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Attitudes, Beliefs, and Awareness of Graduate Medical Education Trainees Regarding Palliative Care at a Comprehensive Cancer Center

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QUESTION ASKED: What are graduate medical education trainees' attitudes and beliefs regarding palliative care, what is their awareness of the availability and role of palliative care services, and does previous exposure to a palliative care rotation facilitate a better awareness of palliative care?

SUMMARY ANSWER: A vast majority of oncology trainees perceived palliative care services to be beneficial for patient care (92%) and were supportive of mandatory palliative care training (74%). Surgical oncology trainees and trainees with no previous palliative care exposure were significantly less likely to consult palliative care and had significantly less awareness of palliative care.

METHODS: We conducted an institutional review board–approved online survey to determine awareness of palliative care among graduate medical trainees at MD Anderson. One hundred seventy oncology trainees who completed at least 9 months of training in medical, surgical, gynecologic, and radiation oncology fellowship and residency program during the 2013 academic year completed an online questionnaire. Descriptive, univariate, and multivariate analyses were performed.

BIAS, CONFOUNDING FACTOR(S), DRAWBACKS: Although there was a substantial response rate (78%), the results may not be generalizable as the survey was conducted at a single institution. Also, the frequency of palliative care referrals is self-reported.

REAL-LIFE IMPLICATIONS: Our findings suggest that exposure to palliative care training may lead to increased awareness of palliative care among oncologists, and thus, increased overall and early referrals to palliative care. Surgical oncology trainees may benefit from increased exposure to palliative care rotations. More research is needed to characterize the impact of training on referral patterns to palliative care. In the meantime, efforts should be made to include formal palliative care rotations in oncology training. JOP

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Table 2. Awareness of SPC Concepts, Role, and Availability*

SPC Concepts, Role, or Availability	Agree/Disagree	No. (%)
SPC is synonymous with hospice/EOL care.	Disagree	90 (74%)
SPC referral can decrease hope.	Disagree	85 (70%)
I would consult SPC for a patient who has uncontrolled symptoms with **newly** diagnosed cancer.	Agree	90 (74%)
I would consult SPC for a patient who has uncontrolled symptoms and is undergoing **active** treatment for cancer.	Agree	97 (79.5%)
I would consult SPC for a patient who has uncontrolled symptoms and is receiving treatment for **advanced** cancer.	Agree	116 (95%)
I would consult SPC for a patient who has symptoms and is **no longer receiving treatment** for advanced cancer or is in transition to end of life.	Agree	116 (95%)
SPC can decrease overall symptom burden.	Agree	116 (95%)
SPC can decrease health care utilization, such as health care costs, ICU visits, and EC visits.	Agree	108 (89%)

Abbreviations: SPC, supportive/palliative care; EOL, end of life; ICU, intensive care unit; EC, emergency center;
*[a]Decreased awareness, fewer than six of eight questions correct; increased awareness, six to eight of eight questions correct.

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Abstract

Purpose

Palliative care (PC) training and integration with oncology care remain suboptimal. Current attitudes and beliefs of the oncology trainees regarding PC are not fully known. This study was undertaken in an attempt to address this issue.

Participants and Methods

We conducted a survey to determine awareness of PC among graduate medical trainees at a comprehensive cancer center with an established PC program. One hundred seventy oncology trainees who completed ≥ 9 months of training in medical, surgical, gynecologic, and radiation oncology fellowships and residency programs during the 2013 academic year completed an online questionnaire. Descriptive, univariable, and multivariable analyses were performed.

Results

The response rate was 78% (132 of 170 trainees); 10 trainees without hands-on patient care were excluded. Medical (53 of 60 [88%]), gynecologic (six of six [100%]), and radiation oncology (20 of 20 [100%]) trainees reported more awareness of PC compared with surgical oncology (22 of 36 [61%]) trainees (P = .001). One hundred twelve of 122 (92%) perceived PC as beneficial to patients and families. One hundred eight of 122 (89%) perceived that PC can reduce health care costs, 78 (64%) believed that PC can increase survival, and 90 (74%) would consult PC for a patient with newly diagnosed cancer with symptoms. Eighty-two trainees (67%) believed a mandatory PC rotation is important. Trainees with previous exposure to PC rotations were more aware of the role of PC services than were trainees without PC rotation (96% [46 of 48] *v* 74% [55 of 74]; P = .005, respectively).

