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FINDINGS BRIEF

RURAL & MINORITY Health Research Center

Janice C. Probst, PhD; Gabriel Benavidez, MPH; Nicholas Yell, MS;
Jan Eberth, PhD; Melinda Merrell, PhD

Availability of Home Health Services in Minoritized Racial/Ethnic Group Areas

Key Points:

- Minoritized Areas: 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"
- Home health and MRG ZCTAs: Within rural ZCTAs, 40.0% of top American Indian/Alaska Native, 26.3% of ZCTAs falling into the top percentile for more than one MRG, and 12.2% of top Asian ZCTAs are not served by any home health agency (HHA). On the other hand, only 2.5% of top non-Hispanic Black rural ZCTAs lack HHA service versus 22.9% of top non-Hispanic White rural ZCTAs.
- Home health and rural ZCTAs in general:
  - Nationally, 5.9% of all ZIP Code Tabulation Areas (ZCTAs) lack any home health agency (HHA) providing services in that area. The proportion of ZCTAs lacking any home health services was highest in Alaska (79.2% ZCTAs unserved), Montana (44.3%), North Dakota (41.7%) and South Dakota (34.9%).
  - 10.3% of all rural ZCTAs versus 2.2% of all urban ZCTAs were not served by any HHA. An additional 18.3% of all rural ZCTAs were served by only one agency versus 3.7% of urban ZCTAs.
  - Rural ZCTAs, characterized at the highest level for "frontier and remote" status, were more likely than other rural ZCTAs to lack home health care (33.1% versus 3.6%, $p < .001$).

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[2] and a peer reviewed publication[3] both in *Health Affairs*.

INTRODUCTION

Home health care (HHC) is a vital element of the care continuum for patients recovering from disease (e.g., stroke) or surgery (e.g., hip or knee replacement). HHC is also an essential service for disabled persons who want to live in the community rather than in institutional settings. States have widely used home and community-based care waivers to tailor services for specific populations and geographic areas and to retain individuals in lower cost settings. In 2018, HHC services expenditures totaled $102.2B or 3.3% of all U.S. health care expenditures. State and federal funds supported the majority of HHC with 39.4% paid by Medicare and 35.1% paid by Medicaid.[4]

Among older adults with limitations in activities of daily living, rates for both formal and informal care have increased across the past decade.[5] Receipt of HHC has been found to be lower among rural residents[6-7] leading to concerns about the adequacy of services for rural areas.

HHC is qualitatively different from other health services in that it is provided at the patient's residence rather than in a central facility. Home health agencies (HHAs) that are certified by the Center for Medicare & Medicaid services (CMS) specify the specific geographic areas for which they will provide services by listing the ZIP Codes they cover. Not all ZIP Codes in the U.S. are covered. In its March 2021 report to Congress, MedPAC asserted that as of 2019 over 99% of beneficiaries lived in an area served by at least one HHA while noting that the supply of providers had dropped 1.7% since 2018 (p. 223).[8] That report, however, did not analyze whether there was a geographic or race/ethnicity bias in the types of beneficiaries not able to access care.

The report that follows examines the geographic availability of HHC in ZIP Code Tabulation Areas (ZCTAs) across the nation categorizing ZCTAs by both rurality and racial/ethnic composition. Given known disparities affecting both MRG and rural places, we anticipated that MRG ZCTAs and rural ZCTAs would be particularly likely to lack HHC services.

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.[9] 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" 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. 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

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	100.0%	100.0%

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

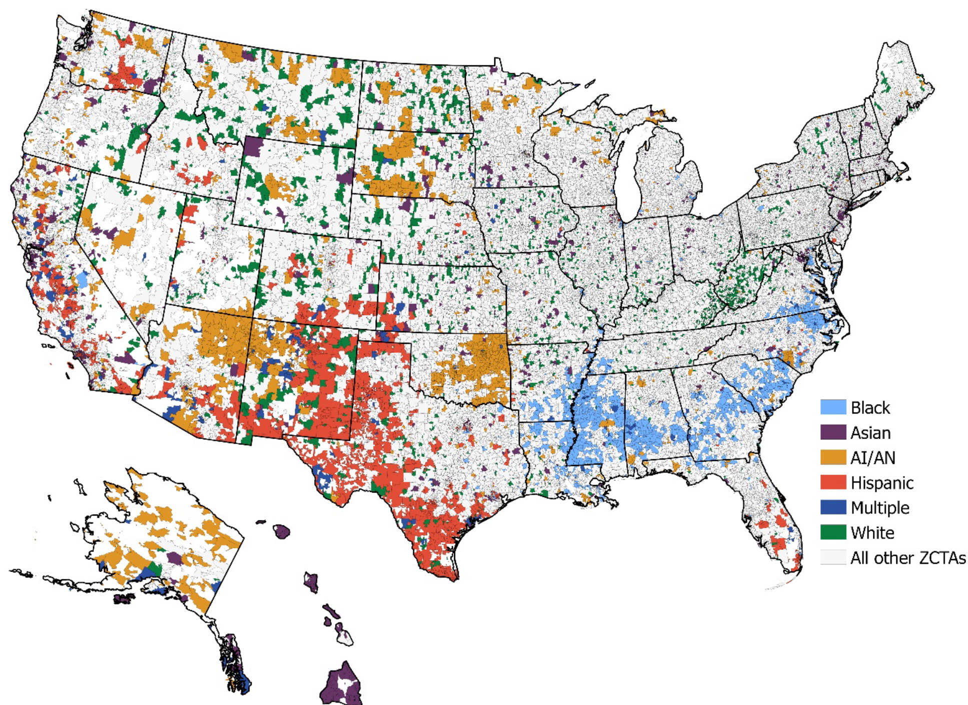
rural and urban ZCTAs: top ZCTAs for Black, Asian, American Indian/Alaska Native, Hispanic, and multiple MRG populations, non-Hispanic white, and a referent category which included all other ZCTAs (see Table 2 and Figure 1).

