Provider's Perspectives on Building Research and Quality Improvement Capacity in Primary Care: A Strategy to Improve Workforce Satisfaction

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Abstract

Objectives: Safety-net populations are underrepresented in research and quality improvement (QI) studies despite the fact that safety-net providers are uniquely positioned to engage in translational research. This study aimed to understand the current level of interest in, experience with, predicted career satisfaction associated with, and barriers experienced in conducting research and QI among primary care providers (PCPs) at 18 safety-net practices in the Boston, Massachusetts area.

Methods: The Harvard Catalyst Safety-net Infrastructure Initiative partnered with staff at a large academic public hospital system, including 15 primary care sites, to develop and administer an online survey. This survey was then adapted and administered at three other academically affiliated community health centers.

Results: Of the 260 providers surveyed, 136 (52%) responded. Nearly 80% reported interest in conducting either QI projects or clinical research and 95% of them believed it would enhance their career satisfaction. However, 63% did not report prior experience or training in research or QI and 93% reported at least one barrier to engagement.

Conclusion: While supporting safety-net PCPs' engagement in research and/or QI may improve career satisfaction there are numerous barriers that must be addressed to achieve this goal. Clin Trans Sci 2013; Volume 6: 404–408

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Introduction

With the expansion of health insurance coverage by the Affordable Care Act (ACA), more people are expected to have access to primary care.¹ This increased access is expected to further heighten the existing primary care workforce shortage,¹ particularly at safety-net institutions (such as community health centers [CHCs] and public hospitals), which predominantly serve marginalized patient populations.² Efforts to increase the capacity of CHCs to meet demand may be hampered by persistent challenges in recruiting and retaining primary care providers (PCPs).³

Safety-net based PCPs are uniquely positioned to develop clinically relevant research questions and innovative approaches to quality improvement (QI), engage patients—particularly minority patients—in research, and generate and use evidence in their practices. However, minority populations served by safety-net PCPs have been historically underrepresented in primary care research; in recognition of the need for research among these communities, the National Association of Community Health Centers called for a research agenda for CHCs.^{4,5} Because primary care research can serve as the basis for informing clinical guidelines,⁶ informs healthcare legislation,⁷ and improves access to care, quality of patient care, and health outcomes,⁸ this underrepresentation may perpetuate health disparities. Infrastructural limitations, competing priorities, insufficient training in research methods, limited access to research mentors, and lacking an academic affiliation may prohibit involvement in research for many PCPs.^{8–12}

Preliminary evidence suggests that engaging safety-net providers in research and QI may also improve provider career

satisfaction and retention,^{13,14} thereby ameliorating the primary care workforce shortage faced by many safety-net institutions. Providers at safety-net institutions face high demands with large patient volumes and work burden,² two factors associated with low satisfaction and high turnover rates.^{15,16} Participation in research may lead to more career autonomy which may increase career satisfaction (*Figure 1*).¹⁶ This increased career satisfaction may not only improve provider retention rates, but also improve the quality of care delivered,¹⁶ adherence to medical treatment,¹⁷ and patient satisfaction.¹⁸ However, there is currently limited understanding of safety-net providers' interest in research and QI or whether participation in research and QI may improve provider career satisfaction.

We previously reported results from a Massachusetts statewide survey of medical directors at CHCs in order to understand the current level of interest in building infrastructure for clinical research and to determine predictors of interest at the organizational level.¹⁹ The majority of medical directors reported interest in building research infrastructure at their clinics; interest was also highly associated with the belief that fostering research and QI could improve provider retention. In this study, we aim to complement our understanding of medical director's perspectives on engagement in clinical research with an exploration of individual providers' perspectives on interest and involvement in research and QI. Specifically, we aim to describe the current level of interest in, experience with, predicted career satisfaction associated with and barriers to engagement in research and QI among PCPs at four safety-net institutions in Massachusetts.

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Figure 1. Conceptual framework of relationship between interest, experience, career satisfaction, and barriers to engagement in research and quality improvement (QI).

