

The Role of Community Health Centers in Delivering Primary Care to the Underserved

Experiences of the Uninsured and Medicaid Insured

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Abstract: Community health centers (CHCs) have long served an important safety-net health-care delivery role for vulnerable populations. Federal efforts to expand CHCs, while potentially reducing the Federal budget for Medicaid, raise concern about how Medicaid and uninsured patients of CHCs will continue to fare. To examine the primary care experiences of uninsured and Medicaid CHC patients and compare their experiences with those of similar patients nationally, cross-sectional analyses of the 2002 CHC User Survey with comparison data from the 1998 and 2002 National Health Interview surveys were done. Self-reported measures of primary care access, longitudinality, and comprehensiveness of care among adults aged 18 to 64 years were used. Despite poorer health, CHCs were positively associated with better primary care experiences in comparison with similar patients nationally. Uninsured CHC patients were more likely than similar patients nationally to report a generalist physician visit in the past year (82% vs 68%, $P < .001$), having a regular source of care (96% vs 60%, $P < .001$), receiving a mammogram in the past 2 years (69% vs 49%, $P < .001$), and receiving counseling on exercise (68% vs 48%, $P < .001$). Similar results were found for CHC Medicaid patients versus Medicaid patients nationally. Even within CHCs, however, Medicaid patients tended to report better primary care experiences than the uninsured. Health centers appear to fill an important gap in primary care for Medicaid and uninsured patients. Nonetheless, this study suggests that Medicaid insurance remains fundamental to accessing high-quality primary care, even within CHCs. **Key words:** *access to care, community health centers, Medicaid, uninsured*

COMMUNITY HEALTH CENTERS (CHCs) have long served an important safety-net healthcare delivery role for vulnerable populations in the United States (Dievler & Giovannini, 1998; Lefkowitz & Todd, 1999; Proser, 2005; Zuvekas, 1990). Since the mid-1960s, CHCs have provided primary care services at low or no cost to people living in federally designated rural or inner-city under-

served areas. In 2004, more than 900 health centers across the United States, with more than 3600 comprehensive primary care delivery sites, served more than 13.1 million individuals, with a budget of \$1.6 billion. The program is operated by Bureau of Primary Health Care in the Health Resources and Services Administration of the US Department of Health and Human Services.

Health centers serve among the most vulnerable populations in the United States. In 2003, a majority of CHC patients lived in poverty (65%) and another 25% lived between 100% and 200% of poverty. More than half of patients were racial/ethnic minorities (35.4% Latino, 24.1% African American, 3.3% Asian or Pacific Islander, and 1.1% American Indian or Alaskan Native). More than one third of CHC patients (41%) were uninsured, and about one

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third (33%) were covered by Medicaid (Bureau of Primary Health Care, 2005). CHC patients also tend to report poorer health status and higher morbidity rates than patients nationally (Cashman et al., 2005; Shi et al., 2001).

In addition to providing primary care to such vulnerable populations, CHCs offer a wide array of enabling services such as case management, health education, assistance with transportation, language translation, childcare, and parenting classes. This one-stop-shop for healthcare and health-related enabling services, and their strategic location in federally designated underserved areas, makes CHCs an important focal point for efforts to enhance equity in the receipt of primary healthcare (Politzer et al., 2003). Assuring access to primary care remains an important national goal, given the growing body of literature linking primary care with better health status, reduced illness complications, and even lower mortality (Chande & Kinnane, 1996; Franks & Fiscella, 1998; Macinko et al., 2003; Safran et al., 1998; Shi et al., 1994, 2003, Shi & Starfield, 2001, 2004a, 2004b).

Recognizing the role of CHCs in delivering primary care to some of the nation's most vulnerable populations, the Bush Administration and US Congress passed the Health Care Safety Net Amendments of 2002, which is an initiative to enhance primary care access for an additional population of 6.1 million underserved individuals in 1200 communities by creating new CHC access points and expanding existing facilities. At the same time, however, the President's 2007 budget contained approximately \$13 billion in funding cuts to the Medicaid program that may place greater stresses on the capacity and stability of CHCs, since CHCs serve many Medicaid beneficiaries (Anonymous, 2006).

