U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy

Interstate Variation and Progress Toward Balance in Use of and Expenditure for Long-Term Services and Supports in 2009

March 2014

Office of the Assistant Secretary for Planning and Evaluation

The Office of the Assistant Secretary for Planning and Evaluation (ASPE) is the principal advisor to the Secretary of the Department of Health and Human Services (HHS) on policy development issues, and is responsible for major activities in the areas of legislative and budget development, strategic planning, policy research and evaluation, and economic analysis.

ASPE develops or reviews issues from the viewpoint of the Secretary, providing a perspective that is broader in scope than the specific focus of the various operating agencies. ASPE also works closely with the HHS operating agencies. It assists these agencies in developing policies, and planning policy research, evaluation and data collection within broad HHS and administration initiatives. ASPE often serves a coordinating role for crosscutting policy and administrative activities.

ASPE plans and conducts evaluations and research--both in-house and through support of projects by external researchers--of current and proposed programs and topics of particular interest to the Secretary, the Administration and the Congress.

Office of Disability, Aging and Long-Term Care Policy

The Office of Disability, Aging and Long-Term Care Policy (DALTCP), within ASPE, is responsible for the development, coordination, analysis, research and evaluation of HHS policies and programs which support the independence, health and long-term care of persons with disabilities--children, working aging adults, and older persons. DALTCP is also responsible for policy coordination and research to promote the economic and social well-being of the elderly.

In particular, DALTCP addresses policies concerning: nursing home and community-based services, informal caregiving, the integration of acute and long-term care, Medicare post-acute services and home care, managed care for people with disabilities, long-term rehabilitation services, children's disability, and linkages between employment and health policies. These activities are carried out through policy planning, policy and program analysis, regulatory reviews, formulation of legislative proposals, policy research, evaluation and data planning.

This report was prepared under contract #HHSP23320095642WC between HHS's ASPE/DALTCP and Mathematica Policy Research. For additional information about this subject, you can visit the DALTCP home page at http://aspe.hhs.gov/office_specific/daltcp.cfm or contact the ASPE Project Officers, John Drabek and Pamela Doty, at HHS/ASPE/DALTCP, Room 424E, H.H. Humphrey Building, 200 Independence Avenue, S.W., Washington, D.C. 20201. Their e-mail addresses are: John.Drabek@hhs.gov and Pamela.Doty@hhs.gov.

Interstate Variation and Progress Toward Balance in Use of and Expenditure for Long-Term Services and Supports in 2009

Rosemary Borck
Victoria Peebles
Dean Miller
Robert Schmitz

Mathematica Policy Research

March 18, 2014

Prepared for
Office of Disability, Aging and Long-Term Care Policy
Office of the Assistant Secretary for Planning and Evaluation
U.S. Department of Health and Human Services
Contract #HHSP23320095642WC

TABLE OF CONTENTS

ACRONYMS v

EXECUTIVE SUMMARY vii

I. BACKGROUND AND OBJECTIVES 1
- A. Re-balancing as a Goal 5
- B. Challenges to Re-Balancing 6
- C. State Actions to Increase Use of Home and Community-Based Care 9
- D. Measuring and Understanding LTSS System Performance 12
- E. Goals of This Study 14
- F. Summary of Data and Methods 15
- G. Road Map to This Report 16

II. VARIATION IN LONG-TERM SERVICES AND SUPPORTS SYSTEM PERFORMANCE 17
- A. Measures Characterizing LTSS System Performance 17
- B. Interstate Differences 18
- C. LTSS System Performance Indicators by System Type 24
- D. Progress on Home and Community-Based Services Use and Expenditures from 2006 to 2009 39
- E. Summary of LTSS System Performance Findings 43

III. CORRELATES OF LONG-TERM SERVICES AND SUPPORTS SYSTEM PERFORMANCE 45
- A. State Constraints and Policy Variables 45
- B. Factors and Policies Associated with LTSS System Performance 50
- C. Summary of Findings on the Relationship Between the State Factors, Policy Variables, and LTSS System Performance 57

IV. SUMMARY OF RESULTS AND DIRECTIONS FOR FUTURE RESEARCH 59
- A. Summary of Results 59
- B. Directions for Future Research 60

REFERENCES 62

APPENDICES

APPENDIX A. Glossary of Terms A-1
APPENDIX B. Data and Methods A-4
APPENDIX C. State Long-Term Services and Supports Data Anomalies A-8
APPENDIX D. Additional Tables A-13

LIST OF FIGURES AND TABLES

FIGURE II.1. Percentage of LTSS Expenditures for HCBS in 2009 22

FIGURE II.2. Percentage of LTSS Users Receiving HCBS in 2009 23

FIGURE II.3. Percentage of Medicaid LTSS Expenditures for HCBS in 2009, by Eligibility Group 33

FIGURE II.4. Percentage of LTSS Users Receiving HCBS in 2009, by Eligibility Group 34

FIGURE II.5. Progress in Re-Balancing Toward HCBS from 2006 to 2009, 35 States 40

FIGURE II.6. Percentage Point Differences in Percentage of Medicaid LTSS Expenditures for HCBS from 2006 to 2009, 35 States 41

FIGURE II.7. Percentage Point Changes in Percentage of LTSS Users Receiving HCBS from 2006 to 2009, 35 States 42

FIGURE III.1. Percentage of Out-of-Home Placements for Individuals with ID/DD in Settings for Six or Fewer People in 2011 by Percentage of Medicaid LTSS Expenditures for HCBS, 2009 55

FIGURE III.2. Percentage of Medicaid LTSS Expenditures for HCBS in 2009 by the Number of People Consumer-Directing Services in 2010 56

FIGURE III.3. Percentage of Medicaid LTSS Expenditures for HCBS in 2009 by the Number of People on Waiting Lists for ID/DD Waivers Per ID/DD Waiver Users in 2011 57

TABLE II.1. Number of Enrollees Who Were Aged or Eligible on the Basis of Disability Using Medicaid FFS LTSS Compared to the Total Number of Full-Benefit Enrollees in 2009 19

TABLE II.2. Expenditure and Utilization-Based Measures of LTSS System Performance Among Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2009, Ranked by HCBS Share 20

TABLE II.3. Expenditure and Utilization-Based Measures of the Balance of LTSS Among Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2009, by Population Subgroup 25

TABLE II.4. Percentage of LTSS Expenditures Allocated to HCBS in 2009, by Age and System Type 26

TABLE II.5. Percentage of LTSS Users Receiving HCBS in 2009, by Age and System Type 28

TABLE II.6. Ratio of Per-User Expenditures on HCBS Relative to Per-User Expenditures on Institutional Care in 2009, by Age and System Type 30

TABLE II.7. LTSS Expenditures Allocated to HCBS in 2009: Percentage Among Aged 65+, Percentage Among Those Aged 85+, and Ratio of Percentage Among Those Aged 85+ to Percentage Among Those Aged 65-74 37

TABLE II.8. Users Receiving HCBS in 2009: Percentage Among Those Aged 65+, Percentage Among Those Aged 85+, and Ratio of Percentage Among Those Aged 85+ to Percentage Among Those Aged 65-74 38

TABLE III.1. Factors That May Affect LTSS System Performance 47

TABLE III.2. State Policies and Other Supply-Side Factors Potentially Associated with Spending and Use of Medicaid LTSS and Associated Data Sources 49

TABLE III.3. Summary of State Constraints by State Rank in the Percentage of LTSS Expenditures for HCBS in 2009 52

TABLE III.4. Summary of State Policy and Supply-Side Variables by the Percentage of LTSS Expenditures for HCBS in 2009 53

TABLE III.5. Association of State Policies and Other Factors with Spending for HCBS in 2009, by Age and System Type 54

TABLE C.1. MAX 2009 State LTSS Data Anomalies A-9

TABLE D.1. Number of Enrollees Who Were Aged or Had Disabilities and Used Medicaid FFS LTSS Compared with the Total Number of Full-Benefit Enrollees in 2009 ..... A-14

TABLE D.2. Medicaid LTSS System Performance Indicators for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid A-16

TABLE D.3. Medicaid LTSS System Performance Indicators for Aged Enrollees Eligible for Full Medicaid Benefits in 2009 ..... A-18

TABLE D.4. Medicaid LTSS System Performance Indicators for Enrollees Under 65 with Disabilities Eligible for Full Medicaid Benefits in 2009 ..... A-20

TABLE D.5. Medicaid LTSS System Performance Indicators for Enrollees Under 65 with Physical Disabilities Eligible for Full Medicaid Benefits in 2009 ..... A-22

TABLE D.6. Medicaid LTSS System Performance Indicators for Enrollees Under 65 with ID/DD and Eligible for Full Medicaid Benefits in 2009 ..... A-24

TABLE D.7. States Ranked by Percentages of LTSS Expenditures for HCBS for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009 ..... A-26

TABLE D.8. States Ranked by Percentage of LTSS Users Receiving HCBS for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009 ..... A-28

TABLE D.9. States Ranked by Percentage of LTSS Expenditures for HCBS for Enrollees Who Were Aged and Were Eligible for Full Medicaid Benefits, 2006 and 2009 ..... A-30

TABLE D.10. States Ranked by Percentage of LTSS Users Receiving HCBS for Enrollees Who Were Aged and Eligible for Full Medicaid Benefits, 2006 and 2009 ..... A-32

TABLE D.11. States Ranked by Percentage of LTSS Expenditures for HCBS for Enrollees Who Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009 ..... A-34

TABLE D.12. States Ranked by Percentage of LTSS Users Receiving HCBS for Enrollees Who Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009 ..... A-36

TABLE D.13. Percentage of Medicaid LTSS Expenditures for HCBS in 2009, by Eligibility Group A-38

TABLE D.14. Percentage of LTSS Users Receiving HCBS in 2009, by Eligibility Group A-39

TABLE D.15. Progress in Re-Balancing Toward HCBS from 2006 to 2009, 35 States A-40

TABLE D.16. Percentage Point Differences in Percentage of Medicaid LTSS Expenditures for HCBS from 2006 to 2009, 35 States A-41

TABLE D.17. Percentage Point Changes in Percentage of LTSS Users Receiving HCBS from 2006 to 2009, 35 States A-42

ACRONYMS

The following acronyms are mentioned in this report and/or appendices. Also see Appendix A for term descriptions.

ACA	Affordable Care Act
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADRC	Aging and Disability Resource Center
BEA	Bureau of Economic Analysis (within the U.S. Department of Commerce)
BIP	Balancing Incentive Payments
BLS	Bureau of Labor Statistics (within the U.S. Department of Labor)
BOE	Basis of Eligibility
CMS	HHS Centers for Medicare and Medicaid Services
DRA	Deficit Reduction Act
FFS	Fee-For-Service
FY	Fiscal Year
HCBS	Home and Community-Based Services
HHA	Home Health Agency
HHS	U.S. Department of Health and Human Services
ID/DD	Intellectual and/or Developmental Disabilities
ICF/IID	Intermediate Care Facility for People with Intellectual Disabilities
ICF/MF	Intermediate Care Facility for the Mentally Retarded
ILTC	Institutional Long-Term Care
KFF	Kaiser Family Foundation
LTC	Long-Term Care
LTSS	Long-Term Services and Supports
MAX	Medicaid Analytic eXtract
MFP	Money Follows the Person
MSIS	Medicaid Statistical Information System

NF	Nursing Facility
NOAA	National Oceanic and Atmospheric Administration (within the U.S. Department of Commerce)
OAA	Old Age Assistance
OES	Occupational Employment Statistics
PACE	Program of All-Inclusive Care for the Elderly
PS	MAX Person Summary
SEP	Single Entry Point
SSI	Supplemental Security Income

EXECUTIVE SUMMARY

State long-term care (LTC) financing and delivery systems and, in particular, Medicaid-funded LTC have long been criticized for being "institutionally biased." Shifting the balance in publicly-funded LTC provision away from institutional care (nursing homes, long-term hospitals, intermediate care facilities for people with intellectual disabilities [ICFs/IID]) toward greater reliance on home and community-based services (HCBS) has been a federal goal for the past three decades -- a goal often referred to as "re-balancing" state LTC systems.

This report explores interstate variations in LTC expenditure and service use patterns, not only in terms of institutional and non-institutional services, but also by Medicaid LTC users' age and type of disability such as intellectual and/or developmental disabilities (ID/DD) compared to other adult onset disabilities. Some states have re-oriented more toward HCBS than others. It also well known that greater progress has been made in serving certain subgroups within the LTC population in the community; for example, those with ID/DD compared to adults whose physical and/or cognitive disabilities began after reach age 18 but before turning 65. Moreover, reliance on institutional care remains greatest among the elderly, although here again there are interstate variations. This report seeks to quantify the magnitude of such differences.

Interstate variations in reliance on HCBS compared to institutional care are partly a function of some states having committed more strongly to the goal than others, and having accordingly made greater efforts to "re-balance." However, states also experience differential advantages or handicaps that make re-balancing easier or more difficult for some compared to others. The factors that make re-balancing easier or more difficult vary in malleability; that is, the extent to which state policymakers can exercise control over them. For example, states with colder, snowier climates, states with large areas classified as "rural" or "frontier" because of population density, as well as states with disproportionately high low-income aging populations may find it more difficult to "re-balance" because of the logistical challenges of providing primarily home-delivered services under these circumstances. These particular factors are largely outside a state government's ability to change. In contrast, other factors hypothesized to influence re-balancing toward greater reliance on HCBS are at least somewhat under state control. For example, states can use licensing and Certificate of Need legislation to limit nursing home bed supply and enable expansion of alternative services such as assisted living, other forms of residential care, and home health/home care agencies. States can also choose to offer consumer-directed alternatives to "traditional" modes of service delivery such as agency-delivered personal care services.

In this study, we use data from the Medicaid Analytic eXtract, the American Community Survey, and a variety of data sources describing state characteristics and policies to quantify interstate variations in Medicaid LTC systems performance and to

explore and begin to test hypotheses about the factors that explain greater or lesser use of HCBS across states and subpopulations. Our findings are based on data from 37 states and the District of Columbia and represent Medicaid service use and expenditures in calendar year 2009.

Key Findings on Variation in Medicaid Long-Term Care System Performance in 2006

- Across the 38 study states in 2009, about 45 percent of Medicaid LTC spending was for HCBS in 2009, while almost 67 percent of Medicaid LTC users used HCBS. Medicaid spent about $19,500 per user for HCBS, or 48 cents per user of HCBS for every dollar on people in institutional care. However, there is considerable variation, across states and population subgroups.

- Most states reported modest progress on re-balancing toward HCBS from 2006 to 2009.

- Taken together, two measures (the percentage of long-term services and supports (LTSS) expenditures for HCBS and the percentage of LTSS users receiving HCBS) identify a few states that appear to have the highest levels of balance in the breadth and depth of their LTSS. These states, which include Alaska, California, Colorado, Vermont, and Washington, ranked highly on both measures for most or all subpopulations of enrollees.

- Throughout the rankings, however, a number of states achieved a notably higher ranking on one measure than on the other. For these states, alternative measures of the LTSS system provide different perspectives on LTSS utilization and expenditures. For example, for two states with the same percentage of expenditures allocated to HCBS, one may provide limited HCBS to a broad range of users, and the other may provide more expansive services to a small number of HCBS recipients. Thus, assessing multiple measures continues to provide a more complete picture of the role of HCBS in state Medicaid programs than any single measure alone.

- Subgroup analyses by state suggest that differences in HCBS use and expenditures between aged enrollees and those eligible on the basis of disability remained widespread across the states. As we found in the previous study, several states achieved overall balance by serving a relatively large number of aged people (e.g., the District of Columbia and New York), but most did so by providing more HCBS to younger enrollees with disabilities (e.g., New Hampshire, Vermont, and Wyoming), particularly people with ID/DD, and ranked relatively low for the aged. This suggests that, even in states that rank near the top on overall balance toward HCBS, there may be room for further re-balancing for some services or subpopulations.

- Subgroup analyses also suggest that HCBS use continues to be most common within the Medicaid ID/DD service system, compared to systems designed for the aged or people with physical disabilities. This differential emphasizes the importance of measuring system performance on multiple dimensions and within different service systems.

- Looking at population subgroups, about 65 percent of their HCBS LTC spending went for those with ID/DD, compared with 49 percent adults under age 65 with other disabilities, and 30 percent for LTC recipients over 65. About 86 percent of Medicaid enrollees using LTC services for ID/DD received HCBS, compared with 78 percent of those with other disabilities under age 65, and 55 percent for users over 65.

- Several states that have achieved much better than average HCBS coverage for one or more population groups deserve further study so that other states may learn from their experience. Specifically:

    - Overall, Washington, Alaska, Vermont, California, and Colorado had the highest percent of Medicaid LTSS expenditures going for HCBS (75 percent to 58 percent, in declining order). Alaska, California, Washington, Idaho and Iowa had the highest percent of Medicaid LTSS users receiving HCBS (90 percent to 75 percent). New Hampshire, Washington, Indiana, Utah, and Wyoming had the highest per-user spending for HCBS, relative to per-user spending for institutional care (102 percent to 74 percent).

    - In terms of serving the aged, Washington, Alaska, California, New York and the District of Columbia had the highest percent of Medicaid LTSS expenditures going for HCBS (59 percent to 38 percent, in declining order). Alaska, California, Washington, Idaho and Iowa had the highest percent of Medicaid LTSS users receiving HCBS (86 percent to 63 percent). Louisiana, New York, Washington, Indiana, and New Hampshire had the highest per-user spending for HCBS, relative to per-user spending for institutional care (77 percent to 56 percent).

    - In terms of serving those under age 65 with disabilities other than ID/DD, Kansas, Alaska, Colorado, North Carolina, and California had the highest percent of Medicaid LTSS expenditures going for HCBS (75 percent to 63 percent, in declining order). California, North Carolina, Virginia, and Alabama had the highest percent of Medicaid LTSS users receiving HCBS (90 percent to 88 percent). Kansas, Indiana, Ohio, and Texas had the highest per-user spending for HCBS, relative to per-user spending for institutional care (64 percent to 58 percent).

    - In terms of serving those under age 65 with ID/DD, New Hampshire, Alaska, Maryland, Colorado, and Wyoming had the highest percent of Medicaid LTSS expenditures going for HCBS (99 percent to 91 percent, in declining

order). New Hampshire, Alaska, Colorado, Maryland, and Kansas had the highest percent of Medicaid LTSS users receiving HCBS (100 percent to 98 percent). New Hampshire, Alaska, Oklahoma, Indiana, and Utah had the highest per-user spending for HCBS, relative to per-user spending for institutional care (144 percent to 57 percent).

- If small ICFs/IID (having fewer than six beds) were considered to provide HCBS rather than institutional services, then the percent of Medicaid LTSS expenditures for ID/DD that went towards HCBS would increase from 65 percent to 68 percent, the percent of users would increase from 86 percent to 89 percent, and the per-user expenditure of HCBS relative to institutional care would increase from 33 percent to 36 percent.

- States with relatively high rates of HCBS spending overall did not always have consistently high rates of HCBS spending for all subgroups of enrollees. For example, the relatively high overall rankings for New Hampshire, Vermont, and Wyoming on the expenditure share measure appear to be driven primarily by higher rates of expenditures on enrollees under age 65 with disabilities and lower spending on aged enrollees. In comparison, the high ranks of the District of Columbia and New York appear driven by high rates of HCBS use and per-user spending among the aged.

Key Findings on Associations between State Constraints, Policies, and Long-Term Care System Performance

We examined the correlations between LTSS balance measures and state characteristics and policy variables. The associations found indicate several relationships that appear relevant for understanding variations in HCBS use and expenditures across states.

- Of the several measures selected to capture exogenous state characteristics, only two were significantly correlated with measures reflecting HCBS penetration in state LTSS systems overall: (1) personal and home care aides per 1,000 elderly and younger persons reporting disability, which was positively associated with HCBS spending and use; and (2) percentage of potential Medicaid eligibles age 75 or older, which was negatively associated with HCBS spending and use.

- We hypothesize that the relationship between home care workers and HCBS may be the result of several factors. HCBS may expand when there are home care workers available to serve more people in residential settings. Conversely, communities with very high levels of demand for these services may find that there are insufficient community resources, including care workers, available to serve everyone in the community, or the increased demand for these workers may drive an increase in their supply.

- The three policy variables most consistently related to LTSS systems with higher rates of HCBS use were consumer-direction, percentage of out-of-home placements in facilities with six or fewer residents, and availability of assisted living and residential care units. These factors may be important contextual variables to consider when assessing LTSS balance.

- Some of the relationships were only significant for some subpopulations of enrollees. Three factors -- total taxable resources, percentage of potential aged Medicaid eligibles, and size of the waiver waiting list for ID/DD HCBS waivers -- were only associated with increased HCBS use for individuals with ID/DD. Other factors -- availability of home health aides, rates of consumer-direction, and availability of assisted living and residential care units -- were only significantly related to HCBS use for individuals who were aged or had physical disabilities. These findings underscore the importance of assessing drivers of variation in HCBS use and expenditures for subpopulations separately, as different factors appear to be relevant for each group.

Given the complex and dynamic environment across and within states for LTSS delivery, it is not feasible to isolate and determine the precise nature of the relationship between a single state policy constraint or factor and HCBS balance in a descriptive analysis. Further analysis is needed to understand the interaction of different factors underlying the relationships identified in this analysis.

Our exploratory analysis of the associations between system performance, state policies, and other factors that might facilitate or hinder Medicaid HCBS expansions suggests that:

- Two factors over which states have little control -- poor weather conditions and size of the workforce needed to provide adequate HCBS -- are associated with systems less balanced toward HCBS.

- Three factors that states could alter -- availability of Medicaid consumer-directed services, state plan personal care coverage, and availability of state Supplemental Security Income supplements for people living in the community -- are positively associated with systems more balanced toward HCBS. Note that consumer-direction may promote HCBS use because it has the potential to enlarge the workforce insofar as self-directing program participants are not limited to receiving services from workers recruited into home care agency employment but are permitted to choose to hire other individuals who may be motivated to become paid helpers because of pre-existing personal relationships, as relatives, friends, and neighbors.

- State policies and constraints are likely to function differently for different subgroups of Medicaid enrollees. Consumer-direction, for example, was significantly associated with HCBS spending for the aged and people with physical disabilities, but not for enrollees with ID/DD. Other factors appear to be

related to progress in re-balancing LTC for people with ID/DD, most notably financial resources.

