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Trends in Nursing Home Closures in Nonmetropolitan and Metropolitan Counties in the United States, 2008-2018

Hari Sharma, PhD; Redwan Bin Abdul Baten, MPH; Fred Ullrich, BA; A. Clinton MacKinney, MD; Keith J. Mueller, PhD

Purpose

This policy brief examines trends in nursing home closures and characteristics of open and closed nursing homes in nonmetropolitan and metropolitan counties. For this analysis, nursing homes are facilities dually certified by Medicare and Medicaid or facilities certified by only Medicaid. We excluded facilities certified only by Medicare since they cater to skilled nursing care and our focus in this study was on long-term care services. We considered a nursing home closed if the provider of services (POS) file from the Centers for Medicare & Medicaid Services (CMS) indicated that the facility was closed in its entirety or if the facility no longer had Medicaid certification. Documenting nursing home closures is important because it will allow examination of the impact of closures on access and availability of alternative providers of post-acute/long-term care in nonmetropolitan areas. In this project, we document nursing home closures, identify areas without nursing homes, and summarize the characteristics of open and closed nursing homes.

Key Findings

- Between 2008 and 2018, 472 nursing homes in 400 nonmetropolitan counties and 783 nursing homes in 368 metropolitan counties closed in the U.S.
- As of 2018, 7.7 percent of the 3,142 counties in the U.S. had no nursing homes (nursing home deserts); 10.1 percent of the 1,976 nonmetropolitan counties and 3.7 percent of the 1,166 metropolitan counties were nursing home deserts.
- Of the 243 counties with no nursing homes, 44 were newly created nursing home deserts because of nursing home closures between 2008 and 2018; about 91 percent of these new nursing home deserts (n = 40) were in nonmetropolitan counties.
- On average, closed nursing homes had lower bed size and lower occupancy levels compared with open nursing homes; among the facilities that closed, nursing homes in nonmetropolitan counties had lower average bed size and occupancy levels compared with nursing homes in metropolitan counties.

Background

A growing post-acute/long-term care access problem has been created by rural nursing home closures [1] [2]. Recent efforts to rebalance long-term services and supports (LTSS) by promoting home- and community-based services over institutional care [3] may disproportionately benefit residents living in urban areas, where nursing home alternatives such as assisted living facilities, adult foster homes, and adult day care centers are available [4]. Some states have also used home- and community-based services waivers to provide meals,

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rupri RURAL POLICY RESEARCH INSTITUTE

RUPRI Center for Rural Health Policy Analysis
University of Iowa College of Public Health
Department of Health Management and Policy
145 Riverside Dr., Iowa City, IA 52242-2007
(319) 384-3830
http://www.public-health.uiowa.edu/rupri
E-mail: cph-rupri-inquiries@uiowa.edu

transportation, and medication administration at home to minimize the need for institutional care. However, there is widespread concern that lack of availability of alternative providers may limit access to such services in rural areas [4] [5]. Given the limited availability of community-based services, rural residents are more likely to utilize nursing home services, underlining the importance of nursing homes in rural areas [6]. Large numbers of rural hospital closures [7] have exacerbated the access problem by increasing the distance to the closest hospital with swing beds that can provide short-term post-acute care.

Limited information is available to examine access to long-term care services in rural areas. This examination of the closure of nursing homes in rural areas will help policy makers address access to long-term supports and services, including nursing home services.

Methods

We used the 2019 Medicare Provider of Services (POS) file to identify nursing home closures that occurred between 2008 and 2018. We defined nursing homes to include facilities dually certified by Medicare and Medicaid or facilities certified by only Medicaid. We excluded facilities certified by only Medicare since they cater to skilled nursing care, and our focus in this study was on long-term care. The POS file provides the current termination status for every provider and the year of termination for facilities that closed.

Two other data sources were used to verify nursing home termination status—Nursing Home Compare and LTCfocus [8]. Both sources provide a variety of information regarding nursing home characteristics. Nursing Home Compare is a federal database, whereas LTCfocus data is built by Brown University researchers. We considered a nursing home closed if no identifying data were present in either Nursing Home Compare or the LTCfocus data following the year of termination in the POS file. We track nursing homes over time using the federal provider identification numbers. We found that the termination information in POS data was consistent with information available in Nursing Home Compare and LTCfocus data. Since we were interested in the provision of long-term care services in nursing homes, we also incorporated the change-in-status information of nursing homes in the POS file and considered a nursing home to be closed if the facility no longer had Medicaid certification.