These apparently conflicting policies regarding vulnerable populations, along with recent national increases in uninsured and Medicaid insured individuals (DeNavas-Walt et al., 2006), make understanding how these 2 groups fare in CHCs an important and timely policy issue. Although CHCs are expected to serve both Medicaid insured and uninsured

populations in a similar fashion, there may be differences in how uninsured and Medicaid insured individuals in CHCs fare in comparison with the national population. Even in safety-net settings, the presence of insurance coverage may affect healthcare-seeking practices of patients and, as with private insurance, may affect what health services are delivered.

The purpose of this study is to examine contributions of CHCs to the receipt of primary care for vulnerable populations, examining both the uninsured and Medicaid insured individuals in comparison with the national patient population. The contribution of this study is that it not only compares vulnerable CHC patients with patients nationally, but also compares the experiences of Medicaid and uninsured patients within CHCs to provide information about whether the availability of CHCs alone is sufficient to ensure that these vulnerable populations are receiving care, or whether insurance is still a major determinant of care received. The study uses nationally representative data to examine 3 aspects of primary care—accessibility, longitudinality, and comprehensiveness—for both uninsured and Medicaid insured CHC patients and non-CHC patients nationally.

PRIMARY CARE EXPERIENCE

Primary care is a cornerstone of the US healthcare system (Starfield, 2004). The Institute of Medicine defines *primary care* as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community” (Donaldson et al., 1996). Researchers have operationalized the attributes that define primary care, providing guidance for assessment of primary care quality. There is consensus that primary care involves at least 4 major attributes: *accessibility*, which involves being accessible so that patients can easily obtain care (preferably from the same source) for their health needs; *longitudinality*, or rather the

development of a relationship between doctors and their patients over time so that the doctor understands their needs and patients are comfortable telling their problems; *comprehensiveness*, or providing care for common problems, including providing preventive care and referring to specialists when the problem is too unusual or uncommon for the doctor to manage; and *coordination* of care so that when patients are referred elsewhere the advice they receive is integrated into their care (Starfield, 1998). No data on coordination, however, were available.

METHODS

Study design and data sources

Data for this study come from 3 sources. Data for health center patients come from the 2002 Community Health Center User Survey, and data for access to care for the national patient population come from both the 1998 and 2002 National Health Interview Surveys (NHIS). Only adults aged 18–64 years were included in this study.

The 2002 CHC User Survey provides a snapshot of CHC patient demographics and health status, healthcare utilization, and quality of services received. The survey was designed to match the National Health Interview in content, and was carried out 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 the Bureau of Primary Health Care 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 on the basis of census region and urban and rural designation, and a 10th one 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 1 visit to a physician or nonphysician clinician at a CHC were included in the sampling frame. Current patients were then randomly selected for interview from all patients of the selected health centers. Interviews were completed with 2129 individuals (response rate of 68.3%) (Research Triangle Institute, 2002). The analyses in this study were restricted to respondents who were uninsured ($n = 419$) or 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 1998 and 2002 National Health Interview surveys, sponsored by the National Center for Health Statistics of the Centers for Disease Control and Prevention, were used for analyses of access to care (2002) and preventive counseling (1998) for the national patient population. Both surveys used a stratified multistage sampling design that was representative of census regions and urban and rural designations (just as with the CHC User Survey), interviews were completed with 21,885 adults aged 18–64 years (73.4% response rate) in 1998 and 36,745 adults aged 18–64 years (74.3% response rate) in 2002. As with the CHC User Survey, the analyses were restricted to individuals with at least 1 visit to a physician or nonphysician clinician (not including emergency department). Final samples included those who were uninsured ($n = 12,974$ in 1998 and $n = 10,814$ in 2002) or covered by Medicaid ($n = 8911$ in 1998 and $n = 8935$ in 2002) and had family income at or below 300% of the FPL. To reduce the likelihood that national patients were using CHCs, those who reported that their source of care was a clinic or health center ($n = 4864$ in 1998 and $n = 4333$ in 2002) were removed from the analysis. The final sample included a total of 21,885 respondents in 1998 and 19,749 respondents in 2002. Detailed discussions of the design of both NHIS surveys are available elsewhere (Botman et al., 2000).

