

Examining Characteristics of Medicare Beneficiaries across the Continuum of Community to Institutional Living

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INTRODUCTION

Background. Millions of older Americans with disabling conditions and chronic illnesses have a continuing need for long-term services and supports (LTSS). In 2014, approximately 1.4 million individuals – 2.6% of those 65 years and older – lived in 15,634 nursing homes or other long-term care (LTC) facilities.^{1,2} Further, baby boomers' aging and advances in life-extending medical technology are predicted to result in ever increasing need for LTSS over the coming years.³⁻⁵ To control growth in health care expenditures, as well as to preserve the independence and personal liberties of older persons, state and federal governments continue to explore efficient ways to deliver LTSS services to individuals living in the community, as opposed to in a nursing home or similar setting.⁶

Public and private payers are increasingly encouraging a shift toward home and community-basedⁱ LTSS for individuals who can be cared for by nurses, care attendants, and case workers while still living in the community.⁷⁻⁹ Support for those with limitations in activities of daily living (ADLs, such as difficulty dressing) and challenges with instrumental ADLs (IADLs, such as preparing meals) can help Medicare beneficiaries stay in their homes or other community settings.¹⁰

In addition to the cost-effectiveness of living in a community setting,¹¹ individuals 65 years and older also prefer receiving care in the community rather than in a nursing home or a similar LTC facility.¹² The 1999 Supreme Court *Olmstead v L.C.* decision that community-based services must be offered to individuals with disabilities where appropriate helped spur state and federal programs to provide such care for older beneficiaries.¹³

KEY FINDINGS

- Fewer Medicare beneficiaries living in the community with supports (i.e., receiving help with ADL/IADL limitations while living at home or in another community-based setting) were married compared to beneficiaries living independently in the community (45.0% vs. 56.3%). Further, substantially fewer beneficiaries who recently moved to a nursing home or similar long-term care (LTC) facility were married than those in the community with supports (25.2% vs. 45.0%).
- Advanced mental health chronic conditions (such as Alzheimer's and dementia) were much less prevalent among beneficiaries living in the community with supports compared to those living in an LTC facility for at least a year (12.1% vs. 45.3%).
- The proportion of beneficiaries with three or more functional limitations was substantially higher for beneficiaries who recently moved to a LTC facility than for beneficiaries living in the community with supports (50.9% vs. 29.2%).

ⁱ Other community-based settings include: continuing care community, assisted living facility, board and care home, domiciliary care facility, personal care facility, independent living unit, or adult/group home.

Objective. To examine the characteristics of Medicare beneficiaries in each of four types of residential status categories: 1) living in the community independently; 2) living in the community with supports; 3) recently entered an LTC facility; and 4) living in a LTC facility long-term (i.e., for at least a year). A better understanding of the characteristics of beneficiaries living in these different residential status categories – which form a continuum of care – will help policymakers design and target initiatives to promote remaining at home or elsewhere in the community, thereby preventing or delaying moves to a nursing home or other LTC facility.

METHODS

We analyzed data from the 2010-2012 Medicare Current Beneficiary Survey (MCBS) – an in-person, nationally representative, longitudinal survey of Medicare beneficiaries sponsored by the Centers for Medicare & Medicaid Services (CMS) and directed by the Office of Enterprise Data and Analytics (OEDA). The MCBS is the most comprehensive and complete survey available on Medicare beneficiaries, capturing personal-level data not otherwise collected through Medicare program operations and administration. In addition to detailed information on whether beneficiaries are living at home or elsewhere in the community, receiving (non-institutional) support for ADL/IADL limitations, or residing in an LTC facility, the MCBS contains detailed information on key characteristics associated with the need for LTSS – such as socioeconomic status, household characteristics, insurance status, and out-of-pocket health care costs.

The MCBS employs a rotating panel design in which beneficiaries remain in the sample for a maximum of four years. Each year, beneficiaries who remained in the sample for up to four years exit the sample, and a new sample of beneficiaries are selected to replace those exiting the sampleⁱⁱ. This analysis was based on a pooled cross-sectional design. We pooled three years of data to increase the sample size and improve the reliability of our findings across each of the four residential status categories of interest. We used cross-sectional survey weights to account for overall selection probability of each sample person and include adjustments for the stratified sampling design, survey nonresponse, and coverage error. As a result of this pooling, many respondents will appear more than once in our analytic sample. Balanced repeated replication (BRR) weights are used for variance estimation. This variance estimation method accounts for non-independence of the person-years in the multi-year, pooled dataset. These statistical methods yield a pooled estimate that is in effect a moving average of nationally representative year-specific estimates. The pooled estimate can be interpreted as being representative of the midpoint of the pooled period.

Adjusted Wald tests were used to test difference in proportions across groups. The test uses an approximate F statistic and adjusts the degrees of freedom to account for the complex survey design.¹⁴ Bonferroni correction was used to account for multiple pairwise comparisons across groups. All findings cited in-text are statistically significant at the $p < 0.05$ level unless otherwise stated; the Appendix includes detailed tables presenting descriptive characteristics and results of hypothesis tests. The analytic dataset had negligible rates on item-nonresponse (less than 1%). Therefore, we performed complete case analysis using appropriate sub-population or domain statements to ensure that no observations were excluded from the survey-weighted

ⁱⁱ Roughly one-fourth of the sample is replaced each year.

analyses. SAS 9.4 was used to construct analytic datasets and Stata 13.1 was used to conduct the analysis.

Study population.

The cohort for this study includes all beneficiaries enrolled in the Medicare program at any time during 2010-2012. To construct the pooled analytic dataset, relevant MCBS Cost and Use (CAU) segment filesⁱⁱⁱ were first linked to the cross-sectional survey weights file for each year in the pooled period. This resulted in three year-specific CAU analytic datasets (i.e. 2010, 2011, and 2012). We appended the three datasets to produce the final pooled cross-sectional analytic dataset. The pooled, analytic sample contains 33,155 unweighted Medicare beneficiary-year observations^{iv}.

Defining residential status.

As shown in Table 1, we defined four categories of residential status along the continuum from living independently in the community to living in an LTC facility (including nursing homes, long-term care hospitals, and other similar institutional settings).^v The two intermediate categories – Medicare beneficiaries in the community with supports and those who recently entered an LTC facility – enabled us to more closely examine how beneficiary characteristics change as individuals get close to the time when they enter an LTC facility.

