

Characteristics of Ambulatory Care Patients and Services: A Comparison of Community Health Centers and Physicians' Offices

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Abstract: The overall aim was to determine whether health care delivery for vulnerable populations served by community health centers (CHCs) was comparable to care for mainstream Americans primarily seen in physicians' offices (POs). Data came from the 2006 National Ambulatory Medical Care Survey. Patient visits occurring in CHCs were largely from younger, uninsured or Medicaid-insured, minority populations, while POs catered mainly to older, Medicare- or privately-insured, White patients. Communities served by CHCs were more often in low-income, low-education, urban regions. A greater proportion of visits to CHCs were from diabetic, obese, and depressed patients; CHCs also offered more evening/weekend visits and provided more health education during visits, but spent less time per visit than POs and had more difficulty referring patients to specialists. Results affirmed the significant role of CHCs as safety-net providers for vulnerable populations, and indicated that CHCs provide adequate care compared with POs although there remains room for improvement.

Key words: Community health centers, physician offices, ambulatory care, health care delivery, health care disparities.

Since 1965, federally funded health centers in the United States have been delivering comprehensive, culturally competent, quality health care services to patients with limited access to care. The fundamental features of these centers include: (a) location in or provision of services to high-need communities (e.g., migrant and seasonal farmworkers, individuals experiencing homelessness, individuals with limited English proficiency, those living in public housing), which are designated as medically underserved areas or populations; (b) government by a community board composed of a

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majority of patients representing the population served; (c) provision of comprehensive primary care services and promotion of better access to care through supportive services such as translation or transportation; and (d) provision of services to all with fees adjusted based on ability to pay.¹ Thus, health centers function as safety-net providers to vulnerable populations such as the uninsured, low-income, and minority groups. Over the years, the program has grown rapidly, with more than 1,000 health centers now operating 6,000 service delivery sites; much of this expansion was accomplished during the Health Center Growth Initiative, which began in fiscal year 2002 and ended in fiscal year 2007.² Federally qualified health centers receive grants from the Health Resources and Services Administration, within the Department of Health and Human Services. These are public and private non-profit health care organizations, which include community health centers (CHCs), migrant health centers, health care for the homeless programs, and public housing primary care programs.

As CHCs increase in number, there is mounting importance in examining the characteristics of CHCs and the populations they serve, as well as comparing CHC health care delivery with that of more mainstream providers. Office-based physicians provide a useful comparison group because they represent the source of care for the majority of Americans, who are mostly insured.³ One question of interest, then, involves examining sociodemographic and health differences between patients who utilize services in CHCs and those who obtain care from physicians' offices (POs). It is also important to investigate the types and amounts of medical services provided by CHCs, in comparison with POs. In addition, there is a need to evaluate the practice differences between CHCs and POs, especially regarding revenue sources.

Since CHCs are mandated to serve vulnerable populations, we expect to find differences in patient populations and service provision between CHCs and office-based physician practices, but to date there have been few nationally representative analyses to confirm this perception and quantify the magnitude of these differences. Older studies dating back to the late 1980s and mid 1990s used medical records and claims data to make state-level comparisons of processes of care between CHCs, POs, and hospital outpatient departments, and found that CHCs performed better on a range of measures (e.g., timely follow-up care, provision of well-child care, complete medical records, access to needed care for specific conditions).⁴⁻⁶ Another frequently cited study used provider reports from a national dataset to demonstrate that CHCs provided similar patient management to POs, as well as better continuity of care, but the data from that study are now 15 years old (pre-dating the recent CHC program expansion).⁷ Two recent nationally representative studies found that CHCs deliver primary and preventive care at generally comparable rates to other health care settings; however, due to data limitations these studies relied on patient surveys, which may be more vulnerable to reporting biases.⁸⁻⁹

To address these gaps in the literature, we used recent nationally representative data collected directly from health care providers to compare the patient populations and practice characteristics of CHCs with those of POs. Specifically, we examined patients' sociodemographic, community, and health status characteristics, as well as provider and practice characteristics, and specific services provided within each health care set-

ting. The overall aim was to determine whether health care delivery for underserved populations in CHCs was comparable to care for patients in POs, most of whom are insured. Based on the earlier literature, we expected to find that CHCs would perform adequately or better in comparison with POs, despite the greater vulnerability of CHC patient populations; to the extent that results confirm our hypothesis, this study would affirm the significant role of CHCs as safety-net providers for vulnerable populations, as well as demonstrate that the care provided by CHCs is qualitatively and substantively similar to that provided by providers in private offices.

