Physician and Practice Characteristics Influencing Tumor Board Attendance: Results From the Provider Survey of the Los Angeles Women's Health Study

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Abstract

Background: Coordination of care has grown in importance with the advent of new modalities of treatment that require specialized expertise. In cancer care, multidisciplinary approaches have shown improvements in quality of care. Tumor boards may provide a mechanism for improving coordination of care. We evaluated physician and practice characteristics that predict frequency of tumor board attendance.

Materials and Methods: This cross-sectional study used data obtained by surveying physicians of a population-based sample of women with incident breast cancer. Physicians were queried regarding tumor board attendance, specialty [medical oncologist (MO), radiation oncologist (RO), surgeon at a hospital with American College of Surgeons accreditation (ACOSSg) and surgeon without such affiliation (non-ACOSSg)], physician characteristics (gender, race/ethnicity, teaching involvement, patient volume, ownership interest) and practice setting (type, size, reimbursement method). Univariate, bivariate, and multivariate analyses were performed for the dependent variable characterizing provider report of frequency of tumor board attendance.

Results: Most surveyed physicians (83%) report attending tumor board weekly (58%) or monthly (25%). Specialty and higher patient volumes are significant predictors of more frequent attendance. Compared with the most prevalent specialty category (low-volume ACOSSgs), high-volume MOs attend more frequently ($P = .01$) and low volume non-ACOSSgs attend less frequently ($P = .00$).

Conclusions: Tumor board provides a structure for engaging providers in discussion of cancer cases that is designed to enhance quality of care. Tumor board agendas and formalized institution-wide policies could be designed to engage low-frequency attendees as a means to improve quality measures, promote multidisciplinary care, and potentially improve health outcomes.

Introduction

Coordination of care has grown in importance in our health care system with the advent of new modalities of treatment that require specialized expertise and the involvement of multiple physicians in patient care. Patients now visit many different care providers for the treatment of chronic conditions, often involving multiple specialists.[1] Emphasis on trying to improve coordination of care is a hallmark of attempts at improving quality of care.[2]

The multiple interactions patients with cancer have with different specialties makes oncology an excellent model for studying coordination of care.[3] A multidisciplinary approach that includes input from primary care providers, oncologists, surgeons, radiation oncologists, radiologists, and pathologists is necessary for diagnosis, treatment planning, and ultimately treatment.[4] In fact, previous studies looking at multidisciplinary clinical approaches to cancer treatment have shown improvements in quality of care measures and patient satisfaction.[5-11] Although it is difficult to prove an explicit causal link between multidisciplinary care and improved outcomes, these previous studies showed that multidisciplinary care is associated with decreased time between diagnosis and treatment,[6] increased survival in some cancers such as high-grade gliomas,[9] and significant changes in management.[8,11]

In cancer, tumor boards provide a structure for engaging in multidisciplinary care and quality improvement. The National Cancer Institute defines a tumor board as "a treatment planning approach in which a number of doctors who are experts in different specialties (disciplines) review and discuss the medical condition and treatment options of a patient."[12] The establishment of a tumor board is key to the accreditation process for the American College of Surgeons' National Accreditation Program for Breast Cancer and the Commission on Cancer (CoC).[13,14] According to the CoC's Cancer Program standards, depending on the type of accreditation, a cancer conference (or tumor board) should be held weekly or monthly. CoC standards mandate that organizations present in conference at least 10% of new cancer cases seen at their institution, and that 75% of the cases discussed be presented prospectively.

Tumor boards serve different functions at different institutions.[15,16] Because of the large number of cancer cases at a major institution, only more complex, difficult cases are presented. In a smaller, community hospital, the board may review a large percentage of the hospital's cancer cases. In these institutions, the board's focus is more likely on practical cancer management issues with regard to individual cases. Significant resources are devoted to tumor boards, with one study showing that more than 50 physician hours per month are devoted to the tumor

board conferences, which equates to 1.25 million physician hours per year.[17]

Physicians receive actionable advice at tumor board meetings that alter plans of care and thereby are thought to improve health outcomes.[18-23] Where multidisciplinary clinics are infeasible because of structural constraints, tumor boards may provide an effective forum for improvements in both the process and quality of care. Thus, there is potential for significant benefit in increasing attendance and involvement in these multidisciplinary meetings. Understanding the characteristics of the physicians who participate in the meetings and the correlates for this participation may allow for more effective models to encourage involvement.

