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# Are Rural Older Adults Benefiting from Increased State Spending on Medicaid Home and Community-Based Services?

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## INTRODUCTION

Medicaid is the primary funding source for institutional and community-based long term services and supports (LTSS), accounting for 51 percent of all LTSS spending. In a shift away from institutional LTSS, the federal government and states have pursued an increasing array of strategies for expanding access to home and community-based services (HCBS) over the past few decades. As a result, according to the most recent analysis available, HCBS expenditures have risen from 18% of all Medicaid LTSS spending in 1995 to over 50% in 2013, although this national average obscures wide variations in HCBS use and expenditures across states.<sup>1</sup>

Little is known about variations in the availability or use of HCBS within states, across rural and urban areas. To address this gap in our understanding of rural LTSS, we used a summary of the national Medicaid Analytical Extract (MAX) claims data file to examine differences in HCBS use among rural and urban elderly Medicaid beneficiaries receiving LTSS.

## BACKGROUND

### The Policy Context

The federal government and states have pursued an increasing array of strategies for expanding access to HCBS over the last several decades to counter an historical bias in federal Medicaid law toward institutional, nursing home services. That institutional bias stems from the fact that nursing facility services are a mandatory service that state Medicaid programs must offer and Medicaid beneficiaries are entitled to nursing facility services when that level of care is required. In contrast, starting with the §1915(c) waiver authority introduced in 1981, almost all community-based LTSS are offered at the state's option. A §1915(c) HCBS waiver allows states 1) greater flexibility designing a benefit package that would allow persons requiring a nursing facility level of care to live at home; 2) the ability to target HCBS to a specific population group; and 3) to cap the number of people that can access services.

The pace of LTSS reform picked up significantly in 1990 with the enactment of the Americans with Disabilities Act which, as the Supreme Court ruled under the 1999 Olmstead decision, treats institutional services as unjustified segregation of persons with disabilities when community-based services are appropriate, preferred, and can be reasonably accommodated.<sup>2</sup> Since the Olmstead decision, Congress, through the Affordable Care Act and other legislation,

## Key Findings

Despite trends toward greater use of Medicaid-funded home and community-based (HCBS) long term services and supports (LTSS), older adult rural Medicaid LTSS users had lower HCBS use rates and expenditures than those living in urban areas.

The proportion of expenditures for personal care, home health, hospice, adult day care, and rehabilitation were all significantly lower for rural than urban Medicaid LTSS users.

Compared with urban Medicaid LTSS users, rural users were more likely to receive nursing facility care, and the proportion of LTSS spending for nursing facility services was greater among rural than urban LTSS users.

Beneficiary characteristics alone do not explain the observed rural-urban differences in HCBS use and expenditures. State policies, including, for example, eligibility policies and other factors such as differences in the availability and supply of HCBS and nursing facility services, are likely important contributors to differences in HCBS use and expenditures.

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has created other pathways for states to offer and expand HCBS and the Centers for Medicare & Medicaid Services (CMS) has sponsored demonstrations and other initiatives to reduce nursing facility use.

While many states have taken advantage of these opportunities and the HCBS share of national LTSS expenditures has increased steadily, there is wide variation in HCBS expenditures among the states and across population groups. For example, Oregon spends nearly 80 percent of its LTSS expenditures on HCBS, while only a quarter of LTSS expenditures in Mississippi are for HCBS. For older adults and adults with physical disabilities, the HCBS share of LTSS expenditures averages 40 percent across the states and ranges from 80 percent in Oregon to 12.8 percent in Kentucky.<sup>1</sup>

### **What Factors Contribute to the Availability and Use of HCBS?**

Little is known about the availability or use of HCBS within states, across rural and urban areas. Differences in HCBS use across rural and urban areas could result from state LTSS policies favoring institutional or HCBS services. While the outside parameters of Medicaid are set by the federal government, states have a great deal of flexibility in designing their Medicaid program within this framework. Accordingly, some states have aggressively promoted HCBS use as an alternative to institutional services while others have not. Some of the specific policy levers within a state's control include the range of covered services, the financial and clinical eligibility criteria used to define access, reimbursement rates for services, licensing standards, and other factors influencing provider supply. Nationally, state policy differences could contribute to rural-urban differences to the extent they are concentrated in states with a disproportionate share of rural or urban residents.