Methods

We analyzed patient visit data from the 2006 National Ambulatory Medical Care Survey (NAMCS).¹⁰ The NAMCS is conducted annually by the National Center for Health Statistics, in order to gather information regarding the provision and use of ambulatory medical care services in the United States. It is a nationally representative survey of non-federally employed, office-based physicians, excluding radiologists, pathologists, and anesthesiologists (58.9% response rate). Health care providers are randomly assigned a weeklong period in which data are reported on patient visits, including symptoms, physicians' diagnoses, medications ordered or provided, services offered or provided (i.e., diagnostic procedures, patient management, method of treatment), and patient demographic characteristics.

Typically, the NAMCS includes too few CHC physicians for reliable estimates to be obtained, but for the first time in 2006, under arrangement between NCHS and HRSA, an oversampling of 104 CHCs was included to improve the precision of CHC visit estimates. Within each CHC, three physicians, physician assistants, nurse midwives, or nurse practitioners were selected for survey participation.¹¹ As a result of this oversampling of CHCs, the current study provides a unique, in-depth comparison of recent ambulatory care visits to CHCs and office-based physicians in the United States.

The 2006 NAMCS used a three-stage probability sampling design, involving probability samples of primary sampling units (PSUs), physician practices within PSUs, and patient visits within practices. A total of 150 CHC physicians and 1,185 office-based physicians submitted patient record forms (approximately 30 forms per provider), for a total sample size of 29,392 patient visits. (Visits to mid-level providers in CHCs were not included in the 2006 NAMCS public use file.) Since the datafile contained information on only a sample of patient visits, not a complete count of all visits that took place in the United States, each patient visit record was assigned an inflation factor, which was the inverse probability of selection into the sample (i.e., patient visit weight), in order to obtain unbiased national estimates. Adjustments for physician nonresponse were also made to account for in-scope physicians who did not provide patient record forms, and postratio adjustments using fixed physician, CHC, and visit population totals were made to correct potential bias due to sampling undercoverage. We weighted data and accounted for the complex sampling methods by incorporating patient visit weight, stratum, and PSU variables in our analyses and evaluated differences between the two groups (i.e., visits to CHC physicians vs. visits to office-based physicians) for

statistical significance using chi-squared tests or t-tests. As a result of these estimation procedures, national estimates may be different from raw sample statistics. All analyses were conducted using SAS software, Version 9.1.¹²

For this study, we compared data describing ambulatory care visits to CHCs with data for visits to office-based physicians. Physicians' offices included private solo or group practices, free-standing clinics or *urgicenters* (not part of hospital emergency departments or outpatient departments), family planning clinics, health maintenance organizations or other prepaid practices, and faculty practice plans.

Characteristics compared between the two settings included patient sociodemographic characteristics (age, sex, health insurance coverage, race/ethnicity, returning vs. new patient), community characteristics based on U.S. Census data matched to patient ZIP code (percent of population below poverty level, median household income, percent of adults with bachelor degree or higher, urban-rural classification), patient chronic conditions (asthma, depression, diabetes, hyperlipidemia, hypertension, obesity, number of chronic conditions) and common diagnoses during visits, provider characteristics (physician specialty, health care providers seen during visit), health care practice characteristics (availability of evening/weekend hours, electronic medical records, revenue sources, new patients currently accepted vs. not accepted, insurance types accepted, degree of difficulty with specialty referrals), and medical services provided (annual number of visits among returning patients, enrollment in disease management program, education provided [i.e., health, asthma, tobacco, weight reduction], number of education categories, patient referral, laboratory testing, visit length). Due to the limited sample size for CHCs, we chose not to conduct further adjusted multivariable analyses, which would have made the results unreliable.

Results

Patient sociodemographic characteristics. Findings confirm that visits to CHCs are largely from patients who are younger, uninsured or Medicaid-insured, and minority populations, while visits to POs are more often from older, privately insured, and non-Hispanic White patients (Table 1).

