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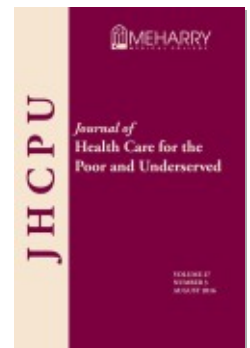
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Recruitment and Retention of Community Health Center Primary Care Physicians post MA Health Care Reform: 2008 vs. 2013 Physician Surveys

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Abstract: Objectives. In 2008 and 2013, the University of Massachusetts Medical School and the Massachusetts League of Community Health Centers surveyed community health center (CHC) primary care physicians (PCPs) to identify factors related to preparedness, recruitment and retention. The survey was repeated to determine the impact of Massachusetts health care reform. **Methods.** An online survey was sent to 677 PCPs at 46 CHCs. New questions addressed patient-centered redesign, language competencies, and interprofessional care. **Results.** With 48% responding, PCPs were significantly more prepared in 2013 to practice in a CHC. Intent to continue practicing in a CHC was related to age, length of time in practice, language skills, teaching, research, compensation, model of care, professional development, and practice goals. **Conclusions.** Outcomes illustrate opportunities to prepare medical students and residents for CHC careers and recruit and retain this vital workforce. Retention efforts must include teaching, administration, research, and professional development opportunities.

Key words: Primary care providers, recruitment, retention, community health centers

As the nation continues to implement health care reform, the number of patients using public and private health insurance will increase. Massachusetts' experience with universal coverage and improved health care access¹ serves as an example

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of what to expect as states work to insure more than 41 million non-elderly people through the 2010 Affordable Care Act (ACA).² In Massachusetts' first two years, 256,000 residents gained coverage through Medicaid expansion and subsidized insurance for low-income residents.³ In tandem with this increase is the continued shortage of physicians, particularly in primary care. A 2013 survey of Massachusetts physicians from 15 specialties found that Family Medicine and Internal Medicine were two of four specialties experiencing a critical or severe shortage.⁴ The Association of American Medical Colleges estimates that the supply of primary care physicians (PCPs) will fall short by up to 31,100 by 2025.⁵

Community health centers (CHCs), an integral part of the health care system, provide high quality, cost-effective, and comprehensive primary care services to an estimated 22 million patients.⁶ Community health centers are more likely than private practices to accept new and under- or un-insured patients, as they are required to provide services to all patients, regardless of ability to pay.⁷ Massachusetts CHCs saw an increase in demand during the three years after state health care reform implementation, with visits to safety net clinics for non-emergent issues growing twice as quickly as similar visits to other settings.⁸

The body of literature on recruitment and retention strategies of PCPs in underserved settings is small. A study by Odom Walker et al. found that PCPs were motivated by personal values related to serving a particular community or their own identity.⁹ In addition, several studies indicate that exposure to rural settings or health professions shortage areas while in medical school or residency contributes positively to the likelihood of choosing to practice in such a setting.^{10,11} Retention of CHC physicians has been found to be influenced by the degree to which CHCs support their workforce. Hayashi et al. found that part-time status, access to wellness programs, and practicing in non-rural locations were significant factors for providers remaining at their current location as were practicing for longer than five years in an underserved location¹² and pursuing quality improvement (QI) and research opportunities.^{13,14} Hayashi also found that workplace stress, exacerbated by a full-time schedule or isolated geographic location, reduced the likelihood of working in a CHC for significant lengths of time. While Title VII funding for training primary care physicians has been successful in increasing provider supply, many of these new clinicians are ultimately choosing non-primary care careers.¹⁵

In our 2008 survey of PCPs in Massachusetts CHCs, we sought to understand the decision-making in choosing to practice in a CHC—studying both recruitment and retention.¹⁶ The current study aimed to understand the impact that local and national health care reform efforts may be having on recruitment and retention of PCPs compared with 2008 results. One of our key outcome measures was to identify the collection of factors most likely to predict retention over the next five years.

Methods

Study population. The Massachusetts League of Community Health Centers (MLCHC) provided email addresses for all PCPs working at 46 CHCs as of October, 2013. Primary care physicians were defined as family medicine, internal medicine, pediatrics,

medicine-pediatrics, and obstetrics/gynecology. Residents, nurse practitioners, physician assistants and non-primary care physicians (e.g., psychiatrists) were excluded.

Data collection. The 170-item questionnaire was constructed to elicit information about: physician and practice demographic characteristics, medical education training and residency preparedness, participation in visa/loan repayment programs, selecting a CHC practice, satisfaction with current practice arrangements, retention priorities, and future plans (survey available from the authors upon request). The questionnaire built upon our 2008 survey which was derived from relevant published literature.¹⁷⁻²² Based on the most current literature discussing physician recruitment and retention, and in concert with on-going workforce policy initiatives, we added several items to reflect recent health care access and delivery activities, patient-centered medical home (PCMH) implementation, interprofessional and multidisciplinary team engagement, and language competencies. The current survey, which took approximately 20 minutes to complete, was piloted by community-based PCPs. Based on cognitive interviewing²³ with those PCPs (by phone), the survey was modified for final implementation.

Using a web-based survey development and data collection software application (SurveyMonkey, Inc., Palo Alto, CA) and accepted online survey methodology strategies,²⁴ an initial cover letter describing the study's purpose and the survey link were emailed to 677 PCPs. Guided by Dillman's Total Design Method,²⁵ two reminder letters were emailed to non-respondents and a final reminder phone call was placed to each CHC's medical director by MLCHC staff. Data collection took place between April and June, 2014. The study was approved by the University of Massachusetts Medical School Institutional Review Board.

