Access to Care for U.S. Health Center Patients and Patients Nationally

How Do the Most Vulnerable Populations Fare?

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Abstract: This study examined access to care for uninsured and Medicaid-insured community health center patients in comparison to nonhealth center patients nationally. Using nationally representative data from 2 major surveys in 2002, there was a positive association between seeking care in community health centers and self-reported access to care for both uninsured and Medicaid patients. This suggests that health centers may fill a critical gap in access to care for patients who use their services. Given recent budget cuts to the Medicaid program, health centers remain an important policy option to assure access to care for vulnerable populations.

Key Words: community health centers, uninsured, Medicaid, access to care

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Community health centers (CHCs) have long served an important safety-net health care delivery role for vulnerable populations in the United States.[1–5] Since the mid-1960s, health centers have provided primary care services at low or no cost to people living in federally designated rural or inner-city underserved areas. In 2004, there were more than 900 health centers across the United States, with more than 3600 comprehensive primary care delivery sites, that served more than 13.1 million individuals with a budget of approximately $1.6 billion. The health center program is operated by the Bureau of Primary Health Care (BPHC) of the Health Resources and Services Administration (HRSA) in the U.S. Department of Health and Human Services.[6]

In addition to primary care, health centers provide a wide array of enabling services, such as case management, health education, transportation and translation, child care, and parenting classes. These services facilitate primary care access for vulnerable populations, the majority of whom are racial/ethnic minorities, low-income, uninsured, or Medicaid-enrolled individuals.[7] This one-stop-shop for health care, combined with their strategic location in underserved areas, makes them an important resource for enhancing national equity of access to primary health care.

Despite the safety-net presence of health centers, some vulnerable populations still do not have adequate access to high-quality primary care. This may be attributable in part to a lack of availability of low-cost health care providers, a shrinking number of providers willing to serve the uninsured or Medicaid-insured, poor geographic accessibility and inadequate transportation, and lack of language or cultural competency in care.[8,9] Those individuals that gain entry to care often still are confronted with limited appointments or long waiting times, leading to a greater reliance upon emergency departments for primary care services, disruptions in continuity of care, and greater unmet needs.[10–14]

Health centers have been previously credited in several reviews with providing access to high-quality primary care.[1–5] Some recent studies have further examined the contribution of health centers to reducing health disparities. In one analysis controlling for SES, insurance, and other factors, disparities in activity limitations and health status were found in the national population but not among health center patients.[15] Another study has demonstrated that racial/ethnic disparities in the receipt of certain prenatal care services and poor birth outcomes may be lower in health centers, despite health center patients being at higher-risk.[16] Despite this strong body of evidence supporting CHCs, little is known about how particular vulnerable groups fare in CHCs compared with their national counterparts.

The particular contribution of this study is to specifically assess how the most vulnerable populations (defined by race/ethnicity, education, and poverty status) fare in CHCs compared with their national counterparts. Such an effort to better understand how health centers are currently able to serve the most vulnerable populations is very timely. Recog-

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nizing the potential of CHCs, the Bush Administration proposed an expansion of health centers in 2002, providing an additional 6.1 million underserved persons in 1200 communities with new health center access points and significantly expanding existing facilities. At the same time, however, the Administration and U.S. Congress approved $10 billion in cuts to Medicaid and other social programs, which is likely to place greater stresses on the capacity of CHCs to care for the most vulnerable populations.

Given these major recent and looming policy changes, the purpose of this study was to use nationally representative data to examine current primary care access for Medicaid-insured and uninsured patients of CHCs and compare their experiences with Medicaid-insured and uninsured patients nationally. This study further examines access for specific vulnerable patients defined by minority race/ethnicity, low educational level, and living in poverty. We hypothesize that CHC patients across all categories of vulnerability will report better access to care than similar patients nationally.

METHODS

Study Design and Sampling

The data for this study come from 2 sources. Data for health center patients come from the 2002 Community Health Center User Survey. Data for the national nonhealth center patient population come from the 2002 National Health Interview Survey (NHIS) conducted by the Centers for Disease Control. Only adults ages 18–64 years were included in this study.

The 2002 CHC User Survey provides a snapshot of CHC patient demographics and health status, health care utilization, and quality of services received. The survey was designed to match the National Health Interview Survey in content, and was conducted with the assistance of the National Center for Health Statistics to match as closely as possible the sampling strategy used to produce the nationally representative data of the NHIS.

