

Educational Strategies for Preventing Pressure Ulcer in Japan

Helayne Mika Kamimura¹⁾, Hyeyong Lee³⁾, Akiko Take²⁾,
Sechiko Mukaikubo²⁾, Shigemitsu Ogata³⁾

1) Department of Clinical Nursing, School of Health Science, Faculty of Medicine,
Kagoshima University, Brazilian Postgraduate sent by the Government

2) Kagoshima University Medical and Dental Hospital

3) Department of Clinical Nursing, School of Health Science, Faculty of Medicine,
Kagoshima University

Abstract

The purpose of this study was to identify and understand the educational measures that Japanese nurses use to support prevention of pressure ulcers (PrU), by conducting an integrative review of the Japanese nursing literature from 2000 to 2011. We found seven theses by searching with the keywords “pressure ulcer”, “prevention”, and “education” in nursing research articles cataloged in the “Ichushi” database of the Japan Medical Abstracts Society. Using this approach, we searched for the following aspects of educational PrU preventive countermeasures: classes and presentations, practical classes and scenarios, group studies and workshops, creation of pamphlets and tools, participation in lectures and symposiums, distribution of guidelines, creation of manuals, participation in PrU social events, and knowledge tests. After examining the literature, we found that education as a support strategy for preventing PrU is poorly implemented in Japan. Educational measures cited in the Japanese articles were the same as those found in the international literature; however, it is important to enhance the effectiveness of the educational program in Japan in order to create measures to maintain nurses’ knowledge, since education is a continuous process requiring periodic review.

Key-words: nursing, pressure ulcer, education, prevention, Japan.

Introduction

Pressure ulcers (PrU) are major complications that can occur in fragile patients, such as the elderly or those with mobility restrictions. These patients are frequently encountered in hospitals and in home care. Therefore, the occurrence of PrU is a serious problem for health facilities and patient welfare¹⁾. In hospitals in Japan, PrU can prolong hospitalization and increase healthcare costs because of associated complications such as infectious diseases. Consequently, patients have difficulty recovering. In addition, PrU increases physical and emotional distress by impairing the activities of daily living²⁾. The occurrence of PrU is a result of multiple factors such as pressure, shear, malnutrition, and tissue perfusion³⁻⁴⁾; however, it is known that these factors are largely related to the care environment and the care processes provided by

nurses⁵⁾.

A recent published survey revealed the overall prevalence and incidence of PrU in Japan⁶⁾. The questionnaire-based survey was carried out at 3624 health institutions in Japan, including hospitals (general hospitals, university hospital, psychiatric hospitals, and long-term care institutions for the elderly) and home care institutions. Survey results revealed a PrU prevalence of 2.94% in 279 general hospitals, 1.94% in 795 university hospitals, and 3.52% in 397 long-term care institutions.

While considering the prevention of problematic in-hospital PrU, in 2002 the Japanese government proceeded with several new programs to reduce medical costs and concern among health professionals⁷⁾. The program initially consisted of a penalty system but changed after two years to

Address correspondence to Dr. Shigemitsu Ogata, 8-35-1, Sakuragaoka, Kagoshima, Japan 890-8544
Tel/Fax : 099-275-6758 e-mail: sea-ogata@health.nop.kagoshima-u.ac.jp

an incentive system⁸⁾. This new incentive system reimburses a total of 5,000 yen per patient per admission to medical facilities which implement preventive measures against PrU and assess patients at high risk of PrU. To gain reimbursement from the government, medical facilities have to accomplish duties such as: promoting PrU management programs, including preventive measures, to WOC Nurses and Certified Wound Ostomy Continence Nurses; performing assessments for high-risk patients; and conducting in-house courses for nursing staff⁹⁾. According to the National Pressure Ulcer Advisory Panel (NPUAP) in the United States, education is an important point for preventing PrU. It is said that educational programs should be implemented in a structured and organized manner for the benefit of health care providers, patients, family, and caregivers. NPUAP also includes evaluating the effectiveness of these educational programs in prevention practice^{4, 10)}.

Education is an important factor for improving the skills and knowledge of healthcare professionals and it is also a duty of nursing management. According to Japanese regulations, education is cited as an essential component for the prevention and management of PrU^{7, 9)}. Considering these facts, the purpose of the present study was to identify and understand the educational methods that Japanese nurses currently use to prevent PrU.

Method

An integrative review methodology was used and comprised the following six steps: 1) hypothesis survey; 2) establishment of selection criteria; 3) categorization; 4) generation of results; 5) analysis of data and results, and 6) interpretation of results.

