
Bridging Primary Care Practices and Communities to Promote Healthy Behaviors

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Background: Primary care practices able to create linkages with community resources may be more successful at helping patients to make and sustain health behavior changes.

Methods: Health behavior-change interventions in eight practice-based research networks were examined. Data were collected July 2005–October 2007. A comparative analysis of the data was conducted to identify and understand strategies used for linking primary care practices with community resources.

Results: Intervention practices developed three strategies to initiate and/or implement linkages with community resources: pre-identified resource options, referral guides, and people external to the practice who offered support and connection to resources. To initiate linkages, practices required the capacity to identify patients, make referrals, and know area resources. Linkage implementation could still be defeated if resources were not available, accessible, affordable, and perceived as valuable. Linkages were facilitated by boundary-spanning strategies that compensated for the lack of infrastructure between practices and resources, and by brokering strategies that identified interested community partners and aided mutually beneficial connections with them. Linkages were stronger when they incorporated practice or resource abilities to motivate the patient, such as brief counseling or postreferral outreach. Further, data suggested that sustaining linkages requires continuous attention and ongoing communication between practices and resources.

Conclusions: Creating linkages between primary care practices and community resources has the potential to benefit both patients and clinicians and to lessen the burden on the U.S. healthcare system resulting from poor health behaviors. Infrastructure support and communication systems must be developed to foster sustainable linkages between practices and local resources.

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Introduction

Improved health behavior choices among Americans with regard to tobacco use, unhealthy diet, physical inactivity, and risky alcohol use could reduce mortality, disability, and death as well as their associated burden on the U.S. healthcare system by as much as 37%.^{1,2} Primary care remains an important setting for facilitating this effort. Of every 1000 people, 113 visit their primary care provider each month,³ and primary care accounts for more than 50% of all office visits annually.⁴ Clinicians in this setting are positioned to access patients, identify those in need, and coordinate the delivery of care.⁵ Research demonstrates the capacity of primary care practices to motivate at-risk patients to adopt positive health behaviors.^{5,6} Some have suggested that personalized messages as brief as 1 minute, delivered by primary care physicians, have the potential to significantly affect patients' decisions.⁷

Primary care practices face challenges when trying to act on existing, evidence-based guidelines concerning health behaviors. Among these are the lack of internal resources, appropriate training, and time necessary to build new capacities for behavioral counseling and follow-up care.^{5,7,8} Research has shown that practices have the potential to overcome these challenges by combining clinical efforts with community involvement, reaching beyond clinic walls to create community linkages.^{6,9–11} As Balasubramanian's article¹² in this supplement shows, when they do, patients' health behaviors improve.

The Robert Wood Johnson Foundation (RWJF) Prescription for Health initiative, in collaboration with the Agency for Healthcare Research and Quality, funded primary care practice-based research networks (PBRNs) to develop and test innovative ways to help patients improve their health behaviors.¹³ Twenty-seven projects were funded in two rounds. Round-1 projects (July 2003–October 2004) demonstrated that practices are able to identify patients at risk and prime them to make positive changes.^{6,14} Round-1 patients and practice members expressed strong enthusiasm for projects that provided resources to assist patients with behavior-change goals.⁸ In Round 2, most grantees proposed interventions to provide those resources, and did so by purposefully creating linkages with community resources, a pattern that demonstrates the perceived necessity of this approach. Brief descriptions of these projects can be found in [Table 1](#).

The value of connecting practices with resources has been articulated in the literature,^{11,15–17} yet few empirical studies describe the pragmatics of fostering such connections. Round-2 projects offered a unique opportunity to fill this gap, examining lessons learned by PBRNs while implementing their interventions. This study identifies the model(s) and strategies used by PBRNs to link practices with resources.

Methods

The analysis in this study focuses on eight Round-2 projects that were designed to identify patients at risk for poor health behaviors, provide them with some form of counseling, and refer them to community resources. These projects ([Table 1](#)) represent 68 practices across 15 states and 11,500 patient visits. Projects 9 and 10 in [Table 1](#) were excluded from this analysis, as they were not engaged in bridging activities.

