significant difference in total and subdomain scores of quality of life between preintervention and postintervention surveys, the subgroups of patients with a poor performance status and those receiving no anticancer treatment achieved a significant improvement in the quality of life.

Conclusion. Although average changes in patient-reported outcomes were relatively small in the total sample of patients, the intervention seemed to provide tangible benefits for the patients with poor general conditions. A future regional intervention trial should include patient outcomes in those with a poor general condition to evaluate the net effects of the program. J Pain Symptom Manage 2014;48:602–610.

Key Words
Palliative care, region, outpatient, patient, quality of care, quality of care

Introduction

Improving palliative care is an important public health care issue worldwide.[1] Multiple systematic reviews have demonstrated the benefits of palliative care for patients and families.[2,3] Thus, palliative care should be provided throughout an entire region; and, to date, a series of four studies have explored the effects of regional palliative care programs in Edmonton,[4,5] Spain,[6-8] Ontario,[9-15] and Norway.[16-18]

The earliest work was on the development of a regional palliative care program in Edmonton, Canada.[4,5] This program led to increased resource use, increased home deaths, and reduced costs, but no patient-reported outcomes were obtained. Furthermore, quality improvement projects with no control groups in Spain also led to an increase in resource use, home deaths, and opioid use,[6,7] but outcomes were examined in only 265 patients receiving palliative care services.[8] In another quality improvement project focusing on outpatients with cancer in Ontario, Canada, the completion rates of symptom assessment tools were used as indicators of successful intervention, and the disease trajectory was specifically analyzed,[9-14] but patient outcomes were not investigated at a regional level.[15]

A clustered, randomized, controlled trial performed in Norway is the only study to systematically examine the potential effects of regional intervention on patient outcomes.[16-18] In this study, home deaths increased[16] and family satisfaction improved,[18] but patients' quality of life, measured by the European Organization for Research and Treatment of Cancer-Core 30 questionnaire, did not change.[17] A potential interpretation is that existing quality of life measures largely depend on patients' functional levels, but palliative care might improve broader quality of life areas, especially psychoexistential components. Therefore, using different tools to more specifically measure quality of life near the end of life could be of value to clarify the potential effects of regional palliative care interventions.[19]

The most recent region-based palliative care intervention program, the Japan Outreach Palliative care Trial of the Integrated Model (OPTIM) study, revealed that a comprehensive regional palliative care program led to broad positive outcomes, including patient- and family-reported quality of care, quality of life, and caregiving burden.[20-22] Improvement in patient outcomes in this study, however, was generally small: the effect size of the patient-reported quality of care was 0.14 ($P=0.0027$), and changes in quality of life did not reach significance ($P=0.10$).[20] These analyses were performed with only total scores of quality of care and quality of life and only for total patients. Detailed analyses of subdomains and subgroups could provide useful insight into how the regional palliative care program worked in patients undergoing outpatient management.

Research questions for the present study included: Which domains of patient-reported quality of care and quality of life did or did

not change? and Is there a difference in changes in quality of care and quality of life in patients with different characteristics (i.e., performance status, age, and anticancer treatment)?

Methods

This was a secondary analysis of patient-related outcomes in a region-based palliative care intervention trial.[20-22] The study methodology was described in detail in the methodology article,[21] and ethical and scientific validity was confirmed by the institutional review boards of this study and of all participating hospitals.

Overview of the OPTIM Study

The OPTIM study[20] was performed in four regions of Japan. We obtained preintervention data for outcomes before or in the early phase of the intervention period and postintervention data after or in the late phase of the intervention period. The intervention program was implemented from April 2008 to March 2011. The primary end points were home death, use of a palliative care service, and patient-reported and bereaved family–reported quality of palliative care. The intervention was a comprehensive program covering four areas: 1) to improve the knowledge and skills of palliative care; 2) to increase the availability of specialized palliative care services for community patients; 3) to coordinate community palliative care resources; and 4) to provide appropriate information about palliative care to the general public, patients, and families. After the interventions, the percentage of home deaths increased from 6.8% to 10.5%, and this increase was significantly greater than that in national data. Moreover, 88% of the family members confirmed that patients who died at home had preferred a home death. The rate of patients who received palliative care services increased significantly. The patient- and family-reported quality of care was significantly higher after intervention (effect size = 0.14 and 0.23, respectively). The quality of life of terminally ill cancer patients, rated by proxy family members, was significantly higher after intervention (effect size = 0.22), but changes in quality of life in outpatients did not reach significance ($P = 0.10$). Physician- and nurse-reported difficulties, especially regarding communication and coordination, decreased significantly. Qualitative analysis identified that the participants greatly emphasized improved communication and cooperation among regional health care professionals.

Subjects

Questionnaires were sent by mail to all patients who met the inclusion criteria. We intended to obtain a sample as representative of each region as possible, and we obtained the participation of 23 of 34 hospitals in the study regions (8964 of 11,033 beds, 81%). Outpatients of the participating hospitals were enrolled for this study between March 1 and April 30, 2008 (preintervention), and between November 1 and December 31, 2010 (postintervention). The patients in the preintervention survey and the postintervention survey were different.

Inclusion criteria were: 1) adults with metastatic or recurrent cancer of the lung, esophagus, stomach, colon, rectum, pancreas, liver, biliary system, kidney, prostate, bladder, breast, ovary, or uterus; 2) outpatient visits to the oncology or each specialty division; and 3) the patient had been informed of the malignancy. Exclusion criteria included: 1) inability of the patient to complete the questionnaire (dementia, cognitive failure, psychiatric illness, language difficulty, or visual loss), 2) severe emotional distress of the patient as determined by the principal treating physicians, and 3) poor physical condition of the patient making him/her unable to complete the questionnaire.

Measurements

Quality of Palliative Care. The quality of palliative care was measured using the Care Evaluation Scale, a well-validated scale and the most commonly used measurement tool to quantify user-perceived quality of palliative care in Japan.[23] We excluded three subscales, namely environment, cost, and availability, unrelated to the intervention aim; therefore, subscales used in this study were: 1) physical care provided by the physicians (e.g., doctors deal promptly with discomforting symptoms), 2) physical care provided by nurses (e.g., nurses respond promptly to the patient's needs),

3) psychoexistential care (e.g., the staff try so that the patient's hope can be realized), 4) help with decision making (e.g., consideration given so that the patient can participate in treatment choices), and 5) coordination/consistency of care (e.g., good cooperation among staff members such as doctors and nurses). Each subscale had three items graded with a six-point Likert-type scale from "1 = improvement is highly necessary" to "6 = improvement is not necessary at all;" higher values indicated a lower perceived necessity for improvement. The total score of the Care Evaluation Scale was defined as the mean of all subdomain scores.

Quality of Life. Quality of life was measured using the Good Death Inventory, a specific measure of the quality of life of patients with advanced cancer; reliability and validity were confirmed.[24] The full version of this scale was used, comprising 10 domains: 1) physical and psychological comfort, 2) living in one's favorite place, 3) maintaining hope and pleasure, 4) having a good relationship with medical staff, 5) not feeling a burden to others, 6) having a good relationship with the family, 7) having independence, 8) living in a comfortable environment, 9) being respected as an individual, and 10) a feeling of fulfillment at life's completion. Each item was assessed using a seven-point Likert-type scale from "1 = strongly disagree" to "7 = strongly agree," with higher values indicating a higher perceived quality of life. The total score was defined as the mean of all subdomain scores.

Statistical Analyses

To compare the changes in subdomains of the Care Evaluation Scale and Good Death Inventory before and after the interventions, the scores were compared using Student's *t*-test and calculated Hedges' *g* to estimate the effect size; effect sizes of 0.2, 0.5, and 0.8 were regarded as small, moderate, and large effects, respectively.[25,26] To adjust patient characteristics and investigate the interaction of the intervention, we used linear regression analyses using the region, age, sex, and primary tumor sites. To explore the changes in the percentages of patients who reported a low quality of care, we calculated the percentages of the responses with a mean of three or less on the Care Evaluation Scale (i.e., improvement is necessary, considerably necessary, and highly necessary). To explore the changes in the percentages of patients who reported a high quality of life, we calculated the percentages of the responses with scores of five or more on the Good Death Inventory (i.e., slightly agree, agree, and strongly agree). Comparisons were performed using Fisher's exact test.