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)

	Urban ZCTAs		Rural ZCTAs		Total, all ZCTAs	
Minoritized racial/ethnic group:	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	4.8
> 1 MRG	127	0.7	156	1.1	283	0.9
NH* White	1,203	6.8	2,177	14.6	3,380	10.3
All other ZCTAs	13,160	73.6	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."

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.

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, above. Demographic characteristics of rural and urban ZCTAs by high racial/ethnic group status are presented in the Appendix.

How we studied home health agency service locations

Home health agencies (HHAs) paid through Medicare must be certified by the Centers for Medicare & Medicaid Services (CMS); 98.7% of all HHAs are certified by CMS.[10] As part of this certification process, each HHA indicates the ZIP Codes for which it could provide service. ZIP Codes are listed *even if the HHA has no patients in that ZIP Code* at the time of reporting. Thus, the summaries reported here may overestimate HHC availability since an agency may list a ZIP Code even if it rarely accepts patients from that area.

We downloaded a complete list of CMS-certified HHAs and associated ZIP Codes as of October 2020. ZIP Codes were translated into ZIP Code Tabulation Areas using the UDS crosswalk.[11] HHAs were designated as rural-serving versus urban-only based on the ZCTAs that they serve not the location of the HHA administrative offices. Thus, any HHA that reported serving at least one rural ZCTA, in addition to the urban ZCTAS it might also serve, was classified as "rural-serving."

For each ZCTA, we tallied the total number of HHAs reporting that ZCTA in their service area. The number of agencies serving each ZCTA varied from 0 – 388 with a mean of 12.6 agencies and a median of 5 agencies. To focus on service availability or its absence, we grouped the HHA count into 4 categories:

- 0 agencies, indicating that the ZCTA is not served at all
- 1 agency, suggesting that the ZCTA has service but could lose access if that single agency decides to withdraw from the area or close.
- 2 – 3 agencies, suggesting that services are available with a reduced risk from one agency dropping the ZCTA
- 4+ agencies, the ZCTA is well served as of October 2020

Unlike a prior study of home health care availability,[12] we did not adjust agency counts for population within each ZCTA. An HHA, since its services are not restricted to a single facility, can adjust its staffing count sufficient to its patient population/demand.

FINDINGS

Home Health Agency Characteristics

Characteristics of HHAs including ownership, services provided, and quality are shown in Table 3, below, sorted by HHA reported service in any rural ZCTAs.

- Rural-serving HHAs were more likely to be non-profit or government-owned than were agencies serving only urban ZCTAs.
- While all HHAs are required to provide nursing services to attain CMS certification, other forms of care are optional. Services offered by rural and urban-only serving HHAs were similar for occupational therapy, speech pathology, and home health aide services. Rural-serving HHAs were slightly more likely to offer physical therapy (98.4% versus 96.7%) but less likely to offer medical social services (82.1% versus 86.6%).
- Rural-serving HHAs were more likely than urban only HHAs to report CMS quality indicators (89.9% versus 69.2%). Within reporting organizations, rural-serving HHAs were more likely to have quality rankings of 4 stars or greater than urban-only (34.7% versus 31.4%).

Table 3. Characteristics of CMS-Certified Home Health Agencies by whether the agency serves any rural ZCTAs, October 2020

	Total		Rural serving		Urban serving only		P value
	N	%	N	%	N	%	
All Facilities							
	10,204	100%	5,258	51.5%	4,946	48.5%	
Ownership							
For profit	8,193	80.3%	3,758	71.5%	4,435	89.7%	<0.0001
Non-profit	1,623	15.9%	1,155	22.0%	468	9.5%	<0.0001
Government	388	3.8%	345	6.6%	43	0.9%	<0.0001
Services offered							
Physical therapy	9,954	97.6%	5,173	98.4%	4,781	96.7%	<0.0001
Occupational Therapy	9,602	94.1%	4,954	94.2%	4,648	94.0%	0.602
Speech pathology	9,140	89.6%	4,730	90.0%	4,410	89.2%	0.189
Medical social services	8,597	84.3%	4,316	82.1%	4,281	86.6%	<0.0001
Home health aide services	9,646	94.5%	4,953	94.2%	4,693	94.9%	0.128
Quality ranking							
Number reporting:	8,153	79.9%	4,728	89.9%	3,425	69.2%	<0.0001
4 or greater	2,717	33.3%	1,641	34.7%	1,076	31.4%	0.0019
3.5 or lower	5,436	66.7%	3,087	65.29%	2,349	68.6%	0.0019

