Engaging Primary Care Practices in Studies of Improvement: Did You Budget Enough for Practice Recruitment?

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ABSTRACT

PURPOSE The methods and costs to enroll small primary care practices in large, regional quality improvement initiatives are unknown. We describe the recruitment approach, cost, and resources required to recruit and enroll 500 practices in the Northwest and Midwest regional cooperatives participating in the Agency for Healthcare Research and Quality (AHRQ)-funded initiative, EvidenceNOW: Advancing Heart Health in Primary Care.

METHODS The project management team of each cooperative tracked data on recruitment methods used for identifying and connecting with practices. We developed a cost-of-recruitment template and used it to record personnel time and associated costs of travel and communication materials.

RESULTS A total of 3,669 practices were contacted during the 14- to 18-month recruitment period, resulting in 484 enrolled practices across the 6 states served by the 2 cooperatives. The average number of interactions per enrolled practice was 7, with a total of 29,100 hours and a total cost of $2.675 million, or $5,529 per enrolled practice. Prior partnerships predicted recruiting almost 1 in 3 of these practices as contrasted to 1 in 20 practices without a previous relationship or warm hand-off.

CONCLUSIONS Recruitment of practices for large-scale practice quality improvement transformation initiatives is difficult and costly. The cost of recruiting practices without existing partnerships is expensive, costing 7 times more than reaching out to familiar practices. Investigators initiating and studying practice quality improvement initiatives should budget adequate funds to support high-touch recruitment strategies, including building trusted relationships over a long time frame, for a year or more.

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INTRODUCTION

Small practices comprise nearly one-half of primary care practices in the United States.[1] Although declining in number, they remain a critical part of the health care ecosystem,[2] particularly in rural areas and in densely populated urban areas. These practices often lack the necessary infrastructure, skills, knowledge, and support required to sustain engagement in quality improvement activities essential to the strived-for improvement in quality of patient care.[3-7]

EvidenceNOW: Advancing Heart Health in Primary Care is an Agency for Healthcare and Research (AHRQ)-funded grant initiative dedicated to examining strategies to build quality improvement capacity in small and medium-size primary care practices with a focus on implementing evidence-based cardiovascular disease risk reduction strategies.[8] The participating practices, located in 7 regional cooperatives, were provided 5 core services: on-site practice facilitation and coaching, health information technology support, shared learning collaboratives, expert consultation, and data feedback and benchmarking.[9] Further details about this large national initiative are published in a companion article in this journal supplement.[10] Although a few studies have described the costs of technical

support and practice facilitation for quality improvement,[11] very little is known about the cost of recruiting and enrolling large numbers of small practices as subjects in formal studies of primary care practice redesign. Here we report on the experiences of 2 of the 7 EvidenceNOW studies funded to address this gap by describing and evaluating the various approaches these studies used for practice recruitment and by estimating the cost of recruiting more than 500 practices across 6 states participating in EvidenceNOW.

METHODS

The EvidenceNOW Northwest cooperative, Healthy Hearts Northwest, led by the MacColl Center for Health Care Innovation within the Kaiser Permanente Washington Health Research Institute, recruited practices in Oregon, Washington, and Idaho.[12] The EvidenceNOW Midwest cooperative, Healthy Hearts in the Heartland, based at the Center for Health Information Partnerships, Institute of Public Health & Medicine in Northwestern University's Feinberg School of Medicine, recruited practices in Illinois, Indiana, and Wisconsin. Both cooperatives focused on small and medium-size (fewer than 10 clinicians per site) primary care practices with existing electronic health record (EHR) systems that lacked the necessary resources for data management and quality improvement. Each cooperative comprised multiple organizations with existing relationships and considerable experience engaging and recruiting small practices, including Centers for Medicare & Medicaid Services (CMS) Quality Improvement Network/Quality Improvement Organizations (QIN/QIOs), health information technology regional extension centers (HITRECs), and a practice-based research network.