Second, we compared the changes in the total scores of the Care Evaluation Scale and Good Death Inventory in patients with different characteristics: 1) patients with performance status 0/1 vs. 2 vs. 3/4, 2) patients aged younger than 70 years vs. those older than 70 years, and 3) patients receiving chemotherapy/radiotherapy vs. those not receiving it. The significance of changes between different subgroups was assessed by time interaction terms, adjusting for region, age, sex, and primary tumor sites.

The *P*-value regarded as significant was 0.050 for the exploratory nature of this study, although we acknowledge that multiple comparisons could cause a Type 1 error. All analyses were performed with the SAS software package, v. 9.3 (SAS Institute, Cary, NC).

Results

In the preintervention/postintervention surveys, among 1880/2123 patients invited to participate, 387/615 patients were excluded (refused to participate, 100/76; unable to complete questionnaire, 92/130; died, were admitted, or were referred to other hospitals during the recruitment procedure, 75/40; severe emotional distress, 42/273; primary responsible physicians unavailable, 30/0; poor physical condition, 28/96; and others 14/0). Questionnaires were sent to 1493/1508 patients, and 5/7 were sent to the wrong address. In total, 1488/1501 questionnaires were effectively sent, and we obtained 859 (58%) and 857 (57%) analyzable responses in the preintervention and postintervention surveys, respectively. Patient characteristics are summarized in Table 1.

Quality of Care

All subdomain scores of the Care Evaluation Scale, except for help with decision making,

Table 1
Patient Characteristics

Patient Characteristics	Before ($n=859$)	After ($n=857$)	*P*-value
Region, *n* (%)			
Tsuruoka	85 (9.9)	166 (19)	<0.0001
Kashiwa	149 (17)	192 (22)	
Hamamatsu	337 (39)	255 (30)	
Nagasaki	288 (34)	244 (28)	
Mean age (yrs, SD)	67 (11)	68 (11)	0.16
Sex, *n* (%)			
Male	476 (55)	516 (60)	0.044
Female	383 (45)	341 (40)	
Primary tumor site, *n* (%)			
Lung	221 (26)	223 (26)	0.18
Breast	148 (17)	125 (15)	
Colon and rectum	133 (15)	124 (14)	
Prostate, kidney, and bladder	122 (14)	132 (15)	
Stomach and esophagus	92 (11)	79 (9.2)	
Liver, bile duct, and pancreas	82 (9.5)	95 (11)	
Uterus and ovary	45 (5.2)	67 (7.8)	
Performance status, *n* (%)			
0	243 (28)	271 (32)	0.38
1	371 (43)	340 (40)	
2	181 (21)	166 (19)	
3	37 (4.3)	43 (5.0)	
4	14 (1.6)	13 (1.5)	
Chemotherapy and/or radiotherapy, *n* (%)			
Receiving	498 (58)	484 (56)	0.84
Not receiving	343 (40)	340 (40)	

The percentages do not add up 100% owing to missing values. Chi-squared test or Wilcoxon's rank-sum test.

that is, subdomain scores of physical care provided by physicians, physical care provided by nurses, psychoexistential care, and coordination/consistency of care, significantly improved in the postintervention survey compared with the preintervention survey (Table 2). The effects sizes were generally marginal or small, 0.06–0.14. The percentages of patients with a mean score of three or less (who reported improvement was necessary) significantly decreased from 13% to 5% on the basis of total score, and from 17–21% to 9.4–13% on the basis of all subdomain scores.

Quality of Life

Among subdomains of the Good Death Inventory, only the three domains of living in one's favorite place, maintaining hope and pleasure, and living in a comfortable environment improved with marginal significance ($P=0.042$, 0.038, and 0.054; effect sizes = 0.10, 0.10, and 0.09, respectively; Table 3). The percentages of patients with a mean score of five or more were high in all subdomains. The percentage of the patients with a mean total score of five or more was 76% in the preintervention survey and 79% in the postintervention surveys ($P=0.18$).

Changes in Quality of Care and Quality of Life in Patients With a Different Performance Status

Patients with a performance status of zero or one had higher perceived quality of care and quality of life; the changes were not significant before or after interventions ($P=0.25$ and 0.21, respectively; Fig. 1). In patients with a performance status of two, the patient-reported quality of care significantly improved from 4.24 (1.06) in the preintervention to 4.52 (0.81) in the postintervention surveys ($P=0.007$, adjusted $P=0.004$, effect

Table 2
Patient-Reported Quality of Care

	Mean[a]					Percentages[b]		
Quality of Care Subscales	Before	After	Effect Size	*P*-value	Adjusted *P*-value	Before	After	*P*-value
Physical care provided by physicians	4.42 (1.22)	4.58 (1.06)	0.14	0.006	0.005	21 (18–24)	12 (10–14)	<0.001
Physical care provided by nurses	4.43 (1.12)	4.54 (1.04)	0.11	0.027	0.009	18 (16–21)	11 (9–13)	0.003
Psychoexistential care	4.46 (1.12)	4.57 (1.05)	0.10	0.035	0.019	17 (15–20)	11 (9–13)	0.004
Help with decision making	4.40 (1.19)	4.47 (1.10)	0.060	0.25	0.15	17 (15–20)	13 (11–15)	0.018
Coordination/consistency of care	4.50 (1.15)	4.62 (1.05)	0.12	0.019	0.010	17 (15–20)	9.4 (8–12)	<0.001
Total	4.43 (1.06)	4.55 (0.92)	0.12	0.011	0.004	13 (11–15)	5.0 (4–7)	<0.001

[a]Mean score of each domain of the Care Evaluation Scale, ranging from one to six, with a higher score indicating a lower perception of the necessity for improvement.
[b]Percentages of the responses with a mean of three or less (i.e., improvement is necessary, considerably necessary, and highly necessary) with 95% confidence intervals. The sample size was 859 (before) and 857 (after). Adjustments were performed for the region, age, sex, and primary tumor sites.

Table 3
Patient-Reported Quality of Life

	Mean[a]					Percentages[b]		
Quality of Life Items	Before	After	Effect Size	*P*-value	Adjusted *P*-value	Before	After	*P*-value
Physical and psychological comfort	5.41 (1.32)	5.46 (1.36)	0.04	0.43	0.73	74 (71–77)	76 (73–79)	0.73
Free from pain	5.63 (1.41)	5.61 (1.46)	−0.02	0.76	0.58	84 (81–86)	83 (80–85)	0.84
Free from physical distress	5.35 (1.49)	5.42 (1.52)	0.04	0.37	0.66	78 (75–81)	80 (77–83)	0.34
Free from emotional distress	5.24 (1.47)	5.36 (1.46)	0.08	0.085	0.22	75 (72–78)	77 (74–80)	0.27
Living in one's favorite place	5.86 (1.23)	5.98 (1.16)	0.10	0.042	0.023	88 (86–90)	90 (88–92)	0.12
Maintaining hope and pleasure	5.24 (1.57)	5.39 (1.44)	0.10	0.038	0.050	74 (71–77)	75 (72–78)	0.49
Having a good relationship with medical staff	6.01 (1.16)	6.02 (1.13)	0.01	0.88	0.96	91 (89–93)	91 (89–93)	0.86
Not feeling a burden to others (reverse item)	4.32 (1.90)	4.20 (1.90)	−0.07	0.18	0.36	34 (31–37)	36 (33–39)	0.23
Having a good relationship with the family	5.67 (1.37)	5.70 (1.40)	0.02	0.72	0.87	83 (80–85)	84 (81–86)	0.39
Having independence	5.97 (1.33)	6.06 (1.22)	0.07	0.13	0.13	90 (88–92)	92 (90–94)	0.24
Living in a comfortable environment	5.80 (1.29)	5.92 (1.17)	0.09	0.054	0.060	88 (86–90)	89 (87–91)	0.40
Being respected as an individual	5.86 (1.18)	5.92 (1.15)	0.05	0.34	0.42	89 (87–91)	89 (87–91)	0.81
A feeling of fulfillment at life's completion	5.25 (1.51)	5.38 (1.43)	0.09	0.063	0.12	71 (68–74)	76 (73–79)	0.019
Total	5.45 (0.98)	5.52 (0.92)	0.08	0.10	0.17	76 (73–79)	79 (76–82)	0.18