We cannot infer causal relationships from these findings, but rather note that they point the way to possibly fruitful work in the future.

Directions for Future Research

Our findings indicate that alternative system performance indicators provide a more nuanced understanding of LTC system transformation and potentially could lead to different conclusions about program effectiveness and re-balancing efforts across states and subgroups than those based on one or two aggregate measures, such as total Medicaid spending on non-institutional compared to institutional LTC or total numbers of Medicaid beneficiaries receiving HCBS compared to those residing in nursing homes, long-term hospitals, or ICFs/IID. It will be important for future studies to assess state LTC systems on multiple dimensions for distinct target populations. As Medicaid continues to serve more enrollees in the community, it also will be important to monitor the breadth and type of LTC services low-income people need and receive.

Several promising policy options -- including Medicaid and non-Medicaid policies -- are associated with LTC system performance, but longitudinal studies will be needed to assess impacts. Of particular interest are which approaches are most cost effective and their applicability to different Medicaid subgroups. As state budgets change over time, also of interest is the extent to which fiscal constraints will limit states' ability to support or maintain HCBS expansions into the future.

I. BACKGROUND AND OBJECTIVES

Expanding the role of community care relative to institutional care has been a goal of long-term care (LTC) policy almost before LTC policy can be said to have existed. As Vladeck (1980), among others, has noted, the Social Security Act of 1935 prohibited federal matching payments for Old Age Assistance (OAA) to "inmates of public institutions." Such institutions were understood at the time to include public almshouses, where many poor and frail elders had resided. A precursor to today's Supplemental Security Income (SSI) for the elderly and younger, OAA payments were often referred to as "outdoor relief" in contrast to the "indoor relief" provided by municipal and county-owned and operated almshouses. Thus, OAA was intended to provide elders with an income that would permit them to live in the community, away from the often dreadful conditions of the almshouse. As it happened, the prospect of receiving OAA payments may have encouraged poor elderly people to leave almshouses, but it did little to meet the care needs of those whose functional limitations or disabilities prevented them from caring for themselves. As such people turned increasingly to private institutions as a source of care, they stimulated the growth of what became the private nursing home industry.

These events paralleled substantial increases in United States life expectancy. Since 1930, the life expectancy of a 65-year-old has increased by 5.6 years (to 82.3) for men and by 7.2 years (to 85.0) for women (Arias 2008). Over the same period, the life expectancy of people with developmental disabilities grew by nearly 40 years (Lightfoot 2006). These changes led to increased reliance on institutions to house and provide care for the elderly and those with physical disabilities and/or cognitive impairment. Previously, institutional care, especially at public expense, had been for the indigent elderly and disabled who lacked family to care for them at home, although some religious and charitable institutions served the "genteel poor" (mostly childless spinsters and widows who had outlived their inheritances). The 1950s saw the rise of a new phenomenon, termed "medical indigence," which referred to elderly people who entered private nursing homes and paid out-of-pocket but exhausted their resources and sought public assistance. During the 1950s and 1960s, children born with Down's syndrome or other conditions associated with intellectual, as well as physical developmental, disabilities were routinely institutionalized at birth and were expected to remain in the institution for life. Most nursing homes for the elderly were privately owned and operated, but most institutions for the developmentally disabled were state-run and entirely state-funded.

During the 1950s, federal funding for nursing home care was expanded under the Kerr-Mills Act, which included coverage for the medically indigent, as well as the long-time poor elderly (Moore and Smith 2006). In 1965, Kerr-Mills was replaced by Medicaid, which established an individual entitlement to state/federal assistance to pay for "skilled" nursing home care for individuals too poor to pay privately, again including

residents who entered nursing homes as private payers and "spent down" to means-tested eligibility after exhausting their personal financial resources. This nursing home coverage was one of five "required" services (along with coverage of hospital care, physician services, x-ray and laboratory services, and "skilled" home health services provided by home health agencies (HHAs) certified to provide Medicare as well as Medicaid coverage) that states were federally mandated to include in their Medicaid state plans. Additional services could be included at state option. In 1972, Medicaid's coverage of institutional long-term care (ILTC) was expanded to encompass, at state option, care in intermediate care facilities. These included a category of nursing homes that were not required to employ registered nurses, but only licensed practical nurses and nurses' aides, and intermediate care facilities for the mentally retarded (ICF/MR) (most of which were state-run institutions). By fiscal year (FY) 1978, expenditures on long-term services and supports (LTSS) -- almost entirely ILTC -- accounted for 40 percent of total annual Medicaid expenditures (HHS 1981).

By the 1970s, policymakers had become increasingly concerned, not only by the growth and cost of ILTC, but also by scandals involving poor quality of care and the abuse, neglect, and mistreatment of residents in some facilities -- both nursing homes for the elderly and state facilities for the developmentally disabled. Congress began to consider allowing and encouraging states to pay for home and community-based alternatives to institutional care. In 1975, non-institutional personal care services were added to the list of optional benefits that states could elect to offer, although few states chose to do so at first. By 1978, only 13 states and the District of Columbia offered "personal care services" at home as an optional Medicaid benefit to low-income elderly and disabled beneficiaries who required help with basic activities of daily living such as bathing, dressing, transferring, eating, and toileting. Although Medicaid coverage required that a physician prescribe these services, the services were provided by unlicensed home care aides. Unlike "skilled" home health services, personal care services could be provided by non-certified agencies or by individually employed "independent providers," rather than by Medicare/Medicaid-certified agencies. New York State alone (mostly New York City) accounted for 75 percent of Medicaid personal care services expenditures. Other states, most notably California, chose to provide in-home personal care services to low-income people with disabilities with federal Title XX grant funding, supplemented by state social services dollars. The cost of these Medicaid and other publicly-funded home care programs was miniscule compared to Medicaid nursing home expenditures (Health Care Financing Administration 1981).

During the late 1970s and early 1980s, the Federal Government sponsored controlled experimental design research and demonstration projects to test the cost effectiveness of home and community-based alternatives to institutional care for the elderly (Kemper et al. 1987). Although these experiments largely failed to show that increased spending on home and community-based services (HCBS) significantly reduced nursing home use, Congress nevertheless amended Medicaid law to permit states to request federal approval to offer HCBS alternatives to institutional care (long-stay hospital, nursing home, or care in institutions for the developmentally disabled)

under so-called 1915(c) waivers to people judged to be at high risk for admission to institutions.

During the first 15 years after HCBS waivers became available, spending on Medicaid-financed HCBS remained low compared to spending on ILTC. Federal and state officials were concerned that many elderly and younger physically disabled adults who qualified for nursing home admission were not likely to enter such facilities. Increased access to HCBS under 1915(c) waivers that did not generate offsetting reductions in nursing home expenditures would cause growth in total Medicaid spending on LTSS.

To control costs, enrollment in HCBS waiver programs was restricted by requiring states to obtain federal approval for a limited number of 1915(c) HCBS waiver "slots." The Executive Office of Management and Budget and the U.S. Department of Health and Human Services (HHS) Centers for Medicare and Medicaid Services (CMS) enforced what was termed the "cold bed" rule, under which states could not be approved for more waiver slots than available institutional beds (Shirk 2006). In addition, to be granted HCBS approval for the number of waiver slots requested, states often were required to submit assurances that they planned to close existing facilities or not expand institutional bed capacity as previously planned. During these years, HCBS programs frequently targeted children and adults with developmental disabilities because states had begun to close or downsize state-run facilities for the developmentally disabled. Mildly and moderately intellectually developmentally disabled adult residents of institutions began to be "de-institutionalized" to small-group homes. When federal special education funding became available and states were mandated to provide special education (1975), admission of all but the most severely disabled children with developmental disabilities into institutions ceased.

In 1994, at the request of the National Governor's Association, the Clinton Administration agreed to abandon the cold bed rule. In 1995, despite the availability of the state plan personal care services optional benefit and 1915(c) HCBS waiver authority, only 17 percent of Medicaid LTSS expenditures were for HCBS. In the mid-1990s, however, the United States economy was doing well, and states became increasingly willing to spend more on HCBS without being concerned about whether savings from reduced institutional care offset growing expenditures for HCBS. In addition, in 1997, Congress passed provisions of the Balanced Budget Act that were intended to put a stop to overuse of the Medicare home health services benefit to finance long episodes and large numbers of aide visits. This put pressure on some states where utilization of Medicare-funded home health services had been especially high to expand Medicaid coverage of in-home aide services. Expanded funding for HCBS was further stimulated by the U.S. Supreme Court's 1999 *Olmstead* decision that the Americans with Disabilities Act (ADA) required states to offer home and community-based alternatives to ILTC whenever feasible. To encourage states to comply with the ruling and "re-balance" their LTSS systems away from reliance on institutional care toward HCBS, Congress voted funding, and CMS awarded $289 million for Real Choice/Systems Change grants to 39 states between 2001 and 2010.

The Deficit Reduction Act (DRA) of 2005 expanded options for Medicaid coverage of HCBS by allowing states to offer services similar to those provided under 1915(c) waivers under their state plans (that is, without requiring federal "waiver" approval). Moreover, the requirement that HCBS be a cost effective substitute for institutional care was dropped. The DRA established 1915(i) HCBS services, which could be offered to individuals who did not meet "level-of-care" need criteria for coverage of ILTC. The DRA also provided "Money Follows the Person (MFP)" grant funding that gave states a financial incentive (enhanced federal matching funds) to transition nursing home residents back to community living with HCBS. A further DRA provision expanded opportunities for states to offer consumer-directed HCBS that allowed disabled Medicaid beneficiaries and their families to exercise more choice and control over the type and amount of HCBS they received by managing budgets or receiving cash payments -- and also expanded state flexibility to allow spouses and parents of minor children to become paid service providers.

In 2010, the Affordable Care Act (ACA) amended the 1915(i) HCBS state plan optional benefit to require states choosing it to provide the benefit on an entitlement basis to all who meet coverage requirements. States were prohibited from setting a cap on enrollment, which often resulted in waiting lists for HCBS waiver programs. The ACA also extended the MFP grant program and provided enhanced federal matching funds, called "Balancing Incentive Payments (BIP)," to encourage states to increase spending on HCBS. These payments targeted states that were not yet devoting more than one-quarter (more than one-half in some cases) of their Medicaid expenditures on LTSS to HCBS, as long as states agreed to meet the required spending targets by the end of FY 2015. Finally, the ACA also authorized yet another optional state plan benefit, called "Community First Choice," which provided states with a financial incentive (six additional percentage points of federal funding) to offer personal assistance services at home to all beneficiaries meeting "level-of-care" need criteria for nursing home coverage.

Since 1999, Medicaid HCBS use and expenditures have more than doubled (Eiken et al. 2011; KFF 2012), and the use of nursing homes and intermediate care facilities for people with intellectual disabilities (ICFs/IID) has declined substantially (Alecxih 2006; Wiener et al. 2009; Lakin et al. 2009). This general shift masks wide variation in the levels of re-balancing across states (Howes 2010; Kassner et al. 2008; KFF 2012; Wenzlow et al. 2011). Efforts to re-balance LTSS systems from their traditional reliance on institutional care to HCBS have also been achieved more widely for some populations (enrollees under age 65 with disabilities) than others (people over 65) (Wenzlow et al. 2008, 2011).

In this report, we examine patterns in LTSS use across states and subgroups of enrollees in 2009, just after many states began to experience fiscal constraints and increased demand for services from the national recession. This analysis updates findings from a previous study based on 2006 data and expands upon state-level factors linked to LTSS systems that are more balanced toward HCBS use.

A. Re-Balancing as a Goal

The primary argument for the expansion and enhancement of community-based care has increasingly come to be that recipients greatly prefer it, an argument so widely accepted as to be regarded as self-evident. Farmer's (1996) study of nursing home organization was explicitly based, in part, on the assumption that "no one's first choice of residence was a nursing home." A recent AARP survey described by Keenan (2010) found that 86 percent of respondents aged 45 and older, asked where they would like to live as they aged, agreed or strongly agreed with the statement, "What I'd really like to do is stay in my current residence for as long as possible."

Apart from the well-accepted preference of people over age 65 or people with disabilities for community-based care is the strong likelihood of better health outcomes for people who are successfully supported in the community compared to outcomes likely to have occurred under institutional care. Outbreaks of influenza and norovirus, for example, are recognized threats to people living in institutions. Nursing home-acquired pneumonia is a significant cause of mortality and morbidity to residents (Mills et al. 2009). Although evidence sometimes conflicts, several studies have demonstrated that residents in assisted living and HCBS settings have fewer depressive symptoms and better psychological well-being, and more were generally happy (Pruchno and Rose 2000; Franks 2004; Wodchis 2003).

Finally, of course, evidence suggests that providing services in the community may result in cost savings to state Medicaid programs. Several studies (for example, Kitchener et al. 2006; Kaye et al. 2009; Harrington et al. 2011; Kaye 2012) find that replacement of institutional with community LTSS resulted in cost saving for Medicaid programs. These studies provide only incomplete guidance to states, however, for two reasons. First, the term "HCBS" is much less well defined than is institutional care. A nursing home day is commonly understood to mean round-the-clock care and to include room, meals, and other services. In contrast, HCBS care may include quite different services from state to state, possibly with limitations on the number of hours of care allowed. Second, empirical studies can provide information only on the results of re-balancing that has occurred so far. Given that states and providers surely began re-balancing by focusing on those people most easily supported in the community, rather than, say, a random group of people eligible for institutional care, evidence on re-balancing to date provides little or no evidence on the probable effects of further extending efforts to re-balance care for the elderly and people with disabilities.[1] That said, the most reasonable policy for states to adopt, given current research, would appear to include gradual expansion of community-based LTSS, at least until evidence suggests that further expansion was more expensive or led to worse outcomes than institutional care. No evidence yet indicates that we have reached that point.

[1] New Jersey's Rebalancing Workbook, for example, recognizes that "the least frail client in a nursing facility (NF) could be the frailest client in HCBS, and the frailest client in HCBS could be the least frail client if moved to a NF." (New Jersey Department of Health and Senior Services 2009).

Despite evidence of cost effectiveness, states facing budgetary crises may be less likely to develop and implement new programs, particularly due to evidence that shifts to HCBS may involve initial cost increases at the beginning of these programs before savings are achieved (Kaye et al. 2009). Given ongoing economic constraints in many states, policymakers have questioned how budget concerns have affected progress toward HCBS re-balancing across states, and within states, for subpopulations of enrollees. Initial feedback indicates that many states have continued to pursue the goal of re-balancing during the recent economic downturn (Walls et al. 2011; Cheek et al. 2012), but limited information is available on how progress has varied across states and for subpopulations of enrollees during this period.

B. Challenges to Re-Balancing

It can hardly be surprising that adoption of HCBS has varied strongly from state to state. For obvious reasons, community-based care is easier to implement in urban areas, where care providers can more easily reach elderly people and people with disabilities in their homes. In contrast, in highly rural states or areas, even people who are largely independent may sometimes receive care in nursing homes simply because community care is impractical in remote localities. Moreover, implementing new modes of care requires the development of new systems of initiating, arranging, and managing care, much of it paid for by third parties. This implementation, difficult in itself, also creates new economic winners and losers who invariably will attempt to influence legislatures and regulatory bodies to alter the process. These influences can be hard to discern and virtually impossible to measure, making it difficult to assess their importance on progress in re-balancing.

Until recently, a major barrier to re-balancing toward greater reliance on HCBS was concern that open-ended “entitlement” funding of HCBS would give rise to a phenomenon referred to as the “woodwork effect” -- a more colorful way to describe what economists more commonly term “induced demand.” The argument held that institutional care is so unpleasant that eligible individuals and their families often are willing to incur significant private cost (mainly in the form of unpaid family caregiving) to avoid it. When publicly-funded HCBS becomes available, they no longer have a reason to pay the price of unpaid family caregiving to avoid institutionalization, accessing paid home care instead. Moreover, when Medicaid and other public payers pay family members to provide aide and attendant care, which has increasingly been allowed, demand for HCBS may be further stimulated. Accordingly, many people who qualified for institutional care but would not have sought admission or would have postponed admission for as long as possible will “come out of the woodwork” to claim these far more desirable HCBS benefits. This will result (even if there is substitution of HCBS for nursing home care by some), in far greater demand for publicly-funded LTSS that translates into higher total expenditures -- and increased burden on federal/state budgets -- than would have been the case if institutional care remained the only option.

Although much of the research literature on “woodwork effect” dates back to the 1980s (see, for example, Kemper et al. 1988), academics have continued to debate its magnitude (Grabowski 2006; Kaye 2009). In 2013, a special issue of the *Journal of Aging and Social Policy* was devoted to the topic. Edited by Frank Caro, it contains articles by Mitchell La Plante, Robert Kane, Steve Eiken, and William Weissert. Although these authors attempt to measure the effect using different data sets and methods, all have generally concluded that the growth in the number of users of Medicaid-funded HCBS has greatly exceeded the reduction in numbers of users of Medicaid-funded nursing home care. They further agree that, whereas increased funding for HCBS apparently had only a modest effect on decreasing nursing home use among the elderly, there is no strong evidence that it has led to either an increase or decrease in total Medicaid LTSS expenditure. Where they disagree is on the importance of doing a better job of targeting HCBS spending so that it will have a greater likelihood of reducing nursing home use.

Absence of a clear link between increased funding for HCBS and increased Medicaid LTSS costs may help explain the diminished concern about “woodwork effect” among federal and state policymakers. There are other possible reasons as well. First, Medicaid means-testing places an upper limit on how many disabled individuals -- especially elderly people with pension income and life savings -- can meet Medicaid’s strict financial eligibility test. The allowable asset limit ($2,000 for an individual in nearly all states) is particularly restrictive and has not been raised in nearly three decades. Second, states have a mechanism to control the flow of access to HCBS, if they choose to use it. Although more than half the states provide HCBS (personal care services) as individual entitlement to all who qualify financially and on the basis of disability-related need, the remaining states rely exclusively on 1915(c) waivers to finance HCBS. Medicaid law allows states to cap enrollment into HCBS waivers and establish waiting lists. In 2012, the number of people on waiver waiting lists for elderly/disabled HCBS waiver programs nationally exceeded the total number of approved “slots” by 22 percent (Ng 2013). However, examination of unpublished waiting list data shows that nearly half of all states using 1915(c) waivers were operating their elderly/disabled waiver programs as virtual entitlements because they had requested and obtained CMS approval for enough slots to enroll all who qualified and reported no waiting lists. More than half of those waiting on HCBS elderly/disabled waiver waiting lists in 2012 were concentrated in three southern states (Florida, Louisiana, and Texas).

Waiting lists for HCBS, particularly those that require enrollees to wait a year or more, admittedly exist in a state of tension with the ADA and *Olmstead*. The Olmstead decision itself explicitly recognized that “a waiting list that moved at a reasonable pace not controlled by the state’s endeavors to keep its institutions fully populated” would meet the standards of the ADA if it existed within the context of “a comprehensive, effectively working plan for placing qualified persons with mental disabilities in less restrictive settings.” Neither the Supreme Court nor lower courts adjudicating similar cases since have taken the position that states cannot control HCBS access by establishing waiting lists, and they have left the definition of “reasonable pace” vague.

Courts typically have not questioned waiting lists in states that have a so-called "Olmstead Plan."[2]

Although initial policy research on the "woodwork effect" focused almost exclusively on the elderly (probably because of concerns about the potential cost impact of an aging population), states have experienced far greater difficulty meeting demand for HCBS waiver services for individuals with intellectual and developmental disabilities (ID/DD). Medicaid's means-test does not serve to restrict eligibility among adults with ID/DD as it does for the elderly, because almost all adults with ID/DD severe enough to qualify for HCBS as an alternative to institutional care are receiving SSI, which gives them automatic Medicaid eligibility.

Mitchell LaPlante (2013) asserts that the existence of a "woodwork effect" in terms of growth of users of Medicaid-funded services for people with ID/DD is clear because there are now many times more Medicaid beneficiaries with ID/DD receiving HCBS via waiver programs than there ever were residents in ICFs/IID: "In 1992, there were about 145,000 persons in Medicaid-funded ICFs/IID, and 62,000 received community LTSS. From 1992 to 2009, there were 50,000 fewer people in ICFs/IID, but greater than 500,000 more persons being served in the community. This would appear to be a classic woodwork scenario…". Waiting lists for HCBS waiver services are far more common and wait time is longer for people with ID/DD than for the elderly and physically disabled. In 2012, the number of those waiting for HCBS ID/DD waiver services exceeded existing enrollment by 58 percent, and the average time spent on the waiting list, nationally, was 47 months (Ng 2012). Nevertheless, more than a quarter of states (14) reported that they had no individuals waiting for HCBS ID/DD waiver services.

Overall, in 2011 and 2012, even though the United States had yet to fully recover from the Great Recession and its negative impact on state budgets, about 20 percent of states were fully able to meet the demand for HCBS among all Medicaid LTSS subgroups (for example, elderly, adults with physical disabilities, children and adults with developmental disabilities, and others with special needs, such as those with HIV/AIDS or traumatic brain injury). What explains why some states have no or very short waiting lists for HCBS waiver programs, whereas others have very long waiting lists? One recent study of waiver waiting lists for HCBS waivers serving physically disabled people in Iowa casts doubt on whether maintaining first-come, first-served waiting lists is an effective way to control Medicaid LTSS costs. The study found that, in Iowa, long waiting periods for high-risk beneficiaries increased nursing home use and costs enough to fully offset savings from delaying access to HCBS (Peterson et al. 2013).[3] These questions clearly deserve further research. In this report, we explore

[2] A ruling of the Third Circuit Court, for example, stated that "When such a plan exists, a remedy that would force the agency to abandon or alter its long-term compliance efforts could sacrifice widespread compliance for immediate, individualized relief. Imposing such a remedy would be penny-wise and pound foolish." (Pennsylvania Protection and Advocacy v. Pennsylvania Department of Public Welfare, 2005).

[3] The authors also found that, among high-risk cases, estimated LTC costs over the two years following application were higher for those facing long wait lists than for those facing shorter wait lists, although this result was not statistically significant.

only whether a statistically significant relationship exists between HCBS waiver waiting lists and “re-balancing” toward higher levels of spending on HCBS compared to institutional care.

