

OTHERS

Practices and Challenges of Home Care Pressure Ulcer Management ; Perception of Home-visit Nurses Who Have Completed the Specified Medical Acts Training

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Abstract : Purpose of the study : This study aims to clarify practices and challenges on pressure ulcer management as perceived by home-visit nurses who have completed the specified medical acts training. Methods : We gathered 8 home-visit nurses who have completed the training in Japan. First-author conducted in-depth, semi-structured individual interviews, asking for their insights on home care pressure ulcer management. Findings : We found that the home-visit nurses conducted the following practices ; [having understandings and empathy as a health care professional who engage with client's lives with developing / worsening pressure ulcer], [pressure ulcer care at its best within limited resources], [systematic advice and guidance to caregivers and other professionals], and [demonstration of nursing as the post-training nurse of the specified medical acts]. We also learn that the home-visit nurses were faced with following challenges : [difficulties in smoothly collaborating with multiple professionals from different organizations], [not reaching a high level of expertise or skill], [limitations under the long-term care and medical insurance systems] and [impact of COVID-19]. Conclusion : Home-visit nurses who have completed the specified medical acts training provided the nurses worked toward raising community's awareness of the care by providing leaderships to those involved in health care teams and collaborating with other professionals. *J. Med. Invest.* 71:346-355, August, 2024

Keywords : home-visit nurse, pressure ulcer, qualitative study, specified medical acts, wound management

INTRODUCTION

Japan's population is ageing fast. The trend is expected to continue and the year 2025 marks significant ; the baby boom generation turn 75 and above, which would accelerate the need for medical and nursing cares (1). Thus, the country is promoting to establish a system, in which enables citizens to live the remaining life in their own ways, in their familiar environment. This requires promoting of home health care. To do so, it requires not only to secure experienced nurses but to increase and maintain a certain number of nurses, who in accordance with procedure manuals can provide certain medical assistance (e.g., drip feeding for dehydrated patients (assessment of dehydration level and correction by transfusion)) without waiting for a physician or dentist's judgement (2). With this background, training system for nurses pertaining to specified medical acts was introduced in October 2015 (2). The advanced practice in nursing is a global trend, yet it is different in each country (3). The Japanese training system for nurses pertaining to the specified medical acts differs from that of the U.S. nurse practitioners, in that it only allows nurses to perform the specified medical acts (medical treatment assistance) as defined by procedure manuals. As of March 2024, 9,135 nurses had completed the training program (4). Only 5.3% of those who have completed the training are employed at home-visit nursing agencies (5).

As of April 2022, there were approximately 690,000 clients of home-visit nursing, and the number is increasing yearly (6),

indicating the growing importance of home-visit nursing. While countries such as the U.S., South Korea, China, and Singapore that have established healthcare systems centered on private insurance, Japan, as well as the Netherlands and Germany, have adopted a social insurance system and provide home-visit nursing services within the same framework as long-term care services (7). It has been reported that home-visit nurses are highly interested in the specified medical acts training (8). According to the previous survey (9), it was indicated that managers would like their employees to take "wound management-related" the most at approximately 60% among the categories of the specified medical acts training. The number of medical procedures in home increased yearly, with a particularly marked increase in preventing pressure ulcers (6). Thus, home-visit nurses who have completed the home wound management of the specified acts training are expected to play an active role.

While there are certain expectations for the specified medical acts in home settings, challenges such as the responsibility and workload that home-visit nurses face have also been reported (10). Furthermore, it has been pointed out that there is insufficient understanding of the specified medical acts system (7, 11) and since 31.6% of the population has not performed the acts in the past year (12), it may be a reflection of insufficient promotion of the specified medical acts in home. On the other hand, there are reports of cases in which wound management of the specified medical acts by home-visit nurses led to decrease in the number of hospital visits and its expense (13), and thus hoped to be further promoted. However, there are no comprehensive reports on the practices and challenges on wound management of the specified medical acts.

Therefore, the purpose of this study is to clarify the practices and challenges of home care wound management as perceived by home-visit nurses who have completed the specified medical acts training. This study provides the knowledge for practicing such

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acts in home-visit nursing agencies.

Definition of Terms

The specified medical acts are medical assistance and in the case of nurses conducting them in references to procedure manuals, the word signifies medical executions that specifically require abilities to practice, think, judge comprehensively, in addition to having advanced, specialized knowledge and skills.

PARTICIPANTS AND METHODS

Design

Qualitative study

Participants and Sampling

We gathered nurses who have completed the specified medical acts training for “removal of necrotic tissue with no blood flow at bed sore or chronic wounds” and engaged in home care. The participants were randomly selected from the list of 5,434 nurses who have completed the training for specified medical acts as of 31st October 2022 on the Ministry of Health, Labor and Welfare website and 15 home-visit nursing agencies were asked to participate in the study. The administrators of home-visit nursing agencies handed over an informed consent form to the nurses. Interested participants mailed the form with information to first-author.

