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FINDINGS BRIEF

RURAL & MINORITY Health Research Center

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Availability of Nursing Homes in Minoritized Racial / Ethnic Group Areas

Key Points:

- Minoritized area definition: 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" nonwhite.
- Nursing Homes: Nursing homes are facilities, either free-standing or as units within hospitals, that provide skilled nursing care in a residential context.
- Nursing home availability in top MRG ZCTAs:
  - Top ZCTAs for American Indian/Alaska Native (13.2 miles), Hispanic (10.6 miles), and multiple MRG groups (11.3 miles) had the greatest median distance to a nursing home.
  - Similarly, the percentage of rural ZCTAs lacking a long-term care facility within 30 miles was highest among areas in the top 95th percentile for more than one MRG population (14.7%), followed by top American Indian/Alaska Native ZCTAs (13.6%) and top Hispanic ZCTAs (11.1%).
- Nursing home availability in rural ZCTAs in general:
  - Rural ZCTAs were a median of 8.2 miles from the nearest nursing home versus 2.9 miles for urban ZCTAs.
  - Overall, only 4.6% of rural ZCTAs lacked access to a nursing home within 30 miles. While this is higher than the urban value, which was less than 1%, it does not suggest that distance is a major barrier to the receipt of nursing home care among rural residents.

The current findings brief is one of a series of reports documenting disparities in geographic access to health services for places that have a relatively high proportion of residents from minoritized racial and ethnic groups (MRG). 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 that these populations have experienced.[1] Work from this series has also been adapted into a web visualization and a peer reviewed publication, both in *Health Affairs*.[2, 3]

INTRODUCTION

An estimated 70 % of U.S. adults 65+ will need long term support services during their lifespan with the greatest need among those Americans aged 85+.[4],[5] Because of the increasing proportion of U.S. adults 65+, it is expected that the number of those who need long term care support services will double over the next 20 years.[6] In general, adults who lose their ability to independently conduct multiple activities of daily living (e.g., bathing) or instrumental activities of daily living (e.g., medication management), demonstrate significant medical needs, or have cognitive impairment would be candidates for long term care support services.[5] While the majority of individuals who need long-term care support services obtain care through informal caregivers or home-based care services, there is a large subset of this population that requires care through long term care facilities such as nursing homes.[5] These facilities are equipped to provide a breadth of services to assist them with a range of activities of daily living and provide other support to enhance the quality of life for their residents. In March 2022, there were over 15, 000 licensed nursing homes in the U.S. with approximately 1.6 million residents.[7,8]

Despite the growing need for long-term care support services and the seemingly robust number of nursing homes available for those in need, there are significant barriers to access (e.g., cost). The national average cost of a nursing home stay is $7,700/month for a shared room.[9] These costs are largely not eligible for reimbursement through private insurers and Medicare. Medicare coverage is generally limited to a maximum of 100 days of care in a skilled nursing facility following a qualifying inpatient stay of at least three days such as recovery after hospitalization for hip fracture repair. Skilled nursing facilities provide ongoing care by registered nurses under the direction of a physician. Nursing home care, provided by licensed practical nurses and nurse aides under the direction of a registered nurse, serves persons with long-term needs for support in activities of daily living due to illness and/or cognitive decline. The largest payer of long-term care support services, which include nursing home stays, is Medicaid.[5] However, to have their care covered by Medicaid, an individual must both meet state-specific criteria related to the federal poverty limit (including assets) and be determined by a provider to require nursing home care.[10] About 60% of individuals on Medicaid do not incur any out of pocket costs during their lifespan while the remaining 40% may incur costs that exceed $22,000.[9] Those who do not qualify for Medicaid may pay two to three times this amount on nursing home care in their lifetime.[9]

In addition to cost-related disparities, rurality may also affect an individual's ability to access long-term care facilities. Rural residents are more likely to be 65+ and have worse health outcomes than their urban counterparts.[11] Disparities are particularly severe among minoritized racial/ethnic groups (MRGs; i.e. Black, Hispanic, American Indian/Alaskan Native, Asian, and other persons of color), regardless of rural or urban residence. Health disparities among rural populations are often driven by social determinants such as lack of access to preventive health services compared to persons living in urban areas. [12] Rural-specific barriers to accessing long-term care can include, but are not limited to, staffing/bed shortages at rural long-term care facilities and lack of transportation for residents to these facilities.[13]

To date, there is a paucity of research on access to nursing homes among rural versus urban residents. Also, little is known about the extent to which access to nursing homes may differ across areas with a predominately White versus a non-White minority population. Therefore, the goal of this policy brief is to examine: (1) the availability of nursing homes in rural versus urban Zip Code Tabulation Areas (ZCTAs) and (2) the extent to which rural or urban ZCTAs with a large proportion of historically disadvantaged residents have poorer access to nursing homes than other ZCTAs with a majority White population or across all areas.