As expected, there are large differences between CHC and non-CHC settings with respect to the type of insurance covering patient visits. A large proportion of visits to CHCs come from individuals with Medicaid coverage (50.0%), no coverage (10.3%), or with other forms of payment (17.9%). On the other hand, the majority of office-based physicians receive visits from patients who are either privately insured (52.9%) or covered by Medicare (22.3%).

Community health center visits also come largely from minorities, with over 65% of visits identified as being from racial/ethnic minority patients. In contrast, only one-quarter of visits to POs come from minority patients.

Community characteristics. For all patient visits, corresponding 2000 U.S. Census data were obtained for the ZIP codes in which patients resided in order to describe community characteristics. The results indicate significant differences between communities served by CHCs and POs with respect to poverty levels, household income, education, and geographic location of residence (Table 1).

Table 1.

PATIENT SOCIODEMOGRAPHIC AND COMMUNITY CHARACTERISTICS: COMPARISONS BETWEEN COMMUNITY HEALTH CENTERS AND PHYSICIANS' OFFICES IN THE US, 2006

	Community Health Centers			Physicians' Offices		
	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)
Patient Sociodemographic Characteristics						
Age (years)**						
0-17	1,098	3,861	27.0 (4.4)	3,922	175,553	19.9 (1.5)
18-64	2,373	8,906	62.2 (3.9)	14,313	478,346	54.2 (1.2)
>65	364	1,555	10.9 (1.6)	7,077	228,133	25.9 (1.1)
Sex						
Female	2,327	8,597	60.0 (3.0)	14,898	521,161	59.1 (0.6)
Male	1,508	5,725	40.0 (3.0)	10,414	360,871	40.9 (0.6)
Health Insurance**						
Private	477	1,442	10.7 (1.5)	13,182	454,625	52.9 (1.3)
Medicare	352	1,592	11.5 (2.1)	6,042	191,378	22.3 (1.1)
Medicaid	1,638	6,946	50.0 (5.2)	2,805	117,292	13.6 (1.2)
Uninsured	478	1,432	10.3 (2.3)	1,092	32,807	3.8 (0.3)
Other payment	785	2,490	17.9 (2.8)	1,575	64,175	7.5 (0.9)
Race/Ethnicity**						
White, non-Hispanic	1,164	4,946	34.5 (3.5)	19,394	648,564	73.5 (1.3)
Black, non-Hispanic	977	2,213	15.5 (2.7)	2,002	78,321	8.9 (0.9)
Hispanic	1,127	4,509	31.5 (4.3)	2,613	107,682	12.2 (1.2)
Asian	264	2,057	14.4 (4.9)	966	36,626	4.2 (0.6)
Other	303	597	4.2 (1.4)	337	10,841	1.2 (0.2)
Returning Patient						
Yes, established patient	3,471	12,714	88.8 (2.3)	21,625	774,710	87.8 (0.5)
No, new patient	364	1,608	11.2 (2.3)	3,687	107,322	12.2 (0.5)
Community Characteristics						
% population below poverty level in patient's zip code **						
Quartile 1 (<5%)	175	464	3.5 (0.5)	5,382	172,373	21.2 (1.3)
Quartile 2 (5-9.99%)	650	2,360	17.8 (2.0)	7,672	257,519	31.7 (1.6)
Quartile 3 (10-19.99%)	1,401	6,070	45.8 (3.3)	7,511	268,960	33.1 (1.8)
Quartile 4 (≥20%)	1,350	4,351	32.9 (3.2)	2,958	113,578	14.0 (1.2)

(Continued on p. 1174)

Table 1. (continued)

	Community Health Centers			Physicians' Offices		
	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)
Median household income in zip code **						
Quartile 1 (<\$32,793)	1,666	5,755	43.5 (3.6)	5,139	184,187	22.7 (1.6)
Quartile 2 (\$32,794–\$40,626)	872	3,761	28.4 (2.6)	5,663	208,484	25.7 (1.4)
Quartile 3 (\$40,627–\$52,387)	663	2,307	17.4 (1.9)	5,765	196,652	24.2 (1.5)
Quartile 4 (≥\$52,388)	375	1,422	10.7 (2.0)	6,956	223,107	27.5 (1.5)
% adults with bachelor degree or higher in zip code **						
Quartile 1 (<12.84%)	1,439	5,233	39.5 (3.7)	5,180	207,259	25.5 (1.4)
Quartile 2 (12.84–19.66%)	817	3,276	24.7 (2.4)	5,241	190,100	23.4 (1.2)
Quartile 3 (19.67–31.68%)	834	3,226	24.4 (3.2)	6,283	203,013	25.0 (1.2)
Quartile 4 (≥31.69%)	486	1,509	11.4 (1.7)	6,819	212,058	26.1 (1.6)
Urban-rural classification of zip code ^{a*}						
Large central metro	1,676	5,785	43.2 (7.1)	6,196	211,016	25.4 (2.2)
Large fringe metro	550	1,413	10.5 (2.9)	5,978	218,483	26.3 (2.0)
Medium metro	802	3,831	28.6 (7.9)	5,533	188,485	22.7 (3.9)
Small metro	357	1,347	10.1 (4.8)	2,104	73,522	8.9 (1.8)
Non-metro	249	1,029	7.7 (3.3)	4,146	137,582	16.6 (2.9)

