

HEALTH CARE REFORM

Referral and Consultation Communication Between Primary Care and Specialist Physicians

Finding Common Ground

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Background: Communication between primary care physicians (PCPs) and specialists regarding referrals and consultations is often inadequate, with negative consequences for patients. We examined PCPs' and specialists' perceptions of communication regarding referrals and consultations. We then identified practice characteristics associated with reported communication.

Methods: We analyzed the nationally representative 2008 Center for Studying Health System Change Health Tracking Physician Survey of 4720 physicians providing at least 20 hours per week of direct patient care. Outcome measures were physician reports of communication regarding referrals and consultations.

Results: Perceptions of communication regarding referrals and consultations differed. For example, 69.3% of PCPs reported "always" or "most of the time" sending notification of a patient's history and reason for consultation to specialists, but only 34.8% of specialists said they "al-

ways" or "most of the time" received such notification. Similarly, 80.6% of specialists said they "always" or "most of the time" send consultation results to the referring PCP, but only 62.2% of PCPs said they received such information. Physicians who did not receive timely communication regarding referrals and consultations were more likely to report that their ability to provide high-quality care was threatened. The 3 practice characteristics associated with PCPs and specialists reporting communication regarding referrals and consultations were "adequate" visit time with patients, receipt of quality reports regarding patients with chronic conditions, and nurse support for monitoring patients with chronic conditions.


Conclusions: These modifiable practice supports associated with communication between PCPs and specialists can help inform the ways that resources are focused to improve care coordination.

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EFFECTIVE COMMUNICATION between primary care physicians (PCPs) and specialists regarding patient referrals and consultations is necessary for coordinated care,¹ is important to patients and physicians,²⁻⁵ and improves patient outcomes and physician satisfaction.^{6,7} Interspecialty communication is increasingly important because medical subspecialization and technological advances fragment care across numerous physicians.^{1,8,9}

Despite its importance, interspecialty communication occurs inconsistently.^{6,10-13} Identification of practice factors with the potential to enhance communication can inform efforts to improve care coordination. Such efforts include health information technology (HIT) adoption; patient-centered medical homes, which emphasize coordination by PCPs; and accountable care organizations (ACOs), which strive for shared accountability for patients among physicians.¹⁴⁻¹⁸

Others have examined interspecialty communication in specific settings or situations and found, for example, that use of standardized note formats and computer access to medical records were associated with better communication.^{2,6,10,11,13}

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In another study,¹⁹ practices in which a care coordinator worked on-site with the patient's PCP for patients with chronic conditions had improved coordination and were cost neutral.

We examined a nationally representative physician sample to describe PCP and specialist perceptions of communication regarding referrals and consultations. We then

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identified practice characteristics associated with positive perceptions of interspecialty communication. We hypothesized that greater practice resources (including fewer time pressures), the presence of care management supports, and indicators of more established referral networks and integration would be associated with greater communication regarding referrals and consultations. We were particularly interested in 3 modifiable factors: adequacy of patient visit time (as a proxy for time for communication and practice resources), use of HIT to communicate regarding patients, and use of nonphysician staff to support care management.

METHODS

SURVEY AND SAMPLE

We analyzed a national stratified random sample of 4720 physicians from the 2008 Health System Change Health Tracking Physician Survey. Funded by the Robert Wood Johnson Foundation, it is the fifth in a series of nationally representative physician surveys conducted since 1996 by the Center for Studying Health System Change.²⁰ The sampling frame included active licensed allopathic and osteopathic physicians and was drawn from the American Medical Association master file. The mail survey achieved a 61.9% response rate. Characteristics of physicians who completed the survey and those who refused to participate were similar.²⁰ All survey items have been validated through successful use in other surveys or cognitive testing.

Respondents must have completed their medical training and provide direct patient care for at least 20 hours per week. Physicians with minimal direct patient contact (eg, radiologists, anesthesiologists, and pathologists), federal employees, and temporarily licensed foreign medical graduates were ineligible. Additional background information is available at <http://www.hschange.org/CONTENT/1085/>. An institutional review board approved the survey and procedures.

The PCPs included family practice, general practice, general internal medicine, geriatric, internal medicine–pediatric, and general pediatric physicians. Before combining all specialists within 1 group, we analyzed several subgroups separately (eg, types of surgeons with differing needs to communicate with PCPs and cognitive vs procedural specialists).

OUTCOME MEASURES

Care coordination requires that PCPs referring patients to specialists communicate timely, relevant patient information and the reason for the referral and that specialists communicate findings and recommendations back to the PCP.²¹ Equally important is the receipt and recognition of this information by the respective parties.¹ On the basis of primary care and chronic care frameworks,^{1,22} we examined factors hypothesized to influence these components of communication.