C. State Actions to Increase Use of Home and Community-Based Care

States, of course, cannot directly control the balance of institutional and community care for elderly and Medicaid enrollees with disabilities. Balance is instead the result of each state’s Medicaid LTSS eligibility and payment policies, regulation, and the extent of communication and coordination with providers and enrollees. Medicaid policy naturally becomes more community-friendly when it covers personal and home health care without strict limits on the quantity of services and when it is covered under the state plan, rather than under waivers that can limit the number of enrollees who can be served or the communities where it is offered. In addition, states must set personal needs allowances at a level that is realistic for a person living in the community. Even generous coverage of community LTSS will fail if people cannot retain enough income to maintain themselves in a home or apartment. Wenzlow et al. (2011) found that availability of Medicaid consumer-directed services, state plan personal care coverage, and availability of state SSI supplements for people living in the community were each positively associated with greater levels of community care.

States can control, and take steps to promote, the availability of residential (facility-based) care settings other than nursing homes and ICFs/IID. Historically, the Medicaid definition of “home and community-based services” has included coverage of assistive services, but not room and board provided in residential care facilities other than those defined as “institutions” where Medicaid reimbursement does cover room and board costs (hospitals, NFs, and ICFs/IID). In the early years after Medicaid was enacted, the numbers and bed capacity in such residential care facilities appear to have declined because Medicaid coverage and reimbursement rules greatly encouraged providers of residential LTSS to meet Medicaid institutional “conditions of participation” and become certified for the more generous Medicaid payment rates. Initially, Medicaid-covered only “skilled” nursing homes. In 1972, however, coverage was extended to “intermediate care” nursing homes (where aides could be supervised exclusively by licensed practical nurses rather than registered nurses) and facilities formerly labeled “state schools” for people with ID/DD could be redefined as medical institutions and become eligible for Medicaid reimbursement as ICFs/MR.

In the late 1970s and early 1980s, studies comparing the cost effectiveness of HCBS as a substitute for institutional care using experimental design methods sometimes found that diverting low-income elderly seeking nursing home admissions into alternative residential care settings (variously termed personal care homes, domiciliary care, board and care, or adult foster care homes) could be cost effective (Doty 2000). Before the 1990s, these alternative residential settings for the elderly catered primarily to those who qualified for SSI cash assistance.

The 1990s saw the rise of the “assisted living” industry. A handful of states (Oregon and Washington in particular) were active in promoting and vocal in advocating to other states the use of assisted living and small adult foster care homes for Medicaid beneficiaries as an alternative to nursing home placement. Although assisted living residential care, especially facilities offering primarily private apartments and other amenities, caters primarily to private payers, the number of facilities accepting Medicaid residents and the actual number of Medicaid residents has increased. ASPE research in the early 2000s found that about one-third of all residential elder care beds were in facilities other than certified NFs (Spillman et al. 2002). The ASPE-sponsored 2011 Residential Care Survey found that more than 730,000 Americans lived in residential care facilities in 2010 (Park-Lee et al. 2011). Other data sources, such as the National Health and Aging Trends Survey, that define residential elder care even more broadly estimate the numbers and percentage of elderly residing in non-nursing home residential care settings as opposed to “at home” in ordinary housing not designed for elder care to be even higher.

Wenzlow et al. (2011) found that greater availability per 1,000 elderly population of beds in non-nursing home elder care facilities (“assisted living” broadly-defined) was associated with “re-balancing” toward HCBS for the elderly. For younger adults with developmental disabilities, the initial trend toward “de-institutionalization” involved closing down large state institutions for this population and transferring residents to smaller “group homes.” The difference between “institutional” and HCBS settings was often blurred because states could choose to establish small ICFs/IID with 15 or fewer beds that were still eligible for coverage of room and board costs but operated under special Medicaid regulations. These facilities could be state-run as well. Increasingly, most states transitioned former residents of large ICFs/IID into small fewer than 16 bed “group homes” under private for-profit or non-profit auspices that were eligible for Medicaid reimbursement of HCBS only. “De-institutionalization” through the downsizing and closure of large ICFs/IID and their replacement by smaller, less costly residential settings with 15 or fewer beds was associated with a substantial increase in the numbers of individuals with ID/DD receiving Medicaid-funded services. This resulted in rapid “re-balancing” toward HCBS for Medicaid recipients with ID/DD receiving LTSS. Since the Supreme Court’s 1999 *Olmstead* ruling, advocacy for people with ID/DD has increasingly promoted HCBS delivered “at home” to individuals residing with family members in the family home or to individuals in supported living arrangements (persons with ID/DD residing in homes apartments with 1-2 unrelated roommates and a paid helper) or in small-group homes with no more than six residents (Smith et al. 2007). According to Charlie Lakin and colleagues at the University of Minnesota, the number of residents in homes with six or fewer people with ID/DD increasing from 20,400 people in 1977 to 321,500 people in 2010. By 2010, 11 states had no state-operated residential facilities for 16 or more people with ID/DD (Lakin 2011).

On January 16, 2014, CMS issued a final rule defining “community care” that restricts Medicaid HCBS spending to residential care settings that are “non-institutional” in character (HHS 2014). In other words, facilities that are not certified as institutions

eligible for Medicaid reimbursement for room and board as well as services may nevertheless be determined to be also ineligible to be HCBS providers because they are considered *de facto* "institutions" that are overly restrictive and do not offer residents adequate privacy.

Wenzlow et al. (2011) had no measure of non-home/non-ICF/IID residential care use among the Medicaid population with ID/DD receiving LTSS, but this report does include such a measure. We do not hypothesize a relationship between availability of non-nursing home residential care settings and beds and re-balancing toward HCBS for the population of Medicaid LTSS users under age 65. ASPE's 2011 Residential Care Survey did find some residents under age 65, and compared to elderly residents, they were disproportionately more likely than private payers to be on Medicaid (Green et al. 2013). Still, there is little evidence of a movement toward placement of younger adults with physical disabilities in alternative residential care settings rather than in nursing homes or "at home" in their own or family homes. Advocates for younger adults with physical disabilities oppose age/disability segregated residential settings for their constituency, and they consider assisted living to be such a form of segregated housing. Because of this opposition, the MFP grant program explicitly denies the enhanced federal matching payments available to states that help nursing home residents who transition back to the community (most of whom are adults under age 65) if they go to live in assisted living facilities (Reinhard 2012). Advocates for younger adults with spinal cord injuries and other physical disabilities hope to promote accessible public housing in scattered sites so that such people can be integrated into the community and reside as neighbors alongside people of all ages with and without disabilities (see for example, http://wheelsofprogress.org/scatter.html). Nevertheless, lack of affordable housing that is also accessible to people with severe physical disabilities is one of the most often cited barriers to transitioning nursing home residents back to community living.

Re-balancing can also be encouraged through regulation and incentives aimed at nursing homes and ICFs/IID. Some states, for example, have set numerical goals for reductions in institutional beds (Kane et al. 2008). Others allow facilities to place beds on layaway status for several years to ease the path toward eventual delicensure. Measures like these, appropriately used, can ensure that institutional care is provided when in the best interest of the recipient, but not simply because it is the default approach to providing LTSS.

Finally, re-balancing can be accelerated by focusing on system accessibility and efforts to estimate the importance and availability of informal caregivers. The literature suggests that having "a single entry point" (SEP) or "no wrong door" model for LTSS allows participants to more easily navigate the complex array of services available, but states vary in the services these SEPs provide and the populations they serve, which makes predicting the overall effects of an SEP model on re-balancing difficult (Kassner et al. 2010; Reinhard et al. 2011; Mollica and Gillespie 2003). Finally, because research suggests that shifting the balance toward HCBS affects families and caregivers by shifting some work from paid providers to informal caregivers (Feinberg and Newman

2004; Rozario and Palley 2008), it is also important to assess the level of support for these informal caregivers across states.

D. Measuring and Understanding LTSS System Performance

This report examines patterns in LTSS use across states and subgroups of enrollees in 2009, just after many states began to experience fiscal constraints and increased demand for services from the national recession. The analysis updates findings from a previous study based on 2006 data and expands on state-level factors linked to LTSS systems that exhibit greater HCBS use.[4] In addition, the ACA of 2010 expanded states' options for offering HCBS through Medicaid.[5] Analyses based on data from 2009 provide a baseline of HCBS balance across and within states for future comparison to state policy and program changes that resulted from options made available in 2010.

1. Measuring Progress

The most commonly used indicators of LTSS system balance -- the percentage of LTSS spending allocated to HCBS and the proportion of LTSS users receiving HCBS -- have relied on two readily available and annually updated sources of state-level data on Medicaid expenditures and HCBS use. These include aggregate spending data by service type reported by states in CMS Form 64 (Eiken et al. 2011), and counts of waiver enrollees reported in CMS Form 372 combined with state survey-based counts of personal care and home health users, as summarized each year by the Kaiser Commission on Medicaid and the Uninsured and the University of California, San Francisco (KFF 2012). Although these data convey important information on system performance, they cannot be used to conduct subgroup analyses (except for some waiver populations). This limits the ability to measure the extent to which HCBS have reached all people who need them. For this reason, researchers and policymakers also use person-level administrative data in the CMS Medicaid Analytic eXtract (MAX) system to explore who is being served by Medicaid LTSS and to better understand system transformation.[6] These projects include efforts to measure HCBS and institutional use and spending for various groups eligible for the MFP demonstration (Brown et al. 2008; Irvin and Ballou 2010; Lester et al. 2013) and the AARP efforts to

[4] In this report, the word "states" is meant to include the 50 states and the District of Columbia.

[5] The ACA gave states new options and financial incentives for providing HCBS to Medicaid enrollees. New options include the Community First Choice program (which allows states to cover personal care and other services for eligible individuals through their Medicaid state plans) and the BIP (which provides incentives for eligible states to re-balance their LTC system toward HCBS). The ACA also expanded the scope of covered services and eligibility requirements for Section 1915(i) programs and extended the MFP program with additional funding. For more information on states' adoption of new HCBS options, see Walker (2010); KFF (2011); and U.S. Government Accountability Office (2012).

[6] This study's predecessors summarized the strengths and limitations of MAX data for studying LTC (Wenzlow et al. 2008, 2011), finding that, although the MAX data were incomplete for some states, and service-specific information on HCBS was not reliable in all states, MAX provides useful information on which populations are receiving HCBS and how their use of HCBS compares to use of institutional care.

develop a state LTSS system scorecard that includes some person-based measures of system performance (Reinhard et al. 2011). We use MAX data in this analysis so that we can examine overall system performance, as well as performance for subgroups of Medicaid enrollees.

2. What Do We Know About the Progress in LTSS System Transformation?

As noted earlier, LTSS systems have increasingly emphasized and relied on HCBS (Doty 2010; KFF 2012). However, studies have shown substantial interstate and intrastate variations in this progress. Some states -- for example, Alaska, New Mexico, Oregon, and Washington -- have been identified as making these transitions successfully, whereas others have traditionally received low rankings (Wenzlow et al. 2011). Within states, performance indicators suggest that HCBS use is more common among working-age Medicaid enrollees with disabilities than among aged LTSS recipients (Wenzlow et al. 2011). Moreover, the predecessor to this study found that, within the population of individuals under 65 with disabilities, those individuals with ID/DD had particularly high rates of HCBS use, higher than rates for individuals under 65 with other disabilities (Wenzlow et al. 2011).

Factors that might be related to balanced LTSS systems include single-access points; availability of person-centered services; participant involvement; precipitating events or crises; and effective state leadership, planning, and processes (Eiken 2004). In their review of the literature, Mollica and Reinhard (2005) also identified as critical components the availability of broad HCBS, single global LTSS budgeting, standardized assessment tools, transition programs, and quality improvement. In a study of MFP grantees, Irvin and Ballou (2010) found two additional features -- the depth of HCBS experience and coverage of optional state plan personal care -- among systems that were more balanced in terms of LTSS spending. Ruttner and Irvin (2013) found that states offering personal care services through state plans, as opposed to through waivers alone, spend a higher median share of their LTSS expenditures on HCBS. A survey of state programs confirmed many of these factors as facilitating re-balancing and also highlighted the broad fiscal challenges states face in maintaining and improving LTSS systems in hard economic times (Rose et al. 2010). In this study's predecessor, two factors over which states have little control -- poor weather conditions and the size of the workforce needed to provide adequate HCBS -- were associated with systems that were less balanced toward HCBS. Conversely, three factors that states can alter -- availability of Medicaid consumer-directed services, state plan personal care coverage, and availability of state SSI supplements for people living in the community -- were positively associated with systems that were more balanced toward HCBS (Wenzlow et al. 2011). Finally, the importance of state characteristics associated with rates of re-balancing toward HCBS may vary across different age groups of LTSS users (Miller 2011). Greater state investment in HCBS and reduced nursing home capacity were associated with re-balancing for aged individuals, but rates of institutionalization of working-age adults were more closely associated with state sociodemographic characteristics and chronic disease prevalence.

Many important questions about LTSS system performance remain unanswered. Are states identified as successes providing HCBS to more people, or are they providing more services? Who remains without access to appropriate HCBS? Can successful policies implemented in some states work for others? How do fiscal constraints and other state characteristics hinder or facilitate system transformation? For example, we would expect that rural states, in which the distance between service providers and recipients is large, may find it more challenging to provide their clients with LTSS in home and community-based settings; hence, the lessons learned in more urban states may not apply. Finally, what effect have a weakened economy and constrained state budgets had on progress toward re-balancing in recent years? Insights into these questions would be particularly helpful to states as they face budget crises and as some consider cuts to Medicaid rather than expansions of it.

E. Goals of This Study

This study expands on earlier work in Wenzlow et al. (2011), using MAX 2009 to assess patterns of both interstate and intrastate variations in LTSS system performance. The study has two broad aims: (1) to update information on differences in LTSS systems within and across states that were identified in the previous report; and (2) to explore how state constraints and policies are related to the balance of LTSS systems.

To characterize the performance of LTSS systems in each state, we summarize HCBS and institutional care service use and expenditures to determine whether some states are achieving more balanced systems either by serving more people or spending more per person covered compared to other states. We also explore how balance varies for important Medicaid subgroups -- aged enrollees over 65, enrollees under 65 and eligible for Medicaid on the basis of disability, and two subgroups of enrollees with disabilities -- those with physical disabilities and those with ID/DD.[7] (See Appendix A for a glossary of terms, including the basis of eligibility [BOE] groups.) These subgroups of enrollees tend to have different demographic characteristics and service needs and often are served by different Medicaid programs. Finally, we compare state-level results from 2009 with results on these same measures in 2006 to assess progress toward re-balancing during this period of budget constraints in many states.

The second set of analyses explores how state constraints and policies are associated with the LTSS system performance indicators assessed in the first portion of the study. Specifically, we examine how factors that may challenge system transformation -- for example, cost of living, fiscal constraints, and state demographics -- and state policies are linked with LTSS balance. Finally, we examine how the association between state constraints, policies, and system performance varies across three enrollee subgroups: the aged, enrollees with physical disabilities, and enrollees

[7] Some Medicaid enrollees (an unknown number) have disabilities but are not identified as eligible on the basis of disability. We expect this number to be small. However, to the degree that such individuals exist in our study states and differ from persons in our sample, the results presented here will be biased.

with ID/DD. In this analysis, we examine the continued relationship between factors that Wenzlow et al. (2011) found to be relevant, as well as new measures of state policy and program features for which data have become available since the previous study was conducted.

Because we could not assess differences in need for care or its appropriateness, we do not assume that a more balanced system always will reflect state success in providing HCBS to populations that need them. Although we rank states by the characteristics of their systems, our aim is to gain insight into how policies and state factors are related to LTSS system performance indicators so as to better understand "high" scores.

Our analyses of state constraints, policies, and LTSS system characteristics should be viewed as exploratory. We were unable to assess causal impacts.

F. Summary of Data and Methods

We used MAX 2009 Person Summary (PS) files to develop measures of LTSS system performance. MAX PS files contain demographic and enrollment information for each Medicaid enrollee, as well as information on total Medicaid expenditures for services used during the calendar year, by service type. They also contain information on users of and spending on Section 1915(c) waiver services -- an important vehicle that most states use to provide HCBS to select populations.

We defined HCBS to include services covered under Section 1915(c) waivers and personal care, residential care, home health care, adult day care, and private duty nursing services that are mandatory or provided at state option outside of waiver programs. Institutional care includes nursing home care, ICF/IID care, inpatient psychiatric services for people under age 21, and psychiatric hospital services for those 65 and older.[8] The MAX PS files cannot be used to differentiate between people using institutional care for long periods and those using Medicaid institutional care for acute events. This study's operational definition of ILTC thus includes all care received in the selected institutions, whether or not a person is using them for LTSS.[9]

Analyses were limited to Medicaid enrollees eligible on the basis of disability or age and who were eligible for full Medicaid benefits in 2009.[10] We excluded enrollees in the Program of All-Inclusive Care for the Elderly (PACE) and other managed care plans because information on their use of services (HCBS or institutional care) is missing or

[8] An individual can receive both HCBS and institutional care during the year.

[9] The PS files do not contain information on the timing or length of institutional stays. MAX claims, which were not used for this study, are needed for such analyses.

[10] The population of enrollees eligible for full Medicaid benefits excludes the following enrollees with restricted Medicaid benefits: Medicare-Medicaid enrollees who are eligible only for Medicare cost-sharing, aliens eligible only for emergency services, individuals eligible only for family-planning services, and individuals eligible only for premium assistance support toward the purchase of private health insurance.

unreliable in MAX in many states. We also reviewed MAX 2009 data documentation to identify data quality concerns related to LTSS use in each state. Based on these assessments, we excluded from the analysis 13 states with MAX fee-for-service (FFS) data that are potentially unrepresentative or unreliable due to high levels of managed care penetration among the aged and disabled population or due to data quality concerns. The excluded states are Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin. Finally, we could not differentiate enrollees with physical disabilities from those with ID/DD in the District of Columbia, Vermont, and Washington, and excluded these states from the relevant subgroup analyses. A more detailed discussion of the MAX data, analyzed measures, and methods used is in Appendix B. Appendix C lists state-specific MAX data anomalies for 2009.

The analysis of state constraints and policies related to LTSS provision relied on a wide range of publicly available data sources. When available, we used data from 2009 to capture policies in place and state characteristics at the time that services were being used.

G. Road Map to This Report

In the following chapters, we characterize Medicaid LTSS system performance (Chapter II) and present the results of our exploratory analysis linking state characteristics and policies with system performance indicators (Chapter III). In both chapters, we present findings for the overall LTSS population, as well as for aged enrollees (over 65), those under 65 with physical disabilities, and people with ID/DD. In Chapter IV, we summarize these results and discuss directions for future research.

II. VARIATION IN LONG-TERM SERVICES AND SUPPORTS SYSTEM PERFORMANCE

Policymakers are interested in learning about states' progress in incorporating HCBS into their LTSS systems, and the extent to which they can provide LTSS in the community for important subgroups of Medicaid enrollees who are aged or have disabilities. In this chapter, we summarize the variation in LTSS balance across states in 2009, overall, and for key subpopulations of enrollees, including aged individuals and, for those under 65 with disabilities, by whether or not they used LTSS designed for people with ID/DD. To assess recent state-level progress on balancing LTSS systems toward HCBS use, we compare our results from 2009 to previously published results that used 2006 data.

A. Measures Characterizing LTSS System Performance

As Wenzlow et al. (2011) argue, no single measure fully captures LTSS system performance in terms of the breadth of the population covered, and the breadth and intensity of services provided. For this reason, we used a combination of measures to capture variation in system performance across states, including the:

- Percentage of Medicaid LTSS expenditures allocated to HCBS.
- Percentage of LTSS users receiving HCBS.
- Ratio of per-recipient spending on HCBS to spending on institutional care.

Although the first two measures are commonly used indicators of the degree to which states have balanced their LTSS systems toward HCBS use and spending relative to institutional care, each is limited, to some degree, and therefore should be interpreted with some caution. The share of LTSS expenditures allocated to HCBS is expected to increase as community care becomes a more frequently used component of LTSS. However, variation in expenditures can arise both from variation in the number served and from variation in payment rates. Thus, a state that increased its payments to institutional providers, perhaps as a result of imposing new minimum staffing standards, would show a decline in the percentage of LTSS expenditures allocated to HCBS, even though one might argue that overall balance had not changed or that this policy change is beneficial for people who need LTSS.

The percentage of LTSS users who receive HCBS is a similarly imperfect measure of differences across states. HCBS users are far more heterogeneous in their care needs than are users of institutional care. Some may be as impaired as those in nursing

homes or ICFs/IID. Others may simply be people who received a few home health visits at some point during a year. States that allow many users to access HCBS, but impose limits on its quantity, might show a high value for the percentage of LTSS users who receive HCBS. In those states, much of HCBS is provided in amounts too low to substitute for institutional care. As a result of the problems just noted, it would appear reasonable to look to states with high values for both measures when seeking to identify those that had most successfully transitioned to a high level of community LTSS. The third measure captures the extent to which state spending on HCBS per user is similar to state spending on institutional care.

This may be a proxy indicator -- although an imperfect one -- for generosity of HCBS coverage. (It is imperfect as a measure of coverage generosity because states that provide predominantly agency-delivered aide services typically pay a higher hourly rate than states that rely primarily on consumer-directed independent providers; it thus could mix price and quantity effects.) In any case, consumer advocates have long argued that “money should follow the person” (not the provider), by which they mean that state Medicaid programs should be willing to spend as much on HCBS as they would be willing to spend on institutional care for someone with comparable disabilities. However, because HCBS users tend to be less severely disabled than nursing home residents, and nursing home care also encompasses room and board in addition to the cost of providing functional assistance, a ratio of per-user cost of HCBS to per-user cost of ILTC approaching 1:1 might raise the question of whether the average level of spending on HCBS per user could make it difficult for the state to afford to serve all Medicaid beneficiaries who qualify for HCBS coverage. An exceptionally high ratio of per-user spending on HCBS compared to per-user spending on ILTC might be associated with more restrictive level-of-care need criteria for coverage of both HCBS and institutional care and/or with HCBS waiver enrollment caps that have required establishing waiting lists.

B. Interstate Differences

Across the 38 study states, about 45 million enrollees were eligible for full Medicaid services in 2009, with about 10.5 million eligible on the basis of age or disability. About 7 percent of all full-benefit enrollees and almost 30 percent of enrollees who were aged or disabled used any FFS LTSS -- with higher rates of HCBS than of ILTC use (Table II.1). (See Appendix Table D.1 for state-level detail.) Medicaid-financed LTSS included in these estimates include HCBS (including 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing), as well as institutional services (including services provided in nursing homes and ICFs/IID). The list of states differs slightly from those appearing in Wenzlow et al. (2011), but LTSS utilization rates are consistent with findings in that report, which showed that just over 7 percent of all full-benefit enrollees used LTSS, and almost 5 percent used HCBS.