Materials and Methods

This cross-sectional study used physician characteristics and practice data obtained through surveying the physicians of women participating in the Los Angeles Women's (LAW) Health Study, a population-based sample of women with incident breast cancer.[24-27] Women were asked to identify all physicians involved in the decision making about and/or delivery of treatments for their breast cancer. We queried all of the identified medical oncologists, radiation oncologists, and surgeons whose contact information could be verified for our physician survey about the structure of their office practices.[24,25] Details of the sampling strategy and survey are available in the appendix of Rose et al.[25] We obtained responses in 2004 from 348 physicians (111 medical oncologists, 66 radiation oncologists, and 171 surgeons) at 298 unique office addresses, with a final response rate of 77% (63% for medical oncologists, 88% for radiation oncologists, and 75% for surgeons). This study was approved by the University of California, Los Angeles Institutional Review Board.

Dependent Variable

Physicians were asked how frequently they attended formal meetings of physicians to discuss patient care (eg, tumor board meetings). Response choices were weekly, monthly, quarterly, less than quarterly, or not at all. Physicians were also queried regarding the content of tumor board meetings. Physicians were asked how frequently their patients were presented at tumor board meetings and whether the most helpful meeting that they attended served a pretreatment planning function, reviewed all participants' cases versus only unusual/controversial cases, and reviewed only breast cancer cases. Tumor board content data are presented in the univariate and bivariate analyses but are excluded from the multivariate regression because they are not predictors of tumor board attendance.

Independent Variables

Our predictor variables include specialty, physician characteristics, and practice setting. We included in the analysis the subset of physician and office characteristics that we conceptualized might be significant predictors of tumor board attendance. The analysis was meant to generate hypotheses about the direction of these influences on provider tumor board participation.

Physician specialty was derived from provider report. Specialty type was initially categorized as medical oncologist, radiation oncologist, and surgeon. After significant differences were noted within the surgeon specialty cohort, the surgeon category was split into surgeons who indicated that the hospital where they perform most of their breast cancer surgeries has an American College of Surgeons (ACOS) –accredited cancer program (ACOSSgs) and those surgeons without such affiliation (non-ACOSSgs). Because the distribution of frequency of tumor board attendance responses among the radiation oncologists showed little variation as detailed in the univariate and bivariate analyses, the final regression model excludes the radiation oncologist responses.

Physician characteristics analyzed include gender, race/ethnicity, teaching involvement, cancer patient volume, and ownership interest. For regression analysis, teaching involvement was categorized as low teachers (those teaching for at least some part of either zero or one day per month) and high teachers (those teaching two or more days per month). Cancer patient volume was dichotomized as high (those physicians with volume greater than the median for their specialty) or low (volume less than the specialty median). Finally, physician ownership interest was described as full ownership versus part/no ownership. However, this was excluded in the final analysis as it correlated highly with the solo practice and fee-for-service variables (correlation = 0.74 and 0.51, respectively).

Practice characteristics that were analyzed include practice type (solo practice, county/medical school/university, staff/group model HMO, single-specialty group, or multispecialty group), size ($\geq$ 50 physicians or $<$ 50 physicians), and reimbursement ($\leq$ 50% fee-for-service $v >$ 50% fee-for-service). The fee-for-service variable was excluded from the multivariate analysis as it was highly correlated with the solo practice, HMO, practice size, and ownership variables (correlation = 0.49, -0.40, 0.51, and -0.39, respectively).

Statistical Analyses

Univariate, bivariate, and multivariable analyses were performed for the dependent variable characterizing provider report of frequency of tumor board meeting attendance. Descriptive analyses were performed including comparisons of means for continuous variables and cross-tabulations for categorical variables. Given the distribution of responses (Table 1), the dependent variable categories were collapsed for the regression analysis to weekly, monthly, and less than monthly. In addition, we hypothesized that there would be differences in behavior within specialty groups on the basis of volume of patients. Therefore, the specialty and volume variables were merged to create new independent variables: high- and low-volume medical oncologists, and high- and low-volume ACOSSgs surgeons and non-ACOSSgs.

