

Do Neurologists and Primary Care Physicians Agree on the Extent of Specialty Involvement of Patients Referred to Neurologists?

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OBJECTIVE: Understanding the roles and responsibilities of physicians who manage mutual patients is important for assuring good patient care. Among physicians expressing a preference to involve a neurologist in the care of a patient, we evaluated agreement between neurologists and primary care physicians for the extent of specialty involvement in the evaluation and management of the patient, and the factors influencing those preferences.

DESIGN AND SETTING: A self-administered survey containing 3 clinical scenarios was developed with the assistance of a multispecialty advisory board and mailed to a stratified probability sample of physicians.

PARTICIPANTS: Six hundred and eight family physicians, 624 general internists, and 492 neurologists in 9 U.S. states.

INTERVENTIONS: For each scenario, those respondents who preferred involvement of a specialist were asked about the preferred extent of that involvement: one-time consultation with and without test/medication ordering, consultation and limited follow-up, or taking over ongoing care of the specialty problem as long as it persists.

MAIN RESULTS: Survey response rate was 60%. For all 3 scenarios, neurologists preferred a greater extent of specialty involvement compared to primary care physicians (all $P < .05$). Other physician and practice characteristic factors, including financial incentives, had lesser or no influence on the extent of specialty involvement preferred.

CONCLUSIONS: The disagreement between primary care physicians and specialists regarding the preferred extent of specialist involvement in the care of patients with neurological conditions should raise serious concerns among health care providers, policy makers, and educators about whether mutual patient care is coordinated and appropriate.

KEY WORDS: referral and consultation; physician's practice patterns.

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Perhaps because of the movement toward a generalist-centered health care system, physicians have been largely dichotomized into 2 physician groups with different patient

care roles and responsibilities: generalists and specialists. While dichotomizing these physician groups is relatively easy when based on postgraduate education, understanding and defining their actual role in patient care is complicated by their overlapping responsibilities.^{1,2} Notwithstanding this limitation, the physician specialists' role has developed out of the expansion of science and the technological advances inherent in this growth,³ and the physician specialist, particularly the internal medicine subspecialist and the medical specialist, is generally considered an expert in evaluating and managing organ- or disease-specific conditions. Not surprisingly, patients seen by specialists have been shown to have more specialty-specific complications than patients seen by primary care physicians.⁴ The role of the generalist is more complex. Primary care physician responsibilities have been shown to include patient care coordination, gatekeeping,⁵ preventative care,⁶ care for common conditions,⁷ care for a wide range of conditions, continuous care, and accessible care.⁸ Thus, it is not surprising that most patients with specialty conditions are frequently managed by more than one type of physician.⁹

Patients who are managed by more than one physician are transferred between physicians via the use of consultations and referrals. A consultation has been defined as the exchange of physician expertise with the patient responsibility remaining with the initial physician, and a referral has been defined as the transfer of some or all of the patient responsibility to the consulted physician.¹⁰ Primary care physicians may request a specialist consultation or referral for many reasons including advice or second opinion on diagnosis or management, needed skills or facilities, or patient request.¹¹⁻¹³

The major concern when multiple physicians are involved in the care of a patient with a specialty condition is whether the appropriate physician is responsible for the patient and whether patient care is coordinated. The specialty of neurology is particularly relevant because neurologists are very dependent on physician referrals for their patients; however, primary care physicians manage many common neurological conditions.¹⁴⁻¹⁶ Even neurologists disagree as to whether primary care physicians or neurologists should coordinate the medical care for patients with neurological conditions.¹⁷ In addition, coordinated care may be further complicated by the use of utilization management techniques,¹⁸ financial incentives,¹⁹ and other organizational-based factors^{20,21} used by health care organizations to influence physician referral behavior.^{22,23}

In a previous study,²⁴ we described primary care physicians' and neurologists' preferences for involving a specialist in the care of patients with neurological conditions and found that nearly all neurologists preferred to be involved in the care of a patient with a neurological condition,

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whereas only one quarter to two thirds of primary care physicians preferred to involve a neurologist, depending on the particular patient scenario. The study presented here focuses on the subset of physicians who preferred that a specialist be involved in a particular scenario, and is aimed at understanding the level of agreement between primary care physicians and neurologists on the extent of involvement of a neurologist.

