unit of emergency and critical care center.)
- ☐ Secure the safety of pregnant, puerperal and postpartum women and newborns.
- ☐ Secure the manpower required for the maintenance of ward operations, and direct other staff to gather in the designated area.
- ☐ When evacuation is required, direct evacuation and guide people to the evacuation area under the instructions of the Disaster Control Headquarters.
- ☐ Make final confirmation for the evacuation of pregnant, puerperal and postpartum women and newborns.
- ☐ Carry out the emergency bags.
- ☐ Report to the Disaster Control Headquarters when the evacuation of pregnant, puerperal and postpartum women, newborns, and staff has been completed.

2) Team leaders

- ☐ Confirm the safety of team members, and report the results to the ward managers.
- ☐ Confirm the safety of pregnant, puerperal and postpartum women and newborns (including attendants and visitors), and report the results to the ward managers.
- ☐ Keep open the entrance of the ward, the doors of the hospital rooms, the automatic doors of the delivery rooms, the entrance of the newborns room, etc.
- ☐ Check the equipment and fixtures in the ward, and report the results to the ward managers.
- ☐ Allocate team members to the hospital rooms.
- ☐ When evacuation is required, guide people under the instructions of the ward managers, taking priorities into account.
- ☐ Confirm the evacuation of pregnant, puerperal and postpartum women and newborns, and report the results to the ward managers.

3) Members

- ☐ Confirm and secure the safety of pregnant, puerperal and postpartum women and newborns (including attendants and visitors) under the instructions of the ward managers and the team leader.
  - ➡ **Behave calmly, so that pregnant, puerperal and postpartum women and newborns will not be worried or shocked.**
- ☐ When evacuation is required, guide people under the instructions of the ward managers and the team leader, taking priorities into account.
- ☐ Secure safety of pregnant, puerperal and postpartum women and newborns in the evacuation area.

7 Action cards

- "Action cards," a.k.a. priority action instruction cards, plainly and specifically indicate the minimum required actions at the time of disaster.
- Action cards should be prepared by role, by type of disaster, by scale of disaster, by extent of damage, etc.
  - * It is recommendable to prepare action cards in the form of checklists, so that necessary information can be effectively collected at the time of disaster.
  - * Determine the storage area for action cards and notify it to staff, so that the cards can be taken out without failure following a disaster.
  - * Action cards should be of a pocket size, and used for reporting to leaders and managers. Information can be shared at a glance by attaching the cards on a board.

Examples Action cards

For leaders Date: / / ,Time: :	Signature
Confirm the locations and safety of staff.	
Confirm and report the locations and safety of pregnant, puerperal and postpartum women and newborns.	
Confirm the operation of medical devices.	
Confirm and report safety in the ward.	
Report to the ward managers.	
Prepare for evacuation (allocate staff as appropriate.)	
Check emergency items.	
Keep open the doors.	

For Room _____, 1st check (by members) Date: / / ,Time: :	Signature
Confirm the safety of pregnant, puerperal and postpartum women and newborns.	
Confirm mothers and children in the same room (particularly conditions of the babies.)	
Confirm the safety of visitors.	
Confirm the operation of medical devices.	
Check for hazardous locations. (To be double-checked in the 2nd check)	
Keep open the doors.	

For Room _____, 2nd check (by members) Date: / / ,Time: :	Signature
Confirm mothers and children in the same room (particularly conditions of the babies.)	
Confirm the operation of medical devices.	
Check for damage in walls and ceilings.	
Check for damage in the kitchen and bathrooms.	
Check for hazardous locations.	
Move beds away from the windows.	

Check

- ☐ Acquire correct information through actions based on the action cards.
- ☐ Staff who happens to be in a hospital room when the disaster hits should confirm the safety of pregnant, puerperal and postpartum women and newborns on the spot, and then move to the designated gathering area. Staff who are not in a hospital room when the disaster hits should move to the gathering area, receive instructions from the leader or manager, check each point on the action card, and submit the 1st check report.
- ☐ Call for assistance when first-aid treatment or preparation for evacuation is required.
- ☐ In the 2nd check, confirm whether the mothers and children can wait in their hospital rooms.
- ☐ Just as in the 1st check, confirm the safety of pregnant, puerperal and postpartum women and newborns.
  - ➡ **Monitor physical and psychological changes in pregnant, puerperal and postpartum women and newborns. Calmly notify them of instructions from the Disaster Control Headquarters, whether they should wait in the room or evacuate.**
  - ➡ **Bring newborns to their mothers. As for babies who cannot stay with their mothers due to medical conditions, nurses should tell their conditions and protection to their mothers.**
- ☐ During power outage, confirm that transfusion pumps and monitors have been switched to emergency power systems, or have been suspended.
- ☐ Check for hazardous locations in the room. If waiting in the room is deemed inappropriate, ask for instructions from the manager or leader on the movement of pregnant, puerperal and postpartum women and newborns.

8 Damage checklist

Check

- ☐ Check that conditions of pregnant, puerperal and postpartum women and newborns can be described in the in-hospital reporting form. If there is no relevant field, add one.
- ☐ It is recommendable to prepare a remarks field, expecting that the safety of some inpatients and staff members may remain unknown.

Examples

Disaster Damage Reporting Form

Department: _____ Reporting person: _____ (Title: _____)

Date & time of on-site check: _____ / _____ / _____ ; _____ : _____ am/pm

* The ward manager should submit this form to the Disaster Control Headquarters (or the reception of the outpatient unit at the emergency and critical care center during non-business hours) within one hour from the occurrence of the disaster.

1. Situation at work start (or before the disaster)	
Number of inpatients: _____ in total	Transferred (on a Stretcher): _____ ; Ambulation(with Assistance) : _____ ; Ambulation (by Themselves) :_____ ; Pregnant and puerperal women: _____ (of which before 34 gestational weeks: _____ ; 34 weeks or after: _____ ; having labor pains: _____ ; during delivery: _____); Postpartum women: _____ ; Newborns: _____ (of which in cots :_____ ; in incubators: _____); Locations confirmed: Hospital rooms: _____ ; Outpatient unit or test rooms: _____ ; Operating theater: _____ ; (Staying) out: _____
Number of outpatients: _____ in total	Maternity classes: _____ ; Breastfeeding outpatient unit: _____
Attendants and visitors:	_____
Staff members: _____ in total	Physicians: _____ ; Nurses: _____ (of which midwives: _____); Nursing aides: _____ ; Office workers: _____ ; Interns and trainees: _____ ; Others: _____

2. Situation following the disaster: Indicate triage information for persons injured by the disaster.					
Triage information for inpatients	Injured persons: _____	Red: _____	Yellow: _____	Green: _____	Black: _____
Triage information for outpatients	Injured persons: _____	Red: _____	Yellow: _____	Green: _____	Black: _____
Triage information for attendants and visitors	Injured persons: _____	Red: _____	Yellow: _____	Green: _____	Black: _____
Triage information for staff members	Injured persons: _____	Red: _____	Yellow: _____	Green: _____	Black: _____
Present staff members	Physicians:_____ ; Nurses: _____ (of which midwives: _____); Nursing aides:_____ ; Office workers:_____; Interns and trainees:_____ ; Others: _____.				

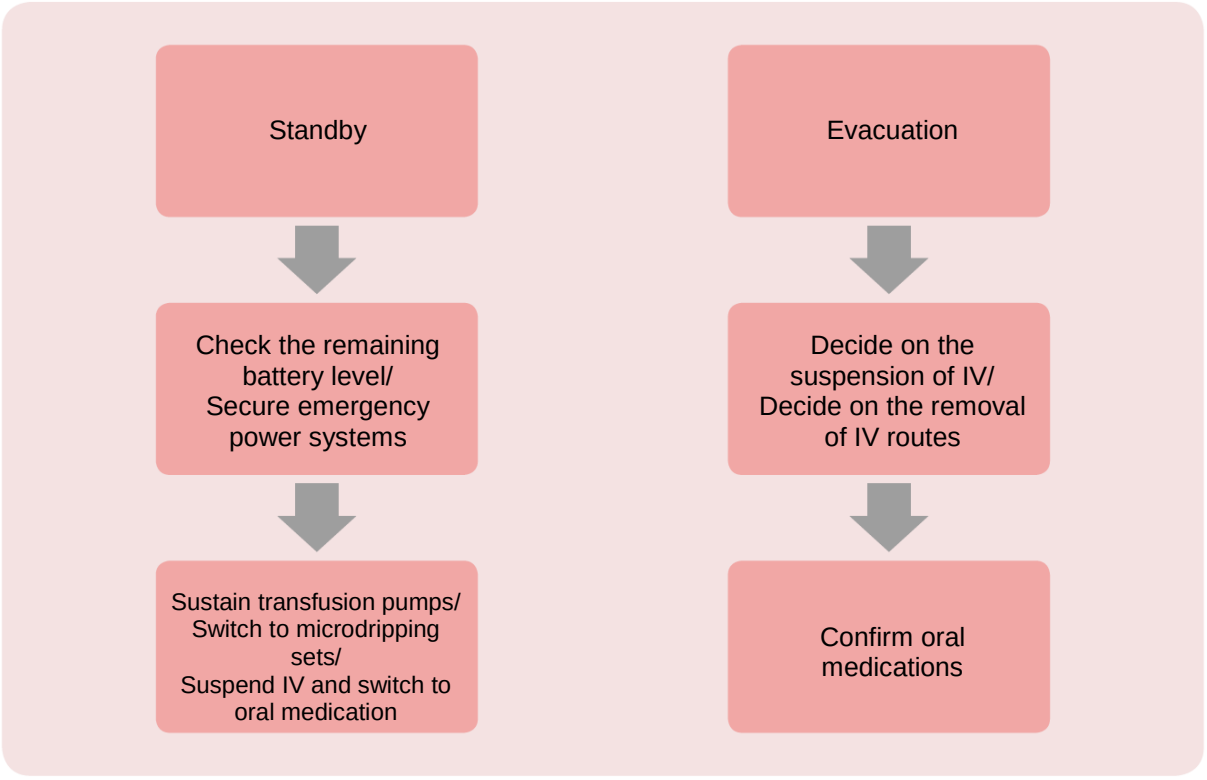
3. Damage to equipment and facilities		
Damage to walls, ceilings, pillars and floors	Yes ( )	None
Damage to other parts of the building	Yes ( )	None
Clearance of evacuation routes	Impossible / Difficult	Possible
Damage to toilets and the indication of unusable toilets	Yes ( ) Indicated / To be indicated	None
Use of electricity	Unavailable / Partially available ( )	Available
Use of telephone lines	Unavailable / Partially available ( )	Available
Use of PHS	Unavailable / Partially available ( )	Available
Use of nurse calls	Unavailable / Partially available ( )	Available
Use of water supply	Unavailable / Partially available ( )	Available
Use of central piping for medical gases	Unavailable / Partially available ( )	Available
Use of large medical devices	Unavailable / Partially available ( )	Available