Data Collection and Analysis

Primary data for this analysis were collected from July 2005 to June 2007. Data included grant applications, site-visit reports, key informant interviews, and diary data. The proposed processes of linking practices with resources were examined and compared with modifications that occurred during the projects. These comparisons, detailed in Column 2 of [Table 1](#), revealed important factors that both facilitated and impeded linking efforts.

Diary data,¹⁸ a series of biweekly entries made over a 2-year period by researchers for each project, heavily inform this report. These entries occurred in online diary rooms that allowed both team collaboration and feedback from the analysis team (A-team)—independent investigators funded by RWJF to conduct a mixed-method evaluation of Prescription for Health as a whole. Excerpts of diary entries included in this study either are presented in italics or are set off by indentation.

Data were reviewed within ATLAS.ti version 5.2, using an iterative process. The A-team held weekly meetings during the data-collection period, reading diary entries aloud as they were posted. Entries were discussed, and questions and feedback were posted to diary rooms. In January 2007, the A-team shifted to an immersion–crystallization approach, regularly pausing during data analysis to reflect on process and emergent themes.¹⁹

Analysis included the labeling of segments of text for purposes of identification. Labels used repeatedly became codes, marking recurrent themes identified within individual project data sets. In March 2007, the A-team finished individual reviews and began a cross-project analysis. During this time, codes were combined into groups that spoke to emergent themes across projects.²⁰

Building the Model

This paper addresses the emergent theme of *linking*, or the work that project teams did to forge connections between primary care practices and community resources. An output of all data tagged with the 32 relevant codes generated 790 pages of text that were examined for organizing patterns. The process was then repeated to refine understandings and to search for evidence contradictory to emergent understandings.

Through analysis, a general model of linking emerged. The A-team developed a list of characteristics that influenced practices' ability to initiate community connections. A set of community characteristics that could either facilitate or prevent connections was also developed. Both sets were envisioned as anchors—necessary foundations that enabled a connection to be formed. Once established, however, links were potentially static, easily broken, and not necessarily used. At this point, connections became characterized as *bridges*. A bridge suggests a dynamic and interactive connection as well as the need for strong foundations, for knowledge of local landscapes, and for continuous maintenance. Practices, patients, and resources needed help to make their way across.

The bridging model that evolved was shared among the investigators. Information found in [Table 1](#) was shared with Round-2 principal investigators for member-checking and accuracy. Telephone conferences and online conversations led to the further refinement of both [Table 1](#) and the bridging model ([Figure 1](#)). The next section uses the emergent bridging model as a framework for presenting the results.

Results

The success of project-bridging efforts depended on (1) steps taken to initiate the bridging process; (2) practice characteristics; (3) resource characteristics (anchors); and

Table 1. Practice-based research network project interventions as proposed and implemented

