

# Trial Use and Evaluation of a Cancer Family Care Learning Program for General Ward Nurses<sup>1)</sup>

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To identify challenges of a cancer family care learning program for general ward nurses developed in our previous study, we used and evaluated it on a trial basis. We conducted a questionnaire survey using the Scale for the Care of Cancer Patients' Families in General Wards before and after the learning program, involving 80 nurses working on 3 wards of a cooperating hospital. The numbers of respondents in the pre- and post-learning surveys were 43 (response rate: 53.8%) and 30 (37.5%), respectively. Analysis of responses for each factor revealed a tendency to self-evaluate family care more positively after learning. This tendency was marked for {considering patient privacy in multi-bed rooms} ( $p=0.004$ ) and {accurately recognizing cancer-related changes in family members' roles} ( $p=0.018$ ), as scores were significantly higher after learning in both cases. As challenges of the learning program, the results indicate the necessity of connecting learning contents and practice, developing effective learning strategies, selecting appropriate nurses for a training session as part of the learning program, and reviewing methods to share learning through training.

**key words:** cancer, family care, learning program, general wards

## I. Background and Objective

Due to the characteristics of the disease, many cancer patients are forced to follow a long disease course from diagnosis to treatment, recurrence/metastasis, and the end stage. Going through these stages, patients receive long-term care while repeatedly being admitted to general wards for examinations and treatments. Cancer has recently

been reported to influence families, in addition to patients, leading to holistic issues, including physical (such as reduced immunity and chronic sleep disorders), mental (such as adjustment disorder and depression), and social (such as altered balance within the household and unemployment) problems (Onishi & Ishida, 2014). When considering these holistic issues in families, cancer care should also cover family support from the early stages. How-

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ever, there are various challenges in generalizing family care on general wards, where many cancer patients repeat hospitalization and discharge. First, general wards tend to face care priority-related challenges, as the shortening of hospital stays is resulting in temporal restrictions and insufficient manpower. Second, nurses working on these wards are aware of the importance of family care, but they lack knowledge of the methods to provide it (Cho, Kawamoto, Anan & Nagamatsu, 2015). Furthermore, although it is necessary to promote post-graduate education to nurture general ward nurses' caring competencies, temporal restrictions and the necessity of playing multiple nursing roles make it difficult to educate them within their busy work hours.

While these various challenges are being noted, the link nurse system adopted as a basis for nursing education has been suggested to be effective to educate general ward nurses with heavy workloads. The link nurse system has its origin in the United Kingdom's infection prevention system, and it has also been adopted in Japan for various purposes, including countermeasures against hospital-acquired infections, pressure sore management, and palliative care education. A link nurse is a medical team member in a specific area, who connects his/her ward and other divisions/specialists. Link nurses provide continued education and supervision on their wards to enhance the ward staff's qualities (McKeeney, 2003; Makino, Ishikawa, Ohara, Koike & Horiguchi, 2010; Forrester, Bielby, Johns, Efford, Holland & Khair, 2013).

In our previous study, we developed a cancer family care learning program for general ward nurses (learning program) based on the link nurse system to effectively support general ward nurses' learning, with the aim of connecting researchers, link nurses, and general ward nurses (Cho, Anan, Nagamatsu, Toyofuku & Murai, 2019). The learning program may greatly help nurture the caring competencies of general ward nurses with heavy workloads, generalize the contents of their practice, and

promote and improve family care for cancer patients admitted to general wards.

The objectives of the present study were to use the learning program on a trial basis, quantitatively evaluate family care for cancer patients, and identify challenges of this program.

#### **Details of the learning program:**

Based on the link nurse system, the learning program was designed to promote the sharing of learning. Nurses who participate in a 30-minute training session held by researchers (a 15-minute lecture using learning contents and 15-minute group work, including case studies, totally 30 minutes) subsequently share their learning through this training session with all nurses within their wards at ward meetings or making use of other opportunities. In the present study, nurses participating in the training session were defined as cooperating nurses, and all nurses within the wards the cooperating nurses belonged to were included (Figure 1).

Learning contents for the training session were created, focusing on the need for family care among families of cancer patients admitted to general wards. They consisted of a PowerPoint presentation and video, summarizing elements of family care (Cho et al., 2019). The program uses a DVD, consisting of a PowerPoint presentation and video. The researchers first presented questions using PowerPoint, such as "What is Family Care for Cancer Patients?", and then explained each of the 5 elements of family care using a video: 1) gently treating patients and their families, 2) providing safe and comfortable patient care, 3) giving appropriate verbal instructions and acting as a confidant, 4) reducing families' anxiety, and 5) connecting to other professionals. After training, cooperating nurses shared their learning based on the learning contents through the process of conveying the contents of the training session to all nurses within their wards mainly at ward meetings.