METHODS

Overview

We mailed a questionnaire to a national sample of general internists, family physicians, and neurologists containing scenarios describing patients with common neurological conditions. Among those physicians who felt a neurologist should be involved, we compared neurologists and primary care physicians' preferences for the preferred extent of specialist involvement, ranging from a one-time consultation with recommendations for tests, procedures, or medications to ongoing specialist involvement in the care of the patient for the duration of the neurological condition or problem. We also assessed factors that might influence these choices.

Survey Instrument

Clinical Scenarios and Referral/Consultation Preferences. The questionnaire included 3 clinical scenarios developed with the assistance of an 8-member advisory board, with 2 members each nominated by the American Academy of Family Physicians, the American College of Physicians—American Society of Internal Medicine (ACP-ASIM), and the American Academy of Neurology. A health services researcher and a medical director of a health care trade association were also included. We modeled specialty preferences regarding care of elderly patients with neurological conditions. The 3 clinical scenarios described 1) a patient with a recent transient neurological event and carotid stenosis, 2) a Parkinson's disease patient on carbidopa-levodopa with dyskinesias, and 3) a patient presenting with dementia symptoms.²⁴ The neurological conditions for the clinical scenarios were chosen based on the following criteria: the neurological condition is seen by both generalists and neurologists, the condition is prevalent, and the condition has treatment or management processes substantiated by generally accepted evidence-based literature.

Each of the 3 clinical scenarios was followed by 2 questions addressing physician referral preferences. Our model assumed that the primary care physician was the patient's first physician contact. The questions were framed to accommodate the different perspectives of the primary care physician making the referral and the neurologist receiving the referral. The first question measured physician preferences for the primary care physician managing the patient without specialty assistance, requesting a curbside consultation, or preferring to formally refer the patient to a specialist.

For physicians who indicated they would prefer to formally refer the patient presented in the scenario to a specialist—the subset of physicians' responses presented here—we analyzed responses to a second question, which assessed the type of referral or consultation preferred. Response options for physicians for the second question, which reflected the extent of specialty involvement, included preferences for the specialist to 1) conduct a one-time consultation and return the patient to the primary care physician, 2) conduct a one-time consultation with the patient, order necessary tests, procedures, or medications, and return the patient to the primary care physician, 3) evaluate the patient, order necessary tests, procedures, or medications, and provide short-term follow-up for the immediate problem before returning the patient to the primary care physician, or 4) take over the specialty care of the patient for as long as the specialty problem persists. Response options for the neurologists' survey also included a fifth choice: the option to refer the patient on to a subspecialist. We excluded responses to the fifth option in our analyses as it consisted of less than 4% of the neurologists' responses.

Clinical and Nonclinical Factors. Physicians reported their specialty designation, age, gender, practice setting (solo practice, single-specialty group practice, multispecialty group practice, university setting, staff-model HMO, government clinic, or hospital), number of patients seen per week, and their perception of time pressure to see patients. Physician knowledge relevant to each of the 3 clinical scenarios was also measured using 3 scenario-specific knowledge scales developed with the help of an advisory board.²⁴ Physicians were also asked the percentage of personal income derived from salary, capitated payments, fee-for-service payments, withhold returns, and bonuses, the percentage of their Medicare patients in managed care Medicare contracts or plans, the percentage of their patients requiring preauthorization and referrals from primary care physicians, and the number of times they were profiled per year.