Information regarding the latest nursing home characteristics from 2008 to 2018 was obtained from all 3 data sources. The characteristics of closed nursing homes are from the latest year for which we had the data between 2008 and 2018 whereas the data regarding open nursing homes comes from 2018. We used the 2013 Urban Influence Code information from the Economic Research Service, United States Department of Agriculture, to identify nonmetropolitan and metropolitan counties. We compared different groups of facilities using chi-square tests for categorical variables and t-tests for continuous variables. P-value less than 0.05 was considered statistically significant.

Results/Findings

Between 2008 and 2018, 1,255 nursing homes closed across the U.S. (**Figure 1**) In 2018, there were 4,525 nursing homes open in nonmetropolitan counties and 10,863 nursing homes open in metropolitan counties. Of the 1,255 closures, 472 (37.6 percent) occurred in nonmetropolitan counties, accounting for about 10.4 percent of the facilities operating in nonmetropolitan counties in 2018. In contrast, 783 closures (62.4 percent) occurred in metropolitan counties, accounting for about 7.2 percent of nursing homes operating in metropolitan counties in 2018. About 87.7 percent of the facilities that closed were dually certified by Medicare and Medicaid. The number of nursing home closures has fluctuated over the years but has been increasing since 2014, mainly due to increases in nursing home closures in metropolitan counties.

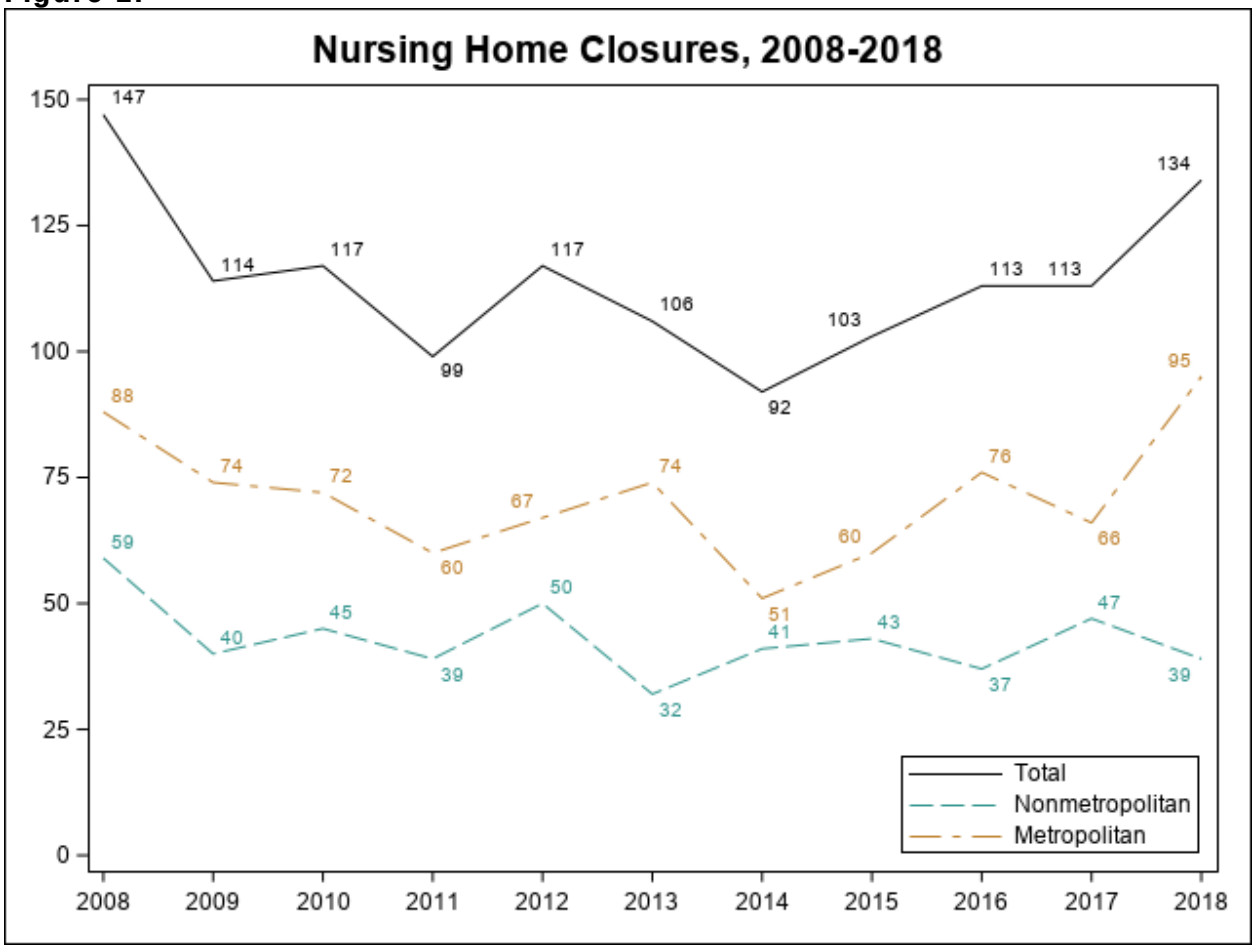
Figure 2 maps counties that lost 1 or more nursing homes between 2008 and 2018. A total of 768 counties in the US had at least 1 nursing home closure between 2008 and 2018 with 400 nonmetropolitan counties and 368 metropolitan counties experiencing at least 1 nursing home