Recruitment Northwest: Washington, Idaho, Oregon

The Healthy Hearts Northwest cooperative partner for Washington and Idaho is Qualis Health, the CMS-contracted QIN/QIOs and health information technology information center for the 2 states. For 6 years (2010-2016) Qualis Health worked with 886 practices across Washington and Idaho to support EHR implementation for meaningful use. The Oregon Rural Practice-based Research Network (ORPRN), a well-established practice-based research network, is the cooperative partner for Oregon. Founded in 2002, ORPRN has a long history of connecting with 160 practices as a practice-based research network, including as a master contractor for AHRQ[13] and providing faculty and technical assistance for the CMS Comprehensive Primary Care Initiative.[14] Qualis Health and ORPRN were responsible for practice recruitment activities in their respective states based on their long-standing practice relationships in the regions for which they were accountable. Recruitment took place between May 1, 2015, and June 30, 2016. To reach the Healthy Hearts Northwest's goal of recruiting 250 practices, the recruitment targets for Qualis Health were 130 practices in Washington State and 20 practices in Idaho, and ORPRN's target was 100 practices in Oregon.

Recruitment Midwest: Illinois, Wisconsin, Indiana

The Midwest (Healthy Hearts in the Heartland) cooperative partners responsible for recruitment in Illinois were Telligen (QIN/QIO for Illinois), which had 690 practice relationships throughout Illinois; Northern Illinois University (the health information technology research extension center for Illinois outside Chicago), had relationships with more than 225 health care organizations and 2,600 clinicians; and Northwestern University (the extension center for Chicago), had relationships with more than 200 health care organizations and 1,800 clinicians. MetaStar, the QIN/QIO and the health information technology research extension center for Wisconsin, was responsible for recruiting practices in Wisconsin and had worked with more than 200 health care organizations and more than 2,500 clinicians. Purdue Healthcare Advisors, the extension center for Indiana, worked with more than 238 organizations and more than 2,212 health care clinicians to support EHR implementation for meaningful use and was responsible for recruiting practices in Indiana. Alliance Chicago, a health center–controlled network and hub for the Community Health Applied Research Network practice-based research network, which had a long history of working with 14 community health centers across Illinois, Wisconsin, and Indiana, along with the American Medical Association, provided recruitment support in all 3 states. Healthy Hearts in the Heartland recruitment took place between August 27, 2015, and October 14, 2016.

Both cooperatives included a partnership of several organizations to meet the requirement of enrolling 250 practices within a geographically contiguous region. Each recruiting organization had a unique sphere of contacts and a tailored approach for reaching out to practices. The initial recruiting strategies for both cooperatives relied heavily on existing relationships between recruiting organizations and practices. In addition, they engaged stakeholders, such as medical societies and primary health care associations, to share information about EvidenceNOW with their small practice constituencies. Initial recruitment strategies leveraged physician-to-physician

Table 1. Recruitment Approaches by Cooperative

Characteristic	Northwest: Healthy Hearts Northwest	Midwest: Healthy Hearts in the Heartland
Participating states	Washington, Idaho, Oregon	Illinois, Indiana, Wisconsin
Recruitment organizations	Washington: Qualis Health	Illinois: Northern Illinois University, Northwestern University, Telligen
	Idaho: Qualis Health	
	Oregon: ORPRN	Indiana: Purdue
		Wisconsin: MetaStar
		All: American Medical Association, Alliance
Recruitment period	14 mo (May 1, 2015-June 30, 2016)	14 mo (Aug 27, 2015-Oct 14, 2016)
Recruiters	4 Physicians (0.5 FTE)	3 Physicians (0.3 FTE)
	4 Investigators (nonphysicians) (0.4 FTE)	16 Practice facilitators (5.6 FTE)
	19 Practice facilitators (8.5 FTE)	6 Managers (1.8 FTE)
	5 Managers (1.9 FTE)	3 Research staff (0.7 FTE)
	3 Communications specialists (0.7 FTE)	
Primary communication methods	In-person, e-mail, e-mail blasts, conferences	In-person, e-mail, telephone
Targeted number of practices	250	250
	30, Washington	50, Illinois
	20, Idaho	60, Indiana
	100, Oregon	40, Wisconsin
Prior relationships	139, Washington	360, Illinois
	Qualis Health	Northern Illinois University: Illinois health information technology regional extension center; Telligen;
		Northwestern University: Chicago health information technology regional extension center
	22, Idaho	147, Indiana
	Qualis Health	Purdue Healthcare Advisors: health information technology regional extension center
	80, Oregon	132, Wisconsin
	ORPRN (members)	MetaStar: Wisconsin health information technology regional extension center
Priority stakeholders	Primary care associations	Primary care associations
	State family medicine organizations	State family medicine organizations
	Hospital systems leadership	Hospital systems leadership
	Independent physician associations	Independent physician associations
	State Medicaid service delivery organizations	State government health authority
	State government health authorities	State government health authorities
	State rural health associations	State rural health associations