To conduct multivariate analysis with these ordered categorical responses, we used ordered logit regression of a trichotomous dependent variable: weekly, monthly, and less than

Table 1. Provider Self-Report of Physician and Office Characteristics

Characteristic	All (N = 348; %)	Medical Oncologist (n = 111; %)	Radiation Oncologist (n = 66; %)	ACOS-Affiliated Surgeon (n = 125; %)	Non–ACOS-Affiliated Surgeon (n = 46; %)	*P*
Physician sex						< .01
Male	82	76	79	88	84	
Female	18	24	21	12	16	
Physician race/ethnicity						
Non-Hispanic white	66	64	63	70	64	< .01
Non-Hispanic black	3	3	3	4	9	< .40
Hispanic	5	3	3	7	0	< .05
Asian	20	23	24	15	18	< .01
Other	6	7	5	3	9	< .08
Teaching involvement, days/mo						
0-1	57	56	68	52	59	< .01
2-5	23	28	18	21	17	< .01
6-15	8	9	6	7	8	< .04
> 15	13	8	8	20	15	< .01
Patient volume						
No. of new patients in past month						< .01
Mean	20	28	31	10	9	
Range	0-180	2-180	10-100	0-55	0-40	
No. of offices at which physician sees patients						
1	61	53	53	67	78	< .01
2	27	38	18	23	18	< .01
≥ 3	11	7	29	10	4	< .02
Missing	1	2	0	0	0	
Reimbursement						
> 50% fee for service	44	38	29	62	29	< .01
Practice type						
Solo	30	24	8	46	30	< .01
County/medical school/university	8	12	9	5	6	< .01
HMO	18	16	13	14	42	< .05
Single-specialty group	37	43	61	25	22	< .01
Multiple-specialty group	7	5	9	10	0	< .15
Ownership interest in practice						
Full	40	32	20	56	41	< .01
Part	36	43	38	27	40	< .01
None	24	25	42	16	19	< .01
Practice size, No. of physicians						
1	27	22	8	79	69	< .01
2-5	35	43	47	24	24	< .01
6-49	15	19	20	9	13	< .01
≥ 50	23	16	25	21	31	< .07
Hospital characteristics						
Surgical oncology training program at hospital						
Yes				24	4	< .01
No				75	91	< .01
Don't know				2	0	
Missing				0	4	

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Table 1. (Continued)

Characteristic	All (N = 348; %)	Medical Oncologist (n = 111; %)	Radiation Oncologist (n = 66; %)	ACOS-Affiliated Surgeon (n = 125; %)	Non–ACOS-Affiliated Surgeon (n = 46; %)	*P*
How frequently did physician attend formal meetings of physicians to discuss patient care (eg, tumor board meetings)?						
Weekly	58	63	92	47	32	< .01
Monthly	25	26	6	33	28	< .01
Quarterly	8	5	0	9	20	< .55
Less than quarterly	6	4	0	8	14	< .30
Not at all	3	3	0	2	7	< 1.0
Missing	0	0	1	0	0	
How frequently were physician's patients presented at meetings of physicians to discuss patient care (eg, tumor board meetings)?						
Weekly	39	41	67	31	17	< .01
Monthly	30	30	23	33	31	< .01
Quarterly	14	16	6	14	20	< .01
Less than quarterly	12	7	2	16	26	< .01
Not at all	6	7	2	7	7	< .02
Missing	0	0	1	0	0	
If physician did attend tumor board in the last 12 mo, please think about the most helpful meeting. Did this meeting…						
Serve a pretreatment planning function?	72	70	83	76	56	< .01
Review all participants' cases versus unusual/controversial cases?	54	53	54	57	49	< .01
Review only breast cancer cases versus variety of cancer cases?	45	44	43	47	45	< .01

Abbreviations: ACOS, American College of Surgeons; HMO, health maintenance organization.

monthly tumor board attendance. Positive coefficients in the regression were associated with increased frequency of attendance. Recycled predictions were generated by using ordered logistic regression.[28] We used STATA (v.9.2; StataCorp, College Station, TX) to perform all analyses, weighted for survey nonresponse.[29] Response weights were calculated as the inverse of the probability of survey response on the basis of a logistic regression model that included physician sex, specialty type, study patient volume, and sharing an office with another surveyed physician. Significant predictors of response were specialty type (odds ratio [OR], 0.24; $P < .001$ for medical oncologists; OR, 0.44; $P = .04$ for surgeons compared with radiation oncologists) and sharing an office compared with not sharing (OR, 1.70; $P = .02$). We controlled for clustering of physicians within office addresses.[29]