All CHCs that received BPHC funding and provided primary care were included in the sampling frame of the User Survey, excluding temporary clinics, clinics open for less than 1 year, school-based health centers, and specialized clinics. Nine strata were formed based on census region and urban/rural designation, and a tenth was formed for CHCs with large proportions of managed care patients. Selection was carried out using probability-proportional-to-size methodology within a stratum. Of the 581 eligible CHCs in 2002, 70 CHCs (or 12% of total eligible CHCs) were randomly selected for inclusion in the study, and all participated.

All current patients with at least one visit to a physician or nonphysician clinician at a CHC were included in the sampling frame, and were randomly selected for interview. Interviews were completed with 129 individuals (response rate of 68.3%).[17] Analyses in this study were restricted to respondents who were uninsured (n = 419) or were covered by Medicaid (n = 696), and who had an income at or below 300% of the Federal Poverty Level (FPL). This resulted in a final analytic sample of 1115 CHC patients.

The 2002 National Health Interview Survey, sponsored by the National Center for Health Statistics of the Centers for Disease Control, was used for analyses of access to care for the national patient population. Using a stratified multistage sampling design that was representative of census regions and urban/rural designations (just as with the CHC User Survey), interviews were completed with 36,745 adults ages 18–64 years (90% response rate). As with the CHC User Survey, the analyses were restricted to individuals with at least one visit to a physician or nonphysician clinician (not including emergency room visits) who were uninsured (n = 10,287) or covered by Medicaid (n = 8,392) and had family income at or less than 300% of the FPL. Individuals who reported a clinic or health center as a regular source of care were excluded to reduce the possibility that community health center patients were included in the NHIS comparison group. The final analytic sample included 18,697 respondents. Detailed discussion of the design of the NHIS is available elsewhere.[18]

Measures

This study examines differences in access to care between CHC uninsured and Medicaid patients and their national patient counterparts. The independent measure is being a CHC patient (defined as having one or more visits to a CHC) or a national patient (having one or more visits to a health care provider that is not a clinic, health center, or emergency department). We selected 4 measures of access to care as dependent measures. These measures were similar across surveys, reflect a comprehensive view of access to care, are commonly used and have some predictive validity of other aspects of care (eg, having a regular source of care is associated with greater receipt of preventive care and fewer emergency department visits for nonurgent conditions).[19–21] We also selected as stratification variables 3 vulnerability characteristics (ie, factors commonly associated with poorer health, and both primary care access and quality) from the datasets.[8,9]

For primary care access, we assessed having a regular source of care, primary care physician visits (dichotomized as 4 visits or more vs. 1 to 3), visit in the past year to an obstetrician/gynecologist (OBGYN) among women ages 18–64 years, and visit in the past year to a mental health provider, all of which have been widely used in various forms as indicators of access to care and are appropriate for the level of health needs in the uninsured and Medicaid populations.[22,23] Although the cut-off for number of physician visits may seem high at first glance, data in the CHC User Survey was collected with this cut-off (not allowing us to modify this), and is in line with the high level of need for health services among vulnerable populations generally.[9]

For vulnerability characteristics, we restricted the analyses to only uninsured or Medicaid-insured patients and stratified the results according to race/ethnicity (Hispanic, black, and white), education level (less than a high school education vs. high school graduate or higher), and poverty status (<100% of the FPL, 100–199% FPL, and 200–299% FPL). These stratification variables have been previously

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strongly associated with primary care access, quality, and health status.[8,9]

Analysis

The data in each of the surveys were weighted via the provided sampling weights in each of the surveys to account for the complex sampling designs. Sampling weights accounted for the multistage sampling, nonresponse, ineligibility, and over-sampling of racial/ethnic groups in each survey. The general analytic strategy was to compare CHC uninsured and Medicaid insured patients with non-CHC patient counterparts nationally on indicators of access to care.

First, CHC uninsured and Medicaid-insured patients were compared with their U.S. patient counterparts nationally on key demographic factors that have been associated with access to health care. Next, access to care was examined among uninsured and Medicaid-insured CHC patients and non-CHC patients nationally. χ^2 tests of association were used to assess statistical significance of differences of the proportions for access to care across the groups.

