

# Who Provides Psychosocial Follow-Up Care for Post-Treatment Cancer Survivors? A Survey of Medical Oncologists and Primary Care Physicians

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## ABSTRACT

### Purpose

Addressing psychosocial needs, including key components of psychologic distress, physical symptoms, and health promotion, is vital to cancer follow-up care. Yet little is known about who provides psychosocial care. This study examined physician-reported practices regarding care of post-treatment cancer survivors. We sought to characterize physicians who reported broad involvement in (ie, across key components of care) and shared responsibility for psychosocial care.

### Methods

A nationally representative sample of medical oncologists ( $n = 1,130$ ) and primary care physicians (PCPs;  $n = 1,021$ ) were surveyed regarding follow-up care of breast and colon cancer survivors.

### Results

Approximately half of oncologists and PCPs (52%) reported broad involvement in psychosocial care. Oncologist and PCP confidence, beliefs about who is able to provide psychosocial support, and preferences for shared responsibility for care predicted broad involvement. However, oncologists' and PCPs' perceptions of who provides specific aspects of psychosocial care differed ( $P < .001$ ); both groups saw themselves as the main providers. Oncologists' confidence, PCPs' beliefs about who is able to provide psychosocial support, and oncologist and PCP preference for models other than shared care were inversely associated with a shared approach to care.

### Conclusion

Findings that some providers are not broadly involved in psychosocial care and that oncologists and PCPs differ in their beliefs regarding who provides specific aspects of care underscore the need for better care coordination, informed by the respective skills and desires of physicians, to ensure needs are met. Interventions targeting physician confidence, beliefs about who is able to provide psychosocial support, and preferred models for survivorship care may improve psychosocial care delivery.

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## INTRODUCTION

Growth in the number of cancer survivors and their prolonged survival after diagnosis<sup>1,2</sup> has called increased attention to the ongoing medical and psychosocial needs of this population.<sup>3,4</sup> Post-treatment cancer care in the United States is poorly coordinated across multiple providers, with no clear delineation of responsibility<sup>5</sup> and no formal transition from oncologists to primary care physicians (PCPs).<sup>3,6</sup> Given the high prevalence of unmet psychosocial needs in post-treatment cancer survivors,<sup>7-9</sup> lack of coordination may be particularly true of psychosocial care, an integral part of quality care after cancer.<sup>3,4</sup>

Psychosocial care, as defined by Jacobsen,<sup>10</sup> encompasses multiple key components related to psychologic, behavioral, and social functioning, including treatment of psychologic distress, promotion of healthy behaviors, and management of physical symptoms (eg, fatigue) that respond to psychosocial interventions. Although unmet psychosocial needs are adversely associated with quality of life,<sup>3,4,7-13</sup> adherence to medical treatments,<sup>4,14</sup> and survival,<sup>15-21</sup> physicians often fail to recognize or treat these issues<sup>3,22-33</sup> or to refer to appropriate specialists. Fewer than half of oncologists and PCPs are confident in their knowledge about psychosocial problems after cancer, and providers disagree about the ability of PCPs to provide psychosocial support

after cancer.<sup>34</sup> Meeting the psychosocial needs of cancer survivors requires a coordinated approach for delivering psychosocial services. Understanding who is broadly involved in (ie, involved across key components) assessing psychosocial health and treating or providing treatment referral, as well as providers' approach to this care (ie, whether they perceive sole responsibility or responsibility shared with other providers) and the implications for coordinating care, would illuminate gaps to address in the future to improve psychosocial care.

To inform a new approach to psychosocial survivorship care, the current study aimed to characterize physicians who report broad involvement in psychosocial care, examine differences in physician-reported practices for specific aspects of psychosocial care delivery by provider group (oncologists v PCPs), and characterize physicians who perceived themselves as having shared responsibility for most aspects of psychosocial care. Although examining broad involvement speaks to the breadth of physician involvement in psychosocial care, examining perceptions of shared responsibility speaks to providers' approach to psychosocial care.