4. Capacity for patients					
Beds (a)	Patients (b)	Patients who can walk	Patients who cannot walk	Vacant beds (a - b)	Patients who can leave the hospital
_____	_____	_____	_____	_____	_____

5. Other information to be reported

Indicate, in "Other information to be reported," any inpatients or staff members whose safety remain unknown.

9 Cope with threatened miscarriage and threatened premature delivery during continuous intravenous infusion



Check

- ☐ While continuous IV is in progress, select response based on the necessity for evacuation.
  - ➡ **In principle, IV should be suspended and the routes should be removed.**
- ☐ If evacuation is required, suspend IV. Check whether oral medications are required.
  - ➡ **If IV may be restarted after evacuation, then keep the routes attached (e.g. saline lock, heparin lock.)**
- ☐ If standby is directed, judge whether transfusion pumps can be used. Based on this judgment, determine whether transfusion pumps or IV should be sustained.
- ☐ Establish rules concerning the suspension of IV.
  - ➡ **Also examine rules to administer oral medications to all patients if IV is suspended.**
- ☐ Examine how to secure oral medications.
  - ➡ **Pregnant women themselves may not have their medicines at hand. Examine stocking of necessary medicines at specified quantities within the ward or as part of drugs for evacuation.**

10 Coping during delivery

When evacuation is required, select response based on progress in the delivery.

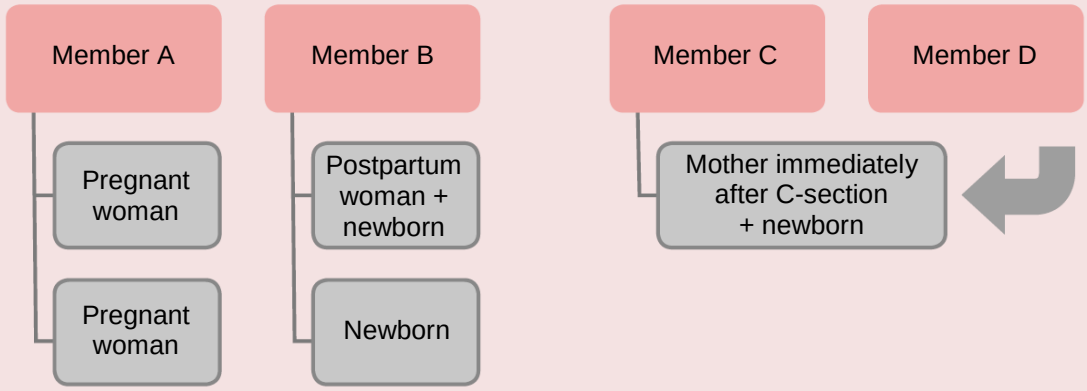
- First stage of labor: Prepare for evacuation.
- Second stage of labor: Deliver the fetus. If there are signs of placental abruption, deliver the placenta before preparing for evacuation.
- If there are no signs of placental abruption, fixate the umbilical cord with a clip, and prepare for evacuation.
- Take measures to keep a newborn warm. A delivery assistant should hold the baby and guide the mother (postpartum woman) to evacuation.
- Secure evacuation items (hygiene products, disinfectants, first-aid medicines, etc. to cope with the delivery of placenta and bleeding.)
- Third and fourth stages of labor: Conduct evacuation depending on situation.

Check

- ☐ Clarify beforehand the chain of command in the delivery room.
- ☐ Delivery staff (direct assistants) should identify the progress of delivery, and collaborate with the leaders and managers via indirect assistants.
- ☐ Delivery staff should consult the physician on the necessity (appropriateness) of forced delivery.
- ☐ Secure the safety of yourself and of the parturient woman.
- ☐ Confirm the operation of medical devices, and take measures to prevent falls.
- ☐ Check the damage level in the delivery room to determine whether delivery is possible inside.
  - ➡ **If evacuation is not required, continue assistance to delivery.**
  - ➡ **If evacuation is required, prepare for evacuation in accordance with the progress of delivery. Examine other necessary measures depending on the situation, such as forced delivery.**
- ☐ Following delivery, take measures to keep the mother and newborn warm, and wait for instructions from the Disaster Control Headquarters.
- ☐ Pack up necessary items while waiting instructions for evacuation.

11 Triage

Examples



Check

- ☐ Determine who should take care of which pregnant, puerperal and postpartum women and newborns. Also determine the number of pregnant, puerperal and postpartum women and newborns that one staff member can take care of.
- ☐ Examine how to call for assistance from physicians and other units.
- ☐ In principle, newborns should stay with their mothers. Take measures so that mothers can hold their babies safely during moving.
  - ➡ **Stock newborn slings, newborn evacuation belts, buckle carriers, and other evacuation equipment for babies.**
- ☐ Take adequate measures to keep newborns warm during moving.
  - ➡ **Prepare heat insulating sheets.**
- ☐ Examine the order of moving, guidance methods, etc. depending on the conditions of pregnant, puerperal and postpartum women and newborns.

  Examples
  1) **Pregnant, puerperal and postpartum women who can walk by themselves should move first, followed by those who need assistance, and then those who need to be carried on a stretcher.**
  2) **Postpartum women who carry their babies should be accompanied by staff members who carry babies whose mothers are not present.**
- ☐ If attendants and visitors are husbands or other families of mothers, request cooperation from them in the evacuation of pregnant, puerperal and postpartum women and newborns.

12 Division of roles between midwives and nurses

Check

- ☐ Depending on the conditions of patients, the leader should determine which pregnant, puerperal and postpartum women and newborns should be taken care of by midwives and nurses.
  - ➡ **Midwives should take care of puerperal women who are having labor pains or in the midst of delivery. Consult physicians and examine the necessity of requesting for their cooperation in cases where only a small number of midwives are present, depending on the roster.**
- ☐ It is expected that staff members should take care of pregnant, puerperal and postpartum women and newborns who are not originally assigned to them. To avoid confusion, clarify such ad hoc assignment using the list of patients and bulletin boards.

13 Evacuation and guidance at the time of disaster

1 Instructions for evacuation

Check

- ☐ Following a disaster, conduct evacuation and guidance in accordance with the in-hospital announcement.
  - ➡**If there is no announcement, observe the chain of command specified in the hospital for guidance methods.**

Examples

1) **Conduct evacuation and guidance in accordance with instructions from the head nurse of the ward or the head physician of the ward.**
2) **At night and on holidays, observe instructions from the on-duty doctor and from the on-call doctor.**
3) **If a disaster occurs at night or on a holiday, the responsible person should immediately contact the on-duty doctor and the on-duty head nurse for instructions.**

2 Evacuation routes and methods

Check

- ☐ If there is no announcement, confirm safety, and guide evacuation on the same floor at first.
- ☐ Pregnant, puerperal and postpartum women who can walk should evacuate using stairs or evacuation slopes.
- ☐ Do not use elevators.
- ☐ Conduct orientation concerning evacuation routes and behavior at the time of disaster, as part of the pre-hospitalization orientation.

Examples

1) Evacuation routes along corridors
2) Emergency response for patients under IV (how to handle IV lines)
3) Marks in front of hospital rooms indicating patients who can walk by themselves, those who need assistance, and those who need to be carried on a stretcher
4) Evacuation methods for mothers and children

3 Evacuation of ward patients

Check

1) Pregnant, puerperal and postpartum women, and other gynecologic patients

- ☐ Pre-determine how to handle IV lines for patients under IV. Depending on the situation, either ask patients to handle the lines by themselves, or have staff handle the lines, before guiding evacuation.
- ☐ Patients with urinary catheterization should evacuate with the catheter, which should be removed by a nurse after arriving at a safe place.
- ☐ A pregnant woman with prolapsed fetal membranes who needs rest should be guided to evacuate with the priority on her own life.
  - ➡ **Pre-determine whether such patients should walk by themselves, need assistance, or need to be carried on a stretcher, during evacuation.**

2) Patients under serious conditions

- ☐ Conduct triage and use stretchers for patients with a low level of consciousness, anesthetized patients, patients on narcotics, and patients immediately after a surgical operation.
- ☐ Clarify a patient under serious conditions to all staff, for example: by putting a red mark on the nurse call board in the nurse station and on the name plate in front of her hospital room, or by other means.

3) Newborns

- ☐ In a rooming-in system, staff should visit each hospital room and guide the mother to cover her baby with a blanket or bath towel, and hold the baby during evacuation.
- ☐ Mothers whose babies are in the sick babies room should be advised to go to their babies. After comparing the name bands on the mother and on the baby, hand the baby to the mother.
  - ➡ **Adequate precautions must be taken to prevent kidnapping or other crimes.**
- ☐ When evacuation is required, hand a thermal insulation blanket to mothers and guide them to evacuate while keeping their babies warm.

