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FINDINGS BRIEF

RURAL & MINORITY Health Research Center

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Availability of Primary Care Safety Net Providers in Minoritized Racial/Ethnic Group Areas

Key Points:

- Minoritized Areas: We use the term "minoritized" to refer to groups that have historically been marginalized by society and government institutions. ZIP Code Tabulation Areas (ZCTAs) were classified as being a top minoritized place if the proportion of persons in the ZCTA who identified as a specific minoritized racial/ethnic group (MRG) met or exceeded the 95th percentile for the proportion of those residents in all rural or all urban ZCTAs, respectively. Top MRG ZCTAs are not necessarily "majority minority" places.
- Access and MRG ZCTAs: Access to primary care safety net providers was measured based on straight-line distances from each ZCTA studied to the nearest Federally Qualified Health Center (FQHC) or Rural Health Clinic (RHC). Among rural ZCTAs, primary care safety net providers were located closest to top non-Hispanic Black or Hispanic ZCTAs with a median distance to care of 3.9 miles for each. Rural ZCTAs in the top proportion for American Indian/Alaska Native populations were a median of 9.7 miles from the nearest primary care safety net provider.
- Access and rural ZCTAs in general:
  - Rural ZCTAs were a median of 7.4 miles from the nearest Rural Health Clinic (RHC) or Federally Qualified Health Center (FQHC) with 84.3% of ZCTAs located within 15 miles of the nearest provider.
  - Urban ZCTAs have better access to safety net providers with a median distance of 4.4 miles. 95% of ZCTAs are within 15 miles of the nearest provider.
  - Due to their higher frequency, access to RHCs was greater than FQHCs among all rural ZCTAs.

The current findings brief is part of a series of briefs documenting disparities in access to health care services measured as distance to the nearest facility for areas that have a high density of residents from minoritized racial and ethnic groups. We use the term "minoritized" to refer to groups that have historically been marginalized by society and government institutions. This wording, rather than the terms "minority" or "minorities," highlights the intentional social, economic, and political discrimination these populations have experienced. [1] Work from this series has also been adapted into a web visualization[2] and a peer reviewed publication[3] both in *Health Affairs*.

INTRODUCTION

Access to primary care (i.e., family medicine, pediatrics) is essential for achieving optimal health.[4] Safety net providers have been defined as "the web of professionals and institutions that provide care to the poor and uninsured regardless of ability to pay."[5] In rural areas, the safety net providers specifically associated with outpatient primary care are Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs). The presence of RHCs and FQHCs has been shown to reduce ambulatory care sensitive hospitalizations – that is, hospital episodes that might have been avoided with appropriate outpatient care in the preceding six months.[6] However, work done in an urban context has suggested that the availability of primary care providers varies with the racial/ethnic composition of the area.[7]

Improving access to primary care among low income and medically underserved populations has been a public health goal of the U.S. federal government since President Johnson's War on Poverty. The two primary care provider types noted above, FQHCs and RHCs, were established in 1965 and 1977, respectively, to improve access to primary care in underserved communities. While both clinic types have a shared goal of increasing access to primary care among underserved populations, their structures are different. FQHCs, which receive grant funding to help underwrite their services, can be in underserved rural or urban areas. FQHCs must operate as non-profit entities governed by a board of directors with majority representation from consumers. FQHCs must provide care for all age groups, operate on a sliding fee scale, and meet other requirements. RHCs are required to be in rural, underserved areas and may be profit, non-profit, or public entities. RHCs are required to include at least one half-time non-physician provider such as a physician assistant or nurse practitioner. RHCs can be independent practitioner offices or provider based. A provider based RHC is owned and operated by a hospital, nursing home, or home health agency. Hospital ownership is the most common form of the provider based RHC structure. RHCs do not receive federal grant support but receive enhanced reimbursement from Medicare and Medicaid.[8]

The geographic distribution of these two types of safety net clinics, relative to the racial and ethnic composition of residents, is unknown. Previous studies have shown that between 2000 and 2011 counties with a higher proportion of minoritized populations were less likely to have gained an FQHC or RHC and were more likely to lose an RHC. Growth in clinics varied across Census regions with increases occurring in counties with higher proportions of Hispanic/Latino populations.[9] More recent county-level analysis found that 14.1% of high need rural counties (279 counties) did not have an FQHC or RHC within the county.[10] A national picture linking FQHC and RHC availability to concentrations of minoritized populations, however, was not available. Thus, this brief examines access to primary care safety net providers for rural and urban places falling at the top of the distribution for the proportion of their population that identify as members of a minoritized racial/ethnic group.