## METHODS

### Sample and Data Collection

The Survey of Physician Attitudes Regarding the Care of Cancer Survivors (SPARCCS) assessed physician-perceived practices, knowledge, and attitudes regarding post-treatment follow-up care of early-stage breast and colon cancer survivors (surveys can be requested at <http://healthservices.cancer.gov/surveys/sparccs/>). SPARCCS focused on these cancers because of the high prevalence of survivors and their long survivorship periods.<sup>34</sup> Methods for SPARCCS have been reported elsewhere.<sup>34</sup> Study approval was obtained from the National Cancer Institute Institutional Review Board and the US Office of Management and Budget. Questionnaires were mailed in 2009 to a nationally representative sample of medical oncologists and PCPs generated from the American Medical Association Physician MasterFile using stratified sampling to achieve even coverage across specialty, census region, Metropolitan Statistical Area (MSA), age, sex, and mail undeliverable status.

The SPARCCS sample consisted of 1,130 oncologists and 1,072 PCPs (overall weighted response rate, 57.7%). Nonrespondents and respondents were similar on all variables examined (age, sex, board status, specialty, region, and US v foreign training). The current analytic sample excluded PCPs who reported having never seen a breast or colon cancer survivor in clinical practice ( $n = 51$ ). Excluded PCPs were more likely to be male, nonwhite, not board certified, from the south or west census region, and foreign trained ( $P < .05$ ).

### Measures

Most survey items were adapted from previous physician surveys.<sup>5,35-37</sup> The item assessing confidence in knowledge was developed by SPARCCS investigators.<sup>34</sup> Relevant survey items are available in the Data Supplement.

**Demographic and practice characteristics.** Physicians provided their race/ethnicity, percent of time spent on patient care, number of patients seen per week, number of patients ever diagnosed with breast or colon cancer seen per week (oncologists) or per year (PCPs), percentage of patients uninsured or insured by Medicaid, and salary recovery.<sup>36,37</sup> Age, sex, specialty, census region, and MSA were obtained from the American Medical Association MasterFile.

**Provision of psychosocial follow-up care.** Seven components of psychosocial care were evaluated: two for psychologic care (evaluating patients for adverse psychologic events related to cancer or its treatment, treating depression or anxiety), two for health promotion (counseling on diet/physical activity, counseling on smoking cessation), and three for symptom management (treating fatigue, sexual dysfunction, and pain related to cancer). Most questions referred to care for survivors within 5 years of completing treatment for breast or colon cancer. Evaluation of patients for adverse psychologic events

was assessed separately regarding breast and colon cancer survivors. Because of similarity of responses, only the items related to breast cancer are presented.

Physicians indicated their usual role in providing each aspect of psychosocial care<sup>36,37</sup> as follows: "I order or provide this service myself"; "the PCP (for oncologists) or the oncologist (for PCPs) orders or provides this service"; "the PCP/oncologist and I share responsibility for ordering or providing this service"; "another specialist orders or provides this service"; and "I am not involved in this care." Responses were recoded into categories of physician role: sole provider ("I order...myself"), PCP provides (for oncologists) or oncologist provides (for PCPs), shared provision ("the PCP/oncologist and I share responsibility. . ."), and not involved ("another specialist orders. . ." and "I am not involved. . .").

**Broad involvement.** To examine the breadth of physician involvement in psychosocial care, we classified physicians as having broad involvement (yes or no) separately for each psychosocial care domain (psychologic, health promotion, symptom management). Broad involvement was defined by reporting any responsibility (sole or shared provision) for all items within each domain. Next, we created an indicator of broad involvement in overall psychosocial care (responsibility for all seven items described).

**Perceptions of shared and sole responsibility for care.** To examine providers' approach to psychosocial care (shared v sole) among those involved in psychosocial care, we characterized physicians as having primarily shared provision (yes or no) separately for each care domain if they reported shared responsibility for all items within each domain. We also created an overall indicator of shared involvement defined by shared provision for  $\geq$  five of seven psychosocial items (ie, generally shared approach to care reflected by  $\geq$  half of the seven items and  $\geq$  one item from each domain). Similarly, we classified physicians as having primarily sole provision for each care domain and overall psychosocial care. Some physicians reporting a mixed approach did not meet criteria for having either a shared or sole approach.

**Confidence in knowledge.** Physicians reported their confidence regarding their knowledge of potential adverse psychosocial outcomes of cancer or its treatment for breast and colon cancers (separately).<sup>34</sup> One two-level variable was created: very confident (responded very confident for breast and colon cancer) versus less confident (all others).

**Beliefs about PCPs.** Physicians indicated agreement with the statement that "PCPs are better able than oncologists to provide psychosocial support for survivors of cancer" (strongly agree to strongly disagree) for breast and colon cancers (separately).<sup>35</sup> One three-level variable was created: agree (somewhat or strongly agree for both cancers), neither agree nor disagree, and disagree (somewhat or strongly disagree for both cancers).