4) Sick babies whose mothers have left the hospital

- ☐ For sick babies in the incubator, suspend oxygen supply, remove IV, and cover them with a thermal insulation blanket. Nurses should hold them or carry them in newborn evacuation equipment during evacuation.
- ☐ Sick babies in the cot should be covered by a thermal insulation blanket, and carried in newborn evacuation equipment during evacuation.

4 Evacuation of puerperal women during delivery

Determine standards for decision-making and actions based on the progress of delivery and the level of remaining functions in the delivery room, and document such standards in the manual. Also pre-determine preparations assuming rapid delivery progress. Rules should be examined and determined by all related persons, including physicians, and documented in the manual.

Check

1) First stage of labor

- ☐ Have the puerperal woman apply many pads and wear shorts. The puerperal woman should walk by herself, accompanied by delivery staff, during evacuation.
- ☐ Keep the puerperal woman warm.

2) Second stage of labor

Examples

1) **Secure your own safety.**
2) **Confirm the safety of the puerperal woman, and identify the progress of delivery.**
3) **Check the progress of delivery, provide explanation and psychological care to the woman.**
4) **Check the medical devices to confirm the level of remaining functions in the delivery room and to prevent any secondary damage.**
   Ask for cooperation from staff of other department and physicians. If monitors are not usable, check the heartbeat of the fetus using a Traube, etc.
5) **Remove contaminants from around the vulva.**
6) **Have the fetus delivered.**
7) **Check the level of damage to the hospital, and determine the necessity for evacuation.**
8) **If evacuation is required, fixate the umbilical cord with a clip to the mother, and apply pads to her.**
9) **When people should stay in the ward, proceed with delivery normally.**
10) **Ensure correct marking on the mother and on the baby. Put covers on the baby and wrap the baby with a thermal insulation blanket to keep the baby warm.**
11) **In principle, the mother and baby should be kept together.**

3) Third stage of labor

- ☐ If there are no signs of placental abruption, fixate the umbilical cord with a clip to stop bleeding, apply pads to the mother, and have her wear shorts. Similarly, apply many pads to the mother immediately following delivery, and have her wear shorts.
- ☐ In principle, the mother should evacuate walking by herself. Delivery staff should hold the baby immediately following birth, and accompany the mother during evacuation.
- ☐ When the mother is accompanied by her families, ask for their support so that the baby is adequately kept warm during evacuation.
- ☐ Have them evacuate to a designated shelter.

4) Fourth stage of labor

- ☐ If the mother can walk by herself, immediately hand the baby to the mother, and delivery staff should accompany her during evacuation. Babies in the sick babies room should be handed to their mothers by the delivery staff.
- ☐ Puerperal women in the second to fourth stages of labor who cannot move by themselves should be carried on a stretcher, calling for support from the team for patients under serious conditions.

14 Emergency items

Examples

1) Typical emergency bag

i) Flashlight with a radio; ii) Headlight; iii) Helmet; iv) Megaphone; v) Whistle; vi) Emergency rope; vii) Gloves; viii) Permanent marker; ix) Memo pad; x) List of patients; xi) Staff notification chart; xii) Roster; etc.

2) Emergency delivery kit

i) Delivery kit (kidney dish, umbilical cord clip, gauze, gown, gloves, disposable cloth pads, umbilical knife, suturing kit, etc.); ii) Simplified Doppler stethoscope, Traube, etc.; iii) Suction catheter (suction ball, valve syringe, etc.); iv) Ambu bag and mask; v) Bath towel; vi) Thermal insulation blanket; vii) Name bands; viii) Postpartum kit (postpartum shorts, pads, etc.); ix) Newspaper, plastic bags, etc.

3) Others

i) Drugs (tocolytic agent, fluid replacement, etc.)
ii) Newborn goods (paper diapers, wet tissue, baby formula, feeding bottle, clothes, blanket, disposable pocket warmers, newborn sling, etc.)
iii) Emergency logbook (delivery ledger, midwifery log, list of delivery expectants, etc.)

Check

- ☐ Pre-determine emergency items, and keep them in a designated location in the ward. The designated location should be disseminated to staffs.
- ☐ Conduct periodic inspection to ensure that all items are kept fresh and usable, and no expired items are included.
- ☐ Pre-determine the quantities of emergency items.
- ☐ Assign staff members in charge of carrying the emergency items when evacuation is directed.
  - ➡ **For example, the manager or leader should carry the emergency bag, the delivery staff should carry the delivery kit, and other staffs should take care of treatment rooms or take flexible actions.**
- ☐ On a regular basis, tell mothers to carry the Mother and Child Health Handbook when evacuation is required.

15 How to provide midwifery care in the absence of essential utilities

1 The delivery room cannot be used

When the delivery room cannot be used due to power or water outage, secure a single room for delivery, or put up a delivery space with partitions. Measures should be taken to protect the woman from wind. Procure a bed or futon.

Check

- ☐ Use a flashlight or a helmet with a headlight as lighting.
- ☐ To keep the woman warm, use a thermal insulation blanket, a blanket, a bath towel, hot-water bottles (plastic bottles can be used), aluminum foil, etc.
- ☐ Secure a clean area by removing contaminants.
- ☐ Ensure that the emergency kit contains a delivery kit, a postpartum kit, emergency chemicals (tocolytic agent), oxygen cylinders (oxygen aspiration kit), suction devices (amniotic fluid suction catheter, foot operated suction devices, etc.), simplified Doppler stethoscope or Traube, normal stethoscope, newborn resuscitation kit, etc.
  - ➡ **If the delivery room can be used, necessary goods will be available to a certain degree.**
- ☐ If a nearby hospital is capable of delivery, examine transferring the puerperal woman thereto, depending on the progress of delivery.
- ☐ Examine the stocking of emergency delivery kits.

2 Providing assistance to delivery

Check

- ☐ Prepare a delivery kit. Extend the kit over a sterile sheets or the bag that contained the kit.
  - ➡ **Examine how to respond when emergency items have not been secured. Examine what should be used in place, if the umbilical knife, forceps, umbilical cord clip, amniotic fluid suction catheter, etc. are not available. Umbilical cord clips can be replaced with cotton tape or string.**
- ☐ After securing a clean area around the vulva and the delivery region, disinfect the hand and fingers with rubbing alcohol disinfectant. Put on sterile gloves if available.
  - ➡ **If no disinfectant is available, clean around the vulva with saline, distilled water, or warm water.**
- ☐ After delivering the baby, immediately wipe off blood, amniotic fluid, and other attached fluids and dirt. Wrap the baby in a bath towel, etc. to keep the baby warm.
  - ➡ **Keep the baby together with the mother. Attach an identification band indicating the mother's name on the baby.**
- ☐ After delivering the placenta, monitor bleeding and keep both the mother and baby warm and at rest. Replenish water and nutrition as appropriate.
- ☐ Keep records of delivery (time of birth, gender, etc.)
  - ➡ **If measurement of weight and height is possible, also keep record of those data.**

3 Taking care of the puerperal woman

Check

- ☐ The puerperal woman is placed in a psychologically shocking situation, surrounded by worries of the disaster and worries about her delivery. Stay beside and talk to her, encourage her, and call for support from her families.
- ☐ Also take adequate care to keep her warm and to protect her privacy.

4 Taking care of the newborn

Check

- ☐ Immediately following the birth, wipe off fluids, blood and other wet objects from the baby to maintain baby's body temperature. Take adequate measures to keep the baby warm.
  ➡ **Monitor their vital signs and keep both the baby and the mother warm.**

16 Basic response in each department

Basic response to be taken in each location of operation at the time of disaster should be listed and exercised on a regular basis.

Check

- ☐ List up necessary actions for weekdays, for weekend and holidays, for night, and for each role, depending on the work shifts at the hospital.
- ☐ Describe basic response at the time of disaster in the manual.

Examples **1) In the delivery room and the labor room (in the case of earthquake)**

	The delivery room and the labor room are not used	The delivery room and the labor room are being used
At the occurrence of earthquake	●Keep open the doors to the delivery room and the labor room. (Automatic doors should be switched to manual operation after opening.) ●Secure the safety of staff.	●Secure the safety of yourself and the puerperal woman. ●Keep open the doors to the delivery room and the labor room. ●Take measures to prevent fall from the delivery table or bed. ●Protect the head of the woman. ●Prevent the fall of the IV stand and the fetal monitor. ●Put the shadowless lamp away from the puerperal woman. ●Return the cooper scissors and needles to the vat.
Following the earthquake	●Confirm the safety of staff. ●Report the safety of staff to the ward manager. ●The leader should confirm the condition of damage. Electricity: Normal power supplies, private power generators, and uninterruptable power supplies Medical gases: Is there a gas leak? Is the gas suitable for aspiration? Equipment: Is the air conditioning operating? Is there damage to the ceiling, shadowless lamps, walls, etc.? Medical devices: Are there fallen or damaged devices? Equipment and drugs: Is there scattered glass? Is there damage? Check the stocks. ●Support other units under the judgment by the manager. (MFICU, newborns room, other parts of the ward, and other wards)	●Confirm the safety of the puerperal women. ●Report the safety of the puerperal women and staff to the ward manager. ●Confirm the operation of monitors and transfusion pumps. ●Switch to the emergency power systems. ●Confirm the condition of damage in the delivery room (see the left.) ●Report the condition of damage to the ward manager. ●Check the progress of delivery. ●Determine whether delivery can be conducted in the delivery room. ●Check and prepare the emergency bag and the emergency delivery kit. (If evacuation is required, the leader should carry them.) ●Report readiness for evacuation to the ward manager. **<If evacuation is required>** ●Secure the safety of the puerperal women, and call for assistance. ●Consult with the physician on the necessity for forced delivery. ●Prepare for vacuum extraction if necessary. ●Following delivery, move the woman to a safe place, while monitoring bleeding. ●If delivery cannot be conducted in the delivery room, transfer the woman to a safe place. ●Carry out the emergency delivery kit and the records of delivery. ●Provide explanation to the puerperal women and their families to ease their worries. ●Report the completion of evacuation to the ward manager.