FTE = full-time-equivalent; ORPRN = Oregon Rural Practice-based Research Network.

communication and existing relationships between practice facilitators and practices, but cold-calls had to be made by research staff (Healthy Hearts in the Heartland) and practice facilitators (Healthy Hearts Northwest) to practices having no previous relationships with recruiting organizations. The nature of the existing relationships varied but are defined here as any previous working relationship between a Healthy Hearts Northwest or Healthy Hearts in the Heartland organization and a practice (the strength of the relationship was not operationalized or measured). The cooperatives relied on physician champions, practice facilitators, project managers, and other research staff as primary recruiters, and often practices were contacted by multiple different recruiters during the recruitment effort (Table 1). In addition, both cooperatives used in-person meetings, conferences, e-mails, and telephone calls to share program information and to engage and recruit practices.

Data Collection

The cooperatives captured practice demographics as part of the recruitment process, including practice size (number of licensed clinicians), clinician specialties, address, and type of practice ownership, along with a previous relationship with the practice and date of practice enrollment. The prior relationships were at multiple levels: practices previously engaged with complex projects, practices that participated in completing survey studies, and those whose members attended presentations. On the cooperative side, the practice facilitator or research assistant was primarily responsible for making the on-the-ground connections. Physician leaders made introductions and engaged the leadership of large

networks. At the practice level, the role of the person in the recruited practice varied and might include physicians, office managers, or nurses. To characterize the recruitment process, the cooperatives documented key variables for recruitment contact activity, including the various methods of contact and the number and roles of recruiters per practice. Designation of urban vs rural was made using practice ZIP codes translated to the Rural-Urban Commuting Areas (RUCA) geographic taxonomy according to RUCA version 3.10.[15]

To determine total cost of recruitment, we developed a template based on labor cost that included the role of the recruiter (physician, practice facilitator, research assistant, etc), the recruiter's percentage of full-time equivalency on the project, hours on the project, percentage of time spent on recruitment, total recruitment hours, and the hourly rate. The number of interactions with each practice during recruitment was segmented by the role of the recruiter and linked to their hourly rate (Supplemental Appendix 1, available at http://www.annfammed.org/content/16/Suppl_1/S72/suppl/DC1/). In addition, associated costs (travel expenses, meeting registration, etc) to enroll each practice in its respective region were documented. Project managers within each recruiting organization completed this template during and shortly after completion of recruitment activities. Although the cooperatives carefully recorded the recruitment contacts they made with the practices, including the cooperative's previous relationship with the practice, the person making the contact, and the type of contact, it was not possible to determine with specificity which contacts of what type caused practices to decide to enroll. Similarly, the cooperatives carefully recorded the persons with whom they were interacting in the practices, but it is not possible to determine which person or persons made the final decision to enroll the practice.

RESULTS

A total of 3,669 practices were contacted during the 18-month recruitment period, resulting in 484 enrolled practices across the 6 states served by the 2 cooperatives (Table 2). Across the 2 cooperatives, it took 8.5 months to reach the halfway mark for enrollment—6 months for Healthy Hearts Northwest and 10 months for Healthy Hearts in the Heartland. For each practice enrolled, there were 5 practices recruited in Healthy

Table 2. EvidenceNOW Recruitment Success Rates per Cooperative by Prior Relationships With Practices, Initial Recruitment Interactions With Practices, and Practice Ownership

