ORIGINAL RESEARCH

Primary Care Practices' Implementation of Patient-Team Partnership: Findings from EvidenceNOW Southwest

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Introduction: **Care teams partnering with patients are integral to quality primary care. Effective patient-team partnership recognizes patients' contributions in decision-making and respecting patients' goals and social context. We report practice characteristics associated with greater patient-team partnership scores.**

Methods: **EvidenceNOW Southwest was a multistate initiative to improve cardiovascular care in primary care practices through guideline-concordant aspirin use, blood pressure control, cholesterol management, and smoking cessation. EvidenceNOW Southwest provided 9 months of practice facilitation and information technology support through regular meetings and training to 211 Colorado and New Mexico primary care practices from 2015 to 2017. We analyzed surveys from 97% of participating practices regarding patient-team partnership activities of self-management support, social need assessment, resource linkages, and patient input. We used linear and mixed effects regression modeling to examine relationships between patient-team partnership and practice characteristics.**

Results: **Practice characteristics significantly associated with greater patient-team partnership were using patient registries, medically underserved area designation, multispecialty mix, and using clinical cardiovascular disease management guidelines. Our findings suggest that patient-team partnership implementation in small primary care practices is moderate, with mean practice- and member-level scores of 52 of 100 (range, 0–100) and 71 of 100 (range, 10–100), respectively.**

Conclusion: **Practices can improve efforts to partner with patients to assess social needs, gather meaningful input on practice improvement and patient experience, and offer resource connections. Our findings supplement recent evidence that patient registries and evidence-based guidelines may effectively prevent and manage cardiovascular disease. These strategies may also promote primary care patient-team partnership. (J Am Board Fam Med 2019;32:490–504.)**

Keywords: **Colorado, Cross-Sectional Studies, New Mexico, Partnership Practice, Patient Care Team, Patient-Centered Care, Primary Health Care, Quality Improvement, Registries, Surveys and Questionnaires**

Partnership between patients and the care team is an integral element of quality primary care practice and central to patient-centered models of primary care delivery and reimbursement.[1–3] Primary care experts increasingly emphasize the importance of partnership between patients and the care team[1,2,4] and attention toward the importance of social determinants that contribute to patients' health beyond what has traditionally been considered in the

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examination room.[5–7] Effective patient-team partnerships value patients' contributions to decision-making, respect patient goals and social context,[4] and incorporate patient input on quality improvement and business operations. Patients, particularly those living with chronic disease, must manage their health every day, and primary care teams can help them manage it more effectively by partnering with them.[3] Partnership between patients and the care team can improve health care delivery by incorporating patient input regarding social context and practice operations as a complementary perspective to physicians' knowledge.[2]

Comprehensive patient-team partnership strategies enhance direct patient care through shared decision-making,[8,9] self-management support,[3] and group visits,[2] along with adoption of formal patient feedback strategies, such as patient and family advisory councils, that guide care delivery and quality improvement activities to better meet the preferences and needs of patients. Requirements to incorporate patient engagement strategies in practice improvement and operational planning efforts are increasingly reflected in organizational standards.[10–12] Despite the benefits, care teams may be reluctant to engage in strategies to partner with patients, such as shared decision-making.[13–15] Furthermore, inconsistent adoption and functionality of technological and information systems in physicians' offices present barriers to effective patient-practice communication that could otherwise support more robust efforts to engage and partner with patients.[16–18] These challenges underscore the need to assess primary care practice teams' current patient-team partnership efforts and identify factors associated with high reported levels of partnership with patients.

Effective partnership between patients and the care team also consists of addressing the many factors beyond the medical encounter that affect health.[19] Adverse social determinants of health are the social and environmental structures of society that contribute to poor health and lead to health inequities.[20] Primary care practices are increasingly addressing social determinants of patient health by using strategies such as systematic screening for social needs,[21,22] referring patients to community resources,[5,23] embedding social workers in clinics,[24] and using medical-legal partnerships.[25–27] Addressing social determinants of health supports more robust partnerships between patients and the care team by more comprehensively supporting shared decision-making and selection of relevant treatment options.[21] Understanding the extent to which small- and medium-sized primary care practices currently attend to social determinants of health offers insight into the comprehensiveness of primary care services available to patients today, as well as suggesting specific needs for practice improvement support.