**Preferred model of follow-up care.** Physicians indicated their preferred model of survivorship care (not specific to psychosocial care): primary responsibility assigned to oncologists, PCPs, or specialized survivorship clinics or shared responsibility between oncologists and PCPs.<sup>5</sup> Responses were recoded according to the respondent's role: primary responsibility, shared responsibility, or someone else has primary responsibility.

### Statistical Analysis

SAS (version 9.2; SAS Institute, Cary, NC) survey procedures were used to incorporate sampling weights into analyses. Estimates represent the entire population of practicing medical oncologists and PCPs and account for survey design and nonresponse.<sup>38</sup>  $\chi^2$  tests evaluated differences by physician group in broad involvement, provision of specific aspects of psychosocial care, and primarily sole provision and primarily shared provision. Within each of these three research questions, a Bonferroni correction controlled the family-wise error rate ( $\alpha = 0.0125$ ;  $\alpha = 0.007$ ;  $\alpha = 0.006$ ).

Multiple logistic regression (stratified by physician group) was used to predict broad involvement for overall psychosocial care. To balance parsimony and inclusiveness, predictors (demographics, practice characteristics, confidence in knowledge, beliefs about PCPs, preferred model of survivorship care) were included in the adjusted model if they were associated with broad involvement in bivariate tests ( $P < .2$ ). Similar methods were used to predict primarily shared provision of psychosocial care; however, these models were limited to physicians classified as either having primarily shared provision or primarily sole provision.

**Table 1.** Physician Characteristics

Characteristic	Oncologists		PCPs		P*
	No.	%†	No.	%†	
Total No.	1,130		1,021		
Race/ethnicity					< .001
Non-Hispanic white	726	62.7	711	70.7	
Hispanic white	36	3.2	37	4.1	
Non-Hispanic black	25	2.2	46	4.9	
Asian	299	28.2	174	15.1	
Other/multiple	13	1.1	11	1.1	
Sex					< .001
Male	837	72.9	679	64.1	
Female	293	27.1	342	35.9	
Region					.016
Northeast	284	25.1	216	20.7	
Midwest	243	21.5	257	23.6	
South	385	33.9	327	34.4	
West	218	19.5	221	21.3	
MSA					.012
Population ≥ 1 million	728	65.6	623	61.5	
All other MSAs	402	34.4	398	38.5	
Primary specialty					—
Medical oncology	553	47.8	—	—	
Other (hematology, radiation oncology, surgical oncology)	11	1.0	—	—	
Hematology/oncology	566	51.3	—	—	
General internal medicine	—	—	480	37.8	
Family medicine	—	—	458	43.4	
Obstetrics gynecology	—	—	82	18.7	
Other	—	—	1	0.1	
No. of patients seen per week					< .001
≤ 50	320	28.9	140	13.6	
51-100	606	53.4	541	53.0	
≥ 101	193	16.4	321	31.7	
No. of breast or colon cancer survivors seen per week (tertiles)					—
Low (0-21)	358	32.9	—	—	
Medium (22-39)	362	31.7	—	—	
High (≥ 40)	404	35.4	—	—	
No. of breast or colon cancer survivors seen per year (tertiles)					—
Low (0-14)	—	—	309	32.4	
Medium (15-34)	—	—	327	33.5	
High (≥ 35)	—	—	355	34.2	
Percent of time spent on patient care (median split)					—
Low (20-89)	554	48.7	—	—	
High (90-100)	576	51.3	—	—	
Low (20-93)	—	—	494	49.9	
High (94-100)	—	—	527	50.1	
Percent of patients uninsured or insured by Medicaid					< .001
≤ 5	101	8.7	166	17.2	
6-10	260	22.3	217	19.9	
11-20	361	31.8	312	30.9	
≥ 21	338	30.0	294	29.2	
Salary based on productivity					.019
Yes	387	34.0	355	33.4	
No/do not know	666	59.2	636	63.8	
Salary dependent on satisfaction surveys and/or measures of quality					< .001
Yes	121	11.1	202	18.4	
No/do not know	981	86.4	802	80.2	
Preferred model for overall survivorship care delivery					< .001
Oncologists and PCPs share responsibility	182	16.0	407	37.3	
I have sole primary responsibility	643	56.5	103	9.3	
Someone else (eg, oncologists, PCPs, or specialized survivorship clinics) has primary responsibility	264	24.0	446	47.2	

(continued on following page)

**Table 1.** Physician Characteristics (continued)

Characteristic	Oncologists		PCPs		<i>P</i> *
	No.	%†	No.	%†	
Age, years					.003
Mean	47.2		48.3		
SE	0.2		0.3		

Abbreviations: MSA, Metropolitan Statistical Area; PCP, primary care physician.