Results

Table 1 describes physician and office characteristics of the surveyed cohort by specialty practice. Most (83%) of surveyed physicians responded that they attended tumor board meetings either weekly (58%) or monthly (25%). Participation in tumor board meetings varied by specialty. Weekly participation was reported as 63%, 92%, 47%, and 32% by medical oncologists, radiation oncologists, ACOSSgs, and non-ACOSSgs, respectively ($P < .01$). Sixty-nine percent of physicians responded that their patients were presented at tumor board at least monthly. When asked to think about the most helpful tumor board meeting attended, the majority of physicians across all specialties indicated that this meeting (1) served a pretreatment planning function, and (2) included review of all participants' cases versus only unusual or controversial cases.

Among other physician and practice characteristics examined, volume of new cancer patients was an important predictor of tumor board attendance (Table 2). Physicians who attended tumor board weekly reported an average of 25 new patients with cancer (breast and nonbreast) during the month before the survey, versus 16 for those attending monthly and nine for those attending less than monthly ($P < .01$). Weekly tumor board attendance was reported by more than one third (36%) of solo practitioners, in contrast to more than 60% reported by physicians in each of the nonsolo practice groups ($P < .01$). Eighty-three percent of physicians with no ownership interests in their practices reported weekly tumor board attendance, compared with 41% of physicians with full ownership interest ($P = .00$).

Results of our multivariate regression indicate that physician specialty and higher patient volumes remain strong predictors of frequency of tumor board attendance, after adjusting for other physician and practice characteristics (Appendix Table

Table 2. Frequency of Tumor Board Attendance by Physician Characteristics

Characteristic	Frequency of Tumor Board Participation				
	Weekly (%)	Monthly (%)	Less Than Monthly (%)	Not at All/ Missing (%)	*P*
Physician sex					.06
Male	55	27	14	3	
Female	71	16	10	3	
Teaching involvement, days/month					.22
0-1	52	28	17	3	
2-5	64	24	9	3	
6-15	69	19	11	0	
> 15	69	20	9	2	
Patient volume					< .01
No. of new cancer patients during last month					
Mean	25	16	9	14	
Range	1-180	2-100	0-80	2-40	
No. of offices at which physician sees patients					.11
1	56	27	15	2	
2	57	27	10	6	
≥ 3	73	15	12	0	
Reimbursement					.00
≤ 50% fee for service	68	19	9	4	
> 50% fee for service	46	34	19	2	
Practice type					< .01
Solo	36	36	23	5	
County/medical school/university	78	11	7	3	
HMO	64	25	9	2	
Single-specialty group	67	21	10	2	
Multiple-specialty group	68	23	9	0	
Ownership interest in practice					.00
Full	41	36	19	4	
Part	61	25	12	2	
None	83	9	7	1	
Practice size					.06
1-49	56	27	14	3	
≥ 50	71	20	9	0	
If physician did attend tumor board in the last 12 mo, please think about the most helpful meeting. Did this meeting…					
Serve a pretreatment planning function?					< .01
Yes	70	19	11	0	
No	31	50	19	0	
Review all participants' cases versus unusual/controversial cases?					< .01
Yes	72	20	8	0	
No	47	34	20	0	
Review only breast cancer cases versus variety of cancer cases?					< .01
Yes	69	20	11	0	
No	54	31	15	0	

Abbreviation: HMO, health maintenance organization.

Table 3. Adjusted Mean Predicted Probability for Frequency of Tumor Board Attendance by Physician Type

Physician Type	Frequency of Tumor Board Participation					
	Weekly		Monthly		Less Than Monthly	
	Mean Predicted Probability	SE	Mean Predicted Probability	SE	Mean Predicted Probability	SE
Low-volume ACOS-affiliated surgeon	0.436	0.064	0.344	0.038	0.220	0.047
High-volume ACOS-affiliated surgeon	0.595	0.071	0.279	0.045	0.126	0.038
Low-volume non–ACOS-affiliated surgeon	0.139	0.051	0.288	0.048	0.574	0.088
High-volume non–ACOS-affiliated surgeon	0.474	0.143	0.333	0.061	0.194	0.102
Low-volume medical oncologist	0.575	0.058	0.289	0.034	0.135	0.031
High-volume medical oncologist	0.672	0.065	0.236	0.047	0.092	0.026

NOTE. Data were calculated by using ordered logistic regression.
Abbreviation: ACOS, American College of Surgeons.