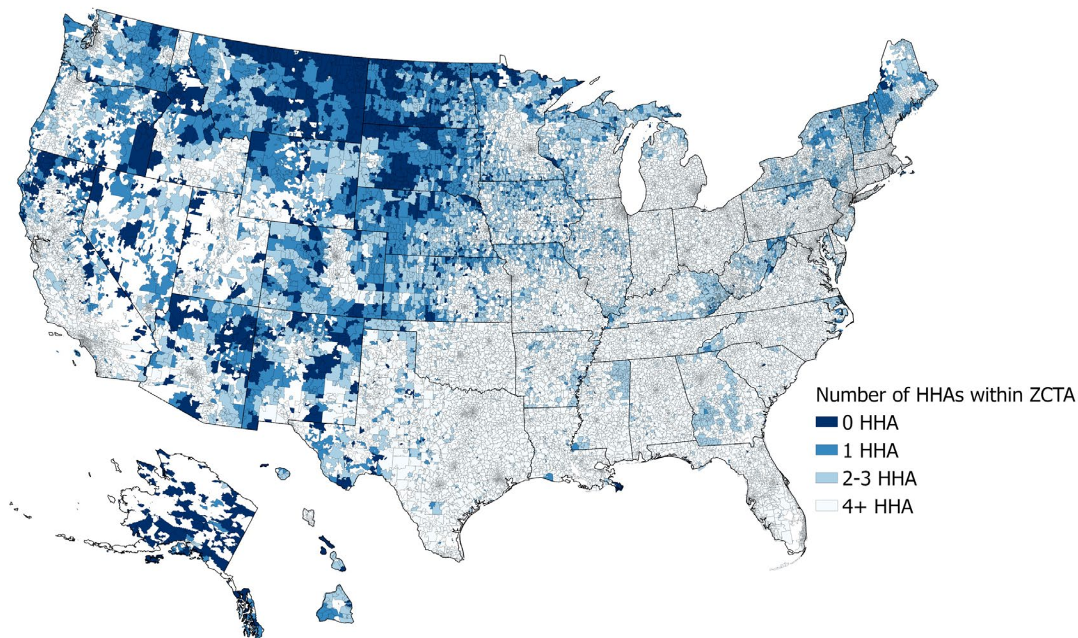
Home health services availability across the U.S.

Nationally, most ZCTAs have at least one CMS-certified HHA providing services to persons within that ZCTA. However, some states are less well served than others (Figure 2, next page). The proportion of in-state ZCTAs lacking any home health services was highest in Alaska (79.2%

ZCTAs unserved), Montana (44.3%), North Dakota (41.7%) and South Dakota (34.9%). A listing for the number of home health agencies serving each ZCTA, summarized by state, is available in the Appendix (Table A-1.)

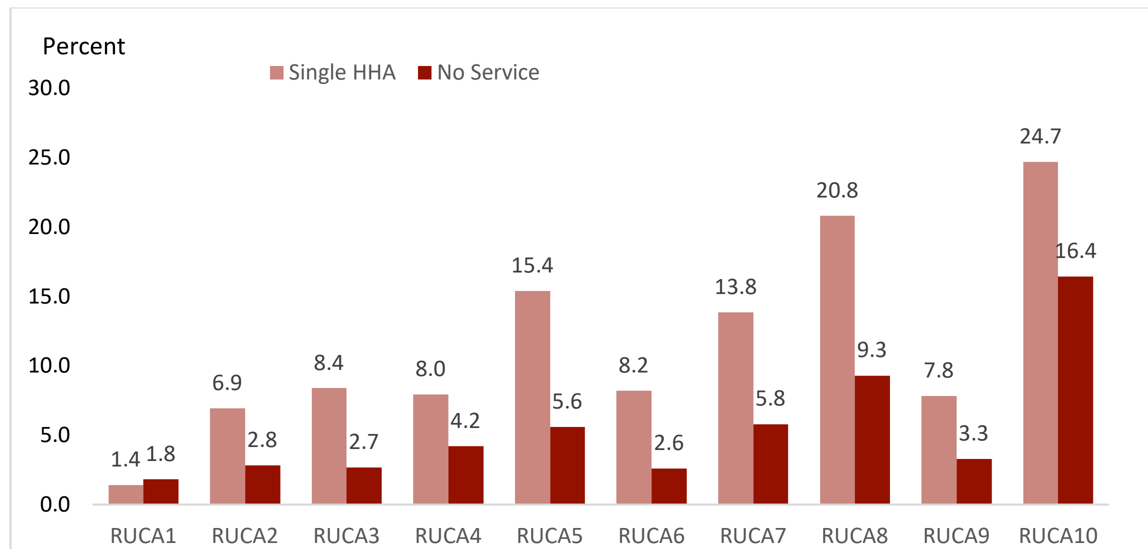
Nationally, 5.9% of all ZCTAs lack any HHA reporting services in that area, and an additional 10.3% of ZCTAs are served by only a single agency. Areas that have only one provider are vulnerable to loss of services should that agency choose to drop service to the area or close altogether. Rural ZCTAs were markedly more likely than urban ZCTAs to lack home health service access in 2020 with 10.3% of all rural ZCTAs, versus 2.2% of all urban ZCTAs, being totally without service (Table 4). An additional 18.3% of all rural ZCTAs were served by only one agency. Using American Community Survey population estimates, a total of 1.4 million persons live in areas that are not served by any HHA. Of those 1.4 million, 939 thousand or 66.5% live in rural ZCTAs (Appendix, Table A-3).

