

# The Geographic Accessibility of Retail Clinics for Underserved Populations

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**Background:** The extent to which retail clinics provide access to care for underserved populations remains largely unknown. The purpose of this study was to determine whether retail clinics tend to be located in census tracts with higher medical need.

**Methods:** The locations of retail clinics as of July 1, 2008, were mapped and linked to the 2000 US Census and 2008 Health Resources and Services Administration data. Bivariate analyses and logistic regression models with random effects were used to compare the characteristics of census tracts with and without retail clinics. To determine whether retail clinics followed the underlying distribution of chain stores, the location of clinics conditional on there being a chain store was analyzed in 6 counties.

**Results:** Of the 932 retail clinics, 930 were successfully mapped. Eighteen states had no retail clinics, and 17 states had 25 or more clinics. Within counties with at least 1 retail clinic, census tracts with retail clinics had a lower black population percentage, lower poverty rates, and higher median incomes and were less likely to be medically underserved areas/populations compared with census tracts without retail clinics. Similarly, stores with retail clinics were less likely to be located in medically underserved areas compared with stores without retail clinics.

**Conclusion:** Retail clinics are currently located in more advantaged neighborhoods, which may make them less accessible for those most in need.

*Arch Intern Med.* 2009;169(10):945-949

**R**ETAIL CLINICS ARE MEDICAL clinics located within larger retail outlets that are usually staffed by nurse practitioners and supervised by an off-site physician.<sup>1,2</sup> Treatment tends to be based on algorithms,<sup>3</sup> and the scope of practice, although varying by clinic, tends to focus on urgent care and routine preventive services (such as immunizations).<sup>2</sup>

## See Invited Commentaries at the end of this article

The rapid growth of retail clinics since their inception in 2000 has raised considerable controversy. Health care provider organizations voice concerns about the lack of continuity of care, inadequate test follow-up, and the potential effects on quality.<sup>4-6</sup> Proponents of retail clinics argue that these clinics can increase access to care,<sup>3</sup> particularly for uninsured and underserved individuals. The trade organization for retail clinics states that these clinics will

benefit the medical community by providing easier access to health care. CCCs [convenient care clinics] serve as an entry point to the health care system for individuals without a primary care provider and those who live in underserved areas.<sup>7</sup>

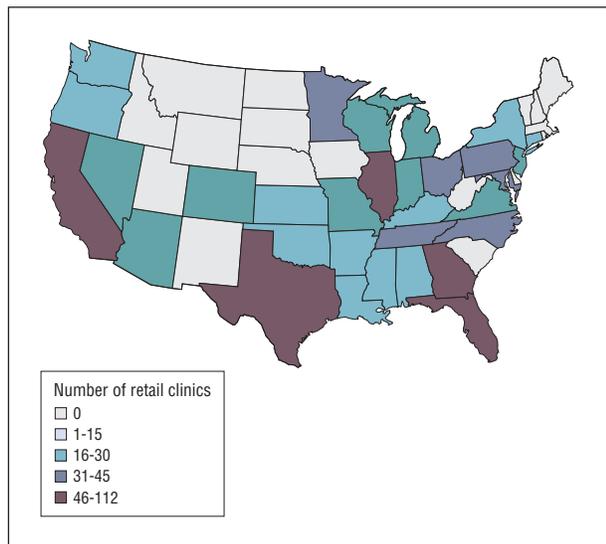
The chief medical officer of a retail clinic chain notes that these clinics will be a

first point of care for those without access to [a] regular provider, those without insurance, or those unable to get the care they need in a timely fashion.<sup>8</sup>

A recent report on retail clinics states that the placement of clinics is determined in part by “physician shortages and higher uninsured populations.”<sup>1(p10)</sup> Also, media coverage highlights that retail clinics are a “potential answer from the private sector” for the uninsured,<sup>9</sup> a way for residents without primary care physicians to avoid the emergency department,<sup>10</sup> and an opportunity for the uninsured to spend less money on health care.<sup>11</sup> An initial report indicates that people typically visit retail clinics for acute illnesses and immunizations.<sup>12</sup> Nearly a third pay for these visits out of pocket, and more than 60% of patients at these visits lack a primary care provider.<sup>12</sup> Other reports have similarly found that clinic users often lack insurance,<sup>13,14</sup> and many do not have access to a usual source of primary care.<sup>13</sup>

Retail clinics may alter access to care in multiple, overlapping ways.<sup>1</sup> They tend to be open on nights and weekends and many clinics do not require appointments. Prices are posted and tend to be lower than those

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**Figure 1.** Distribution of retail clinics across the United States.

charged by primary care physicians or emergency departments. Greater price transparency and lower overall prices may encourage individuals who are uninsured or underinsured to seek medical care from these clinics. Finally, location may alter access to care by making it more or less easy for individuals to reach the clinic. Need for care may be greatest in areas with lower socioeconomic status owing to higher burdens of disease, lower rates of health insurance, and lower access to medical providers. If retail clinics are to improve access for these populations, they must be located in places where they are able to be reached.