[a]Mean score of each domain of the Good Death Inventory, ranging from one to seven, with a higher score indicating a higher perceived quality of life.
[b]Percentages of the responses with a mean/value of five or more (i.e., slightly agree, agree, or strongly agree) with 95% confidence intervals. The sample size was 859 (before) and 857 (after). Adjustments were performed for the region, age, sex, and primary tumor sites.

size = 0.26), whereas quality of life did not significantly change ($P = 0.86$). In patients with a performance status of three or four, quality of life significantly improved from 4.32 (0.93) in the preintervention to 4.83 (1.08) in the postintervention surveys ($P = 0.011$, adjusted $P = 0.004$, effect size = 0.54), and the quality of care improved from 3.97 (1.10) in the preintervention to 4.34 (1.12) in the postintervention surveys, with marginal significance ($P = 0.086$, adjusted $P = 0.15$, effect size = 0.33).

Changes in Quality of Care and Quality of Life in Patients With a Different Age and Treatment Status

Patients not receiving anticancer treatment showed a significant improvement in the quality of care, whereas those receiving anticancer treatment showed no significant improvement (Table 4).

Discussion

This additional analysis led to several important insights into the effects of a region-based palliative care program on cancer patients undergoing outpatient management. The first important finding was that, despite small or marginal improvements in patient-related outcomes in the total population of outpatients, subgroup analyses suggested that patients with a poorer general condition achieved measurable benefits. That is, patients with a poor performance status and those receiving no anticancer treatment achieved significant improvements in quality of care and/or quality of life. Especially, improvement in the quality life of patients with a performance status of three or more is encouraging because the effect size was more than 0.50. The Good Death Inventory could capture important aspects of quality of life for terminally ill patients, rather than traditional quality of life measures largely depending on patient functional levels.[17,19,24] These findings indicate that this regional program actually had positive effects on outpatients, but the physical condition of outpatients surveyed in this trial was generally favorable and the intervention effects were not clearly observed, possibly because of ceiling effects. A future study to investigate

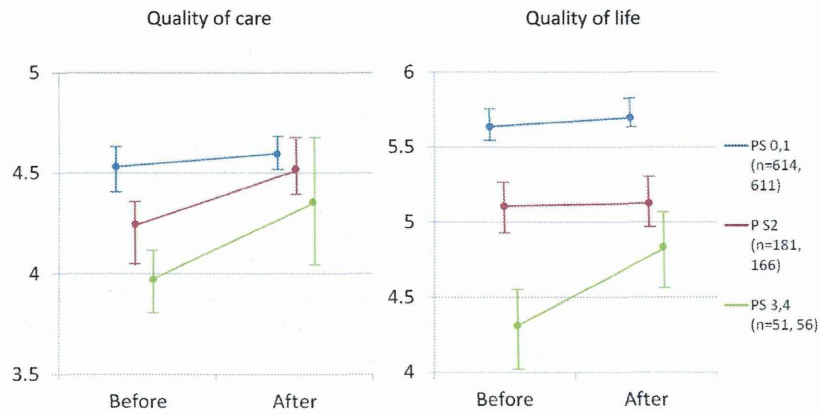

Fig. 1. Changes in quality of care and quality of life in patients with a different performance status. Quality of care was measured by the Care Evaluation Scale, ranging from one to six, with a higher score indicating a lower perceived necessity for improvement. Quality of life was measured by the Good Death Inventory, ranging from one to seven, with a higher score indicating a higher perceived quality of life. The number of patients is presented in parentheses in the preintervention survey and in the postintervention surveys.

the potential effects of a population-based palliative care program on outpatients with advanced cancer should be designed to accumulate outcome data from patients with a poorer general condition. Defining palliative care patients as targets of palliative care intervention trials is difficult; and, to date, there has been no universal consensus on how to identify "palliative care patients," especially in outpatient settings;[27] thus, the use of inclusion criteria to decide whether to discontinue anticancer treatment or the patient's performance status might be one way to investigate the effects of interventions.

Another valuable finding of this study was that this regional program achieved small but significant improvements in the broad area of the perceived quality of care. Among five subdomains of the Care Evaluation Scale, this study confirmed that all subdomain scores except for help with decision making improved in the postintervention survey as mean scores. Furthermore, and more importantly, although the change in improvement, defined as mean values of quality of care, were small, this study revealed that the percentages in the patients who reported that "improvement was necessary" significantly decreased from 13% to 5% on the basis of the total scores, and significantly decreased from about 20% to 10% on the basis of all subdomains. The interpretation of this finding is that interventions including basic education programs seemed to actually succeed in decreasing the number of patients who rated the quality of care as low, although this intervention did not lead the patients who had already rated the quality of care as high to feel that it had become even higher. Clinically meaningful cutoff points of these measures, that is, whether we use changes in average scores or percentages with certain cutoff points, should be studied further.

Limitations

Despite the strengths of this study, that is, success in obtaining nearly representative outpatients with advanced cancer at regional levels and the use of a validated multidimensional measurement specifically designed for use in a palliative care setting, this study had several limitations. The most important limitation was the lack of a control group, and we cannot conclude that the changes observed in this study are a result of the interventions or national trends. A second limitation was that the outcomes measured with the questionnaire surveys might have been affected by selection and response bias. Especially, as the questionnaire was distributed via mail, patients with difficulties in writing could be excluded. A third limitation of this study was that the data might not be a fully representative regional sample, although 80% of hospital beds were included. Fourth, all analyses in this study were exploratory, and the sample size was not sufficient. In particular, as the number of patients with a performance status of three or

Table 4

Differences in Changes of Quality of Care and Quality of Life in Patients With a Different Age and Treatment Status

Parameters	Quality of Care					Quality of Life				
	Before	After	Effect Size	*P*value	Adjusted *P*value	Before	After	Effect Size	*P*value	Adjusted *P*value
Age (yrs)										
<70 ($n = 487, 372$)	4.40 (4.02)	4.54 (0.94)	0.14	0.039	0.025	5.47 (0.93)	5.54 (0.88)	0.08	0.26	0.28
≥70 ($n = 450, 407$)	4.46 (1.10)	4.56 (0.91)	0.10	0.062	0.059	5.42 (1.04)	5.51 (0.96)	0.09	0.22	0.30
Chemotherapy and/or radiotherapy										
Receiving ($n = 498, 484$)	4.44 (1.03)	4.52 (0.91)	0.08	0.109	0.097	5.41 (0.95)	5.47 (0.86)	0.06	0.31	0.51
Not receiving ($n = 343, 340$)	4.41 (1.09)	4.61 (0.93)	0.20	0.015	0.008	5.50 (1.03)	5.61 (1.00)	0.11	0.17	0.23

Quality of care was measured by the Care Evaluation Scale, ranging from one to six, with a higher score indicating a lower perception of the necessity for improvement. Quality of life was measured by the Good Death Inventory, ranging from one to seven, with a higher score indicating a higher perceived quality of life. The number of patients is presented in parentheses in the preintervention survey and in the postintervention surveys. Adjustments were performed for the region, age, sex, primary tumor sites, and intervention.

four was low, interpretation requires caution and a confirmation study is needed. Fifth, the statistically significant difference observed in this study is not the same as clinically important difference, although we calculated effect sizes for interpretation, as there are no accepted cutoff points in the measures used. Sixth, the intervention was a complex intervention, and differences in adaptation and adhesion could lead to different results. Finally, all study subjects were informed of their malignancy.

