Voices from Left of the Dial*: Reflections of Practice-based Researchers

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Purpose: **Practice-based research networks (PBRNs) provide an important approach to implementing primary care research at the community level, thus increasing the relevance and utility of research findings for routine primary care practices. PBRNs expend considerable time and energy in the recruitment, engagement, and retention of network clinicians and practices to establish this community-based primary care research laboratory. This study assessed factors motivating PBRN clinicians to participate and stay involved in practice-based research in their primary care office setting.**

Methods: **We invited practicing clinicians across the United States who are affiliated with a PBRN to share their stories regarding motivations to participate in practice-based research. Using qualitative methods, we categorized the stories into the main motivation for participation and the perceived impact of participation.**

Results: **We collected 37 stories from clinicians affiliated with 12 PBRNS located in 14 states. Motivations for participation in practice-based research included themes associated with personal satisfaction, improving local clinic-based care, and contributing to community- and system-level improvements. Sources of personal satisfaction corresponded to the 3 psychological needs postulated by Deci's and Ryan's Self-Determination Theory: competence, autonomy, and relatedness.**

Conclusions: **These stories from PBRN clinicians describe the values, motivations, and unique paths that clinicians took as they chose to participate and stay active in a PBRN. Their voices have the potential to influence others to participate in practice-based research. (J Am Board Fam Med 2010;23:442–451.)**

Keywords: **Practice-based Research, PBRN, Community-based Research, Primary Health Care**

Proponents of translational research have identified practice-based research (PBR) and practice-based research networks (PBRNs) as essential for answering questions relevant to primary care and for overcoming barriers to the implementation of existing evidence into community-based primary care practice.[1,2] A PBRN is defined as a group of separate practices that collaborate with each other and often with outside experts to conduct multiple research projects during an extended period of time while continuing to deliver care to patients.[3] Family physicians in PBRNs have been contributing new knowledge to the discipline of family medicine for

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See Related Commentary on Page 440.

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*"Left of the Dial" refers to the radio stations that are found on the lower end of the radio dial where local community programming can be heard, and to a song from The Replacements, which describes the resilience of local musicians who can best be heard left of the dial (fading in and out) when driving across country.

the past 3 decades. The Ambulatory Sentinel Practice Network (ASPN) began collecting data in 1982 and has published research on important subjects in primary care, such as headaches, spontaneous abortion, cough in children, and carpal tunnel syndrome.[4–7] In an attempt to understand the motivation of family physicians to participate in ASPN, researchers interviewed network family physicians about reasons for participation and found that the network studies created a bridge between practice and academia, made research possible while continuing to practice full time, and improved the quality of patient care.[8]

Family physician involvement in PBR has continued to grow since the early days of ASPN, and by 2004 the Agency for Health Care Research and Quality–supported PBRN Resource Center identified 111 active primary care networks in the United States.[9] With the recent development of the National Institute of Health Roadmap Initiative and creation of the Clinical Translational Science Awards, opportunities for community-based family physicians to become involved in PBR has increased further.[10]

Critical to the success of PBRNs in meeting the challenges presented by the National Institute of Health Roadmap Initiative is a cadre of engaged family physicians doing research studies. To assist in the recruitment of community-based family physician researchers, the Practice-Based Research Working Group of the North American Primary Care Research Group's Committee for the Advancement of the Science of Family Medicine directed the authors to conduct the PBRN Clinicians Stories Project. The intent of the project is to tell the stories of family physicians who are currently involved in PBR and, through these stories, share their motivation to do research with other family physicians and the larger community of academic researchers and research funding agencies. Because PBRNs may devote considerable time and effort to the recruitment, engagement, and retention of their clinicians, we felt it was important to examine motivation for initial interest in PBR as well as factors more specific to ongoing participation. In this qualitative study, we assessed factors that motivate a diverse sample of PBRN clinicians to participate and stay involved in PBR in their primary care office setting. We have summarized the principal themes evaluated from these clinicians' stories, which were collected between January 2007 and March 2008 from PBRN clinician-researchers practicing across a wide geographic range of the United States. For the discussion, we have used the Self-Determination Theory (SDT) model as a framework for summarizing our motivational themes. SDT is a general theory of human motivation based on the need to feel competent, autonomous, and related to others.[11,12] SDT has recently been applied to understanding the psychology of how clinicians make decisions regarding the delivery of preventive health services.[13,14]