Data Collection

First-author conducted semi-structured individual interviews lasting approximately 60-90 minutes in August 2023. The interviews took place on the web or face-to-face and recorded. Before recording the interviews, informed consent was obtained. To understand the context, the interviewer prompted participants to share on the following questions : (a) how often do you perform “removal of necrotic tissue with no blood flow at bed sore or chronic wounds” (b) how is home care pressure ulcer management conducted and (c) what issues you feel you are facing in the daily basis?

Qualitative analysis

Demographic data of the participants were descriptively analyzed. The interview contents were transcribed and analyzed using content analysis (14). To ensure reliability and validity (15), the following steps were taken : 1) first-author read each participant’s statement several times to focus on the data and to acquire general understandings of the content. 2) The text statement for each answer was divided into meaning units, filtered according to the main content and the identified units were coded. 3) The codes were grouped into core, sub and single categories for each question by similarities. 4) To validate the analysis, Hisada, with experience in content analysis, checked the initial attempt. Then, both authors discussed and revised the coding and categorizations multiple times until a high level of agreement was obtained. As a final step, 5) all co-authors specializing in community nursing and qualitative research reviewed the coding and classification. Member checking was conducted with participants to establish trustworthy qualitative research (16).

Ethical considerations

This study was approved by The Ethics Committee of Tokushima University Hospital (Approval Date 24th July 2023, Approval Number 4385). The participants were informed of the study’s purpose verbally and in writings ; the interviews were not intended to evaluate the respondents themselves and that they have rights to withdraw at any time. Those who agreed voluntarily to participate signed consent forms. All participants were offered a 3,000-yen book card for participating an interview at the end of the study.

RESULTS

Participant’s Backgrounds (Table 1)

8 home-visit nurses were interviewed : 7 administrators and a member. Their experience as a nurse ranged from 14 to 38 years with that of working in home-visit nursing agencies ranged from

Table 1. Participant’s Background

ID	Types of Business Entity	Position	Completed courses of the specified medical acts training	Experience in nursing (Years)	Experience in home-care nursing (Years)	Post-training experience in home-care nursing (Years)	Nursing certification	Interview duration (Minutes)
1	Profit corporation	Administrator	Home and Chronic Care Package	34	29	1.3	Certified Nurse	40
2	General incorporated association	Administrator	Home and Chronic Care Package	29	24	1.3	Certified Nurse	63
3	Profit corporation	Administrator	Home and Chronic Care Package	30	20	1.3	Certified Nurse	60
4	Medical Corporation	Administrator	16 acts and 9 categories	36	23	6	Certified Nurse	70
5	Medical Corporation	Member	Home and Chronic Care Package	30	12	1.3	Certified Nurse	60
6	Medical Corporation	Administrator	Home and Chronic Care Package	14	8	1.3	Certified Nurse	60
7	Profit corporation	Administrator	Home and Chronic Care Package	25	7	0.3	N/A	60
8	Medical Corporation	Administrator	38 acts and 21 categories	38	27	12	Nurse Practitioner	60

7 to 29 years and post-training work experience ranged from 0.5 to 8 years (Table 1). The completion status of the specified medical acts training showed ; 6 participants completed “Home and chronic care package (4 acts)”, 1 participant completed “21 categories (38 acts)” and 1 participant completed “7 categories (14 acts)”. Interview duration ranged from 40 to 70 minutes with an average of 59.1 minutes.

Practices of the home-care pressure ulcer management (Table 2)

Practices of the home-care pressure ulcer management were

organized into 94 codes, 16 subcategories and 4 categories (Table 2). In this study, [] indicates categories, and “” indicates what the participants stated. As practices, 4 categories were classified as follows : [having understandings and empathy as a health care professional who engage with client’s lives with developing/ worsening pressure ulcer], [pressure ulcer care at its best within limited resources], [systematic advice and guidance to caregivers and other professionals] and [demonstration of nursing as post-training nurse of the specified medical acts].