Examples **2) In the newborns room and the room for breastfeeding (in the case of earthquake)**

	In the newborns room and the room for breastfeeding
At the occurrence of earthquake	●Secure the safety of staff. ●Secure the safety of the mother and baby during breastfeeding. • The mother should suspend breastfeeding, hold the newborn, and stoop to protect the baby and her head. • Take measures to protect against falling objects from the ceiling and the falls of furniture. (Avoid piling up things to a height on a regular basis.) ●Move the cots and incubators to a place that is free from the risk of falling objects. ●Keep the cots and incubators away from the glass window. ●Take measures to prevent the fall of syringe pumps and monitors onto incubators.
Following the earthquake	●Confirm the safety of newborns. ●Report the safety of newborns and staff to the ward manager. ●The leader should confirm the condition of damage. Electricity: Normal power supplies, private power generators, and uninterruptable power supplies Medical gases: Is there a gas leak? Is the gas suitable for aspiration? Equipment: Is the air conditioning operating? Is there damage to the ceiling, shadowless lamps, walls, etc.? Medical devices: Are there fallen or damaged devices? Equipment and drugs: Is there scattered glass? Is there damage? Check the stocks. ●Report the condition of damage to the ward manager. ●Check and prepare the emergency bag and the newborn resuscitation kit. (If evacuation is required, the leader should carry them.) ●Hand babies in the newborns room to their mothers. ●Have mothers hold their babies with a newborn evacuation belt. ●Staffs must use a newborn evacuation belt and hold babies that cannot be carried by their mothers. (Each staff member should carry two newborns.) ●As for babies in the cot under IV, put the syringe pump into the cot to prevent fall and to prepare for evacuation. When evacuation is required, remove the IV. If it is impossible, apply saline lock or heparin lock, and carry out the baby in the cot. As for babies under oxygen aspiration, switch to oxygen cylinders, and carry them out in the cot. Any monitors attached to the baby should be interrupted. ●Put clothes on babies in the incubators. Take adequate measures to keep them warm, using bath towels and blankets. As for babies under IV, put the syringe pump into the incubator to prevent fall and to prepare for evacuation. Babies that are difficult to safely hold during evacuation, carry them out in the incubator. (Put two newborns in each incubator.) ●As for babies in the incubator under phototherapy, put clothes on them and have their mothers hold them with a newborn evacuation belt. ●To prepare for evacuation, mothers should hold their babies with a newborn evacuation belt, and gather in the designated part of the ward. ●When evacuation is required, call for assistance. Carry out babies in the cots and babies in the incubators in this order. ●Report the completion of evacuation to the ward manager.

Examples ▸▸▸ **3) In the ward and the MFICU (in the case of earthquake)**

	In the ward and the MFICU
At the occurrence of earthquake	●Secure the safety of staff. ●Until the quake stops, get under the table, desk, counter, etc., and protect yourself from falling objects. ●Cling to unmovable objects or stoop down and protect your head. ●In the case of rooming-in, the mother should hold her baby and stoop down to protect the baby and her head. ●Take measures to prevent the fall of objects and furniture. (On a regular basis, guide mothers not to put their things at a high place.)
Following the earthquake	●Once the quake stops, staffs who are outside the ward should return to their ward using the stairs. ●Report the safety of staff to the ward manager. ●Once the quake stops, secure the safety of patients. ●Move the beds away from the window and apply the stoppers. ●Flat out the beds. Attach the bed fence if possible. ●Cover each patient with futon, and protect her head. ●Replace each IV stand with a bed-attachable or hanging type. Move the attachable or hanging IV stand to the patient's foot side, or fixate it to the bed with bandage or adhesive tape. ●On-duty nurses of the day should confirm the safety of assigned patients. ●Identify patients who are outside the ward for tests, rehabilitation, surgical operation, etc. ●The respective leaders should confirm the condition of damage in the ward and in the MFICU. Electricity: Normal power supplies, private power generators, and uninterruptable power supplies Medical gases: Is there a gas leak? Is the gas suitable for aspiration? Equipment: Is the air conditioning operating? Is there damage to the ceiling, shadowless lamps, walls, etc.? Medical devices: Are there fallen or damaged devices? Equipment and drugs: Is there scattered glass? Is there damage? Check the stocks. ●Report the condition of damage to the ward manager. ●Check and prepare the emergency bags. (If evacuation is required, the leader should carry them.) ●In the case of rooming-in, each mother should hold her baby with a newborn evacuation belt. ●Have patients who can walk by themselves and those who need assistance, including mothers and children, gather near the nurse station. Also have inpatients in the MFICU gather together. ●The patients should wear their shoes and carry valuables (and overcoats against cold in winter.) ●Before evacuation, either remove IV or apply saline lock or heparin lock. ●At instructions from the Disaster Control Headquarters, patients who can walk by themselves should evaluate at first, followed by those who need assistance and then by those who need to be carried on a stretcher. ●Report the completion of evacuation to the ward manager.

17 Assessment of medical care capabilities at the maternity outpatient unit

Observe instructions for evacuation or for continued service.

1 At instructions for evacuation

Check

- ☐ Confirm the evacuation area and guide the evacuation.
- ☐ Following the evacuation, confirm the names of patients. Compare the patients with the hospital check-in register if possible.

2 At instructions for continued medical service

Check

- ☐ Suspend normal care except for emergency patients and injured persons.
- ☐ The security staffs remain at the place, while other staffs should immediately gather in the designated area.
- ☐ Explain the medical service plans and contact information to non-emergency patients, and ask them to return home.
  - ➡ **Depending on the extent of disaster, it is recommendable to clarify "emergency patients" in the facility. (Patients may find difficulty visiting the hospital after returning home, depending on the extent of damage and restoration rate of infrastructure.)**

18 Accepting inpatients

1 Preparing for acceptance

Check

- ☐ Identify the structure of the ward/hospital, and expect a large number of incoming patients.
- ☐ Examine the number of beds that can be added to each hospital room, and the appropriate layout using folding beds, mattresses, etc.
  - ➡ **Also identify the number of beds that are capable of oxygen piping, in case of emergency operation (e.g. C-section.)**

☐ Judge whether the delivery room is usable. If it is not, prepare a room where delivery can be conducted.
☐ Check the stocks of available incubators, cots, linens for newborns, and diapers, and prepare them as necessary.
☐ If possible, fetch on-duty staffs who can handle the acceptance of patients.
☐ Pre-determine the division of roles among on-duty staffs, including the triage booth for pregnant and puerperal women and the acceptance of hospitalization.

2 Acceptance of hospitalization

Check

☐ It is expected that pregnant, puerperal and postpartum women and newborns whose medical history is unknown are transported to the hospital. It is recommendable to prepare beforehand an emergency interview form, so that the minimum required information can be briefly collected.
☐ Establish systems on a regular basis to facilitate information sharing among nurses and with physicians.

19 Deal with the families of patients

Check

☐ Examine and determine beforehand how to deal with attendants and visitors who are families of patients. (Examine scenarios where the families can go home, and where the families also need evacuation.)
☐ Also examine and determine beforehand how to request the families for support in the transport of pregnant, puerperal and postpartum women and newborns, when evacuation is required.
☐ On a regular basis, guide patients to determine how to contact their families at the time of disaster before they get hospitalized.
☐ Establish criteria for visitors other than the families of patients. For example, ask them to return home in principle, though it may become difficult depending on the extent of damage.
➡ **Also examine and determine how to respond to scenarios involving persons who are not likely to reach home safely.**

Chapter 3

Preparation of a Manual Required for Providing Medium- and Long-Term Support

“Medium- and long-term support” assumes cases where the facility has only suffered mild damage, and is capable of providing continued care and service, and where the facility sends midwives to afflicted areas for assistance. The period is considered at around several weeks to three months. Examine the following three points, and utilize them in the preparation of a manual, for the purpose of protecting pregnant, puerperal and postpartum women, newborns, infants and women in afflicted areas, by supporting activities by midwives.

Three points for providing medium- and long-term support

1. Direct assistance to life in shelters
2. Activities of midwives in afflicted areas
3. Activities of midwives outside afflicted areas

1 Direct assistance to life in shelters

Mutual cooperation is required during activities in afflicted areas, between local midwives and midwives sent from outside as medical volunteers. In order to prevent problems specific to life in shelters, nursing and public health activities should be started as soon as possible, targeted at pregnant, puerperal and postpartum women, newborns, infants and women in afflicted areas.

It is preferable to establish a system at an early stage where pregnant, puerperal and postpartum women, newborns, infants and women can live in a dedicated shelter.

▲ Activities in shelters
Toshiko Fukui, Executive Officer from the Japanese Nursing Association gives advice on breastfeeding to the parents of a one-month old male baby.
Source: "Nurses working hard in afflicted areas in a disastrous state," JNA News, featured article, April issue, 2011.

1 Securing safety

Check

- ☐ Prevent secondary damage: fall of buildings and objects due to aftershocks, fire, etc.
- ☐ Secure safety at night and in corridors.

