RESEARCH BRIEF

Changes in primary care access at community health centers between 2012/2013 and 2016

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Objective: To compare access at community health centers (CHCs) vs private offices (non-CHCs) under the Affordable Care Act.

Data Source: Ten state primary care audit conducted in 2012/2013 and 2016.

Study Design: CHCs and non-CHCs were called. We calculated difference in differences comparing CHCs vs non-CHCs by caller insurance type.

Principal Findings: In both rounds, Medicaid and uninsured callers had higher appointment rates at CHC than non-CHCs. CHC appointment rates significantly increased between 2012/2013 and 2016 for both employer-sponsored and Medicaid callers, with no significant wait time changes. Appointment rates increased (13.5% points, $P < 0.001$) and wait times decreased (-5.7 days, $P = 0.017$) at CHCs relative to non-CHCs for employer-sponsored insurance.

Conclusion: Appointment availability at CHCs improved after ACA implementation, without increased wait times.

KEYWORDS

access, Affordable Care Act, community health centers

1 | INTRODUCTION

Community health centers (CHCs) specialize in delivering care to populations that are predominantly low income and enrolled in Medicaid or uninsured.¹ Expanded access to CHCs has been associated with decreased barriers and greater access to care for low-income individuals.² CHCs generally participate in Medicaid and also provide subsidized care to low-income uninsured patients.³ Our team assessed access in 10 states in 2012/2013 using an audit design to examine the ability of trained callers posing as new patients to schedule appointments for primary care. Prior to the Affordable Care Act (ACA)'s major insurance expansions, we found that callers with Medicaid had much higher rates of appointment success at CHCs than private physician offices (non-CHCs).⁴

The current study updates the prior study using data collected after implementation of the ACA's federally funded expansions of Medicaid and private insurance in 2014. Notably, the ACA increased grant funding to CHCs by \$11 billion through the creation of the Community Health Center Fund. This funding increase, which was sustained for the fiscal years 2016 and 2017 under the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), was designed to expand the capacity of CHCs, enabling them to see more patients and to add services such as dental care and behavioral health.⁵ The ACA's insurance and funding expansions were associated with increased service volume and revenues at CHCs.⁶

In light of the recent policy changes brought about through the ACA, our study examines changes in the availability of primary care

services at CHCs compared to private physician offices. While we hypothesized that access to care would remain stable or improve with the additional funding that was available under the ACA, we recognized that CHCs may instead have decreased their acceptance of certain patient groups or increased wait times for appointments in the face of greater demand. In a recent study using data from the same 2012/2013 audit and a similar audit conducted in 2016, we found that overall new patient appointment availability has increased for patients with Medicaid and has remained stable for those with employer-sponsored insurance, while wait times for appointments slightly increased across both groups.⁷ That study did not separately compare changes in appointments at CHCs with those at non-CHC physician offices. Accordingly, we examine changes at CHCs in appointment availability and wait times from 2012/2013 to 2016 and compare these data to changes for non-CHC physician offices.

2 | DATA AND METHODS

We conducted an audit study of primary care access in 10 states (Arkansas, Georgia, Iowa, Illinois, Massachusetts, Montana, New Jersey, Oregon, Pennsylvania, and Texas) in November 2012–April 2013 and February–June 2016. The audit randomly assigned callers to insurance statuses, and the study was designed to test for differences across insurance status and states over time. It was not necessarily designed to test for differences by CHC status of the office called but did include enough calls to CHCs to permit assessments of differences between CHCs and non-CHCs and changes over time. Trained auditors called offices posing as individuals seeking the earliest available new patient appointment. The sampling frame, which was refreshed for the 2016 audit, was comprised of an exhaustive list of primary care physicians obtained from SK&A, a frequently updated proprietary database of office-based physicians that includes individuals practicing at CHCs.