[Having understandings and empathy as a health care

Table 2. Practices on home care pressure ulcer management

Category	Subcategory	Code
Having understandings and empathy as a health care professional who engage with client’s lives with developing/ worsening pressure ulcer	Taking prevention measures a top priority and eliminating new pressure ulcers from developing	Precaution measures comes first and building appropriate environment that does not develop pressure ulcer is vital
		With limited engaging time with the client, we try to foresee and take measures to prevent pressure ulcer from developing or worsening
		When a client is on a respirator or develops pneumonia, condition may progress and allows pressure ulcer to develop quickly so we stay alert to prevent the situation
		It is important to conduct series of actions to understand in what scenes are at high risk of developing pressure ulcer to come up with prevention. The actions may include the followings ; assessment of ADLs/ physical abilities and checking on statuses of nutrition, diseases/ receiving pressures
	Taking responsibility for developed pressure ulcers	The result speaks for itself and thus we must care for the clients with responsibility as a professional
		It’s hard to prevent pressure ulcers from developing as general condition of the client deteriorate, but I tell other members to care and be responsible for the ones that has been developed
		The job as a home-visit nurse is to make sure that the clients are comfortable until the next visit and thus we must take responsibility for developed pressure ulcers
		Engage with a mindset that the home-visit nurses are there as professionals to treat pressure ulcer and prove with result
	Considering that there are no brought-in pressure ulcers	Provide the utmost care even if a client comes back from a hospital or facility with pressure ulcer
		Instruct other members to have sense of ownership and avoid letting someone else be an excuse for developing pressure ulcers
	Improving the care quality hence at terminal stage	Provide care by protecting the client’s body with dressings on the blackened parts that may be formed upon 1-2 days remaining time, formed due to the poor nutrition
		Upon obtaining permission from family to protect the client’s body with dressings in order to maintain them, I try to provide care and support to end client’s life without developing pressure ulcers
I try to stay alert to any signs of pressure ulcer though care for cancer, terminal clients are challenging		
Pressure ulcer care at its best within limited resources	Determining appropriate timing to switch services	Upon detecting deterioration of pressure ulcer, report to the attending physicians, inform of the need for frequent care and ask them to issue specific orders to increase the frequency of visits
		Upon discovering worsened pressure ulcers on clients with no social interactions, I discussed the case with a home-care physician and immediately arranged the client to be hospitalized
		Propose to be hospitalized or admitted to a facility when determined pressure ulcer care can no longer be treated in-home, based on ability/ availability to provide appropriate treatment and financial condition
	Considering caregiving ability and skills	Adjust and minimize the amount of care load for families with limited caregiving skills such as asking them to change dressings when they become dirty
		Let caregivers with dementia know that they do not need to touch the wound for any treatment until a nurse or someone else arrives
		When in the case of limited caregiving skills of the caregivers, select medical materials that can be left on the skin for a period of time
		Have caregivers do minimal within their skill
		Instruct family members how they should position their bodies to avoid any strains
		Advise family members on how they can decompress and take care of the client’s back to avoid new pressure ulcers from developing

Category	Subcategory	Code
		<p>Be mindful to provide simple guidance that can be accustomed to family's life while following the basic procedures</p> <p>Be mindful when in the care of washing a client to avoid wetting extra clothes/ beddings and increasing the laundry load</p> <p>When determined difficult to care for pressure ulcers (both client and family are elderly/ have dementia or client lives alone), treatment is handled by professionals</p> <p>Since not enough time can be secured for treatment due to the impact of COVID-19, nurses instruct family members and have them take care of pressure ulcers</p> <p>Promptly ask the care managers to install air mattresses or beds</p> <p>When in the case the family has difficulty in preparing meals or the client has little appetite, work with doctors into guiding and trying IOC (intermittent oral tube feeding) or nutritional supplements</p>
	Confirming the client and family's view on how they like to financially manage the care	<p>Gradually decrease the frequency of the care visits by leaving the daily care in the hands of family due to financial load that comes with frequent visit</p> <p>Discuss changing to health insurance with a doctor. Many of the clients are low-income and the change from long-term care insurance would make daily visits possible, which helps to lower hurdles for the clients and their family to accept treatment</p> <p>Discuss with doctors on specific orders before the care service exceed the coverage of long-term care insurance</p> <p>Be alert to spending limits. Clients of long-term care insurance with pressure ulcers, whose condition require more support may use other services such as home bathing, rehabilitation and in-home cares</p> <p>Upon acceptance by family, I utilize pet sheets and basins to wash the clients to avoid wasting diapers and create financial load</p> <p>I use towels instead of diapers to avoid the cost</p> <p>Medical materials at pharmacies increases cost so cooking paper and other substitute materials are used in some cases</p>
	Prioritizing maintaining life of the client to those at deteriorating condition	<p>Consider what care should be prioritized to maintain life of the client though pressure ulcers will inevitably develop as the general condition deteriorates</p> <p>Engage in life-connecting procedures and care within limited time phrase of the visits though clients with physical or life-threatening conditions have very poor skin conditions</p>
Systematic advice and guidance to caregivers and other professionals	Creating a system that led to unified care	<p>Provide know-hows and advice on diaper changing procedures and precautions so that caregivers and other related professionals can provide the care in a similar way</p> <p>I provide written and illustrated care instructions that could be kept in the client's rooms so that family members and caregivers could conduct unified care</p> <p>Ask the caregivers to watch how a belt is fastened and share the information</p> <p>Propose to care managers to have a meeting across other professionals to discuss pressure ulcer treatment</p> <p>Share any information on pressure ulcers in notes that are checked by multiple professionals</p> <p>When multiple in-home care providers are involved, provide detailed procedures so as to enable unified and systematic cleaning on the clients</p> <p>I think it is important to make the best use of pressure ulcer care manuals</p>
	Leading the way for better care	<p>Since clients are often bathed at day services and short-stay facilities, I try to share skills on pressure ulcer care and discuss in meetings</p> <p>Advise caregivers by physically demonstrating how to clean when developed pressure ulcer is affected with stool or how much of chemical is to be applied</p> <p>For facility residents with vulnerable skin, advise the members to take care in stretching out wrinkles of sheets and beddings by having them watch the actual demonstration</p> <p>When 2 or 3 home-visit nursing agencies are involved with one client, have all the associated people watch care in action</p> <p>Review for any improvement from scenes such as positioning of the overbed tables and sitting postures at mealtime to share information with related professionals</p> <p>Communicate with day service drivers what to keep in mind when transferring clients with wheelchair</p> <p>When choosing care equipment, consider subjects/ scenes such as clients who are prone to overheating and poorly ventilated environment before discussing with care managers</p> <p>If medical materials prescribed by the hospital do not work well on the skin of the clients, try over-the-counter products</p>