METHODS

Defining ZCTAs with a high proportion of minoritized racial/ethnic group residents

ZCTAs (n = 32,670) were first classified as rural or urban using Rural Urban Commuting Area definitions with ZCTAs classified as 1 through 3 defined as urban and those classified as 4 through 10 defined as rural.[13, 14] Given differences in the demographic profile of rural and urban places, rural and urban ZCTAs were examined separately.

Table 1. Proportion of residents needed to meet or exceed the 95 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	100.0%	100.0%

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

ZCTAs were classified as being a "top" MRG place if the proportion of persons who identified as a specific MRG group in the ZCTA met or exceeded the 95th percentile for the proportion of those residents in all rural or all urban ZCTAs respectively. The "top 5%" for any one population group was consistently less than a majority and for some populations was fairly low (Table 1, at right). "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 (AI/AN), Hispanic, and multiple MRG populations, non-Hispanic White, and a referent category, which included all other ZCTAs (see Table 2 and Figure 1).

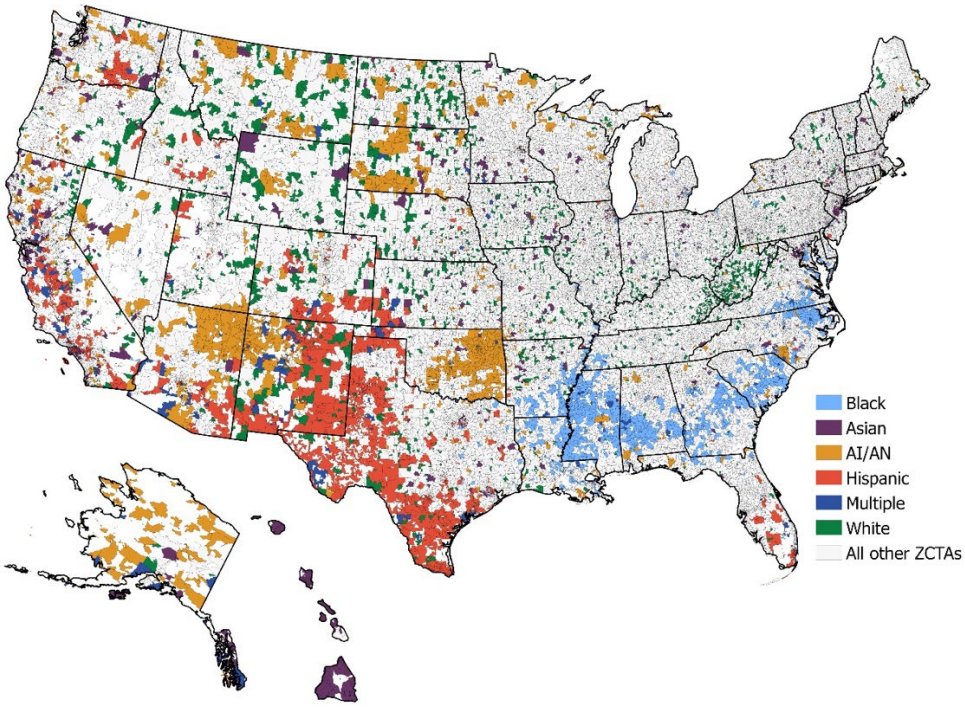
Table 2. Distribution of ZCTAs in the top 5th percentile for minoritized racial/ethnic group population by rurality and racial/ethnic group (2015-2019 American Community Survey)

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.