Sample and Data Collection

Six hundred twenty-four general internists were drawn from the ACP-ASIM membership database, 608 family physicians were drawn from the American Medical Association's Physician Masterfile, and 492 neurologists were drawn from the American Academy of Neurology's membership database. Physicians within each database were sampled using a stratified probability sample of the 9 states with the highest managed care Medicare penetration in 1998. Surveys were mailed during fall-winter 1998–1999 and included a \$15 cash payment; 4% of all sampled physicians were later deemed ineligible because the physician was still in training, retired, spent <50% in clinical work, had subspecialty training (for internists), resided outside the United States, or had a survey returned undelivered. All variables were obtained from the survey instrument except for age and gender, which were obtained from the

physician databases for neurologists and general internists. For the family physicians, these variables were obtained from physician directories and telephone calls to office staff.

Analyses

t tests were used to evaluate practice characteristic and demographic differences between physicians who preferred referral to a specialist and those who preferred to manage alone or curbside. All subsequent analyses refer to those respondents for each scenario who would refer to a specialist. For each scenario, χ^2 was used to compare primary care physicians and neurologists on the 4 types of referral-consultation options. Simple logistic regression was subsequently used to evaluate the effect size of physicians' specialty on their choices for extent of specialist involvement. Simple and multivariate logistic regression and correlation analyses were used to explore the relationships of organizational and financial factors, physician knowledge, and demographic characteristics on preferences for extent of specialist involvement.

RESULTS

The overall survey response rate was 60.0%; response rates did not differ across general internists (60.1%; $n = 367$), family physicians (57.2%; $n = 321$), and neurologists

(62.2%; $n = 299$) ($P = .26$). Respondent and nonrespondent neurologists and general internists did not differ in age, and there was no difference in the proportion of neurologist respondents and nonrespondents who were female. However, a larger proportion of nonrespondent general internists were female (31.5% females in nonrespondent group vs 23% females in respondent group; $P = .02$). Among respondents, general internists, family physicians, and neurologists differed on most characteristics including age (general internists slightly younger than other 2 groups), gender (higher proportion of women among general internists than other 2 groups), practice characteristics (smaller proportion of general internists in solo practice than other 2 groups), and utilization management (less profiling of neurologists than of other 2 groups), among others.²⁴

For the transient neurological event scenario, the Parkinson's disease scenario, and the dementia scenario, 92%, 90%, and 95% of the neurologists, 37%, 47%, and 21% of the general internists, and 46%, 39%, and 29% of the family physicians surveyed, respectively, preferred to refer the patient in the scenario to a specialist and therefore were included in these analyses. Some differences in practice characteristics and demographics were found between physicians who preferred specialist involvement and those preferring to manage alone or curbside (Table 1).

For those physicians who preferred formal specialist involvement, more neurologists than internists and family

Table 1. Practice Characteristic and Demographic Differences Between Physicians Who Preferred to Refer to a Specialist Versus Manage Alone or Curbside

Physician Group	Practice Characteristic/Demographic	Referral Preference		P Value
		Refer to Specialist*	Manage Alone or Curbside	
Family physician	Number of respondents [†]	139 [‡] /120 [§] /89	164 [‡] /184 [§] /214	
	Percent of respondents	46 [‡] /39 [§] /29	54 [‡] /61 [§] /71	
	Average age of physician	51 [‡]	47 [‡]	<.01 [‡]
	Avg. number of patients seen per week	90 [‡] /88	102 [‡] /100	<.02 [‡] / $<.04$
	Percent of patients requiring preauthorization	40 ^{‡§} /42	37 [‡] /37 [§] /37	ns
	Percent of income from capitation	11 [‡] /13 [§]	11 [‡] /10 [§]	ns
Internist	Number of respondents [†]	135 [‡] /166 [§] /74	227 [‡] /195 [§] /286	
	Percent of respondents	37 [‡] /47 [§] /21	63 [‡] /53 [§] /79	
	Average age	48 [‡]	45 [‡]	<.01 [‡]
	Avg. number of patients seen per week	84 [‡] /86 [§]	89 ^{‡§} /88	ns
	Percent of patients requiring preauthorization	36 [‡] /41	27 [‡]	.01 [‡] /.001
	Percent of income from capitation	6 [§] /5	11 [§] /10	<.01 [§] /.04
Neurologist	Number of respondents [†]	273 [‡] /266 [§] /279	23 [‡] /28 [§] /14	
	Percent of respondents	92 [‡] /90 [§] /95	8 [‡] /10 [§] /5	
	Average age of physician	49 ^{‡§}	48 [‡] /49 [§]	ns
	Avg. number of patients seen per week	60 [§]	50 [§]	.04 [§]
	Percent of patients requiring preauthorization	42 [‡]	22 [‡]	<.01 [‡]
	Percent of income from capitation	2 ^{‡§}	0 ^{‡§} /1	ns