Next, logistic regressions predicting access to care were performed controlling for other individual characteristics including age group, sex, race/ethnicity, poverty status, education, health status, and the presence of a disability. Finally, access to care as examined for uninsured and Medicaid-insured CHC and the national patient counterparts in analyses stratified by racial/ethnic group, education level, and poverty status. The statistical significance of the differences in proportions between the CHC and national patients within each stratum separately were tested using χ^2 tests of association.

Because we excluded individuals who identified their regular source of care as "a clinic or health center" from the NHIS data (which may exclude more people than just CHC users), we conducted sensitivity analyses both including and excluding these data from the analysis, and the results of the comparison with the CHC User Survey were no different in size, direction, and statistical significance. We therefore present the NHIS data that excludes the "clinic or health center" patients.

RESULTS

Table 1 shows that uninsured CHC patients are more likely than uninsured U.S. patients to be female (68.6% vs. 48.3%, $P < 0.01$), less than 100% of the FPL (77.2% vs. 29.0%, $P < 0.05$), and be in fair/poor self-reported health status (30.2% vs. 10.0%, $P < 0.05$). Uninsured CHC patients are, however, less likely to have a major functional limitation (3.7% vs. 9.4%). As with the uninsured, Medicaid-insured CHC patients are more likely than Medicaid patients nationally to have incomes less than 100% of the FPL (91.3% vs. 57.6%), be in fair/poor self-reported health status (26.9% vs. 20.4%, $P < 0.05$), and are less likely to have a major functional limitation (6.3% vs. 28.8%, $P < 0.01$). Uninsured CHC patients are more likely to report having been diagnosed with diabetes (12.4% vs. 5.3%, $P < 0.01$), and Medicaid insured CHC patients were more likely to be diagnosed with asthma (28.4% vs. 17.3%, $P < 0.01$).

Table 2 shows that both uninsured and Medicaid insured CHC patients tend to have better access to care for each of the measures than similar patients nationally. For example, nearly all uninsured CHC patients (97.5%) reported having a regular source of care compared with just 64.9% of uninsured users nationally ($P < 0.01$). Medicaid-insured CHC patients were more likely to have a regular source of care than Medicaid patients nationally (99.3% vs. 93.1%, $P < 0.01$),

TABLE 1. Comparison of Characteristics of Uninsured and Medicaid-Insured CHC Patients With Patients Nationally, % (95% Confidence Intervals)

	Uninsured		Medicaid Insured	
Demographics	CHC	U.S.	CHC	U.S.
Analytic sample size (n)	419	10,287	696	8392
Age: mean (SE)	32 (0.84)	30 (0.15)	23 (0.83)	24 (0.25)
Female gender	68.6 (64.9–72.3)**	47.4 (46.6–48.3)	58.6 (53.3–63.9)	57.1 (56–58.3)
Poverty status				
<100% FPL	77.2 (72.5–81.9)*	28.7 (26.7–30.7)	91.3 (89.1–93.5)*	57.2 (54.8–59.5)
100–199% FPL	13.5 (10.4–16.6)	43.1 (40.9–45.3)	6.2 (3.8–8.6)	34.1 (32–36.2)
200–299% FPL	9.3 (5.0–13.6)	28.2 (26.2–30.1)	2.5 (2.1–2.9)	8.7 (7.5–10)
Race/ethnicity				
Hispanic	31.8 (13.0–50.6)	32.0 (30.2–33.7)	29.3 (13.2–45.4)	28.1 (25.9–30.2)
Black	22.3 (11.5–33.1)	17.5 (15.9–19.0)	29.7 (15.8–43.6)	27.9 (25.5–30.3)
White	46.0 (30.9–61.1)	50.6 (48.6–52.5)	41.1 (25.2–57.0)	44.0 (41.3–46.7)
Education less than high school†	32.3 (25–39.6)	30.7 (29.2–32.1)	52.6 (44.4–60.8)	44.3 (42.5–46.1)
Fair/poor health status‡	30.2 (23.1–37.3)*	9.6 (8.9–10.3)	26.9 (21.8–32.0)*	19.4 (18.2–20.6)
Diagnosed with asthma	14.2 (8.5–19.5)	10.1 (8.4–11.6)	28.4 (22.2–33.8)**	17.3 (14.0–20.1)
Diagnosed with diabetes	12.4 (7.8–16.2)**	5.3 (4.0–6.0)	12.1 (7.4–16.6)	10.2 (7.8–16.2)
Disability status				
Has major limitation	3.7 (1.5–5.9)*	8.8 (8.2–9.5)	6.3 (2.0–10.6)**	27.3 (25.8–28.7)

*$P < 0.05$, **$P < 0.01$ (χ^2 test for difference between CHC and U.S. non-CHC population among either uninsured or Medicaid-insured groups.
†Versus high-school graduate or higher; ‡Versus "excellent, very good, or good."