Identifying nursing home locations

Nursing homes paid through Medicare or Medicaid must be certified by the Centers for Medicare & Medicaid Services (CMS); this certification includes over 95% of all nursing homes in the U.S. CMS licenses skilled nursing facilities, that is, those providing levels of care that require a licensed nurse for their provision. This care can be provided for short-term rehabilitation subsequent to an episode of acute care or over an indefinite period of time for persons who are permanently disabled. Addresses were then geo-coded to their latitude/longitude. Data were drawn from the U.S. Centers for Medicare & Medicaid (CMS) skilled nursing facility facility-level dataset dated August, 2021.[15]

Distance estimates

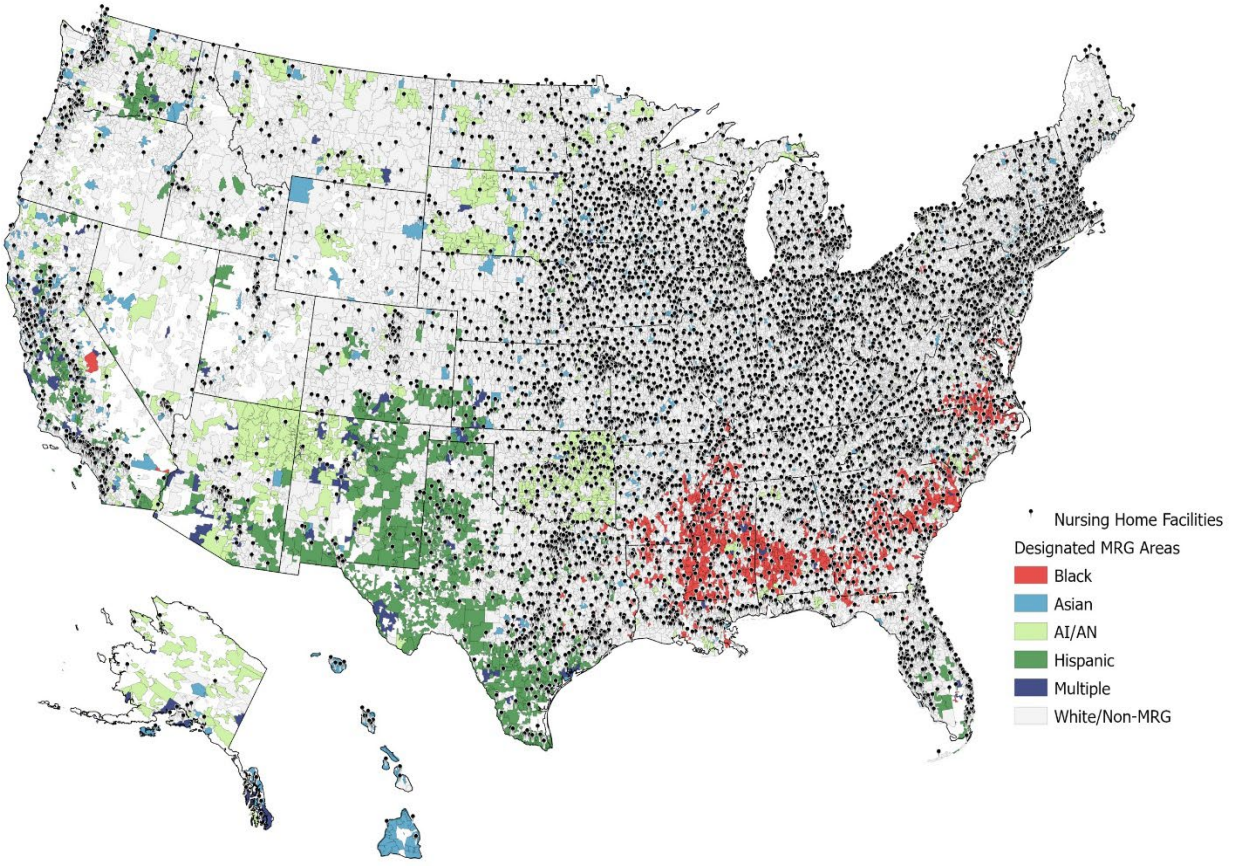
Using population weighted ZCTA centroids (an area's geographic center), we calculated the straight-line distance in miles from that point to the geo-coded location of the nearest skilled nursing facility. Actual driving distances will be longer so the information provided here is a conservative estimate of travel distances. 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.

FINDINGS

Geographic Distribution of Facilities

A total of 15,306 long term care facilities were certified by CMS in 2020. Of these facilities, 10,527 were in ZCTAs designated as urban and 4,779 were in ZCTAs designated as rural. By specific MRG, there were 957 facilities in top Black ZCTAs, 914 in top Asian ZCTAs, 818 in top Hispanic ZCTAs, 440 in top AI/AN ZCTAs, and 160 facilities in ZCTAs at the top for multiple MRGs. The remaining 12,017 facilities were in ZCTAs that were not in the 95th percentile for any MRG population representation. The geographic distribution of these facilities is shown in Figure 2, below.