Category	Subcategory	Code
		Actively use the samples from suppliers to determine usability
	Proactive utilization of Information and Communication Technology (ICT)	Share pressure ulcer condition of the clients through ICT, which can be used by nurses and other professionals at home-visit nursing agency I give timely advice to members whenever they send images from their visits I try to be ready for communication via videophone for members working from their visits
	Providing regular opportunities for face-to-face meetings	Provide information in the form of videos and images so that doctors can observe pressure ulcers on the scene Have other professionals visit client's home during visiting hours, or have nurses go to daycare facilities and advise them on method to maintain postures I try to regularly exchange information with members from other facilities
Demonstration of nursing as post-training nurse of the specified medical acts	Avoid putting primary focus on conducting specified medical acts	Instead of having partial perspectives on prolonged recovery of pressure ulcers and the pains, my focus shifted to putting emphasis on matters that has impact on client's life quality Provide the care that takes client's lifestyle into account, instead of pure treatment and cure of pressure ulcers I have come to recognize that care for the entire body is necessary as many of the clients are seniors and their natural healing capability is slowing down In the case of refractory venous stasis ulcers, I conduct care with understandings for the necessity of recognizing cardiac and whole-body condition of the client Try to make compromise when cure of pressure ulcers cannot be anticipated I have come to put more weight on nutrition after receiving specified medical acts training
	Making effort to provide medically grounded explanations and reports that doctors would accept	Provide information that would help examine the clients in prior as the doctor's visits are often twice a month and the visiting hour for each client is short Consult to doctors with a mindset of cooperative work to determine approach on the clients Doctors began to raise questions regarding pressure ulcer conditions of the clients and thus shared nurse-oriented views to further discuss future approach together Communicating information and assessments obtained from the visits to doctors have often led to changes in medication Explain at medical group meetings that necrotic tissue without blood flow can be removed by following procedure manuals Report performance of the specified medical acts and case studies at cross-professional gatherings that include doctors Explain to doctors the benefits and advantages of pressure ulcer care performed by home-visit nurses I communicate in-home nursing plans and reports to doctors using DESIGN-R® Completion of specified medical acts has made it easier to understand drugs/ other medical matters and also to consult with doctors regarding client's condition
	Raising the entire community's level of commitment to pressure ulcer care management	Advising other nursing staffs have increased the frequency of the subject exchange and receiving of detailed reports on pressure ulcers I try to exchange opinions across professionals on the subjects such as seniors who are prone to being care-requires, nutrition and basic ADLs I communicate and advice not only to care managers and caregivers but also with drivers to prevent the occurrence of skin tears Create and organize resources so that pressure ulcer care of long-term care insurance users can be assisted even when nurses cannot intervene Having nurses monitor conditions after necrotic tissue removal and informing the progress of cure has helped comfort the clients and their families Having several people who have completed the training in the same workplace makes it easier to consult and exchange information, also to improve the level of knowledge among the members at the entire facility The entire home-visit nursing crews became more attentive toward pressure ulcers and they started going to training sessions
	Capturing what it means for a nurse to perform the specified medical act	Completion of the training has encouraged me into conducting DESIGN-R® assessments more thoroughly than ever before Completion of the training has helped me to take care of pressure ulcers properly with underlying knowledge instead of being operational I have come to be able to grasp which stages of pressure ulcer the client is at by observing the skin, which led to conduct active nutritional guidance based on the condition