METHODS

Defining Minoritized Racial/Ethnic Groups (MRG) across Urban and Rural ZIP Code Tabulation Areas (ZCTAs)

ZCTAs (n = 32,670) were first classified as rural or urban using Rural Urban Commuting Area definitions. ZCTAs classified 1 through 3 are defined as urban, and those classified 4 through 10 are defined as rural.[13] Given differences in the demographic profile of rural and urban places, rural and urban ZCTAs were examined separately.

ZCTAs were classified as being a "top" place for a specific racial/ethnic group if the proportion of persons who identified as that group in the ZCTA met or exceeded the 95th percentile for the proportion of those residents in all rural or all urban ZCTAs, respectively (Table 1). Except for non-Hispanic White residents, the "top 5%" of all ZCTAs for any one population group was usually less than a majority and for some populations was low.

Table 1. Proportion of residents needed to meet or exceed the 95th percentile[a] by race/ethnicity and rurality

	Rural	Urban
Non-Hispanic Black	34.4%	49.3%
Hispanic	23.8%	34.1%
Non-Hispanic American Indian/Alaska Native	11.8%	2.2%
Non-Hispanic Asian	2.5%	15.3%
Non-Hispanic White	100%	100%

[a] Percentiles derived from population data obtained from the American Community Survey.

"Hispanic" included all persons of Hispanic ethnicity regardless of race. ZCTAs that fell in the top category for more than one MRG population were grouped separately so that categories do not overlap. Thus, the final analysis included seven separate categories within both rural and urban ZCTAs: top ZCTAs for Black, Asian, American Indian/Alaska Native, Hispanic, and multiple MRG populations, non-Hispanic White, and all remaining ZCTAs (Table 2, below).

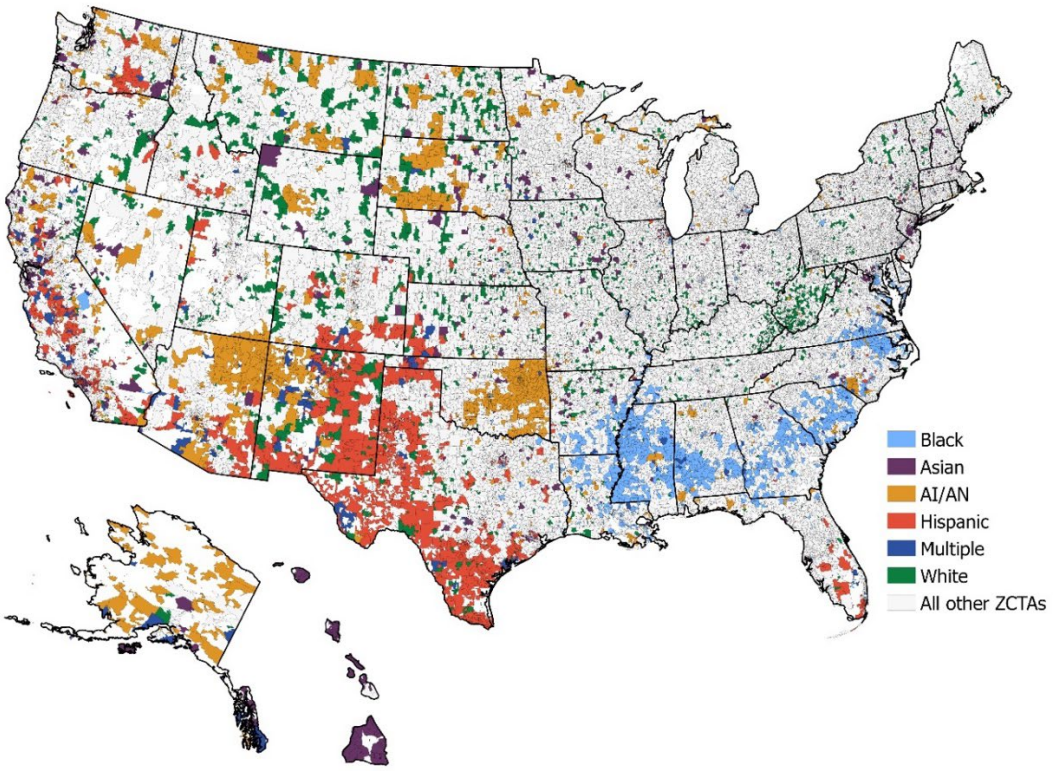
Note that MRG ZCTAs are not "majority minoritized" places; rather, they are ZCTAs in which the proportion of each group is at the top of the distribution compared to other ZCTAs. The geographic location of MRG ZCTAs is shown in Figure 1 on the next page. Demographic characteristics of rural and urban ZCTAs by high racial/ethnic group status are presented in the Appendix.