Methods

In 2008, the National Institutes of Health (NIH) awarded Harvard University a Clinical and Translational Science Award (CTSA), known as Harvard Catalyst. The overarching goal of Harvard Catalyst is to eliminate the rift between clinical and basic research by reducing the lag between the development of laboratory-based innovation and its adoption into practice, also known as translational research.^{12,20} A key feature of Harvard Catalyst is the Community Health Improvement Research Program (CHIRP), which focuses on the deficiency of meaningful public participation in clinical research.¹² The CHIRP program includes multiple programs including a Safety-net Infrastructure Initiative that focuses on building research capacity at safety-net health centers in Massachusetts. The Safety-net Infrastructure Initiative commenced its efforts at the Cambridge Health Alliance (CHA), a public hospital system in the Boston area and later extended its efforts to three CHCs in the same geographical area.

Setting

The study was conducted at the 18 primary care practices within the four safety-net institutions participating in the Safety-net Initiative: this includes three independent CHCs and 15 primary care practices (of which 7 are CHCs) which are part of the CHA, an integrated public hospital delivery system. All sites provide comprehensive care to predominantly low-income minority populations and are affiliated with academic institutions. At the time of the survey, these sites were compensated largely in fee-for-service arrangements, and served between 10,000 and 30,000 patients annually.

Survey development

In order to understand the perspective of safety-net PCPs, we chose an online survey methodology. We developed and implemented a 16-item survey instrument at the CHA (referred to herein as the CHA survey). The Safety-net staff along with key staff from CHA including primary care physicians, medical directors, and Information Technology staff and faculty from Harvard Medical School's Department of Population Medicine developed the survey collaboratively. The CHA survey was adapted (referred to herein as the CHC Survey) and subsequently distributed to providers at three additional CHCs. The revised 14 item CHC survey took about 5–7 minutes to complete.

Because the Safety-net Initiative's goal is to engage safety-net providers in all aspects of the research process, we developed and distributed the survey in an inclusive manner. Safety-net providers assisted in survey development and distributing the

survey. This engagement of the providers in the research process ensured that the questions were relevant to the population studied.

During the development of the survey there was ample discussion about the meaning of research and QI. The providers felt strongly that QI and research represented two ends of a spectrum, and data gathered through these strategies could be utilized to answer important questions. Thus both were included in the survey and a clear definition for each was provided. To distinguish clinical research from clinical QI, the following definition was utilized: "Most QI initiatives are designed to improve quality within an organization (e.g., reduce patient wait

time in your clinic). In contrast, clinical research is often designed to develop knowledge that can be generalized to other populations and settings (e.g., to understand risk factors for patient lack of adherence to hypertension medication)."

Both surveys assessed: (1) demographic information: specialty, clinical site, (2) interest in research or QI, (3) experience and training, including lead or co-investigator experience, (4) predicted satisfaction, and (5) barriers to research or QI. Future interest in research or QI was assessed with the question "How would you rate your specific interest in leading or being on a team conducting clinical research and/or QI work at your CHC/CHA in the future?" on a 4-point Likert scale from "not interested" to "very interested." In order to elicit participants' interest in research and QI engagement, they were asked to rate their level of interest in research and QI in two different questions, also on a 4-point Likert scale from "not interested" to "very interested." Experience and training was assessed in two ways. First, participants were asked to indicate specific areas in which they had research or QI methods experience or training. We considered any participant who did not indicate an area of research or QI to have no training in research or QI. Second, they were asked to indicate whether they had experience leading or co-investigating projects. PCPs' predicted career satisfaction was assessed with the question "How much would increased involvement in clinical research or QI at your CHC/CHA contribute to your career satisfaction" with a 4-point Likert scale from "not at all" to "very much." Finally, providers chose up to three of 12 commonly encountered barriers (i.e., lack of protected time, lack of research skills) they had encountered conducting research or QI. Because providers who reported no interest in research or QI were unlikely to have any experience with which to comment on barriers and satisfaction, we excluded these providers from analyses of barriers and satisfaction.

Data collection

The CHA survey was distributed via SurveyMonkey by the Director of the Safety-net Infrastructure Initiative, also a primary care doctor, to all PCPs (including physicians nurse practitioners and physicians assistants) in the departments of Internal Medicine, Med/Peds, Family Medicine, and Pediatrics at CHA between October and November 2010. The CHC Survey was distributed electronically using SurveyMonkey by the medical director to all providers from the departments of Internal Medicine, Med/Peds, Family Medicine, and Pediatrics with an addition of providers from Ob/Gyn, Vision, Dental, and Psychiatry departments. CHC data were collected between September and October 2011. Responses from the CHA and CHC surveys were pooled.