Figure 2. Location of skilled nursing and nursing home facilities by designated minoritized racial/ethnic group (MRG) areas



Distance to the nearest facility

On average, less than two percent of urban ZCTAs with a high proportion of MRG residents lacked access to a long-term care facility within 30 miles of their residence (See Table 3). The highest median value representing the distance to a long-term care facility for any MRG ZCTAs did not exceed 9 miles.

The proportion of rural ZCTAs that lacked access to a long-term care facility within 30 miles varied across top MRG ZCTAs. Across rural ZCTAs, less than 1.0% of top Black and less than 2.9% of Asian ZCTAs lacked a long-term care facility within 30 miles. On the other hand, among

top ZCTAs for the proportion of their population that was Hispanic, American Indian/Alaska Native, and multiple MRGs, 9.5%, 11.2%, and 13.2% of areas respectively were more than 30 miles from the nearest long-term care. Rural American Indian/Alaska Native MRG ZCTAs had the highest median distance to a nursing home at 13.2 miles.

Table 3. Distance to the nearest long term care facility from the ZCTA centroid by top MRG status and rurality, 48 contiguous states [a,b, c]

	Rural ZCTAs		Urban ZCTAs	
Racial and Ethnic Groups	**Median miles to closest facility**	**No access within 30 miles**	**Median miles to closest facility**	**No access within 30 miles**
	Miles	%	Miles	%
Top ZCTAs for Racial/Ethnic Groups:				
Black	7.4	<1.0%	1.6 [c]	0.0%
Hispanic	10.6 [c]	11.1%	1.6 [c]	1.6%
American Indian/Alaska Native	13.2 [c]	13.6%	6.2 [c]	2.3%
Asian	7.3	2.9%	1.3 [c]	<1.0%
High for Multiple MRGs	11.3 [c]	14.7%	1.5 [b]	1.6%
White	9.7 [c]	7.5%	7.3 [c]	1.5%
All other ZCTAs	7.5	4.5%	3.0	<1.0%
Total	8.2	4.6%	2.9	<1.0%

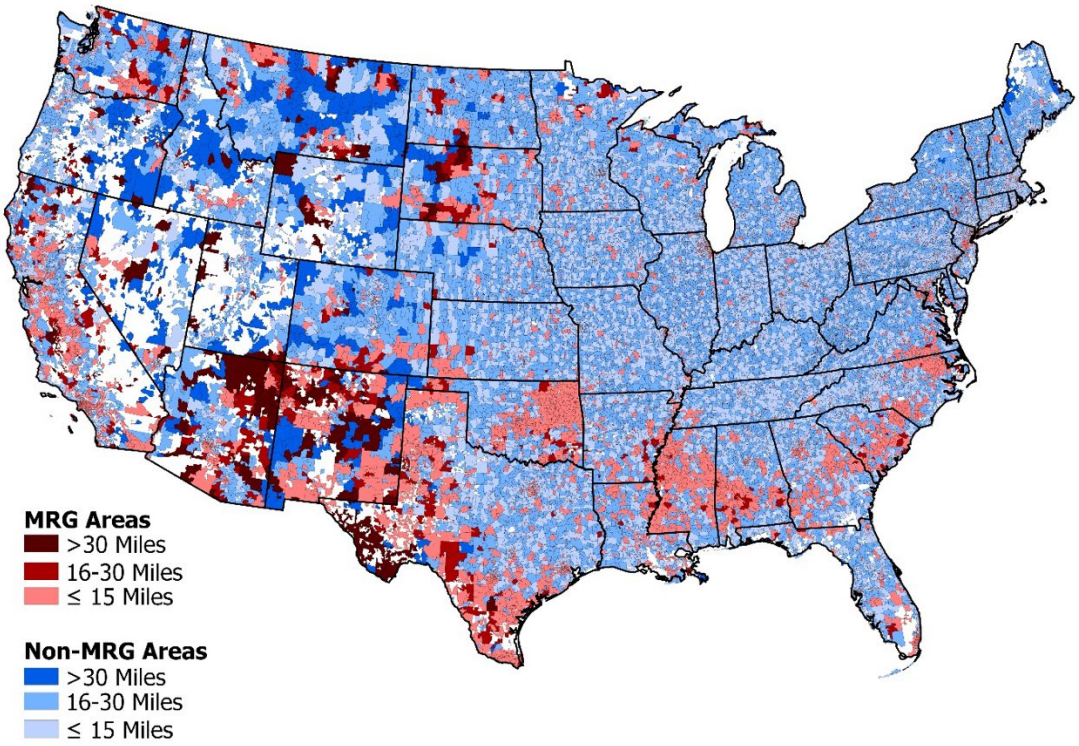
[a] All rural values differ from the equivalent urban values within a specific MRG category at at $p < .001$.