Project	Practice intervention: initial proposal	Changes/challenges to proposed study	Reasons given for changes
1	<p>Study tests whether counseling through electronic prompts and referral to limited group of pre-identified resources improves unhealthy behaviors in primary care patients; compares with usual care.</p> <p>Physician uses electronic mechanism to record HRA and aid with brief counseling, patients offered four referral options to free resources: web-based counseling, telephone counseling, group counseling, usual care. One-hour training for tool use.</p>	<p>Changes: <i>Software system change, shift in practice region, community partnerships, and thus resources able to offer. Project later tried intervention once services were not free.</i></p> <p>Challenges: <i>Use of residency practice required timeline fit residency calendar cycle; loss of patient buy-in when services were not free (This period of low patient interest was disincentive to physician.)</i></p>	<p>Initial software was not as malleable as thought. Change to new vendor had added benefit of technological support by trained physician. Change to new vendor caused need to shift region of study, leading to change in resources offered. Project was able to test impact of services that were not free due to unexpectedly fast completion of initial study.</p>
2	<p>Study examines impact of feedback, training, guides, and prevention collaboratives on behavior-change efforts in primary care.</p> <p>Monthly performance audits, counseling training sessions, behaviors screening as part of vital signs, handouts/referrals as appropriate; physicians counsel patients ready to change; practices share regional performance data and lessons learned.</p>	<p>Changes: <i>Some practices struggled to add behaviors to vital signs in their EMRs.</i></p> <p>Challenges: <i>Scheduling group training, new EMRs, staff turnover</i></p>	<p>Physicians' schedules often hampered scheduling of group training sessions. Some EMR platforms did not allow additions to vital-signs area, upsetting protocol in those locations.</p>
3	<p>Study to attempt prevention of unhealthy diet/activity behaviors, targeting patients early with new tool and single-point external intermediary; compares with usual care.</p> <p>Nursing staff conduct HRAs using new assessment tool; HRA triggers physician to provide brief counseling and referral to external intermediary; intermediary schedules counseling and refers to available resources when needed. Physicians receive one workshop on counseling techniques.</p>	<p>Changes: <i>Recruited through calls to families eligible for well visits, shift in type of intermediary hired</i></p> <p>Challenges: <i>Ownership in intervention by nonphysician staff, lack of health educator presence in practice, staff turnover</i></p>	<p>Research element required initial data collection prior to exam; recruiting thus done by phone. Need for bilingual and bicultural person able to offer generalized help caused change in type of external intermediary hired.</p>
4	<p>Study tests integration of interactive telephone system programmed with guide to appropriate area resources into primary care practices to promote behavior change; compares with provision of educational materials only.</p> <p>Provider offers educational materials, brief message, refers to single-point intermediary (IVR). Patient calls IVR for HRA and weekly counseling. Two-day training workshop for provider team.</p>	<p>Changes: <i>Staff initiated system for most patients.</i></p> <p>Challenges: <i>Difficult to reach patients by phone, continuous training needed for staff, staff turnover</i></p>	<p>Practices saw IVR as research and not practice extension, limiting buy-in. Some physicians gave patients option of having system call them, creating more work for staff. Patients preferred narrower call times than system offered. Staff turnover made buy-in ongoing and left training gaps.</p>
5	<p>Study tests MA-based program designed to identify patients at risk for poor health behaviors and to offer counseling and referral to generated guide of community resource; compares with usual care.</p> <p>MAs review recent electronic HRAs, assess patients ready to change, offer interventions for smoking, physical activity, or diet; alert physicians to patients at risk for risky drinking; MAs make referrals for all except drinking, physicians must approve physical activity interventions; MA gives message to patients not ready. Three MA training workshops.</p>	<p>Changes: <i>Previous HRA not useful, MAs needed new, quick, brief assessment tool. Intervention MAs cross trained new MAs when there was staff turnover. Connections with health department programs limited by competing demands</i></p> <p>Challenges: <i>Staff turnover, new EMRs, buy-in by MAs of intervention</i></p>	<p>New EMRs caused delay of 4–12 weeks and added levels of complexity to MA role, now requiring use of three software systems. This, combined with HRAs that were more out-of-date than thought, required MAs to conduct HRAs at time of visit.</p>

(continued on next page)

Table 1. (continued)