Category	Subcategory	Code
		The training has helped to identify bleeding and other risks more thoroughly
		I have come to conduct assessment thoroughly enough to say that there's no one who are knowledgeable about pressure ulcers
		The training has helped me with providing evidence-based explanations and guidance of pressure ulcer conditions to other related professionals
		When conducting specified medical acts, I have other nurses who have not yet completed the training to be at the scene and observe
		If conducting a certain care do not lead to improvement, moreover worsen the condition, reassess comprehensively and consider other approaches
		Home care doctors have told me that having nurses be eligible to conduct specified medical act safely has helped them to allocate more time to visit other clients
		My goal is to make doctors feel confident that they can trust and leave the cares to the nurses
		I participate in trainings actively to improve skills
		I try to be more involved and ask questions spontaneously to home-visit nurses with extensive experience of the specified medical acts
		Inform nurses in senior care facilities of the risks and warn them of removing necrotic tissue without doctor's orders

professional who engage with client's lives with developing/worsening pressure ulcer] consists of 4 subcategories : taking prevention measures a top priority and eliminating new pressure ulcers from developing, taking responsibility for developed pressure ulcers, considering that there are no brought-in pressure ulcers and improving the care quality hence at terminal stage.

"In the last day or two of a client's life, the bone spurs become reddish-black here and there. In such cases, a covering material is applied to the area. The insurance will not cover for the material unless the dermis is removed, so we prepare and bring those that are uninsured. When the client's life is about to end in a day or two, we ask the family if we can apply the covering material to the area, so that the client may rest with clean skin and no pressure ulcers."

"When the client at terminal cancer or those on a ventilator develops pneumonia, their albumin levels drop dramatically due to poor condition and form pressure ulcers quickly. Since we go for home nursing on a temporary basis, we can't suddenly start to visit 3 times a day and some care has to prioritize life, so I tell our staffs that if pressure ulcers develop, we are responsible for managing them."

[Pressure ulcer care at its best within limited resources] consists of following 4 subcategories : determining appropriate timing to switch services, considering caregiving ability and skills, confirming the client and family's view on how they like to financially manage the care and prioritizing maintaining life of the client to those at deteriorating condition.

"If seniors and caregivers with dementia are unable to conduct pressure ulcer care, or there are problems with it, healing will be delayed. We need to inform doctor, client, and family of the need for specialized pressure ulcer care and ask the doctor to issue special orders to increase the frequency of visits."

"When we need to do a thorough cleaning, it is a waste to use disposable diapers frequently, so with the permission of the family, we make use of pet sheets and try to make it as economical as possible. The same goes for laundry. The caregivers would kindly accept them but we take care not to increase the laundry especially when they are seniors so as to avoid washing workload."

[Systematic advice and guidance to caregivers and other professionals] consists of following 4 subcategories : creating a system that led to unified care, leading the way for better care, proactive utilization of Information and Communication Technology (ICT) and providing regular opportunities for face-to-face

meetings.

"When there are 2-3 home nursing agencies involved, it is sometimes difficult to get them to provide care as we request even for cleaning. So, we engage systematically to ensure that all of the care providers can perform the same cleaning procedures by giving them specific instructions such as 'use five 500 ml bottles' and 'instead of removing the lid to flush, put the cap on the bottle and squeeze it tightly.' It is important that all of them can perform the same techniques. At home, pressure ulcers can easily deteriorate in a day."

[Demonstration of nursing as post-training nurse of the specified medical acts] consists of following 4 subcategories : avoid putting primary focus on conducting specified medical acts, making effort to provide medically grounded explanations and reports that doctors would accept, raising the entire community's level of commitment to pressure ulcer care management and capturing what it means for a nurse to perform the specified medical act.

"I have come to focus on quality of the client's life instead of having segmented views on prolonged healing of pressure ulcers and pains. I began to think that is what makes home care challenging."

"By having home-visit nurses safely conduct the specified medical acts, home care physicians said to me, 'we, doctors, have a lot of home-visits but if the nurses could safely treat pressure ulcers, we only have to examine and check them when we visit the client's home. We can go to other homes and in the end, you are contributing to community health care."

Challenges related to home-care pressure ulcer management (Table 3)

Challenges related to home-care pressure ulcer management was organized into 34 codes, 11 subcategories and 5 categories (Table 2). As challenges, 4 categories were classified as follows ; [difficulties in smoothly collaborating with multiple professionals from different organizations], [not reaching a high level of expertise or skill], [limitations under the long-term care and medical insurance systems] and [impact of COVID-19].