No differences between groups in any scenarios were found for percent income from fee-for-service or salary, extra time to see patients, number of times profiled per year, or percent of patients self-referred.

* Physicians included in the analyses of this manuscript.

[†] Not all physicians completed all 3 vignettes. Results reported for scenarios with differences with $P < .05$; in cases where $P > .05$ for all comparisons, all results are reported.

[‡] Transient neurological event scenario.

[§] Parkinson's disease scenario.

^{||} Dementia scenario.

ns, not significant.

Table 2. Type of Referral–Consultation Option Preferred by Neurologists and Primary Care Physicians

	One-time Specialty Consult	Specialty Consult with Tests	Consult with Limited Follow-up	Specialist Takes over Care “Ongoing Management”
		Percentage of Respondents		
Transient Neurological Event				
Neurologists (N = 273)	1.5	7.7	60.0	29.7
Internists (N = 135)	4.4	19.2	60.0	16.3
Family physicians (N = 139)	5.7	14.4	56.8	23.0
Parkinson’s Disease				
Neurologists (N = 266)	1.5	1.9	23.3	68.4
Internists (N = 166)	4.8	9.6	49.4	36.1
Family physicians (N = 120)	7.5	18.3	50.0	24.2
Dementia Evaluation and Management				
Neurologists (N = 279)	1.4	7.9	53.4	34.8
Internists (N = 74)	8.1	20.3	52.7	18.9
Family physicians (N = 89)	7.9	28.1	50.6	13.5

Rows add to 100%.

χ^2 $P < .001$ for each clinical scenario.

physicians preferred the neurologist take over the care of the patient for as long as the neurological condition persisted: 29.7% versus 16.3% and 23%, respectively, for the transient neurological event scenario; 68.4% versus 36.1% and 24.2%, respectively, for the Parkinson’s disease scenario; and 34.8% versus 18.9% and 13.5%, respectively, for the dementia scenario (all $P < .001$). While similar proportions of neurologists, general internists, and family physicians preferred the consult with limited follow-up for the transient neurological event and dementia scenarios, far fewer neurologists compared to primary care physicians preferred a one-time specialty consult or a one-time specialty consult with responsibility for initial tests or medications in the Parkinson’s disease scenario (Table 2).

The odds of a neurologist versus a primary care physician preferring a referral or consultation that required more visits from the neurologist were significant for all scenarios. However, the odds of a neurologist versus a primary care physician preferring a single consult with responsibility for initial tests or medications versus just a single consult were not significant in any of the scenarios (Table 3).

In multivariate logistic regression analyses (Table 4), after controlling for a physician’s knowledge specific to that clinical scenario and other physician and organizational factors, the respondent’s specialty designation, that is, neurologist versus primary care physician, had the largest

and most consistent association with the dichotomous outcome of preference for ongoing specialty management (reflecting a greater extent of specialist involvement) versus the collapsed category of the remainder of the 3 consultation options (reflecting a lesser extent of specialist involvement) ($P < .05$).

DISCUSSION

Among the neurologists and primary care physicians who agreed a specialist should be involved in the care of patients with neurological conditions, we observed important differences in the type of consult and referral they preferred and the extent of specialist involvement they preferred. For all scenarios, the specialist preferred a greater extent of involvement than did the primary care physician. The disagreement in how primary care physicians and neurologists should care for mutual patients underscores concerns about whether the care provided by both the primary care physician and specialist is coordinated and appropriate.