Table 1. Residential Status Definitions

Residential Status	Definition	Number of Beneficiary-years [Weighted] (Percentage of Total)
Community Living Independently	Medicare beneficiaries living in the community (e.g., at home) who reported that they do not receive help with ADL/IADL limitations, or beneficiaries living in a community-based setting where supports are not commonly provided.	95,509,764 (63.2%)
Community with Supports	Medicare beneficiaries living in the community who reported that they do receive help with ADL/IADL limitations, or beneficiaries living in a community-based setting where supports are commonly provided.	46,952,361 (31.1%)
Recently in a LTC Facility	Medicare beneficiaries who moved from the community to an LTC facility any time during the 2010-2012 study period.	2,259,648 (1.5%)
Residing in a LTC Facility	Medicare beneficiaries who lived in an LTC facility for at least a year throughout the 2010-2012 study period.	6,445,639 (4.3%)

Note: ADL/IADL limitations include light housework, heavy housework, preparing meals, shopping, bathing/showering, managing money, getting in/out of bed/chair, dressing, eating, walking and managing use of the toilet. Identification of community-based settings where supports are commonly provided was informed by federal guidance to states,¹⁵ and includes: continuing care community, assisted living facility, board and care home, domiciliary care facility, personal care facility, independent living unit, and adult/group home.

ⁱⁱⁱ This analysis include the following MCBS CAU segment files: RIC-A (Administrative Identification) ; RIC-K (Key Record); RIC-PS (Person Summary); RIC-SS (Service Summary); RIC-1 (Survey Identification); RIC-2 (Health Status and Functioning – Community); RIC-2F (Health Status and Functioning – Facility); RIC-4 (Health Insurance); RIC-5 (Enumeration); and RIC-9 (Residence Timeline)

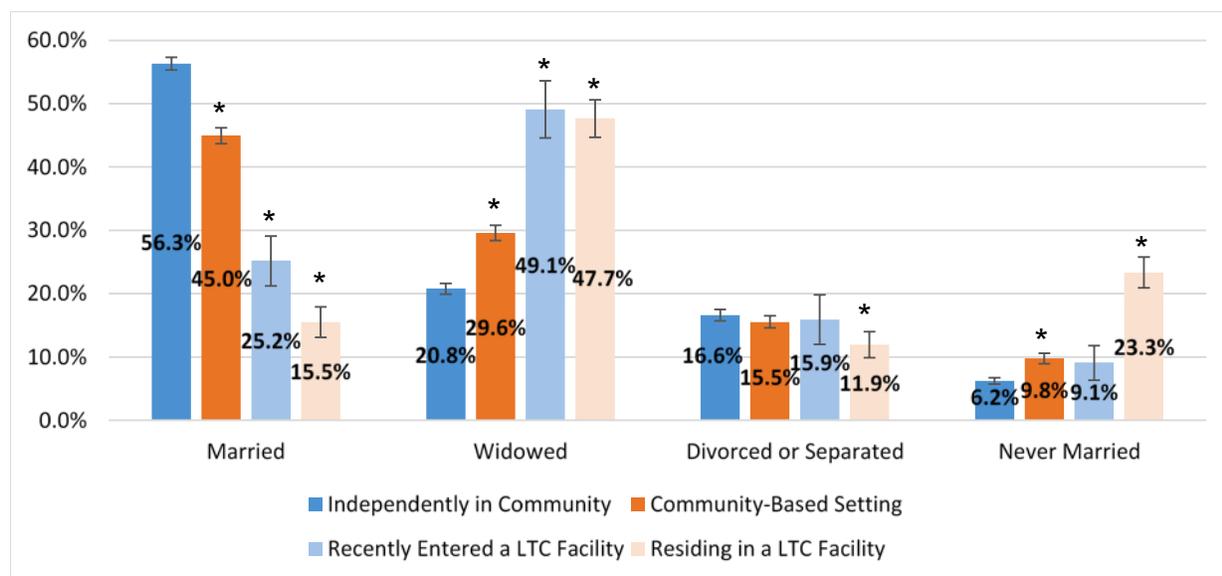
^{iv} The pooled, weighted count of Medicare beneficiary-years is 151,167,412

^v The definition of long-term care facility does not include acute or post-acute settings.

RESULTS

More beneficiaries in the community living independently were male (49.3%) and married (56.3%) compared to those living in the community with supports or in an LTC facility (Figure 1 and 3; Tables A1 and A3). Those living in a LTC facility, recently or for a longer period of time, were older, less educated, and had lower incomes, on average (Table A1).

Figure 1. Marital status by residential status among Medicare beneficiaries 2010-2012

