

Patient Reports of the Quality of Care in Community Health Centers: The Importance of Having a Regular Provider

Anne Beal, MD, MPH
Susan Hernandez, MPA

Abstract: Objective. To examine the importance of having a regular provider in community health centers (CHCs) for high quality care. **Methods.** Analyses of a national survey—the Commonwealth Fund 2006 Health care Quality Survey—among patients with a private doctor's (PMD) office ($n=1,743$) or CHC ($n=275$) as their regular source of care. Outcomes include prevention measures, and measures of patient experience. **Results.** Patients at CHCs are less likely than patients who use a PMD to report having a regular doctor (53% vs. 95%, $p \leq .001$). They also report lower rates for all the preventive care and patient experience measures. However, the differences in quality are eliminated when CHC patients have a regular provider. **Conclusions.** When CHC patients have a regular provider, they receive higher quality care. Policymakers should support expansions of the CHC health care workforce to ensure patients have access to a regular provider, which leads to higher quality care.

Key words: Community health center, quality of care, regular source of care, regular provider, patient experiences.

Community health centers, and other public clinics, are an important source of health care for low-income, uninsured, and minority patient populations. As a result, community health centers have been found to reduce health disparities in the communities they serve.^{1,2} Data show that 37% of community health center patients are children, 40% are uninsured, 35% receive Medicaid, over 70% have incomes less than 100% of the federal poverty level, and nearly two thirds are minorities.³ When compared with other safety net providers (such as hospital-based clinics) community health centers are more likely to care for minorities, the uninsured, and patients with Medicaid.⁴

Community health centers are often included in federal legislation for eliminating health disparities, and receive significant bipartisan support.⁵ In 2002, they were targeted for expansion by then-President Bush, who launched a multi-year initiative to increase the number of community health centers throughout the U.S. to 1,200.⁶ More recently,

THE AUTHORS are from The Aetna Foundation, Hartford, Conn. (AB) and The Commonwealth Fund, Program on Health Care Disparities, New York (SH). Please address correspondence to Anne C. Beal, 151 Farmington Ave., RC31, Hartford, CT 06156; (860) 273-4016; BealA@Aetna.com.

President Obama approved \$2 billion in funding to community health centers through the American Recovery and Reinvestment Act.⁷

Despite efforts to support and expand the number of community health centers, they experience ongoing challenges with staff recruitment and ensuring access to physicians willing to care for minority and low-income patients.^{8,9} A recent national survey by Rosenblatt et al. finds community health centers have vacancies for 13.3% of family practitioner positions and 20.8% of the obstetrician positions across the country. Rural community health centers have the greatest difficulty recruiting providers, and more than one third report they have been recruiting for a family practitioner for over seven months.¹⁰ The impact of these staff shortages on the quality of care in community health centers is not known.

Studies of the quality of health care in community health centers focus largely on clinical outcomes for chronic conditions. The results vary, with some studies showing the quality of care in community health centers is comparable to other sectors, while others show they do not do as well.¹¹⁻¹³ Very few studies focus on patient reports of the quality of care they receive, and there are no national studies of patient experiences with care received in community health centers.¹⁴ Because many health care outcomes are better when patients have a regular provider, the staffing challenges reported by community health centers may lead to poorer performance on patient reports of health care quality.

The purpose of this study is to provide a national assessment of patient reports on the quality of care they receive in community health centers. In addition, we will assess the role of having a regular provider on community health center performance on patient reports of quality.

Methods

Survey. The Commonwealth Fund's 2006 Health Care Quality Survey was conducted by Princeton Survey Research Associates International from May 30 through October 19, 2006, and consisted of 25-minute telephone interviews, conducted in either English or Spanish, among a random, nationally representative sample of 3,535 adults aged 18 and older living in the continental United States. Details regarding the survey methodology have been previously published.¹⁵ This study restricts the analyses to the 2,837 respondents ages 18 to 64. The sample was designed to over-sample African American, Hispanic, and Asian American households. All estimates are weighted to correct for the disproportionate sample design and to make the final total sample results representative of all adults age 18 and older living in the continental United States.^{16*}

Source of care. Respondents were asked where they usually go when they are sick or need health care, and were also asked if they have a regular doctor. The analyses for

*The data are weighted to the U.S. adult population by age, sex, race/ethnicity, education, household size, marital status, geographic region, and telephone service interruption, using the U.S. Census Bureau's 2005 Annual Social and Economic Supplement. The resulting weighted sample is representative of the approximately 177.3 million adults ages 18 to 64.

this study are limited to respondents who report a private doctor's office as their regular source of care, and those who use a community health center or other public clinic as their regular source of care. In the latter group, we did not have details to determine whether the community health centers were federally qualified recipients of 330 grants. Thus, we do not refer to these providers as federally qualified health centers (FQHCs), but simply refer to them as community health centers with the understanding that this is a heterogeneous group that includes FQHCs, look-alikes, and public clinics.

