

Training Suggestions for Japanese Head Nurses with Inaccurate Understanding of their Roles and Responsibilities in Initial Phases of Disaster Incidents

Yukari Sugawara^{1,2}, Chieri Yamada³

¹Graduate student, Graduate School of Medicine, Fukushima Medical University. 1 Hikarigaoka, Fukushima City, Fukushima, Japan. ²National Hospital Organization Sendai Medical Center Sendai School of Nursing and Midwifery. 2-8-8 Miyagino, Miyagino-ku, Sendai City, Miyagi, Japan, ³Professor (Retired), PhD, Graduate School of Medicine, Fukushima Medical University. 1 Hikarigaoka, Fukushima City, Fukushima, Japan.

How to cite this article: Yukari Sugawara, Chieri Yamada. Training Suggestions for Japanese Head Nurses with Inaccurate Understanding of their Roles and Responsibilities in Initial Phases of Disaster Incidents. *International Journal of Nursing Education*, July-September 2023;15(3).

Abstract

Background: During large-scale disasters, hospitals must respond immediately. In such situations, different levels of nurses have different roles and responsibilities. Head nurses in Japan have two types of responsibilities based on the shift, day or night. Assuming that head nurses do not clearly recognize these differences due to their lack of appropriate institutional education, this study aimed to clarify actual conditions of institutional education and head nurses' level of understanding.

Methods: Three questionnaires were developed: one for nursing directors regarding departments' implementation based on the disaster response manual and two true/false questionnaires for head nurses regarding their recognition of roles and responsibilities in disaster response. Twenty hospitals in a national hospital organization in Japan, located in two regions, were studied.

Conclusion: Of the 17 hospitals that responded, 52.2%–35.3% had written roles, responsibilities, and action procedures for head nurses on the day and/or night shift. Education, including orientation and training, was provided for the two shifts in 35.3%–23.5% of the hospitals. In terms of the true/false questions, 154 head nurses from both shifts responded with high accuracy; however, they did not appear to understand that they were commanders of the ward on the day shift and of the hospital on the night shift. The results indicate the need to stipulate head nurses' roles, responsibilities, and action procedures in the disaster response manual and implement institutional education and the provision of action assistant tools.

Keywords: initial disaster response, head nurse, roles, recognition, training

Introduction

Hospitals in Japan developed disaster response manuals (DRMs) after the Great Hanshin-Awaji

Earthquake in 1997; however, many issues related to DRM inefficiency became clear when a larger earthquake occurred in 2011. All workers should

Corresponding Author: Chieri Yamada, Professor (Retired), PhD, Graduate School of Medicine, Fukushima Medical University. 1 Hikarigaoka, Fukushima City, Fukushima, Japan.

E-mail: cyamada-hsph@hotmail.com

ORCID: <https://orcid.org/0000-0003-1610-4202>

receive institutional education to know and understand what they should do during a disaster. Hospital nursing departments should have clearly written roles and responsibilities for nurses in their DRMs.

The researchers examined head nurses who were mid-level managers with different roles and responsibilities for the day shift versus the night shift. During the day shift, on weekdays, they managed all nursing services for their own wards. On the weekends and holidays, head nurses assigned to both the day and night shifts were expected to manage the nursing services of the entire hospital. Neoi¹ reported that 89.7% of 130 hospitals in the central region, including Tokyo Metropolitan, had mid-level nursing managers, including head nurses and nurse leaders, on the night shift; 79.5% of them worked two to three night shifts a month, and 85.3% of night shift nurse managers were responsible for managing the whole nursing department. When disasters occur, head nurses have to take immediate actions depending on the shift. Although no scientific report has examined the issue, the researchers observed that head nurses' recognition of the two different roles and responsibilities seemed insufficient.

Regarding Japan's shift systems, a survey by the Japan Federation of Medical Workers' Union² reported that 38.7% of 148 institutions had three shifts and 23.0% had two shifts; furthermore, 0.8% of the nurses were night shift exclusive. For head nurses newly assigned to the night shift, Neoi¹ found that 11.1% completed an established training program while the others learned by shadowing senior head nurses or studying DRM or action procedures on their own¹. Al Harthi et al.³ found that poor informal education contributed to nurses' difficulties in managing disasters.

Therefore, this research analyzed how head nurses understood their two types of roles and responsibilities and made some suggestions for training development based on the findings.