  Lessons learned **Pregnant, puerperal and postpartum women and children are vulnerable at the time of disaster.**
- ☐ Prevent unexpected accidents of children.
- ☐ Take countermeasures against infection: Food poisoning, influenza, tuberculosis, chickenpox, mumps, measles, rubella, scabies, etc.
- ☐ Identify and take care of pregnant, puerperal and postpartum women who have medical complications and chronic diseases. Recommend such women to visit medical institutions at an early stage, or transfer them to such facilities.

2 Psychological support

Check

- ☐ Pregnant, puerperal and postpartum women: Cope with PTSD

  ➡ **Understand the stress response that follows a disaster, take care of anger that women cannot take out upon, provide periodic visiting consultation service, etc.**

  Lessons learned **Repeated narrating of disaster experience helps people relieve their stress. There were facts that people could talk easily to supporters from outside the afflicted areas, rather than to listeners who also suffered the disaster.**
- ☐ Children: Continuously monitor children for psychological symptoms, provide their parents with explanation on reaction of infants at the time of disaster and on how to care them, create occasions where children can play, procure physicians specializing in mental health care for children, etc.

3 Assistance to living environment

Check

- ☐ Take measures for protecting from the cold or the heat.
- ☐ Environmental hygienic measures: Clean the toilets, wastewater facilities, and other parts of shelters; dispose of garbage; take care of pets and other animals; take measures for the separation of smoking areas; etc.
- ☐ Relieve stress from living in groups: Use partitions; ensure the separate use of dressing rooms and toilets between men and women; put up a lounge area; etc.
- ☐ Support to childrearing: Secure areas for breastfeeding and changing diapers, and areas for having babies sleep.
- ☐ Relieve psychological burden on pregnant or childrearing women: Care for morning sickness, measures for having women at rest, space for easing concerns around the people when children cry and make noise.
- ☐ Support to take measures for improving living environment.

Lessons learned **There was a report emphasizing the importance that the relief team cooperates with leaders in the shelter, establishes rules for life in groups, and recruit supporters, and help residents at the shelter participate in such activities over time, and undertake specific roles in their life.**

4 Assistance to securing privacy

Check

- ☐ Secure goods to put up partitions.
- ☐ Secure a dressing room, a room for rest, and a room for breastfeeding.

Lessons learned **At an early stage of life at shelters, there tend to be poor considerations for women and mothers with children. To prevent this, it is necessary to aim at a shelter design with adequate privacy considerations from the opening.**

5 Assistance to diet

Check

- ☐ Pregnant, puerperal and postpartum women: Provide balanced nutrition.
- ☐ Newborns: Provide continuous support to breastfeeding.
- ☐ Children: See “Guidelines concerning Nutrition for Infants at the Time of Disaster,” revised edition (see page 11 for URL.)
- ☐ Identify the conditions of hydration among people in the shelter.

6 Assistance to keeping clean

Check

- ☐ Pregnant, puerperal and postpartum women: Provide pregnant, puerperal and postpartum women who need rest with a bed bath and assistance for washing their hair.
- ☐ Women: Take measures to enable the use of bidet.
- ☐ Children: Provide newborns and infants with a bed bath and assistance for taking a bath.

7 Assistance to excretion

Check

- ☐ Put up a necessary number of toilets, ensure that they are kept clean, secure privacy, take measures for the adequate disposal of pads and diapers, and otherwise establish an appropriate environment for excretion.

  Lessons learned **Sanitary containers were prepared so that the content was not visible. Black plastic bags were useful.**
- ☐ Urge people in the shelter to drink water.
- ☐ Recommend people to take appropriate exercise.
- ☐ Examine the use of oral laxatives.

8 Assistance to sleep

Check

- ☐ Keep people warm, secure privacy, and otherwise establish an appropriate environment for sleep.
- ☐ Relieve stress by listening to people's concerns and talks.
- ☐ Make the diurnal rhythm.
- ☐ Massage people's feet and give them a bed bath before they go to sleep.

9 Assistance to living activities

Check

- ☐ Build up a living rhythm: Wakeup, cleaning, doing the laundry, help to prepare and distribute meals, etc., and bedtime and other time zones.
- ☐ Appropriate exercises, gymnastics, etc.
- ☐ Provide intentional intervention together with related persons, for the purpose of establishing cooperation.

10 Response to pregnant, puerperal and postpartum women who come to the hospital without their Mother and Child Health Handbook

Administrative measures may be taken based on information indicated in the Mother and Child Health Handbook. In the case of loss due to disaster, special considerations must be taken based on the situation. Some possibly required measures include the following:

Check

- ☐ Rapidly secure systems of having medical examinations and providing consultation service for pregnant, puerperal and postpartum women, newborns and infants.
- ☐ Establish systems for ensuring effective delivery service, including the issuance of birth certificates.
- ☐ Secure continuous postpartum care and health guidance service.
- ☐ Secure health guidance service system for newborns and infants.

11 Forming pregnant and puerperal women's network

Check

- ☐ Group up women in each district.
- ☐ Exchange information with public health nurses, maternity health promotional staff, etc. from the health centers.
- ☐ Utilize networks operated by the midwives association.

12 Providing information

When large-scale disaster occurs, it is recommendable to announce information concerning other municipalities that are accepting postpartum mothers and children, and means for transportation to such facilities. It is even more desirable to put up a contact service for helping such women.

Lessons learned **In afflicted areas, it becomes difficult for individuals to access necessary information. Following the Great East Japan Earthquake, physicians from other prefectures pointed out that more information should be provided to individual residents.**

Some examples of information to be provided and methods for provision include the following. It is recommendable to announce such information using bulletin boards, posters, etc.

Check

- ☐ Confirmation of safety: "Disaster message phone service 171," disaster information e-mail service, etc.
- ☐ Notification on health checkups for pregnant women, visits to newborns, health checkups for infants, etc.
- ☐ Notification on telephone and e-mail consultation services: Utilization of telephone consultation services by the childrearing and women's health support centers across Japan, health promotional sections at municipal governments, and prefectural midwives associations, and of e-mail consultation service on the website "Midwives Maternity Support."
- ☐ Environmental and disinfection aspects and health problems at shelters: How to place and use goods at shelters, distribute meals, use toilets, dispose of garbage, ensure hand washing and gargling to prevent food poisoning and infection, conduct immunization, prevent the economy class syndrome, etc.
- ☐ Notification on events.
- ☐ Notification from administrative agencies.

2 Activities of midwives in afflicted areas

In afflicted areas, local midwives and midwives sent from outside as medical volunteers should cooperate and collaborate with local governments, midwives associations, and other facilities outside the afflicted areas, and undertake the following activities:

1 Identify pregnant and puerperal women at an early stage

Check

- ☐ Identification based on the delivery reservation register, etc.
- ☐ Identification through health checkups for pregnant women, visits to newborns, and health checkups for infants.
- ☐ Identification based on information from municipalities, shelters, and aid stations.

2 Physical and mental health of midwives who suffered the disaster

Check

- ☐ Such midwives should take appropriate medical treatment.
- ☐ Work shifts should be adjusted to ensure their rest.
- ☐ Maintain their motivation by respecting each other and consulting with each other in work.

Lessons learned **It was reported that staff at hospitals in afflicted areas could find physical and psychological rest by dividing tasks with relief midwives from other parts of afflicted areas or from outside, and by having such supporters listen to them.**

3 Coordinate with and arrange for volunteers

Check

- ☐ Accept volunteers beforehand based on the procedures stipulated by the local government.

4 Visits and transportation to medical institutions

Check

- ☐ Identify the conditions of service available at medical institutions in the afflicted areas.
- ☐ Determine methods for communication and means for transportation with medical institutions outside the afflicted areas that can accept patients.

5 Collecting and transmitting information

Check

- ☐ Confirm the safety of pregnant, puerperal and postpartum women and staff, and evacuation areas.
- ☐ Identify the conditions of public transportation and of roads.
- ☐ Identify, call for, and provide necessary support activities.
  - ➡ **Identify the conditions of support and relief activities through shelters, aid stations, medical institutions, etc.**
  - ➡ **Call for necessary support activities from prefectural, municipal, and other related organizations.**
  - ➡ **Ensure that required support can be provided to shelters, aid stations, medical institutions, etc.**
- ☐ Identify, call for, and provide necessary relief goods.
  - ➡ **Identify goods that are short through shelters, aid stations, medical institutions, etc.**
  - ➡ **Call for necessary relief goods from prefectural, municipal, and other related organizations.**
  - ➡ **Provide necessary relief goods to shelters, aid stations, medical institutions, etc.**

3 Activities of midwives outside afflicted areas

Midwives who belong to municipalities, midwives associations, and other facilities outside the afflicted areas should participate in the following activities at request for cooperation from the afflicted areas.