Conclusion

Although the observed changes in patient-reported outcomes were relatively small in the total sample of patients, this might be the result of potential ceiling effects, and the intervention actually yielded measurable benefits for patients with poor general conditions. A future regional intervention trial should be conducted to accumulate patient outcome data from those with a poor general condition to evaluate the net effects of the program.

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How to Manage Hospital-Based Palliative Care Teams Without Full-Time Palliative Care Physicians in Designated Cancer Care Hospitals: A Qualitative Study

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Abstract

Objective: To clarify how highly active hospital palliative care teams can provide efficient and effective care regardless of the lack of full-time palliative care physicians. **Methods:** Semistructured focus group interviews were conducted, and content analysis was performed. **Results:** A total of 7 physicians and 6 nurses participated. We extracted 209 codes from the transcripts and organized them into 3 themes and 21 categories, which were classified as follows: (1) tips for managing palliative care teams efficiently and effectively (7 categories); (2) ways of acquiring specialist palliative care expertise (9 categories); and (3) ways of treating symptoms that are difficult to alleviate (5 categories). **Conclusions:** The findings of this study can be used as a nautical chart of hospital-based palliative care team (HPCT) without full-time PC physician. Full-time nurses who have high management and coordination abilities play a central role in resource-limited HPCTs.

Keywords

palliative care, consultation, management, qualitative research, palliative care teams, education

Introduction

In the 1990s, palliative care consultation teams were established to provide palliative care services in Western countries. During the past 20 years, the number of hospital-based palliative care teams (HPCTs), which are multidisciplinary teams aiming to maximize the quality of life for patients and their families facing the problems associated with life-threatening illness, has greatly increased in various countries, including the United Kingdom, the United States, Canada, and Australia; in all cases, these teams play important roles in the health care system.[1-4] Various systematic reviews[5] and randomized controlled trials[6,7] have also reported the efficacy of HPCTs. The activities and efficacy of HPCTs have also been studied in Japan,[8,9] where they are expected to play an even more important role in the future.

In 2007, the Cancer Control Act and the Basic Plan to Promote Cancer Control Programs were enacted in Japan, addressing palliative care as one of the major issues in improving cancer care. This program required all government-designated cancer care hospitals (DCCHs) to organize HPCTs within each institute (397 hospitals, as of April 2014).[10] In 2008, the HPCT requirement for DCCHs was revised as follows: (1) members of the HPCT must include full-time palliative care physicians, psychiatrists, nurses, and pharmacists; (2) a palliative care outpatient clinic must be offered; (3) HPCT conferences must be held more than once a week; (4) information about the HPCT must be provided to patients and their families; (5) hospital-discharge support must be provided to inpatients; and (6) palliative care consultations must be provided to community health-care providers.

In 2012, Nakazawa and colleagues revealed that the mean annual number of consultations conducted by an HPCT was 73 per hospital and that the HPCTs with full-time palliative care physicians performed significantly more consultations than HPCTs without full-time palliative care physicians.[11] However, because of an underdeveloped postgraduate training structure, only 83 palliative care specialists are registered in Japan,[12] which is not enough to fill all the positions required by the HPCTs. In fact, only half of all DCCHs are able to place

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a full-time physician in their HPCT.[13,14] The Japanese Society for Palliative Medicine reported that even at facilities without full-time palliative care physicians, some highly active HPCTs received more than 150 consultations each year,[15] but the study did not investigate the methods required to manage an HPCT effectively.

It is therefore important to investigate how HPCTs can be managed effectively even without the full-time commitment of a palliative care physician. The present study thus aimed to clarify (1) tips for managing HPCTs efficiently and effectively, (2) how to improve and maintain professional competency in the HPCT, and (3) how to manage the relief of difficulties among highly active HPCTs without full-time palliative care physicians.

Methods

Study Design

The present study was a qualitative study using semistructured focus group interviews. This interview method can be used to investigate points of commonality and differences in the specific opinions of participants who have predefined shared characteristics. Our research team consisted of 6 researchers with experience in qualitative research.

Participants

The participants comprised physicians and nurses from HPCTs in the 397 DCCHs nationwide that met the following requirements: (1) no full-time palliative care physicians on staff and (2) more than 150 palliative care consultations annually. The participating facilities were recruited by explaining the study objectives in a letter, sent out using one of the largest mailing lists in Japan for doctors, nurses, and pharmacists who specialize in palliative care. Using snowball sampling of the facilities that offered to participate, we identified 7 facilities that met the requirements and selected 7 physicians and 6 nurses for participation in the study. AS sent an explanation of the study via e-mail and confirmed the participants' willingness to participate in the study (see *Ethical considerations* given subsequently).

Data Collection

We considered that it would be appropriate to set up focus groups with 6 to 8 participants each to allow individuals to speak freely and in concrete terms about the activities of their HPCTs.[16] The first focus group interview was conducted on participants from 3 HPCTs (3 physicians and 3 nurses), and the second focus group interview was conducted on participants from 4 HPCTs (4 physicians and 3 nurses). Interviews lasted 2 hours each and were conducted in February 2014 in a conference room in Tokyo by a researcher (AS) who is a full-time physician in an HPCT at a DCCH. The interview guide was created based on the results of earlier discussions among the researchers. The semistructured interviews covered the following points: (1) the background of the participants with regard to the HPCTs in which they practiced; (2) tips for managing an HPCT efficiently and effectively; (3) how an HPCT can improve and maintain professional competency; and (4) how to manage the relief of difficult symptoms. On the day of the interview, participants were given an explanation of the present study, and the interviews were started after we received their written consent (see *Ethical considerations* given subsequently). Interviews were recorded with a voice recorder, and another researcher took field notes while AS conducted the interviews. Data saturation was confirmed between the researchers.

Data Analysis

Transcripts of the interviews were created from the recorded content and field notes. The transcripts were provided to the participants who confirmed and revised them. Next, the content was analyzed on the basis of the method outlined by Krippendorff.[17] First, transcripts were divided into units of semantic content, and all expressions and contents related to managing HPCTs were extracted. Next, units with similar expressions and semantic contents were classified into groups, summarized so that the semantic content was not lost and codified. Codes were grouped according to similarity and subcategories were created. Subcategories were then classified and categories were created. Content analysis was conducted independently by 2 researchers (AS and MK), after which discussions were conducted with 2 other researchers (NY and TY) who were not involved in the analytical process. Revisions were made until all 4 researchers agreed. YK supervised confirmation of whether subcategories and categories were appropriate. Hereafter, codes are signified by " ", subcategories by [], and categories by < >.

Ethical Considerations

The present study was conducted in accordance with the Declaration of Helsinki and ethical guidelines with regard to clinical research. The study plan was approved by the Ethics Committee at Kobe University Graduate School of Medicine.

Results

Participants

There were 13 participants in the study (7 physicians [6 males and 1 female] and 6 nurses [1 male and 5 females]). The mean number of years of clinical experience among the participants was 19 (range, 10-26 years), and the mean length of time practicing in an HPCT was 2.9 years (range, 1-6 years). The main specialties of the physicians were surgery (3 physicians), internal medicine (3 physicians), and radiology (1 physician). All 6 nurses were full-time HPCT nurses. Among the study participants, the mean number of annual HPCT consultations was 202 (range, 150-280). We extracted 209 codes from the transcripts and organized them into 3 themes.

Themes

Theme 1: Tips for managing HPCTs efficiently and effectively. We extracted 127 codes and organized them into 28 subcategories on the basis of similarity. Subcategories were then organized into 7 categories as follows: <adjustment to the role of full-time HPCT nurses>, <allocation of duties within the HPCT>, <adjustment to the medical consultation>, <adjustments made by HPCT consultants>, <development of the relationship with the primary care team>, <gaining the understanding and support of influential people within the hospital for the HPCT>, and <education regarding palliative care> (Table 1).