Method

Target population: The research focused on 217 head nurses working in 20 hospitals of a national hospital organization in two regions, including two

ECHs in the regions, that had experienced large-scale natural disasters since 2011.

Period and venue: From June 17 through July 10, 2020. Fukushima Medical University, Japan.

Questionnaire: Three anonymous questionnaires were administered. One questionnaire for nursing directors and two questionnaires for head nurses were developed and sent to the nursing directors of the 20 hospitals for distribution to head nurses. Respondents returned the questionnaires to the researchers using a postage-paid return envelope to ensure that the researchers had no access to the senders' personal information.

Questionnaire development: The first questionnaire was prepared to collect information from nursing directors about their hospital's disaster response preparedness, including the presence of a DRM, written roles and action procedures for head nurses on the day/night shifts in the DRM, institutional orientation and training, and assistance tools (e.g., action card, emergency communication tools, and flow chart) to instruct action procedure. The remaining two questionnaires included true/false questions to measure head nurses' knowledge of their different roles and responsibilities on day and night shifts. As there was no applicable scale or questionnaire, the researchers relied on published information regarding hospitals' business continuity plan (BCP) manuals^{4,5}, BCP headquarter manuals⁶, and action card disaster management⁷⁻⁹ when developing the questionnaires. Savage⁷ explained that "an action card incorporates written information, advice, and orders for members of the hospital's staff". Four of the seven principles advocated by Major Incident Medical Management and Support¹⁰ were also considered as applicable in the initial phases of disaster response.

The researchers assumed that some mistakes would be made during a disaster. For example, head nurses could be uncertain of the hospital or ward command lines, commanders may act improperly based on responsibilities, and their strong tendency to act independently instead of being commanders. Therefore, to determine whether the head nurses understood and choose the right answers in challenging situations during the initial phases of

a) Day shift questionnaire

- ### b) Night shift questionnaire

- The researchers also collected data on five factors that might affect respondents' scores: length of time working as a head nurse, ECH work experience, number of disasters experienced on day and night shifts, institutional education experience on day and night shifts, and institutional training experience on day and night shifts.

Results

Seventeen of the 20 directors returned the questionnaire (valid response rate: 85.0%); one was the ECH. Table 1 shows how many of them had DRM issues.

Table 1. Hospitals' status of DRM item implementation (n=17)

[illegible]

Continue.....

12										
13										
14										
15										
16	Yes	Yes	Yes	Yes		Yes				
17		Yes			Yes	Yes			Yes	
Total: n (%)	4 (36.7)	3 (27.3)	4 (36.7)	3 (27.3)	2 (18.2)	4 (36.7)	1 (9.1)	2 (18.2)	1 (9.1)	1 (9.1)
Base total: n (%)	9 (52.4)	8 (47.1)	8 (47.1)	6 (35.3)	4 (23.5)	6 (35.3)	4 (23.5)	4 (23.5)	2 (11.8)	1 (5.9)

II. Head nurses

1. General information

Of the 217 head nurses, 154 returned the questionnaires. All were accepted for the analysis, although a few questionnaires were missing a few answers (valid response rate: 70.9%). The median length of working as head nurse was 5.25 years; the range was 0.17–35.25 years. Forty-eight head nurses (31.2%) had worked or were working in the ECH.

Twenty-six(16.9%) out of 154 had experienced a disaster on day duty and nine (5.8%) had done so on night duty.

2. Day shift accuracy rates for 18 true/false questions

Table 2 presents the 18 questions and accuracy rates. For individual scores, the median and range were 77.8% and 26%–100%, respectively. Seventy-seven nurses (50%) scored under the median value.

Table 2. Accuracy rates for 18 true/false questions related to head nurse's roles and responsibilities on day shift when disasters occur (n=154)

	Questions	"Yes" was correct: *	Accuracy rate
A1	I secure my own safety	*	97.4
A2	I go to the disaster response head quarters after I secure my safety		35.1
A3	I go to the director's office of the nursing department after I secure my safety		72.1
A4	I go to my ward when I am out of my ward after I secure my safety	*	99.4
A5	I instruct nurse leaders to check the safety of the whole ward	*	100
A6	I check the safety of the whole ward myself		51.9
A7	I stay at the director's office while receiving reports from the nurse leaders		92.8
A8	I stay at the ward while receiving reports from the nurse leaders	*	88.3
A9	I collect information on other wards' conditions		26.0
A10	I call my staff who are not on duty and check their safety		39.0
A11	I call the director's office using an internal phone or emergency communication tool (such as transceiver) for reporting my ward's condition	*	97.4
A12	After I call the director's office, I instruct the nurse leaders to guide all patients in evacuating the hospital		63.8
A13	After headquarters issues an evacuation order, I instruct the nurse leaders to guide all patients in evacuating	*	96.8
A14	After headquarters issues an evacuation order, I guide all patients with nurse leaders in evacuating		32.5
A15	According to the headquarters' decision, I reallocate nurses and duties in the ward and notify the nurse leaders of the reallocations	*	96.1

Continue.....