Measures

This study examines differences in health and primary care experiences of CHC uninsured and Medicaid patients and their national patient counterparts. The independent measures are a CHC patient (defined as the one having 1 or more visits to a CHC) or a national patient (having 1 or more visits to a health-care provider that is not a CHC or emergency department). The main analytic variables include 3 health measures (general health status and presence of asthma and diabetes) and measures of 3 aspects of primary care experience: access, longitudinality, and comprehensiveness. These measures were selected because they were measured equivalently across surveys and reflect important components of health or primary care experience (Shi, 2000; Shi et al., 2003; Starfield et al., 1998).

Measures of Health were assessed with a 5-point Likert-type scale, dichotomized as "excellent, very good, good" versus "fair or poor." Respondents were also asked whether they had ever been told by a doctor that they have asthma or diabetes, with the dichotomous response options of yes/no.

Access was measured as reported health-care visits in the past year. Respondents were asked whether they had any visit in the past year to a generalist physician, obstetrician or gynecologist (among women aged 18+), nurse practitioner, vision care provider, and mental health provider. For each measure, responses were dichotomized as any visit versus none for each provider type.

Longitudinality was assessed by reports of having a regular source of care (not including an emergency department) and the reported number of generalist physician visits (dichotomized as 4 or more vs 3 or fewer to reflect ongoing regular use of services vs intermittent or infrequent access). While this cutoff for a number of physician visits may seem high at first glance, the data were collected in the CHC User Survey with this cutoff (not allowing us to modify this), and is in line with the relatively high level of need for health services among such vulnerable populations generally (Aday, 2001).

Comprehensiveness was assessed through the receipt of preventive screenings for specific recommended age groups, and through receipt of preventive counseling on 7 topics. Respondents were asked whether they had received a Papanicolaou test (for women aged 18+) within the past 3 years, breast examination (for women aged 40+) within the past 2 years, mammogram (women aged 40+) within the past 2 years, and colonoscopy (for adults aged 40+) within the past 3 years, all of which reflect recommendations for preventive services in 2002. All respondents were also asked whether, at their last visit, they had received preventive counseling on smoking, alcohol, exercise, nutrition, drug use, and sexually transmitted diseases. Responses were dichotomous: yes/no.

Analysis

Data in each of the surveys were weighed 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 oversampling 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 (1) patient demographics including health status and presence of asthma and diabetes and (2) measures of primary care experience. Patient demographics are shown for uninsured CHC and non-CHC patients, and for Medicaid insured CHC and non-CHC patients. Statistically significance for the difference between CHC and non-CHC patients was assessed using chi-square tests of association.

Logistic regressions predicting the study-dependent measures were performed controlling for age group, gender, race/ethnicity, poverty status, and education level. These factors have been previously correlated with access and quality of care (Aday, 2001; Shi & Stevens, 2005). For primary care measures, the analyses additionally controlled for health status. From the logistic regressions, predicted probabilities were requested, allowing

us to present adjusted population proportions (ie, percentages adjusted for the study covariates) instead of odds ratios for all figures. The statistical significance of the estimates was assessed via the *P* value of the beta coefficients for CHC patients versus non-CHC patients in separate logistic regressions for uninsured and Medicaid insured patients, or for uninsured patients versus Medicaid insured patients within CHCs (and separately for uninsured patients vs Medicaid insured patients nationally). Results are rounded to the nearest percentage for simplicity.

RESULTS

Table 1 shows that uninsured CHC patients were more likely than uninsured US patients

to be female (68.6% vs 48.3%, *P* < .01), below 100% of the FPL (77.2% vs 29.0%, *P* < .05), and in fair/poor self-reported health status (30.2% vs 10.0%, *P* < .05). Uninsured CHC patients were, however, less likely to have a major functional limitation (3.7% vs 9.4%). As with the uninsured, Medicaid insured CHC patients were more likely than Medicaid patients nationally to have incomes below 100% of the FPL (91.3% vs 57.6%) and were less likely to have a major functional limitation (6.3% vs 28.8%, *P* < .01). Both uninsured and Medicaid insured CHC patients were more likely to report having been diagnosed with asthma or diabetes, but were similar to their national patient counterparts in terms of age, race/ethnicity, and education level.