Project	Practice intervention: initial proposal	Changes/challenges to proposed study	Reasons given for changes
6	Study tests electronic health screener as a catalyst to enhance counseling, referrals, resource cards, and communication related to behavior change in younger patients; compares with usual care. Young-adult patients self-HRA using electronic screener in waiting room; physicians offer brief counseling, provide resource card, give referral as needed. Physicians receive two local training sessions on counseling, four on risk behaviors and community resource awareness; LISTSERV for physicians to share successful strategies.	Changes: <i>Monetary incentive for finishing exit survey, screener summary report added, LISTSERV discontinued</i> Challenges: <i>Maintaining interest in research once visit was complete, rollout of new EMRs in some practices, lack of population-appropriate community resources for nutrition and exercise, institutionalizing screener use in workflow, staff turnover</i>	Seasonal visits required extension in enrollment period. New EMRs caused workflow interruptions, altering start-up time. Population-appropriate resources hard to find, especially in rural areas, and expensive when available. Ability to institutionalize change required routine use, upset by late adopters. LISTSERV ended after non-use.
7	Study promotes screening, counseling, electronic resources, and community resource use through joint planning and collaborative meetings with local and state agencies; changes made with help of collaboratives. Self-HRA and readiness to change by patient in waiting room; ready at-risk patients join prevention registry, brief counseling and referral by physician; practice intervention teams participate in state-level prevention collaborative—quarterly meetings and monthly conference calls.	Changes: <i>Self-HRA made more mobile; IT support shifted locations, added area health educators to prevention collaborative to strengthen connections</i> Challenges: <i>Staff turnover, community resource-agent turnover, change in practice focus during illness/flu season</i>	Mobile HRA could be taken into exam room. New IT location in same building as PI allowed better collaboration and response times. State health department promotion coordinators were key to developing community links with practices.
8	Study tests providing practices with dedicated single-point external intermediaries; practices identify at-risk patients, refer to intermediary who provides counseling, follow-up, and assists in connection to community resources; targets three geographic areas. Practices developed process for referral to intermediary via fax, phone or e-mail, process aided by intermediary, intermediary offers brief phone counseling, external referral using guide created during intervention, monitors progress, provides feedback to practices. Intermediaries received approximately 3 weeks' training.	Changes: <i>Referrals by fax only; extra intermediary was hired. Many intermediaries had time utilization by patients well beyond what was expected.</i> Challenges: <i>Practices required "booster shot" reminders, lack of community resources to offer, difficult to connect with patients via phone</i>	One mechanism for referrals was easier to maintain. Demand for intermediaries was so great that additional person was hired. Reminders were necessary to maintain flow of referrals at other locations. Utilization increase was due partly to CM collection and partly to need for counseling not available in the community. Wrong phone numbers or missed appointments also pulled at intermediary's time.
9 ^a	Study tests practice-tailored system to identify at-risk patients and connect them to community resources using web-referral resource; compares with usual care. Intervention staff assesses current processes and guides practice's use of intervention-based new tools; process includes MAs screening patient eligibility pre-visit; either MA or physician refers patient to web-based resource.	Changes: <i>No changes reported—intervention was requested to complete certain tasks; intervention did not specify steps necessary to complete tasks.</i> Challenges: <i>Delayed timeline, practice burn-out, practices having limited interest in a health behavior intervention</i>	This intervention was embedded within a larger RCT. The benefit of greater access to large numbers of patients included the drawback of being dependent on the timeline of the larger study. Delay in this intervention was result of delay that the larger study experienced in completing its first stage.
10 ^a	Study tests IVR and web-based tools to assist patients with health behaviors; compares with usual care. Patients self-HRA via phone or website and receive feedback; at-risk patients referred to web-based or IVR counseling; physicians updated on patient progress.	Changes: <i>Patients also recruited through clinician referral, clinicians able to use tool with patient rather than have patient use pre-visit</i> Challenges: <i>IVR programming of extensive protocols proved difficult; translation of website into Spanish took large time commitment.</i>	IVR not as malleable as expected, could not match functionality of website for flexible action planning and provision of appropriate education resources. Spanish translations were time-intensive due to extensive materials included on the website.

^aThese practices were excluded from analysis in this report as they were not engaged in bridging activities.

CM, common measures (brief set of measures used to assess behaviors across all Prescription for Health projects); EMR, electronic medical record; HRA, health risk assessment; IVR, interactive voice recognition; IT, information technology; MA, medical assistant; PI, principal investigator