A16	I monitor progress and difficulties during evacuation, reallocating nurses and assigned duties	*	100
A17	I assess and make decisions on everything that occurs in the ward	*	67.1
A18	I report and discuss with the director when I face difficulties making decisions	*	94.8

3. Day shift accuracy rates between correct answers and complete correct answers

the relationship of accuracy rates between the correct answers and the complete correct answers for each unit.

As described in the method section, day shift questions included five units. Table 3 summarizes

Table 3. Accuracy rates between correct answers and complete correct answers per unit on day shift

Category	Place to stay or go when disaster occurs	Who confirms safety of ward	Place to receive reports from nurse leaders	Who has authority to make evacuation decisions	Head nurse's role when evacuation starts
Unit	A2*, A3, A4	A5*, A6	A7, A8*	A12, A13*	A13*, A14
Accuracy rate	99.4%	100%	88.3%	96.8%	96.8%
Complete accuracy rate	32.5%	51.9%	83.1%	62.3%	30.5%

*: question for which "yes" was correct answer

4. Night shift accuracy rates for 18 true/false questions

of individual scores were 76.6 % and 21.6 %, respectively. Sixty-three respondents (40.9%) scored under the mean value.

Table 4 presents the 20 questions and percentages of correct answers. The mean and standard deviation

Table 4. Accuracy rates for 20 true/false questions related to head nurse's roles and responsibilities on night shift when disasters occur (n=154)

	Questions	"Yes" was correct: *	Correction rate
B1	I secure my own safety	*	98.7
B2	I go to the tentative disaster response headquarters after I secure my safety	*	75.3
B3	I go to all wards after I secure my safety		42.2
B4	I call nurse leaders of all wards using an internal phone or emergency communication tool (such as transceiver) and instruct them to check all wards	*	90.9
B5	I go to all wards and instruct nurse leaders to check their wards		50.0
B6	I go to all wards and check them myself		79.9
B7	I stay at the tentative headquarters and receive reports from nurse leaders	*	79.9
B8	I go to all wards and receive reports from nurse leaders		57.1
B9	I collect information about the whole hospital's condition	*	99.4
B10	I collect information on community and area conditions	*	86.4
B11	I report the condition of the nursing department to the director of the tentative headquarters	*	98.1

Continue.....

B12	I join discussions at the tentative headquarters	*	87.0
B13	When the tentative headquarters issues evacuation orders, I call all nurse leaders and instruct them to immediately evacuate patients	*	95.5
B14	When the tentative headquarters issues evacuation orders, I go to wards and instruct nurse leaders to immediately evacuate patients		47.4
B15	When the tentative headquarters issues evacuation orders, I join nurses to guide patients to evacuate		51.9
B16	I allocate and assign duties to nurses who come to the hospital voluntarily	*	94.2
B17	I instruct nurses who voluntarily come to the hospital to go their own wards and follow the nurse leader's instructions		35.1
B18	I discuss and make decisions with other tentative headquarters members on matters that nurse leaders cannot decide by themselves	*	93.5
B19	I judge, decide, and instruct on all issues that nurses face		70.1
B20	I report all conditions and responses to the director of nursing department when they arrive at the hospital	*	99.4

5. Night shift accuracy rates between correct answers and complete correct answers rates between correct answers and complete correct answers.

Table 5 presents the relationship of accuracy

Table 5. Accuracy rates between correct answers and complete correct answers per unit on night shift

Category	Place to stay or go when disaster occurs	Who confirms safety of wards	Receiving reports from nurse leaders or go to wards directly	Who has authority to make evacuation decisions	Allocation of assembled nurses
Unit	B2*, B3	B4*, B5, B6	B7*, B8	B13*, B14	B16*, B17
Accuracy rate	75.3%	90.9%	79.9%	95.5%	94.2%
Complete accuracy rate	37.7%	40.9%	54.5%	33.8%	33.8%

*: question for that "yes" was correct answer

6. Education experience and relationship to scores Head nurses' institutional orientation and training experience is shown in Table 6.