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TABLE 2. Access to Care for Uninsured and Medicaid-Insured CHC and U.S. Patients. % (95% Confidence Intervals)

Access to Care	Uninsured				Medicaid			
			CHC vs. U.S. (Regression)				CHC vs. U.S. (Regression)	
	CHC, % (95% CI)	U.S., % (95% CI)	Unadjusted, OR (95% CI)	Adjusted, OR (95% CI)	CHC, % (95% CI)	U.S., % (95% CI)	Unadjusted, OR (95% CI)	Adjusted, OR (95% CI)
Has regular source of care	97.5††	64.9	21.4†††	15.8†††	99.3**	93.1	11.0†††	13.4††
Yes (vs. no)	(95.0–100)	(62.7–67.1)	(7.4–61.9)	(6.3–39.5)	(98.9–99.7)	(91.9–94.3)	(5.61–21.4)	(2.7–67.1)
Doctor visits in past year	56.0+	31.4	2.8†††	2.3†††	64.6*	56.9	1.4†	1.3
4 or more (vs. 1–3)	(45.6–66.4)	(1.8–4.3)	(1.5–3.4)	(1.4–3.1)	(58.9–70.3)	(54.9–58.8)	(1.1–1.8)	(0.9–1.9)
OB/GYN visit in past year	55.3	43.6	1.6	1.8†	63.3*	49.6	1.8†	1.8†
Yes (vs. no)	(40.5–70.0)	(40.5–46.6)	(0.9–2.9)	(1.0–3.5)	(53.6–74.5)	(45.5–53.1)	(1.1–2.9)	(1.1–2.9)
Mental health visit past year	17.0***	8.8	2.1†††	1.1	19.4	18.0	1.1	1.9
Yes (vs. no)	(13.4–20.5)	(7.3–10.4)	(1.5–2.9)	(0.6–1.9)	(15.5–23.3)	(15.1–20.1)	(0.8–1.5)	(0.9–3.7)

The adjusted regression controlled for age group, gender, poverty status, race/ethnicity, education, health status, and disability status.
*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$ (χ^2 test for difference between CHC and U.S. non-CHC population among either uninsured or Medicaid-insured groups).
†$P < 0.05$, ††$P < 0.01$, †††$P < 0.001$ (one-tailed t test for odds ratio significantly different from 1.0).
OB/GYN indicates obstetrician/gynecologist.

but the gap between these groups was notably smaller than among the uninsured. Among female Medicaid patients, those seeking care in CHCs were more likely to report having visited an OB/GYN in the past year (63.3% vs. 49.6%, $P < 0.05$). Uninsured CHC patients were about twice as likely to have visited a mental health provider in the past year compared with uninsured non-CHC patients nationally (17.0% vs. 8.8%, $P < 0.001$).

After adjustment for the study covariates, uninsured CHC patients had a 15.8 times higher odds (95% confidence interval [CI] = 6.3–39.5) of having a regular source of care than uninsured non-CHC patients nationally. Similarly, Medicaid insured CHC patients had a 13.4 times higher odds (95% CI = 2.7–67.1) of having a regular source of care than Medicaid insured patients nationally. Although the higher rate of OB/GYN visits for uninsured CHC patients compared with patients nationally, was not significant before adjustment, it was significant after adjusting for the study covariates (OR = 1.8, 95% CI = 1.1–3.5). Before adjustment, uninsured CHC patients were more likely to have a mental health visit in the past year than uninsured patients nationally (OR = 2.1; 95% CI = 1.5–2.9), but after adjustment, rates of mental health visits in the past year were no different between CHC patient and non-CHC patients among both the uninsured and Medicaid insured.

Table 3 shows that access to care is as good or better for uninsured and Medicaid-insured CHC patients compared with patients nationally, regardless of patient race/ethnicity, education level, or poverty status. For example, among Hispanics, 98.2% of uninsured CHC patients had a regular source of care compared with 41.6% of uninsured Hispanic patients nationally ($P < 0.001$). The differences were somewhat smaller for Medicaid-insured patients; 98.7% of Medicaid-insured Hispanics had a regular source of care compared with 87.3% of these patients nationally ($P < 0.05$). Similar patterns were found among African-Americans, whites, and among the 2 education levels and 3 poverty levels.