Table 1. Comparison of characteristics of uninsured and Medicaid-insured CHC patients with patients nationally*.[†]

Patient characteristics	Uninsured, % (95% confidence intervals)		Medicaid insured, % (95% confidence intervals)	
	CHC	US	CHC	US
Analytic sample size (<i>n</i>)	419	10,814	696	8,935
Age, y, mean (SE)	32 (0.84)	30 (0.15)	23 (0.83)	25 (0.25)
Female gender	68.6 (64.9-72.3) [‡]	48.3 (47.5-49.1)	58.6 (53.3-63.9)	58.2 (57-59.4)
Poverty status	§			
<100% FPL	77.2 (72.5-81.9)	29.0 (27.0-31.0)	91.3 (89.1-93.5)	57.6 (55.2-60.0)
100-199% FPL	13.5 (10.4-16.6)	43.1 (40.9-45.3)	6.2 (3.8-8.6)	33.8 (31.8-35.8)
200-299% FPL	9.3 (5.0-13.6)	27.9 (25.9-29.9)	2.5 (2.1-2.9)	8.5 (7.3-9.7)
Race/ethnicity				
Hispanic	31.8 (13.0-50.6)	31.8 (30.0-33.6)	29.3 (13.2-45.4)	27.8 (25.6-30.0)
African American	22.3 (11.5-33.1)	17.7 (16.1-19.3)	29.7 (15.8-43.6)	28.0 (25.6-30.4)
White	46.0 (30.9-61.1)	50.6 (48.6-52.6)	41.1 (25.2-57.0)	44.1 (41.6-46.6)
Education <high school [¶]	32.3 (25-39.6)	30.3 (28.9-31.7)	52.6 (44.4-60.8)	44.3 (42.5-46.1)
Fair/poor health status [#]	30.2 (23.1-37.3) [§]	10.0 (9.2-10.8)	26.9 (21.8-32.0)	20.4 (19.2-21.6)
Diagnosed with asthma	14.0 (8.5-19.5)	10.0 (8.4-11.6)	28.0 (22.2-33.8) [‡]	17.0 (14.0-20.0)
Diagnosed with diabetes	12.0 (7.4-16.6) [‡]	5.0 (4.0-6.0)	12.0 (7.8-16.2)	10.0 (7.7-12.3)
Disability status				
Has major limitation	3.7 (1.5-5.9) [§]	9.4 (8.8-10.0)	6.3 (2.0-10.6) ^{**}	28.8 (27.4-30.2)

*CHC indicates community health centers; FPL, Federal Poverty Level.

[†]From 2002 CHC User Survey and 2002 NHIS.

[‡]*P* < .01 (chi-square test for difference between uninsured CHC users and US uninsured).

[§]*P* < .05 (chi-square test for difference between uninsured CHC users and US uninsured).

^{||}*P* < .05 (chi-square test for difference between Medicaid CHC users and US Medicaid).

[¶]Versus high school graduate or higher.

[#] Versus "excellent, very good, or good"

^{**}*P* < .01 (chi-square test for difference between Medicaid CHC users and US Medicaid).