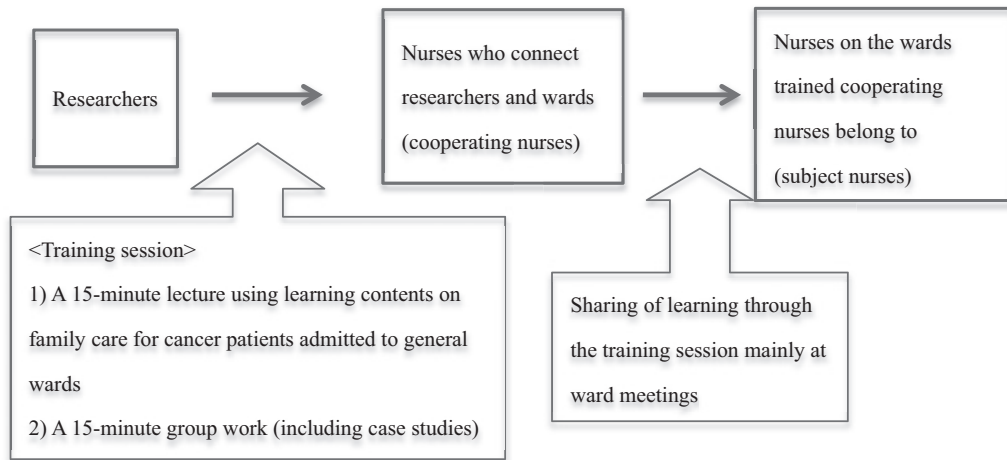


Figure 1 Details of the Cancer Family Care Learning Program for General Ward Nurses

## II. Methods

### 1. Study design

A comparative study based on self-administered questionnaire surveys involving nurses before and after the learning program.

### 2. Cooperating and subject nurses

There were 6 cooperating nurses from 3 wards of a hospital designated as a base hospital for cancer care; to promote the sharing of learning without an increased burden, 2 nurses were selected from each ward. The subjects were 80 nurses on these 3 wards. The inclusion criteria for cooperating nurses were: working on a general ward; and caring for cancer patients with a nursing experience of 5 years or longer. The inclusion criterion for subject nurses was being a nurse caring for cancer patients on one of the general wards the cooperating nurses belonged to.

Nurses working on wards for cancer patients other than general wards, such as palliative care and psychiatric wards, and those working on pediatric wards were excluded.

### 3. Period of data collection

From December 2017 to April 2018.

### 4. Study procedure

A questionnaire survey was conducted approximately 1 month before (pre-learning survey) and ap-

proximately 1 month after (post-learning survey) the learning program.

### 5. Study items

Both the pre- and post-learning surveys used the following 2 questionnaires:

#### 1) Face Sheet

This sheet was used to clarify the subject nurses' basic attributes (age and sex), nursing characteristics (years of nursing experience, occupational category, position, current department and duration of belonging to it, and frequencies of contact with cancer patients and their families when working).

#### 2) Scale for the Care of Cancer Patients' Families in General Wards

The Scale for the Care of Cancer Patients' Families in General Wards (scale; Cho & Kawamoto, 2013) was developed to evaluate family care for cancer patients provided by nurses on general wards. The scale consists of 29 statements representing 4 factors: [identifying problems faced by families and reducing their burdens], [providing family function-focused support approaches], [helping families prepare themselves to accept patients' deaths], and [coordinating team medicine and providing information for effective long-term care]. Its accuracy has been confirmed by multifaceted verification approaches, including reliability verification covering internal consistency and stability, validity verifica-

tion addressing face validity, content validity, appropriateness, construct validity, and criterion-related validity, and assessment of the reproducibility of the factorial structure. Each statement is rated on a 5-point scale from <Always> to <Never > . Higher scores indicate more positive self-evaluation of family care.

## 6. Data analysis

The statistical software SPSS statistics ver.24J was used. The subject nurses' basic attributes and nursing characteristics in the pre- and post-learning surveys were examined by calculating descriptive statistics. Furthermore, the mean total scores and mean scores for each factor and statement before and after learning were calculated. To compare scale scores (scores for the entire scale, each factor, and each statement) before and after learning, the Mann-Whitney U-test was conducted based on the subject nurses' age, years of nursing experience, and duration of belonging to the current department. The significance level was set at lower than 5%.