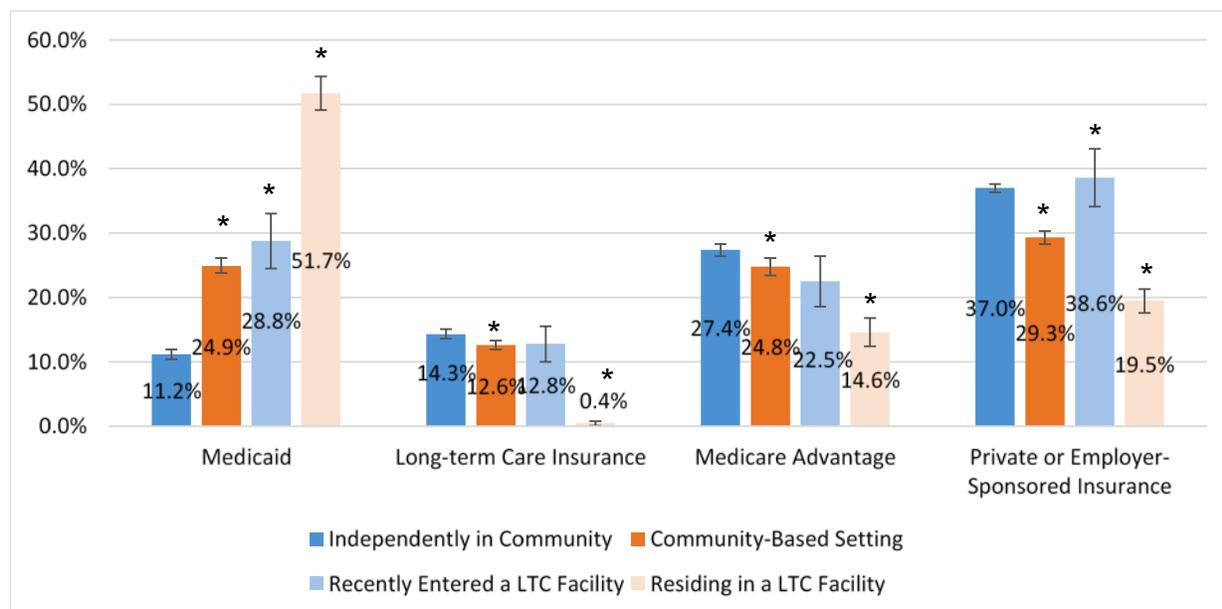


SOURCE: Medicare Current Beneficiary Survey, 2010-2012

Note: Percentages in the stacked bar chart do not add up to 100% because responses of “don’t know” or “refused” to respond are not included. Those beneficiaries who responded “don’t know” or “refused” accounted for .01% of the community living independently and community with supports populations 0.07% of the recently in a LTC facility population; and 1.6% of the long-term institutionalized population.

* $p < 0.05$ (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group).

Medicaid was the primary government payer for LTC facility residence, yet only 51.7% of beneficiaries in LTC facilities for at least a year were dually eligible beneficiaries (i.e., covered by both Medicare and Medicaid) (Figure 2 and Table A2). Beneficiaries living in LTC facilities for at least a year were also less likely to be enrolled in Medicare Advantage plans (14.6%) compared to those in the community living independently (27.4%), or in the community with supports (24.8%) (Figure 2 and Table A2).

Figure 2. Insurance coverage by residential status among Medicare beneficiaries: 2010-2012

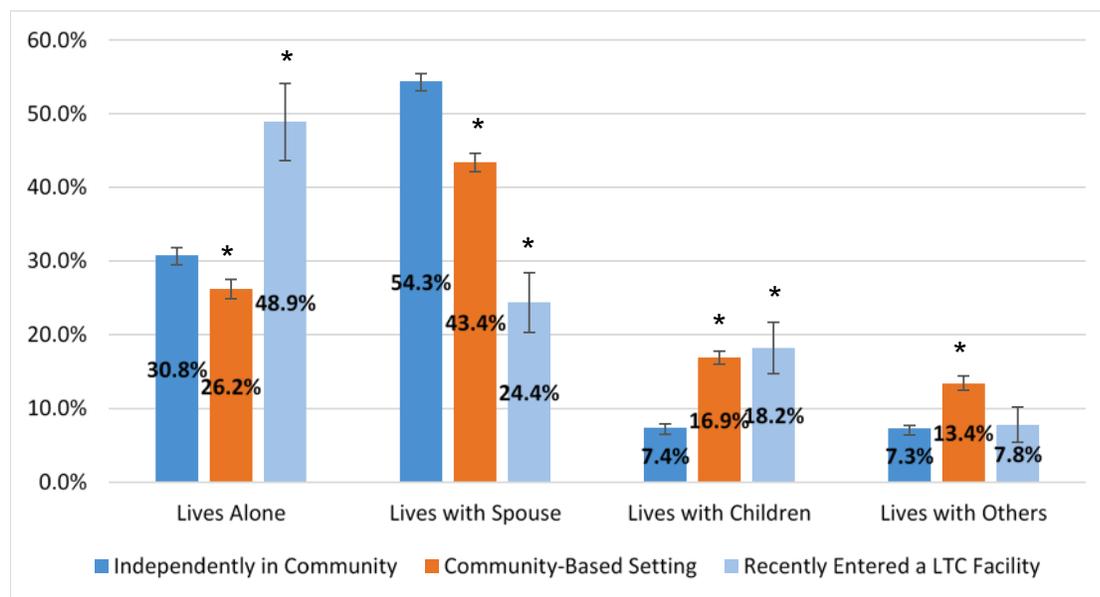
SOURCE: Medicare Current Beneficiary Survey, 2010-2012

Note: Dually-eligible beneficiaries are those eligible for both Medicare and Medicaid.

* $p < 0.05$ (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

More beneficiaries who recently entered an LTC facility had lived alone compared to those in the community with supports (48.9% vs. 26.2%), consistent with the earlier finding that the same group of beneficiaries were less likely to be married (Figure 3 or Table A3), as well as more likely to have a bathroom modification (62.4%), such as a grab bar or a shower seat, compared to those in the community with supports (45.4%; Table A3). Similar patterns were found for having ramps and special railings in the home.

Figure 3. Household composition by residential status among Medicare beneficiaries: 2010-2012



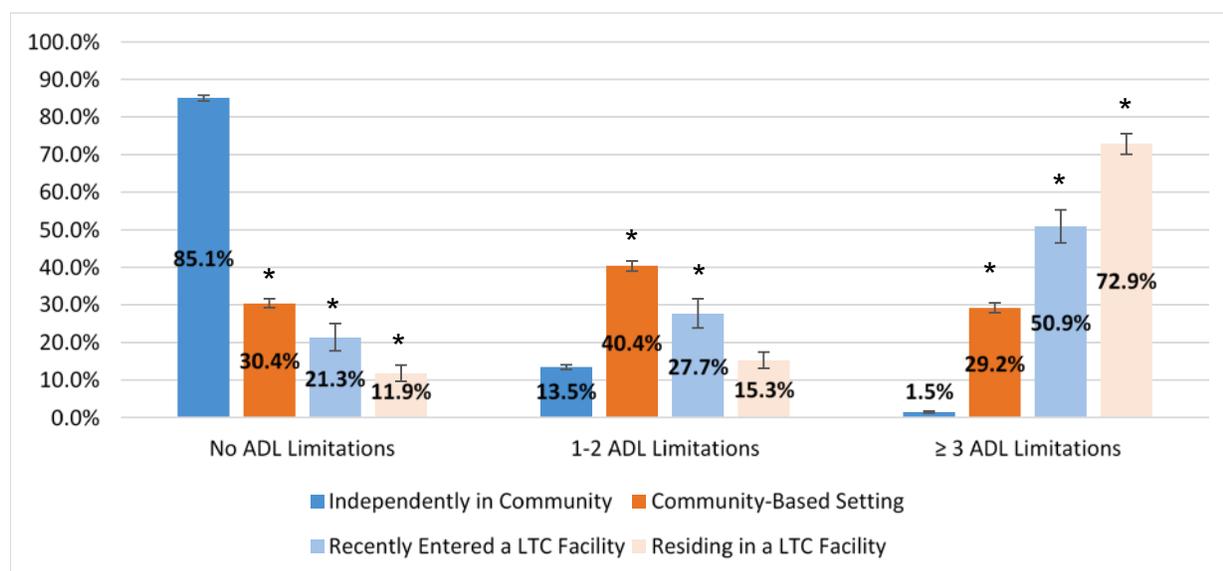
SOURCE: Medicare Current Beneficiary Survey, 2010-2012