6.1 Education experience

Table 6. Institutional education experience of head nurses (n=154)z

Institutional orientation		Institutional training	
Day shift	Night Shift	Day shift	Night Shift
29 (18.8%)	13 (8.4%)	48 (31.2%)	21 (13.6%)
Contents: Safety confirmation, reporting, evacuation, patients' care, and nursing staff coordination	Contents: Disaster response, triage	Contents: Roles in DRH, reporting and consultation, safety confirmation, evacuation and guidance	Contents: Establishing tentative DRH, coordination of off duty nurses who voluntarily gather, patient referral, damage assessment, reporting system

6.2 Correlation analysis of the scores and five factors

Five factors—length of time working as a head nurse, ECH work experience, institutional education experience on day and night shifts, institutional training experience on day and night shifts, an number of disasters experienced on day and night shifts—were applied to observe correlations with questionnaire scores using multiple regression.

Collinearity was found between a) length of working and times of training, b) times of working in ECH and number of disasters experienced, c) number of disasters experienced and times of institutional training, and d) times of institutional training and institutional exercise. Each collinearity pair was deleted, and the negative correlation between the score and the length of working on the day shift was statistically significant ($B=-0.20$, $p<0.032$). The remaining analyses of the scores and five factors on the night shift, high score group, and low score group showed no significant correlation.

Discussion

To enable hospital nurses to respond appropriately to disasters, the director's office should implement several steps. First, the roles and responsibilities of nurses at all levels should be stipulated. The contents should be disseminated to different levels of nurses separately via training to ensure that they clearly understand. Finally, helping tools should be provided.

All of the studied hospitals had DRMs; however, half had insufficiently written roles for both day and night shifts. Moreover, it was problematic that action procedures were written for fewer than half the hospitals.

Institutional education, including orientation and training, was also poorly performed. Only 11.8% of hospitals implemented orientation for head nurses on both shifts, and training was provided to 23.5% of day shift head nurses versus 17.6% of night shift head nurses. Although this research did not study the form or quality of the orientation and training, this finding is similar to Neoi's report¹ that head nurses learn their roles and responsibilities mostly by shadowing and self-study. Such a situation might lead to uncertainty about the target lessons.

Training that mimics actual disaster incidents is imperative for enhancing trainees' understanding gleaned from classrooms and increasing their

confidence to perform during disasters effectively. Labrague et al.¹¹ reported that previous disaster experience and disaster-related training enhanced disaster response. Smith and Farra¹² concluded the need to provide training for nurses to obtain competencies and readiness to respond to disasters. Jonson et al.¹³ applied three short computer-based stimulation exercises involving initial disaster management and found that head nurses increased their self-efficacy and management skills. Gilmartin et al.¹⁴ reported that self-confidence is core to clinical nurse leaders' successful job performance.

Three of the 17 hospitals studied provided an assistant tool, such as action cards or flow charts, to both the day shift and night shift. Disasters are unpredictable, and it is human nature to not remember everything, especially during situations involving panic. Thus, tools such as action cards and flow charts should be written using simple language describing what people "should do" in sequence would be very useful.

Recognizing head nurses' uncertainty about their roles and responsibilities seemed to reflect the hospitals' identified DRM-related issues. Many did not understand different roles and responsibilities on the day and night shifts; this phenomenon was more apparent on the night shift. Some unit's respondents chose a correct answer and simultaneously provided an affirmative answer for other choices. This might suggest that their performance cannot be predicted, and such acts might cause confusion in wards or hospitals.

The responses suggested that the majority of respondents did not recognize that, when a large-scale incident occurs, they become the "control tower" and "commander" of their wards on the day shift and of the department of nursing on the night shift. Staff nurses know where the "control tower" is, and the "commander" should be there to make decisions and issue instructions according to available information. On the day shift, the head nurse is "commander" of the ward. They stay at the nursing station and instruct nurse leaders to check on patients' and nursing staff's safety and damages. They do not make evacuation decisions, which is the responsibility of the director of nursing. Including evacuation, head nurses instruct nurse leaders what to do and not to take action by themselves; instead, they should monitor their staff's actions. When making decisions and instructing staff on the night shift as the director's representative, the

“commander” head nurses gather information about the damages inside and outside the hospital and send nurses who voluntarily arrive at the hospital to where resources are scarce. Head nurses hand over authorization and report to the directors when they arrive. Thus, a firm understanding and achievement of required roles and responsibilities might be fundamental to effective responses.