[Difficulties in smoothly collaborating with multiple professionals from different organizations] consists of the following 4 subcategories : difficulty in conducting the act with different doctors being in charge (those who issues orders and conduct the actual care), difficulty in partnering up with certified nurses in wound, ostomy and continence nursing (WOC), difficulty of care

Table 3. Challenges on to home care pressure ulcer management

Category	Subcategory	Code
Difficulties in smoothly collaborating with multiple professionals from different organizations	Difficulty in conducting the act with different doctors being in charge (those who issues orders and conduct the actual care)	<p>The procedure manuals are issued after discussions between home care doctors who issue orders, and dermatologists who clients visit once every few months and thus make it difficult to move forward with the care in a timely manner</p> <p>Cooperating with local home care doctors are relatively smooth, yet central cities have many hospitals and it is difficult to be in touch with those in charge of the care for clients who visit academic medical/ specialized hospital</p>
	Difficulty in partnering up with certified nurses in wound, ostomy and continence nursing (WOC)	<p>Difficult to get quick and timely responses when asking for insights compared to nurses in hospital because WOC are affiliated differently</p> <p>Though conducting co-visit with WOC is preferable, clients may refuse due to expenses that may occur with bringing a highly specialized nurse</p>
Difficulties in having care facility staffs to conduct pressure ulcer care	Difficulty of care facility staffs to conduct pressure ulcer care	<p>Having lack of knowledge on pressure ulcer care have led the condition of the residents to deteriorate though the facility has enrolled nurses</p> <p>There are some cases that the caregivers try to manage the condition on their own that it actually led to worsening of the pressure ulcer</p> <p>The deterioration could have been prevented in some cases if the caregivers had informed the nurses as soon as they discovered redness in client's skin</p> <p>Senior care facilities have nurses enrolled, but there are only few and work short hours that they are not in questions welcoming situations</p> <p>Caregivers at facilities may not feel comfortable discussing the subject of pressure ulcers with nurses because they feel that it is something that is handled within the facility</p> <p>Some staffs of the senior residence do not have specialized knowledge and may have challenges in early detection and response to pressure ulcers</p> <p>Some of the public welfare recipients are admitted to facilities that resemble poverty industry and staff at these facilities may be less knowledgeable of pressure ulcers</p>
	Having little collaboration opportunity to work with dietitians and pharmacists	<p>Even in the in-home care settings, it is better to have dietitians be a part of the team</p> <p>There are no dietitians in clinics so it is difficult to work together as a team</p> <p>I may consult with dietitians in the same corporation but have no opportunity to collaborate with those outside the organization</p> <p>If nurses could work together with pharmacists, in-home pressure ulcer care would improve</p>
Not reaching a high level of expertise or skill	Having insufficient knowledge and skills	<p>Nurses must be able to make doctors feel safe about leaving the care to them</p> <p>With lack of experience, I accompany home care doctors multiple times in order to observe and get advice</p> <p>I will continue to take trainings because I feel anxious when encountering new cases</p>
Limitations under the long-term care and medical insurance systems	Long-term care insurance users putting off the care to prevent and manage pressure ulcers	<p>With poor pressure ulcer condition, though it is better to increase the number of visits, there are cases that does not allow to do so</p> <p>Even in cases where more in-home care is needed to prevent prolonged healing of pressure ulcers, the number of visits must be adjusted due to long-term care insurance limits and the client's wish to use other services</p> <p>There are cases which caused pressure ulcers to develop due to the clients and their family hoping to increase the number of day service usages instead of installing new air mattress</p> <p>Though nursing care level may be low, pressure ulcers occur when people with dementia sit in the same position on the floor. The condition often deteriorates in these cases because their long-term care insurance has very limited coverage and care visits are not possible</p>
	Difficulty in securing appropriate medical equipment	<p>Expenses for sterilization and disinfection of the forceps and surgical scissors used to remove necrotic tissue are on in-home care providers</p> <p>It is not possible for home-visit nursing agencies to prepare multiple sterilized medical equipment for removing necrotic tissue</p> <p>It is generally safer for doctors to use familiar scissors (including surgical) but each client has different attending physician, which requires purchasing, disinfecting, sterilizing and managing multiple equipment accordingly</p>
	Difficulty in having procedure manuals be issued with different physicians in charge (for issuing of the manual and treatment)	<p>Because the home care physician and those treating the pressure ulcer are different, the manuals are not issued and there are few opportunities to perform specified acts for pressure ulcer care management</p>