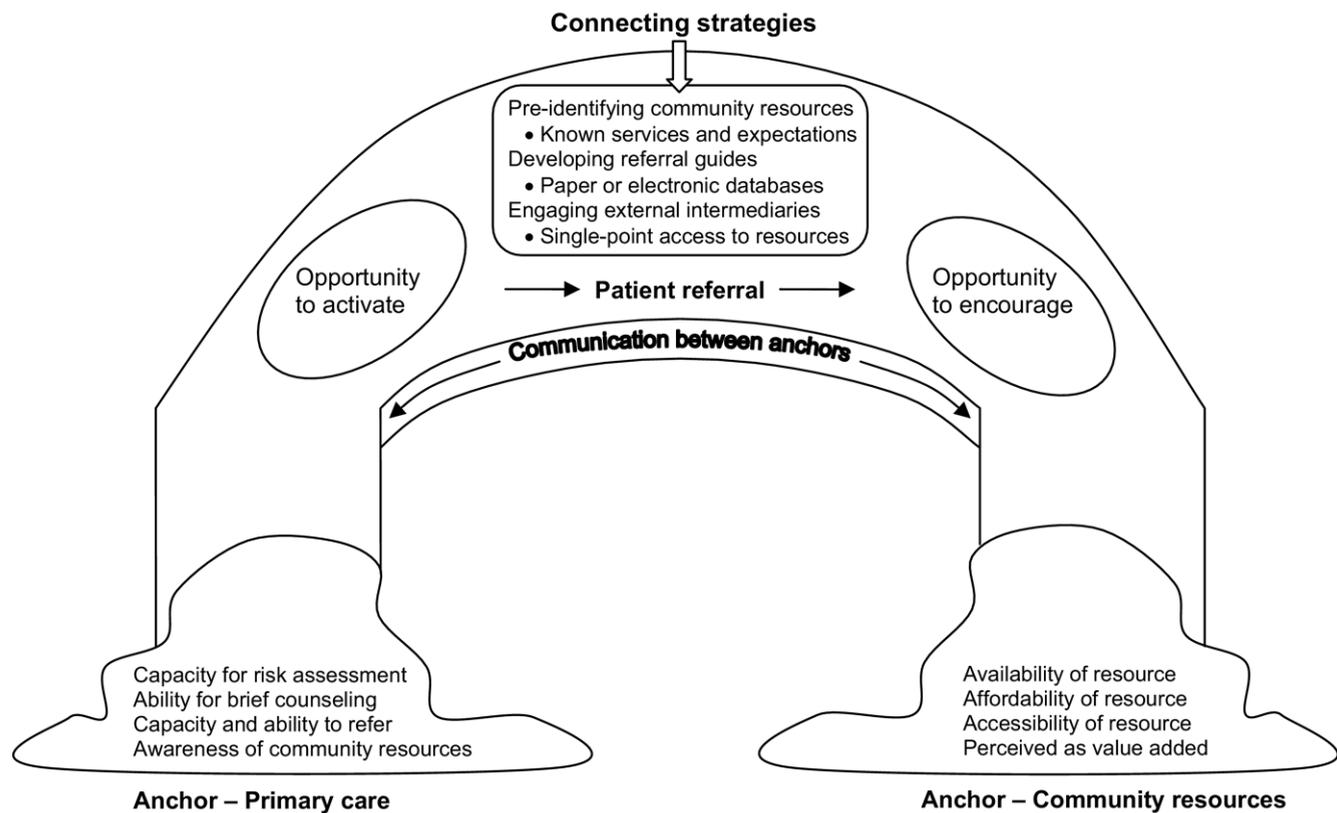


Figure 1. Bridging primary care and community resources: model elements

(4) steps taken to make effective use of the bridges, once established.

Initiating a Bridge

Round-2 interventions (Table 1, Column 1) and the adjustments made during their implementation (Table 1, Column 2) revealed the necessity to work around weak or missing elements of internal infrastructure. In turn, the necessity of bridging—strategies created to connect practices and resources—evidenced a critical gap between the two and a new form of infrastructure, tested by projects. Projects used one or more of three strategies to initiate practice–resource connections: pre-identifying resources; developing guides used to refer patients to resources; and engaging intermediaries in the form of a person or web portal, external to the practice, able to assist patients and to make informed referrals to community-based resources.

Pre-identification. Three projects identified a small pool of available community resources, partners, or both before the intervention began. In such cases, they established working relationships prior to implementing interventions that involved coordinating referral processes, sharing information, and providing feedback to practices. The feedback mechanism was particularly significant. Participating clinicians in the past reported frustrations with the lack of information received once

a referral had been made. Limiting referral options allowed clinicians the opportunity to become familiar with the services offered and the nature of care to be received.

Referral guides. Six interventions included the use of project resources to develop materials that detailed services available within the community. Paper guides and electronic databases were used to identify appropriate resources with which to connect patients.