Figure 2. Home health agency service availability, by ZCTAs, October 2020



ZCTAs are more likely to lack any home health care or have limited service (only one HHA) as they become more rural and remote. Figure 3 (next page) illustrates this relationship across Rural Urban Commuting Area codes,[9] 1 indicting the most urban ZCTAs through 10 indicating the most rural ZCTAs (supporting table in Appendix; A-3). RUCA codes 1 through 3 are characterized as urban, while codes 4 – 10 are considered rural. In the most rural case, 41.1% of all RUCA 10 ZCTAs have either no HHA (16.5%) or only a single provider (24.7%). Detailed information is provided in the Appendix, Table A-2.

Figure 3. Percent of ZCTAs served by a single agency and with no home health service by Rural Urban Commuting Area Codes, October 2020



The "frontier and remote" designation is also helpful for examining which ZCTAs lack home health availability.[13] This designation is applied to ZCTAs using a combination of the number of persons living in the ZCTA plus distance to the nearest urbanized area (see below). The majority of all ZCTAs with a FAR Level 4 designation are rural (98.1%). While 19.1% of rural ZCTAs that are designated FAR Level 1 lack a home health provider, this increases to 33.1% among rural ZCTAs that are classified as FAR Level 4. Detailed information is provided in the Appendix, Table A-3.

Frontier & Remote Area Designations	
Level 1—FAR areas consist of rural areas and urban areas up to 50,000 people that are 60 minutes or more from an urban area of 50,000 or more people	**Level 3**—FAR areas consist of rural areas and urban areas up to 10,000 people that are: 30 minutes or more from an urban area of 10,000-24,999; 45 minutes or more from an urban area of 25,000-49,999 people; and 60 minutes or more from an urban area of 50,000 or more people.
Level 2—FAR areas consist of rural areas and urban areas up to 25,000 people that are: 45 minutes or more from an urban area of 25,000-49,999 people; and 60 minutes or more from an urban area of 50,000 or more people	**Level 4**—FAR areas consist of rural areas that are: 15 minutes or more from an urban area of 2,500-9,999 people; 30 minutes or more from an urban area of 10,000-24,999 people; 45 minutes or more from an urban area of 25,000-49,999 people; and 60 minutes or more from an urban area of 50,000 or more people.

Home health services availability in top MRG ZCTAs

Table 4, below, shows HHA availability across ZCTAs in the top 5th percentile for minoritized population group (MRG) representation plus NH White and "all other" rural or urban ZCTAs. In all urban-rural comparisons within racial/ethnic categories, rural ZCTAs were more likely to lack HHA services than urban ZCTAs in the top group for the same population.

Examining rural areas alone, ZCTAs in the top group for non-Hispanic Black representation were *less* likely to lack all home health services than the "all other" group of ZCTAs, 2.5% versus 8.9%; top rural Hispanic ZCTAs did not differ from the "all other" group. Other rural MRG places were disadvantaged, particularly those in the top category for proportion of AI/AN residents: 40% of rural top AI/AN ZCTAs are not served by any HHA and thus lack any home health care. Many of the unserved top AI/AN ZCTAs are in Alaska (129 out of 668). However, even if Alaska is removed from consideration, 25.8% of all high AI/AN ZCTAs are unserved.

Table 4. Number of home health agencies reporting service to each ZCTA by rurality and minoritized racial/ethnic group ZCTA status, October 2020 [a,b]