A1, online only). In comparison with the most prevalent specialty category (low-volume ACOSSgs), high-volume medical oncologists attended tumor board more frequently ($P = .01$) and low-volume non-ACOSSgs attended less frequently ($P = .00$). High-volume medical oncologists had a predicted weekly tumor board participation rate of 67% as compared with 14% for low volume non-ACOSSgs (Table 3). No other physician or practice characteristics predicted the frequency of tumor board attendance.

Discussion

Our data indicate that in general, breast cancer–treating physicians across all specialty types attend tumor board meetings frequently, with variations in reported attendance based on specialty type. The decreased attendance among surgeons may be due to the nature of surgeons' unpredictable schedules, their reliance on operating room availability, and surgical emergencies. Scheduling time for tumor board may be impractical for these participants. This has important implications for the nature of tumor boards. Virtual meetings, whereby participants comment and interact with cases remotely according to their own schedules, may increase participation. One such online tumor board for the treatment of gynecologic cancers was evaluated in a pilot study and found to be feasible, with high rates of participant satisfaction.[30]

In an effort to understand the decreased frequency of attendance for surgeons, we split the surgical cohort into those surgeons indicating they perform most breast cancer surgeries at a hospital with an ACOS-accredited cancer program and those surgeons not reporting such an affiliation. In addition, we divided each specialty group into low- and high-volume providers. Low-volume non-ACOSSgs were less likely to participate in a tumor board. To explain ACOS effects on participation, an argument can be made that this is a function of increased availability of tumor board meetings, given that a requirement of ACOS accreditation is the existence of a tumor board conference that meets at least monthly.[13] There may be other characteristics of ACOS affiliation that encourage tumor board participation, such as the availability of organizational models to encourage multidisciplinary care or monitoring of quality-of-care measures. The ACOS CoC mission is to improve "survival and quality of life for cancer patients through standard-setting, prevention, research, education, and the monitoring of comprehensive quality care."[31] Increased participation in tumor board conferences is consistent with this mission. This finding implies that formalized, institution-wide policies to promote and incentivize multidisciplinary care may be effective at increasing the frequency of participation among affiliated physicians.

Volume of patients is the other important predictor of tumor board attendance. Medical oncologists with higher patient loads attend more frequently when compared with the most prevalent specialty group (low-volume ACOSSgs); this was not found to be the case for lower volume medical oncologists. One could have hypothesized that higher patient volumes might lead to decreased tumor board attendance secondary to time constraints among busier practitioners. However, from an efficiency standpoint, physicians with larger patient volumes have more to gain at a tumor board than physicians with few cases. High-volume physicians may find it efficient to discuss patient treatment plans at a centralized meeting where many consulting physicians are present; low-volume physicians (including surgeons whose patient mix is weighted toward general surgical cases versus cancer cases) may find it inefficient to schedule time for a meeting at which few of their patients are discussed and little information about their patients is gleaned. Yet, it is precisely this population, low-volume providers, who would most likely benefit from participation in tumor boards. The fragmentation of cancer care makes it infeasible for most communities/patients to benefit from multidisciplinary care clinics. For lower volume providers without access to multidisciplinary clinics, tumor board could serve the role of providing multidisciplinary input. Educating lower volume providers about the benefits of multidisciplinary input might encourage participation. Including tumor board attendance as a performance metric, tied to compensation, would likely promote participation. Advance scheduling of

patient presentations would allow physicians to plan appropriately and maximize benefit.

The decreased frequency of attendance for non-ACOSSgs was not seen when non-ACOSSgs had high patient volumes. The literature is replete with studies demonstrating an association between decreased mortality and high volume.[32-37] For breast cancer, high quality of care spans multiple domains across time and specialty type because patients often need critical interventions pertinent to appropriate diagnosis and staging, use of adjuvant therapy, and interventions from medical and radiation oncologists, or primary care physicians, as a supplement to surgical care.[38] We found that increased patient volumes predicted increased frequency of tumor board attendance and may lead to collaborative decision making about type of surgery between specialist and patient and physician, as well as to increased use of evidence-based adjuvant chemotherapy, hormonal therapy and radiation, thus mediating prolonged rates of survival.[19]