There is growing interest among primary care practices in patient engagement,[28] but the extent to which primary care practices have implemented patient team partnership strategies is not well described. Furthermore, little is known about whether clinicians and staff feel confident that these strategies are meeting their patients' needs. We address these gaps by examining implementation of patient-team partnership activities within small- to medium-sized clinics in the southwest United States participating in the EvidenceNOW project. We identify characteristics of practices excelling in components of patient-team partnership and offer potential explanations for the variation in ratings of activity by identified characteristics. These findings can inform related practice improvement efforts in other primary care practices looking to enhance their own patient team partnerships.

Methods

EvidenceNOW Southwest

EvidenceNOW Southwest (ENSW) was a practice improvement research initiative in primary care practices across Colorado and New Mexico funded by the Agency for Healthcare Research and Quality. ENSW was 1 of 7 cooperatives aiming to improve cardiovascular care by adopting the "ABCS" of heart health: improving clinical management of aspirin use, blood pressure control, cholesterol management, and smoking cessation.[29,30] From 2015 to 2017, ENSW provided 211 Colorado and New Mexico primary care practices with 9 months of robust, multimodal, external practice support. We recruited practices throughout Colorado and New Mexico to participate in ENSW through outreach to members of existing practice-based research networks and collaboration with regional partner organizations using by multiple modes, including telephone calls, e-mails, a website, and visits to practices. Support consisted of twice-yearly

collaborative learning sessions, monthly meetings with practice facilitators, regular visits from clinical health information technology advisers, and site visits from regional health connectors or health extension agents providing an orientation to local community services and resources to improve cardiovascular care. Practice facilitation is a strategy to promote the implementation of evidence-based guidelines in primary care practices by using support from a skilled facilitator.[31] We deployed practice facilitators with expertise in quality improvement, group facilitation, and evidence-based cardiovascular care guidelines and separate clinical health information technology advisers with expertise using electronic health record systems and reporting clinical quality measures. One arm of the study practices also received patient, family, and community engagement strategies to support primary care practices in improving cardiovascular care. Practice and community engagement methods are further detailed in a previous publication.[32] ENSW is a joint cooperative of the Practice Innovation Program at the University of Colorado Department of Family Medicine and the University of New Mexico Department of Family and Community Medicine and Office for Community Health. This study was approved by the Colorado Multiple Institutional Review Board and the University of New Mexico Human Research Review Committee.

Data Collection Tools

We administered a Practice Survey to measure characteristics and operations of each participating practice at the organizational level. In addition, we used a Practice Member Survey to assess characteristics and perceptions of the work environment from individual providers and staff in each practice. The findings presented here represent cross-sectional analysis of data from ENSW Practice Surveys and individual-level Practice Member Surveys.

Practice Survey

The ENSW Practice Survey consisted of 48 items that gathered descriptive information on participating practices at the practice and organizational level on practice enrollment in the initiative. The research team developed original items in collaboration with the national evaluation team for the EvidenceNow initiative (ESCALATES)[33] and compiled and tailored survey items from existing evaluation and data collection tools.[34,35] A lead administrator and lead clinician completed the Practice Survey for each practice, consulting with others as relevant, such as members of leadership, clinicians, or staff with practice knowledge regarding specific survey items.

Practice Member Survey

The ENSW Practice Member Survey consisted of 39 items to gather a variety of descriptive information on individual providers and staff at participating practices. The national evaluation team established a target response rate across the entire EvidenceNOW initiative of 70% for providers and staff in each practice to help prevent nonresponse bias.[33]

Within 1 month of each practice initiating practice facilitation, we administered the Practice Survey and Practice Member Survey to participating ENSW practices using Research Electronic Data Capture, a secure, web-based application designed to support data capture for research studies.[36] Surveys were administered between December 2015 and November 2017.

Study Variables

Outcome Variables

Through a review of published literature defining the concept of patient-team partnership, we identified shared decision-making, self-management support,[4] group visits,[2] screening for social needs,[21,22] community resource referrals,[5,23,24] patient experience surveys, patient advisory councils, and other mechanisms for patient input on practice operations and care[37] as activities and strategies relevant to patient-team partnership. We reviewed survey instruments for items pertaining to any of the strategies identified through literature review.

We used the identified survey items to develop 2 outcome scales describing participating practices' level of activity related to patient-team partnership at the practice and individual levels. The 2 outcome scales consisted of items measuring the frequency with or extent to which practices assessed patients' social needs, engaged patients and families in self-management, linked patients to community resources to address social needs, solicited patient input on practice operations, and used patient data to inform care delivery. Survey items are described in more detail below. The full text and response options for all survey items used in analysis can be found in the Appendix.