\*Differences by specialty evaluated by  $\chi^2$  or *t* tests.

†Percentages do not always sum to 100 within oncologists and PCPs because of missing data.

Item nonresponse was low and was accounted for by including a missing category in frequency distributions and  $\chi^2$  tests (output suppressed). For multiple logistic regression models, respondents with missing values were deleted listwise. Oncologists excluded because of missingness were older and less likely to be board certified; excluded PCPs were more likely to be foreign trained. Among both groups, those excluded were more likely to be nonwhite or of unknown race/ethnicity (all *P* < .05).

## RESULTS

Physician characteristics are listed in Table 1. Oncologists were more likely to be male, Asian, from the northwest, and from a large MSA and to prefer primary responsibility for follow-up, see a greater proportion of uninsured patients or patients insured by Medicaid, and see  $\leq 50$  total patients per week, but they were less likely to be paid by salary dependent on satisfaction surveys and/or measures of quality (all *P* < .05). However, oncologists saw approximately 35 breast or colon cancer survivors per week, whereas PCPs saw approximately 38 survivors per year.

### Broad Physician Involvement in Psychosocial Follow-Up Care

Most oncologists and PCPs reported broad involvement (either sole or shared responsibility for all items) within the psychologic care, health promotion, and physical symptoms domains, and approximately half of oncologists and PCPs indicated broad involvement across all seven aspects of care (Table 2). A greater percentage of PCPs indicated broad involvement in health promotion (*P* < .001).

Over and above demographic and practice variables, in stratified multivariable models, oncologists and PCPs who were very confident in their knowledge were more likely to indicate broad involvement across all seven aspects of psychosocial care (all *P* < .01; Table 3). Oncologists who disagree, and PCPs who agree, that PCPs are better able to provide psychosocial support were more likely to report broad involvement. Finally, PCPs who preferred a shared care model were more likely to report broad involvement (all *P* < .05).

### Provision of Specific Aspects of Psychosocial Care

Oncologists' and PCPs' reports of psychosocial care provision differed (*P* < .001) for all seven items (Fig 1). Notably, oncologists overwhelmingly reported sole provision for treating pain related to cancer (82.7%), whereas they reported a relative lack of involvement in treating sexual dysfunction (22.2% sole provision, 42.4% shared provision, 15.0% PCP, 18.6% no involvement). Over 60% of PCPs indicated sole provision for treating depression or anxiety, counseling for smoking cessation, and treating sexual dysfunction.

### Perceptions of Shared Responsibility for Psychosocial Follow-Up Care

Oncologists were more likely than PCPs to report shared provision for psychologic care, health promotion, and psychosocial care overall, whereas PCPs were more likely to report shared provision for management of physical symptoms and sole provision for health promotion and psychosocial care overall (all *P* < .001; Table 2).

Over and above demographic and practice variables, in stratified multivariable models, oncologists who were confident in knowledge,

**Table 2.** ONCs (n = 1,130) and PCPs (n = 1,021) Reporting Broad Involvement, Sole Provision, and Shared Provision in Psychosocial Care

Domain of Care	Broad Involvement*				Primarily Sole Provision†				Primarily Shared Provision‡			
	ONCs (%)	PCPs (%)	$\chi^2$ §	<i>P</i>	ONCs (%)	PCPs (%)	$\chi^2$	<i>P</i>	ONCs (%)	PCPs (%)	$\chi^2$	<i>P</i>
Psychologic care (two items)	78.5	80.3	1.80	.1832	23.2	27.7	3.00	.054	31.2	22.0	11.12	< .001
Health promotion (two items)	79.3	87.2	25.48	< .001	31.2	51.2	46.99	< .001	36.6	22.7	19.93	< .001
Symptom management (three items)	64.0	61.1	2.15	.1454	20.0	18.7	0.31	.734	7.5	12.6	8.96	< .001
All components (seven items)	52.3	53.5	0.68	.4108	28.0	37.7	14.03	< .001	31.4	19.9	17.79	< .001

Abbreviations: ONC, oncologist; PCP, primary care physician.