Furthermore, we identified respondents who report having a regular doctor where they go for care. Thus, all respondents in these analyses have a regular source of care (either a private doctor's office or a community health center) but not all respondents have a particular person they see when they go for care. Therefore, we classified respondents either as having a regular doctor or as having a regular place of care, but not having a regular doctor.

Patient reports of quality. The patient-reported measures of quality are based on patient reports of receiving preventive care and patient reports of experiences with care. The preventive care measures were patient reports of (1) receiving a reminder in the past two years to schedule a preventive care visit; (2) having cholesterol checked in the past five years; and (3) being counseled about diet, exercise, and healthy weight in the past two years. The patient experience measures were derived from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey and include reports that (1) the doctor always spends enough time with them; (2) they strongly agree the doctor is extremely thorough and careful; and (3) they are involved as much as they want in decisions about their care and treatment. We also included a global measure of patient experience with care and asked respondents if they can always get the care they need when they need it.¹⁷

Statistical analyses. We used bivariate analyses with chi-squared tests of statistical significance to determine differences in the distribution of demographic characteristics and patient reports of quality between respondents who use a private doctor and those who use community health center. All results show weighted estimates and include p-values to show where differences are statistically significant. We use logistic regression models to estimate the likelihood of receiving high-quality care based on patient report.

We selected the sociodemographic measures used in the regression models because they are known to be associated with differences in health care quality and patient reports of experiences in health care. The measures include race/ethnicity (based on respondent self report), age, sex, poverty status, primary language is English or Spanish, and nativity as determined by whether the respondent was born in the U.S. and the time they have lived here if not born in the U.S. We included a measure of whether the respondent has a chronic condition because this is known to be associated with patient reports of poorer doctor communication and lower patient satisfaction.^{18,19} We also included a measure of the respondents' body mass index (BMI), calculated from their height and weight, which was included in the regression model for counseling on diet and exercise. We used STATA version 9.2 (StataCorp, College Station, TX) for all analyses to estimate standard errors that adjust for the complex survey design.

Results

In our initial sample, there are 1,743 respondents who identify a private doctor's office as their regular source of care, and 275 respondents who identify a community health center as their regular source of care. Respondents who use a private doctor's office and those who use a community health center are significantly different on a number of sociodemographic measures (Table 1). Community health centers care for more vulnerable patient populations, as they are less likely than patient populations in private doctor's offices to be White (57% vs. 72%, $p \leq .001$), are more likely to have family incomes below 200% of the federal poverty level (49% vs. 17%, $p \leq .001$), and are more likely to be uninsured (22% vs. 8%, $p \leq .001$). Adults who use community health centers are younger than those who use private doctor's offices. However, they are more likely to report having a chronic condition (although this difference is not statistically significant). Despite being a younger population, community health center patients are significantly more likely to be overweight and obese and to have a BMI ≥ 25 kg/m² (67% vs. 55%, $p \leq .001$).

There is a large and significant difference in patient reports of having a regular doctor. Community health center patients are much less likely than those who use private doctor's offices to report having a regular doctor to whom they go when they need care (53% vs. 95%, $p \leq .001$).

Patient reports of quality. The unadjusted patient reports of quality show significantly lower performance in community health centers than in private doctor's offices for all measures (Table 2). Adults who use community health centers are less likely to report receiving a reminder to schedule a preventive care visit (53% vs. 58%, $p \leq .001$), having their cholesterol checked (60% vs. 78%, $p \leq .001$), or being counseled about diet, exercise, and healthy weight (64% vs. 69%, $p \leq .01$). They are also less likely to report positive experiences with care, being less likely to report the doctors they see always spend enough time with them (53% vs. 65%, $p \leq .001$) or that their doctors are extremely thorough and careful (71% vs. 74%, $p \leq .01$), and to report being involved as much as they want in decisions about their care and treatment (88% vs. 95%, $p \leq .001$). In the overall assessment of their care, adults who use community health centers are also less likely to report getting the care they need when they need it (56% vs. 60%, $p \leq .01$). In the adjusted models, having a regular doctor eliminated all differences between community health centers and private doctor's offices in patient reports of quality.