*p<.01 (based on χ^2 test or t-test)**p<.001 (based on χ^2 test or t-test)^aUrban-rural labels are based on a classification system developed by the National Center for Health Statistics, where large central metro areas are the most urban and non-metro areas are the most rural (http://www.cdc.gov/nchs/data_access/urban_rural.htm).

Source: National Center for Health Statistics. National Ambulatory Medical Care Survey: 2006 summary (National Health Statistics Reports, no. 3). Hyattsville, MD: National Center for Health Statistics, 2008.

Almost 80% of CHC visits come from patients living in ZIP codes with more than 10% of the population living below the poverty level, while less than half of visits to POs come from patients living in these neighborhoods. In addition, over 70% of CHC visits come from patients living in ZIP codes where the median household income falls in the two lowest brackets. For POs, less than half of visits come from patients in the two lowest brackets, while over one-quarter of visits come from patients in the highest income bracket.

About two-thirds of CHC visits are from patients living in ZIP codes where less

than 20% of adults have obtained a bachelor degree or higher. On the other hand, over one-quarter of visits to POs are from patients who live in neighborhoods where more than 30% of adults have at least a bachelor's degree.

Community health centers also provide more services than POs to the most urban areas: over 43% of CHC visits come from patients living in ZIP codes considered *large central metro* areas, significantly higher than 25% of visits to POs. Community health centers have a smaller proportion of patient visits from *non-metro* (rural) ZIP codes than POs have (7.7% vs. 16.6%).

Patient health status. Comparisons were made between CHCs and POs regarding the proportion of visits from patients known to suffer from various chronic diseases. The largest differences concern diabetes and obesity. Community health centers have a greater proportion of visits from patients who have diabetes than POs (13.2% vs. 9.5%, $p < 0.01$). Similarly, CHCs have more visits from obese patients than POs (9.2% vs. 6.3%, $p < 0.05$). In addition, CHCs have a greater proportion of visits from patients suffering from depression than POs (11.3% vs. 7.8%, $p < 0.05$).

There are no statistically significant differences between CHCs and POs in the proportion of visits from patients with asthma, hypertension, or hyperlipidemia. There is also no difference between the two settings regarding the total number of chronic conditions suffered by patients seen during visits.

Diagnoses of ambulatory care visits. The most frequent primary diagnoses made during visits were compared for three age groups (under 17 years, 18 to 64 years, 65 years and over), in order to examine differences in the burden of illness among patients in each health care setting.

For visits by young patients, both CHCs and POs see patients most frequently for a routine child health exam, though CHCs perform a greater proportion of these exams than POs (24.9% vs. 11.7%, respectively).

In the 18- to 64-year-old age group, the top diagnosis in both sites is hypertension, although a greater proportion of visits to CHCs than POs include this diagnosis (9.1% vs. 3.5%, respectively). Community health centers also diagnose Type II diabetes in a greater proportion of visits than POs (5.7% vs. 1.6%). Community health centers frequently have visits from patients with obesity, asthma, and anxiety, but none of these conditions are found in the list of most common diagnoses for POs.

In the age group over 65 years, hypertension is the most frequent diagnosis for both sites, but CHCs see this diagnosis in a much higher proportion of visits than POs (19.5% vs. 5.8%, respectively). Type II diabetes is the second most frequent diagnosis in CHCs (9.1%, compared with POs, where the diagnosis is made in just 2.3% of visits).