Although there were differences across all racial/ethnic, education, and poverty groups in having 4 or more doctor visits between uninsured CHC patients and uninsured patients nationally, these differences were not found among Medicaid enrollees. For example, 56.4% of uninsured patients living below 100% of the FPL had 4 or more visits compared with 38.8% of uninsured patients nationally ($P < 0.05$). Among Medicaid enrollees living at less than the poverty level, CHC patients were equally likely as patients nationally to have 4 or more doctor visits (65.7% vs. 59.5%). This pattern held among nearly all racial/ethnic groups, education levels, and poverty groups.

Overall, visits for OB/GYN and mental health visits generally were higher among CHC patients than non-CHC patients, although many differences were not statistically significant when analyzed according to vulnerability groups. OB/GYN visits were much higher among uninsured Hispanic patients of CHCs compared with similar patients nationally (74.1% vs. 46.6%, $P < 0.05$), and among those with income of 200–299% FPL (74.5% vs. 43.1%, $P < 0.05$). For mental health visits, significant differences were found for CHC

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TABLE 3. Access to Care for Uninsured and Medicaid-Insured CHC and U.S. Patients by Race/Ethnicity, Education Level, and Poverty Status, % (95% Confidence Intervals)

	Uninsured		Medicaid	
Demographic Characteristics	CHC, % (95% CI)	U.S., % (95% CI)	CHC, % (95% CI)	U.S., % (95% CI)
Has Regular Source of Care				
Race/ethnicity				
Hispanic	98.2*** (95.5–100)	41.6 (37.5–45.6)	98.7* (97.3–100)	87.3 (83.8–90.8)
Black	94.5** (88.4–100)	62.7 (57.4–68.0)	100* (100–100)	90.7 (87.8–93.7)
White	98.4** (95.5–100)	59.7 (56.3–63.1)	99.2* (98.4–100)	92.3 (90.2–94.4)
Education level				
<high school	98.3** (95–100)	61.9 (57.6–66.2)	99.8** (99.6–100)	90.8 (88.3–93.3)
High school+	96.4** (92.1–100)	66.7 (64.2–69.2)	98.4* (96.6–100)	90.9 (88.9–92.9)
Poverty status				
<100% FPL	98.0*** (96.0–100.0)	65.3 (60.2–70.4)	99.3*** (98.9–99.7)	91.4 (89.2–93.6)
100–199% FPL	98.9** (97.5–100)	65.2 (60.9–69.5)	100* (100–100)	90.6 (87.4–93.9
200–299% FPL	92.4** (83.2–100)	67.0 (62.3–71.7)	98.0 (94.1–100)	90.5 (82.9–98.1)
Four or More Doctor Visits in Past Year				
Race/ethnicity				
Hispanic	50.6** (41.6–59.6)	25.7 (23.0–28.4)	61.8* (55.9–67.7)	50.9 (47.8–54.0)
Black	52.5** (48.0–57.0)	30.0 (25.5–34.5)	61.0 (51.6–70.4)	52.0 (48.4–55.5)
White	59.6 (41.8–77.4)	37.4 (34.3–40.5)	70.7 (65.2–76.2)	63.5 (60.5–66.5)
Education level				
<high school	61.7* (49.0–74.4)	38.4 (33.9–42.9)	76.6 (71.3–81.9)	74.8 (70.9–78.7)
High school+	57.9* (49.3–66.5)	34.5 (31.8–37.2)	74.0) (63.6–84.4)	70.6 (66.9–74.2)
Poverty status				
<100% FPL	56.4* (44.8–68.0)	38.8 (34.3–43.3)	65.7 (60.2–71.2)	59.5 (56.5–62.6)
100–199% FPL	54.3** (47.0–61.6)	32.0 (28.5–35.5)	57.5 (26.5–88.5)	57.8 (53.9–61.8)
200–299% FPL	54.7 (27.5–81.9)	32.3 (27.8–36.8)	41.0 (18.3–63.7)	51.3 (43.0–59.6)
OB/GYN Visit in Past Year				
Race/ethnicity				
Hispanic	74.1* (64.5–83.7)	46.6 (40.6–52.5)	85.6 (68.4–94.3)	74.0 (66.7–87.0)
Black	61.8 (50.4–73.1)	51.8 (45.4–58.1)	77.4 (66.3–86.1)	67.2 (57.2–76.1)
White	41.9 (22.3–61.5)	39.0 (34.5–43.5)	69.8 (61.0–85.3)	65.8 (53.7–82.9)
Education level				
<high school	51.0 (30.4–71.5)	42.2 (35.9–48.4)	65.7* (57.4–73.2)	52.1 (47.4–57.1)
High school+	57.1 (43.6–70.5)	44.4 (40.7–48.1)	69.2 (61.6–76.6)	60.2 (51.4–69.1)
Poverty status				
<100% FPL	56.0 (40.7–71.2)	44.4 (37.7–51.2)	67.4 (9.2–75.3)	57.0 (49.6–65.1)
100–199% FPL	39.4 (12.9–65.9)	43.4 (37.6–49.1)	59.8 (51.8–67.6)	58.7 (50.6–66.7)
200–299% FPL	74.5* (65.7–83.3)	43.1 (35–51.2)	69.4 (58.9–78.3)	61.7 (53.2–70.5)
Mental Health Visit in Past Year				
Race/ethnicity				
Hispanic	6.3* (3.7–8.9)	2.0 (0.8–3.2)	12.4 (4.3–20.4)	14.7 (11.0–18.3)
Black	14.2 (1.8–26.6)	5.7 (2.9–8.5)	15.4 (6.3–24.5)	14.8 (10.2–19.4)
White	25.3* (19.5–31.1)	11.7 (9.2–14.1)	27.2 (19.9–34.4)	20.4 (16.5–24.2)
Education level				
<high school	14.3 (8.7–19.9)	7.8 (4.9–10.8)	29.6** (18.5–40.7)	13.9 (10.7–17.0)
High school+	23.5** (19.6–27.3)	9.0 (7.2–10.8)	29.8* (22.9–36.8)	19.1 (15.9–22.2)
Poverty status				
<100% FPL	17.3 (13.2–21.5)	13.5 (9.4–17.5)	19.9 (15.2–24.6)	16.1 (13.2–19.1)
100–199% FPL	19.9* (13.6–26.2)	7.2 (4.6–9.9)	7.4* (1.6–13.3)	20.0 (15.3–24.7)
200–299% FPL	9.7 (2.9–22.3)	7.4 (4.3–10.5)	26.6 (8.1–45.1)	13.2 (5.0–21.3)