	N (%)
Research and/or QI methods training or experience*	
Data collection	33 (31)
Analysis	18 (17)
QI	13 (12)
Intervention/Trials	12 (11)
Other	9 (8)
None	67 (63)
Lead or co-investigator experience	34 (32)

*Percentages do not add up to 100 because participants were invited to check all training or experience categories that applied.

Table 1. Research/QI experience among those interested in research and/or QI (N = 106).

Three \$100 gift certificates were raffled at CHA and one \$100 gift certificate was raffled per CHC to incentivize data collection. Furthermore, to increase the response rate, two follow-up emails were sent to providers as a reminder to complete the survey.

Analysis

The data were extracted from SurveyMonkey, the CHA and CHC surveys were combined, and the resulting database was imported into SAS 9.3 for analysis (SAS Institute, Cary, NC, USA). Bivariates were tabulated using Fisher's exact test to assess the association between predicted career satisfaction and other variables of interest.

Results

Sample

Of the 260 providers invited to participate, 136 (52%) completed the survey. Of the 136 who completed the survey, 106 (78%) expressed

interest in research and/or QI, thereby entering our final sample. Our sample consisted of 28 internal medicine (21%), 23 pediatric (17%), 47 family medicine (35%), and 38 other (28%) providers.

Interest in research and QI

Overall, 78% (N = 106) of providers reported interest in research or QI; 51% reported being very interested in research or QI. Interest was prevalent among all specialties (86% family medicine, 79% internal medicine, 81% pediatrics, 97% other ($p = 0.12$)).

Experience and training in research and/or QI

The majority of participants interested in research and/or QI did not report methods training or experience (63%) and fewer reported experience as a lead or co-investigator (32%) (Table 1). Participants reported the highest level of experience with primary data collection (31%), followed by analysis (17%), QI (12%), and interventions/trials (11%).

Satisfaction

Nearly all (95%) providers reported that increased involvement in research or QI would contribute to their career satisfaction at least "a little bit"; 79% reported that their career satisfaction would be "somewhat" or "very much" increased by involvement in research and QI. Providers predicted involvement in research or QI to be associated with career satisfaction regardless of specialty, site, prior methods training/experience, prior investigator experience, and number of barriers encountered (Table 2).

Barriers

However, 93% reported at least one barrier to engaging in research or QI and 61% reported three or more. The most commonly cited barriers were lack of protected time (65%), feeling unprepared to lead a study and not knowing how to get involved as a co-investigator (30%), and lack of research skills (28%).

Predicted satisfaction			
	Very much or somewhat satisfied	Not or little satisfied	p-value
	N (%)	N (%)	
Specialty			
Internal medicine	17 (89)	2 (11)	0.27
Pediatrics	12 (75)	4 (25)	
Family medicine	23 (72)	9 (28)	
Other	29 (88)	4 (12)	
Investigator experience			
Yes	29 (85)	5 (15)	0.44
No	50 (78)	14 (22)	
Methods experience			
Yes	37 (88)	5 (12)	0.20
No	44 (58)	14 (42)	
No. of barriers experienced			
0–2	25 (76)	8 (24)	0.25
3 or more	45 (87)	7 (13)	
Total	81 (79)	22 (21)	n/a

Table 2. Predicted satisfaction among participants expressing interest in research or quality improvement (N = 107).

Discussion

In our sample of PCPs at 18 Massachusetts safety-net clinics, providers expressed high levels of interest in engagement in research and/or QI and nearly all perceived that engagement in research or QI would improve their career satisfaction. However, the majority reported multiple barriers to engaging in research/QI and no prior experience or training in research/QI methods.

These data suggest that engaging PCPs in research and QI may be a successful strategy for improving career satisfaction of PCPs at safety-net institutions. Improved career satisfaction may in turn improve retention.^{13,14} While we are aware of no other studies investigating the association between engagement in research or QI and workforce satisfaction among safety-net PCPs, our data may help explain prior findings demonstrating the importance of research opportunities in retention at safety-net clinics. In a Massachusetts statewide survey on recruitment and retention in CHCs, more than one in five physicians reported that lack of protected time for research was an important factor in their decision to continue (or not continue) working at a CHC.²¹ Our data offer a potential mechanism for this relationship between research or QI opportunities and retention: improved career satisfaction.