closure. Some of these counties may still have had nursing homes available in 2018 if there was more than 1 nursing home or if new nursing homes opened after the closure of an existing nursing home.

Counties that were nursing home deserts are shown in **Figure 3**. In 2018, 243 (7.7 percent) counties in the U.S. had no nursing homes. In nonmetropolitan areas, 200 (10.1 percent) counties were nursing home deserts whereas in metropolitan areas, 43 (3.7 percent) counties were nursing home deserts. Of the 243 counties with no nursing homes, 44 were newly created nursing home deserts because of nursing home closures between 2008 and 2018. About 91 percent of these new nursing home deserts (n = 40) were in nonmetropolitan counties.

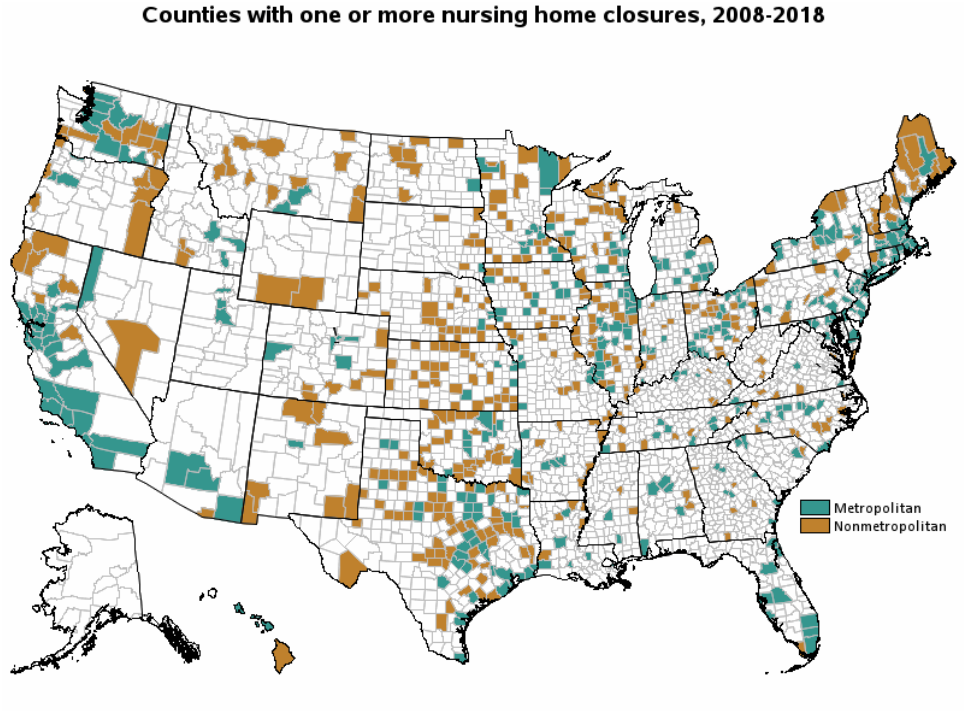
Characteristics of facilities that closed from 2008 to 2018 as well as facilities that were open in 2018 are shown in **Table 1** for the overall sample and stratified by metropolitan status. Closed facilities had a lower average number of beds and lower occupancy rates. Closed facilities had a slightly higher percentage of Medicare and Medicaid residents. A lower percentage of closed facilities were for-profit and owned by chains. A larger percentage of closed facilities had a hospital affiliation.