Methods

In 2007 we sent an initial invitation by E-mail to 27 of the 43 primary care PBRNs affiliated with the Federation of PBRNs, which keeps an active inventory of Family Medicine PBRNs and maintains on-going communication in the form of a listserv with many PBRN directors.[15] Criteria for selecting the 27 networks included that they be comprised primarily of family physicians, have had completed several studies, and show demonstration of recent activity. A second recruitment effort went to 51 PBRNs in 2008. In addition to the Federation of PBRNs inventory list, we identified PBRNs from the AHRQ PBRN Resource Center registry.[16] PBRN directors distributed the invitation to primary care clinicians in their networks, defined as family physicians, internists, or pediatricians who had been involved with at least one PBRN study and who might be interested in relaying their experiences to a broader primary care clinician community. We asked PBRN directors to solicit stories and to help obtain a diverse sample of stories from among their clinician members.

Interested clinicians completed a short series of demographic questions about themselves and their clinical training, and followed a suggested story template that included these questions:

- How did you get interested or recruited to PBR?
- What are your research interests?
- Not many family physicians/primary care clinicians engage in research or quality improvement projects. What motivates you?
- How has participation in research influenced you as an individual clinician?
- How has participation in research influenced your practice?
- How has participation in research influenced your community or health system?

Figure 1. Locations and number (n) of participating clinicians.

- How is participating in a network different from other organizations or activities looking to influence practice?

An informed consent form was included with the request for stories and was completed by each clinician. Clinicians agreed to allow their names and PBRN affiliations to be included in project reports and publications. The study received approval from the Institutional Review Board at Oregon Health & Science University.

Data Analysis

Stories from clinicians who had signed the consent form and completed the demographic survey were included in this report. Using grounded theory approach,[17] 2 independent reviewers (LJF and MAH) read each story and categorized the main response themes qualitatively. A third reviewer (JM) reviewed the stories and analyses. He agreed with the primary themes, suggesting that the first theme corresponded to the tenets of SDT, and made suggestions about the presentation of the information. We used an iterative method until consensus was reached.

Coders summarized responses within 3 domains:

1. the main motivation for participation and remaining involved,
2. a primary impact area resulting from the participation; and
3. a secondary benefit or impact area also achieved through the participation.

After the stories were coded into these domains, the reviewers compared their results for each story classification. We selected only one theme for each story. In the few cases where there was disagreement about the classifications (fewer than 3 stories), the reviewers discussed the differences and came to an agreement.

Results

We collected 37 stories from 38 clinicians in 12 primary care networks using the above convenience sample approach. Two clinicians shared a story from a common experience. The PBRNs that were represented are located in 14 states and one large

PBRN is national (American Academy of Family Physicians National Research Network) (Figure 1).

Clinician Characteristics

Clinicians participating in the PBRN Clinician Stories Project were predominantly male (76%) and family physicians (90%). Their mean age was close to 50 years (mean, 48.8 years; range, 33–66 years). Most had participated in several PBRN studies, with more than 52% having participated in at least 6 or more studies. The majority of clinicians had been in practice for more than 5 years (92%) and had been in a PBRN for at least 5 years (68%). The size of the practices varied from 9 participants in solo practice to 14 in practice groups with more than 5 clinicians. Participants practiced in both private clinics (60%) and public clinics (40%).

Thematic Areas for Motivation

Through the stories of PBRN clinicians we identified a number of themes that motivated clinicians to choose a practice path that included PBR. These themes related to satisfaction with certain aspects of the PBRN experience. Three tables detail the themes within each of these domains: (1) themes associated with personal satisfaction from participation (Table 1); (2) themes associated with satisfaction with improving local (practice-level) clinical care (Table 2); and (3) themes associated with satisfaction in achieving community-oriented primary care–related activities and making health system–level changes (Table 3). Each table contains a summary of the clinician responses within the identified principal themes, the types of satisfaction related to the PBRN experience reflected on in the story, and exemplar quotes.

The motivations associated with personal satisfaction described in Table 1 reflect the basic psychological needs for competence, autonomy, and relatedness identified by the SDT.[11,12] Respondents mentioned improving their clinical skills (competence) because of PBRN participation. Others indicated a desire to improve the quality and relevance of academic research without having to work in an academic environment (autonomy). Many said the PBRNs created relationships between community clinicians and academicians that helped them withstand the challenges of day-to-day practice (relatedness).