Conclusion

Surgical trainees and trainees without previous PC rotation had significantly less awareness of PC. Overall, trainees perceived PC as beneficial to patients and capable of reducing costs while increasing survival; they also supported early PC referrals and endorsed a mandatory PC rotation.

ASSOCIATED CONTENT

Appendices & Data Supplements
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INTRODUCTION

Palliative care (PC) developed fairly recently as a specialty and has grown rapidly since being recognized as a subspecialty by the American Board of Medical Subspecialties.[1] PC is defined by the WHO as an

approach that minimizes suffering and improves the quality of life of patients and their families who are facing life-threatening illnesses.[2] PC has been reported as decreasing the length of intensive care unit (ICU) stays, health care spending, and emergency room visits.[3-5]

ASCO proposes that PC be fully integrated as a routine part of comprehensive cancer care in the United States by 2020.[6] In a 2013 report on the state of cancer care and a 2014 report on end-of-life care, the Institute of Medicine (IOM) proposed that PC be integrated into the care of all patients with cancer[7,8].

Palliative medicine programs have developed rapidly at larger hospitals and academic hospitals in the United States over the past decade.[9,10] Early referrals to PC are crucial in allowing clinical teams to provide early relief of physical and psychosocial distress, establish a relationship with patients and families, and facilitate advance care and discharge planning, possibly resulting in preventing both inpatient and ICU death.[3,6] However, only a minority of patients with advanced cancer receive referrals to PC, and those often occur late in the trajectory of illness.[9-13] One study suggests that academic training has a positive impact on the knowledge of future physicians regarding PC.[14] Despite the rapid growth of PC and its integration into many comprehensive cancer centers, there is no consistent requirement for PC training during medical school and residency training in the United States. Trainees report inadequate knowledge and a lack of competence in PC skills and would like more training and education in palliative and end-of-life care.[15-22]

At The University of Texas MD Anderson Cancer Center, the PC program was established in 1999, and PC is delivered in three different settings: five mobile consultation teams, an acute PC unit, and an outpatient supportive care clinic.[23] The fellows and trainees at MD Anderson come into frequent contact with PC during the process of direct patient care and also during rotations in PC.

The primary objective of this study was to evaluate the awareness of PC services among graduate medical education trainees (residents and fellows) at MD Anderson by assessing attitudes and beliefs of trainees regarding PC as well as their awareness of the availability and role of PC services. Secondary aims included determining associations between demographic factors and the usage of PC services at a comprehensive cancer center, and determining associations between previous exposure to PC and awareness of PC services.

PARTICIPANTS AND METHODS

Study Design and Recruitment

This was an institutional review board–approved prospective cross-sectional survey of graduate medical trainees who attended MD Anderson for training between July 2013 and June 2014.

We chose to conduct this study at MD Anderson, as compared with conducting a multicenter study, because these trainees have been exposed to a fully developed and functioning PC program and because there is wide variation in the number and size of PC programs, even at cancer centers.[12] Therefore, it was expected that these trainees would be exposed to more uniform PC training.

Trainees were identified initially with help from the Office of the Department of Graduate Medical Education and were then selected to participate if their specialty involved hands-on patient care, such as in medical oncology, gynecologic oncology, surgical oncology, and radiation oncology.

To be eligible, participants had to be full-time graduate medical trainees at MD Anderson who spent $\geq$ 1 day per week providing direct hands-on care, and trainees also had to have delivered care to at least one patient who died of cancer within the past year.

A complementary $15 value gift card from Subway was sent to trainees, along with a letter requesting the trainee to consider completing the survey questionnaire. An e-mail invitation to participate, with the link to the online survey included, was sent to eligible trainees. Trainees were informed that their responses to the survey would be e-mailed directly to a data manager within the Department of PC who would remove names of participants and anonymize the data, and that the investigators would not have access to any identifiable information. For those participants who did not respond within 10 days, reminder e-mails were sent by the data manager, followed by another e-mail to those who did not respond by day 20. A total of six e-mails (approximately one e-mail per week) was sent to each participant.

