

Coordination of Specialty Referrals and Physician Satisfaction With Referral Care

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Objectives: To describe how physicians coordinate patient care for specialty referrals and to examine the effects of these activities on referring physicians' satisfaction with the specialty care their patients receive and referral completion.

Design and Methods: Prospective study of a consecutive sample of referrals (N = 963) made from the offices of 122 pediatricians in 85 practices in a national practice-based research network. Data sources included a physician survey completed when the referral was made (response rate, 99%) and a physician survey and medical record review conducted 3 months later (response rate, 85%). Referral completion was defined as receipt of written communication of referral results from the specialist.

Results: Pediatricians scheduled appointments with specialists for 39.3% and sent patient information to specialists for 50.8% of referrals. The adjusted odds of referral completion were increased 3-fold for those referrals for which the pediatrician scheduled the appointment and

communicated with the specialist compared with those for which neither activity occurred. Referring physicians' satisfaction ratings were significantly increased by any type of specialist feedback and were highest for referrals involving specialist feedback by both telephone and letter. Elements of specialists' letters that significantly increased physician ratings of letter quality included presence of patient history, suggestions for future care, follow-up arrangements, and plans for comanaging care; only the inclusion of plans for comanaging patient care was significantly related to the referring physicians' overall satisfaction.

Conclusions: Better coordination between referring physicians and specialists increases physician satisfaction with specialty care and enhances referral completion. Improvements in the referral process may be achieved through better communication and collaboration between primary care physicians and specialists.

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WHEN SPECIALTY referrals are made, primary care physicians must coordinate service delivery across settings, multiple providers, and time to maintain a seamless continuum of care. Optimal coordination involves the documentation of patient care activities, interprovider communication, and the integration of service delivery into a single medical home.^{1,2} Breakdowns in coordination hold the potential for missed or delayed diagnoses and treatments, repeated or unnecessary testing, increased iatrogenic morbidity, adverse drug reactions, and increased risk of litigation.³

Integrating referral care with primary care is a complex and time-consuming process. The success of primary care physicians' coordination efforts depends on tasks that they and other providers perform. Williams et al^{4,5} proposed 3 coordi-

nation events involved in the referral process: (1) the referring physician communicates reasons for the referral and relevant patient information to the specialist, (2) the specialist completes the referral by communicating findings to the referring physician, and (3) the referring physician, specialist, and patient negotiate continuing care arrangements. Assisting patients in navigating the increasingly complex health care system by scheduling the consultation appointment has become another important coordination role for primary care physicians.

Breakdowns in several aspects of coordination have been documented in previous studies. Referring physicians commonly do not communicate relevant patient information to the specialist,⁶ and when they do, the reasons for the referral are often absent.⁷ Although both family physicians and specialists place a high value on information exchange on behalf

SUBJECTS, MATERIALS, AND METHODS

PHYSICIAN STUDY POPULATION AND SETTING

This study occurred in Pediatric Research in Office Settings (PROS), a national pediatric primary care practice-based research network established by the American Academy of Pediatrics (AAP), Elk Grove Village, Ill.¹⁴ The study was publicized at semiannual meetings of the PROS network and in the PROS newsletter and the AAP news magazine, *AAP News*. Recruitment materials, including an overview of the study protocol, sample materials, and a questionnaire requesting physician participation, were mailed to 715 PROS pediatricians. Of those contacted, 163 agreed to participate, 153 declined, 399 did not respond, and 142 participated in data collection. There were 122 pediatricians who completed all phases of data collection; these pediatricians formed the physician study population. They were located in 85 practices throughout 34 states.

PROCEDURES AND PATIENT POPULATIONS

The Institutional Review Board of the AAP approved the study protocol. During 3 PROS semiannual national meetings, practitioners reviewed study materials and methods. After each of the first 2 reviews, we conducted a pilot test in 5 practices, which led to further revisions of study methods and questionnaires.