Prior to the audit, all listed physician offices received a call to collect information on the number and type of primary care providers and confirm that the office provided primary care to working-age adults and was in network with specific Medicaid managed care organizations and private insurance carriers. CHC status was confirmed using the federal Uniform Data System (UDS), which provides a comprehensive listing of CHCs, both federally qualified health centers and “look-alikes.” The audit sample did not include urgent care or retail clinics, unless they were identified in the preaudit call-through as providing comprehensive, continuous primary care. In both rounds, a probability sample of offices was drawn in proportion to the share of the county population with that insurance type. CHCs were selected through the same sampling process as non-CHCs, with an oversample of CHCs being drawn from the SK&A list in 2016.

Calls were randomized to a clinical scenario (either an annual physical or evaluation of suspected hypertension) and an insurance status. Insurance groups included uninsured, employer-sponsored insurance, and Medicaid. Callers did not initially disclose their

insurance type, but if they were not explicitly asked about their insurance, they verified that it would be accepted before scheduling appointments. They asked for an appointment with a physician known to practice at the office, but would accept an appointment with any available primary care clinician including a nurse practitioner or physician assistant. Callers noted whether an appointment could be scheduled (coded as a binary variable), and, if so, the number of days to the first available appointment. All appointments were canceled at the end of the call or shortly thereafter. We excluded calls where it was not possible to determine whether an appointment was available. For example, if an automated scheduling system required an insurance card number that the auditor did not have. In total, 557 calls were completed to CHCs and 11 371 to non-CHCs in 2012/2013 and 663 and 8711, respectively, in 2016 (Table 1).

Each observation in the dataset was a call to an office. We examined the influence of several characteristics related to CHC and non-CHC offices called in 2012/2013 and 2016. These include the number of physician and midlevel providers and the typical patient volume per day at the office (from SK&A) and participation in Medicaid managed care (from the preaudit survey). We included characteristics of the offices' counties in the baseline year using measures from the 2013 and 2017 County Health Rankings, including the uninsured and rurality rates, physician-to-population ratio, and median income. We also included state-level fixed effects and one time-varying state-level covariate: the Medicare-Medicaid primary care fee ratio created by the Urban Institute.⁸

We separately examined changes for CHCs and non-CHCs, and directly compared these changes in a difference in differences framework. This allows us to understand whether changes observed in CHCs were unique to that setting or whether they also occurred in private offices where patients might receive primary care. To implement this,

TABLE 1 Unweighted sample sizes for calls to community health centers (CHCs) and non-CHCs (private physician offices) in 10 states by year and caller insurance type

Caller insurance type	CHCs		Non-CHCs	
	2012/2013	2016	2012/2013	2016
Employer-Sponsored Insurance	229	175	5481	3750
Medicaid	249	314	4272	3724
Uninsured	79	174	1618	1237
Total	557	663	11 371	8711

Notes: Each cell represents the unweighted number of calls for which an appointment status could be determined by caller insurance type, year, and community health center status. Calls where auditors were not able to determine whether an appointment could be obtained are excluded (78 calls to CHCs in 2012/2013 and 147 in 2016; 1563 calls to private physician offices in 2012/2013 and 1778 in 2016).

Source: Authors' analysis of data from an audit study of primary care access conducted in 2012/2013 and 2016. The 10 audit states were Arkansas, Georgia, Iowa, Illinois, Massachusetts, Montana, New Jersey, Oregon, Pennsylvania, and Texas.

we first compared covariate differences between years, calculating chi-squared statistics for differences. Next, we estimated a separate ordinary least square regression model for each outcome by caller insurance. Models included indicators for whether the call was made in 2016 (vs 2012/2013), whether the call was to a CHC (vs non-CHC), and their interaction. Models also adjusted for all caller, office, county characteristics, the fee ratio, and state fixed effects. We use predictive margins to calculate adjusted means for CHCs and non-CHCs in 2012/2013 and 2016, the adjusted changes for CHCs and non-CHCs (ie, the first differences), and the difference in differences (the change in CHCs minus the change in non-CHCs). We applied weights to ensure the sample for each county is proportional to the population with each insurance type and to give equal weight to each state. We provide 95% confidence intervals, clustering standard errors at the county level. We use $P < 0.05$ as the cutoff for statistical significance. Unadjusted models are provided in the Tables S1-S3.