Differences can also be driven by HCBS capacity and the market for home care versus nursing home services in rural areas. Workforce shortages, the lack of care management, and other HCBS "infrastructure" problems may impede and undermine the implementation and impact of state policies promoting greater access to HCBS. Prior research has shown that rural areas have a larger supply of nursing home beds and more limited availability of HCBS than urban areas, suggesting that rural elders may be at increased risk of nursing home placement due to supply-induced demand and a lack of home care options.<sup>3-6</sup> In 2003, Phillips et al. found the rate of nursing home utilization among rural residents aged 75 and older was almost 50 percent higher than their metropolitan

counterparts.<sup>7</sup> In addition, lack of coordination among service providers, limited funding, provider shortages, and sparse populations are significant obstacles to the delivery of rural HCBS.<sup>8</sup> In a 2006 study, Li found that rural residents have trouble accessing respite care, transportation, and homemaker services due to lack of availability, awareness, and affordability.<sup>9</sup>

Population characteristics can also contribute to differences in the use of institutional and HCBS LTSS. Increased age, female gender, Caucasian race and the presence and level of a disability, cognitive impairment, behavioral health conditions, or certain chronic conditions are all predictors of nursing facility use, as is poverty, living alone, home ownership, and proximity to a family caregiver.<sup>10</sup> Rural areas and populations in many parts of the country have characteristics which place them at higher risk of needing LTSS and/or nursing home care. For example, rural populations tend to be older, have lower incomes, and have lower self-reported health status, all factors influencing patterns of LTSS use.<sup>11,12</sup>

## **METHODS**

### **Study Objectives**

The principal objective of this study was to evaluate rural-urban differences in the use of, and expenditures for, Medicaid HCBS and nursing home services. The study also sought to determine the contribution of Medicaid beneficiary characteristics and variations in state-level factors to observed differences in HCBS and nursing home use.

### **Study Population**

State Medicaid LTSS users include older adults (aged 65+) as well as younger individuals with intellectual or physical disabilities. This study focused only on older adult (aged 65+) Medicaid LTSS users. The study population was further restricted to include only beneficiaries with full Medicaid benefits for at least one full month and for whom Medicaid has reimbursed at least one community long-term care service or nursing facility service. To facilitate readability, we refer to our study population as LTSS users.

### **Data**

The study used data from the 2008 Medicaid Mini-MAX dataset, which represents a five percent cross-sectional national sample of the Medicaid Analytic eXtract (MAX) files, derived from the 2008 Medicaid enrollment and claims files submitted by states to CMS. The Mini-MAX was stratified with higher sampling rates for smaller states and groups eligible on the basis of being aged or disabled.<sup>13</sup>

## Variables and Analysis

Our dependent variables are: (1) the proportion of Medicaid-funded older adult LTSS users receiving at least one HCBS service, and (2) the proportion of total Medicaid LTSS spent on HCBS services for this population. HCBS includes 21 services, whether funded under a §1915(c) home and community-based waiver or as a Medicaid state plan service, identified in the Medicaid Mini-MAX file as community long term care (CLTC). CLTC includes personal care, private duty nursing, adult day care, home health, residential care, rehabilitation, targeted case management (TCM), transportation, durable medical equipment (DME), and other HCBS. Expenditures for HCBS services represents the sum of both waiver and non-waiver fee-for-service payments for each type of service (e.g., personal care, adult day, etc.). A complete list of HCBS services is included in the Appendix.

Our primary independent variable is rural and urban beneficiary residence. Counties and county equivalents were designated as rural or urban using the Economic Research Service's 2003 Rural-Urban Continuum Codes (RUCCs). The RUCCs are a nine-level county classification scheme consisting of three metropolitan designations based on population size, and six non-metropolitan designations based on degree of urbanization and adjacency or non-adjacency to a metropolitan area. Initial tests showed that this level of granularity did not enhance our analyses, so we collapsed the RUCCs to a two-level metropolitan versus non-metropolitan variable. Throughout the text we refer to metropolitan and non-metropolitan counties as urban and rural, respectively, to promote readability.

Covariates in our analyses include available socio-demographic characteristics of beneficiaries, including age, gender, and race and ethnicity. To capture differences in state LTSS policy (e.g., Medicaid reimbursement) and other state-level factors, we include state of residence as a fixed effect in the final regression models.