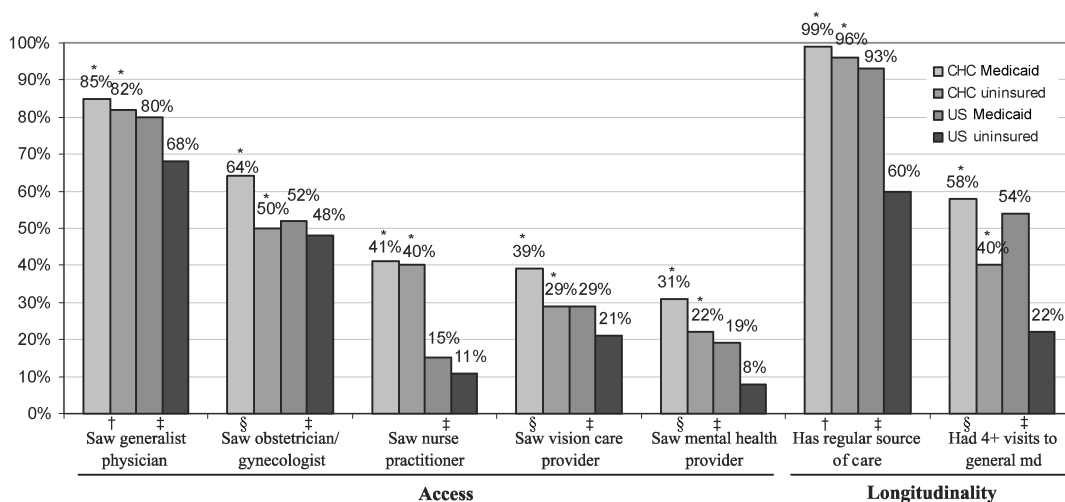


Figure 1. Primary care access and longitudinality for CHC and non-CHC patients. All visits are reported within the past year. Obstetrician/gynecologist (Ob/Gyn) visit is assessed among women aged 18–64 years. Analyses are adjusted for age, gender, race/ethnicity, poverty status, education, and health status. Used with permission from 2002 CHC User Survey and 2002 NHIS. * $P < .001$ for the difference between CHC and non-CHC patients. † $P < .05$, § $P < .001$, for the difference between uninsured and Medicaid insured patients within CHCs. ‡ $P < .001$, for the difference between uninsured and Medicaid insured patients nationally.

Figure 1 shows that both Medicaid and uninsured CHC patients were more likely to report having visited in the past year a generalist physician, obstetrician/gynecologist (among women), nurse practitioner, and vision care and mental healthcare professional. For example, after adjusting for the study covariates, 64% of female Medicaid CHC patients had a visit in the past year with a generalist physician in comparison with 52% of female Medicaid patients nationally ($P < .001$). A similar pattern was found for all of the other provider types and for both the uninsured and Medicaid insured, with the largest difference between CHC patients and patients nationally occurring for nurse practitioner (41% vs 15%, $P < .001$, among Medicaid insured; and 40% vs 11% among the uninsured, $P < .001$).

The figure also shows that nearly all CHC patients reported having a regular source of care (99% of Medicaid insured and 96% of the uninsured). While non-CHC Medicaid patients nationally also reported high rates (93%) of having a regular source of care, it was significantly lower than among Medicaid insured CHC patients ($P < .001$). A much lower rate of

having a regular source of care was found for uninsured patients nationally (60%, $P < .001$, compared to uninsured CHC patients). More than half (58%) of Medicaid insured CHC patients and 40% of uninsured CHC patients reported 4 or more visits to a generalist physician in the past year, in comparison with 54% of Medicaid insured and 22% of uninsured patients nationally (both $P < .001$).

While there were fewer differences within CHCs than when compared to their patients nationally, there were still some differences in access and longitudinality that were present for Medicaid and uninsured patients in CHCs. Medicaid CHC patients were more likely than uninsured CHC patients to have an obstetrician/gynecologist visit (64% vs 50%, $P < .001$), a vision care provider visit (39% vs 29%, $P < .001$), or a mental health provider visit (31% vs 22%, $P < .001$). Medicaid patients were much more likely to have had 4 or more visits to a generalist physician than uninsured patients (58% vs 40%, $P < .001$).

Figure 2 shows that CHC patients were more likely than patients nationally to receive 4 preventive screenings: Papanicolaou