3 | RESULTS

In 2012/2013, on average, sample CHCs had more personnel than non-CHC offices: They had an average of 4.2 physicians and 2.9 nonphysician clinicians (nurse practitioners and physician assistants), vs 2.8 and 1.2, respectively, at non-CHC offices (Table 2). CHCs also served more patients per day in 2012/2013: an average of 84 vs 53 for non-CHCs. As expected given their safety net status, virtually all CHCs (98%) participated in Medicaid managed

care plans vs 75% of non-CHC offices. Counties with CHCs had slightly higher uninsured rates, greater rurality, lower PCP-to-population ratios, and lower median income. In 2012/2013, the mean Medicaid-to-Medicare fee ratio was 0.74 for our sample of CHCs and 0.67 for our sample of non-CHCs. CHCs and non-CHCs in our sample were both located in counties that experienced large, statistically significant declines in their uninsured rates during the study period.

The adjusted changes in appointment availability are shown in Table 3. Across insurance types, appointment availability was comparable or better at CHCs than non-CHCs in both time periods. Appointment availability for individuals with employer-sponsored insurance increased at CHCs from 80.0% in 2012/2013 to 92.2% in 2016 ($P = 0.001$), but did not significantly change at non-CHCs (84.2% in 2012/13 vs 83.4% in 2016) ($P = 0.543$). For those with ESI, the change at CHCs relative to the non-CHC change was statistically significant (difference in differences 13.5 percentage points, $P = 0.008$). Appointment availability for individuals with Medicaid increased at CHCs from 78.0% in 2012/2013 to 88.3% in 2016 ($P = 0.016$) and at non-CHCs (56.3% in 2012/13 and 61.1% in 2016 ($P = 0.039$), and the difference in differences was not statistically significant. There were no statistically significant changes in appointment availability for uninsured callers able to pay the full price of the visit at CHCs (86.4% in 2012/2013 and 89.0% in 2016 ($P = 0.139$)) and non-CHCs (76.9% in 2012/2013 and 80.4% in 2016 ($P = 0.518$)). The difference in differences was not statistically significant.

TABLE 2 Characteristics of community health centers (CHCs) and private physician offices called in the audit

	Community health centers			Private physician offices		
	2012/13	2016	P-value	2012/13	2016	P-value
Office characteristics						
Number of nonphysician clinicians	2.9	2.6	0.13	1.2	1.1	0.01
Number of physicians	4.2	4.8	0.27	2.8	2.9	0.33
Mean daily patient volume	83.8	83.8	0.99	53.4	54.6	0.38
In network for Medicaid MCO	0.98	0.97	0.68	0.76	0.76	0.28
County characteristics						
Mean uninsured rate	22.0	13.7	<0.01	19.8	12.6	<0.01
Mean rurality rate	33.7	26.9	0.04	21.8	21.0	0.05
Mean PCP-to-population ratio	73.1	76.2	0.66	63.1	79.9	<0.01
Mean County Median income	\$46 862	\$53 667	<0.01	\$56 865	\$60 219	<0.01
State characteristics						
Medicaid-Medicare primary care fee ratio	0.74	0.66	0.002	0.67	0.65	0.26

Notes: Nonphysician clinicians include midlevel practitioners (nurse practitioners and physician assistants). PCP-to-population ratio reflects the number of active primary care physicians in the county per 100 000 residents. Median county income in 2012/2013 is adjusted for inflation to 2016 using the consumer price index. Rurality rate is the percentage of the county residents who reside in a designated rural area. The 10 audit states were Arkansas, Georgia, Iowa, Illinois, Massachusetts, Montana, New Jersey, Oregon, Pennsylvania, and Texas.

Sources: Office characteristics were collected from the SK&A file (number of clinicians and daily volume) and a preaudit survey of the study offices (MCO status). County characteristics were obtained using information from the 2013 and 2017 County Health Rankings. The Medicaid-to-Medicare fee ratio is for 2012 and 2016 and was created by the Urban Institute.