Provider characteristics. Community health center visits occur overwhelmingly with health care providers who are primary care providers, compared with POs (95.4% vs. 57.7%, $p < 0.001$). Conversely, CHC visits are much less frequently with specialized physicians than visits in POs (4.6% vs. 42.3%).

Practice characteristics. There are notable differences in the practice characteristics of CHCs and POs (Table 2). Over half of all visits to CHCs take place during evenings and weekends, compared with one-third of visits to POs.

The revenue sources in each setting also differ. Most visits to POs are paid with private insurance, Medicare, or managed care contracts; very few of these office visits

Table 2.

**PRACTICE CHARACTERISTICS: COMPARISONS
BETWEEN COMMUNITY HEALTH CENTERS AND
PHYSICIANS' OFFICES IN THE US, 2006**

	Community Health Centers			Physicians' Offices		
	Visit Sample Fre- quency	Weighted Visits (thou- sands)	% (SE)	Visit Sample Fre- quency	Weighted Visits (thou- sands)	% (SE)
Evening/weekend hours*						
Yes	1,747	7,441	53.5 (8.4)	7,419	313,722	35.8 (2.0)
No	2,020	6,422	46.2 (8.5)	17,662	559,007	63.8 (2.0)
Unknown	32	42	0.3 (0.3)	114	4,122	0.5 (0.3)
Electronic medical records						
Yes, all electronic	486	3,339	23.3 (6.1)	4,210	130,520	14.9 (2.0)
Yes, part paper & part electronic	420	1,747	12.2 (4.3)	3,142	117,235	13.3 (1.5)
No	2,629	9,236	64.5 (7.7)	17,861	630,847	71.8 (2.4)
Percent of patient care revenue:						
Private insurance***						
≤25%	2,974	10,373	89.9 (4.1)	5,620	204,812	25.1 (2.0)
26-50%	244	922	8.0 (3.8)	9,634	317,125	38.9 (2.3)
≥51%	81	240	2.1 (1.9)	8,206	293,353	36.0 (2.3)
Medicare **						
≤25%	2,768	9,173	79.6 (7.0)	10,952	430,345	52.8 (2.3)
26-50%	348	1,910	16.6 (7.0)	8,555	256,283	31.4 (2.1)
≥51%	178	439	3.8 (2.4)	4,023	129,068	15.8 (1.7)
Medicaid***						
≤25%	1,249	3,499	30.3 (6.1)	20,206	675,896	82.8 (2.0)
26-50%	1,113	4,930	42.7 (8.4)	2,412	96,653	11.8 (1.6)
≥51%	937	3,106	26.9 (6.1)	862	43,750	5.4 (1.2)
Uninsured patient payment**						
≤25%	2,672	9,707	84.2 (4.9)	22,013	777,237	95.4 (0.8)
26-50%	370	1,007	8.7 (4.1)	866	22,756	2.8 (0.7)
≥51%	257	822	7.1 (2.9)	576	14,508	1.8 (0.6)
Managed care contracts						
≤25%	969	3,657	46.1 (9.3)	5,980	209,620	31.0 (2.5)
26-50%	734	2,849	35.9 (8.7)	5,724	186,263	27.6 (2.5)
≥51%	331	1,424	18.0 (7.0)	7,647	280,100	41.4 (3.0)
Physician currently accepts new patients						
Yes	3,769	14,178	99.0 (1.0)	24,049	839,340	96.1 (0.8)
No	66	144	1.0 (1.0)	992	34,049	3.9 (0.8)

(Continued on p. 1177)

Table 2. (continued)