During recent decades, substantial policy discussion has focused around "centers of cxcellence" as defined by high-volume providers. In the case of breast cancer and other clinical conditions involving multiple specialists, centers of excellence may additionally benefit from including a metric of multidisciplinary care in their definition. As is the case with ACOS breast cancer accreditation, tumor board participation could serve as an example of this metric. In addition, tumor boards could evolve to provide a forum for the implementation of quality improvements. Institutional efforts to improve performance could be carried out and measured in the setting of tumor boards. Performance metrics such as percentages of patients discussed, frequency of attendance of all consulting physicians for a particular case, and outcomes measures for discussed patients could be studied and assessed as potential measures of quality.

When asked to think about the most helpful tumor board meeting attended, physicians from all specialties identified meetings that served a pretreatment planning function. Previous studies indicate that actionable information regarding patient care is obtained at these multidisciplinary meetings.[18-22] According to our data, physicians also identified meetings that reviewed all participants' cases versus unusual/controversial cases as being most helpful. This suggests that physicians prefer the focus of the meetings to be predominantly on patient care. Adjusting tumor board structure on the basis of these physician preferences may increase meeting attendance. Our data indicate that tumor boards should focus on practical discussion regarding treatment planning for all presented cases. Most physicians responded that their own patients were presented at tumor board at least monthly. If a large majority of physicians from each specialty attend tumor board, either weekly or monthly, where treatment planning is discussed with a focus on patient care, there is great potential for such boards to enhance coordination of care and, in turn, patient care. Future efforts to improve attendance should focus on strengthening institutional incentives and adapting to the realities of physicians' schedules.

We hypothesize that institutions with formalized policies regarding tumor boards may attract low-frequency attendees, as evidenced by ACOS effects on low-volume providers. Further studies linking physician and institutional data would be useful in identifying institutional characteristics that predict increased tumor board attendance. Scheduling may be one barrier to attendance. Future work examining the feasibility and effectiveness of virtual tumor boards should be undertaken. Analysis of the predictors of virtual tumor board attendance should be contrasted with the findings in our study to examine whether the barriers to attendance are addressed. This study is limited in that the data are based on respondents' characterization of their tumor boards, rather than objective description of tumor board content. The survey focused on multiple provider characteristics[24] and frequency of tumor board attendance. Studies should be undertaken to evaluate how various tumor board styles influence patient care and physician satisfaction. Our data indicate that physicians have clear preferences as to the content of tumor boards. Tumor board characteristics, as opposed to characteristics of the attendees, may be more important determinants of participation. Attendance may increase if the content of the meeting is valuable enough to offset the time and effort required.[39] To further quantify this effect, multivariate analysis studying frequency of attendance based on tumor board characteristics should be pursued in the future. Finally, we propose that tumor boards could serve as a forum for the implementation of quality improvements. Further studies linking physician and patient data would be beneficial in evaluating the impact of tumor boards on patient care.

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Appendix

Table A1. Multivariate Ordered Logistic Regression Predicting Frequency of Tumor Board Attendance

Characteristic	Frequency of Tumor Board Attendance (weekly *v* monthly *v* less than monthly)	
	Coefficient	***P***
Physician type		
Low-volume ACOS-affiliated surgeon	Reference	Reference
High-volume ACOS-affiliated surgeon	0.710	0.090
Low-volume non–ACOS-affiliated surgeon	−1.716	0.000
High-volume non–ACOS-affiliated surgeon	0.169	0.804
Low-volume medical oncologist	0.622	0.084
High-volume medical oncologist	1.075	0.010
Physician sex		
Female	0.534	0.140
Physician race/ethnicity		
Non-Hispanic white	Reference	Reference
Non-Hispanic black	−0.768	0.254
Hispanic	0.178	0.806
Asian	0.204	0.486
Other	1.025	0.086
Teaching involvement, days/mo		
0-1	−0.495	0.072
Practice type		
Solo	Reference	Reference
County/medical school/university	0.796	0.227
HMO	0.620	0.214
Single-specialty medical group	0.561	0.071
Multiple-specialty medical group	0.244	0.688
Practice size, No. of physicians		
> 50+	0.726	0.157

Abbreviations: ACOS, American College of Surgeons; HMO, health maintenance organization.