Data collection occurred from July 1996 to September 1997. The study was conducted in 3 phases. In phase 1 (practice preparation), physicians completed a questionnaire with items on perceived clinical expertise, practice organization, and personal characteristics. Each practice selected a coordinator who communicated with research staff, learned study protocols, trained office staff and physicians, and monitored data quality.

In phase 2 (baseline data collection), pediatricians and office staff collected data during 20 consecutive practice days on all office visits ($N = 49\ 621$) and referrals ($N = 1584$) occurring during regularly scheduled office hours. A practice day could be a half or full work day, provided that the physician held routine office hours. A referral was defined as a physician's recommendation that a patient should have a face-to-face encounter with a physician subspecialist, a nonphysician with a specialized skill, or a mental health practitioner. Furthermore, the referral had to involve verbal communication between the physician and parent and/or patient during either an office visit or telephone encounter. We excluded (1) staff administrative authorizations of referrals that did not involve verbal communication between the

physician and patient and/or parent, (2) referrals made to laboratories, radiologic facilities, emergency departments, and hospitals for inpatient admission, and (3) curb-side consultations in which the referring physician obtains advice from a specialist but does not send the patient for a face-to-face encounter. After each referral, physicians completed a questionnaire (response rate, 99%) with items concerning the locus of the referral decision (office visit or telephone), specialist referred to, reasons for the referral, baseline coordination activities, and patient characteristics.

Practice coordinators kept a record of all referrals and office visits occurring during the study period. Referral logs were used to track study instrument completion, to record physician participation in the survey, and to match patient identifiers with names and addresses in the follow-up phase of the study.

Phase 3 of the study (follow-up data collection) took place 3 months after the index visits and telephone conversations that led to referrals. Physicians used patients' medical records to complete questionnaires for the first 10 referrals they made during baseline data collection. For physicians who made fewer than 10 referrals, all referrals were selected for phase 3. A total of 1135 referrals were identified. The questionnaire included items concerning the physicians' awareness that the patient saw the specialist, the type and quality of specialists' communication of referral results, and measures of physician evaluations of the referral episode and specialists' letters.

Of 142 physicians who participated in the study, all but 20 participated in phase 3. They completed follow-up questionnaires for 963 (85%) of 1135 eligible referrals. These 963 referrals constituted the referral sample. At the study's conclusion, physicians received a feedback report that compared their referral practice patterns with those of the entire sample. Each practice was given a \$100 stipend to defray costs associated with data collection.

VARIABLE SPECIFICATION

Immediately following the referral decision encounters, referring physicians indicated if they or their staff scheduled a consultation appointment with a specific specialist and how they communicated patient information to the specialist. We termed these 2 events "baseline coordination activities."

Three months after referrals were made, referring physicians indicated their awareness that the patient saw the specialist, and they examined patient medical records for the type and quality of specialist feedback regarding referral results. Referral completion was defined as referrals with written evidence of specialist feedback 3 months after the referral was made.

of common patients,⁸ the rate at which primary care physicians receive communication from specialists has been estimated to be low, ranging from 39% to 88%.^{7,9-11}

Because of the importance of coordinating referrals to the quality of patient care, specialists' communication of referral results is likely to affect referring physicians' opinions of specialty care. In a general internal medicine hospital-based practice, the absence of any specialist feedback about referral results was correlated with referring physician dissatisfaction.¹¹ Referring physicians

who are unaware of referral completion cannot integrate specialty care with their patient's overall treatment plan and may be embarrassed when patients contact them about referral results that are unknown to them. Physician satisfaction with prior referral results is an important determinant of future specialist selection.¹²

Prior studies of primary care physicians' coordination activities during referrals have had limited generalizability to the health care context in which physicians practice today. Some studies were conducted in a single hospital-

During the follow-up phase, referring physicians evaluated their overall satisfaction with the referral (range, 1-7 [completely dissatisfied to completely satisfied]); the degree to which the referral assisted them with patient care (range, 1-4 [none to a great deal]); the educational value of the referral (range, 1-4 [none to a great deal]); and, if a letter from a specialist was received, the quality of the letter (range, 1-5 [poor to excellent]).