\*Broad involvement was defined by reporting either sole or shared provision of all items assessed within a specific domain (psychologic care, health promotion, or symptom management) or across all seven psychosocial items.

†Sole provision was defined by reporting sole responsibility for treatment or referral for all items assessed within a specific domain (psychologic care, health promotion, or symptom management) and for  $\geq$  five of seven psychosocial items.

‡Shared provision was defined by reporting shared responsibility for treatment or referral for all items assessed within a specific domain (psychologic care, health promotion, or symptom management) and for  $\geq$  five of seven psychosocial items.

§ $\chi^2$  tests of differences by specialty.

||*P* values in bold are below the Bonferroni-adjusted significance criteria of *P* < .0125 for broad involvement or *P* < .006 for sole and shared provision.

**Table 3.** Logistic Regression Models for Broad Involvement Across Seven Components of Psychosocial Care

Characteristic	Oncologists (n = 973)			PCPs (n = 872)		
	OR	95% CI	Wald <i>z</i>	OR	95% CI	Wald <i>z</i>
Age	0.98*	0.97 to 0.99				
Sex						
Male				Ref		
Female				0.74	0.53 to 1.03	
Race						1.75
Non-Hispanic white				Ref		
Asian				1.39	0.88 to 2.19	
Other/multiple				0.78	0.42 to 1.44	
Region			2.73†			2.80†
Northeast	Ref			Ref		
Midwest	0.89	0.59 to 1.36		1.66†	1.00 to 2.75	
South	1.44	0.98 to 2.12		1.11	0.71 to 1.71	
West	1.08	0.75 to 1.56		1.8†	1.10 to 2.95	
MSA						
Population > 1 million				Ref		
All other MSAs				1.35	0.98 to 1.86	
No. of patients with breast or colon cancer seen per week/year			1.01			0.87
Low	Ref			Ref		
Medium	1.30	0.90 to 1.86		0.91	0.63 to 1.32	
High	1.13	0.80 to 1.60		1.18	0.80 to 1.75	
No. of patients seen per week			3.08†			
≤ 50	Ref					
51-100	1.36	0.97 to 1.89				
≥ 101	1.65*	1.09 to 2.50				
Percentage of patients uninsured or insured by Medicaid						1.49
≥ 21				Ref		
11-20				1.28	0.84 to 1.96	
6-10				1.46	0.96 to 2.22	
≥ 5				0.94	0.60 to 1.48	
Salary dependent on productivity						
No/unknown	Ref					
Yes	1.18	0.89 to 1.56				
Salary dependent on satisfaction surveys and/or measures of quality						
No/unknown				Ref		
Yes				1.25	0.79 to 1.98	
Confidence in knowledge						
Less confident	Ref			Ref		
Very confident	1.73‡	1.33 to 2.25		2.02‡	1.37 to 2.99	
PCPs are better able than oncologists to provide psychosocial support			4.18†			13.58‡
Disagree	Ref			Ref		
Neither agree nor disagree	0.73*	0.53 to 0.99		1.44	0.85 to 2.46	
Agree	0.43‡	0.23 to 0.80		3.05‡	1.94 to 4.80	
Preferred model of care delivery			1.07			15.89‡
Oncologists and PCPs share responsibility	Ref			Ref		
I have sole primary responsibility	0.94	0.63 to 1.40		1.51	0.76 to 2.98	
Someone else has primary responsibility	0.75	0.48 to 1.16		0.40‡	0.27 to 0.57	

NOTE. Multivariable models include all variables associated with broad involvement in bivariate models at  $P < .02$ .

Abbreviations: MSA, Metropolitan Statistical Area; OR, odds ratio; PCP, primary care physician; Ref, reference group.

\* $P < .01$ .

† $P < .05$ .