Descriptive analyses were used to assess differences in the socio-demographic characteristics of rural and urban Medicaid beneficiaries in our sample and to compare HCBS and nursing facility service use and expenditures among LTSS users. At the bivariate level, we used chi-square and t-tests of significance. Because the Mini-MAX data are a stratified and weighted subsample of all claims in the MAX, we used complex survey procedures to adjust for data clustering within strata and permit use of sample weights.

To better understand the factors associated with use of HCBS, we developed two sets of multivariate models. The first models consisted of logistic regression analyses predicting the odds of using any HCBS among our sample of LTSS users. The second set of models assessed the relative proportion of HCBS expenditures as a percent of total LTSS expenditures for rural and urban LTSS users.

## Limitations

This study is based on 2008 data and may not reflect current HCBS use and expenditures and changes in state policy under the ACA. Although a 2011 assessment of the Medicaid Analytic eXtract (MAX) files by Mathematica Policy Research reported anomalies in the MAX data in twelve states that appeared to have under-reported §1915(c) waiver expenditures,<sup>15</sup> our examination of HCBS use and expenditures in these states did not identify any systematic bias created by these anomalies. But we cannot eliminate the possibility that one exists. And finally, our ability to explain rural-urban differences in HCBS use and expenditures is limited. While our multivariate, fixed-effects model help us understand whether state-level factors contribute to these differences, they do not evaluate the effects of specific factors, such as state Medicaid LTSS policy differences or differences across and within states in the availability and supply of HCBS services.

**Table 1. Demographic Characteristics of Medicaid LTSS Users**

	Rural (%)	Urban (%)
Age		
65-74	31.8	34.7
75-84	33.3	35.3
85 and over	34.8	30.0
Gender		
Female	73.0	71.3
Male	26.9	28.7
Race/Ethnicity		
White	74.0	50.8
Black	13.6	16.0
Hispanic or Latino	3.5	13.4
Other	8.9	19.8

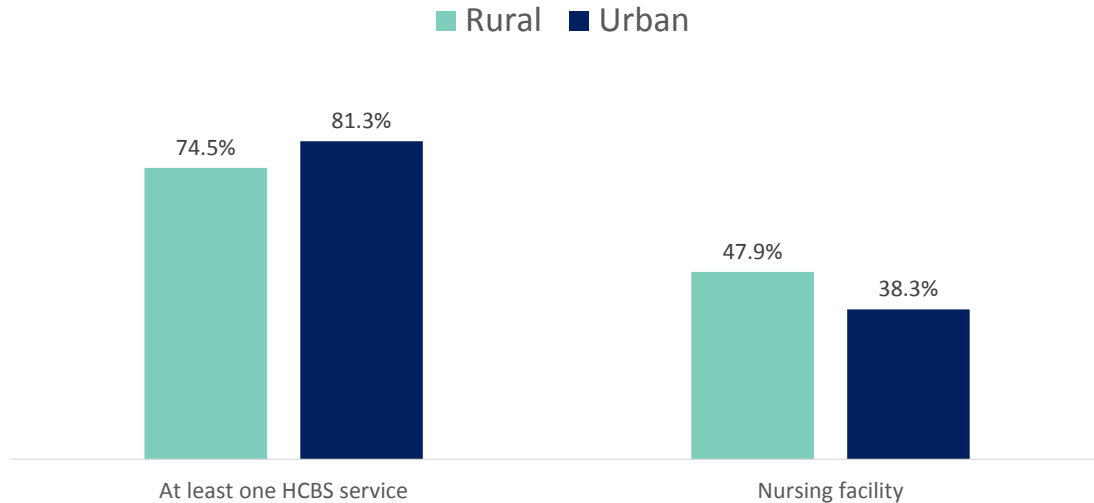
Data: Medicaid Mini-Max, 2008

Differences significant at  $p \leq .001$

"Other" category includes American Indian, Alaskan Native, Asian, Pacific Islander, Other, More than one race, and Unknown



Figure 1. Percent of Medicaid LTSS Users Receiving HCBS and NF Services



Data: Medicaid Mini-Max, 2008  
Differences significant at  $p \leq .001^{***}$

## FINDINGS

### Rural Medicaid LTSS users were older, whiter and more likely to be female than their urban counterparts.

Compared to urban-residing LTSS users, rural users were more likely to have some of the personal characteristics associated with higher nursing facility use. They tended to be older than urban LTSS users – 34.8 percent in rural areas were age 85 and over compared to 30 percent in urban areas (Table 1). Rural LTSS users were also more likely to be white than their counterparts in urban areas - 74.0 percent versus 50.8 percent. Finally, rural LTSS users were also more likely to be female by a slight margin – 73.0 percent compared to 71.3 percent in urban areas.