The themes from the stories related to improving local, clinic-based care place high value on improving the quality of care for patients and improving systems of care, including enhanced information technology and patient/disease registries. The stories describe research as a tool to improve quality of care, often having benefits beyond those perceived as directly related to the study. The research studies provide access to tools, knowledge, practice change facilitators, and mentors as a benefit of participation. Changes in local clinic care are possible because the PBRN studies take into account relevance to local care, practice staffing, and workflow. Competence in chronic illness care and disease management was a common theme in this domain.

Clinicians report that the PBR studies are relevant to the health of their community, and they are developing competence in the provision of population health care. Clinicians noted that PBRNs could address the gap between academia and community practice and influence the timely delivery of health care, as in an example of flu vaccination success facilitated by PBR, as well as the delivery of health care to unique populations served by the practice, such as migrants, the elderly, and those living in more remote rural areas. PBRN studies cited in these stories reported opportunities for clinician and practice collaboration with major health plans and community health foundations. Being a part of a research community is a motivator for participation in a PBRN.

Discussion

This qualitative study describes the motivation of family physicians to join, contribute to, and stay active within PBRNs. Although our study is limited by being composed of self-identified participants in a convenience sample, we believe that these (and other) clinician stories provide an important medium through which we can understand the intersection of research with professional practice and life and give voice to this unique method of participatory research.[18,19] Greenhalgh and Wengraf[20] note, "The aim of narrative research is not necessarily to determine a 'true' picture of events, but rather to explore such things as how the individual has made sense of these events, their attitude toward them, what meanings the events hold for them, and how these feelings came to be."

Narrative research like our PBRN Clinician Stories Project provides useful information for ac-

Table 1. Thematic Summary of Practice-Based Research Network (PBRN) Clinician Motivation Emphasizing Personal Satisfaction

Primary Theme	Main Types of Satisfaction	SDT Component*	Quote
Enjoyment of research without the restrictions of academic work/life	Intellectual stimulation around medicine	Autonomy, Competence, Relatedness	"I think I have the best of both worlds. In terms of clinical practice, I think that medicine is more enjoyable in a nonacademic setting, away from all the politics that are part of academia."
			"They are the farm teams of research, growing investigators from the large field of doctors interested enough to participate, but not so much so as to quit their day jobs and go into academia. That is me. I may be growing slowly, but at least I'm growing."
Sparking diverse interests and creating an opportunity to form a PBR community identity with other practitioner-researchers	Stimulation and connectivity with learning environments generated through PBR	Relatedness	"This experience [a network study within residency programs] has been especially poignant for me in that it hopefully will create a learning community among residencies."
			"I have enjoyed attending the convocation, meeting like minds, and have been encouraged to pursue the study of the Review of Systems. This has become a project of the Residency Branch with collaborators in several states. I have also enjoyed thinking about how to engage current residents in the scholarly activity of family medicine."
	Opportunities to create positive behavior change among patients and other practitioners	Competence	"Participating in practice-based research encourages critical thinking skills and develops the necessary mindset to question basic assumptions, accept new and better solutions, and work towards increasing the value of the health care—this has to come from within the profession."
	Creates new opportunities for leadership and role models	Relatedness	"I wanted to be involved in showing other practitioners that attention to this teaching (physical activity, healthy eating and energy balance) really does make an impact on patients."
			"The path continued to wind across the United States as I was able to find mentors to teach me and I was asked in turn to advise others new to the moves of the network arts. We all became learners and teachers simultaneously; taken up with the excitement of this new challenge."
Reward in creating a primary care evidence base that reflects diversity of real-world office settings and diverse populations	Rewarding to have non-academic clinical experiences increase the relevance of academic research efforts	Autonomy, Competence	"I felt my private practice experience and input were valued and applied during discussions about which avenues research should take. I was also able to bring back simple cost effective low tech solutions to major data management problems in my private practice."
			"[Learning about a seminal PBRN study] illustrated to me the value of doing research grounded in clinical practice, the power of PBR to rigorously challenge the conventional &lquote;ivory tower' wisdom, and the ability of a network of practicing clinicians to make an important contribution to the practice of medicine."
	Rewarding to improve patient care by increasing the relevance of research findings through PBR	Autonomy, Competence, Relatedness	"The work I have done in my exam room and in front of my computer has been published, read, and cited—it is now influencing the direction of future research."
	Satisfying to have interventions to support patients' real needs	Relatedness	"Research has allowed me to see another side of my patients—I was pleasantly surprised to learn that one of my patients is considered the leader and cheerleader for his group (within a diabetes self-management group visit intervention)."
	Provided answers for practice to questions from practice		"After getting settled into clinical practice and the birth of my first daughter I continued participation in network studies, including the headache and influenza studies. Within 1 year I become more interested in the network studies and meetings. I identified a mentor and chose the primary care management of type 2 diabetes as my primary area of research interest."