Based on the findings, the researchers make some suggestions for hospital nursing departments. Written roles and responsibilities and action procedures, well-grounded training using actual scenarios for practice, and low-cost action assistant tools should be provided. As training can be challenging to develop, a common module could be developed especially as the studied group was from the same organization. A computerized module could also be considered. Each hospital could modify the module to the specific conditions of each hospital and could be expanded for any other hospital in Japan. Finally, for written action procedures and trainings, trainers should teach head nurses not only what they should do, but also what they should not do in order to eliminate action uncertainty and enhance their self-confidence.

Conclusion

Nursing departments play important roles for both patients and fellow nurses. Therefore, directors and head nurses should have concise knowledge about how to react when they are commanders of the hospital or ward. The studied hospitals in this research had some trainings, exercises, and assistant tools for head nurses, but they were not sufficient. It is necessary to establish and implement institutional education as the majority of hospitals studied had not yet renewed their DRMs with BCP.

Source of funding: Graduate School Fund of Fukushima Medical University.

References

1. NeoiT. Nursing manager's night shift management work: Present situation and issues. *Gunma Paz University Bulletin*. 2015; **19**: 11-24. English abstract available.
2. Japan Federation of Medical Worker's Union. 2022 nendoyakinjittaityousa. [Internet] [cited 2023 Apr 20] [Actual condition survey of night shift among nurses in 2022]. Available from: <http://irouren.or.jp/research/045484dd42d08899c4579e493356c5fedfd09744.pdf> No English available
3. Al Harthi M, Al Thobaity A, Al Ahmari W, Almalki M. Challenges for Nurses in Disaster Management: A Scoping Review. *Risk Management and Healthcare Policy*. 2020; **13**: 2627-34.
4. Tohoku University Hospital. Disaster response Manual 2018. [Internet] [cited 2023 March 29] Available from: <https://www.hosp.tohoku.ac.jp/pc/pdf/saigai-manual.pdf> No English available
5. Yawatahara City General Hospital. 2014. Plan of Disaster Medicine. [Internet] [cited 2023 Apr 12] Available from: <https://plaza.umin.ac.jp/GHDNet/y123.pdf> No English available
6. Tohoku University Hospital. Disaster Response Headquarter Manual 2019. [Internet] [cited 2023 Mar 29] Available from: <https://www.hosp.tohoku.ac.jp/pc/pdf/saigai-honbu-manual.pdf> No English available
7. Savage PEA. Disaster Planning: The Use of Action Cards. *British Medical Journal*. 1972; **1**: 42-43.
8. Nakajima Y. Akushonkaado de gensaitaiku. [Disaster mitigation with action cards]. Tokyo: Nissoken; 2019. P129. No English available
9. Yoshida O, Yokota K, Kato Y, Obiguchi K, Sonomama tukaerusaigaitais akuakushonkaado. [Disaster response action cards ready to use]. Tokyo: Chugaiigakusha; 2017. P176. No English available
10. Major Incident Medical Management Support. Major Incidents. [Internet] [cited 2023 April 2]. Available from: <http://www.mimms.org.au/major-incidents>
11. Labrague LJ, Hammad K, Gloe DS, McEnroe-Petitte DM, Fronda DC, Obeidat AA et al. Disaster preparedness among nurses: a systematic review of literature. *International Nursing Review*. 2018; **65** (1): 41-53. doi: 10.1111/inr.12369
12. Smith SJ, Farra S. National Disaster Health Consortium: Competency-Based Training and a Report on the American Nurses Credentialing Disaster Certification Development. *Nursing Clinics of North America*. 2016; **51**(4): 555-568. doi: 10.1016/j.cnur.2016.07.008
13. Jonson CL, Pettersson J, Rybing J, Nilsson H, Prytz W. Short simulation exercises to Improve emergency department nurses' self-efficacy for initial disaster management: Controlled before and after study. *Nurse Education Today*. 2017; **55**: 20-25.
14. Gilmartin MJ, Nokes K. A Self-Efficacy Scale for Clinical Nurse Leaders: Results of a Pilot Study. *Nursing Economic\$*. 2015; **33**(3): 133-43.