TABLE II.1. Number of Enrollees Who Were Aged or Eligible on the Basis of Disability Using Medicaid FFS LTSS Compared to the Total Number of Full-Benefit Enrollees in 2009					
Measure	**All Full-Benefit Medicaid Enrollees**	**Full-Benefit Aged or Medicaid Enrollees with Disabilities**	**Aged or Disabled with Any FFS LTSS**	**Aged or Disabled with Any FFS HCBS**	**Aged or Disabled with Any FFS ILTC**
Number, in thousands	45,081	10,515	3,130	2,085	1,205
Percentage of all full-benefit Medicaid enrollees	100.0	23.3	6.9	4.6	2.7
Percentage of full-benefit aged or Medicaid enrollees with disabilities	---	100.0	29.8	19.8	11.5

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21

TABLE II.2. Expenditure and Utilization-Based Measures of LTSS System Performance Among Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2009, Ranked by HCBS Share											
State Rank			States Ranked by Percentage of LTSS $ for HCBS			States Ranked by Percentage of LTSS Users Receiving HCBS			States Ranked by the Ratio of Per-User $ on HCBS Relative to Per-User $ on ILTC		
$	#	Ratio	State	Total LTSS $	% of Medicaid LTSS $ Allocated to HCBS	State	Total LTSS Users	% of LTSS Users Receiving HCBS	State	Per-User $ on HCBS	HCBS $ Per-User/ ILTC $ Per-User
			All 38 States	**90,014,728,763**	**45.3**	**All 38 States**	**3,130,010**	**66.6**	**All 38 States**	**19,547**	**0.478**
1	3	2	Washington	1,930,549,587	74.8	Alaska	7,764	89.6	New Hampshire	31,664	1.018
2	1	28	Alaska	344,563,447	73.8	California	664,249	84.9	Washington	21,284	0.857
3	7	6	Vermont	298,904,023	61.2	Washington	82,971	81.7	Indiana	28,928	0.829
4	2	35	California	12,064,245,829	60.8	Idaho	19,703	80.0	Utah	28,505	0.771
5	8	16	Colorado	1,300,230,159	57.6	Iowa	55,299	74.5	Wyoming	26,736	0.738
6	15	5	Wyoming	206,001,295	56.4	North Carolina	149,371	73.8	Vermont	23,243	0.726
7	12	8	Kansas	1,006,566,458	56.2	Vermont	10,701	73.6	Nebraska	21,932	0.695
8	26	1	New Hampshire	463,202,438	53.6	Colorado	46,665	73.3	Kansas	20,087	0.683
9	11	18	District of Columbia	590,462,733	50.5	Virginia	59,028	72.6	Louisiana	21,569	0.664
10	16	12	New York	20,116,573,292	50.0	Missouri	96,068	70.0	South Dakota	20,285	0.663
11	9	13	Virginia	1,775,061,683	48.7	District of Columbia	11,121	68.5	Delaware	37,758	0.653
12	6	34	North Carolina	3,182,180,366	45.8	Kansas	41,457	67.9	New York	45,150	0.630
13	22	14	Maryland	1,996,568,849	45.7	Nevada	13,403	67.9	Virginia	20,181	0.602
14	13	29	Nevada	339,047,042	45.6	Alabama	63,918	67.7	Maryland	28,423	0.599
15	10	26	Missouri	1,836,511,964	45.0	Wyoming	6,561	66.3	Georgia	17,987	0.594
16	18	20	Oklahoma	1,151,255,033	43.7	New York	345,398	64.5	Colorado	21,887	0.578
17	31	4	Utah	369,135,855	42.7	South Carolina	45,072	63.1	Ohio	21,492	0.567
18	4	36	Idaho	461,085,970	42.5	Oklahoma	53,604	62.5	District of Columbia	39,142	0.536
19	5	33	Iowa	1,355,006,858	42.2	Texas	246,814	61.1	Connecticut	27,961	0.525
20	27	7	Nebraska	612,132,766	42.1	West Virginia	28,750	61.1	Oklahoma	15,030	0.513
21	19	21	Texas	5,505,748,864	42.1	New Jersey	102,389	60.2	Texas	15,356	0.503
22	17	27	South Carolina	1,075,756,276	41.4	Maryland	53,822	59.6	North Dakota	23,223	0.496
23	20	23	West Virginia	902,596,728	41.2	Ohio	168,011	59.3	West Virginia	21,142	0.489
24	23	17	Ohio	5,415,944,206	39.6	Illinois	155,287	57.7	Kentucky	16,914	0.478
25	30	10	South Dakota	286,371,345	38.2	Connecticut	57,372	56.3	Illinois	13,974	0.474
26	32	9	Louisiana	2,035,834,502	38.0	New Hampshire	13,941	56.2	Missouri	12,289	0.461
27	25	19	Connecticut	2,498,041,847	36.2	Nebraska	21,549	54.5	South Carolina	15,658	0.442
28	38	3	Indiana	2,160,937,796	36.0	Florida	140,198	51.9	Alaska	36,547	0.438
29	33	11	Delaware	340,623,579	35.9	Arkansas	41,000	51.2	Nevada	16,990	0.435
30	24	25	Illinois	3,540,342,818	35.4	South Dakota	10,680	50.5	Florida	17,164	0.411
31	21	32	New Jersey	3,835,410,402	33.6	Utah	10,975	50.4	Arkansas	12,867	0.388
32	36	15	Georgia	1,683,701,045	33.0	Louisiana	72,174	49.7	New Jersey	20,897	0.362
33	28	30	Florida	4,155,577,858	30.0	Delaware	6,710	48.2	Iowa	13,882	0.354

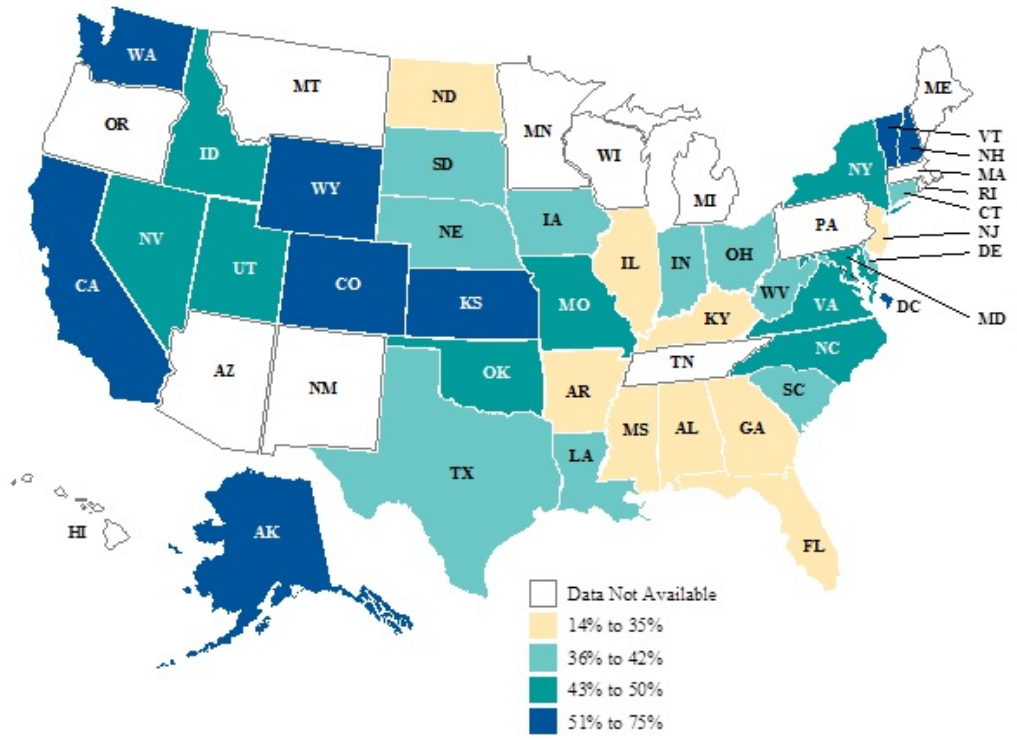
TABLE II.2 (*continued*)											
State Rank			States Ranked by Percentage of LTSS $ for HCBS			States Ranked by Percentage of LTSS Users Receiving HCBS			States Ranked by the Ratio of Per-User $ on HCBS Relative to Per-User $ on ILTC		
$	#	Ratio	State	Total LTSS $	% of Medicaid LTSS $ Allocated to HCBS	State	Total LTSS Users	$ of LTSS Users Receiving HCBS	State	Per-User $ on HCBS	HCBS $ Per-User/ ILTC $ Per-User
34	14	37	Alabama	1,332,176,146	29.7	Mississippi	40,506	46.6	North Carolina	13,204	0.346
35	35	22	North Dakota	338,845,939	28.1	North Dakota	8,846	46.4	California	12,993	0.343
36	29	31	Arkansas	989,454,103	27.3	Georgia	66,755	46.2	Idaho	12,425	0.261
37	37	24	Kentucky	1,342,891,916	27.2	Kentucky	47,681	45.3	Alabama	9,154	0.244
38	34	38	Mississippi	1,175,187,746	14.7	Indiana	64,197	41.9	Mississippi	9,172	0.208

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

Medicaid spent $90 billion on LTSS in 2009 in the 38 states in this study (Table II.2). These expenditures represented about 55 percent of total Medicaid expenditures for aged and enrollees with disabilities in these states. (See Appendix Table D.2 for state-level detail, presented alphabetically by state.) Nationwide, about 45 percent of Medicaid LTSS expenditures were allocated to HCBS, from about 15 percent in Mississippi to 75 percent in Washington.

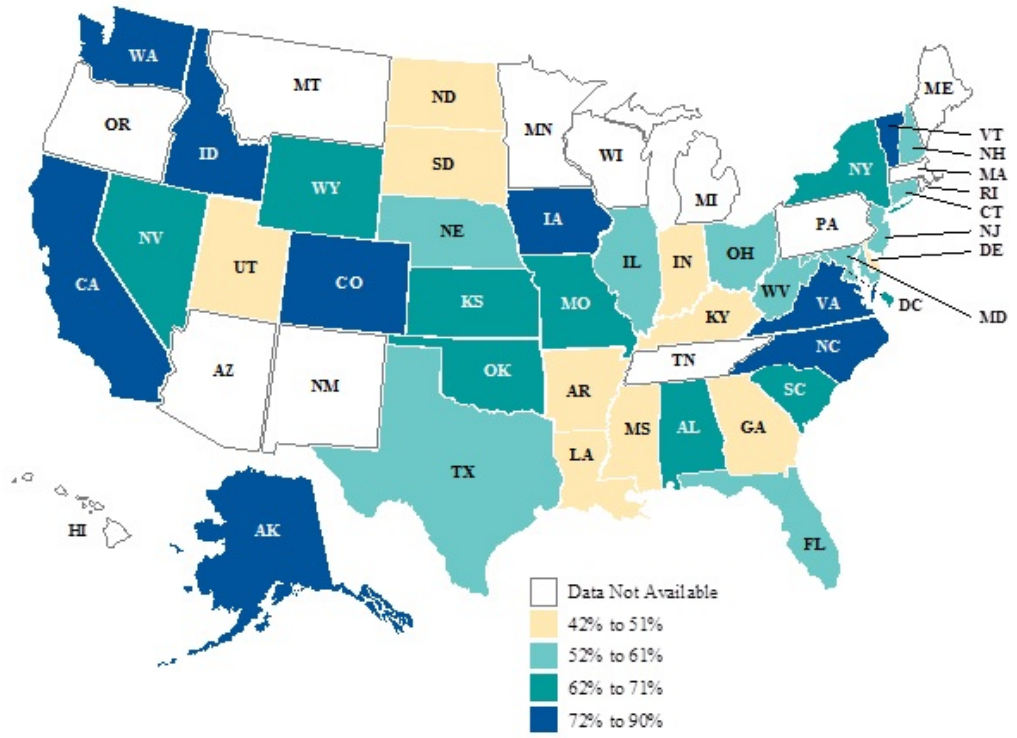
FIGURE II.1. Percentage of LTSS Expenditures for HCBS in 2009



SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

As reported in previous studies, the percentage of LTSS recipients using HCBS exceeded the percentage of expenditures for HCBS (Table II.2). Overall, about 45 percent of LTSS expenditures in the 38 states were for HCBS, whereas more than 66 percent of LTSS users received HCBS. We found wide variation in rates of HCBS use across the states -- almost 90 percent of LTSS recipients in Alaska used HCBS, compared to just 42 percent in Indiana. Figure II.1 and Figure II.2 show the range of state variation in these measures in 2009. The figures display the ranges of HCBS spending and use across states and highlight regional variations in HCBS patterns. A broad consistency in ranking is evident in the figures. Although performance rankings for a number of states move them one group higher or lower across the two figures, rankings for only two states, Alabama and New Hampshire, shifted by two categories across figures.

FIGURE II.2. Percentage of LTSS Users Receiving HCBS in 2009



SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

These data also demonstrate how the two measures (the percentage of LTSS expenditures for HCBS and the percentage of LTSS users receiving HCBS) can be used together to identify states that emphasize HCBS the most in their LTSS systems, as well as states that rely least on these services. Although there are a few states for which the rankings on these measures differ considerably, for most states, particularly those performing at the top and bottom of the rankings, performance on the two measures is generally comparable. Alaska, California, Colorado, Vermont, and Washington all rank near the top for both measures, and the consistency of the rankings for these states indicates that they cover broad populations of LTSS users and provide an array of services in the community. Arkansas, Kentucky, Mississippi, and North Dakota all fall near the bottom for both measures, suggesting that HCBS in these states reach fewer LTSS users and may include fewer services.

Among states for which relative performance on the measures varied, these differences may suggest different strategies for balancing institutional and community LTSS. New Hampshire, for example, ranks high for percentage of expenditures allocated to HCBS and relatively low for percentage of LTSS enrollees receiving HCBS. These rankings indicate that the state provided comparatively high levels of HCBS, either in terms of volume or cost of services, to a relatively narrow population of LTSS

users. In contrast, Alabama ranks near the bottom in expenditures for HCBS but relatively high for percentage of LTSS users receiving HCBS. In this state, HCBS appear to be reaching a broader population of LTSS users, but these services may be more limited or more poorly compensated than those provided in other states.

State rankings were less consistent for the third measure we assessed: the ratio of per-user expenditures on HCBS relative to per-user expenditures on ILTC. As indicated above, this measure indicates less about the reach or depth of HCBS in a state and more about the relative costs of providing HCBS and institutional care. Nationwide, per-user expenditures for HCBS ($19,547) averaged about half of per-user expenditures for institutional care. (For every dollar spent on institutional care, 48 cents were spent on HCBS.) This ratio also varied substantially by state, with New Hampshire spending about the same amount per user on HCBS as on institutional care ($1.02 for every dollar spent per user of institutional care). At the other extreme, Mississippi spent only 21 cents on HCBS for every dollar spent per user of institutional care. Such discrepancies indicate that states either provide very different levels and types of HCBS to their recipients or pay substantially different rates for services, compared to institutional care rates.

C. LTSS System Performance Indicators by System Type (Aged, ID/DD, Non-ID/DD)

As found in the 2006 analysis, HCBS use and expenditures were greater among younger enrollees with disabilities than among enrollees age 65 or older. HCBS accounted for an average of 30 percent of LTSS spending among all enrollees age 65 and older, compared with 59 percent for those under 65. Breaking down these age groups, the percentage of total LTSS spending for HCBS peaked at 72 percent for people under age 21, dropped to 50 percent for people between ages 45 and 64, and fell to a low of 22 percent for those age 85 and older (Table II.3).

High rates of HCBS use among individuals with ID/DD account for some of the differences in HCBS use between enrollees who are aged and those under age 65. People with ID/DD are primarily under age 65 and make up a sizable portion of enrollees under age 65 with disabilities. More than 86 percent of these enrollees used HCBS (compared to 67 percent overall and 78 percent of those with other disabilities). HCBS accounted for 65 percent of Medicaid LTSS spending for these enrollees (compared to 45 percent overall and 49 percent for those with physical disabilities). Per-user spending on HCBS for people with ID/DD was more than $45,000 in 2009, higher than for any other subgroup shown in Table II.3. However, Medicaid spent only 36 cents per user on HCBS for every dollar spent for people using costly ICF/IID care.

TABLE II.3. Expenditure and Utilization-Based Measures of the Balance of LTSS Among Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2009, by Population Subgroup						
Subgroup	**Total LTSS $**	**% of Medicaid LTSS $ Allocated to HCBS**	**Total LTSS Users**	**% of LTSS Users Receiving HCBS**	**Per-User $ on HCBS**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Total	**90,014,728,763**	**45.3**	**3,130,010**	**66.6**	**19,547**	**0.609**
Enrolled all year	82,020,013,747	47.7	2,573,776	71.5	21,259	0.534
Aged (65 and older)	43,542,067,317	30.2	1,699,811	54.5	14,184	0.493
Enrollees with disabilities (under 65)	46,472,661,446	59.4	1,430,199	81.0	23,840	0.506
Under age 21	6,000,339,459	72.1	217,772	88.6	22,418	0.523
21-44 years	17,805,713,908	66.5	441,201	86.3	31,105	0.427
45-64 years	23,240,331,758	50.1	791,221	75.4	19,518	0.508
65-74 years	11,050,527,050	39.8	481,843	67.7	13,483	0.439
75-84 years	15,682,873,911	31.9	638,191	57.1	13,731	0.478
85 years and older	16,211,595,916	21.7	556,311	39.7	15,963	0.560
Enrollees under 65, excluding people with ID/DD[a]	17,073,802,672	49.0	920,598	78.0	11,638	0.326
Enrollees Under 65 with ID/DD[a]	27,890,359,407	64.5	458,937	86.1	45,550	0.363
Non-Hispanic White	57,500,212,184	41.8	1,826,107	59.3	22,170	0.690
Black	18,314,102,656	44.5	665,797	70.1	17,466	0.530
Hispanic	7,849,081,287	58.2	352,288	82.1	15,806	0.471
Other or missing race	6,351,332,636	63.2	285,818	86.0	16,337	0.435
Female	51,462,981,612	42.7	1,927,997	65.2	17,474	0.600
Male	38,550,764,690	48.7	1,201,964	68.8	22,699	0.608
Not a dual-eligible	23,153,664,455	58.6	831,187	82.1	19,899	0.506
Sometimes a dual-eligible	2,897,172,775	39.0	167,810	61.1	11,026	0.647
Always a dual-eligible	63,963,891,533	40.7	2,131,013	61.0	20,035	0.558

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Excludes data from District of Columbia, Vermont, and Washington (people with ID/DD could not be distinguished from other enrollees in these states).

TABLE II.4. Percentage of LTSS Expenditures Allocated to HCBS in 2009, by Age and System Type										
State	Aged (65+)		Enrollees with Disabilities Under Age 65							
			Total		Enrollees with Physical Disabilities		Enrollees with ID/DD		Enrollees with ID/DD Including Small ICF	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
All 38 (or 35) States	**30.2**	**---**	**59.4**	**---**	**49.0**	**---**	**64.5**	**---**	**67.7**	**---**
Washington	58.5	1	89.1	2	NA	---	NA	---	NA	---
Alaska	58.5	2	85.0	4	73.2	2	97.4	2	99.0	2
Vermont	24.6	17	92.2	1	NA	---	NA	---	NA	---
California	50.8	3	70.8	9	62.6	5	79.0	14	87.1	7
Colorado	27.2	10	82.0	6	68.1	3	93.8	4	94.2	3
Wyoming	16.5	27	83.8	5	55.8	10	91.1	5	91.1	5
Kansas	26.4	11	79.4	7	75.4	1	82.1	8	84.0	10
New Hampshire	19.7	22	87.2	3	62.5	6	99.0	1	99.0	1
District of Columbia	38.4	5	60.7	18	NA	---	NA	---	NA	---
New York	41.9	4	56.9	27	46.4	16	60.8	24	61.4	28
Virginia	25.5	12	69.7	10	48.7	13	83.2	7	84.1	9
North Carolina	31.7	6	59.2	20	67.8	4	52.6	28	64.4	25
Maryland	17.6	26	71.8	8	42.6	19	93.8	3	93.8	4
Nevada	27.5	9	62.1	16	42.3	20	82.0	9	86.0	8
Missouri	22.5	20	65.7	12	49.8	12	79.7	11	79.8	12
Oklahoma	24.7	16	60.5	19	43.9	18	70.7	20	71.7	21
Utah	9.5	35	56.4	28	14.2	35	72.9	18	72.9	19
Idaho	25.0	15	57.7	26	57.6	8	57.8	26	67.9	22
Iowa	29.1	7	51.7	32	53.0	11	51.3	30	56.0	30
Nebraska	18.2	24	63.2	14	38.9	23	77.3	15	77.9	15
Texas	28.4	8	53.6	30	61.4	7	47.9	33	55.0	31
South Carolina	20.5	21	62.8	15	57.0	9	65.6	22	65.6	24
West Virginia	16.0	28	68.0	11	44.8	17	80.6	10	83.3	11
Ohio	24.5	18	54.9	29	47.1	15	60.4	25	62.3	26
South Dakota	10.3	32	63.8	13	19.1	33	79.3	13	79.3	14
Louisiana	25.4	14	46.3	34	41.4	21	48.7	32	60.5	29
Connecticut	17.7	25	58.5	22	27.4	31	71.3	19	77.8	16
Indiana	11.9	30	58.0	24	47.3	14	63.2	23	72.8	20
Delaware	12.8	29	58.0	23	27.9	30	77.3	16	77.3	17
Illinois	25.4	13	42.1	36	35.5	25	47.9	34	48.6	34
New Jersey	24.4	19	44.5	35	36.2	24	49.4	31	49.4	33
Georgia	10.4	31	61.7	17	39.3	22	79.6	12	79.6	13
Florida	7.2	37	57.8	25	32.3	26	73.5	17	75.1	18
Alabama	10.2	33	58.9	21	26.8	32	88.7	6	88.7	6
North Dakota	8.6	36	49.3	33	28.3	29	54.7	27	62.2	27

TABLE II.4 (*continued*)										
State	**Aged (65+)**		**Enrollees with Disabilities Under Age 65**							
			Total		**Enrollees with Physical Disabilities**		**Enrollees with ID/DD**		**Enrollees with ID/DD Including Small ICF**	
	% HCBS	**Rank**	**% HCBS**	**Rank**	**% HCBS**	**Rank**	**% HCBS**	**Rank**	**% HCBS**	**Rank**
Arkansas	18.8	23	37.8	37	18.0	34	51.4	29	51.4	32
Kentucky	6.4	38	51.9	31	31.2	27	67.4	21	67.4	23
Mississippi	10.1	34	20.7	38	28.5	28	14.6	35	14.7	35

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).
NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

NA = not available (in this state, people with ID/DD could not be distinguished from other enrollees).