Figure 1.



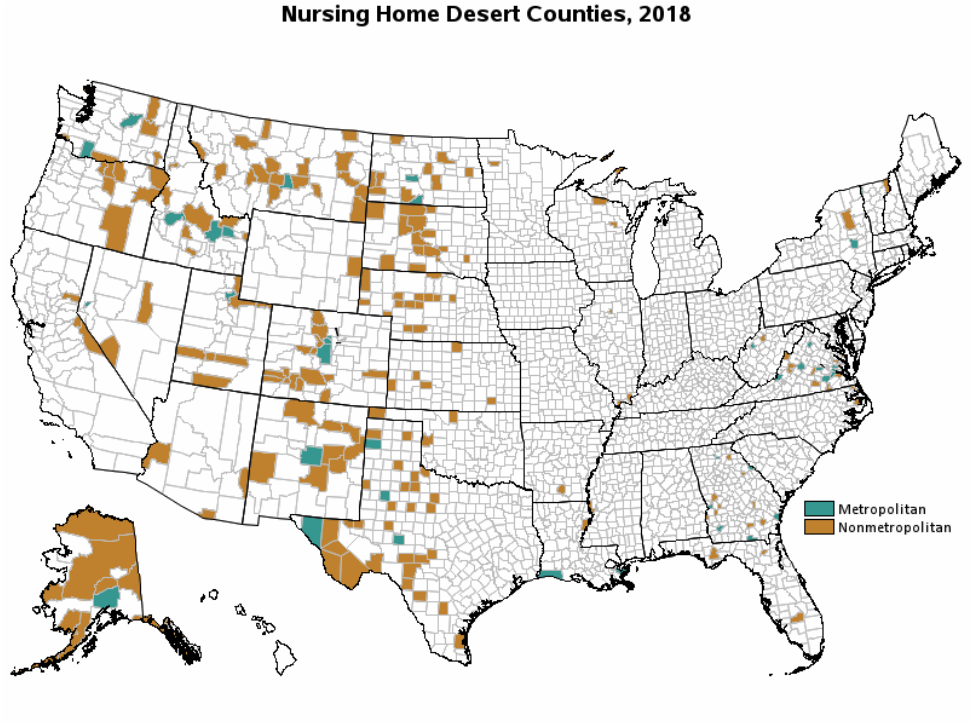
Notes: Of the 1,255 nursing home closures, 472 occurred in nonmetropolitan counties and 783 occurred in metropolitan counties. A total of 1,101 closed nursing homes were dually certified whereas 154 closed nursing homes were certified for only Medicaid. In 2018, there were 4,525 nursing homes open in nonmetropolitan counties and 10,863 nursing homes open in metropolitan counties. Overall closure rate as a percentage of facilities open in 2018 was 10.4 percent for nonmetropolitan areas and 7.2 percent for metropolitan areas.

Figure 2.



Notes: Between 2008 and 2018, 400 nonmetropolitan counties and 368 metropolitan counties had at least 1 nursing home closure. There are 1,976 nonmetropolitan counties and 1,166 metropolitan counties, for a total of 3,142 U.S. counties.

Figure 3.



Notes: Of the 243 counties with no nursing homes, 200 counties in nonmetropolitan areas and 43 counties in metropolitan areas had no nursing homes in 2018. There were 1,976 counties in the nonmetropolitan areas and 1,166 counties in the metropolitan areas for a total of 3,142 counties in the U.S. Forty of the 44 new nursing home deserts that were created because of nursing home closures between 2008 and 2018 were in nonmetropolitan counties.