The most important difference in the primary care physicians’ and neurologists’ consultation and referral preferences was the proportion of physicians who preferred the neurologist provide ongoing management for the patient’s specialty condition. More neurologists felt they should be

Table 3. Neurologists’ Versus Primary Care Physicians’ Preferences for Extent of Specialty Involvement

	Odds Ratio (95% Confidence Interval)		
	Ongoing Management Versus Consultation with Limited Follow-up	Consultation with Limited Follow-up Versus One-time Consultation with Tests, Procedures, and Medications	One-time Consultation with Tests, Procedures, and Medications Versus One-time Consultation Only
Transient neurological event scenario	1.5 (>1.0 to 2.2)	2.2 (1.3 to 3.9)	ns
Parkinson’s disease scenario	4.6 (3.2 to 6.9)	3.3 (1.2 to 8.8)	ns
Dementia evaluation scenario	2.1 (1.3 to 3.5)	3.2 (1.8 to 5.8)	ns

Table 4. Variables Explaining Referral Preferences for Ongoing Management Versus Consultation

	Transient Neurological Event Ongoing Management Versus Consultation* (N = 535)	Parkinson's Disease Ongoing Management Versus Consultation (N = 548)	Dementia Ongoing Management Versus Consultation (N = 422)
Odds Ratio (95% Confidence Interval)			
Physician Characteristics			
Neurologist versus primary care physician	2.5 (1.6 to 3.9)	6.5 (4.0 to 10.7)	4.4 (2.5 to 7.7)
Decrease in physician's age by 10 years	1.4 (1.1 to 1.7)	0.8 (0.7 to 1.0)	ns
Scenario-specific Clinical Knowledge			
20% increase in knowledge on scenario-specific knowledge scale	0.7 (0.6 to 0.9)	ns	ns
Practice Characteristics			
20% increase in patients who are self-referred	1.3 (>1.0 to 1.4)	ns	1.3 (>1.0 to 1.4)
Increase in patient load by 20 patients per week	1.1 (>1.0 to 1.2)	ns	1.2 (1.1 to 1.4)
Utilization Management			
No profiling versus yearly or more	ns	1.6 (1.2 to 2.4)	ns
Practice Setting			
Staff-model HMO	ns	2.3 (>1.0 to 4.5)	ns

Model also controlling for physician gender, time availability, percent of patients requiring preauthorization, and reimbursement from fee-for-service, salary, and capitation, all of which were not significant in any model.

* Ongoing management includes those physician respondents who indicated they preferred the specialist to take over the care of the patient for as long as the specialty problem persists. Consultation includes those physician respondents who preferred a consultation alone, either with tests and procedures or with limited follow-up.

ns = not significant at 95% confidence interval.

responsible for the care of the patient as compared to primary care physicians preferring the neurologist take over the care of the patient. Some have argued that specialists should manage patients with specialty conditions because the care of some chronic conditions can be complex and specialists have more knowledge about these conditions.²⁵ Others argue that the primary care physician is still better able to provide and coordinate all the varying medical needs and so the responsibility should still remain with the primary care physician.²⁶

The pattern of more neurologists than primary care physicians preferring the neurologists take over the care of the patient was more pronounced for the Parkinson's disease scenario than for the other two scenarios. One possible explanation for this may be that Parkinson's disease is less common than dementia and stroke disorders. The prevalence of Parkinson's disease is 1.6% in patients aged 65 years and older,²⁷ whereas the prevalence of dementia in patients over the age of 65 years has been estimated as high as 10%.²⁸ Another possible explanation is that physician specialty groups make assumptions about the specific conditions they should manage, and information may be more readily available to neurologists for some conditions and to primary care physicians for others. Although scenario-specific knowledge was not a significant predictor of type of consultation in this study, we previously showed that the generalist's knowledge, relative to the neurologist's knowledge, of management of the Parkinson's disease scenario was much lower than for the other two scenarios.²⁴