Preventive care. For the measures of preventive care (Table 3), when having a regular doctor is added to the model, there are no differences between community health centers and private doctor's offices. Specifically there are no differences in patient reports of receiving a reminder to schedule a preventive care visit, having their cholesterol checked, and being counseled about diet, exercise, and healthy weight. Respondents with a regular doctor are much more likely to report receiving these three preventive measures, with odds ratios of 3.33 (95% CI 1.86–5.98), 3.91 (95% CI 2.13–7.16) and 2.84 (95% CI 1.57–5.14) respectively. In the full regression model with all sociodemographic measures, having a regular doctor remains a significant predictor of patient reports of the preventive measures, and there are no differences between community health centers and private doctor's offices. In addition, in the model of counseling on

Table 1.
SOCIODEMOGRAPHICS OF ADULTS 18-64 IN
PRIVATE DOCTOR'S OFFICES AND COMMUNITY
HEALTH CENTERS: COMMONWEALTH FUND 2006
HEALTH CARE QUALITY SURVEY^{ab}

	Private Doctor	Community Health Center/Other Public Clinic	p-value
Unweighted N	1743	275	
Race/Ethnicity			≤.001
White (Non-Hispanic)	72%	57%	
Black (Non-Hispanic)	10	14	
Hispanic	8	22	
Asian (Non-Hispanic)	5	3	
Other (Non-Hispanic)	5	5	
Age (years)			≤.001
18-29	19	27	
30-49	50	45	
50-64	31	28	
Sex			.427
Male	39	42	
Female	61	58	
Poverty Status			≤.001
Under 100% poverty	6	24	
100%-199% poverty	11	26	
Under 200% poverty	17	49	
200% poverty or more	71	39	
Unknown income	12	12	
Language			≤.001
Speaks another language at home or interview was in Spanish	17	28	
English	83	72	
Nativity Status ^c			≤.001
Born in U.S.	89	81	
Foreign born, living in U.S. less than 10 years	2	8	
Foreign born, living in U.S. greater than 10 years	9	11	
Health Status			.347
Any chronic disease ^d	36	42	
No chronic disease	64	58	

(Continued on p. 596)

Table 1. (continued)

	Private Doctor	Community Health Center/Other Public Clinic	p-value
Body Mass Index (BMI)			≤.001
Normal or Underweight, BMI <25 kg/m ²	40	27	
Overweight or Obese, BMI 25 ≤ kg/m ²	55	67	
BMI unknown	5	6	
Stability of Insurance Throughout Year			≤.001
Insured all year	85	62	
Insured now, time uninsured in past year	7	15	
Uninsured now	8	22	
Uninsured anytime in past year	15	38	≤.001
Regular Source of Care			≤.001
Regular doctor	95	53	
Regular place of care	5	47	

^aUnadjusted weighted estimates.
^bNot all percentages add up to 100 due to rounding.
^cUnknown nativity status not reported.
^dAny chronic disease includes diabetes, high blood pressure, asthma, bronchitis, emphysema, or other lung condition, heart disease, heart failure, or heart attack.

diet and exercise, having a chronic condition (OR=2.62, 95% CI 1.74-3.93), and a BMI ≥25 kg/m² (OR=1.83, 95% CI 1.25-2.67) are also significantly associated with counseling.

Patient experiences. The models for the patient experience outcomes showed similar results (Table 4). Having a regular doctor eliminates all differences between community health centers and private doctor's offices in patient reports of *the doctor spends enough time, the doctor is extremely thorough and careful, being involved as much as they want in decisions about their care and treatment, and getting the care they need when they need it*. Respondents with a regular doctor are much more likely to report positive patient experiences on these four measures, with odds ratios of 3.32 (95% CI 1.82-6.05), 2.32 (95% CI 1.20-4.50), 2.28 (95% CI 1.26-4.14), and 2.28 (95% CI 1.27-4.10) respectively. In the full regression model, with all sociodemographic measures included, having a regular doctor is the only item that is consistently associated with better patient experiences, while there are no differences in performance between community health centers and private doctor's offices.

Being uninsured is independently associated with lower rates of reporting the doctor spends enough time (OR=0.59, 95% CI 0.38-0.92) and being able to get care when

Table 2.