Note: Since household composition information is not available for beneficiaries in LTC facilities, because those respondents did not live in a household during the sample year, they are not included in Figure 3 or Table A3.

* $p < 0.05$ (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

Presence of three or more functional limitations among beneficiaries who recently moved to LTC facilities (50.9%) was significantly higher compared to beneficiaries in the community with supports (29.2%; Figure 4 and Table A4). Nearly 73% of beneficiaries in an LTC facility for at least a year had three or more functional limitations.

Figure 4. Limitations of Activities of Daily Living by residential status among Medicare beneficiaries: 2010-2012



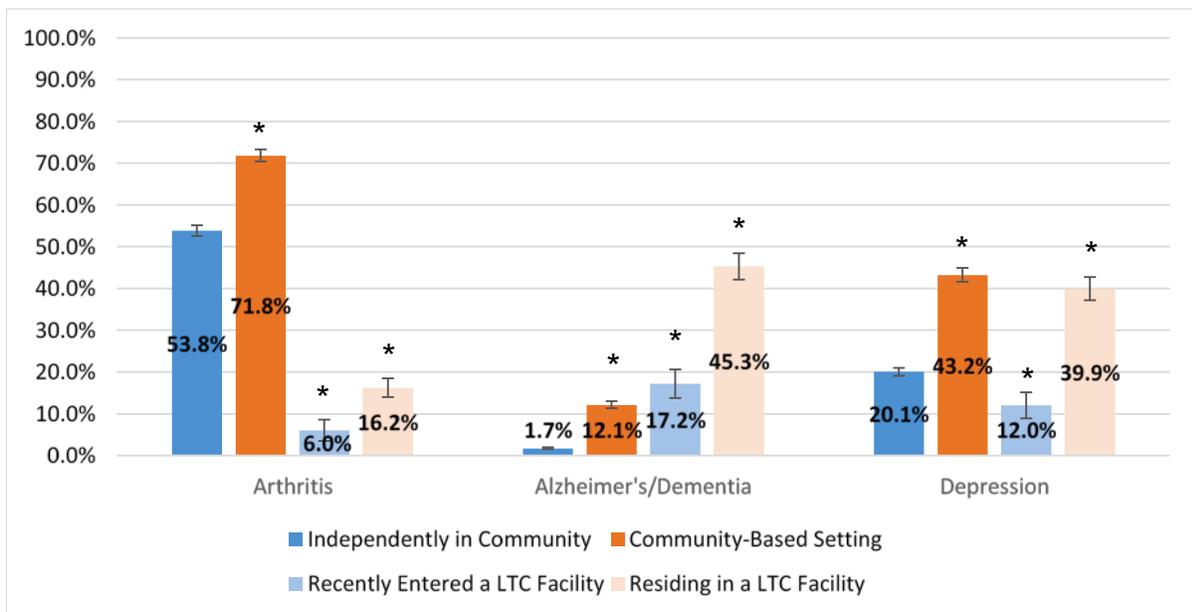
SOURCE: Medicare Current Beneficiary Survey, 2010-2012

Note: ADL limitations include bathing/showering, getting in/out of bed/chair, dressing, eating, walking and using the toilet.

* $p < 0.05$ (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

Presence of advanced mental health chronic conditions, such as Alzheimer's disease and dementia, was lower among beneficiaries living in the community with supports (12.1%) compared to those who recently moved to an LTC facility or were in an LTC facility for at least a year (17.2% and 45.3%, respectively; Figure 5 and Table A4). But presence of physical chronic conditions, such as arthritis, were considerably higher for those in the community with supports (71.8%) compared to those who recently moved to an LTC facility or those in an LTC long-term (6.0% and 16.2%, respectively). Heart disease and cancer were also more prevalent among beneficiaries living in the community than in an LTC facility (Table A4).

Figure 5. Select health conditions by residential status among Medicare beneficiaries: 2010-2012