Practice-Level Patient-Team Partnership Scale

We assessed patient-team partnership activities at the practice level with 5 items from the Practice Survey originally developed for the Comprehensive Primary Care Practice Monitor[34] and corresponding to building block 5 of the Bodenheimer Building Blocks of High-Performing Primary Care.[4] Practice-level patient-team partnership scale items measure the extent to which practices have implemented systems for gathering patient input, linking patients with community resources, and providing tools for patient self-management support. All 5 questions use a 5-point Likert response scale ranging from 1 (Not at all) to 5 (Completely). We created the practice-level patient-team partnership scale by summing these 5 items and rescaling the total to 0 to 100 to facilitate comparison across both outcome scales of interest. We calculated internal reliability of the practice-level patient-team partnership scale by using Cronbach's α. The prevalence of missing data was 2% or less for each of the 5 individual survey items that constituted the practice-level patient-team partnership scale.

Member-Level Patient-Team Partnership Scale

We assessed patient-team partnership as rated by individual practice members using 5 items from the Practice Member Survey. Three scale items measured practice members' level of agreement on a 5-item Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) with statements about practice performance on assessing patient needs by using data from patients to improve care and using patient experience data for development of new services. Practice members rated the frequency with which their practice assesses patients' social needs on a 4-item scale ranging from 1 (Never) to 4 (Always) and their practice's ability to link patients to relevant community resources on a 4-item scale ranging from 1 (Not at all confident) to 4 (Very confident). We created the member-level patient-team partnership scale by rescaling all responses to the same range, summing the 5 scale items, and rescaling the total to 0 to 100 for comparability. We calculated internal reliability of the member-level patient-team partnership scale by using Cronbach's α.

The prevalence of missing data for the 5 individual survey items constituting the member-level patient-team partnership scale ranged from 6% to 13% of cases, with 16% of respondents missing at least 1 of these 5 scale items. We tested the mean imputation of missing scale items and found that models using imputed values led to inconsistent conclusions and interpretation compared with the original regression model, so we used raw survey data in the final practice member-level patient-team partnership scale. We used χ^2 and t tests to compare characteristics of practice members who provided all scale items with those who were missing the member-level outcome scale. Practice members who were missing responses to items corresponding to the outcome scale were significantly different from practice members who did provide responses to those items in terms of role ($P < .0001$), years at practice ($P = .0250$), practice ownership ($P < .0001$), and practice size ($P < .0001$) but similar on weekly hours worked ($P = .5759$). Other missing data (ie, independent variables) were handled using listwise deletion.

Practice Characteristics

We used the following Practice Survey items as exposure variables for screening: practice ownership (clinician-owned solo or group practice, federally qualified health center [FQHC], and hospital/health system-owned), number of providers as a proxy for practice size (solo, 2 to 5, 6 to 10, or >10 providers), Accountable Care Organization (ACO) membership (Medicaid, Medicare, and private/commercial), patient registry implementation (chronic diseases of hypertension, high cholesterol, diabetes, and ischemic vascular disease; prevention services; high risk/high utilization; any registry and number of registries), use of clinical guidelines to prevent cardiovascular disease and manage at-risk patients (informal: agreed or posted, standing orders, or electronic health record prompts), multispecialty organization, patient-centered medical home (PCMH) recognition or accreditation, designated medically underserved by the Health Resources and Services Administration, and geographic area (rural or nonrural). We created ordinal variables measuring use of clinical guidelines for cardiovascular disease prevention and management by collapsing responses of "guidelines are posted or distributed" and "clinicians have agreed to specific guidelines" into "informal use of guidelines" and classifying practice use of standing orders and electronic health record prompts, respectively, as incrementally greater levels of clinical

guideline implementation. We used the FQHC designation as a proxy for payer mix in univariate screening and multivariate analyses due to higher levels of missing data on multiple payer mix variables. We used practice ZIP code alignment with Rural-Urban Commuting Area codes to assess geographic area. We assigned practices with ZIP code corresponding with RUCA Rural-Urban Commuting Area codes 1 to 4 as "rural" and 5 to 10 as "nonrural."[38,39] We merged these organization-level variables describing practice characteristics with member-level survey data to assess relationships between individual employee responses and contextual characteristics of their work environment by using multilevel modeling, as described below.