Referring physicians reviewed specialists' letters for specific types of information: history, findings from physical examination, diagnosis or differential diagnosis, treatment suggestions, plans for follow-up care, and suggestions for how the specialist and referring physician can co-manage the patient.

Controlling variables included the characteristics of patients, referrals, physicians, and physician practices. Patient characteristics included age, sex, health plan payer (commercial, Medicaid, or none), and the presence of a gatekeeping arrangement that required primary care physician authorization for most referrals. The referral decision encounter was characterized as either a first or follow-up visit for the health problem. Three months after referrals were made, referring physicians indicated whether the specialist's involvement was ongoing or completed. The type of specialist the patient was referred to was grouped into the following categories: medical subspecialists, surgical subspecialists, mental health practitioners (including psychiatrists and other mental health practitioners), and nonphysicians.

Physicians selected up to 14 reasons for making the referral. The development of this list and rationale for the categories are described in detail elsewhere.¹⁵ Each reason was assigned to 1 of 3 categories: (1) second opinion, (2) obtain a specialized skill, and (3) parent and/or third-party request. A 4-category variable called reason for referral was created in the following way: if the referral was made at parental and/or third-party request, regardless of other reasons for the referral, it was assigned to the parent and/or third-party request category; the additional 3 categories were second opinion only, specialized skill only, and second opinion and specialized skill.

The referring physician and practice characteristics examined in this study included years in primary care practice, sex, history of some fellowship training, number of weekly patient care hours, self-rated clinical expertise, 20-day referral rates, location of practice (urban, suburban, or rural), and practice organization. Additional details on variable specification can be found elsewhere.^{15,16}

STATISTICAL ANALYSIS

To quantify the frequency of coordination activities, we estimated the percentage of referrals that were associated with

each coordination activity. Because we did not collect information regarding which referred patients actually saw the specialist, we estimated the frequency of specialist coordination activities using the total number of referrals made by referring physicians as the denominator (N = 963). Data analysis was done using SAS version 6.12 (SAS Institute Inc, Cary, NC).

The effect of baseline coordination activities on referral completion was modeled using logistic regression. The unit of analysis was the referral episode. We used the generalized estimating equation to account for the correlation of referrals made by the same physician.¹⁷ Uninsured patient visits were excluded from this regression analysis because of small sample size.

We examined the association between the type of specialist feedback and the referring physician's evaluation of referral care in terms of overall satisfaction, the benefit of the referral to patient care, and the educational value of the referral. These analyses were done using generalized estimating equation regression models. We controlled for the type of referral using 2 variables: (1) type of specialist referred to and (2) reason for referral.

Multivariable linear regression analyses were conducted to identify the elements of referral letters that have the greatest effects on referring physicians' ratings of letter quality, overall satisfaction with the specialty care their patients received, benefit to patient care, and educational value of the referral. The dependent variables for these regression analyses were the referring physicians' rating for each satisfaction indicator. Covariates in these regression analyses were indicator variables for each element of the referral letter.

GENERALIZABILITY ANALYSIS

We compared the personal and practice characteristics of the 122 study pediatricians with a nationally representative random sample of members of the AAP (survey response rate, 74%). The AAP Periodic Survey number 35 was fielded while data were collected by 122 study physicians.¹⁸ Self-identified primary care pediatricians (n = 624) were selected for this analysis. Physicians-in-training were excluded. Cross-tabulations were conducted with χ^2 analysis to examine the representativeness of the study-participant sample.