Table 1. (Continued)

Primary Theme	Main Types of Satisfaction	SDT Component*	Quote
			"The research network provided an opportunity to participate in the discussion of research concerns, the opportunity to collect data that in my office would be only anecdotal and in a network meaningful, and the opportunity to meet primary care physicians from around the country. I &lquote;live' in 3 exam rooms and infrequently see my associates during the day and rarely talk about patients, and even less about systems problems. The research network and convocation give me an opportunity to meet friends and explore questions that do not have priority during the patient care hours."
			"Since before completing medical school I have been plagued with local clinical questions such as &lquote; What is the evidence to support this diagnosis/treatment? Treating my patients as populations makes me feel like I am being more thoughtful and scientific when I am assessing the quality of my services. If we can pool the results of common questions from regular practices, the medical literature may have more credibility when it comes to motivation for changes in practice patterns."
			"When I first approached the University about doing some research on spider bites it seems to have been dismissed by the urban academic community as something of little clinical significance. It was only when working with the research network director that it was clear we could put together a huge number of cases in a short period by linking rural practices together. This is probably a good example of the disconnect between urban academia and the practical problems faced by &lquote;field doctors' and the critical shortage of research in many areas of medicine less glamorous than critical care."
Engagement with others in clinical thinking improves clinical skills and creates meaningful connections that compensate for practice isolation or long work hour	Engagement in PBR is a satisfying way to enhance clinical skills	Competence	"I believe that active participation in PBRN has improved my critical-thinking skills and my patient care, kept me at the forefront of contemporary primary care practice, and served as a source of (and stimulus to) continuing medical education."
	Rewarding connections with others are energizing	Autonomy, Relatedness	"Conducting research keeps my mind sharp, enhances by critical thinking skills, and encourages me to keep up with the latest treatment advances."
			"Feeling the need for continuing research to keep abreast of changes, keep skills up. And being curious, I heard about the research network for those nonacademics who represented private practice. I've been hooked ever since."
			"The connections keep me going. The meetings are in the evenings after a long day in the office, but I always feel energized after a meeting and have a fresh perspective."
			"I think practice-based research networks are a good tool for physicians because they allow physicians to network and improve not only how we practice medicine but also improve patient care. It also allows private practice physicians not to feel isolated, but to be involved in practice enhancement programs."
			"To help my loneliness I started reading articles and biographies of famous family physicians: William Budd, William Pickles, James McKenzie, Fred Banting, and, ironically, Curtis Hames. I did not live far from Curtis Hames and he invited me to come to his home and spend time with him. He asked me if I was interested in doing any research and I said I was but I didn't know how to get started."

*Three components of self-determination theory (SDT) are (1) competence, (2) autonomy, and (3) relatedness.
PBR, practice-based research.

Table 2. Thematic Summary of Practice-Based Research Network (PBRN) Clinician Motivation Emphasizing Improving Local Clinic-Based Care