TABLE II.5. Percentage of LTSS Users Receiving HCBS in 2009, by Age and System Type										
State	Aged (65+)		Enrollees with Disabilities Under Age 65							
			Total		Enrollees with Physical Disabilities		Enrollees with ID/DD		Enrollees with ID/DD Including Small ICF	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
All 38 (or 35) states	**54.5**	**---**	**81.0**	**---**	**78.0**	**---**	**86.1**	**---**	**88.5**	**---**
Alaska	85.5	1	92.7	1	90.0	3	99.2	2	99.8	1
California	80.2	2	90.9	4	90.4	1	92.0	12	96.3	10
Washington	74.5	3	89.7	8	NA	---	NA	---	NA	---
Idaho	69.9	4	87.7	11	88.3	6	86.0	22	92.7	14
Iowa	62.8	5	86.7	13	87.6	7	85.6	23	87.4	22
North Carolina	61.5	6	87.1	12	90.4	2	72.9	31	81.5	27
Vermont	54.3	12	92.3	2	NA	---	NA	---	NA	---
Colorado	55.4	11	90.4	5	86.5	8	98.5	3	98.8	3
Virginia	58.5	9	91.4	3	88.6	4	96.8	6	97.0	6
Missouri	57.7	10	83.9	15	81.7	11	94.0	11	94.0	12
District of Columbia	59.1	7	77.5	23	NA	---	NA	---	NA	---
Kansas	44.8	20	89.6	10	84.8	9	97.5	5	97.6	5
Nevada	58.8	8	78.7	21	72.5	20	94.2	10	96.6	9
Alabama	38.1	24	89.6	9	88.4	5	96.6	8	96.6	8
Wyoming	37.6	25	89.8	6	80.8	12	96.7	7	96.7	7
New York	51.0	16	81.7	17	74.6	17	90.8	15	91.2	18
South Carolina	44.1	21	84.9	14	84.8	10	85.1	24	85.1	24
Oklahoma	52.2	13	75.4	26	74.7	16	77.2	29	78.4	31
Texas	52.1	14	73.3	30	75.9	15	67.2	33	74.3	33
West Virginia	40.7	23	81.2	18	76.9	14	90.6	16	91.9	16
New Jersey	51.9	15	75.4	27	72.8	19	80.5	26	80.5	29
Maryland	32.3	29	83.1	16	73.1	18	98.3	4	98.3	4
Ohio	50.6	17	71.0	31	65.9	27	78.9	28	80.1	30
Illinois	48.9	18	66.7	35	57.7	32	89.2	19	89.2	20
Connecticut	42.3	22	78.5	22	71.9	21	89.3	18	93.0	13
New Hampshire	32.4	28	89.8	7	79.9	13	99.6	1	99.6	2
Nebraska	37.4	26	76.6	24	66.8	25	89.7	17	90.0	19
Florida	27.2	33	78.8	20	67.9	23	91.6	13	92.2	15
Arkansas	45.1	19	61.3	37	57.0	33	69.9	32	69.9	34
South Dakota	25.7	34	81.0	19	53.6	34	95.3	9	95.3	11
Utah	20.4	37	68.4	34	42.1	35	83.7	25	83.7	25
Louisiana	31.2	30	63.6	36	62.1	31	66.4	34	77.1	32
Delaware	27.3	32	75.6	25	70.6	22	87.2	21	87.2	23
Mississippi	37.3	27	60.0	38	66.4	26	42.5	35	42.5	35
North Dakota	27.6	31	74.4	29	67.3	24	79.5	27	83.3	26

TABLE II.5 (*continued*)										
State	Aged (65+)		Enrollees with Disabilities Under Age 65							
			Total		Enrollees with Physical Disabilities		Enrollees with ID/DD		Enrollees with ID/DD Including Small ICF	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
Georgia	24.3	35	75.2	28	63.9	29	91.2	14	91.2	17
Kentucky	23.4	36	69.8	32	64.1	28	89.2	20	89.2	21
Indiana	19.9	38	69.0	33	63.4	30	74.8	30	80.9	28

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).
NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

NA = not available (in this state, people with ID/DD could not be distinguished from other enrollees).

TABLE II.6. Ratio of Per-User Expenditures on HCBS Relative to Per-User Expenditures on Institutional Care in 2009, by Age and System Type								
State	Aged (65+)		Enrollees with Disabilities Under Age 65					
			Total		Enrollees with Physical Disabilities		Enrollees with ID/DD	
	Ratio	Rank	Ratio	Rank	Ratio	Rank	Ratio	Rank
All 38 (or 35) states	**0.408**	**---**	**0.418**	**---**	**0.326**	**---**	**0.363**	**---**
New Hampshire	0.563	5	1.108	3	0.582	3	1.443	1
Washington	0.610	3	1.296	2	NA	---	NA	---
Indiana	0.564	4	0.702	5	0.606	2	0.620	4
Utah	0.423	9	0.649	6	0.248	24	0.568	5
Wyoming	0.359	17	0.725	4	0.377	12	0.404	18
Vermont	0.343	22	1.451	1	NA	---	NA	---
Nebraska	0.421	10	0.630	7	0.379	11	0.471	12
Kansas	0.480	7	0.594	13	0.639	1	0.349	26
Louisiana	0.771	1	0.561	16	0.499	6	0.519	7
South Dakota	0.353	18	0.507	22	0.235	27	0.300	29
Delaware	0.419	11	0.506	23	0.185	33	0.543	6
New York	0.770	2	0.371	30	0.362	13	0.212	35
Virginia	0.363	16	0.620	10	0.352	14	0.430	15
Maryland	0.464	8	0.578	14	0.300	16	0.382	23
Georgia	0.372	15	0.576	15	0.396	10	0.411	17
Colorado	0.344	21	0.628	8	0.421	8	0.422	16
Ohio	0.408	12	0.603	11	0.578	4	0.452	13
District of Columbia	0.484	6	0.529	19	NA	---	NA	---
Connecticut	0.341	23	0.518	20	0.200	32	0.371	24
Oklahoma	0.329	25	0.553	17	0.298	18	0.755	3
Texas	0.395	13	0.466	26	0.575	5	0.472	11
North Dakota	0.268	33	0.392	29	0.234	29	0.346	27
West Virginia	0.294	30	0.601	12	0.299	17	0.515	8
Kentucky	0.231	34	0.532	18	0.287	20	0.327	28
Illinois	0.393	14	0.474	25	0.437	7	0.386	21
Missouri	0.279	32	0.488	24	0.284	21	0.499	9
South Carolina	0.347	20	0.332	31	0.266	23	0.362	25
Alaska	0.312	28	0.625	9	0.407	9	0.910	2
Nevada	0.286	31	0.511	21	0.315	15	0.387	20
Florida	0.212	36	0.393	28	0.241	25	0.271	31
Arkansas	0.308	29	0.409	27	0.176	34	0.489	10
New Jersey	0.322	26	0.293	33	0.240	26	0.254	32
Iowa	0.352	19	0.218	37	0.225	30	0.220	34
North Carolina	0.331	24	0.261	35	0.296	19	0.433	14

TABLE II.6 (*continued*)								
State	**Aged (65+)**		**Enrollees with Disabilities Under Age 65**					
			Total		**Enrollees with Physical Disabilities**		**Enrollees with ID/DD**	
	Ratio	**Rank**	**Ratio**	**Rank**	**Ratio**	**Rank**	**Ratio**	**Rank**
California	0.314	27	0.313	32	0.235	28	0.384	22
Idaho	0.198	37	0.284	34	0.282	22	0.288	30
Alabama	0.213	35	0.241	36	0.069	35	0.392	19
Mississippi	0.197	38	0.185	38	0.219	31	0.238	33

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

NA = not available (in this state, people with ID/DD could not be distinguished from other enrollees).

Medicaid LTSS users typically are regarded as belonging to one of three distinct subpopulations: (1) elderly people who are frail or have dementia; (2) non-elderly adults with physical disabilities; and (3) people with ID/DD.[11] In general, individuals in these groups are likely to have different service needs and preferences. Older adults are more likely to have multiple chronic diseases, needing prescription medications and durable medical equipment, as well as services that address physical and cognitive limitations (Prohaska et al. 2012; Muramatsu et al. 2012). Individuals with ID/DD frequently use services such as case management, residential services, day supports, employment supports, personal care, respite, transportation, and clinical services. In addition, people with ID/DD may be more likely to live with family members who provide unpaid care (Smith et al. 2007). Table II.4, Table II.5 and Table II.6 show state performance scores and ranks for each of these subgroups for each of the three measures. In the District of Columbia, Vermont, and Washington, people with ID/DD could not be distinguished from those with physical disabilities; therefore, in these states, rates are shown only for the total population of enrollees with disabilities. The states in each table are ordered by the ranking on that measure for the total population of enrollees who are aged or have disabilities (as shown in Table II.2). (See Appendix Tables D.2-D.6 for a summary of performance indicators by state by subpopulation of enrollee.)

States with relatively high rates of HCBS spending overall did not always have consistently high rates of HCBS spending for all subgroups of enrollees. For example, the relatively high overall rankings for New Hampshire, Vermont, and Wyoming on the expenditure share measure (as shown by the ordering of states on Table II.4) appear to be driven primarily by high rates of expenditures among enrollees with disabilities and lower performance among aged enrollees. In comparison, the high ranks of the District of Columbia and New York appear driven by high rates of HCBS use among the aged.

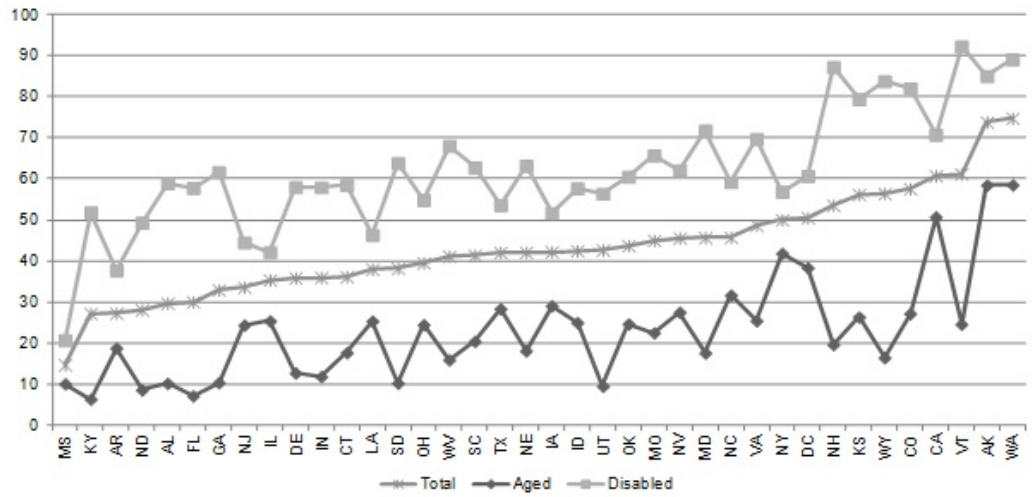
Figure II.3 compares expenditures for HCBS for the aged and individuals with disabilities, highlighting the consistency with which expenditures for HCBS for individuals with disabilities exceed those in the aged population. The figure also highlights how the difference in rates of expenditures for HCBS by subpopulation varied across states. In Alaska and Washington, for example, both groups of enrollees had high rates of expenditures for HCBS. In other states, such as New Hampshire and Vermont, the differential between the two subpopulations is quite large.

Table II.5 highlights the diversity in rankings on rates of HCBS use by subpopulation. The almost uniformly high rates of HCBS use among enrollees with disabilities across states are particularly notable (81 percent of LTSS users with disabilities received HCBS across all 38 states). Within the population of enrollees with disabilities, individuals with ID/DD have consistently high rates of HCBS use nationwide (86 percent of LTSS users, with only Mississippi reporting a rate under 66 percent of

[11] Medicaid programs and services also are available for people with mental illness. However, many people with mental illness use health care services for short durations rather than for LTC, and we were unable to identify long-term mental health care in MAX uniquely. In this study, we thus group people with mental illness by age with enrollees who are aged or have physical disabilities.

enrollees). These results indicate that, nationally, rates of HCBS use and expenditures, compared to rates of institutional care use, continue to be greater for people with ID/DD than for those who are aged or have physical disabilities. This phenomenon may be partly the cause and partly the result of the closure of many ICFs/IID. In addition, states began using HCBS waivers because of the flexible services and supports available that can accommodate individuals with an array of care needs in a targeted fashion without resorting to institutionalization (Smith et al. 2000).

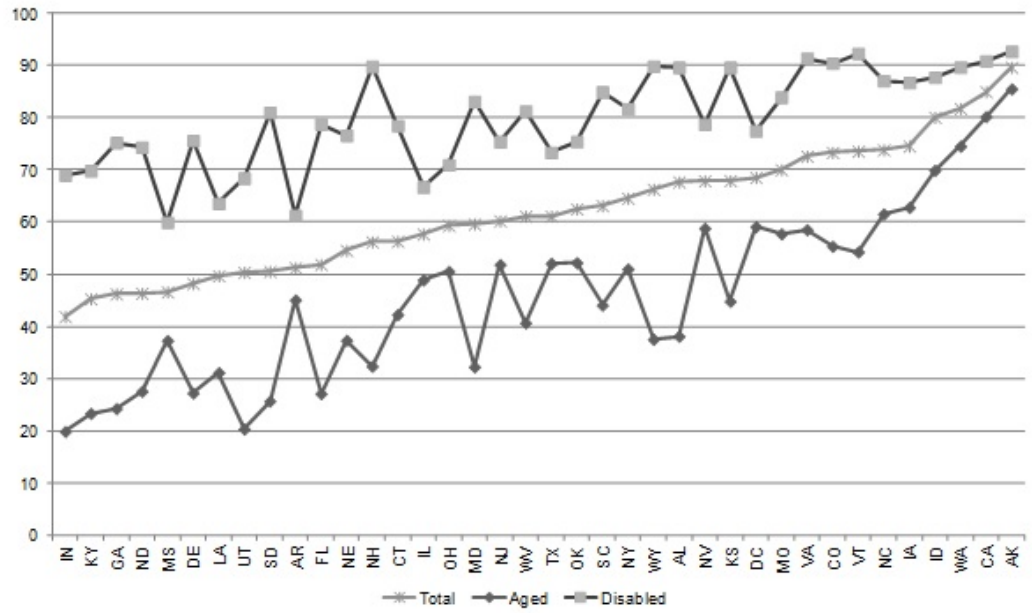
FIGURE II.3. Percentage of Medicaid LTSS Expenditures for HCBS in 2009, by Eligibility Group



SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).
NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. States in figure are sorted based on percentage of Medicaid LTSS expenditures overall for aged and enrollees with disabilities.

Given the consistently high rates of HCBS use among enrollees with disabilities, it appears that the top overall rankings for this measure were driven largely by the percentage of aged enrollees in each state receiving HCBS. For example, the top six states overall were the six states with the highest percentages of aged enrollees receiving HCBS. Similarly, Figure II.4 highlights how, for states with the highest rankings on this measure, the gap between the percentage of aged and enrollees with disabilities receiving HCBS is much narrower than for the states ranking near the bottom of this measure. In Alaska, the top-ranked state, the gap between aged and enrollees with disabilities receiving HCBS was only 7 percentage points (with 86 percent of aged LTSS users receiving HCBS and 93 percent of enrollees with disabilities). In comparison, in Indiana, the bottom-ranked state, the gap was 49 percentage points (with only 20 percent of aged LTSS users receiving HCBS and 69 percent of enrollees with disabilities using these services).

FIGURE II.4. Percentage of LTSS Users Receiving HCBS in 2009, by Eligibility Group



SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).
NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. States in figure are sorted based on percentage of Medicaid LTSS users receiving HCBS among all aged and enrollees with disabilities.

As Table II.4 and Table II.5 show, in most states, aged enrollees have the lowest HCBS spending and user shares, and individuals using ID/DD services have the highest rates. In some states, this discrepancy was extreme. In Utah, for example, 73 percent of LTSS expenditures for individuals with ID/DD were for HCBS, compared to only 14 percent for individuals with other disabilities and 10 percent for aged individuals. Similarly, in New Hampshire, more than 99 percent of individuals with ID/DD used HCBS, compared to 32 percent of aged enrollees. In New Hampshire as well, the notably high ratio of almost $1.45 in expenditures on HCBS to every dollar in expenditures for institutional care for individuals with ID/DD is in marked contrast to the state's ratio of spending less than 60 cents for every dollar for institutional care for enrollees who are aged or have physical disabilities (Table II.6).

Intrastate differences in HCBS expenditures and use across subpopulations of enrollees, particularly the distinctly higher rates among individuals with ID/DD, illustrate how some states have, by design or accident, achieved higher levels of balance for some populations than for others. In New Hampshire, for example, the uniquely high rate of HCBS use and expenditure for individuals with ID/DD may be the result of a historical emphasis on providing HCBS over institutional care to this subpopulation,

including closures of large institutional facilities for these populations, which has not been achieved to the same extent for other populations of LTSS users (Smith et al. 2000).

The varying balance between HCBS and institutional care within states may also reflect variation in state LTSS programs that serve these subpopulations, with programs for individuals with ID/DD nearly always operating separately from those for individuals who are aged or have physical disabilities. California, Idaho, Iowa, and North Carolina, for example, rank very high on the percentages of aged and enrollees with physical disabilities using HCBS, but lower on rates of HCBS use among individuals with ID/DD. Conversely, South Dakota and Utah had low rates of HCBS use among enrollees who are aged or have disabilities but report high rates of HCBS use among individuals with ID/DD. Such differences may result from distinct programs and policies or from different levels of interest and access to HCBS across subpopulations of enrollees.

The rightmost two columns of Table II.4 and Table II.5 expand the definition of "community care" for enrollees with ID/DD to include either receipt of HCBS or residence in any ICF/IID with six or fewer beds.[12] For most states, the expanded definition results in higher shares of expenditure for or users or community care, although, in most states, the increase is modest. In eight states (California, Connecticut, Idaho, Indiana, Louisiana, North Carolina, North Dakota, and Texas) the share of LTSS expenditure devoted to community care increased by more than five percentage points.

Finally, Table II.6 shows per-user expenditures on HCBS relative to per-user expenditures on ILTC by subpopulation. For all subpopulations, average HCBS expenditures were notably lower than rates of institutional care expenditures. HCBS expenditures for aged enrollees were slightly more similar to expenditures for institutional care users than they were for either group of younger enrollees with disabilities, but this pattern is not consistent in all states. Varying rates of HCBS and institutional care use and expenditures by subpopulation across states limit interstate comparisons based on these ratios. Instead, within states, these ratios highlight, but do not explain, differences in per-user spending by subpopulation.

A potential problem affecting state-level comparisons of the locus of LTSS is the absence of any adjustment for risk or casemix. States with generous eligibility for LTSS will probably have more enrollees who have relatively mild limitations receiving services. This, in turn, will tend to inflate both the share of expenditures accounted for by HCBS and the share of enrollees receiving HCBS, perhaps pushing them higher in the rankings seen in earlier tables. Those rankings, however, do not compare shares of spending or enrollees in LTSS spending for enrollees with similar degrees of limitation or frailty.

Although risk adjustment of Tables II.2-II.6 would help ensure a more accurate comparison of LTSS balance across states, the data available to us contain little or no

[12] Due to limitations in MAX facility identifiers, we were unable to ascertain the correct size of facility for enrollees who resided in facilities outside their own state.

information describing functional or cognitive limitations, ruling out the computation of standard LTC adjusters. We therefore adopted two fairly crude alternative comparisons, each relying on age as an adjuster, to assess the robustness of state rankings. The comparisons are carried out only on the 65+ population because the relationship of age to care needs is not well established among the disabled.

The first approach is simply to compare shares of LTSS expenditures for HCBS and shares of LTSS recipients who receive HCBS only in the 85+ population. Although the care needs for those 85 and older vary markedly, it is surely the case that this population is more homogeneous than the entire 65+ population. If state rankings for the two primary measures of balance differ sharply for the 65+ and 85+ populations, then at least some of the variation observed in Tables II.2-II.6 is probably accounted for by differences across states in the characteristics of people who receive LTSS rather than the underlying balance between community and institutional care. If the ranking is largely the same, say, with few states changing ten or more places in rank, then perhaps the absence of risk adjustment is not a serious drawback to existing comparisons.

The second approach attempts to gauge the extent to which a state's system of community care continues to meet the needs of LTSS recipients as their needs increase (on average) by comparing the ratio of the share of LTSS expenditures (or users) among the 85+ population to the corresponding share among the population aged 65-74. A high ratio suggests that as enrollees age, the state's HCBS system continues to address needs in the community. A low ratio suggests that a state needs to rely increasingly on institutional care as enrollees age. It is crucially important to recognize that this measure takes as given the share of LTSS care accounted for by HCBS among those aged 65-74. The measure indicates the degree to which a state is able to maintain community care for the 85+ population at the level that it provides it for the population aged 65-74, whatever that level happens to be. For lack of any better term, we refer to this ability as HCBS "persistence."

Results of these alternative rankings are shown in Table II.7, for the share of expenditures, and Table II.8, for the share of enrollees. Comparison of columns 2 and 3 in each of the tables indicates that rankings based on HCBS expenditures or users among the 85+ population were quite similar to those among the total aged (65+) population. In Table II.7, only Kansas shifted by ten or more places in rank. In Table II.8, none did. In both tables, there is a barely discernible tendency for southern states to rise slightly in the rankings. For the most part, however, this crude method of risk adjustment may indicate that state differences in casemix do not strongly affect rankings for these measures.