Survey Development

The survey was composed of 24 questions and was developed by the research team, which included leaders in PC fellowship education who had expertise in competencies and/or learner evaluation. On the basis of a review of recent recommendations regarding PC from organizations such as ASCO[6] and the IOM,[8,9] recent PC literature,[3,5] and educational goals set forth

by the mandatory PC rotation for medical oncology fellows at MD Anderson, the authors developed eight questions to survey the overall awareness among oncology residents and fellows of the role and availability of PC. Multiple organizations, including the IOM,[8,9] the American Cancer Society, the American Academy of Hospice and Palliative Medicine, and the Center to Advance Palliative Care, have clearly defined the difference between PC and hospice and/or end-of-life care.[24] We sought to ascertain awareness of trainees of this difference by asking whether supportive and palliative care (SPC) is synonymous with hospice care. On the basis of recent recommendations regarding SPC from organizations such as ASCO[6] and the IOM,[8,9] as well as on findings from recent PC literature, we sought to survey the awareness of trainees of when referrals to PC for patients with cancer are appropriate. The IOM recommends integration of PC for patients with cancer at all points of disease trajectory, from diagnosis to end of life.[8,9] Numerous studies, including randomized controlled trials, have shown that PC referrals improve quality of life and possibly survival and decrease symptom burden and health care costs, ICU visits, and emergency room visits.[3,5,25-33] Although some health care professionals perceive that SPC referral decreases hope,[34] there is no study to date that has proven this. We assessed the awareness of trainees of SPC by asking them whether SPC referral can decrease hope.

We also assessed the demographics of the respondent; previous training in PC; frequency of use of the PC service; perception of the usefulness of PC service; awareness of the impact of PC on decreased symptom burden, decreased health care spending, decreased emergency room visits, decreased ICU stays, and increased overall survival; and attitudes and beliefs regarding the benefit of early referral to PC and the benefit of PC education. The survey was intentionally concise to maximize response from the target audience of busy trainees. The full survey questionnaire is available in the Data Supplement.

Data Analyses

This descriptive protocol was based on a sample of 187 trainees who could provide an adequate number of responses for the primary outcome, which was a description of the attitudes and beliefs regarding PC among graduate medical trainees at MD Anderson.

We summarized the data using standard descriptive statistics and contingency tables. Association between categorical variables was examined by χ^2 test or Fisher's exact test. The Wilcoxon rank sum test was used to examine the difference in continuous variables between groups. Both univariable and multivariable logistic regression models were applied to assess the effect of variables of interest on awareness of PC.

All analyses were performed in SAS 9.3 (SAS Institute, Cary, NC). P values $\leq .05$ were considered statically significant.

RESULTS

One hundred thirty-two of 171 (77%) responded and completed the survey. Ten trainees were excluded because they were not involved in hands-on patient care or did not care for a dying patient in the past year. The final sample size was 122 of 132 trainees. Table 1 lists trainee characteristics and compares the attitudes and beliefs of trainees with decreased awareness with those of trainees with increased awareness of SPC services. Table 2 categorizes awareness regarding PC concepts and the availability and role of PC services among graduate medical trainees (residents and fellows) at MD Anderson on the basis of eight questions. The cutoff of answering fewer than six of eight questions correctly equates to less than 75% correct. This was termed as having less awareness of SPC. The correct answers are listed in Table 2. Seventeen percent of trainees (n = 21) were found be less aware, answering fewer than six questions correctly. Fifty of 122 participants (41%) answered all eight questions correctly.