We used 4 questions adapted from the Primary Care Assessment Tool, Provider Survey.²³ We asked PCPs, “When referring a patient to a specialist, how often do you send the specialist notification of the patient’s history and the reason for consultation?” and “How often do you receive useful information about your referred patients from specialists?” We asked specialists, “When you see a patient referred to you by a PCP, how often do you receive notification of the patient’s medical history and reason for consultation?” and “For patients who were referred to you by a PCP, how often do you send the PCP notification of the results of your consultation and advice to the patient?” Response options were

“always,” “most of the time,” “sometimes,” “seldom or never,” and “not applicable.”

Reports of communication receipt reflect other physicians’ sending behavior and the receiving organization’s ability to get communications to the appropriate physician when needed. Thus, results regarding communication receipt may reflect the characteristics of physicians in the referral network and those of the receiving practice.

Independent variables of primary interest were organized conceptually into the 3 areas related to our hypotheses. We recognize that some (eg, practice type and size) might fit into all 3 areas.

PRACTICE RESOURCES AND TIME PRESSURES

We asked physicians about the extent to which they thought they had adequate time to spend with their patients during office visits (Likert scale responses ranging from “agree strongly” to “disagree strongly”) and the practices’ payer mix (percentage of Medicare and Medicaid revenue). Because practices caring for patients with more complex and comorbid conditions face greater coordination challenges, we assessed whether the practice cared for patients with 1 or more of 4 prevalent and costly chronic conditions (eg, asthma, diabetes mellitus, depression, and congestive heart failure) and the percentage of the physician’s patients with any chronic condition.

Other independent variables relevant to practice resources and physician time pressures were practice type and size and physician base compensation method. We also included physician reports of the importance of quality measures, patient satisfaction surveys, productivity, practice profiling, and practice financial performance in determining compensation (moderately or very important vs somewhat or not important).

PRACTICE SUPPORTS FOR CARE MANAGEMENT

Practice supports for patients with chronic conditions indicate a capacity for care management and are hypothesized to be associated with communication in connection with consultations and referrals. These supports include (1) nonphysician patient educators, (2) nurse care managers, and (3) the receipt by the physician of quality reports regarding his/her patients with chronic conditions.²²⁻²⁴ These items were asked of physicians in practices treating any 1 of 4 prevalent chronic conditions (eg, asthma, diabetes, congestive heart failure, or depression). In the logistic regression models, a dummy variable was included to capture physicians in practices that did not provide care for patients with any of these 4 conditions.

We also assessed the presence and use of HIT in the practice, focusing on elements with the potential to support communication and information sharing. After assessing them individually, we created a summary measure of 3 HIT tools most relevant to coordination: (1) whether the respondent’s main practice uses an electronic medical record (EMR) (all paper, 0; part electronic, 1; and all electronic, 2); (2) whether the physician routinely used HIT for accessing patient notes, problem lists, and medication lists (no, 0; yes, 1); and (3) whether the physician routinely used HIT to exchange clinical data with other physicians (no, 0; yes, 1). We summed responses and then categorized them as high (3-4), partial (1-2), or none (0). The rate of e-mail use for communication with other physicians regarding patients was too low to be included in the analysis.

REFERRAL NETWORKS AND INDICATORS OF INTEGRATION

We included proxy variables that helped capture the extent to which physicians have more vs less established referral networks with other physicians: physician years in practice (<11,

11-20, >20), based on prior findings that physicians in practice longer have more established working relationships with other physicians; rural vs urban location; independent physician ownership; practice type (group or staff model health maintenance organization [HMO] vs community health center vs other practice types) and group practice size (number of physicians); number of managed care contracts; and percentage of practice revenue under capitation.

We controlled for additional physician factors, including sex, board certification, medical training location (United States or Canada vs elsewhere), and specialty.^{1,2,6,25} We also controlled for geographic region, physicians' assessment of "market competitiveness," and county ratio of PCP-to-specialist supply.

STATISTICAL ANALYSIS

We examined univariate frequencies of all variables, correlations among independent variables, and the bivariate associations between independent and outcome variables. Tests for multiple comparisons of the bivariate proportions were conducted, and they did not differ significantly from the raw *P* values. On the basis of these analyses and the clinical and policy relevance of particular factors within the primary care and chronic care conceptual frameworks, we built logistic regression models. The goal of our multivariate logistic regressions was to examine the association between the key modifiable independent variables (eg, adequate time with patients) and each binary outcome (eg, sends information regarding a referral or consultation), adjusting for all other practice factors and potential confounders.