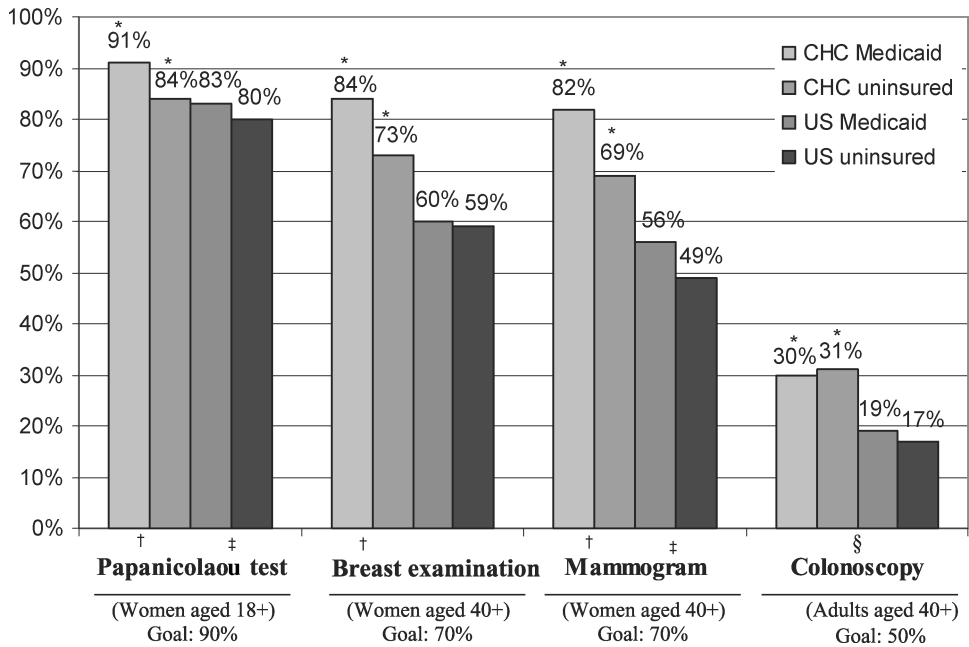


Figure 2. Preventive screenings received for CHC and non-CHC patients. Analyses are adjusted for age, gender, race/ethnicity, poverty status, education, and health status. The Healthy People 2010 national goal for each preventive service is reported below the item. Used with permission from 2002 CHC User Survey and the 2002 NHIS. * $P < .001$ for the difference between CHC and non-CHC patients. † $P < .001$, for the difference between uninsured patients and Medicaid insured patients within CHCs. § $P < .05$, ‡ $P < .001$, for the difference between uninsured patients and Medicaid insured patients nationally.

test, breast examination, mammogram, and colonoscopy. For example, for women aged 40 years and older, 84% of Medicaid and 73% of uninsured CHC patients reported having a mammogram in the past 2 years versus 60% of Medicaid and 59% of uninsured patients nationally (both $P < .001$). Even within CHCs, Medicaid patients were more likely than the uninsured to undergo a Papanicolaou test (91% vs 84%, $P < .001$), breast examination (84% vs 73%, $P < .001$), and mammogram (82% vs 69%, $P < .001$).

Figure 3 similarly shows that a greater proportion of CHC patients reported receiving counseling at the last checkup on smoking, alcohol, exercise, nutrition, drug use, and preventing sexually transmitted diseases. For example, 87% of Medicaid and 72% of uninsured CHC patients reported receiving counseling on smoking, versus 61% of Medicaid and 62% of uninsured patients nationally (both $P < .001$). While Medicaid insured CHC patients were more likely than uninsured CHC patients

to have received counseling on smoking and alcohol use (87% vs 72% and 74% vs 67% respectively, $P < .001$), they were less likely than the uninsured to have received counseling on exercise and nutrition (64% vs 68%, $P < .05$; and 58% vs 68%, $P < .001$).

DISCUSSION

This study demonstrates a positive association between CHCs and self-reported primary care experiences (access, longitudinality, and comprehensiveness) compared to patients nationally. This holds true for both uninsured patients and Medicaid patients. Given that CHC patients (particularly uninsured CHC patients) tend to have poorer health than non-CHC patients, this study suggests that health centers may be filling an important gap in primary care for populations in the United States that have the greatest health needs. It is worth noting that CHCs have also been previously shown to deliver this primary care at