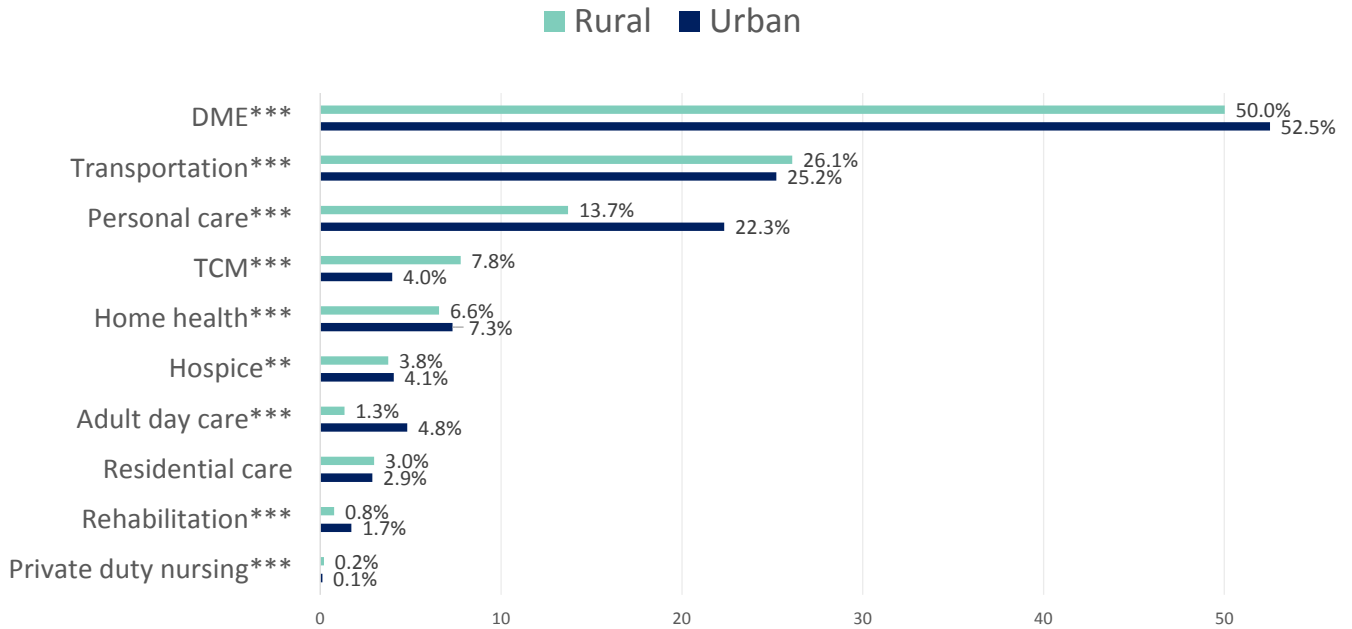
### Rural Medicaid LTSS users were less likely to receive HCBS and more likely to receive nursing facility services than their urban counterparts.

Three quarters of rural LTSS users accessed at least one home and community-based service, compared to 81 percent for those living in urban areas (Figure 1). In contrast, 48 percent of rural LTSS users received nursing facility services while only 38 percent did so in urban areas. As indicated in Figure 2, the types of HCBS services accessed by urban and rural LTSS users varied as well. Rural LTSS users were nearly 50 percent less likely than their urban counterparts to access and use personal care (13.7 versus 22.3 percent). The proportion of rural LTSS users who received adult day health

services (1.3 percent) was also significantly lower than among urban LTSS users (4.8 percent). It is noteworthy that both of these services provide the hands-on assistance and supervision that one would receive in a nursing facility. In contrast, rural LTSS users were more likely to receive targeted case management, which facilitates access to services; 7.8 percent received case management services compared to 4.0 percent for urban LTSS users.