Adjustment to the role of full-time HPCT nurses. This category included 3 subcategories and 22 codes. Participants indicated the importance of full-time nurses and noted that team management was typically conducted by full-time nurses. These opinions suggested the subcategories of [triage of the consultation and management of the HPCT is mainly performed by full-time nurses], [full-time nurses schedule the activity times for team physicians], and [full-time nurses adjust times for team rounds].

> Physician: Outpatient examinations are also basically conducted by a nurse, with me standing behind watching. I think the nurse plays a key role. (D3)

Allocation of duties within the HPCT. This category included 3 subcategories and 9 codes. The subcategories included [allocation of duties among full-time nurses] and [allocation of duties among HPCT physicians], where participants noted that duties were allocated among multiple HPCT physicians. Because HPCT pharmacists were responsible for prescription recommendations, we added the subcategory of [HPCT pharmacists provide prescription queries in response to the physicians' prescriptions].

> Physician: Even if I am not in attendance, a list of the patients I am following up with palliative care appears on the electronic medical records. I continually add notes to these medical records, for example, "thoroughly check patients who exhibit dramatic changes in condition." For patients who require only a check of their medical records, I just have staff quickly check them. (D2)

Adjustment to the medical consultation. This category included 9 subcategories and 50 codes. Adjustments to HPCT rounds included [quickly responding to referrals to the HPCT depending on the situation] and [selecting a responsible member of the HPCT to match the needs of the referrer in HPCT rounds]. For referrals to HPCT care, we added the subcategories of [simplification of methods for referrals to HPCT care] and [clarification of the objectives of the referrals to the HPCT]. With regard to HPCT recommendations, participants raised several issues, including [adjusting the way recommendations are made by HPCTs in line with the referrer's ability] and [direct care is provided by the HPCT for cases that require

Table 1. Tips for Managing HPCTs Efficiently and Effectively Number of Codes.

I. Adjustment to the role of full-time HPCT nurses	**(22)**
1. Triage of the consultation and management of the HPCT is mainly performed by full-time nurses	13
2. Full-time nurses schedule the activity times for team physicians	6
3. Full-time nurses adjust times for team rounds	3
II. Allocation of duties within the HPCT	**(9)**
1. Allocation of duties among full-time nurses	4
2. Allocation of duties among HPCT physicians	3
3. HPCT pharmacists provide prescription queries in response to the physicians' prescriptions	2
III. Adjustment to the medical consultation	**(50)**
1. Simplification of methods for referrals to HPCT care	10
2. Quickly responding to referrals to the HPCT depending on the situation	9
3. Selecting a responsible member of the HPCT to match the needs of the referrer in HPCT rounds	9
4. Adjusting the way recommendations are made by HPCTs in line with the referrer's ability	7
5. The quality of patient care is improved by having conferences with the primary care team	4
6. Direct care is provided by the HPCT for cases that require urgent management or with refractory symptoms	4
7. Clarification of the objectives of the referrals to the HPCT	3
8. The quality of consultations is maintained by multidisciplinary conferences	3
9. Once the objective of the referral is fulfilled, HPCT intervention ends	1
IV. Adjustments made by HPCT consultants	**(14)**
1. Responding to the referrers' reluctance regarding the HPCT	4
2. Making recommendations that take the referrer's feelings into consideration	4
3. Being well-mannered as an HPCT consultant	2
4. Acting to increase the referrers' satisfaction	2
5. Introducing consultation activities	1
6. Showing the referrers how the HPCT administers care	1
V. Development of the relationship with the primary care team	**(14)**
1. Utilizing link nurses	8
2. Creating a good relationship with primary physicians	3
3. HPCT physicians' communications with primary physicians	3
VI. Gaining the understanding and support of influential people within the hospital for the HPCT	**(6)**
1. Working to gain support of influential people within the hospital for the HPCT	6
VII. Education regarding palliative care	**(12)**
1. Creating a manual for symptom management	9
2. Providing palliative care education to ward staff	2
3. Providing palliative care education to residents and trainees	1

Abbreviation: HPCT, hospital-based palliative care team.
Note. Bold values indicate the number of codes included in the category.

urgent management or with refractory symptoms]. Participants suggested methods for guaranteeing the quality of HPCT consultations, including multidisciplinary conferences, resulting in the subcategories of [improving quality of patient care by having conferences with the primary care team] and [the quality of consultations is maintained by multidisciplinary conferences]. The point that [once the objective of the referral is fulfilled, HPCT intervention ends] indicated that intervention was provided only to patients who required it.

Nurse: For patients who require care quickly, I go there first in the morning, consult with a physician, and quickly write the recommendation and try my best to respond to the problem that day, as quickly as possible. (N3)

Adjustments made by HPCT consultants. This category, focusing on other HPCT members, such as the palliative care doctors and specialist nurses, included 6 subcategories and 14 codes. Considerations given to staff requesting referrals, such as primary physicians and ward nurses, included [responding to the referrers' reluctance regarding the HPCT], [making recommendations that take the referrer's feelings into consideration], and [acting to increase the referrers' satisfaction]. The idea of clarifying HPCT interventions was raised in the subcategory of [showing the referrers how the HPCT administers care]. From the physicians' comments, we added [being well-mannered as an HPCT consultant] and [introducing consultation activities].

Physician: Being called at any time by anybody from anywhere means that you need to be happy that patients have called you. If I am called, I go as quickly as possible. (D2)

Development of the relationship with the primary care team. This category included 3 subcategories and 14 codes. With regard to relationships with the HPCT nurses, we extracted the idea of [utilizing link nurses].

Nurse: I get the impression that communication between physicians goes a lot more smoothly. However, the more I cooperate with primary physicians, the more I feel that they start to trust me, making communication become gradually easier. (N5)

To address the HPCT members' relationships with primary physicians, we added [HPCT physicians' communicating with primary physicians] and [creating a good relationship with primary physicians].

Gaining the understanding and support of influential people within the hospital for the HPCT. This category included 1 subcategory and 6 codes. To foster and promote understanding of the HPCT within the hospital organization, we added the idea of [working to gain support of influential people within the hospital for the HPCT]. Some opinions were raised regarding the importance of gaining stakeholder support including "we have the cooperation of the nursing department" and "the head of the hospital supports us by attending conferences and coming with us on rounds."

Physician: The head of the hospital attends our conferences every week and comes with us on rounds even when there are many people in attendance, which is really of assistance. The head has offered us full support for various initiatives that we have set in place, and this has really helped. (D4)

Education regarding palliative care. This category included 3 subcategories and 12 codes. Participants suggested that relationships with the primary care team improved when education was provided to them, and these opinions were captured in the subcategories of [providing palliative care education to ward staff] and [providing palliative care education to residents and trainees]. The HPCT recommendations were also simplified by [creating a manual for symptom management].

Nurse: The manual itself was uploaded into the electronic medical records. Users can check on each item for easing symptoms, and the screen with this information appears. However, it would also be good if instructions for the easing of symptoms could be copied and pasted into the manual. (N6)

Theme 2: Ways of acquiring specialist palliative care expertise. We extracted 45 codes and organized them into 25 subcategories on the basis of similarities. Subcategories were then organized into 9 categories: <receiving instruction from experts>, <inviting visiting lecturers>, <sharing information with medical staff at multiple facilities>, <participating in academic meetings and workshops>, <planning workshops and seminars with multiple facilities>, <becoming instructors>, <reading texts>, <engaging in self-learning through cases>, and <attending meetings organized by societies for bereaved families> (Table 2).