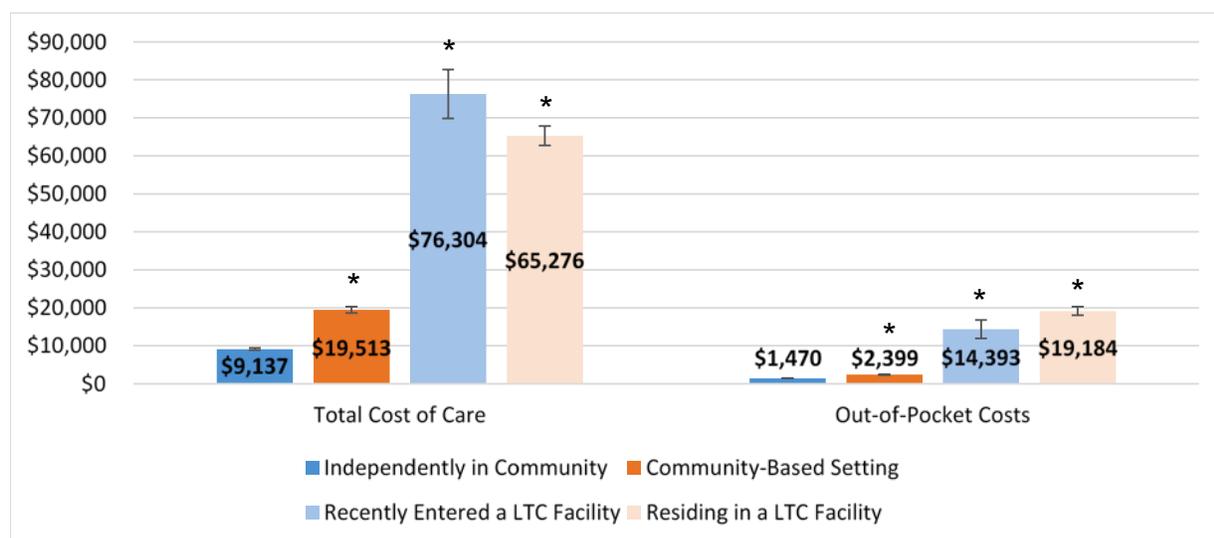


SOURCE: Medicare Current Beneficiary Survey, 2010-2012

* $p < 0.05$ (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

We also examined costs of care and hospitalizations (inpatient episodes) per 1,000 beneficiaries by residential status. Annual total cost of care was \$76,304 for those who recently moved to an LTC facility, in contrast to \$19,513 for those living in the community with supports (Figure 6 and Table A5). Annual out-of-pocket costs averaged \$19,184 for those living in an LTC for at least a year, compared with \$1,470 for those living in the community independently and \$2,399 for those living in the community with supports. At the same time, those who recently moved to an LTC facility were much more likely to have had a hospitalization during the year than any of the other three groups (Table A5).

Figure 6. Average total cost of care and out-of-pocket costs, among Medicare beneficiaries, by residential status: 2010-2012



SOURCE: Medicare Current Beneficiary Survey, 2010-2012

* $p < 0.05$ (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

DISCUSSION

We examined differences in key characteristics across the continuum of four residential status categories for Medicare beneficiaries: living in the community independently; living in the community with supports; recently moved to an LTC facility; and living in an LTC facility for at least a year. We note four key findings:

- More beneficiaries living in the community independently were married than beneficiaries who recently moved to an LTC facility (45.0% vs. 25.2%).
- Advanced mental health chronic conditions (such as Alzheimer's disease and dementia) were less prevalent among beneficiaries living in the community with support than beneficiaries living in an LTC facility for at least a year (12.1% vs. 45.3%).
- Having three or more functional limitations significantly increased the likelihood of moving to an LTC facility and living in an LTC facility for at least a year. Of those living in the community with supports, 29.2% had three or more ADL limitations, compared with 50.9% of those who recently moved to an LTC facility.
- Beneficiaries who had recently moved to an LTC facility had the highest total cost of care among the four groups, which averaged \$76,304, much higher than for beneficiaries living in the community with supports (\$19,513). Beneficiaries living in an LTC facility for at least a year had the highest out-of-pocket costs, which averaged \$19,184, compared to those living in the community with supports (\$2,399).

The findings in this descriptive analysis are important for informing future inferential studies that aim to identify the causal factors determining placement in an LTC facility. The findings reported here suggest, for example, that policies aimed at providing sufficient support for aging populations in the community may be potentially effective in reducing the incidence of moving to

an LTC facility – by addressing the support needs of beneficiaries who lack spousal support, and by increasing the capacity to provide community LTSS for beneficiaries, even when they have multiple functional limitations and/or advanced mental health chronic conditions.

LIMITATIONS

The following limitations to this study should be kept in mind when interpreting these findings:

- Data from community-dwelling beneficiaries were self-reported, while data from institutionalized beneficiaries were obtained from facility records. This lack of comparability may have resulted in the underreporting of health status and health care events among community-dwelling beneficiaries compared with estimates based on administrative and clinical data.
- Findings may be sensitive to how living in the community with supports is defined, since there is no official definition of the term. The MCBS does not directly capture residence in a community-based setting or receipt of services normally provided in a community-based setting. This requires analysts to construct their own definition, as we did, by combining the rich set of MCBS residential variables with other variables that identify receipt of support for functional limitations.
- Assets and wealth are important determinants of ability to pay for community-based services and LTSS, in addition to income. We did not use data from the MCBS income and assets supplement in the analysis reported here.
- Our findings are based on an exploratory bivariate analysis assessing differences in key characteristics of beneficiaries living in community vs. LTC facility settings. These descriptive findings are suggestive of potential causal links, which may be fruitful in informing future studies; but they cannot be interpreted as causal in any sense. To understand the *determinants* of LTC facility placement requires research that incorporates more advanced multivariate modelling.

ABOUT THE AUTHORS

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APPENDIX

Table A1. Demographic and socioeconomic characteristics, among Medicare beneficiaries, by residential status: 2010-2012

Characteristic	Community Living Independently % (95% CI)	Community with Supports % (95% CI)	Recently in a LTC Facility % (95% CI)	Residing in a LTC Facility % (95% CI)
Unweighted	19,363	10,838	600	2,354
Weighted	95,509,764	46,952,361	2,259,648	6,445,639
Race				
White non-Hispanic	78.0 (76.8-79.1)	71.7 (70.3-73.1)*	84.7 (80.9-88.6)*	81.9 (79.4-84.4)*
Black non-Hispanic	8.8 (8.3-9.3)	10.9 (10.2-11.7)*	7.5 (4.5-10.5)	9.2 (7.7-10.8)
Hispanic	8.6 (7.7-9.3)	10.9 (9.9-11.9)*	6.5 (3.9-9.1)	5.9 (4.5-7.3)*
Other non-Hispanic	4.4 (3.9-4.9)	6.4 (5.4-7.3)*	1.1 (0.0-2.2)*	2.7 (1.6-3.8)*
Gender				
Male	49.3 (48.5-50.2)	38.1 (36.6-39.6)*	40.9 (36.2-45.7)*	38.4 (35.4-41.3)*
Female	50.6 (49.8-51.5)	61.9 (60.4-63.3)*	59.0 (54.2-63.8)*	61.6 (58.7-64.5)*
Age				
< 65 years	17.6 (17.1-18.2)	32.7 (31.5-33.9)*	6.1 (3.9-8.4)*	19.0 (17.0-21.1)
65-74 years	52.3 (51.5-53.1)	25.8 (24.7-26.9)*	15.9 (12.1-19.7)*	16.4 (14.2-18.6)*
75-84 years	24.4 (23.8-25.1)	25.4 (24.5-26.3)	37.7 (33.4-42.0)*	24.3 (21.9-26.7)*
≥ 85 years	5.7 (5.3-6.0)	16.2 (15.2-17.1)*	40.3 (36.0-44.6)*	40.3 (37.5-43.1)*
Education				
Less than High School	17.9 (16.9-18.9)	28.3 (27.0-29.5)*	30.4 (25.5-35.4)*	34.4 (31.1-37.7)*
High School Graduate or Higher	81.7 (80.7-82.7)	71.0 (69.8-72.3)*	67.9 (62.8-73.0)*	51.1 (47.8-54.4)*
Income				
Less than \$25,000	40.7 (39.8-41.7)	58.7 (57.3-60.1)*	64.6 (60.0-69.2)*	79.3 (76.9-81.8)*
\$25,000 or Higher	59.3 (58.3-60.2)	41.3 (39.9-42.7)*	35.4 (30.8-40.0)*	20.7 (18.2-23.1)*
Marital Status				
Married	56.3 (55.3-57.3)	45.0 (43.7-46.2)*	25.2 (21.2-29.1)*	15.5 (13.1-17.9)*
Widowed	20.8 (19.9-21.6)	29.6 (28.4-30.8)*	49.1 (44.6-53.6)*	47.7 (44.7-50.6)*
Divorced or Separated	16.6 (15.7-17.5)	15.5 (14.6-16.5)	15.9 (12.0-19.8)	11.9 (9.9-14.0)*
Never Married	6.2 (5.7-6.7)	9.8 (8.9-10.6)*	9.1 (6.3-11.8)	23.3 (20.9-25.8)*