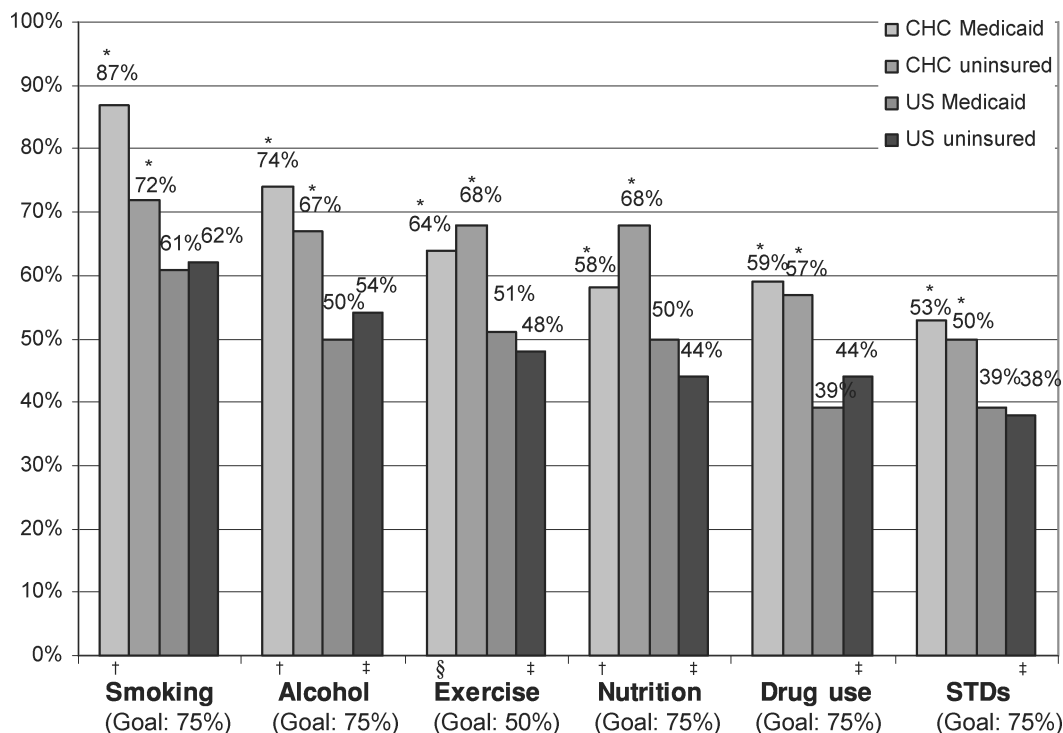


Figure 3. Preventive counseling at the last visit for CHC and non-CHC patients. The Healthy People 2010 national goal for each preventive service is reported below the item. Analyses are adjusted for age, gender, race/ethnicity, poverty status, education, and health status. Used with permission from 2002 CHC User Survey and the 1998 NHIS. STDs indicates sexually transmitted diseases. * $P < .001$ for the difference between CHC patients and non-CHC patients. $^{\dagger}P < .05$, $^{\ddagger}P < .001$, for the difference between uninsured patients and Medicaid insured patients within CHCs. $^{\S}P < .001$, for the difference between uninsured patients and Medicaid insured patients nationally.

much lower cost, despite serving a substantially sicker population (Howarth et al., 1995; Stuart & Steinwachs, 1993; Zuvekas, 2005).

The findings of this study are corroborated by a breadth of literature showing that CHCs deliver certain aspects of primary care as well as (if not better than) other settings. These studies have focused primarily on a single outcome and have respectively reported either better primary care access (Brown et al., 2004; Hadley & Cunningham, 2004; Politzer et al., 1991; Shields et al., 2002; Starfield et al., 1994; Weiss et al., 2001), continuity of care (Forrest et al., 2000; Inkelas et al., 2004; O'Malley, 2005; Politzer et al., 2001; Shi et al., 2003), or comprehensiveness of services provided (Carlson et al., 2001; Carrillo et al., 1999; Regan et al., 1999, 2003; Schempf et al., 2003). Few studies have examined these as-

pects of care collectively, and fewer have studied whether the care varies for uninsured patients versus Medicaid patients. The current study provides evidence that while the presence of CHCs may be very important, it still may not be sufficient to fully eliminate barriers to receipt of high-quality primary care among the uninsured.

For many of the measures in this study, Medicaid insured CHC patients appeared to receive somewhat better primary care than uninsured CHC patients. Although CHCs should not provide a different level of care for insured and uninsured patients, there may nonetheless still exist some financial incentives for CHCs to provide a higher level of care to patients who have insurance coverage. For example, some states still reimburse physicians seeing Medicaid clients through

a fee-for-service system, and some Medicaid-managed healthcare plans offer 1 or more incentive programs to encourage physicians to see Medicaid clients or deliver more preventive care (Armour et al., 2001; Hellinger, 1996; Petersen et al., 2006). Alternately, health insurance may empower patients in nonfinancial ways to obtain health services, perhaps lowering the threshold at which care seeking for needed preventive and acute services occurs (Aday et al., 1984; Aday & Andersen, 1981; Andersen, 1995).

This finding is particularly important given that the US Federal Government has implemented both funding increases for CHCs and has been considering reductions of approximately \$13 billion for Medicaid and other social programs (Anonymous, 2006). The potential impact of this paradox in serving vulnerable populations can be seen in this study. While the uninsured fare better in CHCs than the uninsured seeking care elsewhere, the uninsured in CHCs still appear to report poorer primary care experiences than those covered by Medicaid. The increase in funding for CHCs may reduce some of this disparity by increasing capacity within CHCs, but this may be balanced by a loss of revenues from reductions in the proportion patients seen by CHCs covered by Medicaid.