**PATIENT REPORTED MEASURES OF QUALITY IN
PRIVATE DOCTOR'S OFFICES AND COMMUNITY
HEALTH CENTERS: COMMONWEALTH FUND 2006
HEALTH CARE QUALITY SURVEY^a**

	Private Doctor	Community Health Center/Other Public Clinic	p-value
Preventive Care Measures			
In the past two years, received a reminder to schedule a preventive care visit	58%	53%	≤ .001
Cholesterol checked within the past five years	78%	60%	≤ .001
In the past two years, counseled on exercise, and having a healthy diet and weight	69%	64%	.007
Patient Experience Measures			
Doctor always spend enough time with you	65%	53%	≤ .001
Strongly agree that my doctor is extremely thorough and careful	74%	71%	.009
Involved as much as you want to be in decisions about your care and treatment	95%	88%	≤ .001
Overall Assessment of Care			
Always receive the care you need when you need it	60%	56%	.007

^aUnadjusted weighted estimates.

needed (OR=0.48, 95% CI 0.30–0.75). Older age is associated with higher rates of positive patient experiences, with respondents ages 50–64 being more likely to report their doctor spends enough time with them (OR=1.64, 95% CI 1.11–2.40), and being able to get the care they need when they need it (OR=1.47, 95% CI 1.01–2.14). Respondents with a chronic condition are less likely to report their doctor was thorough and careful (OR=0.49, 95% CI 0.26–0.94). The only model in which a minority group reported lower levels of quality is in the model of patient involvement in decision making. Asian/Pacific Island respondents are significantly less likely to report being involved in decisions about their care as much as they want (OR=0.45, 95% CI 0.25–0.81). In the model of getting the care you need when you need it, in addition to having a regular doctor, being uninsured, and being older, we find that being female is associated with a lower likelihood of being able to get care when needed (OR=0.70, 95% CI 0.50–0.99), while being foreign born and living in the U.S. for less than 10 years is associated with higher rates of reporting being able to get needed care (OR=1.92, 95% CI 1.01–3.64).

Table 3.

LOGISTIC REGRESSION MODELS FOR PATIENT REPORTS OF PREVENTIVE CARE IN PRIVATE DOCTOR'S OFFICES AND COMMUNITY HEALTH CENTERS, 2006

	Preventive Care Reminder, OR (95% CI)		Cholesterol Checked, OR (95% CI)		Receiving Counseling on Diet and Exercise, OR (95% CI)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Source of Care						
Private Doctor	1.00	1.00	1.00	1.00	1.00	1.00
CHC	1.38 (.84, 2.26)	1.29 (.73, 2.28)	.80 (.46, 1.40)	.73 (.35, 1.52)	1.31 (.79, 2.18)	1.12 (.64, 1.98)
Regular Provider Type						
Regular Place of Care	1.00	1.00	1.00	1.00	1.00	1.00
Regular doctor	3.33 (1.86, 5.98)	2.97 (1.56, 5.64)	3.91 (2.13, 7.16)	2.94 (1.32, 6.58)	2.84 (1.57, 5.14)	1.96 (1.02, 3.78)
Insurance Status						
Insured all year	—	1.00	—	1.00	—	1.00
Anytime uninsured during the year	—	1.13 (.71, 1.80)	—	.87 (.50, 1.51)	—	.73 (.45, 1.19)
Race/Ethnicity						
White	—	1.00	—	1.00	—	1.00
Black	—	.94 (.67, 1.32)	—	1.16 (.76, 1.77)	—	1.23 (.85, 1.79)
Hispanic	—	1.04 (.62, 1.76)	—	2.14 (1.07, 4.27)	—	1.32 (.75, 2.32)
Asian/Pacific Islander	—	.63 (.34, 1.14)	—	1.30 (.64, 2.65)	—	1.37 (.72, 2.61)
Age (years)						
18–29	—	.72 (.45, 1.16)	—	.21 (.13, .35)	—	.67 (.41, 1.10)
30–49	—	1.00	—	1.00	—	1.00
50–64	—	1.30 (.91, 1.87)	—	2.78 (1.59, 4.86)	—	.78 (.52, 1.16)
Sex						
Male	—	1.00	—	1.00	—	1.00
Female	—	1.84 (1.32, 2.57)	—	1.18 (.76, 1.82)	—	1.17 (.81, 1.69)

(Continued on p. 599)

Table 3. (continued)