Category	Subcategory	Code
	Problems of medical treatment fee for conducting specified medical acts in home care setting	Unlike hospitals, there are various medical expense patterns, such as not going as far as to conducting the specified acts but complete the visit only with applied medication based on assessment though procedure manual had been issued
	Difficulty for nurses who perform specified medical acts to manage	Scheduling for conducting the specified medical acts is more difficult and tighter than normal in-home nursing care It is difficult to conduct the acts together with other care unless nurses are dedicated only to perform the specified acts Since there is only one person who has completed the specified medical acts training, it puts a lot of weight to prepare everything alone and to proceed in cooperation with the doctors It is difficult to perform specified medical acts within regular in-home nursing hours and other previous care cannot be skipped nor disregarded
Impact of COVID-19	Impact of COVID-19 on pressure ulcer care	It led to quick deterioration of the pressure ulcer condition when a paralyzed client of strokes with no movement capability ended up in bed with COVID-19 diagnosis Cases of pressure ulcer developing in a short period of time were seen during the pandemic When visiting senior care facilities with COVID-19 clusters, there are limitations in conducting the care and could not go as far as to preventing and managing the pressure ulcers

facility staffs to conduct pressure ulcer care and having little collaboration opportunity to work with dietitians and pharmacists.

“It is easy to cooperate with local home care physicians. We can get in touch and communicate with trust, such as asking for favors informally. However, since my agency is located in the city, there are many hospitals and it is very difficult to get in touch with the doctors in charge of clients who visit university or specialized hospitals. I can’t bring it to the point to communicate in advance, share information about the client and have doctors issue a procedure manual.”

“There have been cases where deterioration of the pressure ulcer could have been prevented if the caregivers at facilities had informed us of the redness at the early stage of detection. They have more engagement with the client and family than the home-visit nurses, so sometimes I think that if they were a little more attentive toward pressure ulcers and would consult us earlier, we could prevent from worsening.”

[Not reaching a high level of expertise or skill] consist of 1 subcategory, having insufficient knowledge and skills.

“I have not yet become the kind of nurses that physicians would feel safe with, like leaving the client’s care to this nurse so that the client’s condition would improve, the treatment be successful or the doctor would not have to visit the client in the middle of the night. I think I would need more experience by accompanying them on home-visits.”

[Limitations under the long-term care and medical insurance systems] consists of the following 5 subcategories : long-term care insurance users putting off the care to prevent and manage pressure ulcers, difficulty in securing appropriate medical equipment, problems of medical treatment fee for conducting specified medical acts in home care setting, difficulty in having procedure manuals be issued with different physicians in charge (for issuing of the manual and treatment) and difficulty for nurses who perform specified medical acts to manage their schedules.

“There are cases in which more home-visit nursing should be done to prevent prolonged healing of pressure ulcers. However, because there is a limit to the expense coverage of long-term care insurance, we have to adjust the frequency of home-visit over other services according to the client’s wishes. Bedridden clients with pressure ulcers usually use many insurance services. The examples include home bathing, rehabilitation and care at home, so there is no availability

to use home-visit nursing. Medical treatment is important, but the client has a life to lead.”

“We tried to conduct the specified medical acts within homes, but were running out of time. If you want to perform the acts safely, you have to omit other care. I only go on a visit specifically for the specified acts because other care cannot be disregarded, such as not going as far as to do a planned foot bath.”

“Since the physician who treats pressure ulcers is different from the those in charge, the procedure manual was not issued so we haven’t had a chance to perform the specified medical acts.”

[Impact of COVID-19] consist of 1 subcategory, impact of COVID-19 on pressure ulcer care.

“There was a time when the mentally disabled son was taking care of his mother, and because of the COVID-19, both the caregiver and the client caught the virus, which made home-visit nursing incapable. This led to deterioration of the pressure ulcer quickly and became so bad that they turned into osteomyelitis. I believe this could have been prevented had it not been for the COVID-19.”

DISCUSSION

The study has found that the participants were working under following 4 conditions : [having understandings and empathy as a health care professional who engage with client’s lives with developing/worsening pressure ulcer], [pressure ulcer care at its best within limited resources], [systematic advice and guidance to caregivers and other professionals], and [demonstration of nursing as post-training nurse of the specified medical acts]. Also, we found that they were faced with following 4 challenges : [difficulties in smoothly collaborating with multiple professionals from different organizations], [not reaching a high level of expertise or skill], [limitations under the long-term care and medical insurance systems] and [impact of COVID-19].

The home-visit nurses who participated in the study performed [Having understandings and empathy as a health care professional who engage with client’s lives with developing/worsening pressure ulcer] and [Demonstration of nursing as post-training nurse of the specified medical acts] with a focus on the factors that contribute to quality of client’s life, rather than

having segmented perspectives mainly on performing specified medical acts, treatment of pressure ulcers and pains. Difficulty of preventing pressure ulcers on terminal cancer patients despite taking countermeasures has been pointed out (17) and that pressure ulcers that develop near-death (2 weeks before death), especially those occurring a week before, cannot be prevented (18). In the pressure ulcer care for terminally ill patients, it is suggested that controlling physical symptom and maintaining quality of their life be emphasized (19). As suggested in a previous study, while the primary attention be given to prevention, the nurses engaged to maintain life and quality of that of clients instead of putting the main focus on performing the specific acts or treating the pressure ulcer.