This study examined the geographic accessibility of retail clinics as of July 1, 2008. It tests whether the location of these clinics varies with respect to the sociodemographic characteristics of the individuals in the surrounding census tract. Furthermore, because retail clinics are located within existing chain stores (such as pharmacies and grocery stores), the distribution of retail clinics is dependent on the distribution of these stores. This study then examined the locations of retail clinics conditional on the location of existing chain stores to identify whether retail clinics are more or less likely to be located in medically underserved areas.

## METHODS

The locations of retail clinics were identified using the 2008 full member directory from the Convenient Care Association of America (<http://www.convenientcareassociation.org/profiles.htm>; accessed July 1, 2008) and from the Web site of each member organization. Analyses were limited to the continental United States. Addresses for retail clinics were geocoded using Street-Map USA from ArcGIS version 9.2 (ESRI, Redlands, California), supplemented by online searches. Of the 932 retail clinics, 930 were matched to their street address.

Counties were classified into metropolitan statistical areas, which identify counties with at least 1 urban area of 50 000 individuals and its surrounding territory.<sup>15</sup> Per capita rates of general practice physicians (from 2006) and acute care hospital beds (2005) and rates of uninsurance (2000) were assessed at the county level using data from the Area Resource File.<sup>16</sup>

Sociodemographic characteristics of the neighboring population were calculated at the census tract level, which are subdivisions of counties, using 2000 US Census data. The following variables were examined: white population percentage, black population percentage, Hispanic population percentage, Asian population percentage, percentage of the population younger than 5 years, percentage of the population younger than 18 years, percentage of the population 65 years or older, percentage living in rental units, percentage living in owner-occupied homes, median household income, and percentage of households living in poverty.

Medically underserved areas/populations were identified using data from the Health Resources and Services Administration (<http://datawarehouse.hrsa.gov>; accessed January 23, 2008). A medically underserved area is a designation from the federal government based on the ratio of primary medical care physicians per 1000 population, infant mortality ratio, percentage of the population with incomes below the poverty level, and the percentage of the population 65 years or older. A medically underserved area is designated for census tracts (in metropolitan areas) and counties (in nonmetropolitan areas). Medically underserved population is based on the same index but used to describe a specific population within a geographic area (<http://bhpr.hrsa.gov/shortage/muaguide.htm>; accessed February 11, 2008).

The distribution of retail clinics was first examined at the level of the state and county. Because the development of retail clinics is concentrated within certain counties, the data were then limited to counties that had at least 1 retail clinic. By eliminating counties in which no retail clinics are built for these analyses, we focused on areas where retail clinic operators have decided to place their businesses. Bivariate analyses were used to compare the characteristics of census tracts with and without retail clinics. Logistic regression models with random effects were then built in which census tracts were nested in counties and models were adjusted for census tract level population density. Separate models were built for each census tract characteristic.

To compare the census tract characteristics of retail clinics conditional on the location of the chain stores, we first identified the 6 counties with the highest number of retail clinics. Assuming that, per county, 20 stores had retail clinics and 200 stores did not, we estimated that 6 counties provided a 90% power to detect a 10% difference in the percentage located in medically underserved areas. After identifying the chain stores in which retail clinics were located (eg, CVS, Walgreens) in each county, we then performed Internet searches to obtain the addresses of the chain stores without retail clinics. Of the 1309 stores identified, 1293 were successfully geocoded. A similar strategy of bivariate and logistic regression models with random effects were used to compare the location of stores with retail clinics with those without retail clinics. In these analyses, each store was given the characteristics of the census tract where it was located. All analyses were conducted using Stata 10.0 statistical software (StataCorp, College Station, Texas).

## RESULTS

A total of 930 retail clinics were geocoded to the continental United States. Eighteen states (37%) had no retail clinics, and 17 states (35%) had 25 or more clinics. Five states each had more than 50 clinics: Florida (n=112), California (n=90), Texas (n=85), Illinois (n=58), and Georgia (n=56). **Figure 1** shows the distribution of retail clinics across the United States.