Table 1: Nursing Home Characteristics by Nonmetropolitan/metropolitan Location[a]

	All		Nonmetropolitan		Metropolitan	
	Open (n = 15,388)	**Closed (n = 1,255)**	**Open (n = 4,525)**	**Closed (n = 472)**	**Open (n = 10,863)**	**Closed (n = 783)**
Total Beds[b]	109.7	79.1[c]	86.4	59.6[d,f]	119.3	91.0[e]
Percent Bed Occupied[b]	80.8	67.3[c]	77.3	62.8[d,f]	82.2	69.9[e]
Percent Medicaid Resident[b]	62.2	65.4[c]	63.8	65.9	61.6	65.0[e]
Percent Medicare Resident[b]	12.4	14.0[c]	10.4	11.1[f]	13.3	15.7[e]
For-Profit Status	71.3%	63.2%[c]	63.4%	60.0%	74.6%	65.1%[e]
Chain Ownership	58.1%	49.5%[c]	56.4%	48.1%[d]	58.8%	50.4%[e]
Hospital Affiliation	3.9%	19.5%[c]	7.6%	23.6%[d,f]	2.4%	17.1%[e]
Medicaid Only Certification	5.8%	12.3%[c]	7.9%	12.5%[d]	4.9%	12.1%[e]
Medicare and Medicaid Certification	94.2%	87.7%[c]	92.1%	87.5%[d]	95.1%	87.9%[e]

[a] Based on county Urban Influence Code.

[b] Mean.

[c,d,e] Statistically different at 5 percent level comparing open vs. closed facilities for overall, nonmetropolitan, and metropolitan counties, respectively.

[f] Statistically different at 5 percent level comparing closed facilities in nonmetropolitan vs. closed facilities in metropolitan counties.

The last 4 columns of Table 1 show the characteristics of open and closed facilities by metropolitan status. Within nonmetropolitan counties, facilities that closed between 2008 and 2018 were smaller in size, had lower occupancy, and had slightly higher Medicaid occupancy compared with facilities that were open in 2018. Similarly, closed facilities in nonmetropolitan counties were less likely to be owned by chains but substantially more likely to have hospital affiliation compared with open facilities. Facilities that closed in nonmetropolitan counties were substantially smaller in size and had lower occupancy than facilities that closed in metropolitan counties.

Table 2 compares the characteristics of open and closed nursing homes by metropolitan status based on whether they were a “Medicaid Only” or “Medicare and Medicaid” institution. Compared with open “Medicaid Only” institutions, closed “Medicaid Only” institutions had lower occupancy and a higher proportion of Medicaid residents, were more likely to be for-profit, and less likely to be part of a chain, and were more likely to be affiliated with a hospital in both metropolitan and nonmetropolitan counties. As expected, “Medicaid only” facilities relied heavily on Medicaid residents. Compared with open “Medicare and Medicaid” institutions, closed “Medicare and Medicaid” institutions had fewer beds, were less likely to be for-profit and less likely to be part of a chain, and were much more likely to be affiliated with a hospital.

Table 2. Nursing Home Characteristics by Provider Category and Location

	Nonmetropolitan				Metropolitan			
	Medicaid Only		Medicare and Medicaid		Medicaid Only		Medicare and Medicaid	
Characteristics	Open	Closed	Open	Closed	Open	Closed	Open	Closed
Total Beds[a]	67.0	63.1	88.1	59.1[c]	90.3	90.6	120.8	91.0[e]
Percent Bed Occupied[a]	78.7	61.4[b]	77.3	63.0[c]	76.6	76.4	82.4	69.1[e]
Percent Medicaid Resident[a]	65.6	70.0	63.7	65.4	68.5	78.5[d]	61.3	63.2
Percent Medicare Resident[a]	---	---	11.1	12.7	---	---	13.7	17.3[e]
For-Profit Status	30.5%	36.4%	65.6%	63.4%	59.9%	73.3%[d]	75.1%	64.1%[e]
Chain Ownership	28.0%	20.0%	58.4%	52.0%[c]	43.3%	28.7%[d]	59.4%	53.3%[e]
Hospital Affiliation	29.7%	41.1%	6.1%	21.1%[c]	5.9%	7.9%	2.3%	18.4%[e]

[a] Mean

[b,c,d,e] Statistically different at 5 percent level comparing open vs. closed facilities by provider category and location.

Finally, we examined the population characteristics of counties by nursing home desert status. **Table 3** provides the population size, age, gender, and income distribution of individuals in nonmetropolitan and metropolitan counties by nursing home desert status. A total of 1.1 million individuals lived in nonmetropolitan counties with no nursing homes, with 21.1 percent aged 65 and older. A total of 662,676 individuals lived in metropolitan counties with no nursing homes, with 17.6 percent aged 65 and older. Compared with metropolitan counties with no nursing homes, nonmetropolitan counties with no nursing homes had a higher percentage of residents with income below the poverty level.