1 Participation and cooperation in volunteer activities

Check

- ☐ Enroll as a midwife in the disaster relief nurse system operated by the Japanese Nursing Association.
- ☐ Participation at official request: Adjust to activities at your home and work.
- ☐ In the case of participation as an individual:
  - ➡ **In advance, check the conditions of recruitment on the website of the prefectural disaster volunteer center, etc.**
  - ➡ **Observe the basic manners of disaster volunteers: E.g. Procure accommodations and personal belongings by yourself. Register as a volunteer in the afflicted area. Take considerations of the feelings and privacy of sufferers. Buy a volunteer insurance.**

Lessons learned **There was a report that confusion was caused in the work of local midwives by the short-term relief activities. Relief midwives must take measures to avoid this, such as keeping a handover notebook, ensuring verbal handover to the subsequent relief midwives, etc.**

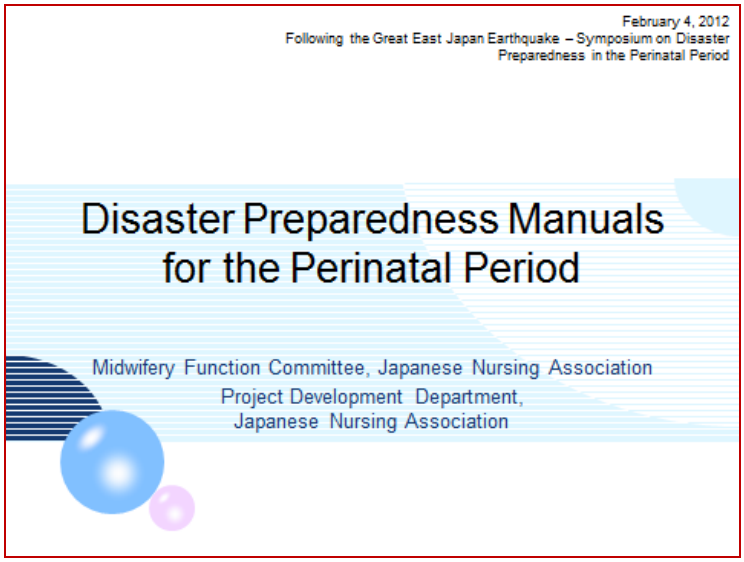
2 Required relief goods and how to send them

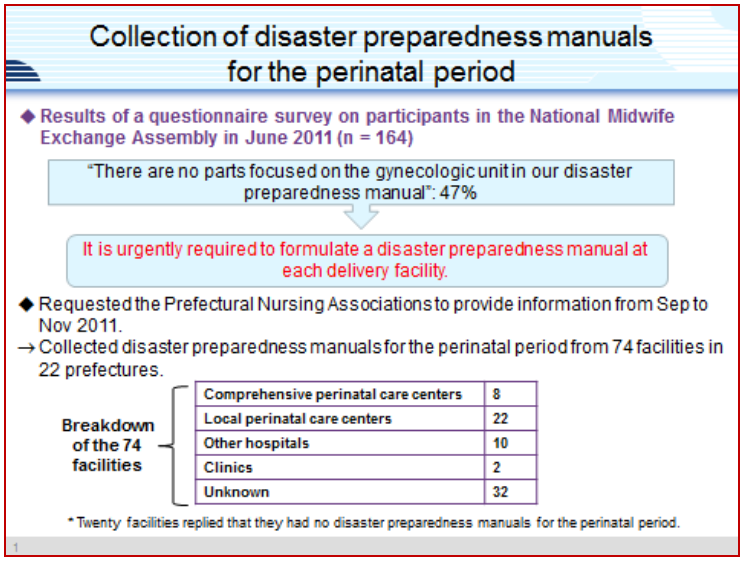
Check

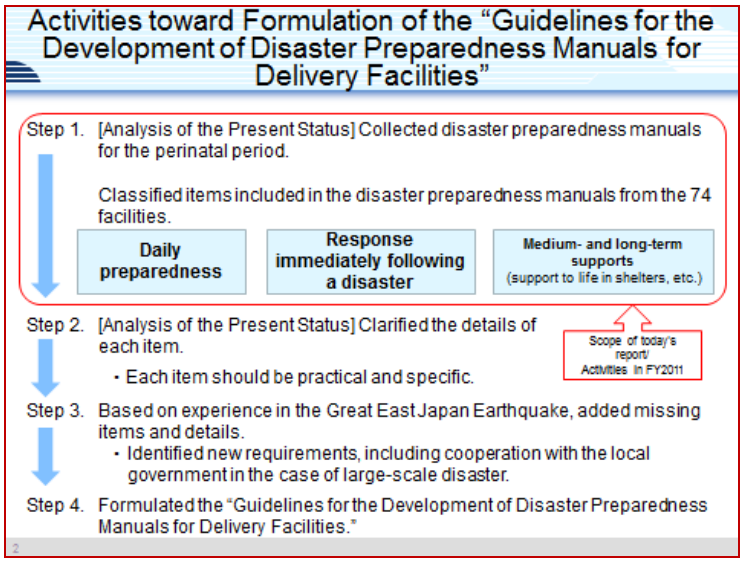
- ☐ Clothes, blankets, towels, etc. to be sent should be new or adequately cleaned.
- ☐ Perishable food must not be sent.
- ☐ Pack up goods by type, and indicate the contents in a visible part of each cardboard box.
- ☐ Relief goods should be sent to an appropriate address.

Collection and classification of disaster preparedness manuals for the perinatal period

* These guidelines have been configured based on the results of this collection and classification.







Key Points in the Preparation of Disaster Preparedness Manuals: Disasters to be Assumed

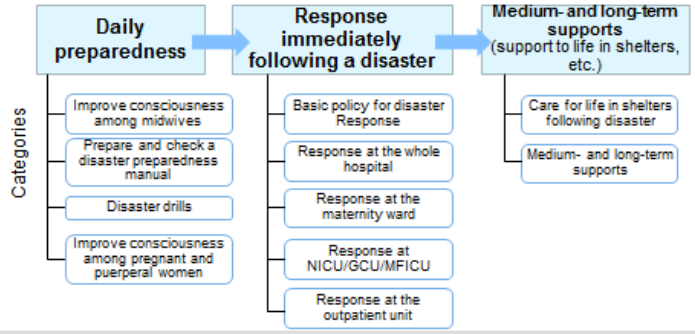
◆Most disaster preparedness manuals from the 74 facilities assumed scenarios where the hospital itself is damaged, mostly by fire only.

Possible scenarios	Possible disasters	Required actions
The hospital itself gets damaged	Fire, earthquake, tsunami, flood, etc. (natural disasters)	Reinforce firefighting equipment, conducting evacuation guiding drills, securing essential utilities, and establishing staff contact networks, etc.
Both the local community and the hospital get damaged	Wide-area disaster, such as earthquake, volcano eruption, forest fire, etc.	Based on its functions in the local community, a hospital is required to accept and treat persons who were injured or became sick due to the disaster.
Disaster occurs in the district	Airplane crash, train crash, nuclear accident, leak of chemical agent or poisonous gas, etc. (man-made disaster)	
Send relief teams following a disaster that hit a remote area	Disaster base hospital Disaster Medical Assistance Team (DMAT)-designated medical institution	

3

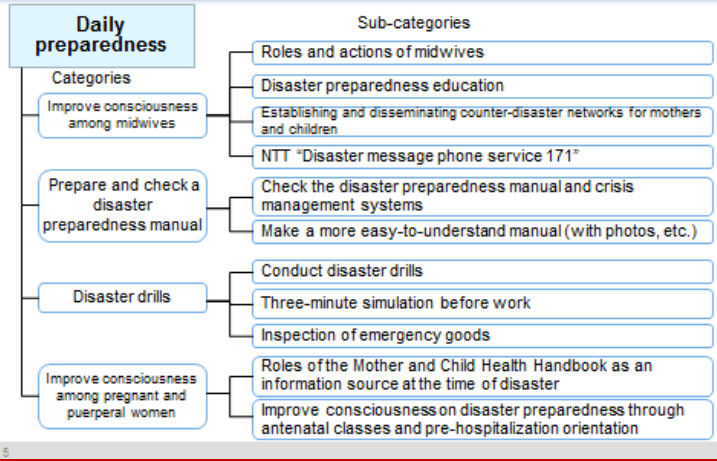
Classification of Disaster Preparedness Manuals from the 74 Facilities: Items Included

◆ Items included in the disaster preparedness manuals from the 74 facilities were classified, and divided into three stages in chronological order.
◆ Each stage was classified into categories, sub-categories, and items.