TABLE II.7. LTSS Expenditures Allocated to HCBS in 2009: Percentage Among Aged 65+, Percentage Among Those Aged 85+, and Ratio of Percentage Among Those Aged 85+ to Percentage Among Those Aged 65-74						
State	Aged 65+		Aged 85+		Ratio: % Among 85+/% Among 65-74	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
All 38 states	**30.2**	**---**	**21.7**	**---**	**0.55**	**---**
Washington	58.5	1	44.9	2	0.63	5
Alaska	58.5	2	49.6	1	0.80	1
California	50.8	3	39.3	3	0.67	4
New York	41.9	4	34.2	4	0.69	3
District of Columbia	38.4	5	28.7	5	0.63	6
North Carolina	31.7	6	24.0	6	0.59	10
Iowa	29.1	7	20.0	10	0.46	16
Texas	28.4	8	20.5	9	0.58	11
Nevada	27.5	9	17.9	11	0.49	15
Colorado	27.2	10	15.0	17	0.33	27
Kansas	26.4	11	13.5	21	0.29	29
Virginia	25.5	12	20.7	8	0.62	7
Illinois	25.4	13	14.7	19	0.42	20
Louisiana	25.4	14	21.4	7	0.72	2
Idaho	25.0	15	17.9	12	0.49	14
Oklahoma	24.7	16	14.3	20	0.40	21
Vermont	24.6	17	16.1	14	0.38	23
Ohio	24.5	18	17.6	13	0.51	13
New Jersey	24.4	19	15.5	15	0.44	18
Missouri	22.5	20	15.1	16	0.45	17
South Carolina	20.5	21	12.7	23	0.38	24
New Hampshire	19.7	22	9.2	26	0.23	33
Arkansas	18.8	23	14.7	18	0.61	8
Nebraska	18.2	24	13.3	22	0.52	12
Connecticut	17.7	25	9.3	25	0.29	28
Maryland	17.6	26	10.8	24	0.39	22
Wyoming	16.5	27	6.6	30	0.18	36
West Virginia	16.0	28	7.7	28	0.25	31
Delaware	12.8	29	6.2	32	0.28	30
Indiana	11.9	30	5.1	34	0.22	35
Georgia	10.4	31	7.0	29	0.43	19
South Dakota	10.3	32	5.4	33	0.22	34
Alabama	10.2	33	6.3	31	0.34	26
Mississippi	10.1	34	7.7	27	0.59	9
Utah	9.5	35	4.0	36	0.24	32
North Dakota	8.6	36	2.9	37	0.16	37
Florida	7.2	37	4.6	35	0.37	25
Kentucky	6.4	38	2.2	38	0.15	38

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).
NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged.

Columns 2 and 4 of Table II.7 and Table II.8 point to two overall results concerning HCBS persistence as defined just above. First, those states that rank highest in HCBS balance, measured using either expenditures or user, also tend to rank highest on the HCBS persistence measure. For expenditures (Table II.7), six of the ten states ranked in the top 10 among the 65+ population also ranked in the top 10 in persistence. For percentage of enrollees, eight of the ten states ranked in the top 10 for the 65+ population also ranked in the top 10 in persistence. High performance in overall measures of community care appears to predict high performance in persistence. Second, there was greater overall divergence between persistence rankings and

rankings on spending and use in the 65+ population. Nine states had rankings on the persistence measure that differed by ten or more places from their ranking on share of LTSS expenditures allocated to HCBS (Table II.7). Twelve states' rankings differed by ten or more places on share of HCBS users among LTSS users (Table II.8).

TABLE II.8. Users Receiving HCBS in 2009: Percentage Among Those Aged 65+, Percentage Among Those Aged 85+, and Ratio of Percentage Among Those Aged 85+ to Percentage Among Those Aged 65-74

State	Aged 65+		Aged 85+		Ratio: % Among 85+/% Among 65-74	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
All 38 states	**38.0**	**---**	**39.7**	**---**	**0.59**	**---**
Alaska	85.5	1	79.9	1	0.91	1
California	80.2	2	67.9	2	0.79	2
Washington	74.5	3	64.3	3	0.77	3
Idaho	69.9	4	58.3	4	0.70	5
Iowa	62.8	5	48.6	7	0.62	14
North Carolina	61.5	6	48.8	6	0.66	8
District of Columbia	59.1	7	46.6	8	0.69	6
Nevada	58.8	8	46.4	9	0.68	7
Virginia	58.5	9	50.4	5	0.72	4
Missouri	57.7	10	44.6	10	0.64	11
Colorado	55.4	11	39.1	13	0.54	20
Vermont	54.3	12	42.6	11	0.63	13
Oklahoma	52.2	13	34.8	17	0.53	21
Texas	52.1	14	36.8	15	0.57	18
New Jersey	51.9	15	35.3	16	0.51	24
New York	51.0	16	37.2	14	0.58	17
Ohio	50.6	17	40.2	12	0.64	10
Illinois	48.9	18	28.9	22	0.45	29
Arkansas	45.1	19	34.3	18	0.60	16
Kansas	44.8	20	27.8	23	0.42	32
South Carolina	44.1	21	33.1	19	0.66	8
Connecticut	42.3	22	25.6	25	0.41	33
West Virginia	40.7	23	23.4	27	0.38	34
Alabama	38.1	24	26.8	24	0.49	25
Wyoming	37.6	25	20.9	29	0.35	35
Nebraska	37.4	26	30.1	20	0.63	12
Mississippi	37.3	27	29.7	21	0.65	9
New Hampshire	32.4	28	18.9	31	0.34	36
Maryland	32.3	29	21.2	28	0.47	27
Louisiana	31.2	30	24.0	26	0.62	15
North Dakota	27.6	31	18.7	33	0.43	31
Delaware	27.3	32	17.7	34	0.45	30
Florida	27.2	33	20.1	30	0.51	22
South Dakota	25.7	34	18.9	32	0.46	28
Georgia	24.3	35	17.4	35	0.51	23
Kentucky	23.4	36	11.7	37	0.30	38
Utah	20.4	37	13.5	36	0.48	26
Indiana	19.9	38	10.4	38	0.30	37

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).
NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged.

States in the South had generally higher rankings on the persistence measure than on other measures of overall balance. Of the six states whose persistence rankings were ten or more places higher than budget-share rankings in the 65+ population in Table II.7, five were southern states. Of seven states whose persistence rankings were

similarly higher in Table II.8, five were southern states. Despite generally low rankings on overall balance, southern states, especially Louisiana, appear to rank substantially higher in terms of persistence.[13] We have been unable to identify factors common to southern states that could account for this pattern.

As should be clear, this discussion of the factor we term "persistence" is highly speculative. It does suggest that future work might usefully examine state differences in community care versus institutional care across groups of people that differ in severity of impairment or need for care.

D. Progress on Home and Community-Based Services Use and Expenditures from 2006 to 2009

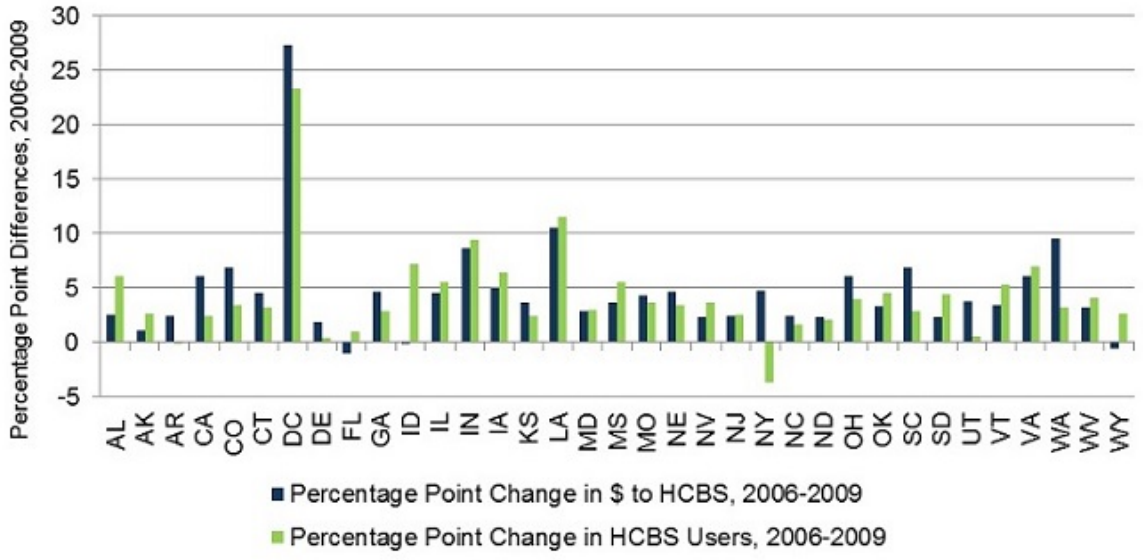
The share of Medicaid LTSS expenditures allocated to HCBS and the share of LTSS users receiving HCBS reveal slight but notable increases in most states between 2006 and 2009 (Figure II.5).[14] We compared performance on these two LTSS measures for the 35 states with reliable data in both 2006 and 2009 and found that the median state increased the percentage of LTSS expenditures for HCBS by 3.7 percentage points and the percentage of LTSS users receiving HCBS by about 3.3 percentage points.

Most states reported that HCBS accounted for a greater share of expenditures and users (roughly 1-5 percentage points for most) in 2009 than in 2006, although results varied somewhat across subpopulations of enrollees, and a few states experienced more substantial changes in performance. (See Appendix Tables D7-D12 for state-level detail.) Although the change was modest in most states, a few shifted notably toward greater emphasis on HCBS. Even in states that experienced observable declines in HCBS use, the decline was generally not observed in all populations or for both measures. New York, for example, reported the largest overall percentage point drop in LTSS users receiving HCBS (from 68.2 percent in 2006 to 64.5 percent in 2009). During the same period, however, the percentage of LTSS expenditures for HCBS increased by about 5 percentage points (from 45.3 percent to 50.0 percent), suggesting a complex shift in their LTSS system.

[13] What is notable about this result is the not the preponderance of low-ranking states, among those whose persistence rankings were substantially higher than their overall rankings, but rather the preponderance of southern states. In fact, low-ranking states outside the Deep South, including Delaware, Indiana, Kentucky, North Dakota, South Dakota, and West Virginia, do not exhibit this pattern.

[14] Among the 38 states included in the current analysis, New Hampshire and Texas were not included in the 2006 analysis and so performance cannot be compared for these states. In Kentucky, before 2008, many community health service claims were inaccurately reported as HCBS claims. This error in reporting was fixed by 2009, and, as a result, performance in 2009 cannot be reliably compared to performance in 2006.

FIGURE II.5. Progress in Re-Balancing Toward HCBS from 2006 to 2009, 35 States



SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data. Analysis of 2006 MAX data taken from Wenzlow et al. 2011. Figure includes all states with reliable LTSS data in both years.
NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

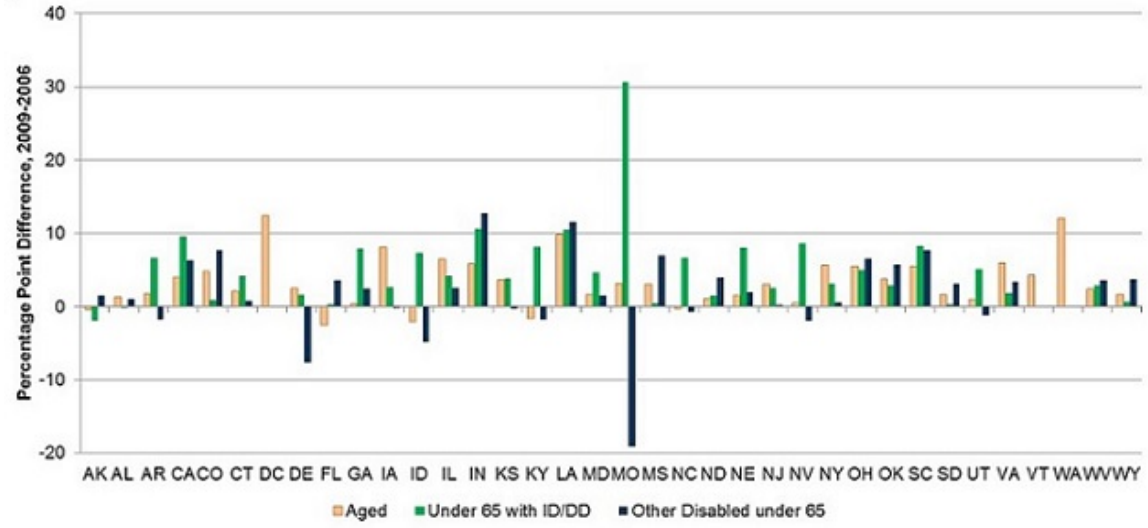
A number of factors may have caused the changes we identify in each state. These may include changes in MAX data reporting practices and demographic changes in the state's FFS LTSS population, as well as changes in state LTSS policies and programs. Moreover, the small size of certain subpopulations of enrollees in some states can lead to inordinately large and possibly misleading percentage point changes in expenditures or users from year to year.

Further investigation of changes in two states reveals the difficulty of interpreting comparisons to performance in previous years. First, in New York during this period, MAX shows that the proportion of individuals with disabilities who were enrolled in managed care plans, including managed LTSS plans, increased. This change may have affected the composition of the population that remained in FFS coverage, which may have affected the types of services these enrollees used.[15] Second, the District of Columbia reported dramatic increases in both expenditures for HCBS and HCBS users from 2006 to 2009. The rates reported in MAX were comparable to rates reported in other data sources, including the CMS Form 64 and Form 372 data, but we were unable to identify state policy changes or changes in data reporting that appear to have directly caused these increases. Changes we identify in each state's LTSS system were probably complex and may be less dramatic than a straight comparison of performance indicates.

[15] For example, in the data, we observed that the number of enrollees receiving HCBS through the state plan on a FFS basis, including home health care and personal care services, declined during this period.

Figure II.6 shows the change (in percentage points) in the percentage of Medicaid LTSS expenditures allocated to HCBS for three subpopulations between 2006 and 2009: enrollees age 65 and older, enrollees under 65 with ID/DD, and other enrollees under age 65 with disabilities. As the figure shows, nearly all states that reported data showed increases in the percentage of LTSS expenditures going to HCBS for one or more subpopulations of enrollees. The percentage of Medicaid LTSS expenditures accounted for by HCBS increased by at least 5 percentage points for enrollees with ID/DD in 13 states, for aged enrollees in nine states, and for enrollees with other disabilities in eight states. Increases in shares of LTSS expenditures for HCBS occurred among states at all levels, including states that are relatively high performers on this measure (such as Missouri and Nevada), as well as states that have traditionally reported relatively lower rates HCBS use and expenditures (including Arkansas, Louisiana, and North Carolina).

FIGURE II.6. Percentage Point Differences in Percentage of Medicaid LTSS Expenditures for HCBS from 2006 to 2009, 35 States



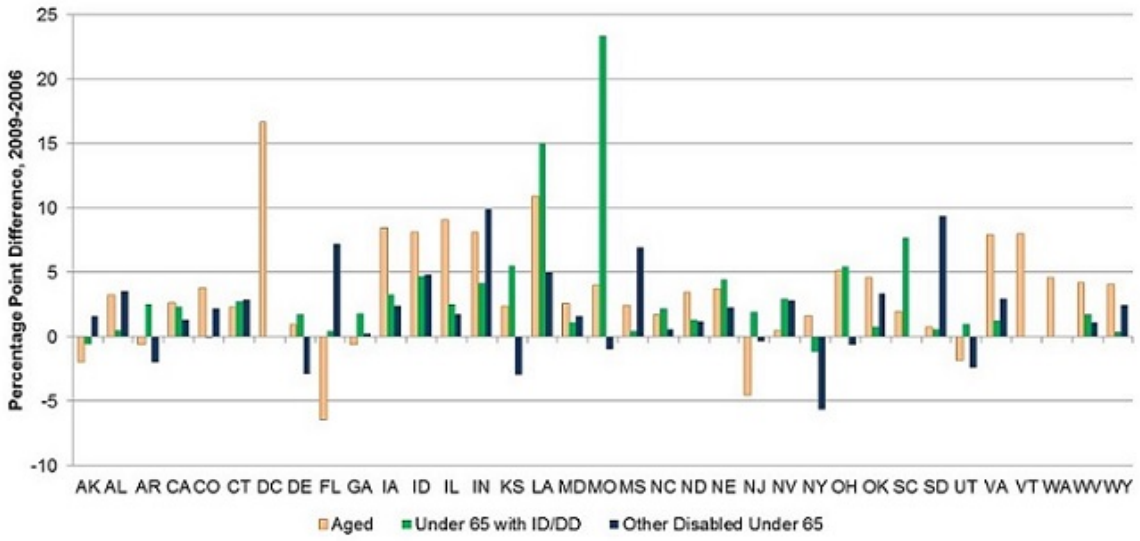
SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data. Analysis of 2006 MAX data taken from Wenzlow et al. 2011. Figure includes all states with reliable LTSS data in both years.
NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. In the District of Columbia, Vermont, and Washington, individuals with ID/DD could not be distinguished from enrollees with other disabilities. As a result, these states are excluded from analyses of the population under age 65 with ID/DD and enrollees with other disabilities.

A few states, including the District of Columbia, Indiana, and Louisiana, reported improvements of about 10 percentage points or more across multiple subpopulations of enrollees. Despite its relatively low ranking on the share of expenditures devoted to HCBS in 2009, Louisiana increased that share by about 10 percentage points for all subpopulations. The increases occurred during a period of high-profile state

governmental support for increasing the emphasis on HCBS, including an Executive Order by the Governor that established a two-stage process for reforming the state's LTSS system and receipt of a $3.2 million Real Choice Systems Transformation grant (which state officials proposed to focus on affordable and accessible housing, among other reforms), as well as additional funds provided by the state legislature to increase the number of people served by Medicaid HCBS waivers (Louisiana Department of Health and Hospitals 2007; AARP Public Policy Institute 2008).

Other states that reported progress toward HCBS re-balancing for certain populations of enrollees reported slower progress or declines for other subpopulations. Iowa, for example, increased the percentage of Medicaid LTSS expenditures for HCBS among aged enrollees from 20 percent in 2006 to 29 percent in 2009, while changes for enrollees with disabilities were more modest. As noted above, such differences may reflect state strategies to improve the systems for certain subpopulations, changes in the populations receiving these services, or changes in data reporting processes.

FIGURE II.7. Percentage Point Changes in Percentage of LTSS Users Receiving HCBS from 2006 to 2009, 35 States



SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data. Analysis of 2006 MAX data taken from Wenzlow et al. 2011. Figure includes all states with reliable LTSS data in both years.
NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. In the District of Columbia, Vermont, and Washington, individuals with ID/DD could not be distinguished from enrollees with other disabilities. As a result, these states are excluded from analyses of the population under age 65 with ID/DD and enrollees with other disabilities.

The percentage of LTSS users receiving HCBS also increased in most states from 2006 to 2009 (Figure II.7), although fewer states experienced changes of 5 percentage points or more. Nine states reported increased HCBS use of at least 5 percentage

points for the aged, compared to five states each that reported this level of increase for individuals with ID/DD and those with other disabilities. Missouri stands out in this figure as experiencing a dramatic shift in rates of HCBS use from an increase of over 30 percent among individuals with ID/DD and a decline of almost 20 percent among individuals with other disabilities. Between 2006 and 2009, MAX data show increased enrollment in Medicaid waivers for individuals with ID/DD in Missouri. Moreover, during this period, average expenditures per waiver claim for individuals in waivers targeting the population of enrollees who were aged or had physical disabilities declined considerably. Such changes may represent a change in data reporting practices or a shift in state resources.

E. Summary of LTSS System Performance Findings

In 2009, about 45 percent of LTSS expenditures were for HCBS, and nearly 67 percent of LTSS users received HCBS. Medicaid spent about $19,500 per user for HCBS, or about 48 cents for every dollar for persons using institutional care. Most states reported modest progress on re-balancing toward HCBS from 2006 to 2009.

Taken together, two measures (the percentage of LTSS expenditures for HCBS and the percentage of LTSS users receiving HCBS) identify a few states that appear to have the highest levels of balance in the breadth and depth of their LTSS. These states, which include Alaska, California, Colorado, Vermont, and Washington, ranked highly on both measures for most or all subpopulations of enrollees. Throughout the rankings, however, a number of states achieved a notably higher ranking on one measure than on the other. For these states, alternative measures of the LTSS system provide different perspectives on LTSS utilization and expenditures. For example, for two states with the same percentage of expenditures allocated to HCBS, one may provide limited HCBS to a broad range of users, and the other may provide more expansive services to a small number of HCBS recipients. Thus, assessing multiple measures continues to provide a more complete picture of the role of HCBS in state Medicaid programs than any single measure alone.

Subgroup analyses by state suggest that differences in HCBS use and expenditures between aged enrollees and those eligible on the basis of disability remained widespread across the states. As we found in the previous study, several states achieved overall balance by serving a relatively large number of aged people, but most did so by providing more HCBS to younger enrollees with disabilities, particularly people with ID/DD, and ranked relatively low for the aged. This suggests that, even in states that rank near the top on overall balance toward HCBS, there may be room for further re-balancing for some services or subpopulations.

Subgroup analyses also suggest that HCBS use continues to be most common within the Medicaid ID/DD service system, compared to systems designed for the aged or people with physical disabilities. This differential emphasizes the importance of measuring system performance in multiple dimensions and within different service

systems. The underlying cause for the higher rates of HCBS use and expenditures among those with ID/DD are likely to be complex but could result from a variety of factors, such as more states pursuing goals of achieving balance in this population, greater success in providing the services these individuals need in the community, and greater demand for community-based services among this population and their advocates.

III. CORRELATES OF LONG-TERM SERVICES AND SUPPORTS SYSTEM PERFORMANCE

Chapter II documented ongoing and substantial differences in LTSS system balance across states and for subpopulations of enrollees. An important question for policymakers remains: Why do such differences persist? If the differences are due to factors beyond a state's control, this suggests either that states must develop individualized new approaches to achieve greater balance or that the extent of re-balancing will, under the best of circumstances, be limited in some areas or populations. If, however, differences are related to factors that states can affect through policy and program changes, they could indicate how low-scoring states may focus future efforts to improve their systems. In this chapter, we expand upon our analysis of state factors in the previous study to explore whether there are continued relationships between factors previously associated with HCBS use and expenditures, as well as to examine new factors that may be related to LTSS system performance.