Table 3. Population Characteristics of Counties by Nursing Home Desert Status

	Nursing Home Desert[a] 2018		Not a Nursing Home Desert 2018	
	Nonmetropolitan (n = 200)	Metropolitan (n = 43)	Nonmetropolitan (n = 1,776)	Metropolitan (n = 1,123)
Total Population	1,114,572	662,676	44,967,993	276,157,789
Average Population	5,573[b]	15,411	25,320[c]	245,910
Female	48.5%	49.2%	49.7%[c]	50.5%
Age 65+	21.1%[b]	17.6%	19.4%[c]	16.3%
Median household income	$49,483[b]	$59,247	$46,849[c]	$59,149
Per Capita Income	$26,980[b]	$30,972	$25,052[c]	$30,034
Income below FPL	13.8%	12.1%	15.0%[c]	12.2%

[a] County had no nursing home in 2018 (i.e., nursing home[s] had closed or never existed from 2008 to 2018. Data source: Five-year 2014-2018 American Community Survey.

[b,c] Statistically different at 5 percent level comparing nonmetropolitan vs. metropolitan counties among "nursing home deserts" and "not nursing home deserts," respectively, in 2018.

Discussion

We found that compared with metropolitan counties, a higher percentage of nursing homes in nonmetropolitan counties closed between 2008 and 2018. Between 2008 and 2018, 400 nonmetropolitan counties lost at least 1 nursing home and resulted in 40 new nonmetropolitan counties with no nursing homes. Nursing home closures and the subsequent creation of nursing home deserts are likely to have significant impact on access to long-term care services, particularly in rural areas. Although many states have emphasized home- and community-based services over institutional settings, the supply of home- and community-based services remains limited in rural areas. [5] As a result, nursing homes continue to be important in providing access to post-acute and long-term care services in rural areas. We found that over one million individuals lived in nonmetropolitan counties with no nursing homes. While we cannot comment directly about access issues from these data, we can begin to understand the potential impact. Every time a nursing home closes, residents must be relocated, sometimes far from families and friends. Nursing home closures are stressful for residents, families, and rural communities.

Several factors may be driving the closure of nursing homes in nonmetropolitan areas. First, occupancy rates were substantially lower in facilities that closed between 2008 and 2018 than in those that were open in 2018. With low occupancy rates, facilities may not be able to take advantage of economies of scale, as they still need to pay for fixed costs. Second, compared with facilities that were open in 2018, facilities that closed were smaller and had a lower proportion of closed facilities that belonged to chains, suggesting that perhaps these smaller, closed facilities did not have the resources of big chains to sustain business. Third, the percentage of Medicaid residents was about 2 percentage points higher in closed facilities compared with facilities that were open in 2018. Reimbursements tended to be lower for Medicaid than other payers such as private pay or Medicare. All these factors may have played a role in the closure of nursing homes in nonmetropolitan counties. Nursing homes in nonmetropolitan areas may need more financial support to sustain operations.

Distance to an alternative facility is a distinction between rural and urban closures. A nursing home closure in an isolated rural county will likely mean considerable travel distance and time to the next nearest facility. Furthermore, attempts to substitute in-home personal services are more challenging in rural areas given increased travel time to residential settings in rural areas. [5]

While the closure of nursing homes and the subsequent creation of nursing home deserts at the county level is concerning, it is possible that residents in these counties have some access to other providers of post-acute and long-term care services. It should be noted, though, that being the last nursing home to close in a rural county, particularly in a small rural or isolated rural town, is likely to be much more problematic than it would be in urbanized areas. This is a function of the geography of rural counties, which tend to be larger, creating greater travel burdens. Some counties with no nursing homes may have home- and community-based services and/or hospitals with swing beds that could provide some of the services that had been provided in the closed nursing homes. However, some of these home- and community-based services may be less accessible in rural areas. In future work, it will be important to examine the availability of alternative providers of post-acute and long-term care services in areas where nursing homes have closed. In future work, we will explore access to post-acute and long-term care services in areas where nursing homes have closed, including improving transportation services, using telehealth, and providing higher payment per encounter for home-based services based on travel time.

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