Primary Theme	Main Types of Satisfaction	Quote
Implementing health information technology	Improve quality of care	Regarding patient safety/evaluation of office errors: "The near misses' reports generated by the practice not only encouraged the physicians, but also the office staff to understand the importance of patient safety."
Answering primary care questions of most importance to practicing clinicians	Improve quality of care	"The only valid reason to do applied research is to improve quality. Therefore, research and quality improvement are so closely linked that it usually makes no sense to distinguish them one from the other. Research is not a goal (as in, We have to do more research.'); it is a set of tools that can often be used to overcome the obstacles encountered when trying to achieve goals."
Participation in a PBRN increases the relevance of research for local clinic population/vulnerable population not often part of research studies (rural migrant community)	Increased relevance of research to clinic/community	It [the research network] has the great advantage of potentially having an impact on my own patients by seeing their problems and eventually finding a different more effective way to deal with them."
Information to improve practice operations and quality improvement/Listserv to ask questions	Improved clinical care	"The network provides me with an experienced panel to answer all kinds of questions that may occur: things as simple as how to code a procedure to clinical questions that are answered via the listserv."
Connecting with the academic health center through the use of PBRN practice enhancement assistants	Make practice-based research possible	"The Practice Enhancement Assistant is able to take the oftentimes complex and difficult to understand research protocols and make a simpler understanding for each person's part in the protocol."
		"Practice Enhancement Assistants often help practices with both office procedures and preparing or finding good patient education materials."
Provided safe environment to explore patient safety and quality improvement (in this case, patient safety and increasing immunization rates)	Improved quality of care/ patient safety	"Many things we fear as clinicians, such as insurance companies looking at prescribing habits, make us hesitate to participate . . . but the research network wants to work with us to improve quality of care—people we seek out and want to be involved with."
Improving the delivery of chronic illness care and population-based medicine/implementing a disease registry/training in PDSA cycles	Improved clinical care and quality improvement	"When measured against our contemporaries we continually rise to the top because we chose to participate in this [QI] project. We frequently outperform the large systems with expensive electronic medical records because we participated in this diabetes project. We have expanded our measurements to coronary artery disease, hypertension, depression and asthma. We see the value in measuring and actively managing disease processes to provide world-class care to our patients. Had we not participated in this study I wonder if we would be five years behind in assessing and improving the quality of care that we provide to our patients."
		"The network has allowed me to have a better practice and be better at disease management." [The network's practice enhancement assistant implemented a diabetes registry and trained the practice in PDSA cycles.]
Practice innovation/redesign/able to feel positive about family medicine at a time when American medicine is abandoning it	Quarterly performance reviewing/Turning Research into Practice study led to improved quality of care	"We would not have made these [care-related] changes without the supportive environment of the research network. We were able to stand back and examine our practice in a manner otherwise impossible. We are then able to modify our behavior and improve our practice performance."

PDSA, Plan-Do-Study-Act.

ademic researchers, including those linked with PBRNs and with community-based participatory research. PBRNs expend considerable time and effort in the recruitment, engagement, and retention of network clinicians and practices, so these narratives also provide useful information to the PBRN

Table 3. Thematic Summary of Practice-Based Research Network (PBRN) Clinician Motivation Emphasizing Community- and System-Level Improvements

Primary Theme	Main Types of Satisfaction	Quote
PBRN enables exploring and enhancing the quality of health care delivered in rural community	Improved clinical care and quality of health care in real world setting/increased relevance to community	"I had an understanding from early in life in rural areas and populations were not well studied. This led me to...earn a masters in public health as well as to complete a medical degree. This joint track really allowed me to do both clinical medicine as well as get some exposure to the looking at the bigger issues of healthcare, part of that being research and understanding how things are affected in rural areas as opposed to urban areas."
Participation in PBRN increases the relevance of research for local clinic population/vulnerable population not often part of research studies (rural community)	Improved clinical care related to increased relevance of research to clinic/community	"I feel it is important to put research in places where it can benefit people and their community."
Participation in PBRN increases the relevance of research for local clinic population/vulnerable population not often part of research studies (rural migrant community)	Improved clinical care related to increased relevance of research to clinic/community	"Evidence-based practice is important and there is not a lot of data out there on problems more common to a rural than an urban setting."
	Answered questions from practice with data from practice	
	Provided epidemiologic data to document a community health problem	"Community based research and outreach were developed from the specific needs of the immigrant community affected."
Development of a communications network to streamline office processes and coordination with local health departments	Improved clinical care/care coordination	"I feel we finally got some hold of this monster (flu vaccine demand) and took it back from the consumer demand chaos of years past. This year the medical community directed traffic."
Implementing tools to enhance the public health role of family medicine practices. In this case, the development of an influenza tracking system (real time surveillance) that was linked to community education and follow-up	Improved care to the larger community	"When we see the trend going up (influenza cases), we can use that data to convince our school teachers to get their flu shots."

community as well as act as a template for individual PBRNs to pursue their own stories projects.