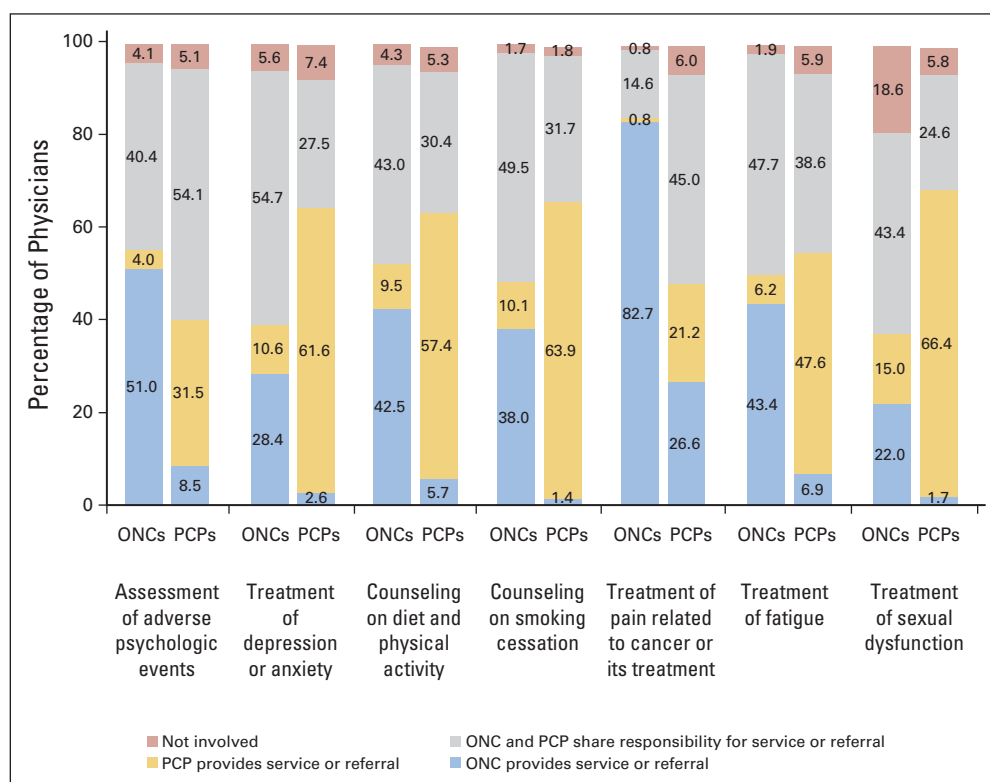
‡ $P < .001$ .

neither agreed nor disagreed that PCPs were better able to provide psychosocial support, and preferred care models other than shared care were less likely to be classified as having primarily shared provision (all  $P < .01$ ; Table 4). PCPs who agreed they were better able to provide psychosocial support and preferred primary responsibility for overall survivorship care were also less likely to be classified as having primarily shared provision (all  $P < .01$ ).

## DISCUSSION

This study presents current physician-perceived involvement in delivering psychosocial care, defined broadly,<sup>10</sup> to post-treatment cancer survivors. Approximately half of oncologists and PCPs reported broadly treating psychosocial needs. In light of the recognition of





**Fig 1.** Physician-reported practices for delivery of psychosocial follow care. Percentages do not always sum to 100 within oncologists (ONCs) and primary care physicians (PCPs) because of missing data. For treatment of sexual dysfunction, 18.6% of oncologists said they were not involved, such that 14.2% of oncologists reported “another specialist orders or provides this care” and 4.2% reported “I am not involved in this care.” There were significant differences by physician group in reported provision of care for all seven items assessed ( $P < .001$ ): assessment of adverse psychologic events:  $\chi^2 = 22.2$ ; treatment of anxiety or depression:  $\chi^2 = 72.0$ ; counseling on diet and physical activity:  $\chi^2 = 14.0$ ; counseling on smoking cessation:  $\chi^2 = 48.1$ ; treatment of pain related to cancer or its treatment:  $\chi^2 = 227.4$ ; treatment of fatigue:  $\chi^2 = 6.3$ ; treatment of sexual dysfunction:  $\chi^2 = 120.7$ .

psychosocial care by the Institute of Medicine as integral to quality survivorship care,<sup>3,4</sup> these perceptions of involvement are mixed news. The robust association between confidence and broad involvement suggests that additional training might increase the depth and breadth of involvement in psychosocial care for PCPs and oncologists. However, expecting a single provider to be solely responsible for all survivors' psychosocial needs may not be feasible in today's health care system. Survivors can receive comprehensive care from multiple providers if care is well coordinated, with clear delineation of responsibility for care.