This cross-sectional analysis is exploratory and has limited ability to explain broad differences across states. The environments in which states provide LTSS are complex, and the services that a Medicaid enrollee receives are likely influenced by a diverse range of factors that interact to influence that individual's access to services, knowledge of available services, and interest in and ability to use available services. Moreover, many of these factors may operate at smaller levels of the community than the state, and the variation we identify at the state level is likely more nuanced when community-level factors are considered. Finally, in our analysis, we examine associations between factors and the balance of LTSS systems, but we are unable to determine the direction of causality in these associations or whether the relationships we see are the result of additional factors that we cannot measure directly. Some of the factors that we identify as being associated with higher levels of balance may be outcomes or alternative indicators of balance, rather than drivers of variation in state LTSS systems. Thus, our results do not indicate whether there are any causal relationships between the state factors we assess and balance of LTSS. Instead, we expect that our results may point to directions for future, more sophisticated quantitative and qualitative analysis, by identifying relationships between broad patterns in LTSS systems and characteristics of states that are worthy of further investigation.

A. State Constraints and Policy Variables

As in our previous study, we differentiate two types of state characteristics likely to affect the role of HCBS in LTSS systems: (1) factors over which states have little influence in the short run, such as the cost of living; and (2) factors that states could, in principle, alter, such as their LTSS policies or policies that affect the supply of LTSS.

1. State Constraints

Policymakers have always known that states face unique circumstances that make it important to allow for state differences in implementing health care programs. Re-balancing also faces regional challenges, which may result in slow development of HCBS in some areas. Previous studies have cited fiscal constraints (Howes 2010; Smith et al. 2009) and lack of adequate housing (Denny-Brown and Lipson 2009; Siebenaler et al. 2005) as challenges states face in their efforts to shift their LTSS systems from heavy reliance on institutional care to community settings.

To understand how some of these factors may continue to be related to a state's success in re-balancing the LTSS system, we re-investigated the following factors examined in our previous study:

- **Cost of Living in the Community**. High costs may make it difficult for the elderly poor and those with disabilities to maintain their residence, whereas admission to a nursing home can relieve those financial burdens. In 2006, however, average housing costs were found to actually have a positive relationship with HCBS balance among aged enrollees, possibly indicating that we were capturing the effects of living in wealthier states with more available resources rather than simply the resources a person needs to remain in the community.

- **State Financial Resources**. A high level of local financial resources may make it feasible for a state to support programs that subsidize utility bills and other living costs, making it less expensive for an individual to remain in the community. In 2006, higher per-capita income at the state level was associated with higher levels of HCBS balance among enrollees with ID/DD.

- **Environmental Factors**. Extreme weather conditions may make it unsafe to live alone or difficult to travel, encouraging more nursing home placements. In 2006, higher rates of winter precipitation were associated with lower overall rates of HCBS balance.

- **High Demand for Services**. States with a high proportion of elderly residents may be more likely to be at the forefront of HCBS because meeting the needs of those individuals is likely to be a high priority. In 2006, we found no relationship between the percentage of low-income individuals age 75 or older and rates of HCBS balance.[16]

- **Ability to Provide Care**. In 2006, greater availability of personal and home care aides was associated with higher levels of HCBS balance for all subpopulations.

[16] Low-income individuals include those whose income, as reported in the American Community Survey (ACS), is broadly consistent with income eligibility requirements for Medicaid-financed LTC. Individuals identified as low-income, and potentially eligible for Medicaid, include individuals who reported receipt of SSI or who had income levels under 300 percent of SSI in 2009.

In this association, the relationship may be that states with relatively few home care workers or labor shortages may be reluctant to introduce programs that might strain already overtaxed labor markets when nursing homes can serve more residents with fewer workers. Or, conversely, higher rates of HCBS use and demand may drive greater supply of care workers.

Table III.1 lists the factors we measured for this study, including the specific measures we used as indicators of constraints, their sources, and their hypothesized relationships with the degree of HCBS provision in a state.

2. State Policy Variables

Many Medicaid policies could increase the use of HCBS. For example, states have the options to provide personal care and expanded home health services under their Medicaid state plans and to waive certain Medicaid regulations to cover HCBS for select subpopulations under Section 1915(c) waivers. Other state policies, such as nursing home regulations and SSI supplements that support independent living, may also influence the use of HCBS (Irvin and Ballou 2010; KFF 2012). Under the DRA, states have even more options to provide HCBS via state plans through 1915(i) and 1915(j) waivers, although only limited changes of this type had been implemented by 2009.

TABLE III.1. Factors That May Affect LTSS System Performance

Factor	Measure (source)	Hypothesized Relationship with HCBS
Cost of living	Single-family house price index, 2009 (Federal Housing Finance Agency 2011)	-
State financial resources	Per-capita personal income, 2009 (BEA 2013)	+
Fiscal constraints	Total taxable resources per-capita, 2009 (BEA 2009), and percentage of state budget for LTSS (National Association of State Budget Officers 2010)	+
Environmental factors	Average winter precipitation, 1971-2000 (NOAA 2002)	-
Demand for services	Percentage of potential Medicaid eligibles age 75 or older, 2009 (Mathematica analysis of ACS 2009 data)	+
Workforce availability	Home health aides and personal and home care aides (BLS 2009) per 1,000 elderly or persons with a disability (ACS 2009), 2009	+

+ = hypothesized positive relationship between measure and HCBS.
- = hypothesized negative relationship between measure and HCBS.

To understand how some of these policies may be related to rates of HCBS use and expenditures, we investigated the following factors and the relationship between HCBS balance in 2006. We found that the following factors were correlated with HCBS balance, with some factors only being associated with balance for specific subpopulations:

- **Consumer-Direction**. Consumer-direction of personal care services has been shown to improve client satisfaction with services. In 2006, states that allowed for any consumer-direction tended to have higher rates of HCBS balance for aged enrollees and enrollees with physical disabilities. Since that study, more nuanced information on rates of consumer-direction across states has become available to further explore this relationship.

- **State Plan Coverage**. States may offer personal care services under their state plans, eliminating the need for the individual to be covered by a waiver program to receive HCBS, where enrollment can be limited. In 2006, availability of personal care services through the state plan was associated with higher rates of HCBS balance for aged enrollees.

- **Residential Care Coverage**. States that support residential placements other than traditional institutions, such as assisted living facilities, may have more enrollees who can use HCBS. In 2006, states that had any Medicaid coverage for residential care had higher rates of HCBS balance among aged enrollees.

- **SSI Supplements to Support Independent Living**. States that supplement federal SSI payments for people living in the community may encourage the poor with disabilities to remain in the community. In 2006, states that offered optional state supplements to federal SSI payments had higher rates of HCBS balance among aged enrollees and enrollees with ID/DD.

- **Waiver Waiting Lists**. States that set a relatively high level for HCBS waiver enrollment will have fewer people on waiting lists and provide more HCBS. In 2006, waiver waiting lists were not found to have a significant relationship with HCBS balance, but additional information has become available since that study to better assess this relationship.

- **Institutional Supply**. Individuals in states with limited numbers of nursing home beds, assisted living facilities, and limited access to ID/DD facilities may have increased need for HCBS. Or, it may be that states that have committed to increasing community care may find that institutional beds are reduced due to low demand. In 2006, states with greater supply of nursing home beds had lower rates of HCBS balance among aged enrollees and enrollees with ID/DD. Similarly, states in which ICFs/IID with 16 or more beds accounted for larger percentages of ICFs/IID had lower rates of HCBS balance among aged enrollees. Since that study, additional data on availability of residential and assisted living units and placements in small ID/DD facilities have become available for assessment.

- **Payment Policies**. Policies that encourage the supply of HCBS in a state -- such as higher rates for such services -- may increase the number of HCBS providers who provide care to Medicaid recipients. However, policies that pay nursing homes and ID/DD facilities more may encourage the growth of that

industry, thus increasing the use of institutional services. In 2006, higher rates of reimbursement for home health visits and higher average adult day care daily rates were associated with higher rates of HCBS balance among aged enrollees.

TABLE III.2. State Policies and Other Supply-Site Factors Potentially Associated with Spending and Use of Medicaid LTSS and Associated Data Sources		
Policy or Supply-Side Factor	**Measure (source)**	**Hypothesized Relationship with HCBS**
Consumer-direction	Number of people consumer-directing services per 1,000 adults age 18+ with disabilities, 2010 (Reinhard et al. 2011)*	+
Personal care and residential care coverage	State covers state plan personal care, 2009 (KFF 2012) or covers residential care, 2009 (Mollica 2009)*	+
SSI supplements	State-administered optional state supplement to federal SSI payments, 2009 (Social Security Administration 2009)	+
Waiver waiting lists	Waiting list members (2011) per HCBS waiver enrollees in 2009 (KFF 2012; MAX 2009)*	-
Nursing home bed supply	Nursing home occupancy rates, 2009 (CMS 2012)*	-
Small ICF/IID availability	Percentage of total out-of-home placements in settings for 6 or fewer persons, 2011 (Braddock et al. 2013)	-
Assisted living availability	Assisted living and residential care units per 1,000 people age 65+, 2010 (Reinhard et al. 2011)	+
LTSS system accessibility	ADRC/SEP functionality score, 2010 (Reinhard et al. 2011)	+
Payment rates that encourage HCBS supply	Average home health aide hourly rate, 2009, and average private pay daily rate for adult day care, 2009 (MetLife 2009)*	+
Support for informal caretakers	Percentage of families caring for individuals with ID/DD receiving state agency support, 2011 (Braddock et al. 2013)	+
+ = hypothesized positive relationship between measure and HCBS. - = hypothesized negative relationship between measure and HCBS. * = factor was assessed in previous study, but newly available data resulted in new measure for assessing relationship with HCBS.		

In addition to these factors, newly available data allowed us to assess the relationship between HCBS balance and the following state factors:

- **System Accessibility**. LTSS systems that make HCBS more accessible to individuals needing LTSS may increase the number of people using these services.

- **Support for Informal Caretakers**. State support for informal caretakers for individuals with ID/DD may result in more caretakers being able to care for these individuals in the community.

Table III.2 lists the state policies that may affect HCBS use, how we measured them for this analysis, and how they may be related to Medicaid HCBS use.

B. Factors and Policies Associated with LTSS System Performance

To describe the relationship between the state factors and LTSS balance, we summarized outcomes for the top and bottom ten states based on their LTSS system performance scores and measured the association between each factor and LTSS balance measure. We tested the associations for statistical significance to help identify state policies and factors likely to be related to the balance measures. We again stress that these associations do not imply causation. For brevity, we present detailed results based on the first measure -- association between the state factors and the percentage of LTSS expenditures for HCBS -- and summarize the results for measures of LTSS users.

1. Associations Between State Factors and LTSS System Performance Indicators

Two state constraints were significantly associated with the percentage of LTSS expenditures for HCBS (Table III.3) and with the percentage of LTSS users receiving HCBS (data not shown). First, increased demand for HCBS (as measured by the percentage of aged potential Medicaid enrollees in a state) was negatively associated with HCBS balance. The source of this negative association is impossible to identify with certainty. It might indicate that state policymakers fear a "woodwork effect," as described in Chapter I. That is, larger elderly populations may lead to fears of a greater demand response to availability of HCBS. Second, as in 2006, greater availability of personal and home care aides was positively associated with greater balance toward HCBS in LTSS expenditures and use. The consistent relevance of this factor points to the value of further consideration of this relationship and how efforts to improve rates of HCBS use should account for workforce supply factors. One factor -- average winter precipitation -- that was negatively correlated with HCBS spending in 2006 did not have a significant association with HCBS expenditures or use in 2009.[17] It may be that states that were most affected by weather-related challenges have made progress in providing HCBS in ways that address these challenges. Or, this difference in results may be caused by the inclusion of different states in this analysis or point to the instability of bivariate associations in a given year. Overall, these results suggest that, as in 2006, we have not identified exogenous factors that can be substantially linked to levels of LTSS system balance across states for the LTSS Medicaid population as a whole.

[17] Three factors were significantly associated with the percentage of LTC expenditures for HCBS but were not significantly associated with percentages of LTC users receiving HCBS. First, single-family house price index and total taxable resources were both positively associated with rates of HCBS expenditures. These associations may suggest that communities with greater overall resources are more able to support efforts to provide care in the community. Although we initially expected that single-family home prices would be negatively associated with HCBS use, it is plausible that this indicator is capturing overall wealth and resources in a community, rather than simply the costs required to remain in the community. Neither of these factors, however, was significantly associated with HCBS expenditures in 2006.

2. Associations Between State Policy and Supply-Side Variables and LTSS System Performance Indicators

For policy measures, we found that three measures were significantly related to LTSS system performance indicators (Table III.4). First, the number of people consumer-directing services per 1,000 adults age 18 and older was significantly associated with higher rates of HCBS spending and use. Consumer-direction was measured differently in 2006, but it was also found to be significantly correlated with higher rates of HCBS balance in the previous analysis. Availability of small LTSS ID/DD facilities and residential-living options were also significantly associated with higher rates of HCBS expenditures and use, suggesting the importance of alternative living options for people who want to remain in the community but are unable to remain in traditional home settings.[18]

3. Subgroup Differences

As rates of HCBS use vary considerably across subgroups of LTSS users, policymakers may be particularly interested in the relationship between state factors and HCBS use for subpopulations of enrollees. Because elderly recipients generally make up a large portion of those in the LTSS system, they dominate the overall results. One question, however, is whether state factors are linked to LTSS system performance for those who are under age 65 and have physical disabilities, or for those with ID/DD.

As we found in 2006, the relationship between state factors and HCBS balance differs by subpopulation of enrollee (Table III.5). Most notably, some factors that were significantly associated with balance for the ID/DD population were not significant for other populations. For individuals with ID/DD, the number of people on waiver waiting lists, the relative size of the potentially eligible Medicaid aged population, and total taxable resources were significantly associated with HCBS use and expenditures. In comparison, consumer-direction rates, the availability of home health aides, and the availability of assisted living and residential care units were associated with higher levels of HCBS expenditures and use for the aged and those with physical disabilities, but were not significant for the ID/DD population. Such differences may point to the different needs of these subpopulations and reinforce the importance of targeting programs and policies to meet the needs of diverse populations of LTSS users.

[18] Higher payment rates for adult day services were significantly associated with higher rates of HCBS spending but not associated with rates of HCBS use.

TABLE III.3. Summary of State Constraints by State Rank in the Percentage of LTSS Expenditures for HCBS in 2009							
Factor	**Mean for All States**	**Mean for Top 10 (high HCBS) Ranked States**	**Mean for Mid-Ranked Stats**	**Mean for Bottom 10 (low HCBS) Ranked States**	**Relationship with Higher Levels of HCBS in 2006**	**Expected (2009)**	**Observed (2009)**
Single-family housing price index, 2009	207	234	198	195	+	-	+*
Per-capita personal income, 2009	43,913	56,951	39,264	29,245	+	+	+
Average winter precipitation, 1971-2000	2.8	2.5	2.4	3.6	-*	-	-
Taxable resources per-capita, 2009	50,935	59,465	47,757	48,125	+	+	+*
LTSS expenditures as a share of total state spending, 2009	7.0%	7.0%	6.9%	7.2%	NA	-	-
Percentage of potential eligibles age 75 or older, 2009	11%	10%	11%	13%	none	+	-*
Home health aides per 1,000 elderly or persons with a disability, 2009	85	101	90	59	+	+	+
Personal and home care aides per 1,000 elderly or persons with a disability, 2009	63	112	55	31	+*	+	+*

SOURCE: Mathematica analysis of state constraints (see Table III.1) and 2009 MAX data for 37 states and the District of Columbia with representative LTSS data.

* Significant association at the 0.05 level. For continuous factors, we tested whether the correlation between balance and the constraint was significantly different from zero. For discrete factors, we used a t-test to identify significant differences between states with and without the constraint. We did not test for significant differences between top and bottom states.
NA = measure was not assessed for 2006 or used different data specifications.

TABLE III.4. Summary of State Policy and Supply-Side Variables by the Percentage of LTSS Expenditures for HCBS in 2009							
Policy of Supply-Side Factor	**Mean for All States**	**Mean for Top 10 (high HCBS) Ranked States**	**Mean for Mid-Ranked Stats**	**Mean for Bottom 10 (low HCBS) Ranked States**	**Relationship with Higher Levels of HCBS in 2006**	**Expected (2009)**	**Observed (2009)**
Number of people consumer-directing services per 1,000 adults age 18+, 2010	14.2	36.3	7.2	4.7	NA	+	+*
Medicaid state plan personal care coverage, 2009	63%	70%	72%	40%	+*	+	+
Any coverage for residential care, 2009	89%	100%	89%	80%	+*	+	+
Waiver waiting list (2011) per HCBS users (2009)	374	71	611	218	-	-	-
State-administered optional SSI supplementation, 2009	76%	80%	83%	60%	+*	+	+
Nursing home occupancy rates, 2009	84	87	81	86	NA	-	+
Percentage of total out-of-home placements in settings for 6 or fewer persons, 2011	76%	90%	74%	65%	NA	+	+*
Assisted living and residential care units per 1,000 people age 65, 2010	29	32	31	23	NA	+	+*
ADRC/SEP functionality score, 2010	6.9	6.6	6.7	7.6	NA	+	-
Home health aide hourly rate, 2009	21	22	20	20	NA	+	+
Adult day service rate, 2009	68	86	60	66	NA	+	+*
Percentage of caregiving families receiving state ID/DD agency support, 2011	11%	16%	10%	8%	NA	+	+

SOURCE: Mathematica analysis of state policy or supply-side factors (see Table III.2) and 2009 MAX data for 37 states and the District of Columbia with representative LTSS data.

* Significant association at the 0.05 level. For continuous factors, we tested whether the correlation between the performance indicator and the factor was significantly different from zero. For discrete factors, we used a t-test to identify significant differences between states with and without the policy. We did not test for significant differences in rank or between top 10 and bottom 10 states.
NA = measure was not assessed for 2006 or used different source data or specifications.

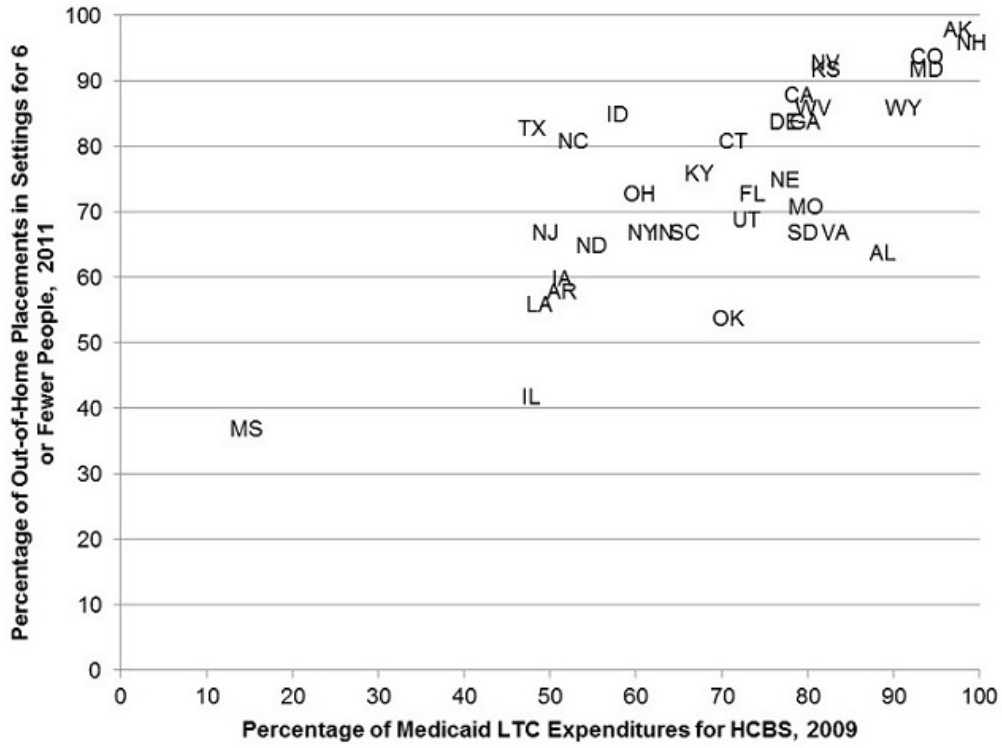
TABLE III.5. Association of State Policies and Other Factors with Spending for HCBS in 2009, by Age and System Type					
Constraint, Policy, or Supply-Side Factor	**Expected**	**Overall**	**Aged (65+)**	**Enrollees with Disabilities <65, Excluding ID/DD**	**Enrollees with ID/DD**
Single-family housing price index, 2009	-	0.35	---	---	---
Per-capita personal income, 2009	+	---	0.35	---	---
Average winter precipitation, 1971-2000	-	---	---	---	---
Taxable resources per-capita, 2009	+	0.36	0.36	---	0.35
Percentage of potential Medicaid eligibles age 75 or older, 2009	+	-0.57	---	---	-0.56
Home health aides per 1,000 elderly or persons with a disability, 2009	+	---	0.42	0.38	---
Personal and home care aides per 1,000 elderly or persons with a disability, 2009	+	0.50	---	0.46	---
Number of people consumer-directing services per 1,000 adults age 18+ with disabilities	+	0.53	0.52	0.34	---
Medicaid state plan personal care, 2009	+	---	0.34	---	---
Any coverage for residential care, 2009	+	---	---	---	---
Persons on all waiver waiting lists (2011), per HCBS users (2009)	-	---	---	---	---
Persons on aged and disabled waiver waiting list (2011), per aged and disabled HCBS users (2009)	-	---	---	---	NA
Persons on ID/DD waiver waiting list (2011), per ID/DD HCBS users (2009)	-	---	NA	NA	-0.35
State-administered optional SSI supplementation, 2009	+	---	---	---	---
Nursing home occupancy rates, 2009	-	---	---	---	---
Percentage of total out-of-home ID/DD placements in settings for 6 or fewer persons, 2011	+	0.67	NA	NA	0.72
Assisted living and residential care units per 1,000 people age 65, 2010	+	0.40	0.34	0.35	---
ADRC/SEP functionality score, 2010	+	---	---	---	---
Home health aide hourly rates, 2009	+	---	---	---	---
Adult day service rates, 2009	+	0.33	---	---	---
Percentage of caregiving families receiving state ID/DD agency support, 2011	+	---	NA	NA	---

SOURCE: Mathematica analysis of state constraints, policy, and supply-side factors (see Table III.1 and Table III.2) and 2009 MAX data for 37 states and the District of Columbia with representative LTSS data. Analysis of enrollees with disabilities under 65 with ID/DD and those with other disabilities include 35 states (individuals with ID/DD could not be identified in the District of Columbia, Vermont, or Washington and these states were excluded from analyses of this population).
NOTE: Values in table represent the correlation coefficient between the factor and HCBS share of LTSS expenditures. All values shown are significant at the 0.05 level. For continuous factors, we tested whether the correlation between the performance indicator and the factor was significantly different from zero. For discrete factors, we used a t-test to identify significant differences between states with and without the factor. We did not test for significant differences in rank or between top 10 and bottom 10 states.