	Healthy Hearts Northwest		Healthy Hearts in the Heartland		Both Cooperatives Combined	
Characteristic	% Enrolled	% Success (Enrolled/Recruited)	% Enrolled	% Success (Enrolled/Recruited)	% Enrolled	% Success (Enrolled/Recruited)
Relationship						
Prior partnership	43	36 (110/302)	46	31 (104/336)	44	33 (214/638)
Referral/warm handoff	28	18 (72/404)	23	66 (53/80)	26	26 (125/484)
No prior connection	29	11 (76/682)	31	4 (69/1,865)	30	6 (145/2,547)
Initial interactions						
Conference or presentation	12	42 (32/76)	0	NA (0/0)	7	42 (32/76)
In person	15	46 (39/85)	33	32 (74/228)	23	36 (113/313)
Telephone	7	13 (19/152)	15	31 (34/111)	11	20 (53/263)
Individual e-mail	46	24 (118/490)	33	11 (75/680)	40	17 (193/1,170)
E-mail blast	12	15 (30/203)	0	NA (0/0)	6	15 (30/203)
Fax	1	10 (3/29)	0	NA (0/0)	1	10 (3/29)
Mail	7	6 (17/286)	19	3 (43/1243)	12	4 (60/1,529)
Missing or no activities	0	0 (0/67)	0	0 (0/19)	0	0 (0/86)
Ownership						
FQHC	17	22 (43/200)	28	63 (64/101)	22	36 (107/301)
Health or hospital system	39	19 (100/536)	29	29 (65/226)	34	22 (165/762)
Other health organizations	4	20 (11/54)	1	17 (3/18)	3	19 (14/72)
Independent	40	17 (104/598)	42	5 (94/1936)	41	8 (198/2,534)
Total	100	19 (258/1,388)	100	10 (226/2,281)	100	13 (484/3,669)

FQHC = federally qualified health center; NA = not applicable.

Note: $P < .001$ for all relationships and initial interactions and for the ownership for Health Hearts in the Heartland and both cooperatives combined. $P = .75$ for ownership for Health Hearts Northwest.

Table 3. Average Number of Interactions per Enrolled Practices for Cooperatives

Interaction	Healthy Hearts Northwest		Healthy Hearts in the Heartland			Both Cooperatives Combined		
	Average No. (SD)	Range	Average No. (SD)	Range	No.	Average No. (SD)	Range	No.
Relationship								
Prior partnership	7 (5)	2-25	6 (4)	2-24	104	7 (5)	2-25	214
Referral/warm handoff	9 (5)	2-20	4 (4)	2-27	53	7 (5)	2-27	125
No prior connection	7 (4)	1-20	9 (7)	2-44	69	8 (6)	1-44	145
Ownership								
FQHC	7 (5)	2-25	6 (7)	2-44	64	6 (6)	2-44	107
Health/hospital system	9 (5)	2-20	5 (5)	2-27	65	8 (6)	2-27	165
Other health organizations	10 (5)	2-20	13 (10)	6-25	3	11 (6)	2-25	14
Independent	7 (4)	1-20	8 (5)	3-29	94	7 (4)	1-29	198
Total	8 (5)	1-25	7 (6)	2-44	226	7 (5)	1-44	484

FQHC = federally qualified health center.

Hearts Northwest and 10 practices in Healthy Hearts in the Heartland, for an overall average recruitment ratio of 8 practices recruited for each 1 enrolled. The average number of interactions per enrolled practice was 7 (Table 3). Across these 2 regional cooperatives, 29,100 hours were involved in the recruitment of 484 practices at a total cost of $2.675 million or $5,529 per enrolled practice (Table 4).

Practices with a prior relationship were significantly more likely to enroll than those without. A prior relationship was present for 214 (44%) of the enrolled practices (Table 2). The cooperatives had no prior connections with 145 (30%) of the practices that eventually enrolled, while the balance involved referrals or warm handoffs (Table 2). Each recruited practice had 7 contacts on average, with an estimated cost of $730 per practice or $113 per contact (Table 3 and Table 4). If recruitment had been limited to practices with no prior relationship, the cooperatives would have needed to reach out to 8,501 practices with 8 contacts per practice to enroll 484 practices, significantly increasing the cost of recruitment from $2.7 million ($5,529 per practice) to $7.7 million ($15,878 per enrolled practice).

Characteristics of Enrolled Practices

Small and independent practices, in both urban and rural areas, were the recruitment targets of EvidenceNOW. Most of the practices that enrolled (82%) had 5 or fewer clinicians. Solo practices comprised 33% of enrolled practices compared with 49% small (2 to 5 clinicians) practices, and 18% were medium-size (6 to 10 clinicians) practices. Thirty percent of the practices were located in rural areas. Family medicine clinics (66%) were enrolled most often; 20% of practices were a mix of primary care specialties, and internal medicine comprised the remaining 14% of practices in the 2 cooperatives. Approximately 41% of the practices were independent clinician-owned clinics, 34% were owned by hospitals or larger health systems, and 22% were federally qualified health centers. Recruiting success by ownership varied across the 2 cooperatives, with Healthy Hearts in the Heartland having a greater likelihood of recruiting federally qualified health centers and hospital/health system practices and less success with independent practices when compared with Healthy Hearts Northwest.