A separate logistic regression model was created for each of the 4 coordination outcome measures. Two of the models applied to PCPs and 2 applied to specialists. All 4 contained the same independent variables. To estimate the independent effects of physician, panel, and market characteristics, we entered nonmodifiable factors (physician sex; years in practice; board certification; location of training; practice type; percentage of patients in practice with chronic conditions; percentage of practice revenue from Medicare, Medicaid, and capitation; region; and urban status) into each logistic regression model as mutually exclusive categorical variables. After building these base models, variables that could theoretically affect communication and coordination of care were added one at a time (eg, revenue sources, factors affecting compensation, use of an EMR, use of nurse care managers for patients with chronic conditions, and whether the physician thought he or she had adequate time to spend with patients during visits). To assess the relative contributions of the key independent variables of interest on the outcomes and model fit, we performed the likelihood ratio test (χ^2 difference in the likelihood ratios) as each modifiable factor was added to the base model.

We assessed for interactions between key independent variables and relevant covariates with respect to the coordination measures; none were significant. Specialist subgroup results were consistent, with only minor differences in magnitude but not in direction of the associations; therefore, only combined specialist results are given.

We determined present adjusted percentages from final parsimonious models. Hosmer-Lemeshow tests indicated good fit of the data. Also, SUDAAN software, version 10.0 (Research Triangle Institute, Research Triangle Park, North Carolina) was used to analyze the data that were weighted for probability of selection and survey nonresponse. Unadjusted analyses were largely consistent with the multivariate logistic regression results and thus are not presented.

Finally, we calculated the predicted increase in interspecialty communication as each of the 4 key practice supports (HIT use, adequate visit time, quality reports regarding patients with chronic conditions, and a nurse care manager) is added for an average

respondent, holding all other covariates at their means. These simulations are based on estimates from the multivariate logistic regression models.

RESULTS

Table 1 presents the sample characteristics. Primary care physicians are more likely than specialists to think that they do not have adequate time to spend with patients during office visits (39.3% vs 30.2%, $P < .001$). Specialists are significantly more likely to have no managed care contracts (14.1%) compared with PCPs (9.7%, $P < .001$). A higher percentage of specialists compared with PCPs have high HIT use (38.4% vs 35.5%, $P = .05$). A much higher percentage of PCPs (64.7%) receive reports on the quality of care for their patients with chronic conditions than do specialists (25.4%, $P \leq .001$).

The PCPs' and specialists' reports of the extent that they communicate with one another regarding patient referrals and consultations differed significantly (**Table 2**). Although 69.3% of PCPs reported that they "always" or "most of the time" send the specialist notification of a patient's history and reason for consultation at the time of referral, only 34.8% of specialists reported they "always" or "most of the time" receive such notification. Similarly, 80.6% of specialists said they "always" or "most of the time" send the referring PCP notification of the results of their consultation and advice to patients, whereas only 62.2% of PCPs reported they received such information. The PCPs and specialists who reported not consistently receiving communications regarding referrals and consultations were significantly more likely to report that their ability to provide high-quality care was threatened because of failure to receive timely reports (**Table 3**). This finding suggests poor communication threatens quality of care and supports our outcome measures' content validity.

PRACTICE RESOURCES AND TIME PRESSURES

For PCPs and specialists, "having adequate time to spend with patients during the office visit" was the factor with the greatest positive association with each communication outcome (**Table 4** and **Table 5**). Although physicians with higher proportions of patients with chronic conditions were more likely to report sending notification to their colleagues, they were also more likely to report that receipt of timely reports from other physicians was a problem (data not shown).

PRACTICE SUPPORTS FOR CARE MANAGEMENT

Receipt of quality reports regarding patients with chronic conditions was positively associated with 3 of 4 outcomes (Table 4 and Table 5). The involvement of a nurse at the practice to help treat patients with chronic conditions was associated with greater receipt of communication regarding referrals and consultations. Use of HIT was associated with higher reports of receiving and sending communication by specialists but not by PCPs.

Table 1. Physician and Practice Characteristics, Health System Change Physician Survey 2008^a