We used the following Practice Member Survey items as exposure variables for screening: role in practice (Clinician or Advanced Practice Provider: MD, DO, NP, PA; Clinical and Nonclinical Staff: RN, LPN, MA, behavioral health provider, office manager, receptionist, billing staff), years at practice, and weekly hours worked.

Quantitative Analysis

We generated descriptive statistics for practices and compared member characteristics by practice member roles (clinicians, staff, and no role provided) using χ^2 tests, *t* tests, and 1-way analysis of variance. We examined associations of key practice characteristics with the outcomes of the practice patient-team partnership scale by using multiple linear regression analysis. We examined associations of practice and practice member characteristics with the outcomes of practice member-level patient-team partnership scales by using multilevel (mixed effects general linear models) modeling, adjusted for clustering of members within practices. In multivariable models, we included variables in the next stage of analysis at a threshold of $P < .10$ from initial bivariate associations. We conducted backward elimination[40] to select the strongest predictor in each domain and dropped other domains and response options to avoid collinearity to arrive at a final multivariable linear regression model of key practice characteristics associated with the practice-level scale outcome and a multilevel mixed effects model of relevant practice and practice member characteristics associated with the member-level scale outcome. All analyses were performed using SAS software (version 9.4; SAS Institute Inc., Cary, NC, USA).

Results

We present characteristics of participating practices below, followed by findings of practice characteristics associated with patient-team partnership activity in primary care.

Response Rates

Practice Survey

All 211 participating practices completed the Practice Survey; 207 of 211 practices (98%) provided complete data on outcome variables of interest and were included in analyses on the practice-level patient-team partnership scale.

Practice Member Survey

We received baseline Practice Member Survey responses from 1986 practice employees across 204 practices (97% of practices). The mean Practice Member Survey response rate was 79% (SD, 22.5; range, 5–100), with three-quarters (76%) of participating practices achieving individual response rates of at least 70%. Tests of comparison indicated that practice members missing member-level patient-team partnership scale data were similar to respondents who did provide outcome scale items in terms of average hours worked per week and years at practice. Compared with those without missing data, practice members missing outcome scale items were less likely to have provided their role, identify as a clinician, and work at an FQHC or rural practice; and more likely to work at a practice that is clinician-owned and with more than 10 providers.

Characteristics of Participating Practices and Practice Members

Most practices that participated in this initiative were clinician-owned or FQHCs. More than 80% were small, with 1 to 5 clinicians. Nearly half had achieved PCMH recognition (45%). About one-quarter were members of Medicaid (27%) or Medicare ACOs (26%). Two-thirds of practices utilized a patient registry (68%). The majority (73%) of Practice Member Survey respondents were staff members and one-quarter were clinicians (24%). See Table 1 for descriptive statistics for all practice and member characteristics.

Table 1. Characteristics and Outcome Scale Scores of 207 Small- and Medium-Sized Primary Care Practices in Colorado and New Mexico That Participated in EvidenceNOW Southwest Cardiovascular Care Improvement Initiative, Gathered using Practice- and Employee-Level Surveys upon Practice Enrollment, December 2015 through November 2017

Characteristics	EvidenceNOW Southwest Initiative (N = 207 Practices) Mean (SD) or %
Practice survey items–patient-team partnership	
Patient and family input.	2.3 (1.5)
Patient experience survey.	3.4 (1.6)
Link patients to community resources for self-management.	3.1 (1.3)
Link patients to community resources to address social determinants.	3.1 (1.4)
Provide patients with tools and resources to manage health.	3.5 (1.1)
Patient-team partnership scale (α = 0.82)	51.5 (26.1)
Practice member survey items–patient-team partnership	
Good job of assessing patient needs and expectations.	3.1 (0.7)
Data from patients to improve care.	3.0 (0.8)
Data on patient experience when developing new services.	2.9 (0.8)
Ask patients about unmet social needs.	2.6 (1.1)
Link patients with unmet social needs to community resources.	2.6 (1.1)
Practice member patient-team partnership scale (α = 0.81)	71.2 (17.1)
Practice member patient-team partnership scale–clinicians	66.2 (17.6)
Practice member patient-team partnership scale–staff	73.2 (16.6)
Practice member patient-team partnership scale–[role not provided]	66.8 (16.2)
Ownership	
Clinician	47.9%
Hospital/academic center	15.6%
Federally Qualified Health Center/rural	36.5%
Practice Size: Number of Providers	
Solo	21.0%
2 to 5	60.5%
6 to 10	16.6%
>10	2.0%
Payer mix	
Percent Medicaid	27.4 (22.1)
Percent Medicare	18.7 (14.0)
Percent uninsured	11.2 (13.9)
Percent commercial payer	37.6 (25.2)
Accountable care organization membership	
Medicaid	27.0%
Medicare	26.1%
Private/commercial	13.7%
Patient registries	
Number of registries	2.9 (2.4)
Any registry	67.8%
Use of clinical guidelines	
Prevention	
Number of guidelines	1.8 (1.4)
No guidelines	16.6%