When health care providers are not in agreement about how work efforts should be differentiated, coordination is

unlikely to exist. Coordination is the activity of consciously synchronizing differentiated work efforts,²⁹ and coordinated care has been associated with better patient outcomes.³⁰⁻³² The coordination of care may be disrupted because physicians are in competition for patient resources. Physicians might prefer consultations and/or referrals requiring increasing time and effort when the reimbursement for their services is linked to more patient visits, such as occurs in fee-for-service reimbursement. Thus, physicians with primarily fee-for-service reimbursement should prefer referrals and consultations requiring more patient visits compared to salaried physicians. After controlling for specialty designation, we found a null effect of all financial incentives in the multivariate analyses; therefore, our findings do not support this explanation. Other factors, such as experiences with profiling and working in a staff-model HMO, were only significant in one scenario. Other investigators found that neurologists in HMOs were less likely to provide extended care compared to consultative care; however, they did not measure the construct of "ongoing management."³³

Several other factors were found to predict a physician's preference for extent of specialty involvement besides the specialty designation. The fact that physicians with more self-referred patients were more likely to prefer ongoing management than those with fewer self-referred patients is not surprising, as self-referred patients are less likely to have an assigned primary care physician and therefore will have a stronger need for a physician to provide ongoing management. After controlling for several practice and provider characteristics, physicians who saw

more patients preferred the neurologist to provide ongoing management. The magnitude of this association was not large and this may be because the effect is working in opposite directions for each physician specialty group, that is, a busy primary care physician might prefer the neurologist provide ongoing management, but the busy neurologist might prefer the primary care physician retain responsibility. Age has been found to predict physicians' referral preferences;^{34,35} however, in our study, physician age was not a consistent predictor of extent of specialist involvement among those preferring some sort of referral.²⁴ Physician knowledge was only significant in one scenario. Studies linking physician knowledge to referral behavior have shown conflicting results.³⁶⁻⁴⁰ Physician knowledge has been shown to consistently predict whether specialty involvement would be preferred (physicians with less knowledge specific to that clinical situation express a greater preference to refer to a specialist than physicians with greater knowledge), but it is plausible that among those preferring specialty involvement, knowledge is a less important factor in the extent of specialist involvement.²⁴

The multivariate logistic regression analysis for the Parkinson's disease scenario revealed slightly different results than for the other two scenarios. For the Parkinson's disease scenario, physicians in a staff-model HMO and physicians who were not profiled were more likely to prefer the neurologist to provide ongoing management, and the physician's patient load and percent of self-referred patients were not significant. Thus, some of the factors that influence physician referral preferences appear to be dependent on the type of condition and the issues specific to the management of that condition.

The question remains as to what factor associated with the physicians' specialty group is responsible for the major differences in the neurologists' and primary care physicians' referral- and consultation-type preferences. Perhaps physicians prefer and derive pleasure from referrals and consultations that are more likely to allow them to observe patients improving and responding to their management decisions. A recent study assessing physician satisfaction showed that clinical autonomy, that is, the physician's freedom to make clinical decisions, ability to form continuing relationships, and assessment of their ability to provide high-quality care, was the strongest and most consistent predictor of physician satisfaction, and managed care was a weak predictor of physician satisfaction.⁴¹ This study supports our findings that factors inherent to the physician's identity, not financial reimbursement or factors associated with managed care, influence referral decisions.

The influence of physician specialty group on the neurologists' and primary care physicians' referral- and consultation-type preferences might also be explained by their respective patient experience. Despite the fact that primary care physicians' and specialists' referral preferences were based on the same patient scenario, the type of patients they see in practice may still indirectly influence their preferences. Parkinson's disease patients seen by neurologists

are younger¹⁴ and patients with stroke admitted to neurology service versus medicine service are younger, have better prognostic profiles, more uncommon stroke mechanisms, and lower frequency of comorbidities.^{16,42} Therefore, primary care physicians, presented with the same clinical scenario as neurologists, may still presume that the patient will have comorbid issues and issues related to aging that require the attention of a primary care physician. Subsequently, they may hesitate to recommend the specialist take over the care of the patient. In contrast, the neurologist may presume that the patient is likely to have more complicated problems restricted to neurology and therefore not hesitate to take over the care of the patient.