Characteristic	Total, % (N=4720)	PCPs, % (n=1804)	Specialists, % (n=2591)
Weighted physician population	411 784	153 488	228 847
Physician characteristic ^b			
Sex			
Male	72.5	65.3	77.1 ^c
Female	27.4	34.6	22.8
Years in practice			
≤10	29.3	31.7	27.8 ^c
11-20	31.8	30.6	32.6
>20	38.8	37.6	39.5
Practice resources and time pressures ^b			
Adequate time to spend with patients during visits			
Disagree	33.8	39.3	30.2 ^c
Agree somewhat	41.6	40.5	42.3
Agree strongly	24.7	20.2	27.5 ^c
% of Patients with a chronic condition in physician's panel			
<25	26.3	22.1	29.0 ^c
25-50	23.3	24.9	22.3 ^d
>50	50.4	53.1	48.6 ^c
Prevalent chronic conditions treated in practice, summary score ^e			
0	25.7	1.9	41.2 ^c
1	15.6	6.6	21.5 ^c
2	6.3	6.5	6.2
3	8.3	10.0	7.3 ^c
4	43.9	75.1	23.8 ^c
Primary compensation method			
Performance-adjusted salary ^f	43.7	46.5	42.0 ^c
Fixed salary	24.7	26.4	23.6 ^d
Shift or hourly pay	6.2	4.3	7.4 ^c
Share of practice revenue	19.4	16.0	21.6 ^c
Other	5.8	6.7	5.2
Revenue from Medicare			
0%-25%	44.3	47.1	42.5 ^c
26%-50%	38.4	36.5	39.7 ^d
≥51%	17.1	16.3	17.7
Revenue from Medicaid			
0%-25%	78.7	75.2	81.0 ^c
26%-50%	14.2	15.5	13.4 ^d
≥51%	6.9	9.1	5.5 ^c
Practice supports for care management ^b			
HIT use			
High	37.3	35.5	38.4 ^d
Partial	29.3	26.3	31.3 ^c
None	33.4	38.2	30.3 ^c
Receive reports regarding quality of care for your patients with chronic conditions			
Yes	40.8	64.7	25.4 ^c
No	59.2	35.3	74.6 ^c
Staff support for chronic care management: availability and type of other staff to help educate and coordinate care for patients with chronic conditions ^g			
None	35.7	46.7	28.5
Clinical assistants or nurses help educate patients about chronic conditions, but no nurse care managers to monitor and coordinate care of patients with chronic conditions	14.8	22.4	9.9 ^c
Nurse care manager for patients with chronic conditions	23.7	29.0	20.3 ^c
No patients with any of the 4 chronic conditions	25.4	1.9	41.3 ^c

(continued)

REFERRAL NETWORKS AND INDICATORS OF INTEGRATION

Physicians who have practiced 20 years or more and physicians in small and nonmetropolitan areas report sending and receiving communication regarding referrals and consultations at higher rates than their counterparts, regardless of specialty. The PCPs in group- and staff-

model HMOs, community health centers, and hospital or medical school practices report sending referral information to specialists at higher rates than counterparts in group practices (Table 4). Among PCPs, reports of sending communication to specialists decreased as the number of managed care contracts increased (Table 4). For specialists, this association was in the opposite direction.

Table 1. Physician and Practice Characteristics, Health System Change Physician Survey 2008^a (continued)

Characteristic	Total, % (N=4720)	PCPs, % (n=1804)	Specialists, % (n=2591)
Referral networks and indicators of integration ^b			
Type and size of practice			
1-2 physicians	31.9	34.6	30.2 ^c
3-10 physicians	24.4	25.2	23.9
≥11 physicians	15.5	16.5	14.9
HMO, staff, or group			
HMO, staff, or group	3.5	4.6	2.8 ^c
CHC	3.1	4.8	2.0 ^c
Hospital	13.0	9.3	15.5 ^c
Medical school or other	8.3	4.7	10.5 ^c
No. of managed care contracts ^h			
0	12.4	9.7	14.1 ^c
1-4	18.2	20.1	17.0 ^c
5-9	26.2	28.0	25.1 ^d
≥10	43.0	42.2	43.7
Revenue under capitation ^c			
0%	60.1	48.7	67.5
1%-25%	23.8	30.0	19.9
26%-100%	16.0	21.4	12.6
Practice location, urban status			
Large MSA (≥1 million)	60.3	57.9	61.9
Small MSA (<1 million)	29.3	27.8	30.3
Non-MSA	10.2	14.2	7.7 ^c

Abbreviations: CHC, community health center; HIT, health information technology; HMO, health maintenance organization; MSA, metropolitan statistical area; PCPs, primary care physicians.

^aData Source: Center for Studying Health System Change 2008 Health Tracking Physician Survey.

^bPercentages are weighted to be nationally representative.

^cIndicates a significant difference between PCPs and specialists for that category of the physician or practice characteristic ($P \leq .01$).

^d $P \leq .05$.

^ePractice Panel Chronic Condition Summary Score ranging from 0 (treats none of these) to 4 (treats all of these). The 4 conditions are asthma, diabetes mellitus, clinical depression, and congestive heart failure.

^fSalary adjusted for performance (eg, own productivity, practice's financial performance, quality measures, or practice profiling).