These results suggest that oncologists' and PCPs' perceptions of who delivers specific aspects of care differ substantially; each frequently endorsed his or her own provider group as involved in this care and rarely endorsed the other as usual providers. Similar to previous work<sup>5,39</sup> demonstrating that both oncologists and PCPs perceived themselves as the prominent providers of surveillance and general preventive health care, the overlap between oncologist- and PCP-reported psychosocial care provision seems, at first glance, to reflect duplication of services. However, that is inconsistent with research documenting inadequate provision of psychosocial interventions and survivors' perceptions of unmet needs.<sup>3,7,9,11,23,26,40-42</sup> Although providers feel responsible for providing psychosocial treatment, they may not regularly inquire about or recognize survivors' psychosocial needs.<sup>29,31,32</sup> These results also may indicate a lack of clear delineation of responsibility among providers or lack of explicit transfer of responsibility for survivors' health care from oncology to primary care after cancer treatment because of a lack of clinical guidelines for post-treatment psychosocial care.<sup>10</sup> Apparent overlap in perceived responsibility might also reflect involvement at different times (eg, perhaps oncologists responded regarding involvement within the

first year of treatment, whereas PCPs responded regarding involvement closer to 5 years post-treatment).

Physician perceptions of the current delineation of responsibility for care inform efforts to delineate who should provide which components of care. PCPs were more likely than oncologists to report broad involvement in health promotion and to perceive such care as their sole responsibility. Thus, health promotion may be an area that could be primarily transferred to primary care rather than maintained in oncology. Alternatively, perceptions of managing physical symptoms were dependent on the symptom assessed and revealed the lowest proportions of broad involvement. Oncologists overwhelmingly identified themselves as the sole providers for cancer-related pain. Conversely, two thirds of PCPs reported sole provision for treating sexual dysfunction, whereas oncologists more readily endorsed PCPs or other specialists as the providers for sexual dysfunction, despite the fact that sexual dysfunction is a concern for many survivors.<sup>43</sup> Delineation of responsibility for treatment of numerous diverse physical symptoms after cancer (eg, cognitive complaints, lymphedema) is complex and requires further investigation.

Current shared approaches to care were predicted by physician attitudes about the abilities of other providers and preferences for models of survivorship care other than those assigning primary responsibility to oncologists. Efforts may be needed to address concerns of physicians with relatively independent approaches to survivorship care if shared approaches are to be more readily accepted by the medical community. Other unmeasured physician preferences (eg, oncologists' desire to maintain a balance of in-treatment and post-treatment patients in their practice<sup>44</sup>) should also be considered as new approaches to survivorship care are developed.

**Table 4.** Logistic Regression Models for Primarily Shared Compared With Primarily Sole Provision Across Seven Components of Psychosocial Care

Characteristic	Oncologists (n = 676)			PCPs (n = 623)		
	OR	95% CI	Wald <i>f</i>	OR	95% CI	Wald <i>f</i>
Sex						
Male	Ref			Ref		
Female	0.83	0.55 to 1.25		1.43	0.88 to 2.34	
Race			3.07			1.80
Non-Hispanic white	Ref			Ref		
Asian	0.59	0.37 to 0.95		0.68	0.38 to 1.22	
Other/multiple	0.52	0.20 to 1.36		0.54	0.24 to 1.22	
Region			1.31			
Northeast	Ref					
Midwest	0.61	0.33 to 1.10				
South	0.66	0.41 to 1.06				
West	0.76	0.42 to 1.36				
MSA						
Population > 1 million	Ref					
All other MSAs	1.18	0.82 to 1.70				
No. of patients with breast or colon cancer seen per week/year			1.21			
Low	Ref					
Medium	1.37	0.86 to 2.17				
High	1.03	0.63 to 1.67				
No. of patients seen per week			1.89			2.49
≤ 50	Ref			Ref		
51-100	1.17	0.74 to 1.85		1.85	0.93 to 3.69	
≥ 101	0.73	0.41 to 1.32		1.17	0.56 to 3.24	
Percent time spent on patient care						
High	Ref			Ref		
Low	0.99	0.69 to 1.42		0.73	0.49 to 1.08	
Salary dependent on productivity						
No/unknown	Ref					
Yes	1.30	0.89 to 1.91				
Confidence in knowledge						
Less confident	Ref			Ref		
Very confident	0.58*	0.40 to 0.86		0.67	0.42 to 1.06	
PCPs are better able than oncologists to provide psychosocial support						
Disagree	Ref		4.75†	Ref		13.44*
Neither agree nor disagree	1.97‡	1.24 to 3.12		0.92	0.49 to 1.75	
Agree	2.01	0.94 to 4.32		0.32*	0.18 to 0.58	
Preferred model of care delivery			7.75*			5.46‡
Oncologists and PCPs share responsibility	Ref			Ref		
I have sole primary responsibility	0.43*	0.27 to 0.67		0.28‡	0.12 to 0.65	
Someone else has primary responsibility	0.46*	0.28 to 0.75		1.11	0.67 to 1.83	