Several strengths and limitations characterized our study. Our study measured physician referral and consultation preferences. Survey methods are felt to represent an excellent method for measuring physician knowledge, preferences, attitudes, and beliefs.⁴³ Nevertheless, the generalizability of our findings to actual practice is not clear. While there are biases inherent in vignette methodology,⁴⁴ a recent study evaluating the ability of written case simulations to represent actual physician behavior found that written case simulations were a good proxy for actual behavior when judged by a standardized patient.⁴⁵ In addition, the use of vignettes has the advantage of naturally "controlling" for patient case mix,⁴⁵ which has been implicated as a confounder in other studies comparing physicians.^{16,46,47}

The physicians in these analyses are a subset of the respondent physicians who already expressed a preference for referring the patients presented in the scenarios to a specialist. Therefore, our findings may underestimate the disagreement in the community, where physicians who would not prefer a specialist to be involved might not have a choice about sharing care for some patients. Generalizations of study findings to physicians nationally must be made cautiously given that we sampled physicians in states with higher Medicare managed care penetration, and a larger proportion of nonrespondent than respondent general internists were female. Finally, there may be some limitations to the generalizability of these findings in the care of patients with uncommon neurological conditions or where there is no overlap in care between primary care physicians and neurologists.

The disagreement between the primary care physicians and specialists regarding how patients who are referred to a specialist are best managed should raise serious concerns among health care providers, policy makers, and educators about whether the care for mutual patients is coordinated and appropriate. We found no factor that consistently explained this disagreement except for the physician's specialty group designation. Thus, interventions designed to improve physician coordination of care and better define physician roles and responsibilities will need to address factors inherent to physician specialty groups such as changing group belief systems and enhancing inter-physician group communication and understanding. The next steps in a research agenda to elucidate such factors should

include qualitative research methods including focus groups and interviews with physicians.

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APPENDIX A. (QUESTION 1)

Primary Care Physician Response Template:

At this point, how would you manage this patient? CIRCLE A NUMBER

I would continue to manage the patient myself 1

I would curbside a _____physician with the intent of managing the patient myself..... 2
INSERT SPECIALTY TYPE

I would curbside a _____physician in deciding whether or not to get a formal referral..... 3
INSERT SPECIALTY TYPE

I would formally refer the patient to a _____physician 4
INSERT SPECIALTY TYPE

Neurologist Response Template:

What is your preference for the initial management of the patient described above? CIRCLE A NUMBER

The primary care physician manages this patient on his/her own. 1

The primary care physician curbsides a _____physician to get management..... 2
or referral recommendations. INSERT SPECIALTY TYPE

The primary care physician formally refers the patient to a _____..... 3
INSERT SPECIALTY TYPE

APPENDIX A. (QUESTION 2)

Primary Care Physician Response Template:

Assume you referred the patient in the above scenario. What best describes what you would like the referral physician to do? CIRCLE A NUMBER

- Consult with the patient once and return the patient to me 1
- Consult with the patient once; order any necessary tests, procedures or medications, and then return the patient to me..... 2
- Consult with the patient; order any necessary tests, procedures or medications; follow-up with the patient on a short-term basis for immediate issues, and then return the patient to me 3
- Take over the specialty care of the patient for as long as the specialty problem persists 4

Neurologist Response Template:

Assume the patient in the above scenario was referred to you. What best describes what you would like to do? CIRCLE A NUMBER

- Consult with the patient once and return the patient to the primary care physician 1
- Consult with the patient once, order any necessary tests, procedures or medications, and then return the patient to the primary care physician 2
- Consult with the patient, order any necessary tests, procedures or medications, follow-up with the patient on a short-term basis for immediate issues, and then return the patient to the primary care physician..... 3
- Take over the specialty care of the patient for as long as the specialty problem persists 4
- Refer the patient to a neurology subspecialist, sub-specialty team, or other physician specialty 5