Intermediaries. Four interventions identified a single intermediary, outside of the practice, able to offer support, counseling, and the navigation of resources. The intermediary was sometimes a person who created practice–resource partnerships or individual connections between patients and resources, and sometimes an item of technology, like an interactive telephone system or a web-based portal. This created a single point to which clinicians could make referrals and from which patients could seek advice.

Primary Care Practice Characteristics

Establishing a bridge required the presence of certain anchoring characteristics within practices. Bridges rely on strong foundations, and diary data revealed that practices faced many challenges. These included limited clinician time, staff turnover, inadequate reim-

bursement, limited knowledge of community resources, the feeling of having nothing to offer, insufficient training in health behavior counseling, and the absence of systems for health-risk assessments and referrals. Most obstacles fit within one of three types of practice capacities: the ability to identify patients at risk, to make referrals, and to know about area resources.

Assessing risk. Screening procedures for health behaviors needed to be quick and easy. *Our practices told us that these need to be one-click operations.* Screening could also be difficult when patients, clinicians, or both were reluctant to discuss personal behaviors. This was particularly true for risky alcohol use:

Alcohol has been the most difficult. Screening for alcohol abuse seems to carry an emotional component . . . [the clinicians feel] powerless to help individuals with an alcohol problem and were not optimistic that these individuals could or would help themselves.

Making referrals. Some interventions created new capacities for referrals by reprogramming electronic medical record systems to place referrals electronically or by designing specialized forms. These strategies were an important start to building communication infrastructure between practices and communities. Such new capacities required the use of resources that could potentially burden an already overcommitted practice staff. Referral processes that added new functions to office routines highlighted the pressure of operating with limited resources:

If we need to print referrals for faxing . . . maybe someone in [the research team's] office could do it. [There is] some concern about stressing referral person.

A key issue [here was] not to impose on the office staff. "It is OK for us to agree to do a study . . . it is not OK if it impacts on our staff."

Knowing local resources. Making referrals required that resources be available and that someone be able to navigate them. Said one diary keeper: *I am finding that some private practices know little to nothing of activities that are routinely offered in their communities.* Connecting with county extension agencies, hosting practice-based presentations by resource members, and building web-based tools were some of the ways in which projects sought to overcome this obstacle. One diary keeper expressed a common sentiment well:

Linking to community resources is easier said than done. In each community the resource agencies have a lot going on . . . but the private docs don't know about it. I think each area is just too tied up in their own work to make their circles overlap!

Community Resource Characteristics

Even with appropriate practice characteristics in place, efforts to promote behavior change could be defeated if complementary characteristics were missing within the community. Bridges relied on resources being available, accessible, affordable, and perceived as valuable by patients. Some interventions struggled to identify local resources.

Available. Availability was often a first hurdle. In these cases, the intervention-supported intermediaries often stood in for missing resources. In one case, the overutilization of intervention-supported health educators, resulting from a lack of area resources, required the hiring of additional staff during the intervention period.

Accessible. Many times patients were hampered when trying to access available resources, whether by a lack of infrastructure, distance, or scheduling:

Some [community] programs are "just getting off the ground." Several have websites that do not have up-to-date information, calendars, resources, contacts, etc.

[One patient] tried to go to a healthy diet meeting at a different clinic, but had problems with transportation.

Some of the nutrition classes are limited to weekdays and patients' jobs preclude them from attending. We'll continue to work on adding a web-based option . . .

Affordable. If the cost of an available resource was felt to be prohibitive, use of that resource was avoided by both clinicians and patients:

A barrier for counseling is patients' affording it—many would be interested in group visits if free, reason for interest in the study . . . [practice] will refer [patients] to some nutritionists, but sporadic and dependent on what insurance will cover.

Valuable. The diary data show that the perceived value of offered resources influenced the interest of participants: *Folks really liked the fact that patients could receive 9 months of free [a program they recognize].* When projects provided connections to unfamiliar community resources, it was important that practices be introduced to the programs so that they could better present them to patients:

A number of times [our community partner] "complained" that patients would get connected who had no idea what the program was or what to expect.