Table 2. Distribution of ZCTAs in the top 5th percentile for minoritized racial/ethnic group population by rurality and racial/ethnic group (2015-2019 American Community Survey)

Racial/ethnic group categories:	Urban ZCTAs		Rural ZCTAs		Total, all ZCTAs	
Minoritized groups	n	%	n	%	n	%
Hispanic*	755	4.2	594	4.0	1,349	4.1
NH* American Indian/Alaska Native	825	4.6	668	4.5	1,493	4.6
NH* Asian	851	4.8	622	4.2	1,473	4.5
NH* Black	874	4.9	709	4.8	1,583	4.9
> 1 MRG	127	0.7	156	1.1	283	0.9
Non-minoritized						
NH* White	1,203	6.8	2,177	14.6	3,380	10.3
All other ZCTAs (excludes NH White)	13,160	74.0	9,949	66.9	23,109	70.7
Total	17,795	100.0	14,875	100.0	32,670	100.0

Note: Percentiles derived from population data obtained from the 2015-2019 American Community Survey. More than 5% of ZCTAs in both urban and rural areas had 100% white populations; all such ZCTAs were classified as high NH white ZCTAs.
*Hispanic includes all racial identities. All other racial/ethnic groups classified as "non-Hispanic" (NH).

Figure 1: Geographic distribution of ZCTAs meeting the 95th percentile threshold by racial and ethnic group [a,b]



[a] Data from the 2015-2019 American Community Survey [b] This map was adapted from Eberth et al,2022.

How we studied RHC and FQHC locations

The Centers for Medicare & Medicaid Services (CMS) Provider of Services (POS) file for December 2020 was used to create a dataset containing all FQHC and RHC providers as of that date. The POS file has the advantage of specifying FQHC service delivery locations rather than administrative offices; however, it does not allow identification of sponsoring grantees and thus differs from the Health Resources and Services System Uniform Data System file.[11] The final dataset included FQHC and RHC active CMS provider site locations from all 50 U.S. states plus the District of Columbia. SAS v9.4 and Stata v16 were used for data cleaning.

Locations of RHCs and FQHCs were geocoded using ArcGIS Pro v2.8. Distance calculations were restricted to the contiguous 48 states excluding Alaska and Hawaii. The unusual geography of these two states would distort distance values for the rest of the nation. For the 48 states plus the District of Columbia, we calculated the straight-line distance from the population-weighted centroid of the ZCTA to the nearest RHC, FQHC, or either provider. Actual driving distances will be longer, so the information provided here is a conservative estimate of travel distances.

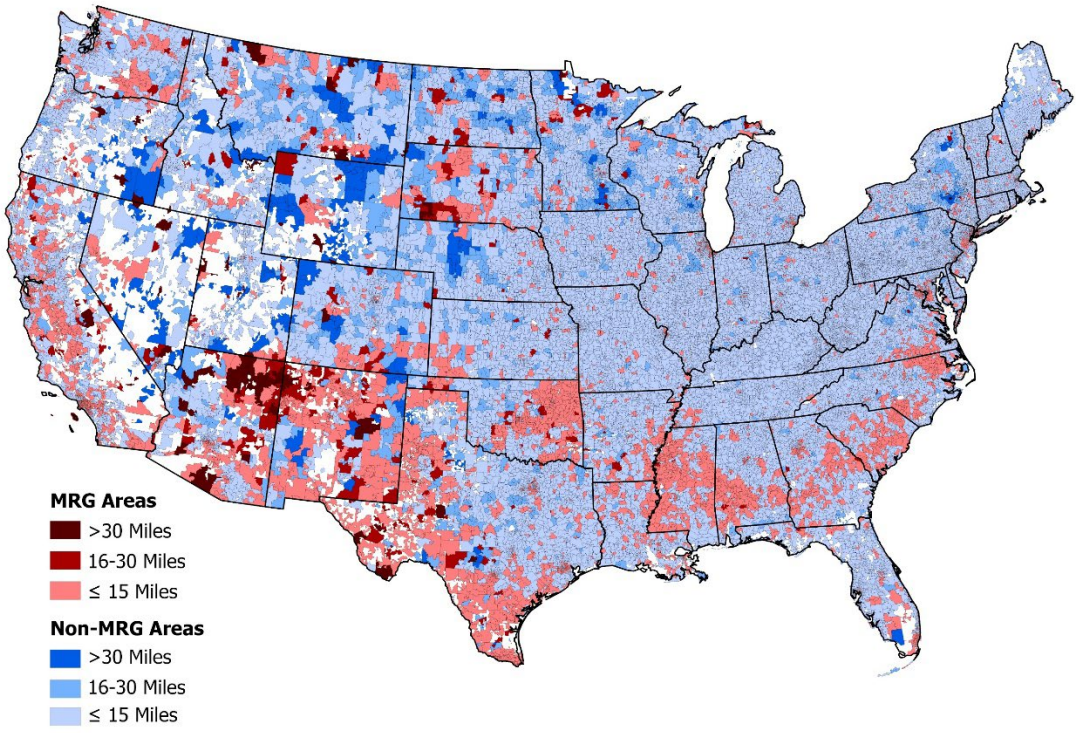
For comparative analyses, we calculated the median distance to the nearest safety net primary care provider across rural and urban ZCTAs and MRG designations. In addition, we calculated the percent of ZCTAs that were within 15 miles of a FQHC, RHC or either among both rural and urban ZCTAs. Distance calculations for RHCs, given the rural location requirements for these facilities, were limited to rural ZCTAs.