[b] Indicated values differ from the referent category, All other ZCTAs, at $p. < .01$.

[c] Indicated value differs from the referent category, All other ZCTAs, at $p. < .001$.

Figure 3 (next page) illustrates for distances to nursing homes for ZCTAs with the top representation of MRG residents geographically. Top MRG resident ZCTAs with the lowest access to nursing homes were concentrated in the Southwestern U.S. For ZCTAS not in the 95th percentile, the greatest access disparities occurred throughout the Western U.S.

Figure 3. Distance to the nearest nursing home for ZCTAs by MRG status



DISCUSSION

Nursing home capability is widely distributed across the U.S. such that a relatively low proportion of ZCTAs lack access to nursing homes within a 30-mile radius. However, rural communities are located further from the nearest facility and correspondingly have a higher likelihood of falling into a high travel burden category (over 30 miles).

Rural geographic areas without access to a nursing home within 30 miles were principally those falling at the top of the distribution multiple MRG residents (14.7% of ZCTAs more than 30 miles from a nursing home) and those at the top for the proportion of residents who identify American Indian/Alaska Native (13.6% of ZCTAs over 30 miles from a nursing home). Top Hispanic ZCTAs closely followed with 11% of these geographic areas lacking nursing home access. These ZCTAs are concentrated in a swathe of relatively sparsely populated ZCTAs in the Western part of the U.S.

While the growth of most industries is determined by service or product demand, highly regulated industries like nursing homes have complex socio-political factors that may affect their growth. For example, the licensing, training, and certification requirements (determined separately by each state) can be both arduous and expensive.[16] When coupled with population-level barriers such as negative social stigmatization of nursing homes, low population density, and low household income provision of nursing home services may become particularly difficult. In addition, among MRG residents, cultural values may influence their attitudes toward use of long-term care outside the home further reducing demand. [17,18]

Access issues are especially pronounced in rural populations where there is a limited rural healthcare workforce (required for licensure) and fewer residents.[18] During the COVID-19 pandemic, it must be noted that at least 300 nursing homes have closed since 2020. Some of the facilities in our data set may no longer be operating adding to the distance rural residents must travel for nursing home care. Nursing homes had been closing even before the pandemic, but the number of closures has markedly increased. Ongoing monitoring of the availability of long term care services is appropriate.

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APPENDIX

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.[35] Data on skilled nursing facilities comes from the U.S. Centers for Medicare and Medicaid skilled nursing facility facility-level dataset.[36]

Key Definitions

Rurality: Rurality was defined using the ZIP approximated Rural Urban Commuting Area (RUCA) codes.[37] 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.[38] The UDS Mapper is a mapping tool operated primarily by data from the Uniform Data System to analyze the service area of health centers. Since the U.S. Census Bureau does not release an official crosswalk between ZIP Codes and ZCTAs, the UDS Mapper was used to identify ZCTAs using patient data that was matched from the Uniform Data System. 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) were counted for each ZCTA code. The procedure worked well as there were no ZIP codes used for multiple ZCTA codes.

Minoritized racial and ethnic groups: To classify ZCTAs as high MRG ZCTAs we used the national 95th percentile of each minoritized racial/ethnic groups population proportion stratified by rural/urban status (See Table 1 for each MRG thresholds). Specifically, we ranked all rural and urban ZCTAs based on the proportion of residents in each of the following MRGs: Black/African American, Hispanic, American Indian/Alaska Native, Asian and then identified ZCTAs with proportions higher or equal to the national 95th percentile in each racial and ethnic group. We also identified ZCTAs in the top 95th percentile for white residents. ZCTAs that fell into the 95th percentile for multiple MRG groups were grouped as a separate stratum. Remaining ZCTAs were classified as "all other."