	Community Health Centers			Physicians' Offices		
	Visit Sample Fre- quency	Weighted Visits (thou- sands)	% (SE)	Visit Sample Fre- quency	Weighted Visits (thou- sands)	% (SE)
For new patients, physician accepts:						
Private insurance**						
Yes	2,856	11,029	80.9 (5.1)	20,501	728,602	89.2 (1.4)
No	278	951	7.0 (3.0)	1,793	52,906	6.5 (1.1)
Unknown	523	1,656	12.2 (3.8)	1,161	35,709	4.4 (0.8)
Medicare**						
Yes	3,492	13,334	94.1 (2.5)	20,834	694,121	83.2 (1.6)
No	107	384	2.7 (2.0)	2,595	123,857	14.9 (1.4)
Unknown	170	460	3.2 (1.4)	475	16,029	1.9 (0.6)
Medicaid***						
Yes	3,557	13,651	96.3 (1.7)	17,427	605,217	72.8 (2.0)
No	71	116	0.8 (0.9)	5,793	210,524	25.3 (2.0)
Unknown	141	411	2.9 (1.4)	620	16,028	1.9 (0.5)
Self-payment						
Yes	3,509	13,631	96.1 (1.4)	22,788	791,143	94.8 (1.0)
No	119	136	1.0 (0.5)	739	30,232	3.6 (1.0)
Unknown	141	411	2.9 (1.4)	382	12,794	1.5 (0.5)
No charge***						
Yes	2,862	10,870	78.3 (5.6)	10,759	350,628	42.5 (2.6)
No	602	2,323	16.7 (5.6)	10,723	396,092	48.0 (2.4)
Unknown	277	686	5.0 (1.9)	2,243	78,810	9.6 (1.4)
Difficulty in referring patients for specialty consultation:						
Private insurance patients						
A lot of difficulty	41	209	1.6 (1.4)	292	15,956	2.0 (0.6)
Some difficulty	281	1,778	13.2 (5.4)	2,462	97,124	12.2 (1.6)
Little difficulty	784	2,674	19.8 (4.9)	3,611	135,196	17.0 (1.6)
No difficulty	1,775	7,022	52.0 (8.4)	14,512	499,422	62.9 (2.2)
Don't know	565	1,815	13.5 (4.9)	1,306	46,533	5.9 (1.1)
Medicare patients**						
A lot of difficulty	84	214	1.6 (1.3)	398	14,664	2.1 (0.7)
Some difficulty	614	1,731	12.5 (3.2)	1,749	58,034	8.3 (1.4)
Little difficulty	940	4,570	33.1 (7.5)	3,179	121,861	17.4 (1.9)
No difficulty	1,365	5,209	37.7 (7.0)	13,675	454,019	64.9 (2.5)
Don't know	616	2,101	15.2 (5.2)	1,363	50,637	7.2 (1.4)

(Continued on p. 1178)

Table 2. (continued)

	Community Health Centers			Physicians' Offices		
	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)
Medicaid patients*						
A lot of difficulty	681	2,332	16.4 (5.6)	4,130	153,078	22.2 (2.1)
Some difficulty	1,444	5,405	38.0 (7.1)	4,234	167,769	24.3 (2.5)
Little difficulty	554	2,565	18.0 (6.1)	2,039	80,334	11.6 (1.7)
No difficulty	587	2,155	15.2 (4.1)	7,176	241,673	35.0 (2.5)
Don't know	495	1,763	12.4 (4.7)	1,504	47,912	6.9 (1.3)
Uninsured patients***						
A lot of difficulty	1,822	6,550	46.2 (7.6)	4,639	172,255	24.2 (2.0)
Some difficulty	792	3,674	25.9 (6.0)	3,428	133,528	18.7 (2.0)
Little difficulty	314	1,250	8.8 (3.4)	2,195	68,746	9.7 (1.3)
No difficulty	256	770	5.4 (2.4)	7,685	267,469	37.5 (2.6)
Don't know	557	1,943	13.7 (4.3)	2,076	70,544	9.9 (1.5)

*p<.05 (based on χ^2 test or t-test)**p<.01 (based on χ^2 test or t-test)***p<.001 (based on χ^2 test or t-test)

Source: National Center for Health Statistics. National Ambulatory Medical Care Survey: 2006 summary (National Health Statistics Reports, no. 3). Hyattsville, MD: National Center for Health Statistics, 2008.

are covered by Medicaid or uninsured patient payments. In contrast, CHC visits are more likely to be paid with Medicaid and they are also more frequently financed by uninsured patient payments. Similar patterns are found for the type of payment accepted from new patients.

Finally, there are differences in the degree of difficulty in referring patients for specialty consultations, based on the type of insurance coverage. Community health centers report more difficulty referring their uninsured, Medicaid-insured, and Medicare-insured patients to specialists than POs.

Medical services. Medical services provided during visits in the two settings are similar in certain aspects but vary in others (Table 3). Rates of enrollment in disease management programs among patients with chronic conditions are not significantly different between CHCs and non-CHCs. The proportion of visits resulting in referrals to other physicians is similar for both settings as well.