The review started with formulation of the hypothesis after establishing the problem, or with questions that needed to be searched. This review targeted the question: “Which educational measures do Japanese nurses use to prevent pressure ulcers?”

The next step was the selection of samples according to inclusion criteria. A search of the “Ichushi” database of the Japan Medical Abstracts Society was performed. This database is part of the Medical Journal Web, created by the National Medical Association of Japan, and has indexed around 5,000 publications on medicine, odontology, pharmacy, nursing, and related disciplines. To conduct the search of “Ichushi”, we used the following keywords in Japanese: “jyokusou” (pressure ulcer), “yobou” (prevention), and “kyouiku” (education). The study included articles related

to nursing staff and those published from 2000 to 2011. Those that were published in full, in Japanese or English, and those in which intra-hospital educational measures were directed to nursing staff were included; articles about educational measures for patients and family were excluded. Considering the inclusion criteria, only 20 of 81 articles were suitable on the basis of reading the title and abstract. Most articles included educational measures directed toward patients and family or focused on home assistance, so they were discarded. Of the 20 included articles, only 7 matched the key question of this study.

Based on information extracted from the seven selected articles, the results were placed in tabular format to better understand the categories. Finally, analysis of the articles and interpretation of data were done to comment on the findings.

Results

A total of 81 articles written only by nurses were found, and of these, only 20 met the inclusion criteria. However, only 7 had content suitable for addressing the key question of the present study (Tables 1 and 2).

The educational measures that appeared to support PrU prevention were: classes and presentation (n=6), practical classes and scenarios (n=2), group studies and workshop (n=2), creation of pamphlets and tools (n=2), participation in lectures and symposiums (n=1), distribution of guidelines (n=1), creation of manuals (n=1), participation in PrU social events (n=1), and knowledge tests (n=1). Note that as more than one educational strategy was noted in the articles, the number of the samples does not match the number of the articles.

Table 1. Number of articles produced Japan, directing educational measure to a specific target population.

<i>Target population</i>	<i>n*</i>	<i>%</i>
Nursing staff	29	32.95
Link Nurse	1	1.13
Home care nurse	4	4.54
Interdisciplinary team	6	6.81
Patient	16	18.18
Family and care givers	10	11.30
Students	9	10.22
Others	13	14.77
Total	88	100

* The number of the sample doesn't match with the number of articles. More than one was considered, according to the target population of the articles.

Table 2. Characterization of articles, by the intervention, results and conclusion related to educational measures used to prevent of PrU.

<i>Year & Authors</i>	<i>Type of intervention</i>	<i>Results</i>	<i>Conclusion</i>
2003 Keiko N. et al.	Identify what the Toyama hospital did to implement the Japanese regulation (penalty system), focusing in equipment supply, education, interdisciplinary PrU care team, guideline.	Practical classes, with care and visits (consultation) in the hospital; Selection and determination of a specific nurse to each ward to be responsible for the education (Braden scale, DESIGN scale training, description and documentation of the care/wound, and prevention); lecture, symposium, participation of PrU society events, and distribution of guidelines and classes.	Need of prevention of the PrU; creation of a PrU team is essential in a hospital. The equipment supply is important to the prevention. The awareness of the PrU is also essential.
2003 Yano J. & Takeo A.	Identify the effect of group studies and improve the knowledge of Nurses with classes. Were used a closed questionnaire, focusing description of the PrU, care and causative factors.	Identify the effect of group studies and improve the knowledge of Nurses with classes. Were used a closed questionnaire, focusing description of the PrU (nursing recording), how to take care of the PrU, and how to take the causative factor of developing a PrU.	Classes have shown improvement in knowledge grade and conscience. Nurses comprehend the need of education, specially the need of continuing education.
2003 Takagaki A. et al.	Improve the quality of the nursing care, and provide change of conscience about the PrU with classes and pamphlet.	Improve the quality of the nursing care, and provide change of conscience about the PrU with classes and pamphlet (how causes the PrU, time, how does it appear, the need of prevention, orientation of positioning change).	To prevent the PrU is important: have the awareness of the causative factors. The use of right equipment (mattress) in the wards. And the awareness of the formation of the PrU in a short time.
2004 Obara S. et al.	Comprehend the actual situation and condition of the patient, evaluate the education effect at the PrU prevention team. Analyzes of the team before and after an educational intervention.	They had a construction of a standardized manual for care, prevention and treatment of PrU. Educational measures such as classes once in 15 days, construction of the manual, and classes focusing definition of PrU, incidence and occurrence, prevention, care process, staging, medications and nutrition and PrU management were done.	Importance of the use of air mattress, and the size of the wound is smaller, noticing a better evolution.
2008 Ishikawa Y. et al.	Evaluate staffs knowledge about positioning with a check list with 37 questions, applied before and after a study group.	Before with a practical evaluation nurses didn't do the positioning, but in the writing check list they have shown that 77.8% know about the positioning to prevent PrU, in other words, they know, but they don't do. After the study group, the evaluation of the practice was 66.6% of improvement.	Before with a practical evaluation nurses didn't do the positioning, but in the writing check list they have shown that 77.8% know about the positioning to prevent PrU, in other words, they know, but they don't do. After the study group, the evaluation of the practice was 66.6% of improvement.
2008 Isono S., Nakata K., Kagawa M.	Evaluate the improvement of the knowledge and the nursing practice before classes and knowledge tests, and creation of a care-card, and after.	Tests were an incentive as a study, and also the creation of the care-card. To improve moments of study was implemented tests, and to improve the nursing care, was used a care-card and others tools.	The grade of knowledge got better with tests, and the care with the caring tools, as the care-card. They've got positives effects unifying the practice with studies.
2011 Takeyama K. et al.	Evaluate the change in the comprehension and the behavior of nurses after classes, scenarios and practical classes, about decubitus changing.	Results collected before classes: evaluation of visual aspects of the patient, like positioning and angle. After: evaluation of the patient in a global way, like skin conditions, nutrition, comfort. Suggestions also appeared from the nurse, like the adequate use of cushions and also adequate place to use them. As results of the behavior, the research had: better comprehension about equipments, positioning, risk factors and care.	Comprehension about the risk of development of PrU in thinned patients. Positioning and comfort should be associated for the welfare of the patient. The importance of right choice and use of the equipments. And the scenarios and practical classes allowed a better understanding of prevention and welfare of the patient.