^gThe 4 prevalent chronic conditions are asthma, diabetes mellitus, clinical depression, and congestive heart failure.

^hManaged care contracts were defined for the respondents as contracts with health plans, such as HMOs, preferred provider organizations, independent practice associations, and point-of-service plans, that use financial incentives or specific controls to encourage use of specific physicians associated with the plan.

Table 2. Contrast in PCPs' and Specialists' Perceptions of Communication Regarding Referrals and Consultations, Health System Change Physician Survey 2008^a

Frequency	PCP to Specialist Communication Regarding Patient History and Consultation Reason, %		Specialist to PCP Communication Regarding Consultation Results and Advice to Patient, %	
	PCPs Sending	Specialists Receiving	Specialists Sending	PCPs Receiving
Always or most of the time	69.3	34.8	80.6	62.2
Sometimes	25.6	45.3	15.4	35.0
Seldom or never	5.1	19.9	4.0	2.8

Abbreviation: PCP, primary care physician.

^aData source: Center for Studying Health System Change 2008 Health Tracking Physician Survey. Percentages are weighted to be nationally representative of the physician population in the United States providing direct patient care for at least 20 hours per week.

No significant associations were found between “the importance of factors affecting compensation” (eg, quality measures) and the outcomes. A rerun of models excluding physicians in institutional settings (eg, staff-model HMOs and hospitals) did not change these results. Physician income, practice ownership, board certification, and county ratio of primary care to specialist physicians were also not consistently associated with physicians' communication (data not shown).

The **Figure** illustrates the predicted increase in interspecialty communication as each of the 4 key practice supports (HIT use, adequate visit time, quality reports regarding pa-

tients with chronic conditions, and a nurse care manager) is added for an average respondent. For example, PCPs with all 4 practice supports would increase their reported sending of referral communication from 63.9% to 82.7%, relative to PCPs with none of the 4 supports.

COMMENT

To our knowledge, ours is the first nationally representative study of physicians to describe interspecialty communication regarding consultations and referrals. The

results suggest much room for improvement. The PCPs and specialists reporting inconsistent receipt of communications from other physicians were significantly more likely to report that their ability to provide high-quality care was threatened because of failure to receive timely reports.

The significant differences in PCPs' and specialists' perceptions of the extent to which they communicate with one another regarding referrals and consultations may have various causes, including overstatement of sending behaviors and understatement of receipt. Although our questions asked specifically about patients referred by PCPs, specialists may have misattributed some patient self-referrals as PCP referrals. In addition, process failures, such as late or misdirected reports and reports not placed in the patient's record in a timely fashion at the recipient practice, may affect responses regarding receipt despite timely sending.

MODIFIABLE FACTORS CONSISTENTLY ASSOCIATED WITH INTERSPECIALTY COMMUNICATION

Practice Resources and Time Pressures

The factor most consistently and strongly associated with interspecialty communication was "adequate time with a patient during the office visit." In addition, PCPs were more likely to believe that they do not have adequate time to spend with patients during office visits than were specialists. This likely occurred because of the complex nature of primary care, which involves longitudinal care over time and coordination of a patient's care across various conditions.¹ Increased administrative burden (eg, health plan prior authorizations) and decreasing reimbursements create pressures for physicians to see more patients²⁶ and decrease the time available for effective communications regarding referrals and consultations during and after the visit. The average primary care face-to-face visit lasts 10.7 to 18.7 minutes, depending on the assessment method,^{27,28} and time pressures during the visit result in lower-quality care, including poorer patient and physician care experiences.^{29,30} Our findings complement these prior studies. With more encounter time, the physician and staff can focus more completely on the patient's needs, which may include initiating referral and consultation communication and retrieving reports from other physicians.

Overall, payment factors, as measured by this survey, had inconsistent and little association with interspecialty communication. Most current compensation methods do not incentivize communication. Practice supports may be more important to facilitating interspecialty communication, at least in the predominant fee-for-service environment.

Care Management Supports

The positive association between receipt of quality reports regarding patients with chronic conditions and interspecialty communication regarding referrals and consultations suggests the potential benefits of providing perfor-

Table 3. Receipt of Useful Reports From Other Physicians^a

Type and Frequency	Not Getting Timely Reports From Other Physicians Is a Problem Limiting My Ability to Provide High-Quality Care, %		
	Not a Problem	Minor Problem	Major Problem
PCP gets report back from specialists to whom he or she referred patient			
Always or most of time	33.7	58.7	7.5
Sometimes	11.8	61.1	27.1
Seldom or never	8.1	40.8	51.0
Specialist gets report from the PCP who referred the patient			
Always or most of time	37.7	56.1	6.2
Sometimes	21.7	64.4	13.9
Seldom or never	20.8	58.2	20.9

Abbreviation: PCP, primary care physician.