In brief, Table 1 indicates that the majority of trainees were fellows in general medical oncology, and that there was no significant difference in age or sex. A larger proportion of surgical trainees (39%) reported decreased awareness of PC compared with medical (12%), gynecologic (0%), and radiation oncology (0%) trainees ($P < .001$). Fifty of 51 of trainees who referred to PC most or all the time showed more awareness of PC compared with those who referred to PC none of the time (98% *v* 33%, respectively; $P < .001$). Those with increased awareness of SPC were significantly more likely to have trained at MD Anderson for longer than 1 year than were trainees with less awareness (90.5% *v* 71%, respectively [34 of 48]; $P = .004$). Of interest, compared with trainees with more awareness, trainees with less awareness of SPC were more likely to have been in postmedical school training for more than 6 years (94% *v* 75%, respectively; $P = .006$).

Trainees with previous exposure to PC rotations had more awareness of PC than did trainees without PC rotation (96% [46 of 48] *v* 74% [55 of 74], respectively; $P = .002$). A majority (67%) of trainees agreed that mandatory rotation in PC is

Table 1. Clinical Characteristics and Attitudes and Beliefs Regarding SPC

Variable	Total, No. (%)	Decreased Awareness, No. (%)*	Increased Awareness, No. (%)†	*P*‡
Trainees overall	122 (100)	21 (17)	101 (83)	
Specialty				
GYN ONC	6 (5)	0 (0)	6 (100)	< .001
MED ONC	60 (49)	7 (12)	53 (88)	
RAD ONC	20 (16.4)	0 (0)	20 (100)	
SURG ONC	36 (29.5)	14 (39)	22 (61)	
Sex				
Female	54 (44)	5 (9)	49 (91)	.052
Male	68 (56)	16 (23)	52 (76)	
Race/ethnicity				
Asian	47 (38.5)	7 (15)	40 (85)	.902
White	58 (47.5)	12 (21)	46 (79)	
Other	17 (14)	2 (12)	15 (88)	
Years of postmedical school training				
≤ 6	51 (42)	3 (6)	48 (94)	.006
> 6	71 (58)	18 (25)	26 (37)	
Time at MDACC				
≥ 1 year	74 (61)	7 (9.5)	67 (90.5)	.004
Between 6 months and 1 year	48 (39)	14 (29)	34 (71)	
Previous training in PC				
Yes	48 (39)	2 (4)	46 (96)	.002
No	74 (61)	19 (26)	55 (74)	
No. of patients who died in the past 1 year				
≤ 20	72 (59)	17 (24)	55 (76)	.028
> 20	50 (41)	4 (8)	46 (92)	
No. of patients with advanced cancer seen in the past 1 year				
0-7	45 (37)	13 (29)	32 (71)	.009
≥ 8	77 (63)	8 (10)	69 (90)	
No. of times SPC consultation requested in the past 1 year				
≤ 20	88 (72)	20 (23)	68 (77)	.007
> 20	34 (30)	1 (3)	33 (97)	
Type of SPC consultation				
I have not consulted SPC	10 (8)	7 (70)	3 (30)	< .001
Inpatient	38 (31)	7 (18)	31 (82)	
More than one service or setting	56 (46)	5 (9)	51 (91)	
Outpatient	17 (14)	1 (6)	16 (94)	
Frequency of referral				
None of the time	9 (7)	6 (67)	3 (33)	< .001
A little of the time	13 (11)	7 (54)	6 (46)	
Some of the time	49 (40)	7 (14)	42 (86)	
Most of the time	44 (36)	0 (0)	44 (100)	
All of the time	7 (6)	1 (14)	6 (86)	
Consult SPC with uncontrolled symptoms and no active cancer				
Agree	66 (54.1)	5 (7.6)	61 (92)	.003

(continued on following page)

Table 1. Clinical Characteristics and Attitudes and Beliefs Regarding SPC (continued)

Variable	Total, No. (%)	Decreased Awareness, No. (%)*	Increased Awareness, No. (%)†	*P*‡
SPC is beneficial to patients and families				
Agree	112 (92)	17 (15)	95 (85)	.068
Mandatory rotation in PC is important				
Agree	82 (67)	10 (12.2)	72 (88)	.035
Preference for term SC *v* PC				
I prefer neither of the terms	6 (5)	3 (50)	3 (50)	.003
Prefer SC over PC	100 (82)	12 (12)	88 (88)	
Undecided	16 (13)	6 (37.5)	10 (63)	