## 7. Ethical considerations

The study was approved by the Ethics Committee of the University of Occupational and Environmental Health (approval number: H29-021). To ensure the voluntariness of the subject nurses participating in the study, the principal researcher provided the person responsible of the cooperating hospital with oral and written explanations of the study objective prior to the referral of cooperating nurses. Subsequently, these explanations using a written document were also provided to the cooperating nurses to obtain their written consent. The subject nurses' voluntariness was also confirmed by asking the chief nurses of the relevant wards to orally explain the study objective to them, in addition to providing them with a written explanation, and including only those who check-marked a box for consent in the questionnaire sheet. As both the pre- and post-learning surveys were anonymous, self-administered questionnaire-based, the cancellation of consent after returning responses by mail was

not allowed, as additionally explained using a written document. We have no conflict of interest to declare in relation to this study.

## III. Results

### 1. Subject nurses' attributes

In the pre- and post-learning surveys involving 80 nurses working on 3 wards of the cooperating hospital, there were 43 (response rate: 53.8%) and 30 (response rate: 37.5%) responses, respectively. There was no invalid response in either case.

The subject nurses' mean ages before and after learning were  $37.10 \pm 11.14$  (range: 21-62) and  $37.30 \pm 11.13$  (22-62), respectively. Their mean lengths of nursing experience before and after learning were  $14.69 \pm 11.32$  (1-41) and  $14.57 \pm 11.70$  (1-41) years, respectively.

As for the sex ratio, there were 1 male and 42 females before and 0 males and 30 females after learning.

Before learning, there were 41 (95.3%) nurses as the major occupational category, with 2 (4.7%) belonging to the midwife / others category. After learning, there were 30 (100.0%) nurses.

Concerning the position, there were 35 (81.4%) staff nurses before learning, accounting for the majority, followed by 6 (14.0%) nursing managers and 2 (4.7%) in other positions. After learning, there were 26 (86.7%) staff nurses, 3 (10.0%) nursing managers, and 1 (3.3%) in another position.

Mixed (internal medicine and surgery) wards were the most frequent current department before learning, with 27 (62.8%) nurses, followed by those specializing in internal medicine and surgery, with 14 (32.6%) and 2 (4.7%) nurses, respectively. After learning, there were 17 (56.7%) mixed, 10 (33.3%) internal medicine, and 3 (10.0%) surgery departments.

On examining the frequency of contact with cancer patients when working, there were 38 (88.4%) answering <Always> and 4 (9.3%) answering <Often> before learning, and 1 (2.3%) not applicable answer. After learning, 27 (90.0%) and 3 (10.0%) answered so, respectively.

**Table 1** Subjects' Attributes

Attributes		Pre-learning survey		Post-learning survey		p-value
		n	mean (SD)	n	mean (SD)	
Age (years)		42	37.10 (11.14)	30	37.30 (11.13)	0.846
Length of nursing experience (years)		42	14.69 (11.32)	30	14.57 (11.70)	0.968
Duration of belonging to the current department (months)		43	47.73 (38.60)	28	54.96 (53.90)	0.757
		n	%	n	%	
Sex	Female	42	97.7	30	100.0	
	Male	1	2.3	0	0.0	
Occupational category	Nurse	41	95.3	30	100.0	
	Others (midwife)	2	4.7	0	0.0	
Position	Nursing manager	6	14.0	3	10.0	
	Staff nurse	35	81.4	26	86.7	
	Others	2	4.7	1	3.3	
Current department	Internal medicine	14	32.6	10	33.3	
	Surgery	2	4.7	3	10.0	
	Mixed	27	62.8	17	56.7	
Frequency of contact with cancer patients	Always	38	88.4	27	90.0	
	Often	4	9.3	3	10.0	
	Rarely	0	0.0	0	0.0	
	Never	0	0.0	0	0.0	
	Others	0	0.0	0	0.0	
	N/A	1	2.3	0	0.0	
Frequency of contact with families of cancer patients	Always	15	34.9	13	43.3	
	Often	28	65.1	16	53.3	
	Rarely	0	0.0	0	0.0	
	Never	0	0.0	0	0.0	
	Others	0	0.0	1	3.3	

Similarly, on examining the frequency of contact with families when working, there were 28 (65.1%) answering <Often> and 15 (34.9%) answering <Always> before learning, revealing the absence of nurses who did not contact with families. After learning, 13 (43.3%) chose <Always>, 16 (53.3%) chose <Often>, and 1 (3.3%) chose <Others>. On comparing scale scores before and after learning, there were no significant differences related to the subject nurses' age, years of nursing experience, or duration of belonging to the current department (Table 1).