Continued

Table 1. Continued

	EvidenceNOW Southwest Initiative (N = 207 Practices) Mean (SD) or %
Management	
Number of guidelines	1.7 (1.4)
No guidelines	18.5%
Geographic area	
Rural	28.9%
Nonrural	71.1%
Other characteristics	
Multispecialty	32.2%
PCMH recognized	44.6%
Medically underserved	45.0%
Practice member characteristics	
Role	
Clinician (physician or advanced practice provider)	24.1%
Staff	72.7%
Role not provided	3.2%
Years at practice (mean)	5.1 (6.0)
0	18.7%
1 to 2	27.7%
3 to 5	22.9%
6 to 10	16.2%
>10	14.6%
Hours per week	38.9 (8.7)

SD, standard deviation; PCMH, patient-centered medical home.

Individual Patient-Team Partnership Survey Items

Practice Level

Participating practices rated themselves lowest for having a system to include patient and family input in improvement activities (mean, 2.3 on a 1 to 5 scale; SD, 1.5). They rated themselves highest on providing patients and families with tools and resources to manage health (mean, 3.5 on a 1 to 5 scale; SD, 1.1).

Member Level

Practice members' mean ratings of agreement with statements that the practice does a good job of assessing patient needs and expectations use data from patients to improve care and use data on patient expectations and/or experience when developing new services correspond to "neutral" on the 1-to-5 response scale (mean, 3.1 and SD, 0.7; mean, 3.0 and SD, 0.8; mean, 2.9 and SD, 0.8, respectively). Practice members provided similarly neutral mean ratings on a 1-to-4 scale for items measuring the frequency with which the practice asks patients about unmet social needs (mean, 2.6 and SD, 1.1) and confidence level in the practice's ability to link patients with unmet social needs to community resources (mean, 2.6 and SD, 1.1).

Outcome Scales

Practice Level

The mean practice-level patient-team partnership score combining the 5 Practice Survey items was 52 out of 100 (SD, 26.1; $\alpha = 0.82$; N = 207; range, 0–100). This represents moderate implementation of activities in support of patient-team partnership, with a mean score at the approximate midpoint of the scale ranging from "Not at all" to "Completely."

Member Level

The mean member-level patient-team partnership score combining the 5 Practice Member Survey items was 71 out of 100 (SD, 17.1; $\alpha = 0.81$; N = 172; range, 10–100). This represents moderate-to-high practice member ratings of practice activities related to patient-team partnership.

Because tests of correlation between scores of practice- and member-level patient-team partnership indicated only moderate correlation (Pearson's

Table 2. Mean Scores for Outcome Scales and Corresponding Survey Items from 1,986 Employees of Small- and Medium-Sized Primary Care Practices in Colorado and New Mexico That Participated in EvidenceNOW Southwest Cardiovascular Care Improvement Initiative, Gathered using Employee Surveys upon Practice Enrollment, December 2015 through November 2017, Stratified by Clinician and Staff Roles

	Role			
	Clinicians	Staff	[Role not provided]	
	n = 478	n = 1444	n = 64	Role Comparison
Practice Member Survey Items	Mean (SD)			Probability > t
Good job of assessing patient needs and expectations.	3.0 (0.7)	3.2 (0.7)	3.0 (0.5)	.0001*
Data from patients to improve care.	2.8 (1.0)	3.1 (0.8)	2.8 (0.7)	<.0001*
Data on patient experience when developing new services.	2.6 (1.0)	3.0 (0.8)	2.6 (0.7)	<.0001*
Ask patients about unmet social needs.	2.5 (1.0)	2.6 (1.1)	2.4 (1.1)	.0240*
Link patients with unmet social needs to community resources.	2.3 (1.1)	2.7 (1.2)	2.3 (1.2)	<.0001*
Member-level patient-team partnership score	66.2 (17.6)	73.2 (16.6)	66.8 (16.2)	<.0001*

*$P < .05$.
SD, standard deviation.

r = 0.2977; $P < .0001$; N = 1671), the 2 outcome scales are examined separately throughout these analyses. See Table 1 for descriptive statistics on outcome variables and Table 2 for descriptive statistics stratified by clinician and staff roles. In general, practice staff members had higher ratings on individual items and the overall scale.