FINDINGS

Access to an RHC or an FQHC

In 2020, there were 9,458 unique FQHC sites and 4,599 unique RHC locations for a total of 14,057 of these sites across the U.S. Most ZCTAs were located within 15 miles of an FQHC or RHC. A subset of ZCTAs in the Southwest and the Dakotas with top AI/AN and Hispanic MRG status were located more than 30 miles from an FQHC or RHC (Figure 2).

Figure 2. Straight-line distance to an FQHC or RHC by highly represented MRG status 2020, 48 contiguous states (white areas indicate non-populated spaces)



Across all rural ZCTAs in the 48 contiguous states, the median distance to a safety net provider was 7.4 miles versus 4.4 among urban ZCTAs (Table 3, next page). Within rural ZCTAs, median distances were greatest for top AI/AN ZCTAs (9.7 miles) with the shortest distances to a provider occurring in ZCTAs characterized by multiple minoritized groups (2.7 miles). (Table 2). Black or African American and Hispanic MRGs had a median distance of 3.9 miles. Urban ZCTAs were within a median of 4.4 miles to the nearest primary care safety net provider ranging from 1.2 miles for urban Hispanic MRGs to 7.2 among ZCTAs where white residents are highly represented. Nearly all rural ZCTAs (84.3%) had an FQHC or RHC within 15 miles ranging from 73.4% of AI/AN MRG ZCTAs to 95.9% of Black or African American MRG ZCTAs. For urban ZCTAs, 95.0% had an FQHC or RHC within 15 miles ranging from 89.5% of ZCTAs highly represented with White residents to 99.7% of Asian MRG ZCTAs.

Table 3. Median number of straight-line miles to any FQHC or RHC by ZCTA status, 2020

Racial/ethnic group categories:	Rural		Urban	
	Median Distance*	% within 15 miles	Median Distance*	% within 15 miles
All ZCTAs	7.4	84.3%	4.4	95.0%
Minoritized groups:				
Black or African American	3.9	95.9%**	1.5	99.4%**
Hispanic/Latino	3.9	86.5%	1.2	98.3%**
American Indian/Alaska Native	9.7	73.4%**	5.3	90.4%**
Asian	7.6	85.7%	2.2	99.7%**
Multiple Groups	2.7	90.4%	1.2	96.1%**
Nonminoritized groups:				
White	9.0	77.0%**	7.2	89.5%**
All other ZCTAs (referent)	7.2	85.4%	4.8	95.0%

*Within MRGs, all rural median distances differ from urban median distances, Wilcoxon p<0.05 or less.
** Differs from "All other ZCTAs," areas without highly represented groups, at p <.05 or less.