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$ (χ^2 test for difference between CHC and U.S. non-CHC population among either uninsured or Medicaid-insured groups).

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Medicaid insured patients at both lower and higher levels of education compared with patients nationally (29.6% vs. 13.9%, $P < 0.01$; and 29.8% vs. 19.1% $P < 0.05$, respectively). The only case in which patients seeking care in non-CHCs reported better access than CHC patients was among the Medicaid insured between 100-199% FPL (7.4% vs. 20.0%, $P < 0.05$).

DISCUSSION

This study demonstrates a positive association between CHCs and self-reported access to care compared with patients nationally. This holds true for both uninsured patients and Medicaid patients, as well as for vulnerable populations defined by race/ethnicity, education, and poverty status groups. Given that health center patients (particularly uninsured CHC patients) tend to have poorer health than non-CHC patients,[15,24] this study suggests that health centers may be filling an important gap in access to care for populations that have the greatest health needs.

The difference between health center patients and patients nationally for access to care varies somewhat between uninsured and Medicaid patients. Uninsured patients nationally have poorer access than CHC patients, likely because of the fact that CHCs are among the few sources of care that exist to provide services at low or no cost to those without health insurance. Medicaid patients, however, have a slightly greater range of options (albeit not much greater) of providers from whom to seek care, allowing Medicaid patients nationally to find providers willing to accept Medicaid insurance in the community.[25–27] Thus, while Medicaid-insured CHC patients appear to have access to care equivalent to, or better than, Medicaid-insured patients nationally, the differences are less than for the uninsured.

It should be further mentioned that one previous study has indicated that Medicaid beneficiaries who obtained care at CHCs were significantly less likely to be hospitalized for ambulatory care sensitive conditions and significantly less likely to use the emergency room for such conditions.[28] Thus, although primary care visits may be comparable, there is some evidence that there may be other implications for health care utilization for those Medicaid beneficiaries who obtain care from non-CHC providers.