TABLE 3 Changes in ability to get new patient visit by community health center (CHC) status and caller insurance type, 2012/2013 vs 2016

Setting called and caller insurance status	Adjusted mean 2012/2013	Adjusted mean 2016	Difference in means (95% CI)	P-value	Difference in differences (CHC vs non-CHC)	P-value
CHC ESI	0.800	0.922	0.127 (0.054,0.199)	0.001	0.135 (0.063, 0.207)	<0.001
Private office ESI	0.842	0.834	-0.008 (-0.036, 0.019)	0.543		
CHC Medicaid	0.777	0.883	0.107 (0.019,0.194)	0.016	0.059 (-0.021,0.139)	0.150
Private office Medicaid	0.563	0.611	0.048 (0.002,0.094)	0.039		
CHC uninsured	0.864	0.890	0.036 (-0.012,0.084)	0.139	-0.011 (-0.077,0.055)	0.748
Private office uninsured	0.769	0.804	0.025 (-0.051,0.102)	0.518		

Notes: Estimates are weighted to be representative of the population with each insurance type in the counties and to give equal weight to each state. 95% confidence intervals are shown in parentheses. CHC, community health center; non-CHC, private physician offices. Models adjust for office and county characteristics, state fixed effects, and the state Medicaid-to-Medicare fee ratio.

Source: Authors' analysis of data from an audit study of primary care access conducted in 2012/2013 and 2016. The 10 audit states were Arkansas, Georgia, Iowa, Illinois, Massachusetts, Montana, New Jersey, Oregon, Pennsylvania, and Texas.

TABLE 4 Changes in mean days to an appointment by community health center status and caller insurance type, 2012/2013 vs 2016

	Adjusted mean 2012/2013	Adjusted mean 2016	Difference in means	P-value	Difference in differences (CHC vs non-CHC)	P-value
CHC employer-sponsored insurance	15.1	10.1	-5.0 (-9.9, -0.3)	0.048	-5.7 (-10.4, -1.0)	0.017
Non-CHC employer-sponsored insurance	12.2	13.0	0.8 (-1.0,2.5)	0.389		
CHC Medicaid	14.0	14.4	-0.5 (-5.4,4.3)	0.836	-1.1 (-5.6,3.4)	0.631
Non-CHC Medicaid	13.8	14.3	0.6 (-1.7,2.9)	0.601		
CHC uninsured	11.4	11.6	0.2 (-5.1,5.5)	0.933	-1.8 (-6.6,3.0)	0.461
Non-CHC uninsured	11.2	13.2	2.0 (-0.3,4.4)	0.087		

Notes: Estimates are weighted to be representative of the population sizes with each insurance type in the counties. 95% confidence intervals are shown in parentheses. CHC, community health center; ESI, employer-sponsored insurance. Models adjust for office and county characteristics, state fixed effects, and the state Medicaid-to-Medicare fee ratio.

Source: Authors' analysis of data from an audit study of primary care access conducted in 2012/2013 and 2016.

Mean days to an appointment at CHCs for callers with employer-sponsored insurance was 15.1 in 2012/2013 and 10.1 in 2016 ($P = 0.048$) and 12.2 in 2012/2013 and 13.0 in 2016 ($P = 0.389$) at non-CHCs (Table 4). The difference in differences of -5.7 days was statistically significant ($P = 0.017$), indicating a reduction in days to appointment at CHCs relative to non-CHCs for those with ESI. For Medicaid callers, the mean days at CHCs was 14.0 in 2012/2013 and 14.4 in 2016 ($P = 0.836$), and at non-CHCs was 13.8 and 14.3, respectively ($P = 0.601$). The difference in differences was not statistically significant. For uninsured callers, there was no significant change in days to appointment at CHCs at 11.4 in 2012/2013 and 11.6 in 2016 ($P = 0.933$) and at non-CHCs, from 11.2 to 13.2 ($P = 0.087$). The difference in differences was not statistically significant. All unadjusted estimates were similar in magnitude and significance (Tables S1-S3).