We also compared the 122 study pediatricians with the 20 who completed baseline data collection but did not participate in the follow-up phase. The purpose of this analysis was to determine if participants differed from nonparticipants in referral practice patterns and personal characteristics.

based practice,^{7,11,12} whereas others were conducted in just a few community-based practices.^{9,10,13} Referrals occurring in hospital settings are likely to have important differences from those made from community practices because of shared information resources and the proximity of physicians in hospitals. Furthermore, there is a limited body of knowledge concerning the ambulatory referral process of pediatricians or of primary care physicians practicing in the managed-care context of the late 1990s. The aims of this study were to describe the frequency with which pri-

mary care pediatricians and specialists engage in various coordination activities when referrals are made and to examine the effect of these activities on referral completion and referring physicians' satisfaction with the specialty care their patients receive.

RESULTS

Compared with a nationally representative sample of pediatricians, study pediatricians were significantly younger

Table 1. Frequency of Coordination Activities for Referrals to Specialists

Coordination Activity	Referrals, No. (%) (N = 963)*
Baseline coordination activities	
Referring physicians or their staff scheduled consultation appointment	376 (39.3)†
Referring physicians sent patient information to the specialist	487 (50.8)‡
Primary way referring physician communicated with specialist	
Sent letter	194 (20.1)
Telephone conversation with consultant	189 (19.6)
Sent photocopied records	94 (9.8)
In-person contact	10 (1.0)
Specialist already had records	104 (10.8)
No communication	372 (38.6)
3-mo follow-up coordination activities	
Referring physician was aware that patient had visit with specialist§	623 (65.0)
Referring physician received feedback from specialist	526 (54.6)
Primary way specialist communicated referral results	
Sent letter only	424 (44.0)
Telephoned referring physician only	36 (3.7)
Sent letter and telephoned referring physician	66 (6.9)
Referral completion	490 (50.9)

*The size of the denominators vary because of differences in missing information.

†n = 956.

‡n = 959.

§Referring physician awareness that the patient saw a specialist could be achieved by feedback from the specialist, communication with the patient, or other means.

||Referral completion occurred when the referring physician received written feedback from the specialist.

(42.7 vs 44.5 years, $P < .05$) and were less likely to practice in a hospital-based primary care setting (5.9% vs 14.2%, $P < .05$). However, there were no differences in the proportion of female clinicians, the percentage with fellowship training, and hours spent in clinical, administrative, and research activities. The 122 participant pediatricians did not differ from 20 nonparticipants in their referral rates, practice intensity (mean number of patient visits per day), percentage of referrals made during telephone conversations with parents, self-rated clinical expertise, or the distribution of patients in gatekeeping, Medicaid, and commercial insurance plans.

COORDINATION OF REFERRALS

Table 1 gives the frequency of coordination activities for the entire sample of 963 referrals. Referring physicians scheduled the consultation appointment and sent information to the specialist for 27.7% of referrals, scheduled the appointment only for 11.5%, sent information only for 23.0%, and performed neither activity for 37.7%. Referring physicians sent information to the specialist for 50.8% of referrals, most commonly by letter or telephone conversation (Table 1). In-person communication was rare.

Referring physicians were aware that patients had had at least 1 specialist visit for 65.0% of referrals 3 months

after the decision to refer was made. For 10.5% of referrals, physicians were aware of appointment adherence despite no feedback from the specialist.

PREDICTORS OF REFERRAL COMPLETION

Table 2 gives the results of a logistic regression analysis for the relationship between referring physician baseline coordination activities and referral completion. Making the appointment with the specialist, sending the specialist information about the referral, or both significantly increased the odds of referral completion. Performing both baseline coordination activities increased the odds of referral completion 3-fold, whereas either activity alone increased the odds from 51% to 77%. Referral completion was less likely among solo practitioners compared with physicians in group practices, more likely for patients with private compared with Medicaid insurance, and more likely for referrals to physician subspecialists compared with those made to mental health practitioners. There were no differences in referral completion by locus of the referral decision encounter or the presence of insurance plans with gatekeeping arrangements.