The preparedness, recruitment, and retention variables in the survey were queried using five-point Likert scales from 1 being *very important* (*very satisfied* or *very prepared*) to 5 being *not at all important* (*not at all satisfied* or *not at all prepared*). Based on the distributions of these variables (and to mimic our 2008 methodology), responses were re-categorized into dichotomous variables with codes 1 or 2 (*important, satisfied, prepared*) versus codes 3, 4, or 5 (*not important, not satisfied, not prepared*). However, in the final query about the likelihood of career changes in the next five years, responses were categorized into *likely* (codes 1 or 2), *uncertain* (code 3) or *not likely* (codes 4 or 5), allowing us to assess those likelihood factors, with a special emphasis on PCPs uncertain about their future and what factors might be contributing to that uncertainty.

From our 2008 study, it was known that there might be high correlations between variables based on the themes of preparedness, recruitment, satisfaction, and retention. An exploratory factor analysis (using principal component analysis) was conducted to identify themes/domains among these variable clusters. Cronbach's alpha reliability scores were computed to assess domain precision. Summary scores for several variable groupings (e.g., preparedness to practice upon residency completion) were computed. For some groupings, a summary score was computed; for other groupings, factor analyses identified a small number of independent factors representing individual questions (i.e., there was no single differentiated domain representing all variables). Based on the results identifying multiple domains from one cluster of variables, a secondary factor analysis was computed to confirm an overarching single latent domain for each variable set.

Data analysis. Frequency and percentile distributions were used to profile demo-

graphic characteristics and responses to individual survey items. Bivariate analyses (chi-square tests, student t-tests, and one-way analyses of variance) were conducted to assess relationships between key variables and gender (male, female), race (White, non-White), ethnicity (Hispanic, non-Hispanic), age group (younger than 40, 40–49, 50–59, 60 years or older), years in practice (fewer than 5 vs. 5 years or longer as well as fewer than 10 vs. 10 years or longer), employment status (part-time vs. full-time), practice location (Boston vs. non-Boston), and specialty (family medicine vs. non-family medicine); only age and gender are reported herein due to the volume of analyses conducted. Bivariate analyses were also used to assess preparedness and recruitment variables with the likelihood of the PCP remaining in a CHC in the next five years. These analyses aided the selection of independent variables for inclusion in our multivariate regression analyses (using a p value of .20). Finally, tests of proportions were conducted to assess change from 2008 to 2013 among variables queried at both time points.

A mixed model linear regression was performed assessing factors related to the domain of whether providers expected to be working in a CHC in the next five years (the outcome variable; a summary score of expectation to remain in their current CHC, any CHC, and continuing to work with underserved populations). Mixed models were used (with the CHC being a random effect variable) to incorporate variation due to clustering of respondents within CHCs. Using SAS V9.3 software (SAS Institute, Inc., Cary, NC), a total of six regressions were conducted: 1) all participants; 2) all participants excluding those reporting a likelihood of retiring in the next five years; 3) all participants excluding those reporting a likelihood of retiring in the next five years and over the age of 60; 4) participants in current practice fewer than 10 years; 5) participants in current practice 10 years or longer; and 6) participants in current practice 10 years or longer, excluding those over the age of 60.

Once final regressions were computed, models were run controlling for the response rates among CHCs. As results did not change, response rate was not included in final models. Interaction terms were also included for gender and CHC region (Boston vs. non-Boston only) within each regression model. The interaction term for gender was not significant; however, it was significant for region in four of the six regression models. Thus, stratified regressions by region were computed for the first two models only as sample sizes among the subgroups precluded robust analyses.

Finally, one open-ended question at the end of the survey queried reflections on what respondents wanted to share about recruitment and retention at CHCs based on both prior and current experiences. These single item reflections were reviewed and thematically analyzed using strategies outlined by Patton.²⁶

Results

Of the original 677 surveys emailed, 48 potential survey respondents were deemed ineligible (undeliverable, less than one-half of the survey completed, not a PCP, or no longer at the CHC). From the 629 eligible respondents, 301 completed surveys were submitted (representing 44 CHCs) for a response rate of 48%.

Limited data were available regarding non-responding PCPs. The CHCs in the

eastern/metro-Boston region are generally part of provider networks while the CHCs in other areas are generally independent CHCs. Analyses of the response rate by region found significant differences. Boston-based PCPs were more likely to respond than those practicing in non-Boston based CHCs ($X^2=4.18$, $p<.05$).

In addition to region, we also analyzed response rates by CHC characteristics (using 2013 data) including: number of patients, number of medical visits, and select patient characteristics. Physicians in CHCs with at least a 50% response rate had a higher percent of uninsured patients (21.6%) compared with the lower responding CHCs (14.1% uninsured; $z=-1.988$, $p<.05$).

Sociodemographic and practice characteristics Predominantly, respondents were female (62%), over the age of 40 (70%), White (76%), non-Hispanic (83%), and practicing in the Greater Boston area (55%) (Table 1). Compared with 2008, the only significant difference in provider characteristics was that 2013 PCPs were significantly older than 2008 respondents ($p<.003$; data not shown). Current providers were slightly more diverse than those in 2008 with regard to race (24% non-White in 2013 compared with 21% in 2008) and ethnicity (10% Hispanic in 2013 compared with 8% in 2008) though these differences were not statistically significant.

The largest proportion of responding PCPs were family medicine physicians (41%). Nearly three-quarters (69%) reported working full-time, and almost two-thirds (61%) had been in practice 10 years or longer. Nearly four in 10 (39%) reported that their 'typical week' included 25+ hours of direct patient care (compared with 45% in 2008; $p=.05$). One-third (35%) reported some level of involvement in teaching (significantly less than the 68% in 2008; $p<.001$) and 79% were engaged in administrative roles (compared with 81% in 2008). A majority reported no time devoted to research (84% compared with 85% in 2008) or any formal consultative activities (83% compared with 75% in 2008; significantly more PCPs reported no consultative activities in 2013; $p=.02$). Providers who work full-time vs. part-time (for patient care activities) were significantly younger (less than 40 years), but not significantly different by gender (data not shown*).