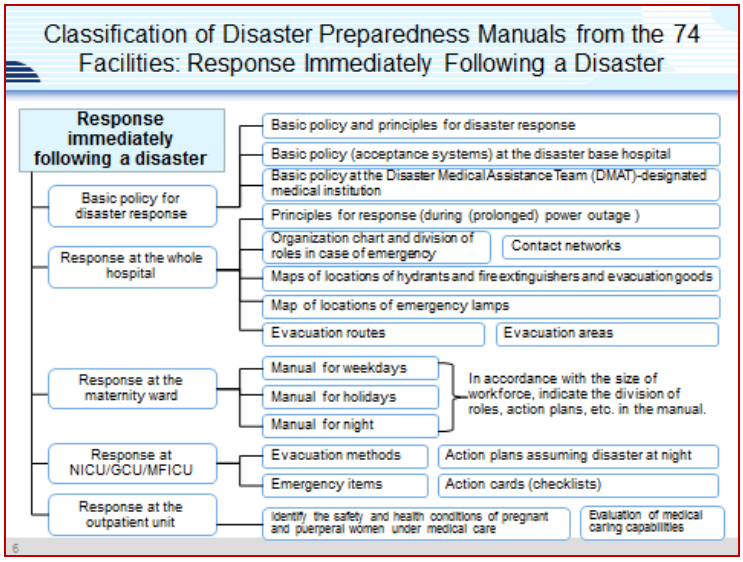


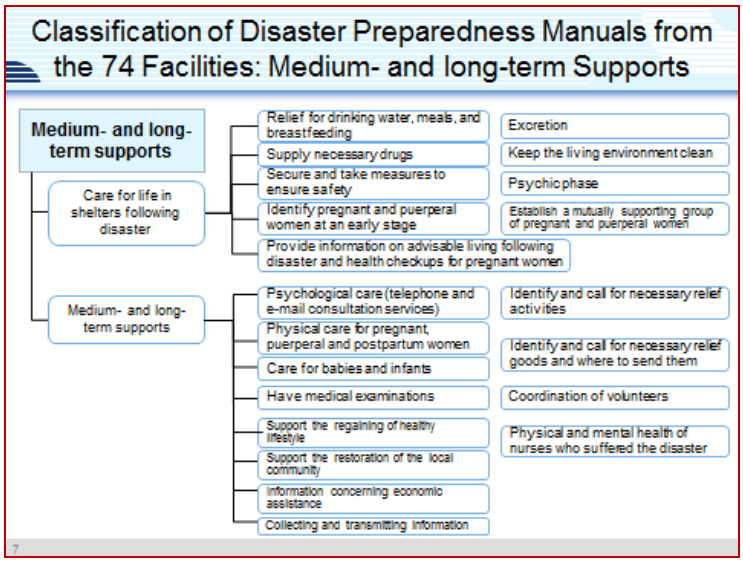
4

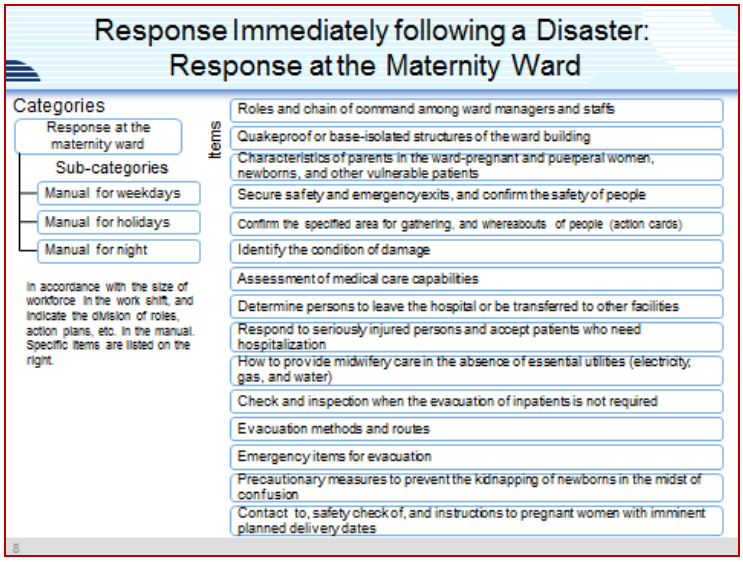
Classification of Disaster Preparedness Manuals from the 74 Facilities: Daily Preparedness



5


Classification of Disaster Preparedness Manuals from the 74 Facilities: Response Immediately Following a Disaster
Response immediately following a disaster
Basic policy for disaster response
Basic policy and principles for disaster response
Basic policy (acceptance systems) at the disaster base hospital
Basic policy at the Disaster Medical Assistance Team (DMAT)-designated medical institution
Response at the whole hospital
Principles for response (during (prolonged) power outage)
Organization chart and division of roles in case of emergency
Contact networks
Maps of locations of hydrants and fire extinguishers and evacuation goods
Map of locations of emergency lamps
Evacuation routes
Evacuation areas
Response at the maternity ward
Manual for weekdays
Manual for holidays
Manual for night
In accordance with the size of workforce, indicate the division of roles, action plans, etc. in the manual.
Response at NICU/GCU/MFICU
Evacuation methods
Action plans assuming disaster at night
Emergency items
Action cards (checklists)
Response at the outpatient unit
Identify the safety and health conditions of pregnant and puerperal women under medical care
Evaluation of medical caring capabilities
6


Classification of Disaster Preparedness Manuals from the 74 Facilities: Medium- and long-term Supports
Medium- and long-term supports
Care for life in shelters following disaster
Relief for drinking water, meals, and breastfeeding
Excretion
Supply necessary drugs
Keep the living environment clean
Secure and take measures to ensure safety
Psychic phase
Identify pregnant and puerperal women at an early stage
Establish a mutually supporting group of pregnant and puerperal women
Provide information on advisable living following disaster and health checkups for pregnant women
Medium- and long-term supports
Psychological care (telephone and e-mail consultation services)
Identify and call for necessary relief activities
Physical care for pregnant, puerperal and postpartum women
Identify and call for necessary relief goods and where to send them
Care for babies and infants
Have medical examinations
Coordination of volunteers
Support the regaining of healthy lifestyle
Physical and mental health of nurses who suffered the disaster
Support the restoration of the local community
Information concerning economic assistance
Collecting and transmitting information
7


Response Immediately following a Disaster: Response at the Maternity Ward
Categories
Response at the maternity ward
Sub-categories
Manual for weekdays
Manual for holidays
Manual for night
In accordance with the size of workforce in the work shift, and indicate the division of roles, action plans, etc. in the manual. Specific items are listed on the right.
Items
Roles and chain of command among ward managers and staffs
Quakeproof or base-isolated structures of the ward building
Characteristics of parents in the ward-pregnant and puerperal women, newborns, and other vulnerable patients
Secure safety and emergency exits, and confirm the safety of people
Confirm the specified area for gathering, and whereabouts of people (action cards)
Identify the condition of damage
Assessment of medical care capabilities
Determine persons to leave the hospital or be transferred to other facilities
Respond to seriously injured persons and accept patients who need hospitalization
How to provide midwifery care in the absence of essential utilities (electricity, gas, and water)
Check and inspection when the evacuation of inpatients is not required
Evacuation methods and routes
Emergency items for evacuation
Precautionary measures to prevent the kidnapping of newborns in the midst of confusion
Contact to, safety check of, and instructions to pregnant women with imminent planned delivery dates
8

Response Immediately following a Disaster: Response at the Maternity Ward — Evacuation Methods

Evacuation routes

- In the case of fire
  - Fire has started in the maternity ward
  - Fire has started in other floors
- In the case of earthquake
- Maps of wards and evacuation routes (locations of illuminated exit signs and fire extinguishers, and time required for evacuation)

Evacuation methods

- Conditions for the use of elevators — In principle, elevators should not be used.
- Pregnant women who need rest on the bed — Use a stretcher or wheelchair. When IV is removed, tocolytic agent should be internally administered before evacuation.
- Puerperal women in the labor room or delivery room — In principle, delivery should be completed. The order of evacuation should be: Second stage > Third stage > First stage > Fourth stage.
- Post-C section postpartum women who are still in bed — Use a stretcher. Keep the balloon as it is. Have the woman hold her baby.
- Postpartum women — Should change her shoes, and carry a towel for protection from smoke.
- Newborns

In principle, mothers should hold them in a bath towel or blanket.
Newborns whose mothers who have left the hospital should be held by midwives in newborn evacuation bells or cots (up to three newborns in each cot) during evacuation.

The order of evacuation should be: Newborns without oxygen or a cot > Newborns without oxygen but in an incubator > Newborns who need oxygen and in a cot > Newborns who need oxygen and IV and in an incubator > Newborns under artificial respiration management, who require bagging during evacuation.
In an incubator, the newborn should be wrapped in a thermal insulation sheet, and overwrapped with a bath towel. Use a disposable pocket warmer if possible.
In a cot, the newborn should be wrapped in a thermal insulation sheet over its clothes, and overwrapped with a bath towel. Use a disposable pocket warmer if possible.
Put the bed name tag between the clothes, and check the sole name tag and the name band.

9

Response Immediately following a Disaster: Disaster Preparedness Manual at the Maternity Ward — Evacuation Methods

Evacuation methods

- When an IV route or transfusion pump is used

It should be removed in principle. Because the tocolytic agent should be restarted immediately after evacuation, remove it from the three-way cock, and have the pregnant woman hold the route or the bottle during evacuation.
Manually adjust the dripping rate on the transfusion pump. When it is difficult, adjust it to the lowest rate to avoid clogging.

- When there are attendants or visitors
- Patients with special conditions (visual or hearing impairment, etc.)

Precautions for evacuation

- In the case of fire
- In the case of earthquake — Protect the head with a pillow, bath towel or blanket if there is no helmet.

First aid before evacuation — If delivery is imminent, have the fetus delivered. Compress the incised part with gauze, and leave the placenta as it is during evacuation.

Evacuation area and contact information

◆ In terms of evacuation methods, few facilities clarified the priority of evacuation and specific methods for keeping newborns warm. Most manuals only stated that delivery should be completed, and few facilities clarified specific steps to be taken during delivery.

10

Response Immediately following a Disaster: Response at the Maternity Ward — Emergency Items

Evacuation bags at the time of disaster

- General goods — Megaphone, whistle, guiding flags, armbands, stationery, flashlight with a radio, headlight, work gloves, gloves, masks, rope, adhesive tape, key to the narcotics cabinet, medicinal products specific to the maternity ward
- For pregnant women — Tocolytic agent and other medicinal products, Doppler stethoscope (Traube), sphygmomanometer, stethoscope
- For postpartum women — Pads
- For newborns — Slings (newborn evacuation bells), diapers, wet tissue, milk, feeding bottles, clothes, blankets, disposable pocket warmers, thermal insulation aluminum, newborn screening kit (for Guthrie test), alcohol cotton, electronic thermometers

Emergency delivery bag — Disposable delivery kit (kidney dish, umbilical cord clip, gauze, plastic bags, gown, gloves, disposable cloth pads, umbilical knife), postpartum shorts, pads, thermal insulation bath towel, blanket, suction catheter

Records — Inpatient register, ward diary log, list of patients (electronic charts should be printed out every morning), ward map, delivery register, midwifery log, Mother and Child Health Handbooks, charts of pregnant women, newborn nameplate, roster, staff contact networks

◆ Some items specified a monthly check day for emergency items, while others prepared a ward map of storage locations with photos.
◆ However, most facilities only directed evacuation with evacuation bags, and few facilities indicated specific content in the disaster preparedness manual.