NOTE. Multivariable models include all variables associated with shared provision involvement in bivariate models at  $P < .2$ .

Abbreviations: MSA, Metropolitan Statistical Area; OR, odds ratio; PCP, primary care physician; Ref, reference group.

\* $P < .001$ .

† $P < .05$ .

‡ $P < .01$ .

The current findings have implications for several movements in survivorship care. Calls have been made for a shared-care model of cancer-related follow-up that includes both primary care and cancer specialists,<sup>3,6</sup> for risk-stratified care in which the provider and frequency of care depend on patient needs and preferences,<sup>6,45,46</sup> and for the use of written survivorship care plans (SCPs) to aid communication among providers and designate which components of care should be provided by whom.<sup>3,27</sup> Approaches to survivorship care planning and coordination that emphasize the respective skills and desires of physicians, the needs of survivors, and communication among all parties (survivors, oncologists, PCPs, and other clinicians) should be considered. Confusion among providers, as well as between providers

and survivors, regarding provision of psychosocial care may negatively affect care quality<sup>3</sup> and likely contribute to persistent psychosocial needs. The take-home message is that understanding current practices and factors associated with different approaches to psychosocial care will inform discussions about how this vital aspect of survivors' post-treatment care should be addressed.

Several limitations of this study should be considered. Actual physician behavior may differ from self-reported behavior. Actual physician involvement in psychosocial care is likely lower than reported. Furthermore, the survey addressed usual practice habits; we cannot assess care in the context of any specific patient. It is also unclear whether physician responses reflect only their behavior or also

that of additional staff (eg, nurses), when in the 5 years after completion of cancer treatment they perceive responsibility, and whether they responded regarding breast cancer, colon cancer, or both. This study did not directly assess communication among providers, the frequency or quality of care delivered, or whether care appropriately matched patient need. Furthermore, results cannot be generalized to survivors of cancers that are rarer, have fewer long-term survivors, or are associated with greater psychosocial needs. Finally, this study characterized physicians who perceived shared responsibility for specific aspects of care (eg, both physician groups treat depression and fatigue). Although there are other ways to define shared care (eg, one provider treats depression and the other treats fatigue), understanding characteristics associated with the current definition of a shared approach informs efforts to improve psychosocial care delivery.

This study is a first step in understanding who provides psychosocial care and the implications for coordination of comprehensive follow-up care. Future studies should measure actual physician behavior (eg, direct observation, record review), including testing methods to increase communication among providers (eg, determining the optimal method of developing SCPs). Although PCPs feel more prepared for survivorship care after receiving a SCP,<sup>47</sup> our results suggest that input from both oncologists and PCPs regarding their respective skills and desires may improve the coordination and delivery of post-treatment psychosocial care. The effect of different models of survivorship care on patient outcome, physician burden, and cost should also be examined. Finally, more research is needed on patient prefer-

ences related to delivery of psychosocial care (eg, confidence in PCPs' ability to manage physical symptoms).

Ultimately, a new approach to survivorship care that emphasizes the comprehensive assessment and treatment of psychosocial needs in addition to other more commonly recognized aspects of survivorship care (eg, surveillance, preventive health) is needed. Psychosocial survivorship care is complex, and the expertise of oncologists, PCPs, and other professionals is needed at different points along the cancer continuum. This article identifies potentially modifiable physician factors (confidence, beliefs about who is able to provide psychosocial support, and preferred models for survivorship care) to target for promotion of improved comprehensiveness, continuity, and quality of survivorship care.

## AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

The author(s) indicated no potential conflicts of interest.

## AUTHOR CONTRIBUTIONS

**Conception and design:** All authors

**Collection and assembly of data:** Julia H. Rowland

**Data analysis and interpretation:** All authors

**Manuscript writing:** All authors

**Final approval of manuscript:** All authors

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