^a $P < .001$ for the 2 bivariate comparisons based on χ^2 statistics.

mance feedback to physicians. Such feedback may help identify gaps in care and spur physicians to communicate with others sharing care for patients. Practice environments where quality reports are generated may also have cultures or mechanisms to facilitate referral and consultation reports or follow-up when communications are not received.

It is notable that significantly fewer specialists received quality reports compared with PCPs for their patients with chronic conditions. Given the positive association between quality report receipt and communication levels between PCPs and specialists, increased attention to providing specialists with such quality reports might be indicated. In addition, incorporating interphysician communication measures into such reports might help improve coordination.

The association between having a nurse in the practice help coordinate care for patients with chronic conditions and greater receipt of interspecialty communication may reflect efforts by the nurse to reach out to other practices to obtain referral or consultation letters. This is a particularly important function for overwhelmed practices, although few have the resources to provide nurse care managers and few payers compensate for this. Even in primary care practices that lack nurse care managers, the presence of nonphysician staff to educate patients with chronic conditions was beneficially associated with the sending of reports from one practice to another.

The positive association between HIT use and sending or receiving information among specialists, but not among PCPs, may reflect that specialists are more likely to work in large or institutional settings with available HIT.³¹ Use of HIT in this national sample was higher than prior estimates,³² which used different measures of HIT use, but closer to a recent publication of data from the National Ambulatory Medical Care Survey, which found that 41.5% of physicians reported using all or partial EMR systems.³³ Outside large integrated health care systems and large multispecialty groups, however, lack of interoperability, current EMR design, and lim-

Table 4. Practice Supports and Associations With PCPs and Specialists “Always” or “Most of the Time” Sending Notification Regarding Patient Referrals and Consultations, Health System Change Physician Survey 2008^a

Physician and Practice Characteristic	PCP Sends Specialist Notification of Patient’s History and Reason for Consultation, % (n=1804)	P Value	Specialist Sends PCP Notification of Results of Consultation, % (n=2591)	P Value
Weighted physician population	153 488		228 847	
Practice resources and time pressures				
Adequate time with patients during visit				
Disagree	65.2	Reference	77.5	Reference
Agree somewhat	69.3	.04	81.7	.03
Agree strongly	74.3	.004	82.7	.02
Type and size of practice				
1-2 physicians	67.1	Reference	78.1	Reference
3-10 physicians	66.0	.73	86.1	<.001
≥11 physicians	64.3	.41	85.0	.006
HMO, staff, or group	81.7	.02	70.3	.31
CHC	77.7	.04	55.8	.005
Hospital or medical school	78.8	.04	80.5	.17
Compensation method				
Performance-adjusted salary ^b	65.8	.65	84.2	.01
Fixed salary	70.6	.48	79.5	.92
Shift or hourly	79.3	.13	64.6	.002
Share of revenue	68.6	Reference	79.5	Reference
Practice supports for care management				
HIT use				
High	71.8	.17	82.8	.01
Partial	64.6	.20	81.0	.14
None	68.7	Reference	77.8	Reference
Receive quality reports on your patients with chronic conditions				
Yes	71.3	.002	82.3	.19
No	63.5	Reference	80.0	Reference
Staff support: availability and type of nonphysician staff to help educate and coordinate care for patients with chronic conditions ^c				
None	65.3	Reference	74.6	Reference
Clinical assistants or nurses help educate patients about chronic conditions, but no nurse care managers to monitor and coordinate care of patients with chronic conditions	73.0	.006	79.5	.14
Nurse care manager for patients with chronic conditions	70.3	.09	75.3	.81
Referral networks and indicators of integration				
Years in practice				
≤10	64.2	Reference	78.7	Reference
11-20	68.5	.16	80.5	.37
>20	72.7	.004	82.3	.09
No. of managed care contracts				
0-4	73.0	Reference	77.5	Reference
5-9	66.9	.04	83.3	.008
≥10	67.4	.05	81.5	.03

Abbreviations: CHC, community health center; HIT, health information technology; HMO, health maintenance organization; MSA, metropolitan statistical area; PCPs, primary care physicians.

^aData source: Center for Studying Health System Change 2008 Health Tracking Physician Survey. All percentages are weighted to be nationally representative estimates. Percentages are from multivariate logistic regressions and are adjusted for all the variables in the table and for physician age, sex, board certification status, location of medical training (in US/Canada vs other country), percentage of patient panel with chronic conditions, percentage of practice revenue from Medicare and Medicaid, % of practice revenue under capitation, census region (northeast, south, midwest, or west) and urban status (large metropolitan MSA, small MSA, or non-MSA). HIT summary score reflects whether (1) main practice uses an electronic medical record; (2) information technology is used for accessing patient notes, problem list, and medication list; (3) information technology is used for exchanging clinical data and images with other physicians.