In the category of <receiving instruction from experts>, participants suggested that instruction should be received by the HPCT not only from physicians, but also from palliative care experts from other facilities. In addition, participants stated that knowledge could be acquired by inviting experts to in-hospital workshops as a chance to implement <inviting visiting lecturers>. In the category of <sharing information with medical staff at multiple facilities>, participants suggested that [holding conferences with multiple facilities] presented opportunities for [interacting with regional staff from multiple disciplines]. Apart from conferences, opportunities for the exchange of

Table 2. Ways of Acquiring Specialist Palliative Care Expertise.

	Number of codes
I. Receiving instruction from experts	**(3)**
1. Receiving instruction from physicians at other facilities	1
2. Receiving instruction from the HPCT physicians	1
3. Attending training at other facilities	1
II. Inviting visiting lecturers	**(2)**
1. Inviting visiting lecturers to workshops	1
2. Inviting visiting experts	1
III. Sharing information with medical staff at multiple facilities	**(8)**
1. Holding conferences with multiple facilities	2
2. Interacting with regional staff from multiple disciplines	2
3. Exchanging opinions with staff from other facilities	2
4. Gathering information via mailing lists	1
5. Cooperating with staff of the same position	1
IV. Participating in academic meetings and workshops	**(17)**
1. Participating in workshops	6
2. Participating in communications skills training	3
3. Participating in academic meetings	3
4. Participating in lecture meetings	2
5. Participating in regional study groups	2
6. Participating in training seminars	1
V. Planning workshops and seminars with multiple facilities	**(8)**
1. Holding workshops with multiple facilities	4
2. Planning study groups with multiple facilities	4
VI. Becoming instructors	**(2)**
1. Participating in lecture meetings to become instructors	1
2. Acting as a facilitator for workshops	1
VII. Reading texts	**(3)**
1. Reading journals	1
2. Reading guidelines	1
3. Reading medical textbooks	1
VIII. Engaging in self-learning through cases	**(1)**
1. Carefully reviewing each case individually	1
IX. Attending meetings organized by societies for bereaved families	**(1)**
1. Participating in meetings of societies for families of deceased patients and talking with the families	1

Abbreviation: HPCT, hospital-based palliative care team.
Note. Bold values indicate the number of codes included in the category.

opinions with medical staff from other facilities included [gathering information via mailing lists]. <Participating in academic meetings and workshops> was also suggested as a means of acquiring knowledge. Other participants suggested that, in addition to participating in academic meetings and workshops, <planning workshops and seminars with multiple facilities> and <becoming instructors> further increased opportunities to improve one's expertise. For acquiring knowledge, in addition to <reading texts> such as academic journals, medical textbooks, and guidelines, some participants emphasized the importance of clinical experience by [carefully reviewing each case individually] and making new observations by <attending meetings organized by societies for bereaved families>.

Table 3. Ways of Treating Symptoms that are Difficult to Alleviate.

	Number of codes
I. Consulting with experts	**(23)**
1. Discussions with specialists from other facilities via e-mail or telephone	11
2. Consulting with experts within the hospital	7
3. Consulting other HPCT members	5
II. Taking a multidisciplinary approach	**(3)**
1. Taking a multidisciplinary approach beyond the HPCT members' specialties	3
III. Sharing information and discussing management	**(5)**
1. Sharing information with the primary care team	3
2. Sharing information within the HPCT	2
IV. Acquiring knowledge	**(4)**
1. Using the content considered at case-study groups as a reference	2
2. Using the best possible scientific evidence as a reference	2
V. Performing self-management	**(2)**
1. Being aware of and acknowledging the difficulty in alleviating some specific symptoms	1
2. Undergoing stress management for difficulties being experienced	1

Abbreviation: HPCT, hospital-based palliative care team.
Note. Bold values indicate the number of codes included in the category.

Theme 3: Ways of treating symptoms that are difficult to alleviate. We extracted 37 codes and organized them into 10 subcategories on the basis of similarities. Subcategories were then organized into 5 categories, namely, <consulting with experts>, <taking a multidisciplinary approach>, <sharing information and discussing management>, <acquiring knowledge>, and <performing self-management> (Table 3).

<Consulting with experts> involved not only [consulting with experts within the hospital] and [consulting other HPCT members] but participants also cited the utility of having [discussions with specialists from other facilities via e-mail or telephone]. Some participants recommended that [taking a multidisciplinary approach beyond the HPCT members' specialties] allowed testing of approaches that differed from those used in the HPCT (eg, involving a physiotherapist). Participants recommended that the difficulty of alleviating symptoms could be examined not just by [sharing information within the HPCT] but also by [sharing information with the primary care team]. The importance of stress management for staff members was raised in the subcategories of [being aware of and acknowledging the difficulty in alleviating some specific symptoms] and [undergoing stress management for difficulties being experienced]. The category of <acquiring knowledge> included the subcategories of [using the content considered at case-study groups as a reference] and [using the best possible scientific evidence as a reference].

Discussion

The present study is the first report to clarify how efficiently and effectively highly active HPCTs are engaging in consultation

activities despite having no full-time palliative care physicians. The findings of this study can be used as a nautical chart of HPCT management when HPCTs have no full-time physician.

This study shows some methods that are used by HPCTs that experience a high number of referrals to conduct activities efficiently and effectively, and we believe that the information presented here can also be used as a "best practice" document for managing HPCTs.

The most important finding is that full-time nurses play a central role in managing HPCTs. Because HPCT staff often held other posts concurrently, they were unable to secure enough time for HPCT activities and had a heavy burden of duties. Therefore, to address this issue, full-time nurses managed the activity times of physicians and other HPCT members and adjusted HPCT rounds and conference times. Results showed that full-time nurses have high management and coordination abilities and play the most important role in HPCTs.

The second important finding concerned the relationship between the referrers (including primary physicians and ward nurses) and the HPCT. Methods used during consultations included simplifying the referral process and adjusting the recommendation style to meet the needs of primary physicians and ward nurses. These types of adjustments are consistent with those outlined in a report on advanced HPCTs in Japan[18] and a report regarding medical consultations overseas.[19-22] We propose that there are several features of the "commandments" suggested by Goldman and colleagues in 1983,[19] such as an emphasis on verbal communications, being succinct, and establishing the urgency of the consultation, that are relevant for HPCTs today.[21] These methods are similarly important in HPCTs with insufficient staff.

The present study has a number of limitations. First, this study targeted only HPCTs at DCCHs and may not reflect the opinions of HPCTs at non-DCCHs. Second, we surveyed only HPCT members who are physicians and nurses and did not include pharmacists. Therefore, the results may be biased and our findings may not be universally applicable. Third, bias may have been introduced by the fact that the researcher who conducted the interviews (AS) is acquainted with some of the participants. Finally, because the interviews were not conducted individually, we cannot attach a level of importance to each extracted item by, for example, recording how many participants thought a certain category was important. Therefore, the results of this study cannot be used to determine priority items that could be addressed to efficiently manage HPCTs. We hope that a future questionnaire, based on these results, can be used to conduct quantitative research using a larger sample.

Conclusion

The present study clarified the methods currently used to effectively manage palliative care consultation teams despite the lack of full-time physicians. We believe that these findings, which outline methods used to acquire specialist palliative care expertise and to treat pain that is difficult to alleviate, form an important aid for providers so they can improve not only the care of patients with cancer and quality of life for these patients and their families but also education for medical staff specializing in palliative care.

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Outcome Evaluation of the Palliative Care Emphasis Program on Symptom Management and Assessment for Continuous Medical Education: Nationwide Physician Education Project for Primary Palliative Care in Japan

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Abstract

Objective: Palliative care is an essential part of medicine, but most physicians have had no formal opportunity to acquire basic skills in palliative care. In Japan, the Palliative care Emphasis program on symptom management and Assessment for Continuous Medical Education (PEACE) was launched to provide formal primary palliative care education for all physicians engaged in cancer care. This study sought to determine whether PEACE could improve physicians' knowledge of, practices in, and difficulties with palliative care.