Access to FQHCs

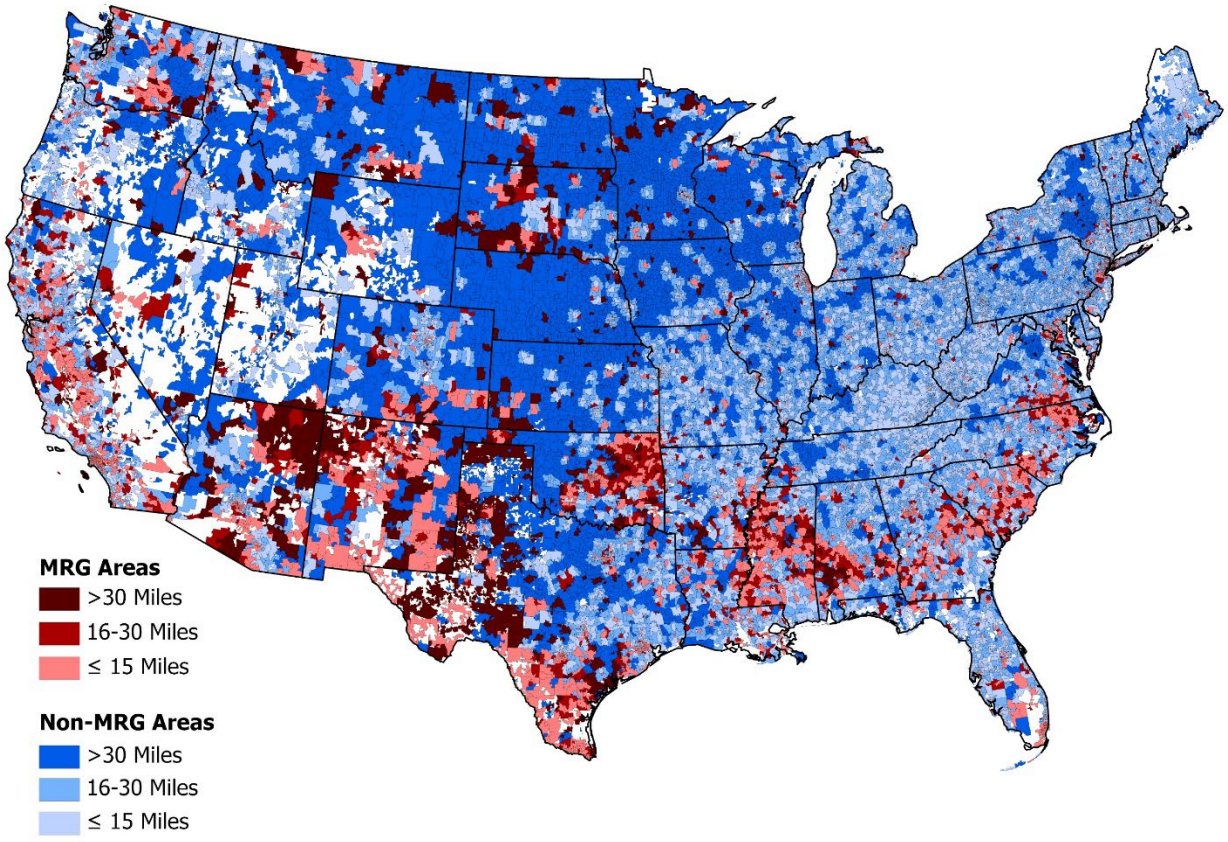
Distances to the nearest FQHC are summarized in Table 4 and illustrated in Figure 3 (next page). Overall, 60.0% of rural ZCTAs are within 15 miles of an FQHC versus 90.1% of urban ZCTAs; median distance for all rural ZCTAs was 12.3 miles versus 4.9 miles for urban ZCTAs. Within rural ZCTAs, median distances were longest for top American Indian/Alaska Native ZCTAs (14.7 miles) and shortest for ZCTAs falling in the top category for more than one minoritized racial/ethnic group. Among urban ZCTAs, areas falling into the top category for the non-Hispanic White population were located farthest from an FQHC (median of 8.3 miles), while those in the top category for multiple minoritized populations were closest (median of 1.2 miles).

Table 4. Median straight-line miles to an FQHC and percent within 15 straight-line miles by highly represented MRG ZCTA status, 2020

Racial/ethnic group categories:	Rural		Urban	
	Median Distance*	% within 15 miles	Median Distance*	% within 15 miles
All ZCTAs	12.3	60.0%	4.9	90.1%
Minoritized groups:				
Black or African American	7.4	85.1%**	1.5	98.6%**
Hispanic/Latino	9.2	64.1%**	1.3	97.5%**
American Indian/Alaska Native	14.7	60.9%	6.6	82.4%**
Asian	12.2	66.6%	2.2	99.7%**
Multiple Groups	7.1	76.3%	1.2	96.1%**
Nonminoritized groups:				
White	13.6	54.6%	8.3	79.5%**
All other ZCTAs (referent)	12.6	58.4%	5.4	89.8%

*Within MRGs, all rural median distances differ from urban median distances, Wilcoxon p<0.05 or less.
**Differs from "All other ZCTAs," areas without highly represented groups, at p <.05 or less.