Figure 3 shows the proportion of Medicaid LTSS expenditures for nursing facility and HCBS which are generally consistent with the utilization results. The proportion of LTSS spending for nursing facility services was significantly greater among rural than urban LTSS users (45.0 and 36.0 percent, respectively). In contrast, the proportion of expenditures for personal care, home health, hospice, adult day care, and rehabilitation were all significantly lower for rural LTSS users compared with those living in urban areas. As described earlier, to determine whether these findings might be attributable to beneficiary characteristics (e.g., age) or other factors associated with the states in which beneficiaries live, we ran multivariate models predicting (1) the odds of LTSS users receiving HCBS and (2) HCBS expenditures as a proportion of total LTSS spending. For each type of model, we present results controlling just for the individual level characteristics available in the Mini-MAX and then additionally controlling for fixed state effects (Table 2). Reflecting the bivariate findings, the logistic regression model revealed that rural LTSS users had 12 percent lower odds of receiving any HCBS service compared to their urban counterparts

Figure 2. Percent Medicaid LTSS Users Receiving HCBS

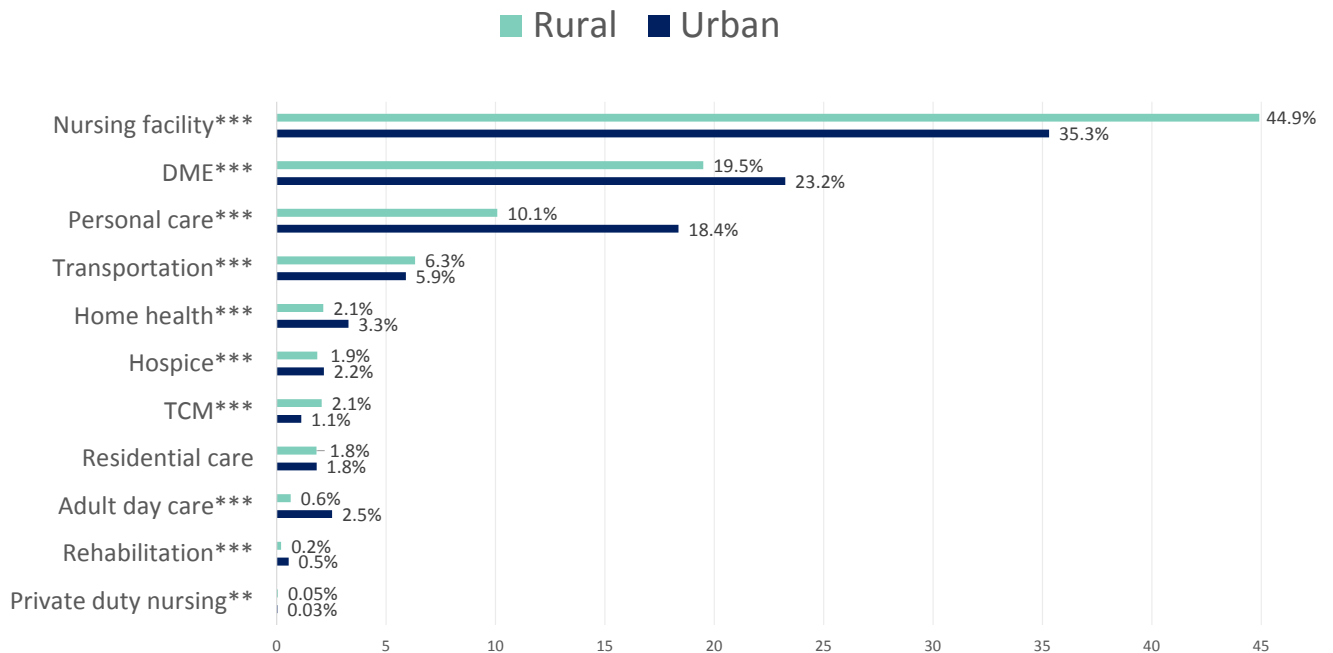


Data: Medicaid Mini-Max, 2008

Differences significant at  $p \leq .01^{**}$ , and  $p \leq .001^{***}$

DME indicates durable medical equipment; TCM, targeted case management

Figure 3. Percent of Medicaid LTSS Users Receiving HCBS and NF Services



Data: Medicaid Mini-Max, 2008

Differences significant at  $p \leq .01^{**}$ , and  $p \leq .001^{***}$

DME indicates durable medical equipment; TCM, targeted case management

**Table 2. Regression Models Predicting the Odds of Using Any HCBS, and the Proportion of LTSS Spending on HCBS for Rural and Urban LTSS Users**