Methods: In 2011, we conducted questionnaire-based surveys before, just after, and 2 months after completion of the PEACE program in physicians participating in the program at each of 15 designated cancer hospitals in Japan. Knowledge was measured using the palliative care knowledge questionnaire for PEACE (PEACE-Q). Practices and difficulties were evaluated using the Palliative Care self-reported Practice Scale (PCPS) and the Palliative Care Difficulties Scale (PCDS), respectively.

Results: Among 223 physicians participating in the program, 85 (38%) answered the follow-up survey. Significant improvements were noted on the PEACE-Q compared with baseline immediately after completion of the program, and this progress was maintained at 2 months (21.7 ± 5.56 versus 29.5 ± 2.10 versus 28.7 ± 3.28, respectively; $p < 0.0001$). Similarly, significant improvements were noted for total scores on both the PCPS and the PCDS at 2 months after completion of the program (62.1 ± 13.9 versus 69.6 ± 9.94 [$p < 0.0001$] for the PCPS; 44.4 ± 9.96 versus 39.4 ± 10.7 [$p < 0.0001$] for the PCDS).

Conclusions: The PEACE education program improved physicians' knowledge of, practices in, and difficulties with palliative care.

Introduction

PALLIATIVE CARE has been an essential part of cancer care in the past 30 years.[1] To provide quality palliative care, education for physicians is crucial; however, most physicians have not had the opportunity to acquire basic clinical skills in palliative care.

Recently, several countries established nationwide palliative care education programs.[2,3] In the United States, the Education for Physicians in End-of-life Care (EPEC™) Project[2] aimed to increase physicians' knowledge about palliative care, with 62% of the participants attaining improved knowledge.

The Japanese government introduced the Cancer Control Act in 2008. The act states that palliative care should be provided from the time of diagnosis, and one of the most important objectives of this act was to improve the quality of life of the patients and their families. Accordingly, a basic program was designed to provide opportunities for all physicians engaged in cancer care to acquire palliative care

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education; namely the Palliative care Emphasis program on symptom management and Assessment for Continuous medical Education (PEACE).[4] The PEACE program focuses not only on basic palliative care knowledge, but also on education in a range of other factors such as solving patient misunderstandings about opioids, reducing the difficulty in breaking bad news to patients, cultivating an appropriate manner for listening to and sympathizing with the patient, and formulating a care plan among an interdisciplinary team.

PEACE is a 2-day program with 9 modules, comprising 12-hour interactive workshops that combine didactic plenary sessions, role-play sessions, and small group discussions. Despite approximately 37,000 physicians completing the program to date,[5] it remains unclear whether the PEACE program improves physicians' knowledge and the quality of palliative care.

The aim of this study was to evaluate whether the PEACE program improves physicians' knowledge of, practices in, and difficulties with palliative care.

Methods

Participants

The subjects of this study were all physicians participating in any one of 15 workshops based on PEACE programs in designated cancer hospitals throughout Japan from October 1 to December 31, 2011.

Measures

In general, outcomes of education should be assessed across three domains: knowledge, skills, and attitudes.[6] In this study, knowledge was measured using the PEACE-Q, which is a questionnaire developed within the PEACE program for evaluating palliative care knowledge.[7] However, we found no simple instruments to measure skills and attitudes. Although clinical observation or clinical skills assessment are ideal ways to assess skills and attitudes, it was not realistic in the present study because of resource limitations. Thus, we decided instead to measure practices and difficulties using the Palliative Care self-reported Practice Scale (PCPS) and the Palliative Care Difficulties Scale (PCDS), respectively.[8] The PCPS was developed to measure adherence by physicians to recommended palliative care practice guidelines in terms of skills and attitudes. The PCDS was developed to measure actual difficulties for health professionals providing palliative care, and it also contains items covering both domains such as "When a patient expresses anxiety, it is difficult to respond," and "After a patient is informed of bad news, it is difficult to talk."

Background characteristics. We obtained demographic information about the study participants (e.g., gender, age, specialty, institution, years of clinical experience, the number of terminally ill cancer patients in the past year, the number of patients prescribed opioids in the past year, the number of cancer patients who died in the previous year, and training experience with the palliative care unit).

Knowledge. Knowledge was measured using the PEACE-Q.[7] This questionnaire has 33 items across the following 9 domains: (1) philosophy of palliative care, (2) cancer pain, (3) side effects of opioids, (4) dyspnea, (5) nausea and vomiting, (6) psychological distress, (7) delirium, (8) communication, and (9) community-based palliative care. The PEACE-Q scores range from 0 to 33, with higher scores indicating higher levels of knowledge.

Practices. Practices were measured using the PCPS.[8] This scale has 18 items across the following 6 domains: (1) pain, (2) dyspnea, (3) delirium, (4) dying-phase care, (5) communication, and (6) patient- and family-centered care. Each item is evaluated using a Likert-type scale from 1 (not at all) to 5 (always). The scores on the PCPS range from 18 to 90, with higher scores indicating higher levels of performance of recommended practices.

Difficulties. Difficulties were measured using the PCDS.[8] This scale has 15 items across the following 5 domains: (1) alleviation of symptoms, (2) expert support, (3) communication in multidisciplinary teams, (4) communication with the patient and family, and (5) community coordination. Each item is evaluated by agreement with statements on a Likert-type scale from 1 (never) to 5 (very much). The scores on the PCDS range from 15 to 75, with higher scores indicating higher levels of perceived difficulties in providing palliative care.

Procedure

Participants completed a 2-day workshop based on the PEACE program. PEACE-Q, PCPS, and PCDS were evaluated on site before the program and immediately after completion of the program. The follow-up survey was conducted by mailed questionnaire 2 months after completion of the program, and again evaluated PEACE-Q, PCPS, and PCDS. The ethical and scientific validity of this study was approved by the institutional review board of Saku Central Hospital. Consent to participate was indicated by completion and return of the questionnaire, with no reminder or reward offered.

Statistical analyses

Two-tailed paired t tests were used to evaluate changes in participants' knowledge, attitude, and difficulties pre- and post-workshop. Statistical analysis was performed using the statistical software JMP (JMP 10.0.2; SAS Institute Japan Inc., Tokyo, Japan). The significance level was set at $p < 0.05$ (two-tailed).

Results

A total of 223 physicians participated in the PEACE program during the study period, and all physicians completed the program. All 223 physicians answered the pre- and post-PEACE questionnaires on site, whereas 85 participants (38.1%) returned the follow-up survey conducted 2 months after the program. Table 1 summarizes the baseline data of all participants.

Compared with baseline scores, significant improvements due to the PEACE program were identified by the questionnaire completed immediately after completion of the program (21.4 ± 5.2 versus 29.5 ± 2.1; $p < 0.0001$). Furthermore, these improvements were sustained 2 months later (21.7 ± 5.6 versus 28.7 ± 3.3; $p < 0.0001$) (Table 2).