Bivariate Screening

Bivariate analyses indicated several characteristics that were significantly and positively associated with practice- and individual-level ratings of patient-team partnership. Practice characteristics most strongly associated with both practice- and member-level outcome scales were FQHC or rural health clinic status, ACO membership, patient registry use, guidelines for cardiovascular disease prevention and management, PCMH recognition, and medically underserved designation (Table 3). Having no clinical guidelines in place was significantly negatively associated with patient-team partnership. Role and years employed at the practice were significantly associated with patient-team partnership scores, as measured at the individual level. Staff tended to rate patient-team partnership items higher than did clinicians, reporting scale ratings of 7 (out of 100) points higher, on average. Practice members who had been employed with the practice longer tended to rate scale items lower than did relatively newer practice members.

Multivariable Models

In the final, multivariable, linear regression model of practice-level patient-team partnership, variables associated with higher patient-team partnership scores include use of patient registries, medically underserved area designation, multispecialty mix, and use of clinical guidelines for cardiovascular disease management (Table 4). The final multivariable model explained 37% of the total variance. In final, multivariable, multilevel (mixed effects) modeling of member-level outcomes, practice characteristics associated with greater patient-team partnership were use of patient registries, medically underserved area designation, and use of clinical guidelines for cardiovascular disease management. Staff members tended to rate patient-team partnership higher than did clinicians in the same practice, and more years working at the practice was associated with lower member-level patient-team partnership scores (Table 4). The intraclass correlation coefficient was 23.9% in the unconditional model with only practice random effects and was reduced to 13.7% after adding practice-member and practice-level fixed effects. The final multivariable model explained 13% of the total variance.

Discussion

Participating primary care practices reported only partial implementation of patient-team partnership strategies. All practices reported opportunities to better partner with their patients by more consis-

Table 3. Univariable Associations between Patient-Team Partnership Outcome Scale Scores and Characteristics of Practices Participating in EvidenceNOW Southwest Cardiovascular Care Improvement Initiative

	Patient-Team Partnership Outcome Scale Scores					
	Practice-Level Scores			Member-Level Scores		
Characteristics	Coef.	SE (95% CI)	Probability > t	Coef.	SE (95% CI)	Probability > t
Ownership						
Clinician	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Hospital or academic center	1.64	4.88	.7367	−3.72	2.01	.0649*
Federally Qualified Health Center or rural health clinic	20.84	3.70	<.0001*	6.62	1.55	<.0001*
Practice size: number of clinicians						
Solo provider	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
2 to 5	0.88	4.69	.8508	1.31	2.15	.5412
6 to 10	9.58	6.01	.1129	2.54	2.55	.3204
>10	11.34	13.58	.4047	−1.58	6.02	.7933
Accountable Care Organization member						
Medicaid	13.55	3.97	.0008*	5.10	1.59	.0014*
Medicare	12.81	4.03	.0017*	1.84	1.61	.2548
Private/commercial	18.28	5.16	.0005*	5.21	1.94	.0073*
Other Accountable Care Organization	−11.77	13.19	.3733	2.65	4.86	.5860
Use of patient registries						
Number of registries	5.02	0.68	<.0001*	2.01	0.28	<.0001*
Any registry	24.55	3.53	<.0001*	8.10	1.58	<.0001*
Use of clinical guidelines (%)						
Cardiovascular disease prevention						
Number of guidelines	7.26	1.23	<.0001*	2.31	0.48	<.0001*
No guidelines	−9.42	4.93	.0575*	−6.92	1.95	.0004*
Manage patients with cardiovascular disease risk						
Number of guidelines	7.76	1.21	<.0001*	2.46	0.48	<.0001*
No guidelines	−16.26	4.56	.0005*	−9.34	1.85	<.0001*
Geographic area						
Rural	8.08	4.00	.0446*	0.35	1.77	.8417
Nonrural	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Other practice characteristics						
Multispecialty	13.10	3.77	.0006*	1.45	1.59	.3625
PCMH recognized	11.50	3.58	.0015*	3.99	1.51	.0082*
Medically underserved	21.13	3.35	<.0001*	6.83	1.45	<.0001*
Practice member characteristics	[n/a]	[n/a]	[n/a]			
Role						
Clinician				(ref)	(ref)	(ref)
Staff				6.53	0.85	<.0001*
Role not provided				1.99	2.87	.4885
Years at practice				−0.19	0.07	.0059*
Hours per week				0.03	0.05	.4536