Community health centers have a greater volume of visits from established patients, with 39.8% of established patients making more than six visits annually (compared with 26.1% of established patients in non-CHCs). Community health centers also provide more general health education during visits than POs (51.3% vs. 36.6%) and provide more education for specific diseases or risk factors (e.g., asthma, tobacco), although

Table 3.

**MEDICAL SERVICES DURING PATIENT VISITS:
COMPARISONS BETWEEN COMMUNITY HEALTH CENTERS
AND PHYSICIANS' OFFICES IN THE US, 2006**

	Community Health Centers			Physicians' Offices		
	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)
No. visits in last 12 months among established patients***						
0	164	513	4.0 (0.7)	1,699	61,764	8.0 (0.4)
1-2	1,053	3,385	26.6 (2.1)	7,967	271,657	35.1 (0.9)
3-5	1,108	3,762	29.6 (1.5)	6,466	239,360	30.9 (0.8)
6+	1,146	5,055	39.8 (3.1)	5,493	201,929	26.1 (1.2)
Enrollment in disease management program for patients with chronic conditions						
Currently enrolled	290	997	14.1 (3.6)	1,545	55,507	12.6 (1.9)
Ordered/advised to enroll	41	140	2.0 (0.6)	135	4,926	1.1 (0.2)
Not enrolled	915	3,358	46.6 (4.4)	5,359	169,559	38.6 (2.1)
Unknown	681	2,562	36.3 (5.0)	6,100	208,997	47.6 (2.2)
Health education ordered/provided**						
Yes	2,035	7,201	51.3 (4.8)	8,824	319,060	36.6 (1.7)
No	1,757	6,842	48.7 (4.8)	16,183	552,079	63.4 (1.7)
Asthma education to asthmatic patient*						
Yes	101	229	24.3 (4.7)	150	7,569	15.1 (1.5)
No	193	716	75.7 (4.7)	1,155	42,738	85.0 (1.5)
Tobacco education to smoking patient**						
Yes	179	716	33.1 (4.9)	461	15,440	19.1 (1.5)
No	423	1,451	67.0 (4.9)	2,040	65,288	80.9 (1.5)
Weight reduction education to overweight patient						
Yes	263	679	5.7 (0.9)	789	30,804	4.1 (0.4)
No	2,874	11,327	94.3 (0.9)	21,278	726,153	95.9 (0.4)

(Continued on p. 1180)

Table 3. (continued)

	Community Health Centers			Physicians' Offices		
	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)	Visit Sample Frequency	Weighted Visits (thousands)	% (SE)
Total no. health education categories ordered/provided***						
0	1,757	6,842	48.7 (4.8)	16,183	552,079	63.4 (1.7)
1	1,119	4,161	29.6 (3.6)	6,022	204,064	23.4 (1.2)
2	916	3,041	21.7 (2.4)	2,802	114,996	13.2 (1.0)
Patient referred to other MD						
Yes	419	1,359	9.5 (1.6)	1,650	63,258	7.2 (0.5)
No	3,416	12,963	90.5 (1.6)	23,662	818,774	92.8 (0.5)
Lab testing performed in office***						
Yes	3,043	10,856	76.3 (5.4)	11,123	427,626	49.6 (2.5)
No	777	3,366	23.7 (5.4)	13,653	434,940	50.4 (2.5)
Mean time spent with physician (minutes)***	3,835	14,322	12.3 (0.5)	25,312	882,032	21.0 (1.2)

*p<.05 (based on χ^2 test or t-test)
**p<.01 (based on χ^2 test or t-test)
***p<.001 (based on χ^2 test or t-test)

Source: National Center for Health Statistics. National Ambulatory Medical Care Survey: 2006 summary (National Health Statistics Reports, no. 3). Hyattsville, MD: National Center for Health Statistics, 2008.

the prevalence of health education is lower than desired in both settings. Physicians' offices are more likely to offer no education at all during patient visits. Additionally, CHCs perform more of their own lab testing onsite than POs (76.3% vs. 49.6%). Visits from patients in CHCs last less than 13 minutes, compared to an average of 21 minutes per visit for patients seen by office-based physicians.

Discussion

The findings of this study indicate that there are indeed important differences in the populations served by CHCs and POs. These differences in patient visit demographics and health conditions between the two settings illustrate the role that CHCs play in providing a safety net to vulnerable populations.