	Preventive Care Reminder, OR (95% CI)		Cholesterol Checked, OR (95% CI)		Receiving Counseling on Diet and Exercise, OR (95% CI)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Poverty Status						
Above 200% poverty	—	1.00	—	1.00	—	1.00
Below 199% poverty	—	.85 (.55, 1.31)	—	.52 (.32,.85)	—	.76 (.48, 1.21)
Unknown income	—	.92 (.54, 1.57)	—	1.75 (.92, 3.36)	—	1.12 (.64, 1.94)
Other language						
Only English at Home	—	1.00	—	1.00	—	1.00
Speaks other language at Home/Survey in Spanish	—	1.32 (.75, 2.34)	—	.80 (.40, 1.63)	—	1.16 (.63, 2.12)
Nativity Status ^a						
Born in U.S.	—	1.00	—	1.00	—	1.00
Foreign born, living in U.S. less than 10 years	—	.92 (.44, 1.92)	—	1.10 (.52, 2.35)	—	.61 (.26, 1.46)
Foreign born, living in U.S. greater than 10 years	—	.53 (.29, .98)	—	.91 (.44, 1.89)	—	.76 (.40, 1.44)
Health Status ^b						
Does not have a chronic disease	—	1.00	—	1.00	—	1.00
Any chronic disease	—	1.34 (.94, 1.92)	—	1.67 (1.00, 2.79)	—	2.62 (1.74, 3.93)
Body Mass Index (BMI)						
Underweight/Normal	—	—	—	—	—	1.00
Overweight/Obese	—	—	—	—	—	1.83 (1.25, 2.67)
BMI unknown	—	—	—	—	—	1.20 (.57, 2.54)

^aUnknown nativity status not reported.

^bAny chronic disease includes diabetes, high blood pressure, asthma, bronchitis, emphysema, or other lung condition, heart disease, heart failure, or heart attack.

OR = odds ratio

CI = confidence interval

CHC = Community Health Center or other public clinic

Discussion

Assessments of community health centers sometimes indicate they do not perform as well as other types of health care institutions. This difference is often attributed to the fact that community health centers care for vulnerable patient populations, whose social and economic backgrounds can lead to poorer health outcomes. Our analyses show when community health center patients have a regular doctor, their care is improved and they are as likely as others to report receiving preventive care and having positive patient experiences. However, patients who use community health centers for their health care are much less likely to report having a regular doctor at that center.

Community health centers have challenges with recruiting and retaining adequate numbers of staff to care for their patients. This may make sustaining a stable workforce more challenging, which undermines community health center capacity to assign a regular provider to patients. Our findings indicate these challenges may be associated with poorer quality care delivered to patients. In fact, our analyses show lack of having a regular doctor, which is more common among community health center patients, has a greater impact on poor quality in community health center settings than all of the patient sociodemographic characteristics known to be associated with poor health outcomes.

The results of this project are supported by a recent study by Atlas et al., which shows that patient connectedness to a regular provider is associated with higher-quality care in a network of practices affiliated with a large academic medical center.²⁰ Much of the research on access to care focuses on having a regular source, or place, for care.^{21,22} However, there is also a body of work that shows having a regular provider—and not just a regular place—is important for achieving high-quality care.^{23,24} This study validates the association between having a regular doctor and achieving high-quality care in a safety net setting. However, since it is much more common for patients in community health centers to not have a regular doctor, this can lead to overall poorer performance in this critical safety net setting.

Limitations. A limitation to this study is that it is based entirely on patient report. In the analyses, we categorize respondents as community health center patients if their regular source of care is “a community health center or some other public clinic.” Respondents were not asked about the type of clinic they attend, or whether it was a federally qualified health center. Hence, we cannot determine whether these findings are reflective of federal 330 grant-supported centers. Instead, they represent the experience of patients who attend a variety of clinics that care for vulnerable patients.

We also asked respondents if they have a regular doctor. Many community health centers use non-physician health professionals to deliver primary care to their patients. Data reported by the National Association of Community Health Centers show that in 2007 there were 30.5 million visits to primary care physicians, and 13.5 million visits to other primary care providers such as nurse practitioners and physician assistants in community health centers.²⁵ Since the wording of the question specifically asks about a regular “doctor,” it would not capture patients who have nurse practitioners or physician assistants as their main providers. This would lead to lower estimates of having

Table 4.