11

Points Identified through the Collection of Disaster Preparedness Manuals for the Perinatal Period

- ◆We collected disaster preparedness manuals for the perinatal period from 74 facilities in 22 prefectures.
  The results suggested that maternity wards (including newborn care units) across Japan did not have adequate formulating manuals.
- ◆The volume also varied among the disaster preparedness manuals from the 74 facilities, from about five lines on a single sheet to 32 pages.
- ◆Content also varied substantially, from specific instructions to very vague procedures.
- ◆Facilities that had manuals with detailed and abundant description tended to include action plans for different roles (e.g. action cards and flowcharts over the course of time), checklists on the status of damage, and other reference documents. Visual tools were also used, including photos, illustrations, and large fonts.

12

Following the Great East Japan Earthquake: Required Disaster Countermeasures in the Perinatal Period

The role of midwives is to protect women, particularly mothers with children, and their families.

Must be examined by each facility:

- ◆Prepare a disaster preparedness manual indicating specific details.
- ◆Prepare a disaster preparedness manual assuming a wide-area disaster, such as earthquake and/or tsunami.
- ◆Prepare a response manual in the absence of essential utilities.

Must be examined by the local community:

- ◆Establish networks in case of wide-area disaster, incorporating the transport of pregnant and puerperal women and newborns, and the sending of midwives. (cooperation with the local agencies, other delivery facilities, local public health nurses, and other professionals)
- ◆Hold disaster training seminars for midwives, to examine disaster relief activities for protection of mothers and children.
- ◆Secure human resources to be sent for disaster relief under midwife shortage.

13

Reference materials

Japan Council for Quality Health Care: Accreditation Guideline for Disaster Preparedness based on the Hospital Function Accreditation Items Ver. 6.0

Area 6 "Rational Hospital Operation and Management"

Category 6.6 Items for the accreditation of appropriate response to crisis management

6.6.1 Response to disaster is established.

6.6.1.1 Disaster preparedness is established in the hospital.

(1) The hospital has a specific disaster preparedness manual, and it is prepared in each workplace.

(2) Responsibilities and contact networks in case of emergency are clarified.

(3) Disaster drills are conducted at least twice every year.

(4) Response to power outage established in the hospital.

6.6.1.2 Response to an extensive disaster occurring is established.

(1) The hospital has a specific preparedness manual against extensive disaster, and it is prepared in each workplace.

(2) Hospital buildings have quakeproof, base isolated, or quake-resistant structures.

(3) The hospital has a stock of drugs, medical devices, food, and drinking water in case of extensive disaster.

(4) Agreements are concluded with other medical institutions, etc. as necessary.

Parts in red have been revised or added after Ver. 5.0 since July 2009.

- ◆"Has a manual" > Added "it is prepared in each workplace."
- ◆"At least once every year" > Changed to "at least twice every year."
- ◆"A stock of drug and food" > Added "medical devices and drinking water."
- ◆"Response assuming an extensive disaster"
  → Added specific indications, including "agreements with other medical institutions," "quakeproof structures," etc.

14

Activities toward the Formulation of the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities"

Items to be examined

Step 1. [Analysis of the Present Status] Collected disaster preparedness manuals for perinatal period.

Classified items included in the disaster preparedness manuals from the 74 facilities.

Daily preparedness	Response immediately following a disaster	Medium- and long-term supports (support to life in shelters, etc.)

Step 2. [Analysis of the Present Status] Clarified the details of each item.
- Each item should be practical and specific.

Activities in FY2012

Step 3. Based on experience in the Great East Japan Earthquake, added missing items and their details.
- Identified new requirements, including cooperation with the local government in the case of extensive disaster.

Step 4. Formulated the "Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities."

What Items Should Be Added to the Disaster Preparedness Manual? Identify Items and Details to Be Added!

[Tips for Examination: Following the Symposium]

◆Specifically imagine the most difficult situation and scenario, and classify decisions to be made and actions to be taken by midwives.
Example: "An M9 earthquake occurred during the night shift. A tsunami warning has been issued. Delivery has started with a puerperal woman (first childbirth, no rupture yet, 9-cm opening). The delivery room is dangerous, and evacuation is required."
→ What steps should be indicated in the disaster preparedness manual?

◆Classify requirements that can be handled within the hospital (e.g. relationship among wards and with other departments), and those that need cooperation with local agencies and other medical institutions.
Example: "All essential utilities (electricity, gas, water, information and communications) have been interrupted. Inpatients occupy all beds in the hospital, and local residents have evacuated to the hospital."
→ What cooperation and division of roles should be made with the local community?

After Formulating the “Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities”

It is vividly recalled that, following the Great East Japan Earthquake, all healthcare providers made painstaking efforts across the afflicted areas in the midst of emergency situation. It was pointed out that if there had been reasonable manuals and prior routine preparations, then a little rapider actions might have been possible. This is why these guidelines for the preparation of manuals were formulated.

Of course, many specified actions would become difficult in the case of an unprecedented disaster, even if there were reasonable manuals. However, the more we are prepared, the lower the extent of resulting damage becomes, even though natural disasters cannot be prevented.

We hope that staff at facilities that do not have manuals yet will refer to these guidelines and formulate manuals, and that staff at facilities that have manuals will review them to ensure that they will be actually useful at the time of disaster, until all delivery facilities across Japan will have appropriate manuals. We believe that such manuals will forecast possible damage at the time of disaster, based on the geographic and other environmental conditions that surround the facility, examine necessary cooperation with the local government that will function as a hub and with other facilities, and describe other measures specific to the facility.

It is meaningless to prepare a manual only. It is critical to conduct periodic drills based on the manual, thereby enhancing people’s consciousness of disaster, and evaluating and modifying the manual accordingly. It is daily efforts of readers that will continuously improve the manual through drills into a more practical, easy-to-understand, and useful manual.

In the formulation of these guidelines, we received cooperation from members of the Midwifery Function Committees in six districts, and from staff at 28 facilities. We deeply appreciate their cooperation. Thank you.

In the afflicted areas, people still suffer the residual impact of the Great East Japan Earthquake. We wish that the afflicted areas be restored at an as early stage as possible.

January 31, 2013

Kumiko Suzuki, Chair

Working Group for Response at Delivery Facilities at the Time of Disaster 2012

List of Writers

◈ Editor

Japanese Nursing Association, Executive Officer
Chair of the Midwifery Function Committee, Toshiko Fukui

◈ Writers

Working Group for Response at Delivery Facilities at the Time of Disaster 2012
Chair: Kumiko Suzuki
Members: Rika Takeda, Yuko Tsuda, Takami Tsuchiya, Yumiko Miyagawa, and Tomoko Morita

◈ Editing cooperators

Japanese Red Cross College of Nursing,
International Nursing & Disaster Nursing, Professor, Mariko Ohara
Review Committee concerning the Promotion of Safe and Reassuring Environment for Delivery 2012
Chair: Hiroko Imoto
Members: Shinya Unno, Takashi Okai, Hiroe Kawashima, Chizuru Kinoshita, Minako Kumazawa, Kumiko Suzuki, Ayumi Shibukawa, Keiko Shimada, and Kyoko Fukushima

Midwifery Function Committee 2012
Deputy Chair: Shizue Sayama
Members: Hiroko Imoto, Yoko Oshiro, Ayumi Shibukawa, Keiko Shimada, Hatsumi Taniguchi, Kazuko Tamanoue, Miyako Noda, Makiko Haraguchi, Yumiko Miyagawa, Keiko Matsumura, and Atsuko Yoshidome

◈ Facilities of interview cooperators

Hokkaido and Tohoku regions: Asahikawa Medical University Hospital, Wakkanai City Hospital, Fukushima Red Cross Hospital, Ishinomaki Red Cross Hospital
Kanto and Koshinetsu regions: Dokkyo Medical University Hospital, Aiiku Hospital, Jichi Medical University Hospital, Omori Red Cross Hospital, Japanese Red Cross Medical Center
Tokai and Hokuriku regions: KEIJU Medical Center, Kaga Nursing School, Aichi Medical University Hospital, Japanese Red Cross Nagoya Daiichi Hospital, Kanazawa University
Kinki region: Graduate School, Kyoto University; Kyoto University Hospital; Kitano Hospital; Hoshigaoka Medical Center; Osaka Medical Center and Research Institute for Maternal and Child Health
Chugoku and Shikoku regions: Motherly Obstetrics, Sanuki Municipal Hospital, Umeda Hospital, Kagawa University Hospital, Shimane Prefectural Kosei Hospital
Kyushu and Okinawa regions: Kagoshima University, Beppu Medical Center, University of the Ryukyus Hospital, Kamiya Maternal Clinic

◈ Department in charge

Project Development Department, Japanese Nursing Association
Manager: Mineko Muranaka
Chief Manager: Hideki Taga
Chief Manager: Yuko Iwasawa
Masako Yamanishi

These guidelines for formulation do not exhaust all items to be included in respective manuals. Based on the conditions, scale, circumstances and other factors of your facility, formulate a manual specific to your facility referring to these guidelines.

Guidelines for the Development of Disaster Preparedness Manuals for Delivery Facilities

1st edition, 1st impression published on: January 31, 2013
1st edition, 2nd impression published on: May 1, 2013

Published by: Japanese Nursing Association
5-8-2 Jingumae, Shibuya-ku, Tokyo, 150-0001
TEL: 03-5778-8831; URL: http://www.nurse.or.jp

Inquiry: Department of Health Promotion Policy, Midwives Division
Japanese Nursing Association
TEL: 03-5778-8843

Produced by: MEDICUS SHUPPAN, Publishers Co., Ltd.

[Midwife]

How to use this sticker

Attach it on a midwife’s chest at the time of disaster, or at the entrance of an area put up for protecting privacy. We created this sticker, hoping that an occasion will not come when this sticker turns out useful.

Midwife’s bibs

Midwives put on these bibs during relief activities following the Great East Japan Earthquake. On the chest of midwives, these bibs indicate that they are specialists in pregnancy, delivery, and breastfeeding.

Japanese Nursing Association