However, our data also indicate that PCPs face significant barriers to engagement in research or QI, suggesting that if engaging PCPs in research or QI were to be utilized as a workforce satisfaction or retention strategy, these barriers may need to be further explored and/or addressed. The three leading barriers focused on protected time and a need for additional skills training. Thus, promoting PCP engagement in research and QI will require financial support to buy PCPs out of clinical time to engage in research. This will require an institutional commitment on the part of CHC leadership to release and support PCPs which may be challenging in the current environment with increasing demands on the primary care delivery system; that is, safety-net leadership may be concerned that releasing PCPs from clinical work may further decrease access for populations that already face barriers to accessing care. Promoting engagement in research and QI will also require providing PCPs with learning opportunities to facilitate skill building and opportunities to partner with academics. Though there is a need for CHCs to engage in research,²² building meaningful research infrastructure will require prioritization and commitment of resources (i.e., releasing PCP time from clinical time). To date, programs to encourage research and QI in community-based settings, such as practice based research networks and clinical translational science awards, have met with significant success²³ and could be expanded in order to reduce barriers to research or QI engagement in CHCs.

Finally, our data highlight low levels of experience or training in research/QI methods among providers interested in research/QI. We are aware of no prior data investigating research and QI experience among safety-net primary care physicians. Recent trends in healthcare, such as increased quality reporting,²⁴ quality-based payments,²⁴ and patient-centered medical home accreditation (which requires QI teams),²⁵ have placed more emphasis on QI at health clinics. Though nationwide programs, including mandatory QI training residency, seek to increase physician experience with QI,²⁶ our data point to a continued gap between experience and interest among PCPs. If PCPs are going to be engaged in the increasing QI efforts, investment in QI training may be needed.

This study must be interpreted in the context of several limitations. First, the study reflects the experience of 18 safety-net clinics in one geographic area and may not be generalizable to other settings. Nonetheless, the study represents the local reality for providers at these clinics. Second, the study has a low response rate of 52% which may be due to nonresponse bias. However, due to the robust nature of the responses (i.e., near universal interest and prediction of career satisfaction), it seems unlikely that a higher response rate would substantially alter the overall picture. Third, the cross-sectional nature of this study only allows examination of associations and does not provide information on causality. For example, providers were asked to predict satisfaction associated with increased engagement in research and QI; whether increasing providers' involvement in research and QI actually leads to increased career satisfaction—and further yet, retention—is beyond the scope of this study and is an important area for future research. Finally, though we find a high prevalence of barriers, our study provides no information on whether addressing those barriers would in fact lead to increased satisfaction.

Nonetheless, this hypothesis generating study provides insight into one potential provider workforce satisfaction and retention strategy for CHCs: engagement in research and QI. It also highlights the high prevalence of barriers to research and QI and low levels of training which would need to be examined further if this strategy were to be employed.

Conclusion

Safety-net PCPs express high levels of interest and predicted satisfaction associated with engagement in research and QI; however they also report many barriers and low levels of experience with research and QI. While supporting safety-net PCPs' engagement in research and/or QI may improve career satisfaction, there are numerous barriers that must be addressed to achieve this goal.

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References

1. Schwartz MD. Health care reform and the primary care workforce bottleneck. *J Gen Intern Med.* 2012; 27(4): 469–472.
2. Ku L, Jones E, Shin P, Byrne FR, Long SK. Safety-net providers after health care reform: lessons from Massachusetts. *Arch Intern Med.* 2011; 171(15): 1379–1384.
3. Singer JD, Davidson SM, Graham S, Davidson HS. Physician retention in community and migrant health centers: who stays and for how long? *Med. Care.* 1998; 36(8): 1198–1213.
4. UyBico SJ, Pavel S, Gross CP. Recruiting vulnerable populations into research: a systematic review of recruitment interventions. *J Gen Intern Med.* 2007; 22(6): 852–863.
5. National Association of Community Health Centers. *Enhancing Research on Health Centers and the Medically Underserved Enhancing Research on Health Centers and the Medically Underserved.* Rockville, MD; 2004.