The stories from 38 clinician members of PBRNs provide important insights regarding the motivations and values that these clinicians associate with participation. These motivations and values relate to 3 levels of influence:

1. Meaning and Belonging to the Primary Care Profession and Culture

The stories reflect the unique path taken by these clinicians and include issues of overcoming practice isolation, straddling academia while not losing the integrity of "outside" practice, developing and maintaining critical thinking skills, staying connected to colleagues and to the salient health topics that need to be addressed to improve primary care outcomes, and membership in a stimulating learning community. The value of mentorship was frequently mentioned. It is important that PBRNs encourage clinician commitments, and additional commitments will be required from those who can provide mentorship outside of academia, where there are more established avenues. Recurrent themes that relate specifically to meaning and belonging within this group of clinicians include the family physician as a scientist; being validated, recognized, connected, and belonging; and being stimulated and energized. The family physicians who shared stories were not always able to find enough stimulation from like-minded colleagues in their local practice and community. Several physi-

cians (Beasley, Friedler, Beaufait, and Bujold), who had a long history of PBR, noted that connecting with a PBRN provided a means to connect with other "unique" family physicians; some clinicians identified the link to academia through the PBRN as providing an important relationship that offered balance to the daily challenges of clinical practice.

2. Generating an Evidence Base for Primary Care

These clinicians placed a high value on improving the quality of care to their patients and improving systems of care, including enhanced information technology.

3. Ensuring that the Primary Care Evidence Base is Locally Relevant and Contributes to Policy and Population Health

Clinicians valued community-oriented outcomes that focus on public health, such as an increase in flu vaccination rates for the entire community, and on developing research that was responsive to the needs and concerns of the clinician's entire community and communities within communities. Story clinicians noted value in collaboration, including establishing active partnerships with major health plans and a community health foundation. One clinician noted that Centers for Medicare and Medicaid Services is interested in their disease management strategy.

Personal satisfaction motivations to participation in PBRNs, particularly those aligned with meaning and belonging to the primary care profession and culture, correspond with Deci's and Ryan's[11,12] SDT to explain how human beings become proactive and engaged. The 3 innate psychological needs of competence, autonomy, and relatedness describe the forces behind intrinsic motivation and mental health. Social contexts such as PBRNs facilitate satisfaction of these 3 needs and correlate with optimal motivation. The stories we describe include:

1. *Competence:* intellectual stimulation, "the physician as the critical scientist," creating and applying a primary care evidence base, and staying up to date.
2. *Autonomy:* enjoyment of research without the hassle of academic work-life.
3. *Relatedness:* the importance and influence of mentors, belonging to a group of like-minded individuals, and social gatherings (convocations). The PBRN provides an antidote to the intellectual isolation and loneliness associated with day-to-day primary care practice.

The clinicians represented in these stories participate in PBRNs because it is interesting and satisfying and they are in control of their choices. Although there is little published work regarding motivations to participate in PBR, the factors described are similar to those in earlier reports. In a study of ASPN practices, Green et al[21] found a desire to be a part of a group doing relevant PBR and recruitment by an esteemed individual to be the most important reasons for joining a PBRN. The interviews with 11 ASPN members emphasized the personal and professional rewards of participation.[8] They described the value of being part of the bigger picture, enhanced academic credibility, and critical thinking and being able to contribute answers to relevant research questions. Whereas the majority of studies done in ASPN were descriptive and disease and symptom oriented, PBRNs today are most often involved in the dissemination and implementation of studies designed to enhance the delivery of preventive health services and chronic illness care. With too much work and too little time, the interest in and relevance of changing systems of care is high among family physicians. Our stories describe PBRNs as facilitators of change and show the high value these family physicians place on their relationship with the PBRN. One PBRN study identified membership in a PBRN as a determinate of staying in rural practice longer.[22]

Study Limitations

We were able to recruit family physicians from only 12 networks, and these physicians probably reflect a high degree of engagement. There was considerable variation in the effort to recruit stories among the PBRN directors. There is considerable consistency among the stories we analyzed, and the themes described reflect the broader community of family physicians participating in PBR.

It is likely that these stories reflect the values of a group of individuals who have found common ground in participating in PBR. Although these stories describe unique paths, clinicians who participate in PBRNs share a number of motivational factors. It is our hope that the voices of these family

physicians will influence others to participate in PBR.

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