How CHCs contribute to better primary care experiences (and certain outcomes of care shown in other studies, such as fewer hospitalizations and fewer emergency visits for conditions that can be adequately managed in primary care settings; Deprez et al., 1987; Epstein, 2001; Falik et al., 2001; Freeman et al., 1982) is of particular interest since knowing this may provide guidance on serving vulnerable populations in other settings. There is evidence that the lower rates of low birth weight reported among pregnant women seeking care in CHCs (Shi et al., 2004) may be related to the provision of a wide range of enabling services in CHCs (eg, transportation and translation) that may promote the receipt of primary and prenatal care. One study of pregnant CHC patients, for example, found that the level of enabling services available in a CHC was indeed associated with the

timely receipt of perinatal care (Lewis-Idema, 1999). Moreover, CHCs regularly coordinate with other initiatives, such as the Supplemental Food Program for Women, Infants, and Children and the Healthy Start, that have been linked with better infant outcomes (Gregory & de Jesus, 2003; Kowaleski-Jones & Duncan, 2002; Lane et al., 2001; Moss & Carver, 1998).

There are several limitations to this study. First, data are cross-sectional and do not allow for the demonstration of causality. Furthermore, data are drawn from 3 different sources that used different, albeit purposefully similar, sampling strategies and survey designs, and 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 1 visit to a physician or nonphysician provider (excluding emergency visits) during a year, and thus do not capture the healthcare access experiences of individuals who did not interact with the healthcare system. The healthcare access experiences of "patients" are quite different (by definition) from "nonpatients" in that those who did not access healthcare during the year may not have done so because of difficulties finding an appropriate provider, making an appointment, and paying for care.

Fourth, the higher response rate of the NHIS surveys may have better captured the experiences of patients with lower rates of healthcare utilization (since some evidence is available that suggests that nonresponders use fewer healthcare services), potentially contributing to some of the differences found between CHCs and patients nationally (Fowler et al., 1999, 2002; Picavet, 2001).

Also, national comparison data for preventive counseling were not collected in the 2002 NHIS, and the closest available comparison year was from the 1998 NHIS. It is possible that rates of adult preventive counseling for the national comparison are underestimated if overall rates of counseling on these topics increased between 1998 and 2002.

Fifth, there may be some inconsistency in the reporting and coding of insurance status. For example, it is possible that patients may not have reported the correct health insurance, especially when some states purposefully use the same name for their State Children's Health Initiative Program and Medicaid program. Moreover, insurance data are only point-in-time measures, capturing coverage only at the time of the survey. Yet individuals may have changed coverage (gained, lost, or switched) during the period in which some questions are referencing in this study (eg, preventive services received in the past year). This may particularly be the case for pregnant women who may qualify for Medicaid due only to their pregnancy and thus lose coverage relatively quickly. In other work, researchers may wish to additionally control for pregnancy among female patients to account for the unique experiences of vulnerable pregnant patients.

Sixth, while this study examines the experiences of both Medicaid insured and uninsured patients, there may be good reason to specifically explore the experiences of other vulnerable groups in CHCs (eg, women, children, homeless, non-English speakers, or those with chronic conditions), since their experiences may have unique implications for policy or

program development. Finally, the measures of primary care experience in this study describe only a small part of the full complement of activities and services that define high-quality primary care. Access to care, for example, could be further measured by timeliness of appointments, the ability to contact providers by telephone, and after-hours care. Measurement of longitudinality could be strengthened by assessment of the patient-provider relationship, communication issues, and the ability to identify to what extent all primary care visits are made to the same provider. These measures were not available, however, in the CHC User Survey or NHIS to directly assess these topics.

In conclusion, the positive association found between CHCs and self-reported primary care experiences suggests that health centers may fill an important gap in care for both uninsured and Medicaid insured patients who use their services. Given continuing expansion of CHCs and budget cuts to the Medicaid program, CHCs remain an important policy option to ensure access to primary care for such vulnerable populations. CHCs, however, should not be thought of as a single solution for the problem of ensuring healthcare services for the uninsured, since uninsured patients of CHCs in this study appear not to experience the same level of primary care as those covered by Medicaid. As a result, the elimination of disparities in primary care, and ultimately health, will not be achieved without attention to the availability of insurance coverage and the broader array of and interactions among risk factors experienced by vulnerable populations.

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