LOGISTIC REGRESSION MODELS FOR PATIENT REPORTS OF PATIENT EXPERIENCES IN PRIVATE DOCTOR'S OFFICES AND COMMUNITY HEALTH CENTERS, 2006

	Spends Enough Time, OR (95% CI)		Extremely Thorough and Careful, OR (95% CI)		Involved in Decision Making, OR (95% CI)		Receive Care You Need When You Need It, OR (95% CI)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Source of Care								
Private Doctor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CHC	.98 (.60, 1.60)	1.00 (.60, 1.69)	.64 (.35, 1.18)	.97 (.46, 2.05)	1.28 (.76, 2.15)	1.40 (.81, 2.42)	1.20 (.73, 2.00)	1.37 (.79, 2.36)
Regular Provider Type								
Regular Place of Care	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Regular Doctor	3.32 (1.82, 6.05)	3.03 (1.60, 5.73)	2.32 (1.20, 4.50)	2.70 (1.09, 6.71)	2.28 (1.26, 4.14)	2.39 (1.25, 4.55)	2.28 (1.27, 4.10)	2.11 (1.08, 4.11)
Insurance Status								
Insured all year	—	1.00	—	1.00	—	1.00	—	1.00
Anytime uninsured during the year	—	.59 (.38, .92)	—	.46 (.20, 1.05)	—	.74 (.45, 1.20)	—	.48 (.30, .75)
Race/Ethnicity								
White	—	1.00	—	1.00	—	1.00	—	1.00
Black	—	1.11 (.79, 1.56)	—	.51 (.25, 1.02)	—	.90 (.63, 1.30)	—	1.19 (.85, 1.67)
Hispanic	—	.83 (.49, 1.41)	—	.68 (.33, 1.41)	—	.77 (.45, 1.32)	—	.98 (.61, 1.59)
Asian/Pacific Islander	—	.77 (.43, 1.39)	—	.63 (.26, 1.53)	—	.45 (.25, .81)	—	.61 (.35, 1.06)
Age (years)								
18-29	—	.91 (.57, 1.46)	—	1.57 (.72, 3.45)	—	1.32 (.78, 2.22)	—	.86 (.54, 1.38)
30-49	—	1.00	—	1.00	—	1.00	—	1.00
50-64	—	1.64 (1.11, 2.40)	—	1.97 (.89, 4.35)	—	1.23 (.82, 1.85)	—	1.47 (1.01, 2.14)

(Continued on p. 602)

Table 4. (continued)

	Spends Enough Time, OR (95% CI)		Extremely Thorough and Careful, OR (95% CI)		Involved in Decision Making, OR (95% CI)		Receive Care You Need When You Need It, OR (95% CI)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Sex								
Male	—	1.00	—	1.00	—	1.00	—	1.00
Female	—	.99 (.70, 1.39)	—	1.17 (.60, 2.27)	—	.88 (.61, 1.27)	—	.70 (.50, .99)
Poverty Status								
Above 200% poverty	—	1.00	—	1.00	—	1.00	—	1.00
Below 199% poverty	—	1.15 (.75, 1.78)	—	.59 (.24, 1.42)	—	.99 (.63, 1.56)	—	.97 (.62, 1.51)
Unknown income	—	1.05 (.62, 1.78)	—	1.74 (.53, 5.74)	—	.95 (.53, 1.70)	—	1.12 (.68, 1.87)
Other language								
Only English at Home	—	1.00	—	1.00	—	1.00	—	1.00
Speaks other language at Home/Survey in Spanish	—	.92 (.50, 1.68)	—	1.57 (.73, 3.40)	—	.87 (.44, 1.69)	—	.93 (.52, 1.68)
Nativity Status ^a								
Born in U.S.	—	1.00	—	1.00	—	1.00	—	1.00
Foreign born, living in U.S. less than 10 years	—	1.93 (.97, 3.84)	—	1.06 (.31, 3.65)	—	1.72 (.84, 3.53)	—	1.92 (1.01, 3.64)
Foreign born, living in U.S. greater than 10 years	—	1.23 (.67, 2.26)	—	.56 (.17, 1.86)	—	1.00 (.54, 1.85)	—	1.25 (.73, 2.13)
Health Status ^b								
Does not have a chronic disease	—	1.00	—	1.00	—	1.00	—	1.00
Any chronic disease	—	.95 (.65, 1.38)	—	.49 (.26, .94)	—	.90 (.61, 1.32)	—	.92 (.64, 1.32)

^aUnknown nativity status not reported.