## 2. Comparison of family care before and after learning

The total scores before and after learning were  $104.84 \pm 14.79$  and  $106.01 \pm 15.42$ , respectively. The total score for each factor before and after learning were as follows: [Factor 1: identifying problems faced by families and reducing their burdens]:  $47.72 \pm 6.24$  and  $48.40 \pm 6.57$ ; [Factor 2: providing family function-focused support approaches]:  $14.88 \pm 3.61$  and  $16.53 \pm 3.49$ ; [Factor 3: helping families prepare themselves to accept patients' deaths]:  $25.98 \pm 4.46$  and  $26.10 \pm 5.19$ ; and [Factor 4: coordinating team medicine and providing information for effective

long-term care]  $16.26 \pm 3.74$  and  $16.67 \pm 3.79$ , respectively. Similarly, the mean scores for each factor were as follows: [Factor 1: identifying problems faced by families and reducing their burdens]:  $3.98 \pm 0.79$  and  $4.03 \pm 0.77$ ; [Factor 2: providing family function-focused support approaches]:  $2.98 \pm 0.90$  and  $3.31 \pm 0.85$ ; [Factor 3: helping families prepare themselves to accept patients' deaths]:  $3.71 \pm 0.90$  and  $3.73 \pm 0.94$ ; and [Factor 4: coordinating team medicine and providing information for effective long-term care]:  $3.25 \pm 0.95$  and  $3.33 \pm 0.90$ , respectively, revealing more positive self-evaluation of family care in all factors after learning. Furthermore, the value was the highest for Factor 1, followed by Factors 3, 4, and 2, in this order. On comparing the mean scores for each statement, the values for all of the 5 statements representing [Factor 2: providing family function-focused support approaches] were higher after than before learning.

The Mann-Whitney U-test for the entire scale, each factor, and each statement before and after learning did not reveal significant differences in the total score or score for each factor, whereas values representing self-evaluation of family care for {Statement 8: considering patient privacy in multi-bed rooms} ( $p=0.004$ ) and {Statement 15: accurately recognizing cancer-related changes in family members' roles} ( $p=0.018$ ) were significantly higher after learning (Table 2).

#### IV. Discussion

##### 1. Evaluation of the learning program

The subject nurses may have been a standard sample, as their basic attributes, such as the mean age and length of nursing experience, were similar to those of the nurses on general wards admitting cancer patients examined in our previous study (Cho et al., 2013; Cho et al., 2015; Ooshige, 2011). In the present study, the score representing self-evaluation of family care for [Factor 1: identifying problems faced by families and reducing their burdens] was the highest, and that for [Factor 2: providing family function-focused support approaches]

was the lowest both before and after learning. This is consistent with the results of a previous study using the scale (Kawamoto, Hatono, Cho & Maeno, 2016). On the other hand, the values for all statements of [Factor 2: providing family function-focused support approaches] were higher after than before learning, supporting the effectiveness of the learning program. [Factor 2: providing family function-focused support approaches] assesses family care approaches, including {providing support while considering psychological influences on adolescents if any in the family} and {becoming a spokesperson if a conflict occurs in the relationship between the patient and other family members}. It comprises care contents, focusing on family functions as family systems. Many recent studies on family care emphasize the importance of providing support while considering family systems under the influence of possible changes in health care environments and regarding each family as a system (Cooley & Moriarty, 1997; Suzuki & Watanabe, 2006; Hanson, Boyd & Murata, 2001). As a recent trend, nursing students learn about family functions in the Family Nursing course as part of basic nursing education. However, family nursing has been thought to be a type of family care, which is difficult to promote on general wards. For one thing, it is a discipline of nursing without a long history, having been fully incorporated into basic nursing education in the 1990's. Additionally, opportunities to learn it in postgraduate education have been limited, and the influences of shortened hospital stays should also have been considered. Despite such a background, the results of the present study suggest that nurses positively self-evaluate family care after learning about family functions.