Language competencies. Besides age, language competency was the only other provider characteristic significantly different in 2013. In 2013, nearly three-quarters (73%) reported speaking at least one non-English language at a self-assessed level sufficient to conduct a patient history and physical exam (compared with 61% in 2008; $p<.001$). One-half (49%) of those PCPs reported speaking two or more additional languages (24% of all respondents). Of the 30 specific languages reported, 86% speak Spanish (compared with 76% in 2008; $p=.004$).

Given increased immigrant and refugee populations seen in CHCs, the 2013 survey asked questions assessing language competencies. The PCPs reported acquiring non-English language skills in numerous ways and using these on a routine basis. For example, 35% grew up speaking this language. Nearly one-quarter (23%) learned their

*Due to the large number of bivariate analyses computed, both for reporting purposes as well as identifying key independent variables for subsequent multivariate analyses, these are not reported herein in tabular fashion. However, complete tables are available from the manuscript authors.

Table 1.

FREQUENCY, PERCENT DISTRIBUTIONS AND DESCRIPTIVE STATISTICS OF STUDY SAMPLE SOCIODEMOGRAPHIC AND PRACTICE CHARACTERISTICS; N=301, 2013

	Study Sample ^a n (%)
Sociodemographic Characteristics	
Gender	
Male	106 (38.3%)
Female	171 (61.7%)
Age group ^b	
Under 40 years	78 (30.4%)
40–49 years	79 (30.7%)
50–59 years	59 (23.0%)
60+ years	41 (16.0%)
Range	30–79 years
Mean (SD)	46.9 (10.8)
Years in practice	
Less than 10 years	103 (39.0%)
Less than 5 years	[58; 22.0%]
5–9 years	[45; 17.0%]
10+ years	161 (61.0%)
Range	<1–51 years
Mean (SD)	14.9 (11.1)
Race	
White	193 (70.2%)
Non-White	61 (22.2%)
Decline to state	21 (7.6%)
Ethnicity	
Not Hispanic or Latino	230 (83.3%)
Hispanic or Latino	27 (9.8%)
Decline to state	19 (6.9%)
Number of non-English languages spoken in clinical practice ^b	
0	80 (26.6%)
1	148 (49.2%)
2	48 (15.9%)
3+	25 (8.3%)
Practice Characteristics	
CHC Region of Massachusetts	
Boston	165 (54.8%)
Northeast	61 (20.3%)
Southeast	19 (6.3%)
Cape/Islands	11 (3.7%)
Central	28 (9.3%)
West	17 (5.6%)

(Continued on p. 1017)

Table 1. (continued)

	Study Sample ^a n (%)
Specialty	
Family Medicine	121 (40.9%)
Internal Medicine	99 (33.4%)
Pediatrics (including Med-Peds)	67 (22.6%)
OB/GYN	9 (3.0%)
Year of hire at current CHC	
< 5 years ago	104 (35.9%)
5+ years ago	186 (64.1%)
< 10 years ago	168 (57.9%)
10+ years ago	122 (42.1%)
< 20 years ago	245 (84.5%)
20+ years ago	45 (15.5%)
Current employment status	
Part-time at this CHC (< 25 hrs/wk)	91 (30.6%)
Full-time at this CHC (25+ hrs/wk)	206 (69.4%)
Visa/Loan repayment program participation	
None	161 (53.5%)
1 current/former participants	114 (37.9%)
2+ current/former participants	26 (8.6%)

^aStudy Sample: Some variables may not total to 301 because of sporadic missing data.

^bAge group and number of non-English languages spoken were the only 2 provider characteristics significantly different between 2008 and 2013; i.e., providers in 2013 were significantly older (60+ years; 2008: 8%; 2013: 16%; $p < .01$) and those in the recent survey were significantly less likely not to speak any additional non-English languages (2008: 39%; 2013: 27%; $p < .001$).

language skills via educational instruction, 10% overseas, and 13% 'on the job.' For the non-English language used most often, the majority (82%) rated their ability to 'talk clearly and accurately with patients during interactions' as 'good' to 'excellent', and over three-quarters (77%) reported using this language 'several times a day.' Over two-thirds (68%) reported that they use an interpreter in less than 25% of patient encounters.

Respondents who grew up speaking a non-English language were not significantly different by provider age or gender though ethnicity was significantly related to speaking additional languages ($p = .001$) but only among those who spoke only one additional language. Non-native English speakers were also more likely to speak one additional language (though not statistically significant). Providers identified as international medical graduates were significantly more likely to speak 2 or more non-English languages ($p < .001$). Lastly, new providers (i.e., those who completed residency training fewer than five years ago) were no more likely to speak any non-English languages compared with more seasoned providers (data not shown).

Medical education training characteristics. There were few differences noted between 2008 and 2013 among PCPs participating in visa or state/federal loan repayment

programs though nearly one-half of PCPs were participants (46% vs. 48%, respectively). The percent of international medical school graduates currently in Massachusetts CHCs was consistent between the two cohorts (17% in 2013 compared with 16% in 2008). Residency training sites, like medical schools, were representative of all regions of the country; though consistently, two-thirds trained in Massachusetts or New York/New England (67% in 2013 compared with 68% in 2008).

Factors related to preparedness to practice in a CHC. The survey asked, in both years, to what extent PCPs felt prepared for practice after completing residency. Over two-thirds of 2013 PCPs reported feeling 'prepared' to: 1) work with underserved populations (87% compared with 80% in 2008; $p=.02$) (Figure 1); 2) practice in a CHC (82% compared with 75% in 2008; $p=.03$); 3) work with Medicaid insurance coverage (73% compared with 65% in 2008; $p=.01$); 4) work as a member of a multidisciplinary team (72% compared with 76% in 2008; not significant); and 5) work with non-English speaking patients (69% compared with 66% in 2008; not significant). Only preparedness to work as a member of a multidisciplinary team was reported less often in 2013 than in 2008, though this difference was not statistically significant. The significantly increased preparation for practice was more often observed by providers younger than 40 (data not shown), with no gender differences.