6. Oxman AD, Schnemann HJ, Fretheim A. Improving the use of research evidence in guideline development: 16. Evaluation. *Health Res Policy Syst*. 2006; 4: 28.
7. Oliver TR, Singer RF. Health services research as a source of legislative analysis and input: the role of the California Health Benefits Review Program. *Health Serv Res*. 2006; 41(3 Pt 2): 1124–1158.
8. Green LA, Fryer GE, Yawn BP, Lanier D, Dovey SM. The ecology of medical care revisited. *New Engl J Med*. 2001; 344(26): 2021–2025.
9. Asch S, Connor SE, Hamilton EG, Fox SA. Problems in recruiting community-based physicians for health services research. *J Gen Intern. Med*. 2000; 15(8): 591–599.
10. Campbell SM, Roland MO, Bentley E, Price H. Research capacity in UK primary care. *Br J Gen Pract*. 1999; 49(449): 967–970.
11. Del Mar C, Askew D. Building family/general practice research capacity. *Ann Fam Med*. 2004; 2(Suppl 2): S35–S40.
12. Sung NS, Crowley WF, Genel M, Salber P, Sandy L, Sherwood LM, Johnson SB, Catanese V, Tilson H, Getz K, et al. Central challenges facing the national clinical research enterprise. *JAMA*. 2003; 289(10): 1278–1287.
13. Quinn MA, Wilcox A, Orav EJ, Bates DW, Simon SR. The relationship between perceived practice quality and quality improvement activities and physician practice dissatisfaction, professional isolation, and work-life stress. *Med Care*. 2009; 47(8): 924–928.
14. Mohr D, Burgess JJ. Job characteristics and job satisfaction among physicians involved with research in the veterans health administration. *Acad Med*. 2011; 86(8): 938–945.
15. Hall CB, Brazil K, Wakefield D, Lerer T, Tennen H. Organizational culture, job satisfaction, and clinician turnover in primary care. *J Prim Care Community Health*. 2010; 1(1): 29–36.
16. Pratt WR. Physician career satisfaction: examining perspectives of the working environment. *Hosp Top*. 2010; 88(2): 43–52.
17. DiMatteo M, Sherbourne C, Hays R, Ordway L, Kravitz RL, McGlynn EA, Kaplan S, Rogers WH. Physicians' characteristics influence patients' adherence to medical treatment: results from the Medical Outcomes Study. *Health Psychol*. 1993; 12(2): 93–102.
18. Haas J, Cook E, Puopolo A, Burstin H, Cleary P, Brennan T. Is the professional satisfaction of general internists associated with patient satisfaction? *J Gen Intern Med*. 2000; 15(2): 122–128.
19. Hacker K, Bhuiya N, Pernise J, Khan S, Sequist T, Tendulkar S. Assessing research interest and capacity in community health centers. *Clin Transl Sci*. 2013. In press..
20. NIH Roadmap for Clinical Research: Clinical Research Networks and NECTAR. Available at: pubs.niaaa.nih.gov/publications/arh311/12-13.pdf. Accessed December 17, 2012.
21. MassAHEC Network. Recruitment and retention of primary care physicians at community health centers: a survey of Massachusetts physicians. 2010. Available at: http://www.umassmed.edu/uploadedFiles/CWM_CHPR/About_Us/RecruitmentRetentionPCPs_CHCs_January2010.pdf. Accessed April 11, 2013.
22. Oneha MF, Proser M, Weir RC. Community health centers: why engage in research and how to get started. 2012. Available at: <http://www.nachc.org/client/WhyDoResearch.pdf>. Accessed April 11, 2013.
23. Nutting PA, Beasley JW, Werner JJ. Practice-based research networks answer primary care questions. *JAMA*. 1999; 281(8): 686–688.
24. Centers for Medicare & Medicaid Services. Readmissions Reduction Program. Available at: <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>. Accessed November 13, 2012.
25. NCQA's Patient-Centered Medical Home (PCMH) 2011. Washington, D.C.: National Committee for Quality Assurance; 2011: 1–11.
26. Accreditation Council for Graduate Medical Education. Program Director Guide to the Common Program Requirements. Available at: <http://www.acgme.org/acgmeweb/tabid/237/GraduateMedicalEducation/InstitutionalReview/ProgramDirectorGuidetotheCommonProgramRequirements.aspx>. Accessed November 15, 2012.