Moreover, although significant differences were only observed in 2 of the 29 statements, it should be noted that scores for all factors of family care increased after learning. Scores for {Statement 8: considering patient privacy in multi-bed rooms} and {Statement 15: accurately recognizing cancer-related changes in family members' roles} were sig-

**Table 2** Scores from the Scale for the Care of Cancer Patients' Families in General Wards

	Before learning (n = 43)		After learning (n = 30)		p-value
	mean	SD	mean	SD	
<b>Factor1: Identifying problems faced by families and reducing their burdens</b>					
1 Attentively listening to families to understand their emotions	4.14	0.71	4.07	0.74	0.673
2 Supporting families to solve their questions	4.05	0.75	4.00	0.74	0.795
3 Listening to families to clarify their views on treatment plans	3.98	0.77	3.97	0.89	0.959
4 Providing opportunities for families to ask questions	3.47	1.01	3.33	0.80	0.553
5 Regarding families as recipients of nursing care	4.12	0.91	4.10	0.88	0.939
6 Actively communicating with families	4.19	0.73	4.20	0.71	0.936
7 Explaining to families that efforts are being made to provide safe and comfortable care	3.93	0.83	3.83	0.87	0.632
8 Considering patient privacy in multi-bed rooms	4.02	0.67	4.47	0.57	0.004*
9 Impartially treating all patients, regardless of their conditions	4.30	0.74	4.33	0.61	0.851
10 Supporting the care provided by families	3.79	0.71	3.80	0.92	0.961
11 Coordinating for families to directly consult attending doctors at their request	4.00	0.82	4.27	0.78	0.167
12 Giving consideration for smooth communication between patients and their families	3.74	0.79	4.03	0.72	0.115
Subtotal score	47.72	6.24	48.40	6.57	0.924
Mean score for this factor	3.98	0.79	4.03	0.77	
<b>Factor2: Providing family function-focused support approaches</b>					
13 Providing support while considering psychological influences on adolescents if any in the family	2.88	0.85	3.00	0.83	0.564
14 Providing information for families to obtain mental support	2.56	0.96	3.00	1.02	0.063
15 Accurately recognizing cancer-related changes in family members' roles	2.91	0.97	3.43	0.82	0.018*
16 Becoming a spokesperson if a conflict occurs in the relationship between the patient and other family members	3.02	0.96	3.43	0.77	0.057
17 Clarifying families' decision-making processes	3.51	0.74	3.67	0.80	0.396
Subtotal score	14.88	3.61	16.53	3.49	0.117
Mean score for this factor	2.98	0.90	3.31	0.85	
<b>Factor3: Helping families prepare themselves to accept patients' deaths</b>					
18 Providing mental support for bereaved families	3.58	1.01	3.87	1.07	0.250
19 Providing intervention for families exhausted by caregiving	3.81	0.79	3.83	0.83	0.920
20 Educating families to prepare themselves for bereavement (in psychological and practical aspects including garments)	3.51	0.88	3.50	0.90	0.956
21 Giving consideration for families with anticipatory grief for bereavement	3.65	0.81	3.57	0.90	0.677
22 Confirming families' willingness to participate in postmortem support for patients	3.72	1.10	3.67	1.09	0.836
23 Confirming families' intentions related to resuscitation for patients close to death	3.91	0.95	3.73	1.01	0.457
24 Providing families with information regarding pain control for patients	3.79	0.74	3.93	0.74	0.421
Subtotal score	25.98	4.46	26.10	5.19	0.818
Mean score for this factor	3.71	0.90	3.73	0.94	
<b>Factor4: Coordinating team medicine and providing information for effective long-term care</b>					
25 Introducing medical social workers to address families' concerns	2.95	0.87	3.10	1.09	0.527
26 Coordinating for patient transfer through collaboration with other professionals	3.70	0.96	3.57	1.07	0.587
27 Providing families with information regarding the medical service system to resolve their financial difficulties	2.95	1.02	2.93	0.78	0.924

**Table 2** Scores from the Scale for the Care of Cancer Patients' Families in General Wards (continued)

	Before learning (n = 43)		After learning (n = 30)		p-value	
	mean	SD	mean	SD		
28 Providing caregiving guidance for families to appropriately care for patients discharged to home	3.37	0.98	3.50	0.78	0.552	
29 Coordinating among patients/families, doctors, and nurses as team members to prevent gaps in their views on treatment plans	3.28	0.91	3.57	0.77	0.162	
	Subtotal score	16.26	3.74	16.67	3.79	0.761
	Mean score for this factor	3.25	0.95	3.33	0.90	
	Total score	104.84	14.79	106.01	15.42	0.622