Factors related to selecting a CHC practice setting. In 2013, wanting to 'work for an organization whose mission I believe in' ranked highest and was rated 'important' by 89% (compared with 89% in 2008) (Figure 1). This was followed by: 1) serving an economically underserved population (83%; new question); 2) serving a culturally or linguistically minority population (60%; new question); 3) wanting to serve in a specific geographic region (60% compared with 63% in 2008); and 4) wanting to live near family (52% compared with 52% in 2008). These factors had increased importance for female PCPs but did not vary by age (data not shown).

Factors related to interviewing at CHC. Among the questions related to the importance of interviewing at the CHC, 'finding a site that met most of my professional needs and goals' was rated highest by PCPs (93% compared with 87% in 2008; $p=.005$). Highly rated also included: 1) understanding the community to be served (88% compared with 84% in 2008; $p=.06$); 2) interviewing with CHC leadership (84%; new question); 3) interviewing with other members of the clinical team (79% compared with 80% in 2008); 4) understanding the CHC's commitment to work/life balance (79%; new question); and 5) understanding the CHC's commitment to my professional growth (69%; new question). While few PCPs noted inquiring about loan/visa program acceptance in 2013 (26%), the percentage who did inquire was significantly higher than in 2008 (19%; $p=.02$). Some of the factors (e.g., 'understanding the CHC's commitment to my professional growth') were endorsed significantly more often among the youngest PCPs while other factors (e.g., 'understanding the CHC's commitment to work/life balance') were endorsed significantly more often by both female and younger PCPs (data not shown).

Factors related to current CHC practice. As seen in 2008, PCPs in 2013 rated the CHC's mission as one of the most important factors in making their decision to join their current practice (89%) (Figure 1). Factors reported to be most 'important'

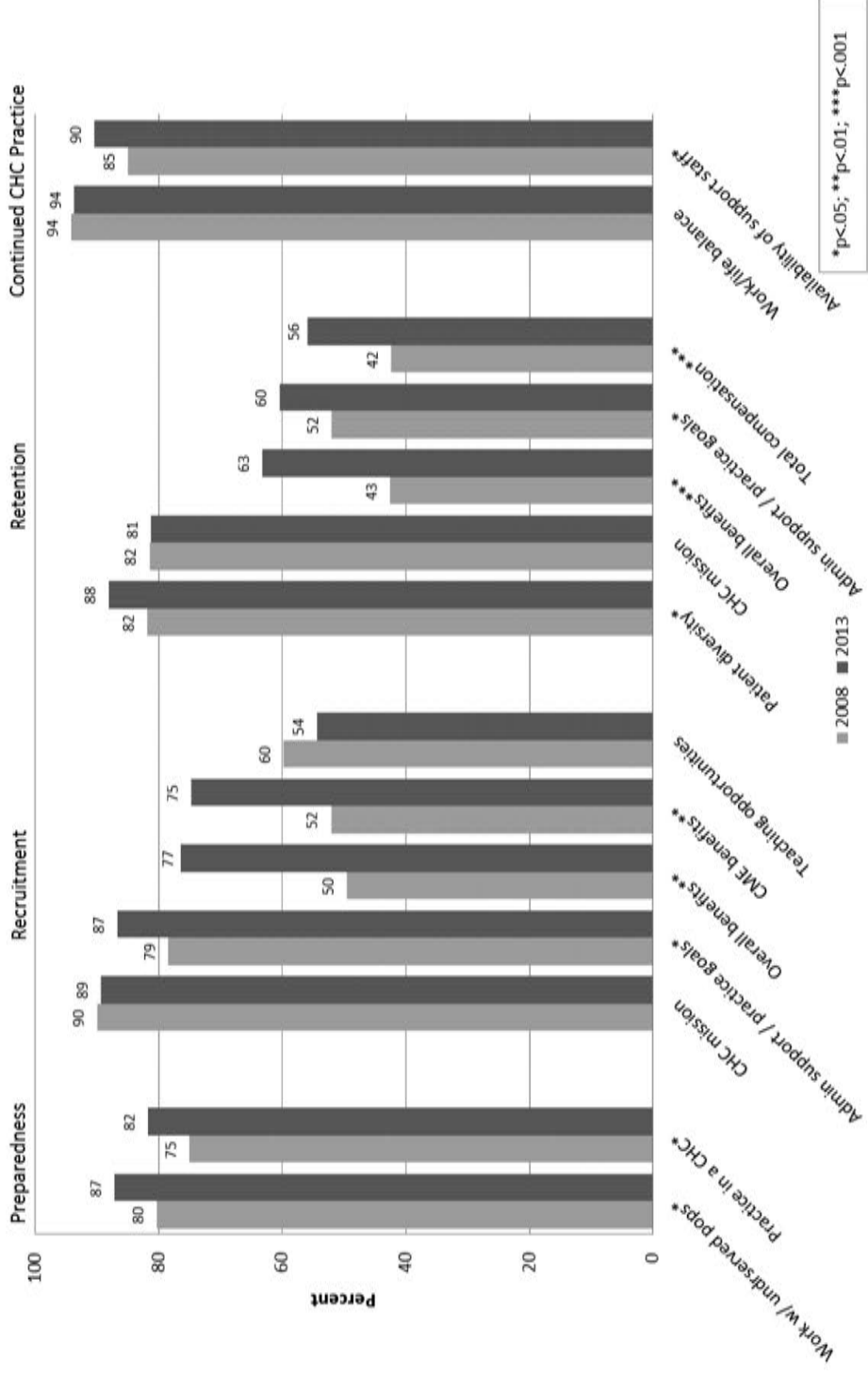


Figure 1. Selected recruitment and retention factors: 2008 v. 2013.

included: 1) highly competent peer physicians (95%); 2) strong fiscal operations (95%); 3) teamwork of peer physicians (94%); 4) supportive CHC leadership (92%); 5) ability to maintain a work/life balance (92%); 6) well trained support staff (90%); 7) opportunity to participate in professional development (90%); and 8) administration's support for clinical practice goals (87%). Significantly increased importance was reported in 2013 for administration's support for clinical practice goals (87% compared with 79% in 2008; $p=.005$), benefits package offered (77% compared with 50% in 2008; $p<.001$), CME benefits (75% compared with 52% in 2008; $p<.001$), and total compensation (69% compared with 58% in 2008; $p=.003$) (Figure 1). Among the factors reported as important, most were not significantly different by age or gender with the exception of work/life balance needs—reported as more important among female and younger PCPs (data not shown).