CHARACTERISTIC (REFERENT)	ODDS OF A LTSS USER RECEIVING HCBS		RELATIVE RATE OF HCBS SPENDING AS A PROPORTION OF TOTAL LTSS SPENDING	
	No fixed state effects	Fixed state effects	No fixed state effects	Fixed state effects
<b>RURAL (URBAN)</b>	0.88 (p < .0001)	0.99 (p=0.652)	0.89 (p < .0001)	1.03 (p=0.020)
<b>AGE (65 TO 74)</b>				
<b>75 TO 84</b>	0.39 (p < .0001)	0.39 (p < .0001)	0.41 (p < .0001)	0.40 (p < .0001)
<b>85 PLUS</b>	0.19 (p < .0001)	0.19 (p < .0001)	0.17 (p < .0001)	0.17 (p < .0001)
<b>MALE (FEMALE)</b>	0.95 (p < .0001)	0.91 (p < .0001)	0.82 (p < .0001)	0.79 (p < .0001)
<b>RACE (WHITE)</b>				
<b>HISPANIC</b>	4.09 (p<.0001)	3.77 (p < .0001)	5.13 (p < .0001)	3.85 (p < .0001)
<b>BLACK</b>	1.83 (p<.0001)	1.96 (p < .0001)	1.80 (p < .0001)	1.83 (p < .0001)
<b>OTHER NON-WHITE</b>	3.45 (p<.0001)	2.59 (p < .0001)	3.84 (p < .0001)	3.03 (p < .0001)

when controlling for individual-level characteristics (OR: 0.88). We observed a similar pattern in the fractional logit models, where the rate of HCBS spending as a proportion of total LTSS spending for rural users was 11 percent lower among rural versus urban LTSS users. In each of these models, being older and male was associated with lower odds of HCBS use or a lower relative rate of HCBS spending, while racial and ethnic minorities had greater odds of use and proportional spending on HCBS.

When fixed state effects were introduced into the models, however, the impact of rural residence on HCBS was eliminated, or even reversed. For example, controlling for state of residence weakened the relationship between rurality and the odds of using any HCBS services to 0.99 and the result was no longer statistically significant. In the fractional logit model, the addition of our state variable into the models resulted in rural LTSS users actually having a slightly higher relative proportion of their LTSS spending attributed to HCBS than was true for urban users. These findings suggest that differences in state Medicaid LTSS policy, the distribution and supply of nursing home and HCBS services

in states and communities where rural and urban older adults live, and other unobserved factors are potentially key drivers of differences in rural and urban HCBS use.

### IMPLICATIONS FOR POLICY AND PRACTICE

The older, adult population in the United States will grow significantly in the coming decades as a result of the aging of the “baby-boom” generation. By 2030, over 20% of Americans will be aged 65 or older, as compared to 13% in 2010.<sup>15</sup> By 2050, people aged 85 and older (the ‘oldest old’) are projected to account for 4.5% of the population, up from 1.9% in 2012.<sup>16</sup> Many older adults, especially the oldest old, have significant needs for health care and for LTSS. The growth of the older populations will pose challenges for the nation’s health care and social service systems.<sup>17</sup>

Rural areas are likely to experience a disproportionate share of this growth, as the percentage of elderly is expected to grow even more in rural than in urban areas. In addition, as compared to their urban peers, rural elders are more likely to experience chronic disease,<sup>12</sup> disability,<sup>12</sup> and poverty.<sup>11</sup> Thus, rural older adults may require

more LTSS and will need services at a higher level of care.

In general, older adults, including those living in rural areas, prefer to “age in place” in their own homes and in the community, if possible.<sup>18,19</sup> Moreover, there is some evidence that use of HCBS, including personal care and senior center services, can help elders remain in their homes longer and transition back to their communities following a period of institutionalization.<sup>20</sup> With extensive prior but older studies showing significant rural-urban differences in the availability and use of nursing home services, this study sought to determine whether rural beneficiaries have benefited from changes in Medicaid LTSS policies which have sought to “re-balance” services from institutional, nursing facility care to greater use of HCBS.

Our findings suggest that patterns observed in previous research persist. In 2008, rural Medicaid LTSS users were significantly more likely than their urban counterparts to use nursing home services and, likewise, the proportion of spending on HCBS services was significantly lower for rural versus urban LTSS users. Beneficiary characteristics alone did not explain the observed rural-urban differences in HCBS use and expenditures. State policies, including, for example, eligibility policies that may have a differential impact on urban and rural areas, and other factors such as urban and rural differences in the availability and supply of HCBS and nursing facility services, are likely important contributors to differences in HCBS use.