Figure 3. Straight-line distance to an FQHC by highly represented MRG status, 2020, 48 contiguous states (white areas indicate non-populated spaces)



Access to RHCs

Analysis of access to RHCs was limited to rural ZCTAs; results are summarized in Table 5 and graphically illustrated in Figure 4 (next page). The overall median distance from the population-weighted centroid of a rural ZCTA to the nearest RHC was 11.0 miles with median distances ranging from 9.7 miles among rural Black or African American HDM ZCTAs to 17.1 miles among rural AI/AN HDM ZCTAs (Table 5). Nearly two-thirds (65.1%) of rural ZCTAs have an RHC within 15 miles, ranging from 54.6% of AI/AN HDM ZCTAs to 71.8% of Black or African American HDM ZCTAs.[*]

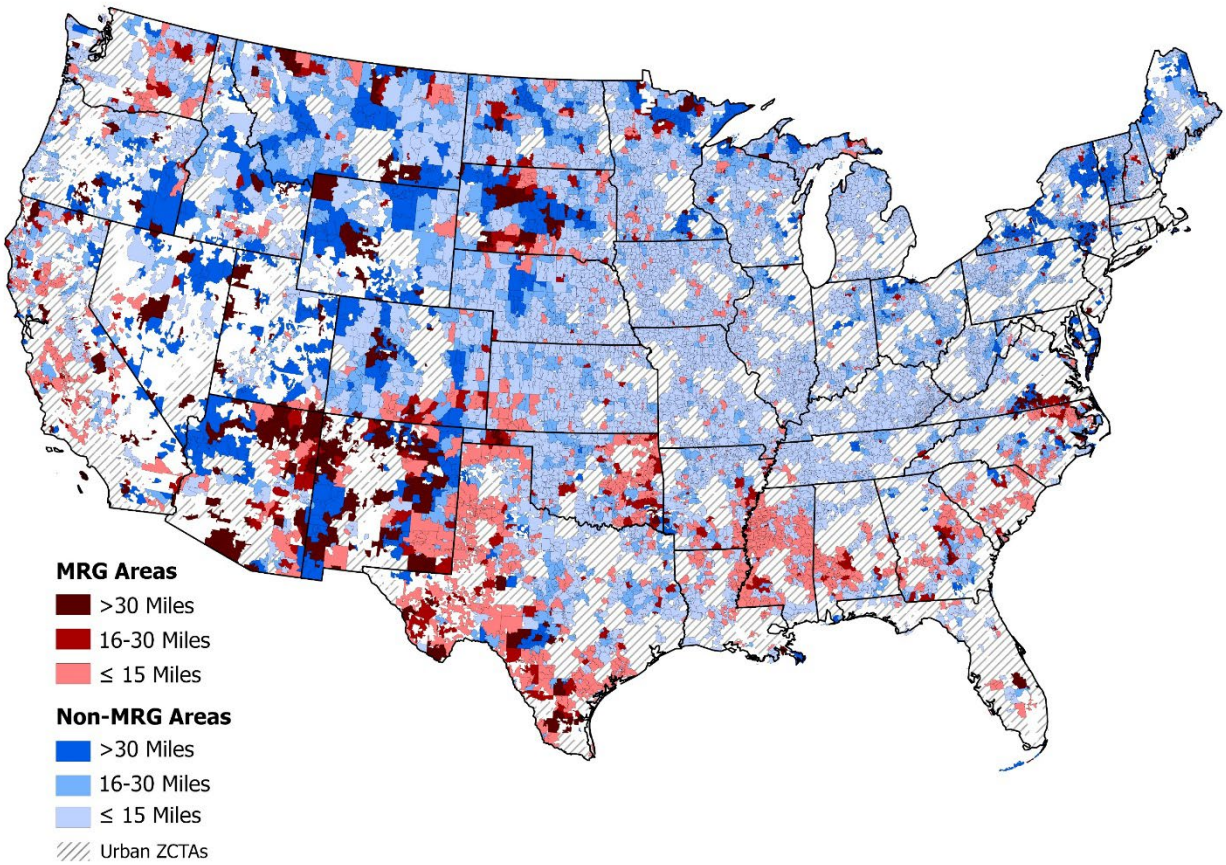
[*] Note: Four states (Connecticut, Delaware, New Jersey, and Rhode Island) plus the District of Columbia had no RHCs. The District of Columbia had no rural ZCTAs, and thus was automatically excluded. See Appendix for discussion.

Table 5. Median straight-line miles to an RHC and percent within 15 straight-line miles by highly represented MRG ZCTA status, 2020

Racial	Median Distance	% of ZCTAs within 15 miles
All ZCTAs	11.0	65.1%
Top MRG ZCTAs		
Black or African American	9.7	71.8%*
Hispanic/Latino	10.1	61.8%*
American Indian/Alaska Native	17.1	54.6%*
Asian	12.9	61.4%
Multiple Groups	13.0	63.5%
White	12.1	60.6%*
All other ZCTAs	10.5	66.8%

Wilcoxon p<0.05 for MRG comparisons within rural ZCTAs;
* Indicated values differ from referent, All other ZCTAs, at p<0.05 or less.