Table 2 provides detailed recruitment information regarding the presence of an prior relationship with practice sites, the initial mode of contact with practices, and the practice ownership type. Multiple recruitment modalities and recruiters were deployed across a variety of roles in each cooperative. The initial contact was most often made by e-mail. Cooperative

Table 4. Costs Associated With Cooperatives' Recruitment Efforts

Characteristic	Healthy Hearts Northwest	Healthy Hearts in the Heartland	Both Cooperatives Combined
Total recruitment time, h	11,397	17,703	29,100
Recruiter[a] hourly rate, average $	141	67	104
Total recruitment cost, $	1,595,824	1,080,051	2,675,875
Practices enrolled, No.	258	226	484
Average cost per recruited practice, $	6,185	4,779	5,529

FTE = full-time equivalent.

[a] See Table 1 for a list of recruiters and their FTE for EvidenceNOW recruitment efforts.

practice facilitators were the initial recruiter for 75% of the enrolled practices, with physicians making the initial contact for only 3% of the practices.

DISCUSSION

Recruitment and engagement of large numbers of smaller primary care practices across large geographic regions to participate in studies of strategies to build quality improvement capacity is time-consuming and expensive. An average of 7 contacts during 14 months of recruitment resulted in an average cost of $5,529 per enrolled practice. The total recruitment costs were remarkably similar between both cooperatives, one in the Pacific Northwest and the other in the Midwest.

Prior relationships are crucial, with stakeholder engagement playing an important role. In previous work, Solberg describes the 7 Rs comprising the key principles for recruiting medical groups for this type of research: relationships, reputation, requirements, reward, reciprocity, resolution, and respect.[16] Enrollment and engagement of the recruited primary care practices were built on trust from established relationships developed by both the Northwest and Midwest cooperatives, but the large numbers of practices to be recruited required both cooperatives to also approach practices lacking such relationships.

The cooperatives initially targeted practices with a prior relationship, then reached out to other organizations and leaders with whom they had a relationship seeking introductions, and finally, extended an invitation to those on a list of eligible practices. Not captured in our data is the role of physician leadership in promoting and disseminating the EvidenceNOW quality improvement study opportunity across multiple organizations. Indeed, both cooperatives experienced higher rates of successful enrollment among practices where a previous relationship existed or when a warm handoff or recommendation was made from one practice to another. Almost 1 in 3 (30%) of these practices enrolled, compared with approximately 1 in 20 (6%) practices with no existing relationship or warm handoff. These handoffs required time and extended the period of recruitment. As one practice facilitator commented, "…recruitment moves at the 'speed of trust.'"

Recruitment of the required 500 practices in a year's time would not have been possible in the absence of prior relationships and strong connections to local organizations (ie, state primary care associations, independent physician associations, etc). Although the combined cooperatives required 8.5 months to reach the recruitment halfway point, our experience strongly suggests that the relationship between total cost of recruitment and the total number of practices recruited is not linear. We did not measure cost at a fine enough detail to capture the relation between cost per practice (including marginal cost) and total practices recruited, but it is reasonable to assume that we encountered diseconomies of scale as we began recruiting practices with little or no prior relationship.

Each recruited practice had 7 contacts on average, with an estimated cost of $730 per practice ($113 per contact). If recruitment had been limited to practices with no prior relationship or warm handoffs or referrals, the cooperatives would have needed to reach out to 8,501 practices to enroll 484 practices, increasing the cost of recruitment from $2.7 million ($5,529 per-practice) to $7.7 million ($15,878 per enrolled practice). Such organizations as practice-based research networks, QIOs, and regional extension centers have little ongoing infrastructure support to maintain these relationships; instead, they rely on an ongoing series of project-specific contracts and grants to support staff and operations. Health care organizations tasked with practice improvement and developing optimal models of health care delivery should consider investing in organizations that have developed trusted relationships with primary care practices. As seen in this study, the return on investment in developing relationships is substantial.