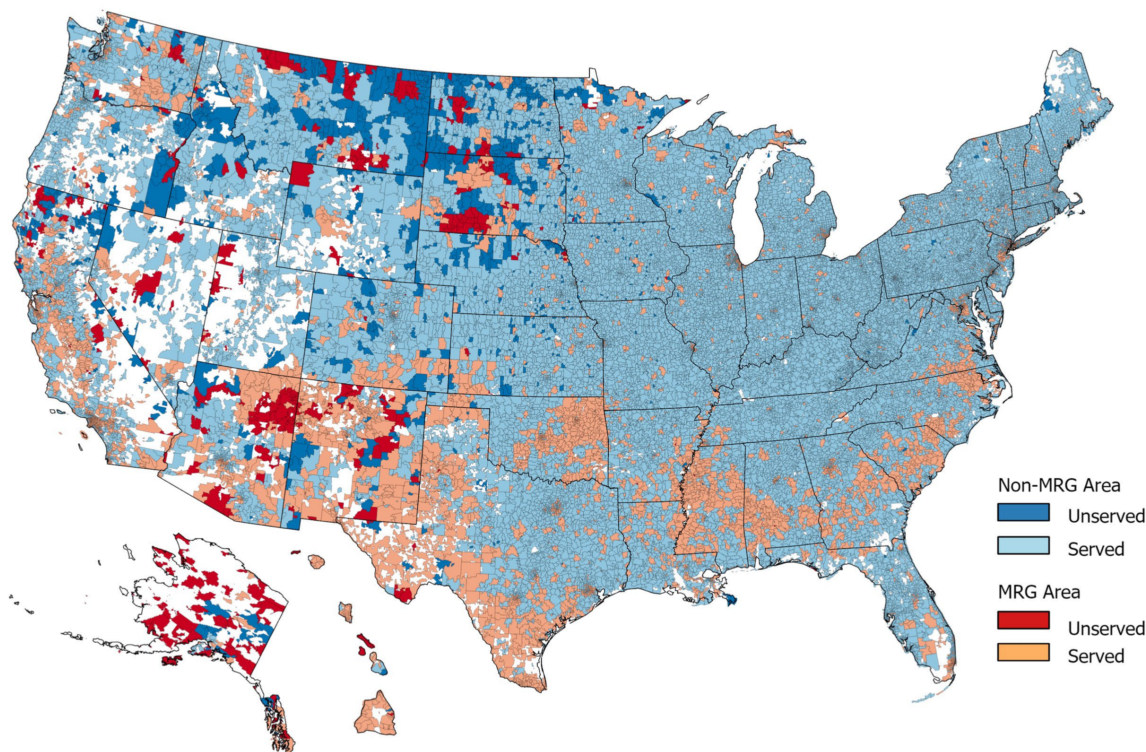
	Proportion of ZCTAs with the indicated number of HHC providers, in percent			
	No service	**1 HHA**	**2-3 HHAs**	**4+ HHAs**
Rural ZCTAs (n)				
>1 MRG (156)	26.3%	14.1%	19.2%	40.4%
Hispanic (594)	8.6%	17.9%	22.7%	50.8%
NH Am. Ind./Alaska Nat. (668)	40.0%	19.6%	15.7%	24.7%
NH Asian (622)	12.2%	24.0%	32.2%	31.7%
NH Black (709)	2.5%	5.1%	27.5%	64.9%
NH White (2,177)	22.9%	28.9%	34.5%	13.6%
All other rural ZCTAs (9,949)	5.8%	16.6%	33.4%	44.2%
Total Rural (14,875)	**10.3%**	**18.3%**	**31.8%**	**39.5%**
Urban ZCTAs (n)				
>1 MRG (127)	0.8%	2.4%	7.9%	89.0%
Hispanic (755)	0.9%	2.9%	4.1%	92.1%
NH Am. Ind./Alaska Nat. (825)	5.9%	6.8%	18.1%	69.2%
NH Asian (851)	2.5%	1.3%	4.5%	91.8%
NH Black (874)	1.3%	1.4%	6.4%	91.0%
NH White (1,203)	9.3%	17.9%	37.1%	35.7%
All other urban ZCTAs (13,160)	1.5%	2.6%	11.3%	84.6%
Total Urban (17,795)	**2.2%**	**3.7%**	**5.7%**	**88.3%**
Total, all US (32,670)	**5.9%**	**10.4%**	**21.3%**	**62.4%**

[a] The distribution of service availability levels for each MRG group differs from the distribution for the referent group at $p < .001$ for all comparisons, both urban and rural, as measured by the chi-square test.

[b] Rural/urban differences are significant at $p < .001$ with each MRG category as measured by the chi-square test.

Figure 4, below, illustrates HHC service availability geographically. Areas that lack any HHA service, both within MRG ZCTAs and in "all other" ZCTAs, are nearly all located in the upper Midwest and Western portions of the U.S. These areas include many of the very remote ZCTAs as measured by Frontier and Remote codes. Overall, 18.2% of all rural ZCTAs were classified as FAR Level 4, the most remote (see Appendix Table A-5). Of rural ZCTAs falling into the top AI/AN category, however, 52% were in the FAR Level 4 category.

Figure 4. Map of rural ZCTAs with a high proportion of MRG residents who experience poor access to home health care



It is possible that areas with high AI/AN representation are receiving HHC from agencies not certified by CMS such as the Indian Health Service (IHS). IHS agencies can provide up to 29 different long-term services and supports (LTSS) to their service population including financial advice, home maintenance, and a variety of similar assistance in addition to home health care. To explore IHS LTSS as an alternative to CMS-certified HHAs, we downloaded the list of LTSS providers and services (Appendix Table A-5).[14] We were not able to pair this to ZCTAs as service areas were not included in the file. Nationally, however, only 28.3% of IHS offices offered HHC suggesting that IHS is not making up for shortfalls in HHC availability. In addition, IHS services would only be available to some AI/AN residents. On average, only 11.8% of the population of "top" AI/AN ZCTAs report AI/AN race/ethnicity (Table 1, above), and all individuals may not be eligible for IHS services.