*$P < .10$.
ref, reference; n/a, not applicable.

tently undertaking strategies such as patient advisory groups, patient experience surveys, self-management support, assessment of social needs, and linking to community resources. This is consistent with previous studies indicating that patient engagement, routine assessment of social determinants, and connection to community resources remain relatively uncommon.[41,42] These findings

Table 4. Final Multivariate Regression Models of Patient-Team Partnership Outcome Scale Scores and Characteristics of Practices Participating in EvidenceNOW Southwest Cardiovascular Care Improvement Initiative

	Coefficient (SE)	Probability > t
Practice-level patient-team partnership scale		
Intercept	23.46 (3.02)	<.0001*
Any registry	15.72 (3.44)	<.0001*
Designated underserved	15.49 (3.03)	<.0001*
Multispecialty practice	6.87 (3.18)	.0320*
Number of guidelines for cardiovascular disease management	4.55 (1.17)	.0001*
Member-level patient-team partnership scale		
Intercept	57.37 (1.54)	<.0001*
Role		
Clinician	(ref)	(ref)
Staff	6.31 (0.85)	<.0001*
Role not provided	−0.82 (6.22)	.8952
Designated underserved	5.44 (1.33)	<.0001*
Any registry	5.19 (1.60)	.0012*
Number of guidelines for cardiovascular disease management	1.46 (0.49)	.0030*
Years at practice	−0.14 (0.07)	.0378*

*$P < .05$.
SD, standard deviation; PCMH, patient-centered medical home; SE, standard error.

may reflect larger challenges facing efforts to strengthen patient-team partnership within the field of primary care. Although some feel that primary care practices are in a prime position to address social determinants of health,[43,44] there is not widespread agreement on whether addressing social determinants of health is an appropriate role for primary care, given potential gaps in time, confidence, payment, resources, or treatment abilities.[45–47] Furthermore, access to self-management education and resources in primary care are still limited, despite growing integration of self-management support programs in some larger health care systems.[48,49]

We found that certain practice characteristics were associated with greater patient-team partnership scores. Practices reporting the greatest implementation of patient-team partnership activities had 1 or more of the following characteristics: patient registry use, medically underserved area designation, or use of clinical guidelines for cardiovascular disease management.

Patients with unaddressed social needs, such as food insecurity and housing instability, have higher health care costs and poorer health outcomes than patients who do not experience such need.[50–53] Allowing social determinants of patients' health to remain unaddressed has potential to exacerbate other health conditions, creating implications for the effectiveness of care teams' efforts to support patients' physical and mental health. Furthermore, areas designated as medically underserved have a shortage of primary care services, hindering access for residents of those regions.[54] Low to moderate levels of patient-team partnership activity among the practices we studied indicate the limited ability of practices to address social needs of their patients. Yet, the association between medically underserved areas and more patient-team partnership activities may signify that practices in these regions are making efforts to compensate for limited health care and other resource access by incorporating patient input and social context.

The association of patient registries and guidelines for cardiovascular disease management with patient-team partnership is consistent with evidence of chronic care model implementation. The chronic care model emphasizes 6 components to improve chronic disease management, including linkages to community resources, patient self-management support, evidence-based clinical guidelines, and patient registries.[24,55,56] Using patient registries and clinical guidelines systematizes and standardizes practices' action on elements of pa-

tient-team partnership and cardiovascular disease prevention and management.

Although neither membership in an ACO nor PCMH recognition emerged as the strongest predictors in the final model, both characteristics exhibited significant positive correlations with patient-team partnership outcome scales in practice- and member-level univariate analyses. This is consistent with values of patient engagement that comprise the PCMH model[57,58] and growing recognition of ACOs as an effective mechanism to address patients' nonmedical, social needs.[59,60] The concept of patient-team partnership can include a variety of distinct strategies, including shared decision-making, self-management support for chronic disease management, or systematic screening and referral to address social needs.[2,4,5,22] Despite this wide range of strategies to partner with patients, a relatively low proportion of National Committee for Quality Assurance-recognized PCMH practices actually engage patients in quality-improvement efforts.[61] The strong association between PCMH recognition and patient-team partnership efforts suggests, however, that the PCMH model may be an effective framework that promotes patient input strategies.