It is important to note that no direct monetary incentive was offered for participation. This lack of incentive may have affected recruitment efforts, as practices often expressed skepticism about potential future financial rewards for enrolling in this project even when offered the time of a skilled practice facilitator. Asch et al reported that "modest" financial incentives did not appear to affect participation rates of community-based physicians into health services research studies,[17] but our experience suggests financial incentives would have increased enrollment, especially when described as a financial offset for the information-reporting burden. Although the practices were aware that value-based reimbursement was on the horizon, several described their previous disappointment with the amount of work and resources required for practices to become patient-centered medical homes—but without receiving the promised enhanced reimbursements or other financial incentives.[18,19] For example, one of the Healthy Hearts Northwest recruiting organizations, ORPRN, provided faculty support and technical assistance for the CMS Comprehensive Primary Care Initiative in which practices submitted an application to CMS instead of being actively recruited. That initiative required practices to make changes in care delivery to improve quality and reduce costs but also provided support with enhanced payments, data feedback, and learning support. Comprehensive Primary Care Initiative practices also participated in the

CMS shared savings program and were reimbursed for their quality improvement efforts, receiving a median of $175,775 per practice ($51,286 per clinician) in the first year of the program.[14,20] In Oregon, health systems that owned practices submitted applications for multiple clinics with most (76%) of the 65 Comprehensive Primary Care Initiative practices affiliated with 7 large health systems. The federally qualified health centers and federally designated rural health clinics were not eligible to participate. In contrast, EvidenceNOW emphasizes practice support through at-the-elbow practice facilitation, learning support, and using data for improvement, but it was not linked to a specific shared savings program where the practice might have received increased payments for improvements in care quality. To our knowledge EvidenceNOW is the first large, federally funded study to recruit primary care practices for quality improvement.

Practices that declined to participate frequently described competing projects or health system initiatives or simply being too overwhelmed by existing federal reporting requirements to participate. In earlier studies, it was often possible to engage with smaller primary care practices by establishing a relationship with the physicians or clinicians in the practice, gaining their trust, empathizing with the needs of their practices, and delivering on promises of support.[17,21] In 2017 engagement and recruitment required relationship building at multiple levels, with health information technology staff, health system leaders, administrative staff, and practice staff involved in reporting quality measures and implementing tailored practice facilitation that aligns quality improvement initiatives with federal and local practice strategic goals.[12,22,23] The cost of recruiting practices without a existing partnership is expensive, costing 7 times more than engaging familiar practices. Supporting the infrastructure of organizations that have a sustained, trusted relationship with practices is needed in large-scale practice improvement efforts.

There are limitations to our study. For any individual practice, multiple individuals may have made contact during recruitment efforts; therefore, attributing recruitment success to specific characteristics or roles of recruiters is not possible. Although study teams in Healthy Hearts Northwest and Healthy Hearts in the Heartland had similar types of team members in recruiting activities, the recruiting process for each team varied as did the distribution of senior and junior team members and the team members with clinical or practice facilitation experience. The depth of prior partnerships was not defined beyond having completed a project with the recruiting organization. Our study team did not collect data on the number of interactions with practices that declined participation and are not able to report whether the decision not to participate occurred after a single contact or after multiple contacts.

It is important to recognize that recruitment of a diverse set of practices for large-scale quality improvement or redesign studies requires an unanticipated or unplanned expenditure of resources, thus, extending the recruitment period. We did not anticipate the time and effort required to enroll practices which delayed the implementation of our planned 15-month practice facilitation intervention by 6 months for Healthy Hearts Northwest and by 2 months for Healthy Hearts in the Heartland.

The Northwest (Healthy Hearts Northwest) and Midwest (Healthy Hearts in the Heartland) recruitment experiences highlight 3 key messages: (1) existing relationships are important; (2) even with an existing relationship, recruitment requires multiple contacts with each practice to enroll them; and, (3) the high cost of recruitment at $5,529 per practice. The return on investment in existing relationships is substantial, with a cost of $2,366 per enrolled practice as opposed to the cost of practices with no prior connections, $15,878 per enrolled practice. Investigators planning to study implementation and improvement strategies or implement pragmatic clinical trials across large numbers of primary care practices should build on existing relationships, ensure that adequate funds are available for high-touch strategies, and plan for the long time frame needed to meet recruitment targets. Our findings also highlight the need for further research focused on developing and comparing the costs and effectiveness of different strategies for recruitment of primary care practices as subjects in future improvement studies, disseminating the findings, and using them to design more cost-efficient studies in the future.

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