TABLE 1. CHARACTERISTICS OF PARTICIPANTS

	All participants (n=*223*) N *(%)*[a]	*Follow-up survey* (n=*85*) N *(%)*[a]	*First survey only* (n=*138*) N *(%)*[a]
Age, mean ± SD	38.1 ± 11.2	39.5 ± 11.3	37.2 ± 11.1
Gender			
Male	176 (78.9)	67 (78.8)	109 (79.0)
Female	47 (21.1)	18 (21.2)	29 (21.0)
Specialty			
Internal medicine	73 (32.9)	31 (36.5)	42 (30.7)
Surgery	51 (23.0)	21 (24.7)	30 (21.9)
Resident	45 (20.3)	14 (16.5)	31 (22.6)
Other	54 (24.2)	19 (22.4)	35 (25.4)
Institution			
Designated cancer hospitals	116 (52.0)	40 (47.1)	76 (55.1)
Hospital over 200 beds	62 (27.8)	22 (25.9)	40 (29.0)
Hospital under 199 beds	16 (7.2)	8 (9.4)	8 (5.8)
Clinic	27 (12.1)	14 (16.5)	13 (9.4)
Other	2 (0.9)	1 (1.2)	1 (0.7)
Years of clinical experiences, mean ± SD	11.7 ± 10.8	12.9 ± 10.8	11.0 ± 10.8
Numbers of terminally ill cancer patients in the past year			
None	13 (5.9)	3 (3.57)	10 (7.3)
1–9	66 (29.7)	29 (34.5)	37 (26.8)
0–49	93 (41.9)	36 (42.9)	57 (41.3)
50–99	23 (10.4)	6 (7.14)	17 (12.3)
100–	27 (12.2)	10 (11.9)	17 (12.3)
Numbers of patients prescribed opioids in the past year			
None	33 (14.9)	14 (16.7)	19 (13.8)
1–9	85 (38.5)	31 (39.9)	54 (39.4)
10–49	79 (35.7)	30 (35.7)	49 (35.8)
50–99	14 (6.3)	6 (7.1)	8 (5.8)
100–	10 (4.5)	3 (3.6)	7 (5.1)
Number of cancer deaths per year			
None	26 (11.8)	8 (9.52)	18 (13.2)
1–9	114 (51.8)	49 (58.8)	65 (47.8)
10–49	70 (31.8)	24 (28.6)	46 (33.8)
50–99	5 (2.3)	2 (2.4)	3 (2.2)
100–	5 (22.7)	1 (1.2)	4 (2.9)
Training experiences with the palliative care unit			
Yes	5 (2.3)	2 (2.4)	3 (2.2)
No	217 (97.7)	83 (97.6)	134 (97.8)

[a]The percentages do not add up to 100% due to missing values.
SD, standard deviation.

Similarly, significant improvements were noted for total PCPS and PCDS scores 2 months after the program (62.1 ± 13.9 versus 69.6 ± 9.9 for the PCPS; 44.4 ± 10.0 versus 39.4 ± 10.7 for the PCDS) (Table 2).

Improvement occurred in all domains of the PEACE-Q and PCPS (Tables 3 and 4), whereas no significant changes were noted in two domains of the PCDS evaluation, specifically in expert support and communication in multidisciplinary teams (Table 5).

TABLE 2. CHANGE IN TOTAL SCORE FOR PEACE-Q, PCPS, AND PCDS (*N*=85)

	Before PEACE	*2 months after PEACE*	P *value*
PEACE-Q	21.7	28.7	<0.0001
PCPS	62.1	69.6	<0.0001
PCDS	44.4	39.4	<0.0001

PEACE-Q range is 0 to 33, and higher score indicates higher level of knowledge. PCPS range is 18 to 90, and higher score indicates higher level of performance of recommended practices. PCDS range is 15 to 75, and higher score indicates higher levels of perceived difficulties in providing palliative care.

PEACE, Palliative care Emphasis program on symptom management and Assessment for Continuous medical Education; PCDS, Palliative Care Difficulties Scale; PCPS, Palliative Care self-reported Practice Scale.

Discussion

To our best knowledge, this is the first study to demonstrate using a validated scale significant improvements in physicians' knowledge of palliative care following an education program focused on primary palliative care.

The most important finding from this study is that the PEACE program not only improved physicians' knowledge

TABLE 3. CHANGE IN THE PEACE-Q FOR EACH DOMAIN (N=85)

	Before PEACE	*Immediately after PEACE*	*2 months after PEACE*	P *value*[a]
Philosophy of palliative care	2.57	2.90	2.90	<0.0001
Cancer pain	5.58	7.89	7.54	<0.0001
Side effects of opioids	1.90	2.45	2.43	<0.0001
Dyspnea	1.59	2.65	2.37	<0.0001
Nausea and vomiting	1.71	2.84	2.81	<0.0001
Psychological distress	2.45	2.94	2.83	<0.0001
Delirium	1.96	2.53	2.41	<0.0001
Communication	2.40	2.89	2.82	<0.0001
Community-based palliative care	1.54	2.37	2.63	<0.0001

[a]The *P* value was calculated baseline.
Each domain of PEACE-Q except "cancer pain" ranges from 0 to 3, and the "cancer pain" domain ranges from 0 to 9. For both, higher score indicates higher level of knowledge.
PEACE, Palliative care Emphasis program on symptom management and Assessment for Continuous medical Education.

of palliative care, but also that the results were sustained at 2 months following completion of the program. Although many previous studies have shown objective improvements in knowledge, only a few studies have examined the sustainability of outcomes.[3] This sustainability outcome might result from the original program designs to facilitate converting the knowledge to memory and to change practices and attitudes using role-play and case studies. For example, we taught about patient barriers to opioid use by lecture, after which we asked participants to use the knowledge in a role-play whereby they must explain prescribing opioids to opioid-naïve patients with a focus on reducing the opioid barriers.

The second important finding of the study was that the physicians' attitudes toward and difficulties with palliative care were significantly improved 2 months after the program; previous studies have only reported a limited effect on either parameter.[3] This finding is reasonable because an effective palliative care curriculum requires a multifaceted approach, incorporating a variety of intentional strategies to address the multiple competencies required.

The third important finding is that two domains of the PCDS were not improved (e.g., expert support and communication in multidisciplinary teams). Rather then being related to the program curriculum, this finding could be attributable to the health care system in Japan, wherein there are insufficient numbers of palliative care specialists[4] and multidisciplinary teams do not function adequately.[9] Therefore, these domains may not improve by participation in the education program. To improve the results across these domains, other approaches such as creating opportunities to meet the community palliative care team or holding a multidisciplinary conference to develop collaborative relationships among health care workers in the region may be effective.[10]

This study had several limitations, the first of which is the potential for response bias. However, we expect that similar results could be obtained because there were no significant differences between the participants responding to the follow-up survey conducted 2 months after the program and those who did not respond to the follow-up survey (Table1). In addition, we acknowledge that the limitation of a low response rate is unavoidable in physician-based surveys, because other nationwide surveys as a part of a national strategy performed by the Japanese Medical Association and Ministry of Health, Labor, and Welfare achieved a similar or lower response rate, that is, 36% and 43%, respectively.[10,11] It is necessary to develop more reliable follow-up systems.

Second, the conclusion of the current study may be weak because this study has no control group. To demonstrate rigid evidence of improving the competency of physicians, the

TABLE 4. CHANGE IN THE PCPS FOR EACH DOMAIN (N=85)

	Before PEACE	*2 months after PEACE*	P *value*
Pain	11.1	12.0	0.0001
Dyspnea	10.1	11.2	<0.0001
Delirium	8.00	10.2	<0.0001
Dying-phase care	10.1	11.3	0.0004
Communication	11.7	12.6	0.0005
Patient– and family-centered care	11.5	12.3	0.0016

Each domain of PCPS ranges from 3 to 15, and higher score indicates higher level of performance of recommended practices.
PCPS, Palliative Care self-reported Practice Scale.

TABLE 5. CHANGE IN THE PCDS FOR EACH DOMAIN (N=85)

	Before PEACE	*2 months after PEACE*	P *value*
Alleviation of symptom	11.0	8.63	<0.0001
Expert support	7.77	7.20	0.051
Communication in multidisciplinary teams	8.10	7.58	0.052
Communication with the patient and family	8.90	8.01	0.0008
Community coordination	8.64	7.96	0.046

Each domain of PCDS ranges from 3 to 15, and higher score indicates higher levels of perceived difficulties in providing palliative care.
PCDS, Palliative Care Difficulties Scale.

ideal would be to conduct a controlled trial, although we could not find one among previous studies. Further study will be needed using a randomized control design.

Third, it is still unknown whether improving self-reported measures of physicians can measure quality of palliative care. Because the true outcome of primary palliative care education is improving the quality of life of patients and their families, further research is needed using patient-related outcomes.

In conclusion, the PEACE program may improve physicians' knowledge of, practices in, and difficulties with palliative care. Further studies will be needed to clarify the true effectiveness of primary palliative care education.

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