REFERRING PHYSICIAN SATISFACTION

Referring physicians' evaluations of the quality of referrals, as indicated by ratings of their satisfaction with the referral, benefit of the referral to patient care, and educational value of the referral, were significantly increased by any type of specialist feedback (**Table 3**). In particular, specialist feedback that included both telephone contact and a letter yielded the highest ratings across 3 satisfaction indicators. Controlling for the reason for referral and type of specialist feedback, referring physicians rated their satisfaction with referrals to mental health practitioners significantly lower than those made to medical subspecialists. Although overall satisfaction ratings were no different by reason for referral, those made for a specialized skill were rated as significantly more likely to assist with patient care, and those for second opinion had higher ratings on educational benefit compared with referrals made at parental and/or third-party request.

No single element of referral results was universally contained in specialists' referral letters, and some elements were uncommon (**Table 4**). Surprisingly, only 62.0% of letters included treatment suggestions, and just 30.6% of letters discussed plans for how the specialist and referring physician can interact regarding the patient (comanage) over time. Specialist letters for referrals that were ongoing after 3 months were no more likely than those for referrals concluded by 3 months to contain discussion on plans for comanagement (data not shown). Only 19% of letters included all 6 letter elements given in Table 4.

Referring physicians rated the quality of the specialist's letter as excellent for 34.3% of cases. Inclusion of patient history, treatment suggestions, plans for follow-up, and discussion on strategies for comanagement in the referral letter were independently associated with in-

Table 2. Predictors of Referral Completion*

Predictor	Adjusted Odds Ratio†	95% Confidence Interval
Characteristics of the referral decision encounter		
Referring physician baseline coordination activities		
Scheduled appointment and sent specialist information	2.95	1.99-4.37
Scheduled appointment and did not send specialist information	1.77	1.08-2.91
Did not schedule appointment and sent specialist information	1.51	1.04-2.20
Did not schedule appointment and did not send specialist information	1.00	...
Reason for referral		
Advice only	1.31	0.85-2.02
Specialized skill only	1.05	0.65-1.69
Advice and specialized skill only	1.23	0.81-1.86
Parental and/or third-party request	1.00	...
Type of specialist referred to		
Medical subspecialist	3.03	1.60-5.73
Surgical subspecialist	3.38	1.82-6.25
Nonphysician	1.61	0.76-3.40
Mental health practitioner	1.00	...
Locus of encounter		
Office visit	0.99	0.69-1.43
Telephoned parent	1.00	...
Prior management of health problem		
Follow-up visit	1.27	0.93-1.73
First visit	1.00	...
Patient characteristics		
Patient age, y		
<1	1.83	1.09-3.06
1-4	1.22	0.83-1.79
5-10	0.80	0.55-1.15
≥11	1.00	...
Sex		
Male	1.05	0.79-1.41
Female	1.00	...
Payment system		
Private insurance	1.77	1.17-2.67
Medicaid insurance	1.00	...
Health plan has gatekeeping arrangement		
Yes	1.18	0.85-1.63
No	1.00	...
Referring physician practice characteristics		
Practice organization		
Hospital-based practice	2.42	0.98-5.96
Multispecialty group practice	2.03	1.16-3.58
Single-specialty group practice	2.07	1.22-3.52
Solo practitioner	1.00	...
Practice location		
Rural	1.94	0.84-4.48
Suburban	2.02	0.88-4.65
Urban	1.00	...

*Referral completion occurred when the referring physician received written feedback from the specialist. Ellipses indicate not applicable.

†All variables included in the logistic regression model are presented. The generalized estimating equation was used to control for the clustering of encounters within physicians.

creases in letter quality ratings. The only element significantly associated with overall satisfaction with the referral was plans for comanagement. Benefit to patient care ratings were increased by discussion of the differential diagnosis. Referring physicians perceived that the educational value of the referral was enhanced if the referral letter contained patient history, diagnosis and/or differential diagnosis, treatment suggestions, and plans for comanaging the patient. Presence of findings from physical examination in the referral was not associated with any of 4 satisfaction indicators.