Community health centers are more likely to serve minority populations, as well as uninsured and Medicaid-insured populations. This is to be expected, given that CHCs receive federal grants mandating them to provide care for uninsured and underserved populations. Community health centers also appear to cater to a sicker population,

which suffers a higher burden of chronic diseases, especially in older age groups. There are higher rates of diabetes, obesity, and depression among CHC patient visits than among patients making office-based visits, pointing to poorer health status overall in this patient population. In contrast, POs, who are not federally mandated to provide care, receive more visits from the privately insured and seniors insured by the Medicare program; visits to these office-based practices also typically come from non-Hispanic White patients.

An exploration of characteristics of patients' neighborhoods confirms that CHCs provide more medical services to communities with lower education levels and higher rates of poverty, compared with office-based practices. Community health centers also provide more medical care to populations living in large central metropolitan areas, indicating their potential for reducing health care access disparities found in urban regions. On the other hand, POs provide a higher proportion of care to patients living in higher-income areas and nonmetropolitan (i.e., rural) locations. Rural areas suffer from health care shortages due to their isolated nature, and CHCs are strategically located in these regions in order to provide a safety-net for rural-dwelling individuals. However, the Rural Health Clinics program also exists separately from the CHC program to improve primary care services to patients in rural communities by providing special Medicaid and Medicare reimbursement rates. Therefore, any rural health clinic visits would be included in the sample of PO visits, providing a potential explanation for the higher visit rates in nonmetropolitan areas among POs. Alternatively, only 104 CHCs were included in the 2006 NAMCS and this sample of ambulatory care visits may not have in fact been completely nationally representative, producing a smaller proportion of visits made by rural-dwelling patients in CHCs than are known to occur nationwide.

A comparison of practice characteristics and medical services provided across settings reveals that CHCs in general provide comparable or better care than POs. For instance, CHCs provide more health education during patient visits than office-based physicians, and provide more services during unconventional hours (i.e., evenings, weekends). However, CHCs face more challenges in referring uninsured and Medicaid patients for specialty consultations. The stronger focus of CHCs on primary health care is important in the maintenance and management of their patients' health; recent studies have linked access to primary care with healthier populations.¹³⁻¹⁴ However, for patients who need consultations and treatments from specialists, the lack of specialists in these centers poses a problem. While primary care plays an important function in maintaining a healthy population, referrals to specialists are also a crucial aspect of health care, and there are sometimes more barriers to specialty care than primary care.¹⁵⁻¹⁶ Previous studies have documented these same difficulties among CHCs, but further investigation is needed to determine potential solutions for removing barriers to specialty care in these settings.^{15,17}

Our study is subject to some limitations. First, it provides a cross-sectional comparison of ambulatory care patient visits in CHCs versus POs, but does not characterize patient care over time in the two settings. In addition, the data are based on self-reports from health care providers, and survey respondents may not have been fully informed about the topics covered or may have provided incomplete documentation of patient

visits. However, this group of respondents is the most knowledgeable regarding its own practice features and patient population characteristics. Finally, our analyses did not account for potential confounding variables that might account for the differences in patient populations and health services between CHCs and POs. For instance, CHCs have a higher proportion of visits from younger patients, which may bias findings towards better health status among CHC patients when in fact their health may be much poorer after controlling for age. As explained earlier, the limited sample size for CHCs would have made adjusted multivariate analyses meaningless. Despite these limitations, this study is the first one that uses recent data to provide a nationally representative comparison of patient populations and provision of services during visits to CHCs and POs. This comparison provides valuable information for developing policies that will improve the capacity of CHCs to meet the health care needs of vulnerable populations.

Overall, our findings indicate that CHCs remain vital safety-net providers for vulnerable populations. Community health centers perform a critical role in bridging the gap of health care and health status disparities that persist in the nation, and provide care comparable to mainstream providers. Thus, the CHC delivery model may be considered as an effective model for providing health care to vulnerable populations, deserving continued and expanded support. However, challenges in the provision of care remain and there is room for improvement. Since CHCs provide a large portion of care to uninsured and Medicaid patients, there is a risk of increased strain on centers if CHC program funding is reduced.¹⁸ The challenges of providing needed medical services to vulnerable populations will remain even with health care reform. If policymakers wish to further reduce health and health care disparities across the nation, they must address the financial strains on health centers, as well as the difficulties CHC providers experience in referring their patients to specialty care.

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