SOURCE: Medicare Current Beneficiary Survey, 2010-2012

*p<0.05 (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

Table A2. Insurance coverage types, among Medicare beneficiaries, by residential status: 2010-2012

Characteristic	Community Living Independently % (95% CI)	Community with Supports % (95% CI)	Recently in a LTC Facility % (95% CI)	Residing in a LTC Facility % (95% CI)
Medicaid Dual-eligible	11.2 (10.4-11.9)	24.9 (23.8-26.1)*	28.8 (24.5-33.0)*	51.7 (49.1-54.3)*
Any Long-Term Care Insurance	14.3 (13.6-15.1)	12.6 (11.9-13.3)*	12.8 (10.0-15.5)	0.4 (0.1-0.8)*
Medicare Advantage	27.4 (26.4-28.3)	24.8 (23.4-26.1)*	22.5 (18.6-26.4)	14.6 (12.3-16.8)*
Private or Employer-Sponsored Insurance	37.0 (36.3-37.6)	29.3 (28.3-30.3)*	38.6 (34.1-43.1)	19.5 (17.6-21.3)*

SOURCE: Medicare Current Beneficiary Survey, 2010-2012

*p<0.05 (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

Table A3. Household composition and housing modifications, among Medicare beneficiaries, by residential status: 2010-2012¹

Characteristic	Community Living Independently % (95% CI)	Recently in a LTC Facility % (95% CI)	Residing in a LTC Facility % (95% CI)
Household Composition			
Lives Alone	30.8 (29.8-31.8)	26.2 (24.9-27.5)*	48.9 (43.6-54.1)*
Lives with Spouse	54.4 (53.4-55.4)	43.4 (42.1-44.6)*	24.4 (20.3-28.4)*
Lives with Children	7.4 (6.8-7.9)	16.9 (16.0-17.8)*	18.2 (14.7-21.7)*
Lives with Others	7.3 (6.8-7.7)	13.4 (12.5-14.4)*	7.8 (5.4-10.2)
Housing Modifications			
Ramps in House	8.6 (7.9-9.2)	15.8 (14.6-16.9)*	19.6 (16.0-23.2)*
Bathroom Modifications	29.2 (28.1-30.3)	45.4 (43.7-47.1)*	62.4 (58.2-66.6)*
Special Railings	1.7 (1.4-1.9)	3.6 (2.9-4.2)*	5.6 (3.6-7.6)*

SOURCE: Medicare Current Beneficiary Survey, 2010-2012

*p<0.05 (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

¹This table does not show Medicare beneficiaries who are long-term institutionalized, since they did not live in a household.

Table A4. Health status and functioning, among Medicare beneficiaries, by residential status: 2010-2012

Characteristic	Community Living Independently % (95% CI)	Community with Supports % (95% CI)	Recently in a LTC Facility % (95% CI)	Residing in a LTC Facility % (95% CI)
Number of Activity of Daily Living (ADLs) Limitations				
No ADL Limitations	85.1 (84.3-85.8)	30.4 (29.3-31.6)*	21.3 (17.8-25.0)*	11.9 (9.7-14.0)*
1-2 ADL Limitations	13.5 (12.8-14.1)	40.4 (39.0-41.7)*	27.7 (23.9-31.6)*	15.3 (13.1-17.4)
3 or more ADL Limitations	1.5 (1.2-1.7)	29.2 (27.9-30.5)*	50.9 (46.5-55.3)*	72.9 (70.1-75.7)*
Number of Instrumental Activity of Daily Living (IADLs) Limitations				
No IADL Limitations	76.7 (75.8-77.7)	1.3 (1.1-1.5)*	14.8 (11.5-18.1)*	19.9 (17.5-22.3)*
1-2 IADL Limitations	20.7 (19.8-21.6)	53.6 (52.4-54.9)*	33.3 (29.7-37.0)*	31.3 (29.2-33.5)*
3 or more IADL Limitations	2.6 (2.3-2.9)	45.1 (43.8-46.3)*	51.9 (47.4-56.4)*	48.8 (45.8-51.8)*
Type of Functional Limitation: Difficulty with the Following				
Bathing	1.8 (1.6-2.0)	32.1 (31.0-33.2)*	58.9 (54.3-63.6)*	86.0 (83.8-88.3)*
Dressing	1.2 (1.0-1.4)	24.4 (23.3-25.5)*	47.9 (43.0-52.8)*	75.1 (72.5-77.8)*
Self-feeding	1.0 (0.8-1.2)	8.5 (7.7-9.3)*	22.3 (18.0-26.7)*	51.6 (48.5-54.6)*
Using Toilet	0.9 (0.7-1.1)	16.4 (15.3-17.5)*	41.1 (37.0-45.3)*	69.9 (67.1-72.7)*
Getting in/out Bed/Chair	4.5 (4.1-5.0)	35.8 (34.2-37.3)*	51.2 (46.6-55.8)*	66.1 (63.2-69.0)*
Walking	12.4 (11.7-13.1)	61.4 (60.1-62.8)*	64.7 (60.7-68.8)*	61.2 (58.3-64.0)*
Using Telephone	2.9 (2.6-3.2)	16.6 (15.6-17.7)*	43.1 (38.1-48.0)*	65.7 (62.8-68.5)*
Shopping	4.1 (3.8-4.5)	47.1 (45.9-48.4)*	60.1 (55.0-65.1)*	64.8 (61.8-67.8)*
Managing Money	2.8 (2.4-3.1)	31.7 (30.5-32.9)*	50.9 (46.0-55.8)*	65.1 (62.1-68.2)*
Chronic Conditions				
Heart Disease	35.0 (33.9-36.1)	48.3 (46.9-49.6)*	23.5 (19.8-27.2)*	24.0 (21.9-26.1)*
Stroke	7.2 (6.7-7.7)	17.2 (16.1-18.3)*	5.5 (3.2-7.9)	13.6 (11.4-15.8)*
Arthritis	53.8 (52.5-55.1)	71.8 (70.4-73.3)*	6.0 (3.5-8.6)*	16.2 (14.0-18.5)*
Cancer	7.7 (7.2-8.3)	9.7 (8.9-10.5)*	0.5 (-0.1-1.0)*	1.9 (1.1-2.8)*
Parkinson's	0.6 (0.4-0.7)	2.7 (2.3-3.2)*	1.7 (0.5-2.9)	5.2 (3.9-6.6)*
Alzheimer's/Dementia	1.7 (1.5-2.0)	12.1 (11.3-13.0)*	17.2 (13.8-20.6)*	45.3 (42.1-48.4)*
Depression	20.1 (19.1-21.0)	43.2 (41.6-44.9)*	12.0 (8.9-15.1)*	39.9 (37.2-42.7)*