Discussion

As shown in Table 1, educational activities were directed mostly at nurses. The table also shows that educational efforts were more focused on nursing staff and patients than on other items. However, it also reveals there is concern about education directed toward interdisciplinary teams.

Only one article was related to a specific nursing category, the link nurse--the nurse with responsibilities in a specific committee who liaises between the committee and ward staff. There are many types of link nurses, for example, infection control link nurses and PrU link nurses. This professional plays an important role in leadership, management, and continuous education¹¹.

According to Rabeh & Caliri, there are several strategies of diffusion and dissemination of knowledge, such as educational programs, lectures, use of printed material, conferences, use of protocols for evidence-based practice, and presence and availability of specialist professionals in the practical field. All these strategies focus on achieving better results in the knowledge innovation process¹². Similar strategies were obtained by analyzing the Japanese literature. The most frequent item was classes and presentations, which appeared 6 times in the 7 articles (85.71%). A cohort survey done in a tertiary referral hospital in New Zealand demonstrated the impact of an educational program on the knowledge level of nurses and assessed findings at three levels with regard to educational intervention: before, within 2 weeks, and after 20 weeks. This survey included an oral presentation with slides and a discussion, lasted around 3 hours, and was directed at intensive care unit (ICU) nurses. The outcome was positive, and the levels of knowledge that were initially good (85% correct answers) improved with the education program 2 weeks later (89%), but after 20 weeks, level of knowledge returned to that at baseline¹³.

The item "knowledge tests" demonstrated that even nurses and staff noticed the importance of a regular and frequent education program. Education influences nursing practice and is essential for comprehension of the subject and for maintenance of what is learned. Therefore, to ensure a continuous effect, it is necessary to perform an educational program with frequent knowledge tests and/or discussion groups and strategic planning to disseminate knowledge and adapt innovations. One knowledge test that is widely cited in the literature is the "Pressure Ulcer Knowledge Test" (PUKT), developed by Pieper & Mott and considered a reliable and valid tool^{14,15}. PUKT consists of 47 items used to evaluate nurses' knowledge on PrU risk, prevention, staging,

and assessment of the wound¹⁶. Many authors have used the same test to evaluate the effect of educational programs, diagnose problems, and overcome challenges^{15,17,18}. Because none of the articles in the present study used this test, Japanese PrU managers could use it to evaluate nurses' knowledge of PrU.