After asking about the importance of these factors, PCPs were asked their level of satisfaction. Diversity of the patient population was rated highest in satisfaction in 2013 (88% compared with 82% in 2008; $p=.02$). High satisfaction was also reported for: 1) highly competent peer physicians (84%); 2) teamwork of peer physicians (83%); 3) mission and goals of the CHC (81%); 4) access to specialists (75%); and 5) opportunity to participate in professional development (72%). The recent respondents reported increased satisfaction with: their benefits package (63% compared with 43% in 2008; $p<.001$); CME benefits (61% compared with 41% in 2008; $p<.001$); total compensation (56% compared with 42% in 2008; $p<.001$); opportunities for research (50% compared with 36% in 2008; $p<.001$); opportunities for teaching (69% compared with 61% in 2008; $p=.03$); and administration's support for clinical practice goals (60% compared with 52% in 2008; $p=.03$) (Figure 1). Satisfaction factors were not significantly different by provider age or gender.

Retention strategies. Finally, PCPs were questioned regarding factors important in continuing to practice in a Massachusetts CHC. The highest ratings were: 1) work/life balance (94%) (Figure 1); 2) support staff or other operational support (90%); 3) informational technology (IT) infrastructure and support/data analytics (87%); 4) support for professional development (83%); 5) reasonable on-call frequency (82%); and 6) compensation (82%). Many of these factors compared similarly with 2008; the only significant increase was the importance of support staff and other operational support (90% compared with 85% in 2008; $p=.03$) (Figure 1). A number of factors were reported as less important in 2013. For example, a pension plan was reported to be of lesser importance (65% compared with 75% in 2008; $p=.01$) as was an increase in paid time off (54% compared with 62% in 2008; $p=.04$), increase in mid-level providers (32% compared with 41% in 2008; $p=.02$), and availability of flex-time/job sharing (31% compared with 56% in 2008; $p<.001$). Productivity incentives were significantly more important among providers younger than 40 as were quality of care incentives and support for professional development. However, professional development was also rated as more important by female PCPs (data not shown).

Factors related to future shifts in careers. Providers were asked about the likelihood of changes in their current practice arrangements over the next five years. Respondents reported being most 'likely' to: 1) remain in their current discipline (92%); 2) continue to work with an underserved population (85%); 3) remain in Massachusetts (84%);

4) remain in their present CHC (64%); and 5) remain in a CHC somewhere (63%). There were very few differences in planning for the next five years between the 2008 and 2013 cohorts; the only significant difference was an increase in the percent of providers who indicated a likelihood of retiring (9% compared with 5% in 2008; $p=.03$).

Nearly one in five PCPs felt 'uncertain' about their future direction with regard to: remaining in a CHC somewhere (17%), remaining in their current CHC (16%), and moving out of clinical practice to a research or administrative position (18%). Significantly more providers noted an uncertainty with regard to moving into a CHC leadership role. When asked, "*In the next five years, how likely is it that you will remain in your current CHC practice?*", statistically significant differences were not found by either provider age or gender. When asked, "*Where do you see yourself in 10 years?*", fewer than one-half of the PCPs reported 'same place' (44% compared with 56% reporting 'somewhere else'); these percentages were neither significantly different between 2008 and 2013 nor were they different by age or gender in 2013.

Multivariate analysis. The main mixed-model regression analysis identifying factors related to the likelihood of PCPs continuing to work in a CHC and with underserved populations in the next five years included all respondents. Overall, physicians who were more likely to report intent to remain in a CHC were more likely to: 1) be younger; 2) be in practice 10 years or longer; 3) speak at least one non-English language; 4) report greater importance for research and teaching opportunities when first considering the CHC; 5) report less importance regarding compensation when making the decision to join their current CHC; 6) report increased satisfaction with the CHC model of care and the morale of their colleagues; and 7) report increased satisfaction with recognition of their professional development, clinical practice goals, and overall work (plus having a mentor and receiving regular feedback) (Table 2).

When excluding from this initial regression model PCPs who indicated intent to retire within five years, the results changed slightly. Intent to stay was significantly related to: 1) practicing in a Boston-based CHC; 2) being in practice 10 years or longer; 3) decreased importance for compensation when making the decision to join their CHC; 4) increased importance for the mission of the CHC and the diversity of the patient population; 5) increased satisfaction with compensation and benefits; 6) increased satisfaction with recognition and mentors; and 7) increased importance of being able to retain hospital and labor and delivery activities (Table 3).

Since the bivariate analyses revealed many significant differences between those in practice less than 10 years and those with at least 10 years of experience, multivariate models were computed independently based on years in practice. Those in practice less than 10 years were more likely to report a likelihood to stay in a CHC in the next five years if they identified: 1) research and teaching opportunities as important when first considering CHC practice; 2) increased satisfaction with the CHC model of care and morale of colleagues; and 3) increased satisfaction with recognition of their work and mentoring/feedback. These results differed when assessing those providers in practice 10 years or longer. Their reported likelihood of remaining in a CHC was significantly related only to age (those in the youngest age groups compared with providers 60 years of age or older) and satisfaction with recognition for their work and mentoring/feedback opportunities (data not shown).

Table 2.