Enabling Effective Use of the Primary Care–Community Resource Bridge

The development of bridges within Prescription for Health interventions involved two processes: boundary spanning and brokering. Boundary spanning is a strategy for making connections across the gap created between practices and communities through the lack of previously existing infrastructure, and often relies on boundary spanners, or people with a foot in both worlds (e.g., knowledge of both primary care and information technology). Brokering creates situations that can optimize care delivery by identifying interested community partners and helping to negotiate an arrangement or process that is mutually beneficial to all parties.

One key role of the boundary spanner is to make each domain aware of the other. For example, in a number of projects it was important to expand practices' knowledge about community resources in order to foster connection. Conversely, community resources might not think of the medical community as an obvious partner, or realize the access that clinicians could provide to their clients, especially to priority populations and the underserved. Brokering may help to leverage these collaborations, allowing each domain to accomplish more than is possible individually. Such partnerships do not come naturally. The silo phenomenon—two domains working toward common interests without awareness of each other—is underscored by the statement: *I think each area is just too tied up in their own work to make their circles overlap!*

This study's initial bridging model included the need for anchors and strategies for connections. However, the data clearly indicated that once a bridge was in place, some patients and practice members required motivating along the way. Anticipating that primary care clinicians might lack behavior-change counseling techniques, most projects included a component of clinician training in techniques. This proved to be an important characteristic of successful bridges, and was bolstered by a complementary process on the community resource side, when available. Resources that reached out to patients following clinician referral, instead of waiting for patients to contact them, could lead to greater patient engagement and better bridging.²¹ Some interventions proactively engaged clinicians, providing group meetings with clinicians from other area practices that allowed them to share stories of practice and patient success.

The data also suggest that better knowledge of available resources may lead to greater chances of a bridge's being sustained once the project has ended:

Our practices remain excited about the prevention activities that have been implemented [learning about local resources] . . . we are beginning to shift some of our focus toward issues of sustain-

ability and further evolution of our community partnership model beyond the funding period.

Some projects reported that when community members knew about their area practices, they came to see the practices as part of their public health mission and began identifying practice needs in order to tailor their offerings:

As I met with the resources of the county, we began a grid of resources covering the [practice] areas . . . On our next meeting we will meet with the practices to determine the best format for making the resources known to the practice and for keeping information about resources updated and timely.

Discussion

The eight projects analyzed in this study demonstrate that primary care practices have the ability to develop linkages that would connect the patients with the community resources able to assist them with health behavior change. Practices and resources committed to this important work struggle with a broken, encumbered, or altogether missing infrastructure, causing significant roadblocks to successful bridging. Project innovations were often creative solutions for overcoming such roadblocks.

The bridging strategies employed by Prescription for Health interventions draw attention to a gap in infrastructure that exists between primary care and community-based resources. This appears to support sociologist Ronald Burt's hypothesis that "people who stand near holes in the social structure are at higher risk of having good ideas."²² The necessity of spanning a structural gap between primary care and community resources led to the development of bridges that represented far more than merely constructing connections. These bridges required paradigm shifts at their foundations. Practices began thinking about patients as populations, resources began to see practices as partners, and public health officials began seeing practices as integral to their mission and a part of the population they serve.

To accomplish this, some Prescription for Health projects benefited from the involvement of brokers who themselves were talented boundary spanners and had a foot in two worlds. There were those with dual careers in public health and primary care, and those with dual knowledge in primary care and computer programming. These boundary spanners allowed research teams to design projects responsive to the needs of both primary care and community programs. Their collaborations marshaled the use of tools and technology that streamlined systems for the two worlds.

Bridging is an important start, but much remains to be done, and there remain several important limitations to this effort. More research is necessary to test the

validity of this model and to assess what impact bridges have on changes in health behaviors. Additionally, more research is needed that focuses on understanding the process of linking practices and community resources and offers systematic evaluation of the adoption, implementation, and maintenance of such connections in order to promote the translation and dissemination of findings. While this study speaks to the experiences of those constructing the bridges—providers, staff, and resources—additional studies are necessary to understand patients' experiences and the reception of such efforts. In addition, more funding is necessary, both to investigate the roles of brokering and spanning and to build a solid infrastructure that enables communication between practices and community resources.

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