In a survey done in a tertiary university hospital in Brazil, the authors used several kinds of education intervention on the risks, causative factors, and preventive measures for PrU. Expositive classes, dialoged classes, and discussion groups were created to prepare nurses for the ICU, folders to disseminate the information on PrU were placed at different places in the ward, and pamphlets were handed to the subjects. There was also an opportunity for nurses to discuss and obtain information from the authors, who were available in the ICU for 15 days. However, even with all these educational strategies, this survey revealed that it is also necessary to identify barriers, such as personal and institutional ones, that can make it difficult to achieve certain goals. In this study, the educational program was not effective, due to the lack of cooperation and compliance by the subjects. Nevertheless, the educational strategies that were used are important tools for diffusing recommendations and knowledge, and can also be used easily by the hospital as an educational and preventive measure for PrU¹⁹.

By utilizing practical classes and presentations, group studies, and lectures, an elderly long-term institution located in Toyama prefecture, Japan initiated a project related to PrU that monitors the incidence of patients with PrU and provides prevention and education programs for staff²⁰. As an educational program, this hospital holds practical classes. Health staff participate in classes by invited teachers as well as attend regular lectures. As a result of this educational program, the hospital is more effective with tasks such as the early discovery of patients with a PrU risk and those with PrU in stage I and II, and better consideration is given to changing positioning. With this new thinking, the hospital improved its assistance quality and changed its PrU incidence; in other words, incidence decreased²⁰. This report shows that educational measures, with the collaboration of health staff, can change PrU incidence.

Even in cases where the education program has problems, it can still provide constructive results. However, it is important to emphasize that an education program requires planning to be efficient and effective and needs to be adapted to various situations. This planning needs to follow real-world requirements and it must have objectives and goals, and

resources must be assessed while periodically assessing the results^{10, 21)}.

Regarding the item “participation in social events”, participation at conferences by specialized societies holds significant value as an educational measure, mainly because it stimulates innovative practice and exchange of experience and cases, in addition to generating interest in the subject. It is important that nursing managers and chiefs comprehend the importance of nurses participating in PrU-specific social events, to improve nursing practice and the understanding of problematic PrU.

Studies have shown that distribution of guidelines and creation of manuals is considerable and is associated with the need for standardized assessment, care, and treatment views among health professionals. Guidelines and manuals are supportive tools, which can improve assistance. It is already known that the existence of a protocol in a hospital is an obligation according to Japanese government regulations⁷⁾. In addition, the Japanese Society of Pressure Ulcer (JSPU) takes its lead from the NPUAP, with local guidelines having been translated into Japanese²²⁾.

One article discussed selection of a specific nurse in each ward to be responsible for educating others on PrU, with a focus on the Braden and DESIGN scale training, describing and documenting wounds, and providing nursing care and prevention measures. It also discussed a nursing management strategy to disseminate education from the wards to a PrU specialist manager while concentrating on problems and difficulties, case reports, and educational training. Unfortunately, no article cited the presence of the PrU manager nurse as responsible for the implementation of educational practice to staff, or the role of the link nurse, as commented before.

Education is a measure that does not have a specific budget in the Japanese health system with regard to PrU issues. To control cases of PrU, there are measures of notification, treatment, care, and prevention planning, but investment in specific education is something that still has to be discussed.

In addition, it is important to mention some difficulties found in accomplishing this study. During the selection of articles, there was a notable variance in key words; they were not standardized. Another difficulty was the lack of descriptions of the articles. The methodology and results were poorly described, and in general the objectives of the studies were superficially explored.

Conclusion

PrU remain a health concern for adults in all health settings, especially in the elderly with impaired mobility. In terms of prevention, the Japanese health system has implemented constructive management strategies to prevent PrU. However, educational aspects are still necessary and more investment is needed to train and improve nurses' abilities in PrU. Education as a support for preventing PrU is a theme poorly studied in a scientific context.

Educational measures found in the reviewed articles were the same as those found in the international literature and covered mainly expositive classes and presentations, group studies, and practical classes. However, production of a more effective educational program is important for creating measures for maintaining knowledge, since education is a continuous process that requires periodic review.