We found that practice-level reports did not always match responses from individual clinicians and staff. Individual-level outcome measures suggested greater levels of activity related to patient-team partnership than did similar practice-level scale outcomes within the same practice sample. In addition, staff ratings of patient-team partnership were higher, on average, than clinician ratings. In other words, ratings of patient-team partnership activities varied depending on who you asked. Variability in the responses may reflect the complexities of comprehensive patient-team partnership efforts, differences between clinicians and staff in patient interactions, and that no single role has insight into all aspects of patient engagement. This supports the conceptualization of patient-team partnership as a function of the whole team, indicating that those wishing to advance patient-team partnership capacity should find ways to leverage all clinicians and staff in better engaging with patients.

We computed study outcome measures using 10 survey items measuring patient-team partnership activities at the practice and individual levels. These 2 scales measuring key elements of patient-team partnership could be a valuable method for other primary care researchers and practitioners to efficiently quantify levels of activity toward patient-team partnership and track changes over time.

Limitations

This study has several limitations. The presence of missing data on the practice member-level patient-team partnership scale introduces potential bias in findings, given that practice members with missing outcome data were significantly different from other respondents on some practice characteristics. This study utilizes cross-sectional survey data analyses, which preclude conclusions regarding causality. Self-rating by clinicians and staff is somewhat subjective and has the potential to introduce reporting bias, although overreporting of patient-team partnership efforts in these data would only further support study conclusions that additional efforts to incorporate patient input are needed. The concept of patient-team partnership corresponds to a wide variety of strategies, not all which were measured in this study's surveys; alternate definitions of patient-team partnership would likely affect conclusions regarding practices' level of activity in this area. The practice- and member-level scale models may not be fully comparable because a small group of practice team members completed the Practice Survey, whereas Practice Member Survey data consists of an aggregate of multiple respondents from each practice. Our data do not include the patient perspective, so we cannot draw conclusions regarding patient perceptions of practice-reported activities. Generalizability is limited because this practice sample is not representative of all primary care practices; most notably, our sample included a relatively high proportion of FQHCs. The extent to which findings are generalizable beyond small- to medium-sized primary care practices in the southwest United States who participate in practice improvement initiatives is unclear.

Conclusions

Our findings suggest that small primary care practices' implementation of patient-team partnership activities is moderate at best. Practices could improve how they assess patients' social needs, incorporate patient expectations into practice operations, and link patients to community resources. These findings supplement existing evidence of the effectiveness of patient registries and evidence-

based clinical guidelines to prevent and manage cardiovascular disease and suggest that these strategies may also promote patient-team partnership in primary care. Practices may benefit from support to implement systems assessing patient and family needs and expectations, link patients to community resources, and provide patients with tools for self-management. Forthcoming analyses will examine how patient-team partnership ratings impact clinical quality outcomes, how they may change over time, and the contribution of various elements of ENSW support to any improvements.

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Appendix. Patient-Team Partnership Outcome Scales, Corresponding Practice Survey and Practice Member Survey Questions and Response Options

Scale	Survey Questions	Response Options
Practice-level patient-team partnership scale	- A system has been implemented for including patient and family input in ongoing improvement activities (such as patient advisory groups or patients or family members on quality improvement teams).	1–Not at all
	- A patient experience survey is used regularly (monthly or quarterly) to monitor practice performance.	2
	- Patients and families are actively linked with community resources to assist with their self-management goals.	3
	- Our practice has the capacity to link patients to community resources to address social determinants of health (such as housing, food security, transportation, legal assistance, help with paying bills, personal safety).	4
	- Patients and families are provided with tools and resources to help them engage in the management of their health between visits.	5–Completely
Member-level patient-team partnership scale	- Our practice does a good job of assessing patient needs and expectations.	1–Strongly disagree 2–Disagree 3–Neutral 4–Agree 5–Strongly agree
	- Our practice uses data from patients to improve care.	
	- Our practice uses data on patient expectations and/or experience when developing new services.	
	- How often does your practice currently ask patients about unmet social needs that can affect their health, such as housing, food security, childcare, transportation, legal assistance, or help with paying bills?	1–Never 2–Rarely 3–Sometimes 4–Always
	- At this moment, how confident are you in your practice's ability to link patients with unmet social needs to resources in the community?	1–Not at all confident 2–Somewhat not confident 3–Somewhat confident 4–Very confident