The retail clinics were located in a total of 908 different census tracts (range, 1-2 clinics per census tract) within 247 different counties (range, 1-25 clinics per county), and 96% of the counties with retail clinics were

**Table 1. Comparison of Sociodemographic Characteristics Between Census Tracts With and Without Retail Clinics Within Counties With at Least 1 Clinic**

Characteristic	Census Tracts With Retail Clinics (n=908)	Census Tracts Without Retail Clinics (n=28 631)	P Value <sup>a</sup>	Odds Ratio (95% CI) <sup>b</sup>	P Value
Medically underserved areas/populations, %	13.6	25.0	<.001	0.52 (0.42-0.64) <sup>c</sup>	<.001
Race/ethnicity, %					
Black	8.0	16.3	<.001	0.80 (0.76-0.84)	<.001
White	81.5	68.6	<.001	1.22 (1.17-1.27)	<.001
Hispanic	9.8	15.0	<.001	0.90 (0.85-0.95)	<.001
Asian	4.3	4.9	.03	1.13 (1.02-1.26)	.02
Age, %					
<5 y	6.8	6.8	.72	1.20 (0.88-1.62)	.26
<18 y	24.8	25.3	.04	0.92 (0.83-1.01)	.04
>65 y	11.6	12.2	.03	0.89 (0.81-0.97)	.01
Housing status, %					
Rental	28.7	33.8	<.001	0.98 (0.95-1.02)	.47
Owner occupied	65.9	59.7	<.001	1.04 (1.00-1.07)	.03
Median income, \$	58 544	50 559	<.001	1.10 (1.07-1.13) <sup>d</sup>	<.001
Poverty, %	7.0	12.4	<.001	0.54 (0.48-0.61)	<.001

Abbreviation: CI, confidence interval.

<sup>a</sup>Two-sided *t* test.

<sup>b</sup>The odds ratios for the variables expressed as percentages represent a change of 10%; adjusted for census tract population density and clustering within counties.

<sup>c</sup>The odds ratio represents the odds of being located in a medically underserved area/population.

<sup>d</sup>The odds ratio represents a change of \$10 000.

classified as metropolitan statistical areas. Even among metropolitan counties, those counties with retail clinics had significantly higher population densities than those without (1316 vs 393 people per square mile;  $P < .001$ ). There were no significant differences in number of per capita hospital beds (2.3 vs 2.4 per 1000 residents;  $P = .63$ ) and general practitioners (2.8 vs 2.8 per 10 000 residents;  $P = .87$ ) between metropolitan counties with and without clinics; counties with retail clinics had lower rates of uninsured individuals (12.1% vs 13.3%;  $P < .001$ ).

**Table 1** describes the characteristics of the census tracts within the 247 counties. Compared with census tracts without retail clinics, those tracts with retail clinic had a lower percentage of black and Hispanic individuals, fewer rental units, and lower rates of poverty. In addition, the census tracts had residents with higher median incomes and higher rates of home ownership. With the exception of rental housing, results were similar in the logistic regression analyses that clustered the tracts into counties and adjusted for population density.

Of census tracts with retail clinics, 13.6% were located in medically underserved areas/populations (representing 123 clinics). In comparison, 25.0% of census tracts in these counties were within medically underserved areas/populations (adjusted odds ratio, 0.52; 95% confidence interval [CI], 0.42-0.64 [ $P < .001$ ]).

Within the 6 counties with the highest number of retail clinics, 135 clinics were located in 8 different types of chain store. Overall, census tracts with chain stores (including those with and without retail clinics) tended to be more advantaged than census tracts without chain stores.

Stores with retail clinics tended to be located in areas with more white residents, fewer black and Hispanic residents, higher rates of home ownership, higher median

incomes, and lower rates of poverty compared with stores without retail clinics (**Table 2**). In logistic regression models, housing characteristics were no longer significant. As given in Table 2, 15.6% of retail clinics were located in medically underserved areas compared with 31.6% of stores without clinics (adjusted odds ratio, 0.49; 95% CI, 0.29-0.83 [ $P = .008$ ]). **Figure 2** shows the location of retail clinics, chain stores without retail clinics, and medically underserved areas/populations in 2 of the counties with the greatest number of retail clinics.

#### COMMENT

This study demonstrates that retail clinics are more likely to be located in census tracts characterized by higher resident income and lower levels of poverty and are less likely to be located in medically underserved areas. Given the underlying distribution of stores, companies are opting to locate retail clinics in more advantaged neighborhoods.