SOURCE: Medicare Current Beneficiary Survey, 2010-2012

*p<0.05 (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

Table A5. Expenditures and hospitalizations, among Medicare beneficiaries, by residential status: 2010-2012

Adjusted Sum per 1,000 Beneficiaries	Community Living Independently \$ (95% CI)	Community with Supports \$ (95% CI)	Recently in a LTC Facility \$ (95% CI)	Residing in a LTC Facility \$ (95% CI)
Total Cost of Care	\$9,137 (\$8,855-\$9,421)	\$19,513 (\$18,681-\$20,344)*	\$76,304 (\$69,875-\$82,734)*	\$65,276 (\$62,738-\$67,815)*
Medicaid Payments	\$94 (\$81-\$107)	\$326 (\$298-\$355)*	\$7,050 (\$5,530-\$8,569)*	\$23,805 (\$22,008-\$25,602)*
Medicare Payments	\$4,750 (\$4,447-\$5,052)	\$11,753 (\$10,867-\$12,639)*	\$43,141 (\$34,510-\$51,772)*	\$16,886 (\$14,745-\$19,025)*
Out-of-Pocket Costs	\$1,470 (\$1,419-\$1,521)	\$2,399 (\$2,248-\$2,550)*	\$14,393 (\$11,974-\$16,811)*	\$19,184 (\$18,020-\$20,346)*
Average Number of Inpatient Episodes	0.17 (0.16-0.17)	0.44 (0.41-0.47)*	1.62 (1.44-1.81)*	0.56 (0.48-0.64)*

SOURCE: Medicare Current Beneficiary Survey, 2010-2012

*p<0.05 (Bonferroni-adjusted p-values from adjusted Wald test; Community Living Independently is the base comparison group)

Table A6. Variable Specification

Variable Type	Variable Name	Description	Coding/ Recodes	Footnotes
RESIDENTIAL STATUS	Community Living Independently	Medicare beneficiaries residing in the community and who reported that they do not receive help with ADL/IADL limitations or live in a community-based setting.	If TYPE = "C" and not equal to beneficiaries in the community with supports.	No footnotes.
RESIDENTIAL STATUS	Community with Supports	Medicare beneficiaries residing in the community and who reported that they do receive help with ADL/IADL limitations or live in a community-based setting.	If HCOMUNTY = 3, 4, 8; or PLACTYPE= 3, 8, 9, 10, 11, 14, 18; or (HELPLHWK = 1 or HELPHHWK = 1 or HELPMEAL = 1 or HELPSHOP = 1 or HELPBATH = 1 or HELPBILS = 1 or HELPCHAR = 1 or HELPDRES = 1 or HELPEAT = 1 or HELPWALK = 1 or HELPTOIL = 1) and TYPE = "C")	No footnotes.
RESIDENTIAL STATUS	Recently in a LTC Facility	Medicare beneficiaries who resided in an institutional setting during the year.	If TYPE = "B" and D_CODE1 = "C" or "D".	No footnotes.

Variable Type	Variable Name	Description	Coding/ Recodes	Footnotes
RESIDENTIAL STATUS	Residing in a LTC Facility	Medicare beneficiaries who resided in an institutional setting throughout the year.	If TYPE = "F" or TYPE = "B" and D_CODE1 = "F" or "G".	No footnotes.
DEMOGRAPHIC	AGE	Age category as of January 1, 2011	Age category: if age < 65 then agecat = 1; if age ≥ 65 and age < 75 then agecat = 2; if age ≥ 75 and age < 85 then agecat = 3; if age ≥ 85 then agecat = 4;	Based on date of birth and 2011
DEMOGRAPHIC	D_RACE	Race/ethnicity	White non-Hispanic = 1; Black non-Hispanic = 2; Hispanic = 3; Other = 0	Due to the small number of minority groups in the decedent population, separate categories for American Indian or Alaska Native, Asian and Native Hawaiian or Other Pacific Islander, were not constructed.
DEMOGRAPHIC	INCOME C	Income (> \$25,000)	Yes = 1 No = 0 Unknown = 2	Income was split into above and below/equal to \$25,000. Since some respondents are reluctant to provide their actual income, income ranges are more reliable and consistent measures of income. Income was therefore split into less than or equal \$25,000 and greater than \$25,000.
DEMOGRAPHIC	SPDEGRCV	Education (> High School)	Yes = 1 No = 0	No footnotes.
DEMOGRAPHIC	ROSTSEX	Gender Male	Male = 1 Female = 0	No footnotes
DEMOGRAPHIC	SPMARSTA	Marital status	1 = Married, 2 = Widowed, 3 = Divorced or Separated; 4 = Never Married	No footnotes.
FUNCTIONAL	ADLCAT	Limitations in Activities of Daily Living (Categorical)	No ADLs = 0; 1-2 ADLs = 1; 3 or more ADLs = 2.	Data on the six ADL limitations.
FUNCTIONAL	HPPDBATH or PFBATHNG	Difficulty bathing	If HPPDBATH or PFBATHNG = 1, then ADL_BATHING = 1	No footnotes.
FUNCTIONAL	HPPDDRES or PFDRSSNG	Difficulty dressing	If HPPDDRES or PFDRSSNG = 1, then ADL_DRESSING = 1	No footnotes.
FUNCTIONAL	HPPDDEAT or PFEATING	Difficulty eating	If HPPDDEAT or PFEATING = 1, then ADL_EATING = 1	No footnotes.
FUNCTIONAL	HPPDCHAR or PFTRNSFR	Difficulty transferring	If HPPDCHAR or PFTRNSFR = 1, then ADL_TRANSFER = 1	No footnotes.