CONCLUSIONS

Rural ZCTAs were markedly more likely than urban ZCTAs to lack home health service access in 2020 with 10.3% of all rural ZCTAs versus 2.2% of all urban ZCTAs being totally without service. However, these gaps were not uniformly distributed across the U.S. First, rural ZCTAs that lack service are disproportionately located in low population density states in the West and Southwest. Second, ZCTAs falling into the top 5 percent for concentration of AI/AN residents are disproportionately likely to be underserved.

Rural residents with reduced access to opportunities for care in the home may be disproportionately placed in institutional settings when compared to their urban peers with adverse effects for both their survival and costs to the healthcare system.[15,16] However, the principal issue is one of equity: home health care is a Medicare benefit, but it is not equally available to all potential Medicare beneficiaries across the U.S.

Policy analysts have suggested that payments intended to foster the provision of care for rural residents should be targeted to specific areas of need rather than implemented for "rural" more broadly. [17] Rural Medicare add-on payments for home health care, one method for ensuring service availability, are scheduled to be phased out in 2022.[18] The evidence regarding the effect of add-on payments is limited as the implementation of rural add-ons for payment coincided with more general reduction in base payment rates.[20] Targeting add-on payments toward ZCTAs that lack service or are currently served by only a single provider, thus removing any beneficiary choice, could be considered.

CMS support for home health care has undergone significant changes in the past two years. In its 2020 and 2021 Reports to Congress, the Medicare Payment Advisory Commission (MedPAC) has voted to reduce Medicare Home Health base rates (by 7% for 2021 and by 5% 2022). In addition, CMS has instituted a diagnosis-based prospective payment model for HHC which sets pay rates for 432 patient groupings. Both changes occurred before the emergence of COVID-19 which may have long-term health impacts on those who experience the disease ("long haulers"). Our analysis was based on home health services availability as of October 2020, relatively early in the pandemic period. Reassessment of the geographic availability of home health care, subsequent to both payment changes and the workforce effects of the pandemic, is strongly recommended.

The apparent lack of home health service availability in ZCTAs with a high representation of AI/AN residents deserves further investigation. It is possible that these areas are receiving services from organizations not certified by CMS such as agencies within the Indian Health Service (IHS), but only a minority of IHS agencies (28.3%) report providing this type of care.[19] However, support services, while valuable for older adults, are not the equivalent of nursing care which is a required element of CMS-verified home health care. From an equity perspective, attention is needed to ensure that AI/AN Medicare and Medicaid beneficiaries are not systematically deprived of access to an important Medicare benefit.

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For more information about the Rural and Minority Health Research Center, contact the Director Dr. Elizabeth L. Crouch (crouchel@mailbox.sc.edu) or Deputy Director Dr. Peiyin Hung (hungp@mailbox.sc.edu)

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APPENDIX

Data Sources

Data on the racial/ethnic composition of ZCTAs and their socioeconomic conditions comes from the U.S. Census Bureau's American Community Survey 5-year estimates. Information on home health agencies was derived from the Centers for Medicare and Medicaid Services (CMS) Provider data set and was current as of October 2020. [20] [https://data.cms.gov/provider-data/] CMS supplies two data sets: a listing of all providers with their address, ownership, and services provided and a list of all ZIP Codes reported as being serviced by each HH agency. The two files were linked using the CMS Provider ID number.

Key Definitions

Rurality was defined using the ZIP-approximated Rural Urban Commuting Area (RUCA) codes. 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. RUCA codes 1 – 3 were defined as urban and codes 4 – 10 as rural.

Minoritized racial/ethnic group area: ZCTAs were defined as "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.

Because we created mutually exclusive categories for ZCTAs that fall into the top 5th percentile for each minoritized racial/ethnic group (MRG), the total proportion of MRG ZCTAs equals 18.9% of all ZCTAs.

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 HHC services. To provide context for our HHC 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-3).

- 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 HHC 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 as a supplement to or alternative for HHC.
    - 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 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-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 8ZCTAs, 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

Additional Information

Table A-2. Number of HHAs serving each ZCTA by Rural-Urban Commuting Code Value, October 2020

RUCA Code	4+ HHAs n	4+ HHAs %	2-3 HHAs n	2-3 HHAs %	1 HHA n	1 HHA %	No service n	No service %	Total
1	9,619	90.9%	624	5.9%	150	1.4%	194	1.8%	10,587
2	4,376	68.5%	1,386	21.7%	443	6.9%	180	2.8%	6,385
3	521	63.3%	211	25.6%	69	8.4%	22	2.7%	823
4	1,077	64.4%	392	23.4%	133	8.0%	70	4.2%	1,672
5	1,198	46.3%	846	32.7%	398	15.4%	145	5.6%	2,587
6	356	62.0%	156	27.2%	47	8.2%	15	2.6%	574
7	977	53.4%	492	26.9%	253	13.8%	106	5.8%	1,828
8	386	30.4%	502	39.5%	264	20.8%	118	9.3%	1,270
9	267	54.9%	165	34.0%	38	7.8%	16	3.3%	486
10	1,619	25.1%	2,182	33.8%	1,595	24.7%	1,062	16.4%	6,458
Total	20,396	62.4%	6,956	21.3%	3,390	10.4%	1,928	5.9%	32,670

RUCA definitions. Codes 1 – 3 are metropolitan or urban places; codes 4 – 10 indicate nonmetropolitan or rural places.