Mann-Whitney U-test \*p&lt;0.05

nificantly higher after learning. As {considering patient privacy in multi-bed rooms} is a care content corresponding to daily clinical settings, it may have been easy to put into practice. {Accurately recognizing cancer-related changes in family members' roles} may also have been feasible, as "accurately recognizing" signifies a care content to be performed at a cognitive level. In addition, the video used in the learning program as a learning content to show situations, where families develop distress and anxiety about cancer patients in multi-bed patient rooms, and the disease influences family members' roles, may have helped nurses visualize family care methods, contributing to the higher scores for these 2 statements after learning. Over these years, active learning or similar approaches have also been adopted in educational environments. There are some critical opinions regarding active learning (Tsuchiya, 2018), but learning using the visual and hearing senses has been considered more effective than lectures, and discussing in a group and teaching others have been reported to further increase learning effects (Kawajuku Educational Institution, 2011). As constructs of the learning program, the use of audio-visual teaching materials, group learning, and the promoted sharing of learning through training may also have increased learning effects, resulting in positive self-evaluation of family care among some nurses.

## 2. Strategies for implementing the learning program

Nursing is a discipline of practice, with the goal of making use of knowledge through practice. The learning program has 2 characteristics: focusing on the family care that families of cancer patients admitted to general wards expect from nurses; and being based on the link nurse system as a method to provide effective learning support for general ward nurses with temporal constraints. However, the results of the present study indicate the necessity of strategies for making its contents more practical. Specifically, concerning postgraduate family nursing education, continued in-hospital education in this area has been reported to be effective to reduce family care burdens on nurses. At the same time, some researchers note difficulties in connecting basic knowledge of family nursing and practice and allocating sufficient time for family nursing training amongst other important themes with a high priority (Ikeuchi, Fukuma & Osada, 2018; Yamazaki, Tsumura, Mine, Kimura, Soeda, Odatsu & Kiwado, 2017). Measures to allocate sufficient time and effective strategies for learning to connect knowledge and practice of family nursing, which is the focus of the learning program, should be continuously examined in nursing as a discipline of practice.

## 3. Challenges of the learning program

The results of the present study, where the learn-



ing program was used on a trial basis and the cooperating nurses' opinions revealed the following challenges of the learning program:

First, appropriate nurses for the training session as part of the learning program should be selected. In the program, nurses who participate in a 30-minute training session held by researchers (a 15-minute lecture using learning contents and 15-minute group work to study cases, totally 30 minutes) subsequently share their learning through this training session with all nurses within their wards at ward meetings or making use of other opportunities. To widely disseminate a learning program designed to be easy to use, methods to promote the sharing of learning by link nurses without an increased burden were adopted (Cho et al., 2019). The program uses a DVD, consisting of a Power-Point presentation and video, and all explanations to be provided by link nurses to share their learning through the training session are listed in the Notes section of the DVD. Therefore, no test to confirm link nurses' levels of understanding training contents is conducted in the program.

However, nurses for the training session should be interested in oncology nursing and family nursing and willing to improve the quality of family care on their wards, as well as having the skills to make presentations to others, as they are expected to share their learning through training mainly at subsequent ward meetings. Therefore, in order to generalize the learning program in the future, it may also be necessary to select nurses with these qualities.

Second, methods to share learning as part of the learning program should be re-examined. With shift work and strengthened measures for labor management as background factors of general wards, it may be difficult to share learning through the training session among all nurses on them, unless several time frames for such sharing are allocated. The Guidelines on Measures to be Adopted by Training Program Users for Accurate Work Hour Calculation (Ministry of Health, Labour, and Welfare, 2017)

instruct employers to count periods of time spent by their employees to participate in training sessions and educational drills or learn the necessary skills as work hours based on the Labor Standards Act. This makes ward meetings and training sessions with all ward staff attending more infeasible than before, resulting in a tendency for hospitals and wards to hold these events on a voluntary basis. Furthermore, the learning program requires the selection of nurses who connect researchers and ward nurses. When only 1 nurse is selected for this purpose, she/he will need several time frames to convey the contents of the training session to all other ward nurses. Thus, adopting organizational measures is another challenge to implement the learning program. The results of the present program also revealed the necessity of re-examining methods to share learning and organizational approaches.

## V. Study Limitations and Future Challenges

The present study has 2 limitations: first, the results were obtained from a single hospital, and second, it was difficult to equalize the numbers of samples before and after learning. Further studies will be conducted to continuously address the study topic, including the challenges and necessary learning strategies clarified in the study.

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