Abbreviations: GYN ONC, gynecologic oncology; MDACC, MD Anderson Cancer Center; MED ONC, medical oncology; PC, palliative care; RAD ONC, radiation oncology; SC, supportive care; SPC, supportive and palliative care; SURG ONC, surgical oncology.
*Fewer than six of eight questions correct.
†Six to eight of eight questions correct.
‡Associations between trainees with decreased versus increased awareness were measured with χ^2 and Fisher's exact tests.

important. Those with decreased awareness of PC were less likely to agree that a mandatory rotation is important (12% *v* 88%, $P = .035$), but 10 of 21 (48%) of those reporting decreased awareness of PC felt that a mandatory rotation was needed. Overall, trainees (100 of 122 [82%]) strongly preferred using the term supportive care over PC ($P = .003$). One hundred twelve trainees (92%) perceived PC as beneficial to patients and families. Of those surveyed, 90 (74%) would consult PC for a patient with newly diagnosed cancer with symptoms, 108 (89%) perceived that PC can reduce health care costs, 78 (64%) perceived that PC can increase survival, and 37 (30%) perceived that PC referral decreased hope (Table 2).

Table 3 indicates that in comparison with other specialties, surgical trainees more commonly did not refer to SPC ($P < .001$). Surgical trainees more commonly would not consult SPC for symptomatic patients with newly diagnosed cancer ($P = .009$) nor for those undergoing active primary treatment of cancer ($P = .004$). Compared with trainees from other specialties, surgical trainees do not believe a referral to PC increases survival ($P < .001$). On univariable logistic regression analyses, compared with surgical oncology specialty, radiation oncology specialty (odds ratio [OR], 7.44; 95% CI, 2.39 to 23.22; $P < .001$) and previous PC training (OR, 2.42; 95% CI, 1.20 to 4.90) were associated with increased awareness of SPC services. Multivariable regression revealed

Table 2. Awareness of SPC Concepts, Role, and Availability

SPC Concept, Role, or Availability	Agree or Disagree	No. (%)
SPC is synonymous with hospice and/or EOL care.	Disagree	90 (74)
SPC referral can decrease hope.	Disagree	85 (70)
I would consult SPC for a patient who has uncontrolled symptoms with newly diagnosed cancer.	Agree	90 (74)
I would consult SPC for a patient who has uncontrolled symptoms and is undergoing active treatment of cancer.	Agree	97 (79.5)
I would consult SPC for a patient who has uncontrolled symptoms and is receiving treatment for advanced cancer.	Agree	116 (95)
I would consult SPC for a patient who has symptoms and is no longer receiving treatment for advanced cancer or is in transition to EOL.	Agree	116 (95)
SPC can decrease overall symptom burden.	Agree	116 (95)
SPC can decrease health care use, such as health care costs, ICU visits, and EC visits.	Agree	108 (89)

Abbreviations: EC, emergency center; EOL, end of life; ICU, intensive care unit; SPC, supportive and palliative care.

Table 3. Comparison Among Specialties

Variable	Total, No. (%)	GYN ONC, No. (%)	MED ONC, No. (%)	RAD ONC, No. (%)	SURG ONC, No. (%)	P*
Frequency of referral						
None of the time	9 (7)	0 (0)	2 (22)	0 (0)	7 (78)	< .001
A little of the time	13 (11)	0 (0)	4 (31)	0 (0)	9 (69)	
Some of the time	49 (40)	2 (4.1)	25 (51)	7 (14)	15 (31)	
Most of the time	44 (36)	3 (7)	24 (54.5)	12 (27)	5 (11)	
All of the time	7 (6)	1 (14)	5 (71)	1 (14)	0 (0)	
Type of SPC consultation						
I have not consulted palliative care.	10 (8)	0 (0)	1 (10)	2 (20)	7 (70)	< .001
Inpatient Supportive Care consultation team	38 (31)	2 (5)	18 (47)	1 (3)	17 (45)	
More than one service or setting	56 (46)	4 (7)	32 (57)	9 (16)	11 (20)	
Outpatient Supportive Care Center	17 (14)	0 (0)	9 (53)	8 (47)	0 (0)	
I would consult SPC for a patient who has uncontrolled symptoms with newly diagnosed cancer.						
Disagree	32 (26)	1 (3)	14 (44)	1 (3)	16 (50)	.009
Agree	90 (74)	5 (6)	46 (51)	19 (21)	20 (22)	
I would consult SPC for a patient who has uncontrolled symptoms and is undergoing primary treatment of cancer.						
Disagree	25 (20.5)	1 (4)	10 (40)	0 (0)	14 (56)	.004
Agree	97 (79.5)	5 (5)	50 (51.5)	20 (21)	22 (23)	
SPC referral increases survival.						
Disagree	44 (36)	3 (7)	15 (34)	3 (7)	23 (52)	< .001
Agree	78 (64)	3 (4)	45 (58)	17 (22)	13 (17)	