Variable Type	Variable Name	Description	Coding/ Recodes	Footnotes
FUNCTIONAL	HPPDTOIL or PFTOILET	Difficulty toileting	If HPPDTOIL or PFTOILET = 1, then ADL_TOILETING = 1	No footnotes.
FUNCTIONAL	HPPDWALK or PFLOCOMO	Difficulty walking	If HPPDWALK or PFLOCOMO = 1, then ADL_WALK = 1	No footnotes.
FUNCTIONAL	PRBTELE or DIFUSEPH	Difficulty using telephone	If PRBTELE or DIFUSEPH = 1, then IADL_TELE = 1	No footnotes.
FUNCTIONAL	PRBSHOP or DIFSHOP	Difficulty shopping	If PRBSHOP or DIFSHOP = 1, then IADL_SHOP = 1	No footnotes.
FUNCTIONAL	PRBBILS or DIFMONEY	Difficulty managing money	If PRBBILS or DIFMONEY = 1, then IADL_MONEY = 1	No footnotes.
HOUSEHOLD COMPOSITION	D_HHCOMP	Housing composition	1 = Lives Alone; 2 = Spouse Only or Spouse and Other; 3 = Children Only or Children and Others; 4 = Others	No footnotes.
HOUSING MODICATION	HRAMPS	Ramp in house	Yes = 1; No = 0	No footnotes.
HOUSING MODICATION	HBATHRM	Bathroom modification	Yes = 1; No = 0	No footnotes.
HOUSING MODICATION	HRAILING	Special railings	Yes = 1; No = 0	No footnotes.
INSURANCE	H_MCSW	Dual-eligible Medicare and Medicaid insurance indicator	Yes = 1; No = 0	No footnotes
INSURANCE	D_PMC or D_PHI	Private or employer-sponsored health insurance	Yes = 1; No = 0	No footnotes
INSURANCE	H_GHPSW	Medicare Advantage insurance	Yes = 1; No = 0	No footnotes.
INSURANCE	D_INSOTH or D_INS or S_INS	Long-term care insurance	D_INSOTH or D_INS1-5 or S_INS1-5 = 4; Or D_COVNH1-5 = 1 or S_COVNH1-5 = 1	No footnotes.
CLINICAL	CANC	Survey-reported major cancers (Breast, Cervical, Colon, Lung)	Yes = 1; No = 0	No footnotes.
CLINICAL	Depression	Depression	Yes = 1; No = 0	No footnotes
CLINICAL	DIABETES	Survey-reported diabetes	Yes = 1; No = 0	Same as above Diabetes survey question worded differently in CY2007-CY2008
CLINICAL	HEARTDIS	Survey-reported heart disease	Yes = 1; No = 0	Combines survey responses from both facility and community instruments (CAU RIC2 & CAU RIC2F)
CLINICAL	HYPERTEN	Survey-reported hypertension	Yes = 1; No = 0	Same as above

Variable Type	Variable Name	Description	Coding/ Recodes	Footnotes
CLINICAL	Mental Condition	Mental condition	IF ALZHEIMR = 1 or OCPSYCHO =1 OR OCMENTAL l=1 or OCDEPRSS = 1 THEN COND_mental=1; ELSE COND_mental=0	No footnotes
CLINICAL	PULMODIS	Survey-reported emphysema/asthma/COPD	Yes = 1; No = 0	Same as above
CLINICAL	STROKE	Survey-reported Stroke TIA	Yes = 1; No = 0	Same as above
OUTCOME	IPSTAY_CNT	Count of inpatient hospitalizations per 1,000 beneficiaries per year.	No coding/recoding	Based on "Adjusted count of inpatient events" (AEVNTS) variable in CAU-RIC-SS
OUTCOME	PAMTTOT	Total cost of care	No coding/recoding	
OUTCOME	PAMTCAID	Medicaid payments	No coding/recoding	
OUTCOME	PAMTCARE	Medicare payments	No coding/recoding	
OUTCOME	PAMTOOP	Out-of-pocket payments	No coding/recoding	
SURVEY	CAU	Indicates calendar year of survey response	2010 - 2012	No footnotes
SURVEY	CS1YRWGT	Cross-sectional full sample weight	No coding/recoding	No footnotes
SURVEY	CS1YR001 - CS1YR100	Cross-sectional replicate weight	No coding/recoding	No footnotes
SURVEY	STATUS	Completeness of survey data for the year	No coding/recoding	No footnotes
SURVEY	SUDSTRAT	SUDAAN Stratum	No coding/recoding	No footnotes
SURVEY	SUDUNIT	SUDAAN Unit	No coding/recoding	No footnotes
SURVEY	TYPE	Beneficiary's living situation for year	C = Community; F = Facility; B = Both	Survey instruments and questions differ based on the residential status of the respondent.
SURVEY	VARSTRAT	Variance Stratum	No coding/recoding	No footnotes
SURVEY	VARUNIT	Variance of the primary sampling unit	No coding/recoding	No footnotes