MIXED MODEL REGRESSION RESULTS ASSESSING FACTORS IMPORTANT TO PCPS REMAINING IN A CHC* CLINICAL SETTING IN THE NEXT 5 YEARS—TOTAL POPULATION, N=301[†], 2013

Independent variables	Beta estimate (SE)	p-value
Age group		
< 40 years	2.3014 (.7781)	.0035
40–49 years	1.8884 (.5944)	.0017
50–59 years	2.2513 (.5926)	.0002
60+ years	Referent group	
Years out of residency training		
< 10 years	–1.5249 (.5852)	.0098
10+ years	Referent group	
Speak additional Non-English languages in practice		
0 additional languages spoken	–0.7955 (.4065)	.0531
1+ additional languages spoken	Referent group	
<i>Research and teaching opportunities as an important factor when first considering CHC practice (lower score = greater importance)[‡]</i>	–0.2340 (.0848)	.0069
<i>Compensation as an important factor when making decision to join CHC (lower score = greater importance)[§]</i>	0.1784 (.0719)	.0139
<i>Satisfaction with CHC model of care and morale of colleagues at current CHC practice (lower score = greater satisfaction)[¶]</i>	–0.1612 (.0768)	.0375
<i>Satisfaction with recognition and mentoring/feedback at CHC practice (lower score = greater satisfaction)</i>	–0.1459 (.0508)	.0045

*CHC was included in the model as a random effects variable.

[†]Survey sample: 301; final model N=215 (sporadic missing values for select variables).

[‡]When first considering a CHC setting, importance of opportunities for research and teaching.

[§]When deciding to join CHC, importance of: compensation, benefits package, and continuing medical education benefits.

[¶]Satisfaction of current CHC practice with regard to: CHC model of care, support staff, and good employee morale.

^{||}Satisfaction of current CHC practice with regard to: professional development, clinical practice goals, having a mentor, receiving feedback, and recognition of work.

Provider gender did not interact significantly with the other variables in our models though CHC region interacted with several study variables. Boston-based PCPs reported an increased likelihood of remaining in a CHC if they were: 1) younger; 2) in practice 10 years or longer; 3) female; 4) reported importance of geography; and 5) satisfied with work recognition and mentoring/feedback. However, PCPs in non-Boston-based CHCs reported an increased likelihood of remaining in a CHC if they were: 1) White;

Table 3.

MIXED MODEL REGRESSION RESULTS ASSESSING FACTORS IMPORTANT TO PCPS REMAINING IN A CHC* CLINICAL SETTING IN THE NEXT 5 YEARS—EXCLUDING PCPS WHO PLAN TO RETIRE IN NEXT 5 YEARS, N=301⁺, 2013

Independent variables	Beta estimate (SE)	p-value
CHC region		
Greater Boston area	0.8453 (.3741)	.0407
Non-Boston	Referent group	
Years out of residency training		
< 10 years	-1.1553 (.3435)	.0009
10+ years	Referent group	
<i>Compensation as an important factor when making decision to join CHC (lower score = greater importance)^a</i>	0.1711 (.0674)	.0119
<i>Mission of CHC and diversity of population as an important factor when making decision to join CHC (lower score = greater importance)^b</i>	-0.3056 (.1099)	.0060
<i>Satisfaction with compensation and benefits at CHC practice (lower score = greater satisfaction)^c</i>	-0.1535 (.0706)	.0312
<i>Satisfaction with recognition and mentoring/feedback at CHC practice (lower score = greater satisfaction)^d</i>	-0.1764 (.0435)	<.0001
<i>Importance of being able to retain hospital and OB labor and delivery work at CHC practice (lower score = greater importance)^e</i>	-0.1627 (.0734)	.0346

*CHC was included in the model as a random effects variable.

⁺Survey sample: 301; final model N=204 (sporadic missing values for select variables).

^aWhen deciding to join CHC, importance of: compensation, benefits package, and continuing medical education benefits.

^bWhen deciding to join CHC, importance of: patient diversity and CHC mission.

^cSatisfaction of current CHC practice with regard to: compensation, benefits package, and continuing medical education benefits.

^dSatisfaction of current CHC practice with regard to: professional development, clinical practice goals, having a mentor, receiving feedback, and recognition of work.

^eImportance of factors when deciding to continue practicing at a CHC: hospital care and labor/delivery care.

2) working full-time; 3) valued the importance of interviewing with the CHC's leadership and clinical team; 4) reported the mission of the CHC and diversity of the patient population as important; 5) satisfied with the CHC model of care and morale of colleagues; 6) satisfied with work recognition and mentoring/feedback; and 7) reported staff support, IT, and patient-tracking systems as important issues (data not shown).

While there were some minor differences among the independent variables of interest, the one variable that was significantly related to an increased likelihood of

remaining in a CHC across all regression models was an increased satisfaction with work recognition and mentoring/feedback.

Summary of PCP reflections. As in 2008, PCPs were asked to reflect on their experiences in an open-ended fashion; more than 70 responded. A theme analysis of these qualitative comments revealed 11 categories (similar to 2008) and 152 themed responses, including: CHC structure and systems (n=22), compensation and benefits (n=22), workload (n=20), resources (n=17), administration (n=15), lifestyle (n=15), support staff (n=11), residency training (n=9), loan repayment (n=8), CHC mission (n=7), and professional development (n=6). Providers were quite articulate about the stresses of their work environment while readily acknowledging collegial skills and supports, the importance of their work, and the uniqueness of patient needs. Below is a snapshot of these reflections:

- [Regarding Preparation] *“I think exposure to primary care and CHC settings needs to start earlier in a person’s medical career. We need more exposure to CHC settings for medical students and residents, more participation for residents with QI projects at CHCs and exposure to medical home/team-based care initiatives—so students and residents can see how rewarding, challenging and exciting it is to practice primary care at a CHC. Students and residents see so easily how exciting the hospital is and we need to infuse the same experience at CHCs.”*
- [Regarding Recruitment] *“I fulfilled a four-year NHSC scholarship obligation at a CHC in [another state]. That experience nearly burned me out and I left for private practice . . . I am now once again working at a CHC because I believe in the mission and I desire to work with the underserved. My current practice is a much saner place—the workload is more reasonable and I’m working part-time and creating my own work-life balance. I still haven’t decided if I’ll remain here . . . my next move may very well be to leave medicine entirely.”*
- [Regarding Retention] *“After working 20 years for the same CHC, I think there are many dedicated, extremely bright and talented physicians and compensation and the lack of good support makes retention an ongoing difficult problem. I think that if compensation cannot be better, then efforts should be made to make support better, so that a choice to work in a CHC can offer good support and the perk of a good work/home life balance.”*
- [Overall comment] *“For me, the most important things are that the board is over half patients and also the mission, and flexibility of schedule and work type. Over the years, I have been privileged to have had the opportunity to do clinical work, then administrative and teaching work as well, and now am back to mostly clinical work. What a place! All sorts of things to do, and a lot of sensitivity to the life needs of the clinicians as well.”*

Discussion

As with our 2008 survey, the results from 2013 inform policy makers and CHC leadership about characteristics and opinions of current CHC PCPs with respect to training, recruitment, and retention. Moreover, the findings provide practical information that

suggests best practices with respect to stabilizing the safety net physician workforce. While some results confirm impressions of leaders in the fields, others are somewhat surprising and at odds with other studies describing the PCP workforce.

Characteristics of physician responders. Consistent with characteristics in other primary care settings, women and family physicians were over-represented in our respondents. The majority of responders were significantly older than those in 2008 and were also at their CHC longer. Most were working full-time; those working part-time were often incorporating other activities alongside clinical work (e.g., research, teaching, hospital care, etc.).

Remaining stable was the participation in visa and federal/state loan repayment programs. This affirms the importance of loan repayment as a recruitment and retention strategy. Physicians in 2013 were twice as likely to discuss the availability of loan repayment at the time of their CHC interview compared with 2008. This may reflect knowledge of the recent increased state and federal loan forgiveness programs for providers to serve underserved populations.

The high proportion of responders who trained in Massachusetts and the Northeast is also consistent with studies indicating a higher likelihood of practice within some proximity, and with familiarity, to the site where residents trained.^{10,27-29} Geographic region, practicing in a familiar setting, and proximity to one's family were not rated as high when selecting employment location compared to the CHC's mission and opportunities for professional development.

The number of PCPs proficient in non-English languages was significantly higher in 2013. This speaks to the responsiveness to changing CHC patient demographics. The prevalence of providers who reported speaking Spanish significantly increased. The vast majority self-rated their language skills as 'good' to 'excellent' and over three-quarters of providers noted using their language skills 'several times a day'. Less clear is the extent to which physicians self-reporting language fluency are able to conduct patient care accurately without a qualified interpreter. CHCs may need to consider whether 'false fluency' may create risk for errors in communication that could significantly affect patient experiences and safe care.³⁰

It remained reassuring that most PCPs reported adequate training for CHC practice. The higher proportion of those who completed residency in the past 10 years reporting increased preparedness likely reflects changes in training, with more emphasis on cultural proficiency, relationship building and communication skills, as well as team management of chronic illnesses. Family physicians were significantly more likely to report preparedness for CHC practice, reflecting that many of this specialty's residency programs serve vulnerable populations. Among FM residencies in Massachusetts, a majority of residents provide over one-third of their training in primary care continuity practice in CHCs.

Compared with 2008, slightly fewer providers reported working full-time and fewer still reported patient care duties of 25 hours or more each week. This may be explained in part by the fact that 80% of responders reported being involved in administration, teaching, research and consultations. The proportion of full-time physicians seeing a reduced schedule of patients and the reported reduction in teaching may also relate to their involvement in health care reform/PCMH transformation projects and electronic

medical record implementation. As noted in our baseline study, given the high salaries of physicians and likelihood of lost clinical revenue, this has significant implications for the financial health of CHCs.

Recruitment factors important to employment decisions. One of the most gratifying, validating and consistent findings is that “working for an organization whose mission I believe in” was the most important factor in choosing to work in a CHC. This was complemented by high ratings in “serving an economically underserved population” and “serving a culturally or linguistically minority population.” Important in the interview process was meeting with CHC leadership and the clinical team, and understanding the CHC’s commitment to work/life balance as well as to professional growth. These latter factors, rated as important by at least three-quarters of respondents, support the interest and commitment providers have to complementing clinical activities with research, teaching and administration.

Massachusetts CHCs are interested in providing clinical practicums as resources allow building the primary care pipeline before residency. Several Massachusetts medical schools have increased or added course work in social justice and community health, and have emphasized the challenge of equity in healthcare delivery and health outcomes. Many schools are fostering interprofessional team work in understanding the population health concerns of vulnerable populations. These are promising trends in re-organizing medical school education to build and maintain interest in primary care, specifically in care to the underserved in community health settings.

Given the many changes in practice, a number of factors were queried regarding importance to providers when deciding to join their CHC. Though ‘mission’ continued to be rated as most important, other factors were rated as very important—clearly reflecting these changes. These included highly competent peer physicians, strong fiscal operations, teamwork, supportive leadership, work/life balance, well trained support staff, opportunities for professional development, and administration’s support for clinical practice goals.

When comparing factors over time, it was interesting to note that five years later, total compensation, benefits packages and CME benefits were rated as important among a significantly larger percent of providers (in deciding to join their CHC); interestingly, they simultaneously reported being satisfied with these factors. The percentage of providers rating these as important, however, was lower than the ratings given to factors such as mission, competency of peer physicians, teamwork, supportive leadership, and other items reflecting new models of care. These factors have implications for CHCs engaged in PCP recruitment. Factors identified as most important during recruitment (and ones for which satisfaction is also present) seem to be within the purview of the CHC’s leadership.