These results raise important questions about the ability of retail clinics to increase health care access for the underserved or uninsured. Despite features such as walk-in appointments and evening and weekend hours, access by disadvantaged populations may be limited if the clinic is difficult to reach. Prior research has shown that lower geographic accessibility of safety net health care providers was associated with higher levels of unmet medical needs among uninsured individuals.<sup>17</sup> However, surveys suggest that approximately a quarter of retail clinics users are uninsured,<sup>16,17</sup> and many do not have a usual source of medical care.<sup>12,16</sup> This high level of use occurs despite a relatively unfavorable distribution of retail clinics within particular counties. This retail clinic use may, in part, be explained by the clustering of retail

**Table 2. Comparison of Sociodemographic Characteristics Between Store Locations With and Without Retail Clinics in 6 Counties<sup>a</sup>**

Characteristic	Stores With Retail Clinics (n=135)	Stores Without Retail Clinics (n=1293)	P Value <sup>b</sup>	Odds Ratio (95% CI) <sup>c</sup>	P Value
Medically underserved areas/populations, %	15.6	31.6	<.001	0.49 (0.29-0.83) <sup>d</sup>	.008
Race/ethnicity, %					
Black	5.4	12.5	<.001	0.75 (0.62-0.91)	<.01
White	76.7	63.3	<.001	1.33 (1.19-1.49)	<.001
Hispanic	15.9	25.9	<.001	0.79 (0.70-0.89)	<.001
Asian	7.6	8.0	.60	0.95 (0.77-1.17)	.64
Age, %					
<5 y	6.3	6.9	.01	0.45 (0.21-1.00)	.05
<18 y	23.2	24.8	.04	0.78 (0.62-0.97)	.03
>65 y	13.2	12.3	.31	0.99 (0.82-1.19)	.90
Housing status, %					
Rental	33.9	39.4	<.01	0.96 (0.86-1.06)	.40
Owner occupied	60.7	54.9	<.01	1.04 (0.95-1.15)	.35
Median income, \$	59 884	50 893	<.001	1.14 (1.05-1.24) <sup>e</sup>	.002
Poverty, %	8.0	12.3	<.001	0.55 (0.40-0.74)	<.001

Abbreviation: CI, confidence interval.

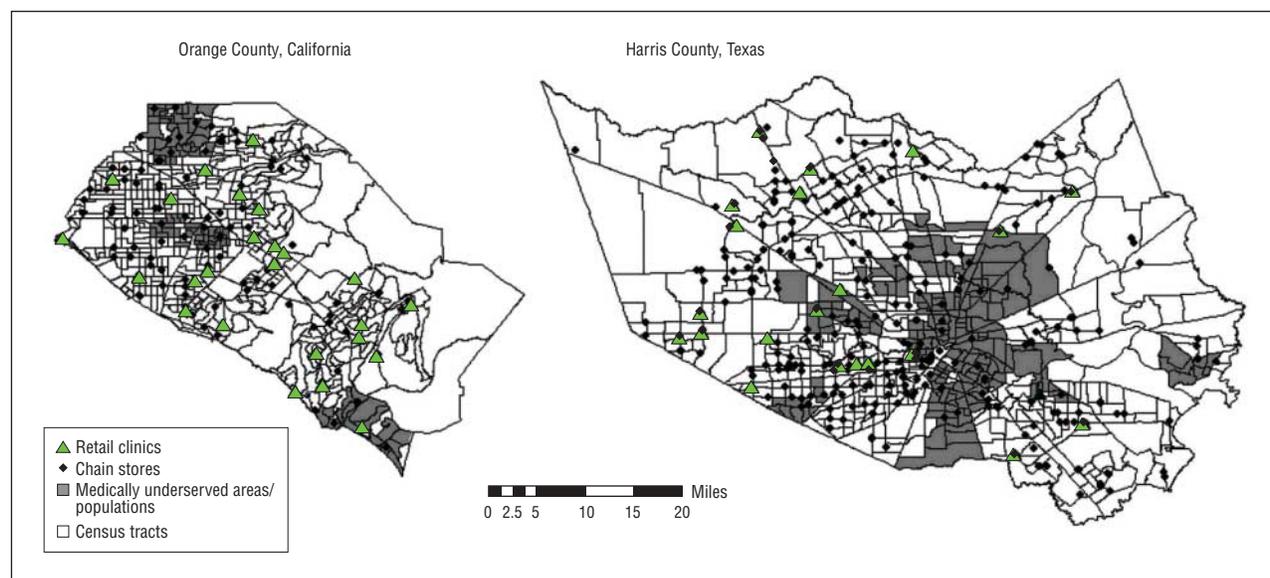
<sup>a</sup>Cook County, Illinois; Harris County, Texas; Orange County, California; Los Angeles County, California; Palm Beach County, Florida; San Diego County, California. Clinic operators were Lindora, Minute Clinic, My Healthy Access Inc, Quick Health RediClinic, and Take Care and were located in CVS, Farmacia Remedios, HEB, Long's Drugs, Publix, RiteAid, Walgreens, and WalMart.