References

- 1) Cardoso JRS, Blanes L, Calil JA, Chacon JMF, Ferreira LM. Prevalence of Pressure Ulcer in a Brazilian Hospital: results of a cross-sectional study. *Ostomy wound management* 2010; 56: 44-49
- 2) Blanes L, Duarte IS, Calil JA, Ferreira LM: Clinical and epidemiological evaluation of pressure ulcer in patients at the Hospital Sao Paulo. *Rev Assoc Med Bras* 2004; 50: 182-187
- 3) Souza DMST, Santos VLCG: Risk factors for pressure ulcer development in institutionalized elderly. *Rev Latino-am Enfermagem* 2007; 15: 958-64
- 4) European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. EPUAP & NPUAP: Prevention and treatment of pressure ulcers: quick reference guide. In: National Pressure Ulcer Advisory Panel [online]. <http://www.npuap.org> November 15, 2011
- 5) Fernandes LM, Caliri MHL, Haas VJ. The effect of educative interventions on the pressure ulcer prevention knowledge of nursing professionals. *Acta Paul Enferm* 2008; 21: 305-311
- 6) Takeda T, Shiwatari K. Ryouyou basho betsu jyokusou yuubyousha no tokuchou oyobi care to kyokusho kanri. *Japanese Journal of Pressure Ulcer* 2011; 13: 625-632. (Japanese)
- 7) Sanada H, Miyachi Y, Ohura T, Moriguchi T, Tokunaga K, Shido K, Nakagami G. The Japanese pressure ulcer surveillance study: a retrospective cohort study to determine prevalence of pressure ulcer in Japan. *Wounds*

- 2008; 20: 176-182
- 8) Japanese Society of Pressure Ulcer. Guideline for Prevention and Management of Pressure Ulcers. 1st ed. Tokyo: Shorinsha. 2009
 - 9) Sanada Hiromi, Nakagami G, Mizokami Y, Minami Y, Yamamoto A, Oe M, Kaitani T, Iizaka S. Evaluating the effect of the new incentive system for high-risk pressure ulcer patients on wound healing and cost-effectiveness: a cohort study. *International Journal of Nursing Studies* 2010; 47: 279-286
 - 10) National Pressure Ulcer Advisory Panel (NPUAP). Pressure Ulcer Prevention Points. In: National Pressure Ulcer Advisory Panel [online]. <http://www.npuap.org>. November 15, 2011
 - 11) Kase M. Jyokysou taisaku iinkai no kongo no kadai, link nurse no competency bunseki wo toshite no manabi. *Asahi Chuo Ihou* 2009; 31: 66-68 (Japanese)
 - 12) Rabeh SAN, Caliri MHL. Pressure ulcer: strategies to knowledge dissemination in nursing literature. *Rev Paul Enferm.* 2003; 22: 307-14
 - 13) Tweed C, Tweed M. Intensive care nurses' knowledge of pressure ulcers: development of an assessment tool and effect of an educational program. *American Journal of Critical Care.* 2011; 17: 338-346
 - 14) Pieper B, Mattern JC. Critical care nurses' knowledge of pressure ulcer prevention, staging and description. *Ostomy/Wound Manage* 1997; 43-22: 31
 - 15) Zulkowski K, Ayello EA, Wexler SMA. Certification and education: do they affect pressure ulcer knowledge in nursing? *Advances in Skin & Wound Care.* 2007; 20: 34-38
 - 16) Pieper B, Mott M. Nurses knowledge of pressure ulcer prevention, staging, and description. *Adv. Wound Care* 1995; 8: 34-40
 - 17) Sinclair L, Berwiczzonek H, Norma Thurston, Butler S, Bulloch G, Ellery C, Giesbrecht G. Evaluation of an evidence-based education program for pressure ulcer prevention. *Journal of Wound, Ostomy & Continence Nursing* 2004; 31: 43-50
 - 18) Chianca TCM, Rezende JFP, Borges EL, Nogueira VL, Caliri MHL. Pressure ulcer knowledge among nurses in a Brazilian university hospital. *Ostomy wound management* 2010; 56: 58-64
 - 19) Fernandes LM, Caliri MHL, Haas VJ. The effect of educative interventions on the pressure ulcer prevention knowledge of nursing professionals. *Acta Paul Enferm.* 2008; 21: 305-11
 - 20) Houzawa S. Toyama prefecture, Fukunowakaba Hospital: pressure ulcer project - pressure ulcer prevention and education effect. In: Fukunowakaba Hospital [online]. <http://www.tst.ne.jp/wakaba/torikumi/paneru/zenkoku/H16/jokusou.htm>. November 15, 2011
 - 21) Silva GM, Seiffert OMLB. Continuing education in nursing: a methodological proposal. *Rev Bras Enferm.* 2009; 62: 362-6
 - 22) Japanese Society of Pressure Ulcer: Pressure Ulcer Prevention & Treatment Quick Reference Guide. In: Japanese Society of Pressure Ulcers. [online]. <http://www.jspu.org/jpn/info/topic6.html>. November 15, 2011