4 | DISCUSSION

Using an audit methodology, we compared changes in the availability of new patient primary care appointments at CHCs vs

non-CHCs from 2012/2013 to 2016. Our study outcomes represent key markers of access to care at the "front end" of the delivery system. Pre-ACA appointment availability was substantially higher at CHCs than non-CHCs for Medicaid and uninsured callers, and was comparable for callers with employer-sponsored insurance.⁴ We find similar patterns in 2016 and also find significant increases in primary care appointment access at CHCs for callers with Medicaid and employer-sponsored coverage between 2012/13 and 2016, a time of dramatic increases in the number of newly insured low-income Americans. Though we did not focus on payment flexibility or reduced-price care for uninsured in this study, our prior work also revealed that CHCs quote substantially lower prices than do non-CHCs and are more likely to offer price accommodation.⁴

Our findings underscore that CHCs have not experienced a drop-off in their acceptance of Medicaid patients after Medicaid expansion, and if anything, may be making more primary care available. These results are consistent with recent studies showing how much the volume of care to Medicaid enrollees at CHCs has increased after the ACA.^{6,9,10} We further add to the literature

by providing a direct comparison between appointment availability at CHCs and other primary care practices. The ability of CHCs to increase their appointment availability for many patients may reflect investments in staffing and infrastructure that are related to the increased grant funding for CHCs under the ACA. Prior federal grant increases have been associated with greater delivery of care and more services.¹¹ Qualitative studies found that with these additional funds, CHCs were engaging in various delivery system changes, including changing workflow, increasing capacity, and expanding the roles of clinic staff.^{12,13} Medicaid expansion under the ACA is likely to be another key driver of both increased demand and revenue for CHCs in those states that have expanded their programs.¹⁰ To the extent that Medicaid expansion has improved the financial health of CHCs, these changes may have allowed CHCs to focus more services on new Medicaid enrollees.

For callers with employer-sponsored insurance, we found that appointment availability increased at CHCs increased relative to the changes found in non-CHCs during the study period. However, callers with employer-sponsored insurance had consistently high access (>80% appointment rate) in both settings throughout the study period. Since non-CHCs are much more common than CHCs, and generally offer good access to the privately insured, availability at CHCs may be less important to privately insured patients than to Medicaid and uninsured populations. We also found that uninsured callers who were able to pay the full price of the visit had consistently higher appointment availability at CHCs and the lower wait times of any caller group. CHCs thus appear to be highly motivated to provide appointments to these callers, either because they provide good revenue (due to grant funding or cash payment) or because of their mission to serve the uninsured.

Our study is subject to some important limitations. First, we compare calls to CHCs vs to traditional primary care offices, but we do not capture popular alternatives where low-income people may seek unscheduled acute care on a walk-in basis (eg, retail clinics and urgent care centers). Second, because relatively few calls were placed to CHCs in 2012/2013 vs 2016 (when CHCs were oversampled), we are limited in our ability to test for subgroup differences. For example, we lack the sample sizes to test for differences at CHCs between states, especially based on Medicaid expansion under the ACA or by rurality or CHC funding levels. Third, our study only measures aspects of the new patient experience related to the ability to schedule an appointment and does not speak to issues related to the quality of the services rendered. Fourth, our study relies on two time periods. We therefore cannot establish whether CHCs and non-CHCs experienced similar trends in our key outcomes prior to the ACA, which would add credibility to the difference in differences estimates. Fifth, although we adjust for a variety of covariates in our regressions, we cannot rule out the possibility that sampling differences or other time-varying changes in the two time periods could influence differences in study results.

5 | CONCLUSION

Despite large increases in total patient volume following the ACA, appointment availability improved or remained stable for CHC patients in 2016 vs 2012/3, with around 90% of callers in each insurance status successfully scheduling a new patient visit in 2016 compared to 80% in 2012/2013. Access remained notably higher at CHCs as compared to non-CHCs, especially for Medicaid patients. Identifying whether these improvements are associated with better health and health care outcomes for low-income patients is an important objective for future research.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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