^bAny chronic disease includes diabetes, high blood pressure, asthma, bronchitis, emphysema, or other lung condition, heart disease, heart failure, or heart attack.

OR = odds ratio

CI = confidence interval

CHC = Community Health Center or other public clinic

a regular provider among community health center users, as well as bias our results towards the null hypothesis.

The measures of quality are also based on patient report. Studies show patients can accurately report on the care they receive.²⁶ In addition, we use measures of preventive care that do not require the respondent to recall a lot of detail, and cover long periods of time ranging from two to five years. The measures of patient experiences with care and overall assessment of care are inherently valid because they are based entirely on the respondents' experiences and reflect their impressions of their care.

We do not have the data to develop a validated comorbidity index, like the Charlson comorbidity index. Instead, we included a measure of having a chronic condition that is based on respondents saying they have been diagnosed with one of several conditions listed for them. This variable is not a major outcome measure for this study, but is used as a covariate in the regression models. As a result, it captures whether respondents have a chronic condition to a degree that is useful for inclusion in the models.

Implications. Problems with recruiting and retaining primary care providers to work in community health centers are not just an inconvenience for center leaders, but can affect the quality of care delivered in these important safety net settings. Recent work shows that health reform and expansions of coverage will allow more people access to care, and many of those people will use community health centers as their source of care, further exacerbating the primary care provider shortage.²⁷ The Obama administration has already demonstrated a great deal of interest in supporting community health centers by allocating significant funds to them through the American Recovery and Reinvestment Act to build infrastructure for quality performance such as health information technology.

In addition to supporting current community health center operations, federal support must focus on centers' ability to recruit and retain primary care providers beginning with the provision of competitive salaries. The importance of having a regular provider is demonstrated by the inclusion of mandates for a "personal physician" in the Centers for Medicare and Medicaid Services (CMS) Medical Home demonstration project.²⁸ However, if community health centers continue to have challenges offering personal physicians to their patients, they will remain behind other types of providers in their ability to offer the high level of care promised by the medical home model.

Attention should also be paid to developing and training future primary care providers to work in community health centers. Federal programs such as the Health Careers Opportunity Program (HCOP) are critical for training health professionals who are interested in working in underserved communities. The National Health Service Corps (NHSC) places primary care providers in provider shortage areas, often in exchange for assistance with loan repayment. The NHSC and HCOP programs should be targeted to receive adequate federal support because many of the providers from these programs work in community health centers, making them an important source of the health center workforce.

Lastly, in addition to recruiting and retaining an adequate primary care workforce, community health centers can work on center operations to promote linking patients to regular providers. This can be difficult with transient patient populations, who are more common in community health centers. However, the clear link between having a

regular provider and the quality of care perceived by patients makes this an important prerequisite for achieving high performance in community health centers.

Acknowledgments

We would like to thank Jen Lau for her editorial assistance during the preparation of this manuscript. Both of the authors for this paper were employees of the Commonwealth Fund at the time it was written; the Commonwealth Fund is the sole funder of this work.

Notes

1. Shi L, Regan J, Politzer R, et al. Community Health Centers and racial/ethnic disparities in healthy life. *Int J Health Serv*. 2001;31(3):567-82.
2. Shin P, Jones K, Rosenbaum S. Reducing racial and ethnic health disparities: estimating the impact of high health center penetration in low-income communities. Washington, DC: Center for Health Services Research and Policy, George Washington University, 2003. Available at http://www.cpcra.org/resources/research/pdf/GWU_Disparities_Report.pdf.
3. National Association of Community Health Centers. A sketch of community health centers. Washington, DC: National Association of Community Health, 2006. Available at: <http://www.nachc.com/client/documents/research/ChartBook2006.pdf>.
4. Forrest CB, Whelan EM. Primary care safety-net delivery sites in the United States: a comparison of community health centers, hospital outpatient departments, and physicians' offices. *JAMA*. 2000 Oct 25;284(16):2077-83.
5. Government Printing Office. S. 1576 [110th Congress]: Minority Health Improvement and Health Disparity Elimination Act. Washington, DC, 2007. Available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:s1576is.txt.pdf.
6. Iglehart JK. Spreading the safety net—obstacles to the expansion of community health centers. *N Engl J Med*. 2008 Mar 27;358(13):1321-3.
7. Government Printing Office. H.R. 1 [111th Congress]: American Recovery and Reinvestment Act of 2009. Washington, DC. Available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h1enr.pdf.
8. Singer JD, Davidson SM, Graham S, et al. Physician retention in community and migrant health centers: who stays and for how long? *Med Care*. 1998 Aug;36(8):1198-213.
9. Rittenhouse DR, Fryer GE Jr, Phillips RL Jr, et al. Impact of Title VII training programs on community health center staffing and national health service corps participation. *Ann Fam Med*. 2008 Sep-Oct;6(5):397-405.
10. Rosenblatt RA, Andrilla CHA, Curtin T, et al. Shortages of medical personnel at community health centers: implications for planned expansion. *JAMA*. 2006 Mar 1; 295(9):1042-9.
11. Chin MH, Auerbach SB, Cook S, et al. Quality of diabetes care in community health centers. *Am J Public Health*. 2000 Mar;90(3):431-4.
12. Hicks LS, O'Malley AJ, Lieu TA, et al. Quality of chronic disease care in U.S. community health centers. *Health Aff (Millwood)*. 2006 Nov-Dec;25(6):1712-23.
13. Landon BE, Hicks LS, O'Malley AJ, et al. Improving the management of chronic disease at community health centers. *N Engl J Med*. 2007 Mar 1;356(9):921-34.