COMMENT

This study demonstrates that the coordination efforts of both primary care pediatricians and specialists have positive effects on the referral process. When referring physicians scheduled the consultation appointment and/or sent information to the specialist, the chances of referral completion were significantly increased. Specialists enhanced referring physicians' satisfaction with the specialty care their patients received by communicating results of the referral via telephone or letter, with the high-

Table 3. Multivariable Regressions for Specialist Feedback and Referring Physicians' Satisfaction With Patients' Referral Care*

Covariates	Physician Satisfaction	Benefit to Patient Management	Educational Benefit
Intercept	3.73 (0.20)	2.19 (0.20)	1.11 (0.16)
Type of feedback from the specialist			
Letter and telephone	2.10 (0.16)†	0.93 (0.14)†	1.19 (0.14)†
Letter only	1.75 (0.14)†	0.61 (0.13)†	0.86 (0.09)†
Telephone only	1.40 (0.22)†	0.63 (0.18)†	1.14 (0.18)†
None
Type of specialist			
Medical subspecialist	0.49 (0.17)‡	0.46 (0.17)‡	0.40 (0.15)‡
Surgical subspecialist	0.43 (0.16)‡	0.46 (0.16)‡	0.05 (0.14)
Nonphysician	0.03 (0.22)	0.17 (0.20)	-0.07 (0.18)
Mental health practitioner
Reason for referral			
Advice only	0.11 (0.11)	0.15 (0.11)	0.33 (0.12)‡
Specialized skill only	0.20 (0.13)	0.39 (0.12)‡	-0.07 (0.12)
Advice and specialized skill only	0.06 (0.11)	0.27 (0.11)§	0.21 (0.11)
Parental and/or third-party request

*Ellipses indicate not applicable. All values are given as β (SE).

† $P \leq .001$.

‡ $.01 \geq P > .001$.

§ $.05 \geq P > .01$.

Table 4. Multivariable Regressions for Content of Specialists' Referral Letters and Referring Physicians' Satisfaction*

Element of Letter	Letters With Element, %†	Specialist Letter Quality	Overall Physician Satisfaction	Benefit to Patient Care	Educational Benefit
Intercept	...	2.51 (0.18)	5.27 (0.19)	2.91 (0.17)	1.36 (0.16)
Patient history	86.3	0.59 (0.17)‡	0.28 (0.17)	0.10 (0.15)	0.34 (0.14)§
Findings from physical examination	85.9	0.12 (0.15)	0.18 (0.15)	0.21 (0.14)	0.08 (0.13)
Diagnosis and/or differential diagnosis	80.2	0.12 (0.11)	0.00 (0.11)	0.24 (0.11)§	0.24 (0.10)§
Management suggestions	62.0	0.23 (0.08)	0.15 (0.09)	0.13 (0.08)	0.23 (0.09)
Plans for follow-up	85.3	0.58 (0.15)‡	0.23 (0.15)	0.03 (0.12)	0.21 (0.13)
Plans for comanagement	30.6	0.38 (0.08)‡	0.21 (0.08)§	0.02 (0.08)	0.25 (0.09)

*Values are given as β (SE) except where indicated.

†In 490 of 963 follow-up referrals, the primary care physician received a letter from the specialist. Ellipses indicate not applicable.

‡ $P \leq .001$.

§ $.05 \geq P > .01$.

|| $.01 \geq P > .001$.

est ratings achieved when both forms of communication occurred. The inclusion of specific content in specialists letters, such as treatment suggestions and plans for comanaging care, significantly improved physician satisfaction.