Figure 4. Straight-line distance to an RHC by highly represented MRG status, Rural ZCTAS only, 2020, 48 contiguous states (white areas indicated non-populated spaces)



CONCLUSIONS

Examining distance to an RHC or an FQHC at the same time provides a more comprehensive picture of access to care than examining either type of facility alone because these providers have differing geographic distributions. Rural ZCTAs were located a greater median distance from one of these two provider types than were urban ZCTAs (7.4 versus 4.4 miles), but the majority of rural ZCTAs (84.3%) were within 15 miles of either an RHC or FQHC. Examining practice types separately, rural ZCTAs were a median of 12.3 miles from the nearest FQHC and 11.0 miles from the nearest RHC.

Rural ZCTAs with high proportions of Black or Hispanic residents tended to have better geographic access, defined as shorter distances, to both RHCs and FQHCs. This may result from the intentional location of RHCs and FQHCs in high-need areas. ZCTAs with a high proportion of American Indian/Alaska Native residents, on the other hand, were generally located farther from FQHCs or RHCs (note: Alaska, with its long distances, was not included in the analysis of distance). It is possible that these ZCTAs are served by Indian Health Services and/or tribal facilities; further research is needed to clarify access for those populations. The lack of access to RHCs and FQHCs in areas with high proportions of white residents has been noted previously and may be due to the clustering of these populations in the isolated areas of the upper Northwest.[10]

Distance has been identified as a barrier to care among rural residents.[12] Our analysis found longer median distances to an RHC or FQHC than did previous research based on Medicare claims from 2009 (11.0 miles to an RHC versus 7.0 miles; 12.3 miles to an FQHC versus 8.7 miles).[13] The earlier research was based on patients who could be drawn from multiple ZCTAs rather than being specific to the locations themselves. In addition, patient travel may disproportionately include persons living close to a facility as distance can act as a deterrent to care.[14, 15, 16] Thus, it is important to continue to evaluate the geographic accessibility of FQHCs and RHCs.

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APPENDIX

Methodology

Data Sources

Data on the racial/ethnic composition of ZCTAs and their socioeconomic characteristics were obtained from the U.S. Census Bureau's American Community Survey (ACS) 2015-2019 5-year estimates (U.S. Census Bureau).

Key Definitions

Rurality was defined using the ZIP approximated Rural Urban Commuting Area (RUCA) codes.[13] Specifically, ZCTAs were assigned the RUCA code for the matching ZIP even if additional ZIP codes were included in the creation of the ZCTA boundary. Those ZCTAs with a ZIP matched RUCA code of 1-3 were designated as urban while those with a RUCA code of 4-10 were designated as rural.

The Uniform Data System (UDS) Mapper was used to identify the corresponding ZCTA for each ZIP Code. The UDS Mapper is a mapping tool operated to analyze the service area of health centers. Each ZCTA code was added to the dataset using a left join via ZIP codes. Since there were multiple ZIP codes for some ZCTA codes, unique CMS Certification Numbers (CCN's) were counted for each ZCTA code. The procedure worked well as there were no ZIP Codes allocated to multiple ZCTAs.

Minoritized racial and ethnic groups: ZCTAs were defined as a "top" proportion of residents of a specific racial/ethnic identity if the proportion of persons reporting that identity within the ZCTA was at or above the 95th percentile of that group's proportion of the population across all ZCTAs. White alone was included as a population. Details are in Table 1 in the text. Because we created mutually exclusive categories for ZCTAs that fall into the top 5th percentile for each MRG, the total proportion of MRG ZCTAs equals 18.9% of all ZCTAs.

Inclusion criteria for Rural Health Clinic (RHC) analysis: As noted in the text, all rural ZCTAs were included in our analysis of distance to the nearest RHC even though four states do not currently have any RHCs (Connecticut, Delaware, New Jersey, and Rhode Island). The reasons for including all ZCTAs were twofold. First, residents of rural ZCTAs in those states could choose to seek care in an adjoining state since all four states are contiguous with states containing RHCs. The second reason was analytic simplicity: specifying "all rural" for all analyses in the report, regardless of whether FQHCs, RHCs or both were being studied, means that all results have the same denominator. Overall, inclusion of the "no RHC" states did not meaningfully affect results as only 60 of 14,608 rural ZCTAs were in the affected states. As shown in Table A-1, median distances to the nearest RHC were not changed for five of eight possible comparisons and were only minimally changed for the three remaining comparisons (0.1 or 0.3 miles).