14. Roby D, Rosenbaum S, Hawkins D, et al. Exploring healthcare quality and effectiveness at federally-funded community health centers: results from the Patient Experience Evaluation Report System (1993–2001). Washington, DC: National Association for Community Health, 2003. Available at <http://www.nachc.com/client/documents/research/PEERSreportfinal0226.pdf>.
15. Beal AC, Doty MM, Hernandez SE, et al. Closing the divide: how medical homes promote equity in health care. The Commonwealth Fund, June 2007. Available at: http://www.commonwealthfund.org/usr_doc/1035_Beal_closing_divide_medical_homes.pdf?section=4039.
16. U.S. Census Bureau. 2005 Annual social and economic supplement. Available at: <http://www.census.gov/apsd/techdoc/cps/cpsmar05.pdf>.
17. Wasson J, Benjamin R. How's your health (4th ed.). FNX Corporation, 2009. Available at: http://www.howsyourhealth.org/html/HowsYourHealth_4thEd.pdf.
18. Fung CH, Setodji CM, Kung FY, et al. The relationship between multimorbidity and patients' ratings of communication. *J Gen Intern Med*. 2008 Jun;23(6):788–93.
19. Druss BG, Schlesinger M, Thomas T, et al. Chronic illness and plan satisfaction under managed care. *Health Aff (Millwood)*. 2000 Jan–Feb;19(1):203–9.
20. Atlas SJ, Grant RW, Ferris TG, et al. Patient–physician connectedness and quality of primary care. *Ann Intern Med*. 2009 Mar 3;150(5):325–35.
21. Aday LA, Andersen RM. The national profile of access to medical care: where do we stand? *Am J Public Health*. 1984 Dec;74(12):1331–9.
22. DeVoe JE, Fryer GE, Phillips R, et al. Receipt of preventive care among adults: insurance status and usual source of care. *Am J Public Health*. 2003 May;93(5):786–91.
23. Lambrew JM, DeFriesse GH, Carey TS, et al. The effects of having a regular doctor on access to primary care. *Med Care*. 1996 Feb;34(2):138–51.
24. Xu KT. Usual source of care in preventive service use: a regular doctor versus a regular site. *Health Serv Res*. 2002 Dec;37(6):1509–29.
25. U.S. Health Center Fact Sheet. National Association of Community Health Centers. Available at: http://nachc.org/client/documents/U.S._Fact_Sheet_2008.pdf.
26. Solomon DH, Stedman M, Licari A, et al. Agreement between patient report and medical record review for medications used for rheumatoid arthritis: the accuracy of self-reported medication information in patient registries. *Arthritis Rheum*. 2007 Mar 15;57(2):234–9.
27. Ku L, Jones E, Finnegan B, et al. How is the primary care safety net faring in Massachusetts? Community health centers in the midst of health reform. Menlo Park, CA: Kaiser Family Foundation, 2009. Available at: <http://www.kff.org/healthreform/upload/7878.pdf>.
28. Tax Relief and Health Care Act of 2006. SEC. 204. Medicare Medical Home Demonstration Project. Available at: http://www.cms.hhs.gov/DemoProjectsEvalRpts/downloads/MedHome_TaxRelief_HealthCare.pdf.