This study's focus on referring physicians' satisfaction is a noteworthy limitation. We did not address the appropriateness of the referral from the perspectives of specialists, the technical competence of the specialist, or patients' evaluations of the care they received. Another important limitation to consider is the absence of information regarding which patients actually saw the specialist to whom they were referred. We were therefore unable to estimate the frequency of specialist feedback to referring physicians, given that the patient saw the specialist. Presently, we are conducting a referral study with the Ambulatory Sentinel Practice Network, Denver, Colo, that is designed to address both of these limitations.

Several types of referrals were excluded from this study, which limits the breadth of study inferences. For example, we did not collect information on referrals that were ongoing at the time of the physician-patient encounter. Our focus was on new referral decisions. Furthermore, we limited referrals to those made in the ambulatory setting, and excluded those made directly to hospitals for inpatient care and to emergency departments. We were also interested in referrals made to a specific clinician or provider group for the purpose of a face-to-face visit with a patient, which excluded referrals to laboratories and radiology facilities.

This study occurred in a collaborative practice-based research network composed of volunteer physicians whose characteristics may not be generalizable to all US pediatricians. Previously, we have assessed the representativeness of sample physicians' referral decision-making by comparing overall and age-, sex-, and diagnosis-specific referral rates with a national probability

The pediatric practices or individual practitioners who participated in this study are listed here by American Academy of Pediatrics chapter: *Alaska*: Anchorage Neighborhood Health Center, Anchorage Pediatric Group (Anchorage); *Arizona*: Mesa Pediatrics Professional Association (Mesa); *California-1*: Palo Alto Medical Clinic; *California-4*: Edinger Medical Group Inc (Fountain Valley); *Colorado*: Cherry Creek Pediatrics (Denver), Family Health Center (Denver); *Connecticut*: Arthur T. Blumer, MD (Southington); *Florida*: Atlantic Coast Pediatrics (Merritt Island); *Georgia*: The Pediatric Center (Stone Mountain); *Hawaii*: Melinda Ashton, MD (Honolulu); *Iowa*: David Kelly, MD (Marshalltown); *Illinois*: Southwest Pediatrics (Palos Park), Children's Memorial Hospital (Chicago), Kamala Ghaey, MD (Chicago); *Indiana*: Georgetown Medical Care (Indianapolis), Jeffersonville Pediatrics (Jeffersonville), Marshall County Pediatrics (Plymouth); *Kansas*: Ashley Clinic (Chanute), Bethel Pediatrics (Newton); *Louisiana*: Children's Clinic of Southwest Louisiana (Lake Charles); *Massachusetts*: Pediatric Associates of Norwood, Burlington Pediatric Associates, Framingham Pediatrics PC; *Maryland*: Children's Medical Group (Cumberland), Steven Caplan, MD (Baltimore), Coleman, Coleman, & Sachs (Rockville), Clinical Associates Pediatrics (Towson), Andorsky, Finkelstein, and Cardin (Owings Mills), Christopher Forrest, MD (Baltimore); *Michigan*: IHA Livingston Pediatrics (Howell), Lee & Kim Associates (Warren), Anuradha Sundararajan, MD (St Ignace), Pediatric Associates of Farmington PC, Children's Hospital of Michigan (Detroit); *Missouri*: Children's Clinic (Springfield); *North Carolina*: Hendersonville Pediatrics (Fletcher); *ND*, Altru Clinic (Grand Forks), MeritCare Medical Group-Pediatrics (Fargo); *New Hampshire*: Pediatric & Adolescent Medicine (Exeter), Laconia Clinic, Lahey-Hitchcock Clinic (Concord), Exeter Pediatric Associates; *New Jersey*: Delaware Valley Pediatric Association PA (Lawrenceville), Kids Care Pediatrics (Egg Harbor Township), Lourdes Pediatrics Association (Camden), University Pediatric Associates (East Brunswick); *New Mexico*: Albuquerque Pediatric Associates Ltd (Albuquerque); *New York-1*: Elmwood Pediatric Group (Rochester), Panorama Pediatric Group (Rochester), Brighton Hill Pediatrics (Syracuse), Edward Lewis, MD (Rochester), Park Medical Group (Rochester); *Ohio*: Pediatrics (Portsmouth), Oxford Pediatrics & Adolescents, Children's Hospital Physicians (Twinsburg), South Dayton Pediatrics Inc (Dayton), North Central Ohio Family Care (Galion); *Oklahoma*: Pediatric & Adolescent Care (Tulsa); *Rhode Island*: Marvin Wasser, MD (Cranston); *South Carolina*: Carolina Primary Care (Columbia); *Texas*: Winnsboro Pediatrics, The Pediatric Clinic (Greenville); *Utah*: Gordon Glade, MD (American Fork), Mountain View Pediatrics (Sandy), Salt Lake Clinic (Sandy); *Virginia*: Stafford Pediatrics PC, Fishing Bay Family Practice (Deltaville), Drs Casey, Goldman, Lischwe, Garrett, & Kim (Arlington); *Vermont*: Rebecca Collman, MD (Colchester), Judy Orton, MD (Bennington), Mousetrap Pediatrics (Milton), University Pediatrics (Burlington), Practitioners of Pediatric Medicine (South Burlington), University Pediatrics (Williston); *Washington*: Rockwood Clinic (Spokane), Redmond Pediatrics; *Wisconsin*: LaSalle Clinic (Neenah), Beloit Clinic SC, Gundersen Clinic (La Crosse), Gundersen Clinic (Whitehall), Medical Associates North (Ashland), Waukesha Pediatric Associates, Dean Clinic (Madison); *West Virginia*: Grant Memorial Pediatrics (Petersburg); *Wyoming*: Jackson Pediatrics, Bighorn Pediatric Associates (Gillette).