Furthermore, home-visit nurses who had completed the specified medical acts training practiced [pressure ulcer care at its best within limited resources] while considering caregiving and financial capabilities. A previous study reported that guidance according to the family's ability was provided before the specific acts was conducted (20). In this study, the nurses went through series of consideration when pressure ulcers deteriorated, from family's care capability to consulting with physicians about switching services, such as hospitalization or admission to a facility. On the other hand, the study also identified [limitations under the long-term care and medical insurance systems] such as adjusting the frequency of home-visit due to expense coverage limit in the long-term care insurance, even in cases where the visit should be increased to prevent prolonged healing of pressure ulcers.

[Difficulties in smoothly collaborating with multiple professionals from different organizations] were identified as challenges. Working in teams with local homecare physician is simple but in the cities where there are many hospitals, it is difficult to contact physicians who manage pressure ulcer care for clients visiting university or specialized hospitals. Yet even in those challenging circumstances, the home-visit nurses who have completed the specified medical acts training provided [Systematic advice and guidance to caregivers and other professionals] by dividing procedures and asking other professionals and family members to secure the general care even in situations where the nurses could not intervene. A previous study reported that post-training nurses used non-technical skills and demonstrated expertise in managing pressure ulcer care as a team (21). Additionally, it has been reported that regardless of their years of experience in pressure ulcer care and management, they were willing to consult issues with other nurses also went through the trainings (22). It is hoped that those post-training home-visit nurses would create a foundation for cross-facility ties by providing opportunities to meet with other professionals and hold study sessions toward other nurses and care workers involved in pressure ulcer care management, in order to arrange a place for consultations and guidance.

There have also been findings in the study that the participants accompanied physicians on visits, created opportunities to observe/receive advice many times and felt anxious when encountering new cases, which are reported as issues under [Not reaching a high level of expertise or skill]. In order to demonstrate their expertise, the nurses need to actively self-improve with helps from physicians, WOC and other professionals even after completing the training. Although importance of establishing a follow-up and developing skills by actual practice has been pointed out (23), only 41.6% of training institutions provide the follow-ups (24), which calls for necessity of active promotion by the institutions. The Ministry of Health, Labor and Welfare also considers follow-up after completion of training to be important and is promoting a project to train nurses to become leaders of the specified medical acts, for which a budget was secured in

FY2023 (12). Each educational institution is expected to incorporate follow-up training for those who have completed specified medical acts training in developing training system.

Since this study was conducted during the COVID-19, [Impact of COVID-19] were identified. In long-term care facilities where the COVID-19 cluster occurred, there were cases where home-visit nursing could not be provided, which led to prevention and management left unachieved. A previous study reported positive effects of pressure ulcer consultation for home nursing patients using video calls on application (25). Therefore, by establishing a system to communicate with family members and clients using ICT from the usual, it is possible to share information timely with them as well as other home-visit professionals even under the pandemic and leaves room for prevention or deterioration of pressure ulcers. In the Main Indicators for 5th Science and Technology Basic Plan, the promotion of telemedicine and telecare are advocated as new values to medical and nursing care (26), thus home-visit nurses who have completed the specified medical acts are expected to take the lead in promoting ICT utilization in the future.

Strengths and limitations

There are two primary limitations. Firstly, 8 home-visit nurses participated in this study. This was due to the small population of home-visit nurses who have completed the specified medical acts training and worked in home-visit nursing agencies. Secondly, half of the agencies were medical corporations. Since this imply having a hospital within the corporation, many of the clients who use home-visit nursing are patients of the hospital. It allows the nurses and physicians to communicate smoothly, making it relatively easy for them to perform the specified medical acts. It should also be noted that the data presented in the study is from that of many agencies that already have environment to carry out the acts.

CONCLUSION

This study used interviews to clarify the pressure ulcer care practices and challenges of home-visit nurses who had completed the specified medical acts training. The nurses provided guidance and switched services according to the caregiving ability of the family members and focused their interventions not only on pressure ulcer treatment but also on maintaining quality of client's life. In addition, to improve the quality of pressure ulcer care management with a sense of duty as a post-training nurse, they worked to increase awareness throughout the community by providing leadership to those involved in the health care teams and collaborating with other professionals. On the other hand, it was suggested that follow-ups after completion of the training is necessary to demonstrate highly specialized knowledge and skills in home-visit nursing.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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