The data available for this study do not allow us to explain fully why rural Medicaid LTSS users had lower HCBS use rates and expenditures. As noted, rural differences in HCBS use and expenditures persist even after adjusting for age and other socio-demographic differences in the rural and urban Medicaid beneficiaries in this study. Although prior studies suggest that rural residents have trouble accessing services such as respite care, transportation, and homemaker services,<sup>9</sup> data on the availability of and access to HCBS in rural and urban communities are largely unavailable.<sup>21</sup> This makes it difficult to know whether and how the capacity of rural and urban communities to deliver HCBS services may affect HCBS use. And finally, out of pocket costs for some beneficiaries may be a barrier inhibiting rural access to and use of formal HCBS.<sup>9,22</sup>

Federal and state policies that re-direct funding to HCBS are critically important to ensure access to community and home-based LTSS

services in rural communities. In general, rural older persons have a greater need for LTSS as reflected in the higher proportion of rural than urban Medicare beneficiaries who are dually eligible for both Medicare and Medicaid (17.9% versus 15.8% respectively).<sup>23</sup> Among those who are dually eligible for both programs, a disproportionately high percentage live in rural areas: 30 percent of those who are dually eligible for Medicare and Medicaid live in rural America while rural residents make up only a quarter of the Medicare population.<sup>24</sup> Unfortunately, with the exception of the rural Program of All-Inclusive Care for the Elderly (PACE) program and more recent initiatives included in the Affordable Care Act, federal policy initiatives aimed at developing LTSS capacity and enhancing access to HCBS have been relatively modest in size and scope and have not sufficiently targeted rural capacity and system development.<sup>25</sup> In addition, we know little about state and local policies and strategies to address some of the barriers to effective delivery of HCBS in rural areas, including the development of care management capacity, workforce development, and transportation.

Although policy is a necessary driver of LTSS reform, community-based initiatives are also essential for developing and testing new HCBS models in rural communities. In 2008, The Rural Long Term Care Workgroup, a partnership of the Department of Health and Human Service’s Administration on Aging, the National PACE Association, the National Rural Health Association, and the Federal Office of Rural Health Policy, among many other national organizations, prepared a report summarizing lessons and strategies for building and sustaining rural community-based LTSS services.<sup>26</sup> Their report profiled rural communities across the country that were mobilizing local resources to develop and enhance LTSS services and options. The report noted the role churches, faith-based groups, rural community hospitals, and other community organizations were playing in expanding HCBS services in rural communities. In combination with federal and state policies supporting expanded HCBS capacity and use, national and local collaborations and partnerships such as these will be needed to build systems that address the growing need and demand for LTSS options in rural communities.



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## Appendix. Community-Based Long Term Care Service Categories

1. NON-WAIVER PERSONAL CARE
2. NON-WAIVER PRIVATE DUTY NURSING
3. NON-WAIVER ADULT DAY
4. NON-WAIVER HOME HEALTH
5. NON-WAIVER RESIDENTIAL CARE
6. NON-WAIVER REHABILITATION FOR AGED OR DISABLED ENROLLEE
7. NON-WAIVER TARGETED CASE MANAGEMENT FOR AGED OR DISABLED ENROLLEE
8. NON-WAIVER TRANSPORTATION FOR AGED OR DISABLED ENROLLEE
9. NON-WAIVER HOSPICE CARE FOR AGED OR DISABLED ENROLLEE
10. NON-WAIVER DURABLE MEDICAL EQUIPMENT FOR AGED OR DISABLED ENROLLEE
11. WAIVER SERVICE IN ANY OTHER TYPE OF SERVICE NOT LISTED BELOW
12. WAIVER PERSONAL CARE
13. WAIVER PRIVATE DUTY NURSING
14. WAIVER ADULT DAY
15. WAIVER HOME HEALTH
16. WAIVER RESIDENTIAL CARE
17. WAIVER REHABILITATION
18. WAIVER TARGETED CASE MANAGEMENT
19. WAIVER TRANSPORTATION
20. WAIVER HOSPICE CARE
21. WAIVER DURABLE MEDICAL EQUIPMENT

Source: Medicaid Analytic Extract Person Summary (PS) Record Layout and Description, 2011.  
August 31, 2013, Mathematica Policy Research