sample of pediatricians who participated in the National Ambulatory Medical Care Survey.¹⁵ Results indicated that there was remarkable consistency of referral rates between the 2 groups. In this study, we compared the demographics and practice arrangements of participant pediatricians with a nationally representative sample of primary care pediatricians. The study sample was less likely to practice in hospital-based settings and is thus more representative of community practices.

The low rates of coordination activities documented in this study suggest that there are substantial opportunities to improve the quality of the referral process by increasing the amount of coordination across the primary-specialty care interface. Referring physicians scheduled the consultation appointment and sent information about the patient to the specialist for just 27.7% of referrals. Many specialists' referral letters omitted essential pieces of information, such as treatment suggestions and recommendations for comanaging patient care. Because both primary care physicians and specialists value information exchange on behalf of common patients,⁸ physicians are likely to positively view quality improvement interventions to improve interphysician communication.

Inadequate reimbursement for coordination activities may be an important explanation for low rates of coordination. Scheduling appointments, writing letters, and communicating with other physicians take substantial

amounts of uncompensated time. With many physicians reporting increasing productivity demands,¹⁹ non-clinical activities such as coordination of care are likely to be neglected. Many primary care practices have added referral coordinators to the office staff, mainly because of the increased administrative needs that managed health care has placed on physicians making referrals. The effect of these individuals on the coordination of referral care is unclear.

Previously, we reported that at the referral decision encounter, primary care physicians desire a comanaged model of care with the specialist for 75% of all referrals they make.¹⁵ Results from this study indicate that primary care physicians evaluate referral care more positively when specialists explicitly discuss in their referral letters plans for how to comanage the patient's health problem. These results support the need for physicians who receive either primary care or subspecialty training to be educated on ways that patients can be successfully comanaged. Future research should focus on identifying successful models of collaborative care between primary care physicians and specialists, particularly for long-term referrals for patients with chronic disease. At a minimum, all physicians involved in referral care should make explicit in their communications their desire for the comanagement of health care for patients across the primary-specialty interface.

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