Code	Classification description
1	Metropolitan area core: primary flow within an urbanized area (UA)
2	Metropolitan area high commuting: primary flow 30% or more to a UA
3	Metropolitan area low commuting: primary flow 10% to 30% to a UA
4	Micropolitan area core: primary flow within an urban cluster of 10,000 to 49,999 (large UC)
5	Micropolitan high commuting: primary flow 30% or more to a large UC
6	Micropolitan low commuting: primary flow 10% to 30% to a large UC
7	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small UC)
8	Small town high commuting: primary flow 30% or more to a small UC
9	Small town low commuting: primary flow 10% to 30% to a small UC
10	Rural areas: primary flow to a tract outside a UA or UC
99	Not coded: Census tract has zero population and no rural-urban identifier information

(Source: https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation/)

Table A-3. Estimated total population (not restricted to minoritized racial / ethnic group persons) of ZCTAs that lack any CMS-Certified home health agency by MRG ZCTA status

	Total population	Rural	Urban	Rural as % Total
>1 MRG	32,436	32,104	332	99.0%
Hispanic	50,907	49,095	1,812	96.4%
NH AI/AN	362,945	295,768	67,177	81.5%
NH A/PI	108,916	79,734	29,182	73.2%
NH Black	25,561	15,346	10,215	60.0%
NH White	74,587	61,679	12,908	82.7%
All other ZCTAs	757,669	405,765	351,904	53.6%
Total	1,413,021	939,491	473,530	66.5%

Table A-4. Proportion of rural top minoritized race/ethnicity group ZCTAs and referent ZCTAs that meet two levels of rurality: Frontier and Remote Level 4 Status and fewer than 6 residents per square mile*

Rural ZCTAs, by MRG status	Total Rural ZCTAs	Rural ZCTAs with FAR4 Status		Rural ZCTAs with Population <6/sq mile	
	n	n	%	n	%
>1 MRG	135	36	26.7%	41	30.4%
Hispanic	514	73	14.2%	172	33.5%
NH Am.Ind./Alaska Native	568	296	52.1%	249	43.8%
NH Asian/Pac.Isl.	550	74	13.5%	102	18.5%
NH Black	614	41	6.7%	21	3.4%
NH White	1,557	529	34.0%	598	38.4%
"All other" ZCTAs	9,375	1,379	14.7%	1,441	15.4%
Total	13,313	2,428	18.2%	2,624	19.7%

* Note: Only 13,313 ZCTAs had assigned FAR values in the FAR data set; this is fewer than the 14,875 ZCTAs included in the full analysis. The differing dates for data availability (the FAR data was published in 2015) may be the reason for this discrepancy.

Table A-5. Number of ZCTAs at each home health agency presence level by state (October 2020)

	4+ HHAs		2-3 HHAs		1 HHA		No home health services		Total ZTCAs
STATE	n	%	n	%	n	%	n	%	Total
AK	12	*5.1*	8	*3.4*	29	*12.3*	186	*79.1*	235
AL	574	*90.1*	37	*5.8*	9	*1.4*	17	*2.7*	637
AR	371	*63.2*	170	*29.0*	29	*4.9*	17	*2.9*	587
AZ	232	*58.6*	59	*14.9*	50	*12.6*	55	*13.9*	396
CA	1,319	*75.8*	157	*9.0*	131	*7.5*	133	*7.6*	1,740
CO	241	*46.9*	100	*19.5*	119	*23.2*	54	*10.5*	514
CT	251	*90.0*	24	*8.6*	4	*1.4*	0	*0.0*	279
DC	21	*70.0*	1	*3.3*	1	*3.3*	7	*23.3*	30
DE	55	*83.3*	6	*9.1*	1	*1.5*	4	*6.1*	66
FL	940	*96.4*	20	*2.1*	7	*0.7*	8	*0.8*	975
GA	497	*68.5*	198	*27.3*	16	*2.2*	15	*2.1*	726
HI	27	*29.0*	40	*43.0*	12	*12.9*	14	*15.1*	93
IA	295	*31.6*	404	*43.3*	180	*19.3*	54	*5.8*	933
ID	124	*45.3*	57	*20.8*	37	*13.5*	56	*20.4*	274
IL	866	*62.7*	382	*27.6*	104	*7.5*	30	*2.2*	1,382
IN	635	*82.5*	90	*11.7*	30	*3.9*	15	*1.9*	770
KS	284	*41.0*	215	*31.0*	139	*20.1*	55	*7.9*	693
KY	309	*40.7*	339	*44.6*	99	*13.0*	13	*1.7*	760
LA	463	*90.8*	26	*5.1*	15	*2.9*	6	*1.2*	510
MA	483	*90.4*	34	*6.4*	15	*2.8*	2	*0.4*	534
MD	325	*70.2*	90	*19.4*	35	*7.6*	13	*2.8*	463
ME	112	*26.4*	179	*42.1*	121	*28.5*	13	*3.1*	425
MI	743	*76.1*	172	*17.6*	48	*4.9*	13	*1.3*	976
MN	393	*44.7*	263	*29.9*	145	*16.5*	78	*8.9*	879
MO	635	*62.4*	265	*26.0*	89	*8.7*	29	*2.8*	1,018
MS	293	*70.1*	107	*25.6*	9	*2.2*	9	*2.2*	418
MT	1	*0.3*	82	*22.7*	118	*32.7*	160	*44.3*	361
NC	624	*77.8*	140	*17.5*	30	*3.7*	8	*1.0*	802
ND	4	*1.0*	73	*19.2*	145	*38.1*	159	*41.7*	381
NE	125	*21.5*	202	*34.8*	166	*28.6*	88	*15.1*	581
NH	94	*37.9*	81	*32.7*	70	*28.2*	3	*1.2*	248
NJ	378	*63.7*	196	*33.1*	12	*2.0*	7	*1.2*	593
NM	86	*23.8*	96	*26.6*	113	*31.3*	66	*18.3*	361
NV	93	*55.4*	20	*11.9*	34	*20.2*	21	*12.5*	168
NY	839	*47.8*	670	*38.2*	209	*11.9*	38	*2.2*	1,756