Although not directly assessed in this study, the positive association found between CHCs and self-reported access to care may have implications for health care utilization, quality of care, and health outcomes.[16,29–33] In previous work, a regular source of care has been associated with greater receipt of preventive services, lesser missed or delayed care, reduced use of emergency departments for nonemergent care, more effective treatment and management of chronic conditions, and in some analyses better health.[11,20,34–40] This study further suggests that the benefits that are associated with health centers are experienced by even the most vulnerable groups as defined in this study by minority race/ethnicity, lower education level, and living in poverty. In stratified analyses, access to care was found to be as good or better for health center patients than for patients nationally for most racial/ethnic, education, and poverty status groups. Although differences in care may still remain between these groups within health centers (this was not tested specifically in this study), the better access found for each group compared with patients nationally suggests that CHCs are effectively serving high need patients, including the most vulnerable populations.

Given recent and pending policy decisions regarding assuring health care access for vulnerable populations at the federal and state levels, the results of this study have important implications for the future role of health centers. Health centers have recently received major increases in funding from the Bush Administration and the U.S. Congress, but this is balanced by the implementation of $10 billion in cuts to Medicaid and other social programs. This paradox in health care for vulnerable populations reflects a health policy approach that relies heavily on safety-net providers such as health centers to serve these populations. While there is much to be learned about the impact of these policy changes, this study adds to the body of evidence that CHCs may indeed help assure that vulnerable populations receive ongoing, high-quality primary care.

There are several limitations to this study. First, the data are cross-sectional and do not allow for the demonstration of causality. Furthermore, data were drawn from 2 different sources that used different (albeit purposefully very similar) sampling strategies and survey designs, such that data on CHC and non-CHC patients may not be perfectly comparable. Second, although the analyses controlled for a host of factors, it cannot be ruled out that CHC patients may differ fundamentally from non-CHC patients in attitudes toward care, proclivity to use services, or options for care seeking. For example, that CHC patients are more likely to have a regular source of care may be related more to a lack of other options for seeking care other than in CHCs, not solely a particular ability of CHCs to link patients into a regular system of care.

Third, these analyses are only among patients, defined as those with at least one visit to a physician or nonphysician provider (excluding emergency visits) during a year, and thus do not capture the health care access experiences of individuals who did not interact with the health care system. The health care access experiences of "patients" are quite different (by definition) from "nonpatients" in that those who did not access health care during the year may not have done so because of difficulties finding an appropriate provider, making an appointment, and paying for care. We were not able to determine whether patients in the CHC or national samples made visits to the other settings (eg, CHC patients who sought care in non-CHC settings). In addition, the higher response rate of the NHIS may have better captured the experiences of patients with lower rates of health care utilization (since there is some evidence that nonrespondents use health care services less frequently), potentially contributing to some of differences between CHC patients and non-CHC patients nationally.[41–43]

Fourth, although the analysis of vulnerable populations in this study focused only on race/ethnicity, education, and poverty status groups; there are other vulnerable groups for whom primary care access is problematic and should be

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monitored. These include those with chronic health conditions that are responsive to primary care (eg, asthma), and other groups (eg, children, women, and the homeless) for whom disparities have been identified. Given that previous work shows that individuals with multiple risk factors for poor primary care (eg, the person is a racial/ethnic minority *and* lives in poverty) have particular difficulties accessing health services and experience greater health needs,[8] it may be important to know how CHCs serve individuals with such multiple risk factors.

Finally, the access measures in this study describe only a small fraction of the full complement of activities and services that define high quality health care. Access to care, for example, can be further measured by the timeliness of appointments, the ability to contact providers by telephone, and availability of after-hours care. In addition, other important features to assess include, comprehensiveness of services, family orientation, and coordination of care.[44,45] In most national surveys, such primary care measures are not included. Another important contributor to access to care–geographic distance between patients and providers—was not available in the surveys and thus remains unaccounted for in this study.

In conclusion, the positive association found between CHCs and access to care suggests that health centers may fill an important gap in care for patients who use their services. Given continuing expansion of CHCs and competing budget cuts to the Medicaid program, health centers remain an important policy option to help assure adequate access to care for vulnerable populations. While health centers do appear to assure better access among patients across race/ethnicity, education and poverty status groups, significant reductions in disparities in access and ultimately health status will not likely be made without attention to a broader array of, and interactions among, risk factors that define such vulnerable populations.

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