^bSalary adjusted for performance (eg, own productivity, practice’s financial performance, quality measures, and practice profiling).

^cThe 4 prevalent chronic conditions are asthma, diabetes mellitus, depression, and congestive heart failure. A separate dummy category is present for respondents who do not routinely provide care for any of these 4 conditions in their practice.

ited clinical processes and reimbursement for coordination limit the extent to which present-day EMRs are used for communication between primary care and specialist practices.³⁴

Referral Networks and Integration

The PCPs with greater administrative burden, as represented by more managed care contracts, reported lower

Table 5. Practice Supports and Associations With Specialists and PCPs “Always” or “Most of the Time” Receiving Communication Regarding Referrals and Consultations, Health System Change Physician Survey 2008^a

Physician and Practice Characteristic	Specialist Receives Notification Regarding Patient’s History and Reason for Consultation, % (n=1804)	P Value	PCP Receives Useful Information Back From Specialists, % (n=2591)	P Value
Weighted physician population	153 488		228 847	
Practice resources and time pressures				
Adequate time with patients during visit				
Disagree	28.3	Reference	57.9	Reference
Agree somewhat	34.0	.01	62.6	.08
Agree strongly	41.5	<.001	68.0	.007
Type and size of practice				
1-2 Physicians	33.7	Reference	59.6	Reference
3-10 Physicians	32.8	.76	64.6	.26
≥11 Physicians	37.5	.21	68.9	.05
HMO, staff, or group	57.0	.003	68.8	.17
CHC	17.9	.06	50.8	.07
Hospital or medical school	33.7	.91	53.1	.12
Compensation method				
Performance-adjusted salary ^b	33.8	.82	61.2	.34
Fixed salary	39.7	.03	62.8	.25
Shift or hourly	28.2	.37	55.0	.62
Share of revenue	32.5	Reference	59.7	Reference
Practice supports for care management				
HIT use				
High	40.8	<.001	63.8	.25
Partial	31.9	.28	61.2	.65
None	29.0	Reference	60.3	Reference
Receive quality reports regarding your patients with chronic conditions				
Yes	40.3	.003	65.7	<.001
No	32.3	Reference	54.0	Reference
Staff support: availability and type of nonphysician staff to help educate and coordinate care for patients with chronic conditions ^c				
None	30.6	Reference	59.3	Reference
Clinical assistants or nurses help educate patients about chronic conditions, but no nurse care managers to monitor and coordinate care of patients with chronic conditions	30.5	.99	61.1	.57
Nurse care manager for patients with chronic conditions	37.0	.03	66.7	.01
Referral networks and indicators of integration				
Years in practice				
≤10	33.4	Reference	60.1	Reference
11-20	33.8	.77	60.0	.75
>20	35.4	.31	64.7	.17
No. of managed care contracts				
0-4	35.1	Reference	61.2	Reference
5-9	37.1	.49	60.6	.83
≥10	32.3	.23	62.8	.67

Abbreviations: CHC, community health center; HIT, health information technology; HMO, health maintenance organization; MSA, metropolitan statistical area; PCPs, primary care physicians.

^aData Source: Center for Studying Health System Change 2008 Health Tracking Physician Survey. All percentages are weighted to be nationally representative estimates. All percentages are from multivariate logistic regressions and are adjusted for all the variables in the table and for physician age, sex, board certification status, location of medical training (in US/Canada vs other country), percentage of patient panel with chronic conditions, percentage of practice revenue from Medicare and Medicaid, percentage of practice revenue under capitation, census region (northeast, south, midwest, or west) and urban status (large MSA, small MSA, or non-MSA). HIT summary score reflects whether (1) main practice uses an electronic medical record; (2) information technology is used for accessing patient notes, problem list, and medication list; (3) information technology is used for exchanging clinical data and images with other physicians.

^bSalary adjusted for performance (eg, own productivity, practice’s financial performance, quality measures, and practice profiling).

^cThe 4 prevalent chronic conditions are asthma, diabetes mellitus, clinical depression, and congestive heart failure. A separate dummy category is present for respondents who do not routinely provide care for any of these 4 conditions in their practice.

sending behaviors. Multiple contracts also likely indicate a broader set of physician networks in which a physician participates and, consequently, less well-defined referral networks.⁹ Not surprisingly, physicians in more integrated settings, such as group or staff-model HMOs,

were also significantly more likely to report communication regarding referrals and consultations.