OH	1,032	*86.7*	106	*8.9*	34	*2.9*	18	*1.5*	1,190
OK	566	*87.6*	62	*9.6*	14	*2.2*	4	*0.6*	646
OR	176	*42.5*	85	*20.5*	106	*25.6*	47	*11.4*	414
PA	1,352	*75.8*	297	*16.7*	109	*6.1*	25	*1.4*	1,783
RI	70	*90.9*	2	*2.6*	3	*3.9*	2	*2.6*	77
SC	366	*86.7*	31	*7.3*	12	*2.8*	13	*3.1*	422
SD	16	*4.3*	78	*21.1*	147	*39.7*	129	*34.9*	370
TN	572	*92.0*	33	*5.3*	6	*1.0*	11	*1.8*	622
TX	1,657	*86.4*	147	*7.7*	68	*3.5*	45	*2.3*	1,917
UT	165	*57.9*	73	*25.6*	34	*11.9*	13	*4.6*	285
VA	718	*80.6*	119	*13.4*	30	*3.4*	24	*2.7*	891
VT	0	*0.0*	158	*62.2*	93	*36.6*	3	*1.2*	254
WA	214	*36.4*	159	*27.0*	152	*25.9*	63	*10.7*	588
WI	375	*48.6*	276	*35.8*	90	*11.7*	30	*3.9*	771
WV	363	*51.6*	282	*40.1*	50	*7.1*	9	*1.3*	704
WY	9	*5.3*	45	*26.3*	71	*41.5*	46	*26.9*	171
TOTAL	20,395	*62.4*	6,956	*21.3*	3,390	*10.4*	1,928	*5.9*	32,669

Table A-6
Count of Indian Health Service Facilities providing home health care by state

Data were drawn from the Centers for Medicare and Medicaid Services which maintains a list of Indian Health Service (IHS) facilities offering long term services and supports (LTSS). Data were current as of August 2020.
Note: the downloadable provider list appears to have been removed from CMS during a website update. A state-level list of HIS facilities and the services provided by each is still available and can be accessed at https://www.cms.gov/node/1580581.

	Whether home health services are offered				
	No		Yes		Total
State	n	%	n	%	
AK	71	88.8%	9	11.3%	80
AL	0	0.0%	1	100.0%	1
AZ	20	74.1%	7	25.9%	27
CA	50	76.9%	15	23.1%	65
CO	3	100.0%	0	0.0%	3
CT	0	0.0%	2	100.0%	2
FL	0	0.0%	1	100.0%	1
HI	1	50.0%	1	50.0%	2
IA	1	100.0%	0	0.0%	1
ID	3	75.0%	1	25.0%	4
IL	0	0.0%	1	100.0%	1
KS	3	75.0%	1	25.0%	4
LA	4	80.0%	1	20.0%	5
MA	1	100.0%	0	0.0%	1
ME	3	60.0%	2	40.0%	5
MI	4	30.8%	9	69.2%	13
MN	8	53.3%	7	46.7%	15
MS	1	50.0%	1	50.0%	2
MT	10	76.9%	3	23.1%	13
NC	1	50.0%	1	50.0%	2
ND	3	60.0%	2	40.0%	5
NE	2	40.0%	3	60.0%	5
NM	12	52.2%	11	47.8%	23
NV	8	53.3%	7	46.7%	15
NY	6	85.7%	1	14.3%	7
OK	28	71.8%	11	28.2%	39
OR	7	63.6%	4	36.4%	11

RI	1	100.0%	0	0.0%	1
SC	1	100.0%	0	0.0%	1
SD	11	84.6%	2	15.4%	13
TX	3	75.0%	1	25.0%	4
UT	2	66.7%	1	33.3%	3
WA	23	69.7%	10	30.3%	33
WI	11	68.8%	5	31.3%	16
WY	4	100.0%	0	0.0%	4
Total	**306**	**71.7%**	**121**	**28.3%**	**427**

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