Abbreviations: GYN ONC, gynecologic oncology; MED ONC, medical oncology; RAD ONC, radiation oncology; SPC, supportive and palliative care; SURG ONC, surgical oncology.
*Associations between trainees with decreased versus increased awareness were measured with χ^2 and Fisher's exact tests.

the radiation oncology specialty, as compared with the surgical oncology specialty (OR, 5.29; 95% CI, 1.63 to 17.23; $P = .005$), and previous PC training (OR, 2.5; 95% CI, 1.03 to 6.07; $P = .042$) were associated with increased awareness of SPC services.

DISCUSSION

The results of our survey demonstrate that trainees with less awareness of PC are less likely to have received PC training and are also more likely to be surgeons (Appendix Table A1, online only). It may be that surgical trainees see fewer patients at the end of life because they may be seeing patients who are in the early stages of diagnosis or treatment and are seeking a curative treatment, and, thus, surgeons may be referring infrequently to PC. More research is needed to define the association between length of training in PC and referral patterns. The surgical oncology fellowship at MD Anderson is shorter than that of the other trainee programs, and, thus, it may be that the surgeons are less exposed to the PC program. Studies have shown that decreased exposure and education is associated with less use of PC,[34-40] and our findings support this.

Previous PC training, as well as time spent at MD Anderson, had a strong impact on awareness of PC as well as on referral pattern (Appendix Table A1). Lack of training in PC may result in less use of the PC service, which may reflect on overall patient care and quality of care. Qualitative studies concluded that previous training in PC increases the competencies of trainees with end-of-life care[20,21] and general patient care.[41] Two thirds of the trainees surveyed agreed that mandatory rotations in PC should be implemented in medical schools and residency training programs. Most oncology fellowships across the nation do not have mandatory rotations in PC.[12] Several studies that surveyed trainees have shown that training is inadequate but desired by trainees.[15-22] Currently, standardized curricula for undergraduate and graduate trainees are being developed.[42]

One of the secondary outcomes of a randomized control trial of early PC access was that patients referred to PC experienced longer survival.[4] We were surprised that although there was little evidence to support this finding at the time our survey was conducted, an overwhelming percentage of the trainees felt that PC referral can increase survival. It is encouraging that a study published after our survey was completed confirmed that early PC may improve survival.[43]

We found that trainees with more awareness of SPC believe that SPC should be consulted for patients with no active cancer but with uncontrolled symptoms—this needs to be explored further. Perhaps their experience in having thephysical and emotional distress of their patients alleviated after referral to SPC may prompt them to refer their distressed patients with cancer without any active disease to PC. As such, the majority of trainees (92%) reported that SPC is beneficial to patients and families.

Our findings suggest that surgical oncology trainees may need to be targeted for PC education. Our findings are supported by a recent study that showed that surgical oncology fellows believe end-of-life care training is a necessary but lacking part of their training.[44] Surgical oncology trainees at MD Anderson work closely with anesthesiologists and the acute pain service for the management of postoperative pain, and, thus, surgical trainees are likely to consult with them more often than with PC. Of interest, we found that a longer time spent in postmedical school training indicated less awareness and less use of PC. Surgical trainees have a much longer postmedical school training period compared with the other specialties, which may be a possible explanation for our finding.