This study’s strengths include the nationally representative sample, including physicians in small and medium groups that constitute most outpatient practices in

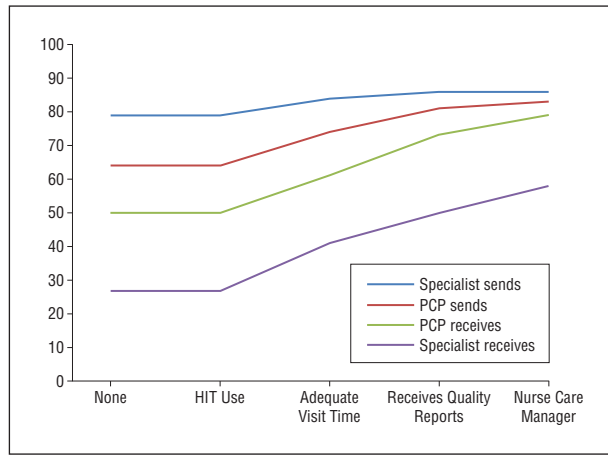


Figure. Percentage of physicians reporting they “always” or “most of the time” send or receive communication regarding referrals and consultations at baseline and then with the addition of each of the 4 practice supports. HIT indicates health information technology; PCP, primary care physician.

the United States²⁷ and that have received less attention in the quality improvement literature. The survey also had a high response rate for a physician survey, and we controlled for a wide range of physician, practice, and market characteristics.

The study’s limitations include the use of physician self-report data that, given the study’s national scope, could not feasibly be validated by medical record reviews. We also lack information on the accuracy, comprehensiveness, and timing of communication. However, our national sample’s self-reported rates of sending or receiving communication regarding referrals and consultations are within the range reported in the literature.^{2,6,10-13} Regardless, potential self-report bias (owing to social desirability) should not systematically affect the direction of associations. Finally, the cross-sectional design does not permit causal attribution.

Although we are unable to fully capture the constructs of practice resources and pressures and referral networks and integration, the individual items examined can help inform policy and clinical initiatives by identifying how resources might be focused to improve communication regarding referrals and consultations. Our results suggest that supporting PCPs so that they, for example, can afford nurse care managers may facilitate adequate communication with specialists.

IMPLICATIONS

Efforts to improve coordination should address the low rates of interspecialty communication regarding referrals and consultations. Current initiatives such as patient-centered medical homes, HIT, and ACOs have the potential to strengthen financial incentives, structures, and care processes to support communication. Combined with prior work^{24,30,35} and anticipated lessons from current medical home experiments, our findings can help inform these initiatives, suggesting ways to focus resources to support infrastructure and measurement of interspecialty communication. Targeted support for capabilities identified in this study as being associated

with good bilateral communication—adequate visit time with patients, quality reports regarding patients with chronic conditions, and nurse support for coordination—may help advance the communication that is critical to care coordination and the success of policy efforts to improve it. Such input might also support larger organizational efforts; for example, ACOs may help to define a tight referral network and shared accountability for patients, whereas the patient-centered medical home within an ACO can focus on care management and serve as the hub of coordination efforts.

In conclusion, systematic structures, tools, and processes for information creation,³⁶ transfer, receipt, and recognition by the sending and receiving physicians are needed to assist medical practices. Measures of “meaningful HIT use”¹⁴ and coordination of care could include items that support, track, and confirm completion of each of these tasks.

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INVITED COMMENTARY

Improving Primary Care–Specialty Care Communication

Lessons From San Francisco's Safety Net

With the advent of health care system reform, patient-centered medical homes and accountable care organizations have emerged as solutions to the fragmentation and duplication that characterize the US health care system.¹ Given the increasing burden of chronic disease, the success of these models depends in part on improving the primary care–specialty care interface.

The interaction between PCPs and specialist consultants is not a trivial issue—it has a central role as a driver of health care quality² and cost.³ Moreover, the importance of the PCP–specialist nexus is underscored by the sheer number of physicians potentially involved in any given patient's care. A recent study⁴ found that in caring for 100

Medicare patients, the average PCP needs to coordinate care with 99 other physicians working across 53 practices.

O'Malley and Reschovsky use a large, nationally representative sample of physicians to rigorously confirm a problem that previously has been reported in smaller, localized studies. Despite the wide recognition that PCP–specialist communication is critical for high-quality patient care, the authors found that communication between PCPs and specialists occurs inconsistently. Remarkably, only 69.3% of PCPs and 80.6% of specialists report “always” or “most of the time” sending basic patient information to each other. Furthermore, this retrospective, self-reported survey data may in fact represent an overestimate.