Table A.1. Mean and median distance to the nearest RHC by racial composition of the ZCTA, rural ZCTAs only, 48 contiguous states with and without four states (CT, DE, NJ, RI)		
	Median	
ZCTA categories	All 48 states	Excluding 4 states
Total	10.9	10.9
Minoritized ZCTAs		
NH Black	9.7	9.7
Hispanic	10.1	10.1
NH AI/AN	17.1	17.1
NH Asian	12.9	12.8
>1 Group	13.0	12.7
Non-Minoritized ZCTAs		
NH White	12.1	12.1
All Other ZCTAs	10.5	10.4

Demographic characteristics of top MRG ZCTAs

Top MRG ZCTAs could differ from other ZCTAs in the U.S. on characteristics that affect both demand for and local ability to support and retain safety net primary care services. To provide context for our safety net primary care accessibility results, we compared MRG ZCTAs, defined as those in the 95th percentile for the proportion of each group, to all other ZCTAs (labeled "all other;" Appendix-1).

- Across both rural and urban ZCTAs, the proportion of the population that is age 65 or older is significantly lower in MRG ZCTAs than in "all other" ZCTAs while that same proportion is higher in top NH White ZCTAs.
- High proportions of uninsured persons within a population can reduce the willingness of providers to locate in or serve the area but may also be reason for an FQHC to locate in an area given the need for more affordable sliding fee scale services. The proportion of the population lacking health insurance was higher among most MRG ZCTAs than the "all other" group. High A/PI and high White ZCTAs had lower rates for uninsurance.
- We examined vehicle availability within the household as an indicator of residents' ability to leave home for appointments, particularly in rural places.
    - Within rural MRG ZCTAs, ZCTAs in the top group for AI/AN, Black, and multiple MRG population had higher proportions of households that lacked a vehicle. The top A/PI ZCTAs did not differ from the "all other" group while top White ZCTAs had lower proportions of households without a vehicle.
    - The top AI/AN ZCTAs were the only group for which the proportion of households without a vehicle was significantly higher among rural than among urban ZCTAs (rural 19.0%, urban 5.8%).
- Community poverty may make the need for RHCs and FQHCs even greater. The proportion of households with incomes at or below 200% of the Federal Poverty Level were higher among MRG ZCTAs than the "all other" group for all except high A/PI ZCTAs.

Even within the "minoritized population" category, rural ZCTAs can experience disadvantages when compared to urban ZCTAs in the same population group. With some exceptions, noted in the table, ALL rural metrics differ significantly and in a direction of greater disadvantage than the corresponding values for urban MRG ZCTAs.

Table A-2. Characteristics of Top MRG ZCTAs when compared to all other ZCTAs by rurality[1] in percents (Data from the 2015-2019 American Community Survey)

	Population characteristics						Household characteristics:			
	Females age 15 – 44		Lack health insurance		Unemployment rate		Have broadband		200% Federal Poverty Level	
Rural ZCTAs (14,875)	%				%					
Minoritized populations										
Hispanic (594)	33.9%	***	15.1%	***	6.9%		68.5%	***	45.4%	***
NH Black (709)	33.2%	***	12.6%	***	8.9%	***	58.2%	***	51.6%	***
NH Am. Ind./ Alaska Nat. (668)	32.1%	***	20.5%	***	12.6%	***	60.9%	***	49.5%	***
NH Asian (622)	32.4%	**	7.4%	***	5.2%		78.1%	***	32.8%	*
>1 MRG (156)	32.6%	***	15.6%	***	8.0%	***	66.6%	***	45.0%	***
Not Minoritized:										
NH White (2,177)	23.3%	***	7.5%	***	4.5%	**	71.9%	***	35.2%	*
All other ZCTAs (9,949)	26.8%		8.4%		4.7%		74.4%		34.4%	
Urban ZCTAs (17,795)										
Minoritized groups										
Hispanic (755)	27.8%	**	17.0%	***	6.7%	***	73.8%	***	48.1%	***
NH Black (874)	30.4%	***	11.3%	***	10.0%	***	68.7%	***	49.0%	***
NH Am. Ind./ Alaska Nat. (825)	28.2%	***	11.2%	***	6.4%		74.8%	***	36.7%	***
NH Asian (851)	28.4%	**	5.3%	***	4.5%	***	89.0%	***	21.65	***
>1 MRG (127)	27.0%	**	14.6%	***	7.1%	***	74.5%	***	49.3%	***
Not Minoritized:										
NH White (1,203)	23.7%	***	6.6%	**	4.8%	*	75.6%	***	31.8%	***
Referent ZCTAs (13,160)	26.2%		7.2%		4.6%		82.3%		27.1%	

[1] Note: With the exception of lack of health insurance in ZCTAs with >1 MRG, all rural values differ significantly from the corresponding urban value.
[2] NH = Non-Hispanic
[3] Statistical indicators: Group differs from Referent ZCTA within either all rural or all urban ZCTAs. * = $p < .05$; ** = $p < .01$; *** $p < .001$

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