Medical oncology trainees at MD Anderson were highly supportive of PC. A possible explanation is their increased exposure to our service, because these trainees have a mandatory 1-month rotation in PC during which they work closely with palliative medicine fellows and faculty in both outpatient and inpatient supportive care and PC settings.

Those who believe SPC can decrease hope may need to be targeted for increased PC exposure and education, although, to our knowledge, there has been no study that has proven SPC referral decreases hope. This perception from the perspective of the health care provider needs to be explored further. In our previous study, however, we observed that our referring medical oncologists and midlevel providers perceived the term PC to be associated with a reduction in hope.[45] Therefore, our objective in this study was to confirm whether trainees had the same perception. Studies have suggested that provider perceptions of PC removing hope may be barriers to timely referrals to SPC.[34]

Of importance, although the academic department and the Palliative Care Unit are called Palliative Care, the outpatient clinic and inpatient mobile consult service are both called Supportive Care. This has been shown to be associated with increased and earlier referrals.[45,46] Our findings confirmed a strong preference for the name Supportive Care. Perhaps the name change from PC may facilitate an improved perception among trainees at other programs.

Our study has several limitations. First, the study was conducted at a comprehensive cancer center with a well-established PC program and may not be generalizable to other centers. Although the response rate was 82%, there could a potential selection bias caused by those who chose not to answer the survey.

The survey questionnaire we used to assess awareness of PC is not a validated tool. To our knowledge, there is no tool at present that tests the awareness of PC and its concepts, availability, and role among nonspecialized providers. Our intention was not to construct an instrument or tool but simply to survey the attitudes and beliefs of oncology trainees. Questions and statements regarding awareness of PC roles and services again were based on recommendations, statements, and quality measures suggested by ASCO, the IOM, the Center to Advance Palliative Care, and recent PC literature.[3,5,8,9,25-33]

The responses to the survey are both surprising and encouraging in that there was a highly positive attitude toward PC. In the past, we have suggested that the adoption of PC by institutions requires a culture shift.[47] In 2008, the European Society of Medical Oncology found that 15% of 895 medical oncologists surveyed had negative views regarding involvement of PC.[48] A more recent study found that $\leq$ 22% of 50 oncologists had negative views regarding SPC.[49] Our findings suggest that exposure to PC referrals and education has dramatically changed the culture among oncologists (in training) toward PC.

In conclusion, trainees in medical, surgical, radiation, and gynecologic oncology at a comprehensive cancer center were highly aware and supportive of PC, and a majority endorsed a mandatory PC rotation in medical school and residency, although this is not widely available nationwide. Increased awareness of PC, as compared with less awareness, leads to overall increased referrals and increased early referrals to PC. Surgical oncology trainees may benefit from increased

exposure to PC rotations. More research is needed to characterize the impact of training on referral patterns to PC. JOP

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Attitudes, Beliefs, and Awareness of Graduate Medical Education Trainees Regarding Palliative Care at a Comprehensive Cancer Center

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Appendix

Table A1. Evaluating Effects on Awareness of Supportive and Palliative Care

	Univariable Logistic Regression: Increased Awareness			Multivariable Logistic Regression: Increased Awareness		
Variable	**OR**	**95% CI**	***P***	**OR**	**95% CI**	***P***
Specialty						
GYN ONC	4.41	0.81 to 23.96	.085	3.70	0.65 to 20.98	.138
MED ONC	2.52	1.14 to 5.57	.022	1.48	0.58 to 3.80	.409
RAD ONC	7.44	2.39 to 23.22	< .001	5.29	1.63 to 17.23	.005
SURG ONC	1.00			1.00		
Previous palliative care training						
Yes	2.42	1.20 to 4.90	.013	2.50	1.03 to 6.07	.042
No	1.00			1.00		

Abbreviations: GYN ONC, gynecologic oncology; MED ONC, medical oncology; OR, odds ratio; RAD ONC, radiation oncology; SURG ONC, surgical oncology.