<sup>b</sup>Two-sided *t* test.

<sup>c</sup>The odds ratios for the variables expressed as percentages represent a change of 10%; adjusted for census tract population density and clustering within counties.

<sup>d</sup>The odds ratio represents the odds of being located in a medically underserved area/population.

<sup>e</sup>The odds ratio represents a change of \$10 000.



**Figure 2.** The locations of retail clinics, chain stores, and medically underserved areas/populations.

clinics within metropolitan areas that have high population densities and high absolute numbers of people without insurance. People without insurance or a usual source of care may have limited options for receiving care, and thus, people may be more willing to travel longer distances to receive medical care. Lower prices with greater cost transparency and convenient hours with lack of scheduled appointments are also cited as reasons why people choose retail clinics.<sup>13</sup> Additional factors including whether the clinic is near public transportation and where the individual works affect accessibility and may

be important in understanding clinic use by vulnerable populations. If the distribution of retail clinics within counties were more uniform, it seems possible that the use by vulnerable populations would be higher.

Overall, early evidence suggests that users of the clinics are satisfied with the quality of care, convenience of the clinic, and the cost of care,<sup>17</sup> and adherence to evidence-based guidelines is high.<sup>18</sup> The ways in which these clinics will affect patterns of care, including continuity of care, remains debated.<sup>19</sup> The current distribution of retail clinics in more advantaged neighborhoods further

focuses attention on how these clinics may augment rather than necessarily substitute for traditional care for many of their patients.

If policy makers decide that retail clinics should be an important component of health care accessibility, they may need to actively address the location given the community's health care needs. Municipalities may consider working with store operators to incentivize their opening in disadvantaged areas. With many chain stores currently located in medically underserved areas, the future expansion of retail clinics into these stores could improve geographic accessibility for underserved populations. However, the underlying distribution of chain stores is not even. Partnerships that have formed to open supermarkets in disadvantaged neighborhoods may provide future sites for retail clinics and serve as models for increasing private investment.<sup>20</sup> Municipalities should consider ways in which retail clinics may supplement the existing health care safety net system.

There are multiple limitations to this study. It is an area-level analysis, which does not examine the particular clients of a retail clinic and does not measure other important aspects of accessibility such as hours of operation, public transportation, and commuting patterns. Census tracts were used, which do not necessarily correspond with where people receive their goods and services. Analyses were unable to account for features of the existing store such as available space, which may affect the ability to place retail clinics in the store. Power limitations precluded performing chain-specific analyses for the majority of the stores in the 6 counties; however, analyses within 1 clinic chain showed a similar pattern of results. Finally, the report is meant to provide a snapshot of the location of retail clinics at a single point in time, and the number of retail clinics is expected to continue growing.

In conclusion, retail clinics tend to be preferentially located in more advantaged neighborhoods, even after accounting for the underlying distribution of chain stores. To the extent that location correlates with accessibility, this distribution may undermine efforts to promote access for underserved populations. If retail clinics are determined to be a valuable and effective source of care, rethinking the distribution of these clinics may be an important avenue for improving their potential societal benefit. With nearly a third of chain stores located in medically underserved areas, the future expansion of retail clinics into existing stores could potentially improve access for underserved populations.

**Accepted for Publication:** January 27, 2009.

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**Author Contributions:** Dr Pollack had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. *Study concept and design:* Pollack and Armstrong. *Acquisition of data:* Pollack. *Analysis and interpretation of data:* Pollack and Armstrong. *Drafting of the manuscript:* Pollack. *Critical revision of the manuscript for important in-*

*tellectual content:* Armstrong. *Statistical analysis:* Pollack. *Study supervision:* Armstrong.

**Financial Disclosure:** None reported.

**Funding/Support:** The Robert Wood Johnson Foundation Clinical Scholars Program at the University of Pennsylvania provided funding for this research.

**Role of the Sponsor:** The funder had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; and preparation, review, or approval of the manuscript.

**Additional Contributions:** Abraham Newman, PhD, Giridhar Mallya, MD, David Asch, MD, K.J. Liao, Vicky Tam, William Colwell, and Darryl Depencier provided suggestions and advice. Mr Colwell and Mr Depencier received financial compensation for their assistance.

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