Retention factors. As seen in 2008, it is sobering that: 1) 20% of the 2013 respondents reported that they were unlikely to remain in their current CHC in the next five years; and 2) that an additional 16% were uncertain about their short-term plans. The results are even more startling in response to PCPs’ future plans (in 10 years); over one-half (56%) reported that they would be working someplace else. These results are likely affected by the larger proportion of respondents who reported plans to retire in the next five years, nearly double that seen in 2008. This trend is likely to continue with

the baby boomer population aging out of the workforce. Given the reduced number of medical students choosing primary care, an aging primary care workforce is particularly threatening to CHCs.

Work/life balance was the highest rated retention factor among responding providers, followed by importance of support staff, operational support, IT infrastructure and data analytics, support for professional development, and compensation. Many of these factors were also rated as being significantly more important when associated with specific characteristics (e.g., age and gender). This provides additional opportunities for CHC administrators to fine tune their recruitment and retention efforts.

Implications for recruitment and retention practices. We hypothesized that health care reform and primary care transformation efforts in Massachusetts CHCs may result in improved intentions to practice in CHCs. While the results indicate little change from 2008, CHCs should take heart that they are on the right track, since most physicians indicated that factors associated with true transformation are indeed important for both recruitment and retention. Foundational to PCMH transformation is the development of an integrated primary care team with each member conducting work maximizing their level of training. This culture shift, which places the patient at the center of the team, is an arduous process, requiring multiple failed experiments to “get it right.” Results indicating a smaller percentage of responders feeling prepared to work in fully integrated teams likely represent an appreciation of the complexity of transformation efforts.^{31–33}

Regarding recruiting physicians who are likely to develop their career at a CHC, leaders should be interested in applicants who emphasize shared mission and values. When assessing all factors collectively, the characteristics that were most predictive of remaining in a CHC include age (younger physicians), length of time in practice (those practicing 10 years or longer), and language competencies (speaking at least one non-English language in clinical practice). Beyond provider characteristics, the many factors investigated in relation to retention were narrowed to providers having non-clinical interests in research and teaching as well as a greater satisfaction with employee morale, the CHC model of care, recognition of clinical practice goals, professional development, and the availability of mentoring and feedback. Once these variables were taken into consideration, compensation, while important in making a decision to join a CHC, was no longer significant. Collectively, these issues are complex, particularly in organizations which typically have very narrow operating margins.

Community health centers should embrace the teaching health center concept as new providers report being more prepared for CHC practice based on their residency training. This model addresses concerns seen in the literature about financial support for physicians who teach while providing passionate role models for residents.^{13,34}

The importance of peer physicians to retention was seen strongly in the open-ended comments provided by over 70 physicians. It was evident that talented physicians who share the CHC’s mission and commitment to a diverse and underserved population are bonded. When retention is jeopardized among individual providers, it risks the larger CHC workforce. Independent studies^{12–14} all confirm the need to bring together mission-driven providers with opportunities that address the non-patient care interests of this workforce (i.e., opportunities for research, teaching, and QI as well as work/life

balance, part-time status, and professional development). Mission may bring providers to CHCs, but without addressing retention, many physicians, especially new graduates, may choose to move to other settings.

Massachusetts CHCs have been able to participate in several provider retention initiatives which hold promise for guiding physicians into building careers at CHCs and increase engagement and support from their administration leadership. In addition to increased loan repayment efforts, a strategy successfully deployed is the "Provider Special Projects Initiative" which annually awards small grants to proposals submitted by providers with support of their CHC executive director and medical director. These one-year projects provide PCPs, for example, with the opportunity to complete an innovative clinical intervention, pursue a mini-fellowship in a sub-specialty, or enroll in a language immersion program. The opportunity to explore these interests supports professional development as well as a funded break from clinical practice demands. The program has fostered retention, with 75% of the recipients still at their CHC when surveyed four years later. Most importantly, these awardees expressed optimism regarding their ability to build leadership career paths at their health centers or engage in other research or QI initiatives.

Limitations. While the response rate and distribution of responders was representative of physicians practicing in Massachusetts CHCs, there is limited data on non-responders, raising the possibility of bias. The higher response rate among Boston-based physicians compared to physicians in smaller western Massachusetts CHCs may reflect higher patient care demands and less time for surveys in smaller sites. Overall, our results may not be generalizable to other regions of the country since only physicians practicing in Massachusetts CHCs were surveyed.

With respect to factors important to recruitment, it is possible that physicians with longer employment in the CHC may be inaccurate in their recollection of the factors particularly important to earlier employment decisions. However, "big picture" factors relating to values and motivators for employment are probably accurate.

Conclusion. Massachusetts has often been at the forefront of advancing the importance of CHCs and their mission while also leading health care reform. While noting the limitations of this study, the feedback and insights from practicing PCPs in Massachusetts CHCs can inform CHC advocates, executive leadership, policy makers, and educators nationally as they design and implement primary care training, workforce initiatives, and practice redesign.

The aging of this vital workforce and the ten-year retention estimates are concerning. Efforts to promote teamwork, work/life balance, and good employee morale are important for recruitment and retention, and PCPs increasingly recognize the importance of skilled support staff. To retain the third of the workforce that has been at CHCs for fewer than five years, compensation, productivity incentives, and quality of care incentives are of increased importance and benefits must be periodically reviewed and adjusted.

Nationally, the need for a larger, skilled, diverse, and compassionate CHC primary care workforce is at a critical juncture given the aging of the workforce and the small numbers of medical students and residents choosing to enter and remain in primary care. This challenge, and the feedback from PCPs currently working in CHCs, under-

scores the need for: support for medical schools and CHCs to provide opportunities for medical students to learn in the community from PCPs that are passionate about their work and who model the CHC mission; reform of graduate medical education funding priorities and the continuation of training grants which favor curricular innovations aimed at preparation for careers caring for underserved populations; continual training for students, residents, and practitioners about interprofessional team-based care; and creative recruitment and retention programs that financially recognize and reward a provider's commitment to the CHC. Finally, what is needed is innovative and passionate CHC leadership committed to addressing the changing interests and needs of an aging and more diverse primary care workforce who remain committed across the generations to the CHC mission and patient population.

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