Nursing homes: The lay definition offered on the Centers for Medicare & Medicaid Services (CMS) defines nursing homes as "… a place for people who can't be cared for at home and need 24-hour nursing care."[19] More technically, nursing homes are defined as skilled nursing facilities, that is providing care for persons who need services that require a licensed nurse or rehabilitation specialist such as intravenous injections or physical therapy, but not care at the acute hospital level.[20] These facilities may be independent or designated wings within a larger facility. Full definitions of nursing home requirements are provided in CFR 438 Subpart B, Requirements for Long Term Care Facilities. Facilities that only provide assistance with activities of daily living but not nursing care, such as assisted living residences, are excluded.

Demographic characteristics of top MRG ZCTAs

As indicated in Figure 1 (above, in text), ZCTAs in the top 95th percentile for specific MRG groups tend to be regionally concentrated. Thus, top Black ZCTAs are concentrated in the Southeastern U.S. while Hispanic ZCTAs primarily are located in the Southwestern U.S. and Florida. American

Indian/Alaska Native ZCTAs are concentrated in the Western U.S. and Alaska. Asian ZCTAs are scattered throughout the continental U.S. with proportionately more top Asian ZCTAs in Hawaii.

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 nursing home services. To provide context for our nursing home availability 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;" Table A-1, next page).

- 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. A younger population base might have less need for long term care services.
- High proportions of uninsured persons within a population can reduce the willingness of providers to locate in or serve the area. 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 care 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%).
- Broadband access is important for residents' ability to access telehealth and telemedicine services.
    - All rural ZCTAs, within each racial/ethnic category, had a lower proportion of households with broadband access than among the equivalent urban ZCTAs.
    - Within urban and rural places, all top MRG ZCTAs except the A/PI group had lower access to broadband than the "all other" category. Within top rural Black ZCTAs, only 58.2% of households reported broadband access.
- Community poverty can make an area unattractive for health care providers of all kinds. Persons who are uninsured or whose care is funded by lower-paying insurers such as Medicaid offer lower payment for the provider. 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 disadvantage 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-1. Characteristics of Top MRG ZCTAs when compared to all other ZCTAs, by rurality,[1] in percent (Data from the 2015-2019 American Community Survey)

	Population characteristics:				Household characteristics:					
	Age 65 or older		Lacking health insurance		Lacking any vehicle		Have broadband		200% Federal Poverty Level	
Rural ZCTAs (14,875)	%									
>1 MRG (156)	16.6%	***	15.6	***	11.6%	***	66.6%	***	45.0%	***
Hispanic (594)	17.2%	***	15.1	***	5.2%		68.5%	***	45.4%	***
NH Am. Ind./Alaska Nat. (668)	16.6%	***	20.5	***	19.0%	***	60.9%	***	49.5%	***
NH Asian (622)	20.5%	**	7.4	**	4.7%		78.1%	***	32.8%	*
NH Black (709)	19.3%	***	12.6	***	10.5%	***	58.2%	***	51.6%	***
NH White (2,177)	26.2%	***	7.5	***	4.2%	**	71.9%	***	35.2%	*
All other ZCTAs (9,949)	21.7%		8.4		4.8%		74.4%		34.4%	
Urban ZCTAs (17,795)										
>1 MRG (127)	12.3%	***	14.6	***	11.5%	***	74.5%	***	49.3%	***
Hispanic (755)	12.1%	***	17.0	***	10.5%	***	73.8%	***	48.1%	***
NH Am. Ind./Alaska Nat. (825)	17.4%		11.2	***	5.8%		74.8%	***	36.7%	***
NH Asian (851)	14.0%	***	5.3	***	12.1%	***	89.0%	***	21.65	***
NH Black (874)	15.0%	***	11.3	***	17.8%	***	68.7%	***	49.0%	***
NH White (1,203)	23.9%	***	6.6	**	5.1%	*	75.6%	***	31.8%	***
Referent ZCTAs (13,160)	17.7%		7.2		5.6%		82.3%		27.1%	

[1] Note: With the exception of lack of health insurance and lack of a vehicle in >1 MRG rural, ZCTAs 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. * = $p < .05$; ** = $p < .01$; *** $p < .001$

Statistical and Spatial Analysis

We calculated mean values of ACS estimates across rural-urban and MRG ZCTA groupings. Using ArcGIS Pro v2.8, we used the ArcGIS world geocoding service to geocode skilled nursing facility addresses to obtain XY geographic coordinates of each unique skilled nursing facility location. Using population weighted ZCTA centroids (an areas geographic center) we calculated the straight-line distance in miles to the nearest skilled nursing facility.

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