--- = no significant relationship was found. NA = factor was not relevant for subgroup.

Correlations summarize the overall nature and strength of relationships between state factors and LTSS balance, but these associations provide limited insight into the underlying composition of these relationships. Figure III.1, Figure III.2 and Figure III.3 illustrate the differences in significant relationships between balance of HCBS expenditures and three state factors. These figures show the relative importance outliers have on these associations and how different patterns can lie beneath the overall relationships seen in the data. Understanding the nuances of how policies are related to LTSS system balance may be useful for policymakers who are interested in using these approaches to shift LTSS systems toward HCBS.

FIGURE III.1. Percentage of Out-of-Home Placements for Individuals with ID/DD in Settings for Six or Fewer People in 2011 by Percentage of Medicaid LTSS Expenditures for HCBS, 2009

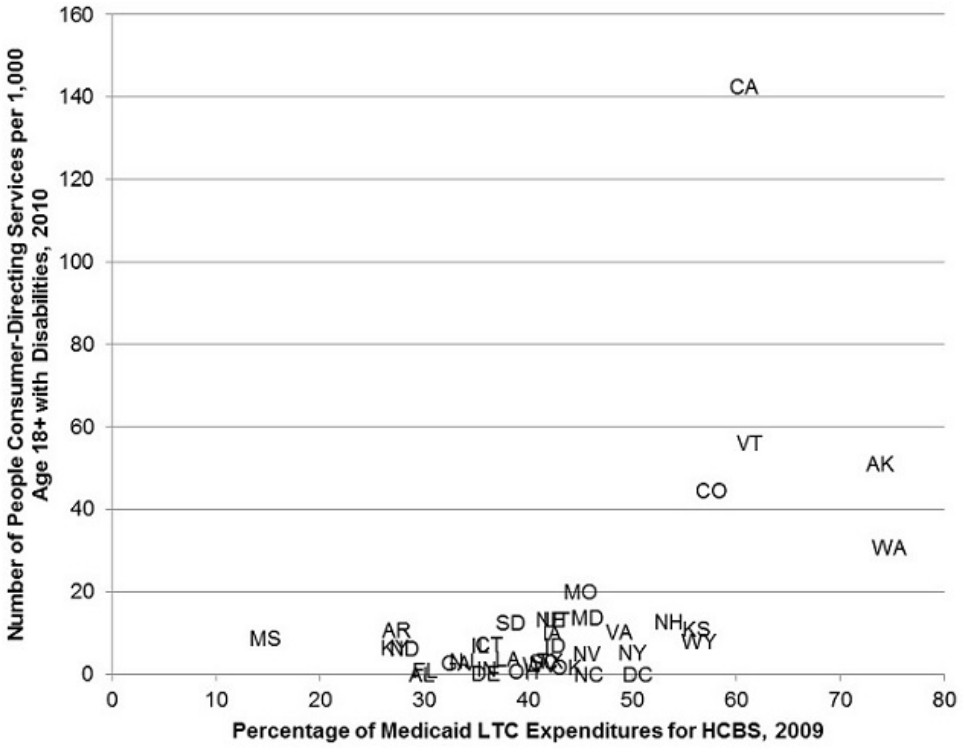


SOURCES: Mathematica analysis of MAX 2009 data for 35 states with representative LTSS data; University of Colorado 2013.

Figure III.1 shows one of the strongest relationships we identified, between the percentage of total out-of-home placements in settings for six or fewer people and HCBS share of spending for individuals with ID/DD. In 2011, out-of-home placements in small ID/DD facilities ranged considerably, from 37 percent of placements in Mississippi to 98 percent of placements in Alaska and Washington. Similarly, rates of HCBS expenditures as a share of LTSS costs ranged from 15 percent in Mississippi to 99 percent in New Hampshire. As the figure shows, states with the highest rates of placements in small out-of-home settings also tended to have the highest rates of HCBS spending, with somewhat more variation in the relationship between small-facility

placement and HCBS spending for middle-ranked states. Although there is some variation in the link between HCBS spending and small-facility placements, overall it appears that, throughout the range, the two are positively associated.

FIGURE III.2. Percentage of Medicaid LTSS Expenditures for HCBS in 2009 by the Number of People Consumer-Directing Services in 2010



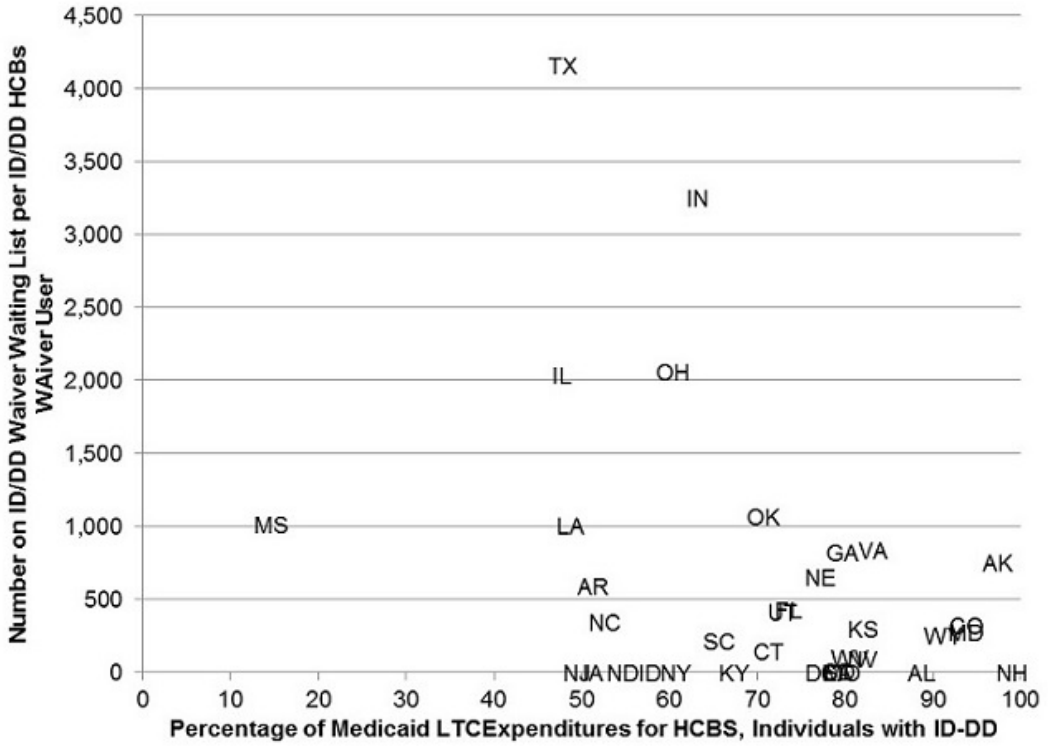
SOURCES: Mathematica analysis of MAX 2009 data for 37 states and the District of Columbia with representative LTSS data; Reinhard et al. 2011.

In comparison, Figure III.2 shows how the positive correlation between consumer-direction and HCBS share of spending appears to be driven by a small number of states that have very large numbers of consumers directing services. Most states reported rates from 0 to 20 people consumer-directing services per 1,000 adults age 18 and older with disabilities. The five states with the highest overall shares of HCBS spending in 2009 (Alaska, California, Colorado, Vermont, and Washington) reported much higher rates of consumer-direction, from a rate of 44.7 (per thousand people with disabilities) in Colorado to 142.7 in California. When these states are removed from the analysis, the correlation coefficient drops from 0.53 to 0.20. Thus, there appears to be a particularly strong relationship between very high rates of consumer-direction and very high rates of balance toward HCBS spending, with less of a relationship between moderate levels of consumer-direction and balance.

Finally, Figure III.3 examines the relationship between waiver waiting lists and share of LTSS expenditures for HCBS among individuals with ID/DD. We found a negative relationship between the number of people on waiting lists for ID/DD waivers and the share of HCBS expenditures. The figure shows how this negative relationship is

affected by 11 states that reported no one on waiting lists for these waivers in 2009 combined with very large waiting lists in a few states with relatively low HCBS spending for this population (including Illinois, Indiana, Ohio, and Texas). When the states with no waiting list are removed from the analysis, the correlation changes from -0.35 to -0.45, suggesting that, among the states with waiting lists for ID/DD waivers, longer lists may be even more closely related to lower rates of HCBS spending than the all-state correlation suggests.[19] In this case, the relationship between waiting lists and the composition of LTSS expenditures was biased downward by the presence of states that did not use waiting lists at all.

FIGURE III.3. Percentage of Medicaid LTSS Expenditures for HCBS in 2009 by the Number of People on Waiting Lists for ID/DD Waivers Per ID/DD Waiver Users in 2011



SOURCES: Mathematica analysis of MAX 2009 data for 35 states with representative LTSS data. KFF 2012.

C. Summary of Findings on the Relationship Between the State Factors, Policy Variables, and LTSS System Performance

The associations between LTSS balance measures and state factors and policy variables presented in this chapter indicate several relationships that appear relevant for understanding variations in HCBS use and expenditures across states. Of the several measures selected to capture exogenous state characteristics, only two were

[19] When the states with the largest waiting lists (Illinois, Indiana, Ohio, and Texas) are removed from the analysis, the correlation changes only slightly.

significantly correlated with measures reflecting HCBS penetration in state LTSS systems overall: (1) personal and home care aides per 1,000 elderly and or persons with a disability, which was positively associated with HCBS spending and use; and (2) percentage of potential Medicaid eligibles age 75 or older, which was negatively associated with HCBS spending and use. We hypothesize that the relationship between home care workers and HCBS may be the result of several factors. HCBS may expand when there are home care workers available to serve more people in residential settings. Conversely, communities with very high levels of demand for these services may find that there are insufficient community resources, including care workers, available to serve everyone in the community, or the increased demand for these workers may drive an increase in their supply. The three policy variables most consistently related to LTSS systems with higher rates of HCBS use were consumer-direction, percentage of out-of-home placements in facilities with six or fewer residents, and availability of assisted living and residential care units. These factors may be important contextual variables to consider when assessing LTSS balance.

Some of the relationships we identified in this chapter were only significant for some subpopulations of enrollees. Three factors -- total taxable resources, percentage of potential aged Medicaid eligibles, and size of the waiver waiting list for ID/DD HCBS waivers -- were only associated with increased HCBS use for individuals with ID/DD. Other factors -- availability of home health aides, rates of consumer-direction, and availability of assisted living and residential care units -- were only significantly related to HCBS use for individuals who were aged or had physical disabilities. These findings underscore the importance of assessing drivers of variation in HCBS use and expenditures for subpopulations separately, as different factors appear to be relevant for each group.

Given the complex and dynamic environment across and within states for LTSS delivery, it is not feasible to isolate and determine the precise nature of the relationship between a single state policy constraint or factor and HCBS balance in a descriptive analysis. The interaction of different factors and the difficulty of measuring many relevant social and environmental aspects within states mean that the relationships identified in this analysis can only be exploratory. Moreover, the measures we are able to assess may reflect other types of characteristics about the state or environment that we cannot measure. Thus, the relationships we see may be the result of rates of HCBS use being correlated with our measures, and there may be other factors we cannot measure driving the relationships that we identify. Finally, the inconsistencies in our results from 2006 to 2009 and the differences in results across balance measures highlight the limitations of such analyses. Despite these limitations, the associations that we identify point to topics warranting further research that uses more sophisticated quantitative and qualitative techniques.

IV. SUMMARY OF RESULTS AND DIRECTIONS FOR FUTURE RESEARCH

This study used 2009 MAX data to examine Medicaid FFS HCBS use and spending across 37 states and the District of Columbia. The study updated analyses presented in Wenzlow et al. (2011), which was based on 2006 data, to summarize more recent performance on measures of state LTSS systems and further explore associations between state factors and policies and the balance of LTSS systems. We found that most states experienced improvements between 2006 and 2009, but discrepancies across subpopulations of enrollees persisted.

A. Summary of Results

HCBS spending as a percentage of LTSS spending is the most commonly used measure of LTSS system transformation. As in the previous study, however, we found differences across states and subgroups for this measure and other measures that included a utilization-based measure (percentage of LTSS users who used HCBS) and a relative per-user expenditure ratio (per-user HCBS spending to per-user institutional care spending). Both the previous and current analyses underscored how different indicators of LTSS systems provide different insights into the level and nature of HCBS spending and use in a state. Specifically, some states are achieving higher rates of HCBS spending by providing a more limited set of HCBS to a large number of enrollees, whereas others are providing more extensive HCBS to fewer enrollees or are targeting specific subpopulations of enrollees. These analyses emphasize the need to continue using varied measures to evaluate HCBS programs and system transformation.

Our previous assessment of LTSS balance measures by subgroup indicated that differences in rates of HCBS use between enrollees who are aged and those with disabilities, as well as people with ID/DD, were widespread across the states (Wenzlow et al. 2011). As in 2006, we identified the largest differences in measures of LTSS systems by population age group and service delivery system. In the current analysis, we monitored the populations being reached by HCBS and the progress states have made since 2006 on using HCBS to serve different populations of enrollees. As we found in 2006, several states achieved overall balance by serving a relatively large number of aged people, whereas others did so by providing more HCBS to people with disabilities and ranked relatively low on balance for the aged. Finally, assessing performance on multiple measures and for multiple populations enabled us to identify a small group of states (Alaska, California, Colorado, Vermont, and Washington) that appear to have high rates of HCBS use and expenditures for diverse populations of Medicaid enrollees.

For the 35 states with reliable LTSS data in both 2006 and 2009, performance on two key indicators -- the percentage of Medicaid LTSS expenditures that were for HCBS and the percentage of LTSS users receiving HCBS -- reveals slight but notable progress in many states in re-balancing toward HCBS. We found, however, that progress by states during this time period on some measures was not always matched by corresponding progress on other measures or for all populations.

We updated our exploratory analysis of the bivariate association between state factors and policies and indicators of LTSS system balance. Our results suggest that several state factors are associated with system balance toward HCBS: (1) personal and home care aides per 1,000 elderly or individuals with a disability; (2) rates of consumer-direction; (3) percentage of out-of-home placements in facilities with six or fewer residents; and (4) availability of assisted living and residential care units, which were all positively associated with HCBS spending. Conversely, only the percentage of potential Medicaid eligibles age 75 or older was negatively associated with HCBS use and spending. We also found that higher rates of consumer-direction, availability of home health aides, and the availability of assisted living and residential care units were positively associated with HCBS use and expenditures for enrollees who were aged or had physical disabilities, but not for those enrollees with ID/DD. Other factors appear to be related to the progress in re-balancing LTSS for this population, most notably the availability of resources, shorter waiting lists for ID/DD waivers, and availability of small-facility placements for out-of-home care. We cannot infer causal relationships from these findings, but rather note that they point the way toward possibly fruitful work in the future.

B. Directions for Future Research

The exploratory findings presented here suggest some directions for future research.

- **Documenting Ongoing Patterns in LTSS Systems**. This study, combined with previous reviews, provides baseline data on trends in Medicaid-financed HCBS and institutional care use and expenditures over the previous decade. As the ACA is fully implemented and other initiatives to encourage HCBS use mature, it will be important to continue to identify and document trends in different measures of HCBS use and expenditures and in a context of overall Medicaid expansions in many states.

- **Constraints as Mediators of LTSS Policy**. Our preliminary analysis identified significant bivariate relationships between state-level contextual factors and LTSS system performance. These cross-sectional comparisons could be supplemented usefully with a more extensive study of the multivariate relationships using regression analysis across measures. Of particular interest is how the association between policies and balance may differ across groups of states experiencing similar fiscal, environmental, and demographic

characteristics. A longitudinal study assessing the effects of select policies would be an important extension of this work.

- **Balance at the Community Level**. Our analysis examines balance and relationships with policies and programs at the state level. However, many factors relevant to balance in LTSS may be more potent and predictive at the local or community levels. To the extent possible, research that assesses balance and relationships with local factors would provide valuable insights into differences in LTSS balance.

- **Level of Need and the Distribution of Care Received**. The patterns in utilization and spending per user reported here suggest sustained and substantial differences across states in the populations served and/or service levels provided. With additional data resources, we could further our understanding of whether LTSS systems are meeting the requirements set forth by Olmstead and examine whether the types of services individuals received are appropriate and provided in the most integrated setting possible. This type of research could be conducted following the implementation of uniform assessment tools for community care (similar to the Minimum Data Set in nursing home care). Such analyses could also potentially be feasible using qualitative data on a smaller scale in select communities.

REFERENCES

AARP Public Policy Institute. "State Long-Term Care Reform in Louisiana." Washington, DC: AARP Public Policy Institute, 2008. Available at http://assets.aarp.org/rgcenter/il/2008_10_ltc_la.pdf.

Alecxih, Lisa. "Nursing Home Use by the 'Oldest Old' Sharply Declines." Report to the National Press Club, November 21, 2006. Available at http://www.lewin.com/content/publications/NursingHomeUseTrendsPaperRev.pdf.

Arias, Elizabeth. "United States Life Tables, 2008." National Vital Statistics Reports, vol. 61, no. 3. Hyattsville, MD: National Center for Health Statistics, 2012. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_03.pdf.

Borck, Rosemary, Ashley Zlatinov, and Susan Williams. "Medicaid Analytic eXtract 2008 Encounter Data Chartbook." Report for the Centers for Medicare and Medicaid Services. Washington, DC: Mathematica Policy Research, 2013. Available at http://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/MAX_Chartbooks.html.

Braddock, David, Richard Hemp, Mary Rizzolo, Emily Shea Tanis, Laura Haffer, Amie Lulinski, and Jiang Wu. "State of the States in Developmental Disabilities 2013: The Great Recession and its Aftermath." Washington, DC: American Association on Intellectual and Developmental Disabilities, 2013.

Brown, Randall, Carol Irvin, Debra Lipson, Sam Simon, and Audra Wenzlow. "Research Design Report for the Evaluation of the Money Follows the Person (MFP) Grant Program." Report for the Centers for Medicare and Medicaid Services. Cambridge, MA: Mathematica Policy Research, October 3, 2008. Available at http://www.mathematica-mpr.com/publications/pdfs/MFP_designrpt.pdf.

Bureau of Economic Analysis (BEA). "Per Capita Real GDP by State (Chained 2005 Dollars)." June 6, 2013. Available at http://www.bea.gov/iTable/index_regional.cfm.

Bureau of Economic Analysis (BEA). "2009 Total Taxable Resources Estimates." September 21, 2009. Available at http://www.treasury.gov/resource-center/economic-policy/taxable-resources/Pages/Total-Taxable-Resources.aspx.

Bureau of Labor Statistics (BLS). "Occupational Employment Statistics (OES). Home Health Aides (SOC Code 311011) and Personal and Home Care Aides (SOC Code 399021)." 2009. Available at http://www.bls.gov/oes/2008/may/oes_stru.htm#31-0000.

Centers for Medicare and Medicaid Services (CMS). "Nursing Home Data Compendium 2012 Edition." Available at https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/downloads/nursinghomedatacompendium_508.pdf.

Cheek, Mike, Martha Roherty, Grace Cho, Jenna Walls, Kathleen Gifford, Wendy Fox-Grage, and Kathleen Ujvari. “On the Verge: The Transformation of Long-Term Services and Supports.” Washington, DC: AARP Public Policy Institute, February 2012.

Denny-Brown, Noelle, and Debra J. Lipson. “Early Implementation Experiences of State MFP Programs.” Reports from the Field: The National Evaluation of the Money Follows the Person Demonstration Grant Program, no. 3. Princeton, NJ: Mathematica Policy Research, November 2009. Available at http://www.mathematica-mpr.com/publications/PDFs/health/MFPfieldrpt3.pdf.

Doty, Pamela. "Cost-Effectiveness of Home and Community-Based Long-Term Care Services." Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, June 2000. Available at http://aspe.hhs.gov/daltcp/reports/2000/costeff.htm.

Doty, Pamela. “The Evolving Balance of Formal and Information, Institutional and Non-Institutional Long-Term Care for Older Americans: A Thirty-Year Perspective.” In *Advancing Home and Community-Based Services: Transforming Policies, Programs, and Service Delivery in Long-Term Care*, Public Policy and Aging Report, vol. 20, no. 1, Winter/Spring 2010. Available at http://www.hcbs.org/files/193/9616/PP&AR.pdf.

Eiken, Steve. “Promising Practices in Long-Term Care Systems Reform: Common Factors of Systems Change.” Report for the Centers for Medicare and Medicaid Services. Washington, DC: Medstat, November 9, 2004. Available at https://www.cms.gov/PromisingPractices/Downloads/commonfactors.pdf.

Eiken, Steve, Kate Sredl, Brian Burwell, and Lisa Gold. “Medicaid Expenditures for Long-Term Services and Supports: 2011 Update.” Cambridge, MA: Thomson Reuters, October 31, 2011. Available at http://www.hcbs.org/files/208/10395/2011LTSSExpenditures-final.pdf.

Farmer, Bonnie Cashin. "A Nursing Home and Its Organizational Climate: An Ethnography." Westport, CT: Greenwood Publishing Group, 1996.

Federal Housing Finance Agency. “Housing Price Index, 4th quarter 2010.” September 30, 2011. Available at http://www.fhfa.gov.

Feinberg, Lynn Friss, and Sandra L. Newman. “A Study of 10 States Since Passage of the National Family Caregiver Support Program: Policies, Perceptions, and Program Development.” *Gerontologist*, vol. 44, no. 6, 2004. Available at http://gerontologist.oxfordjournals.org/content/44/6/760.full.pdf+html.

Franks, Jeannette S. “Comparing Perceived Quality of Life in Nursing Homes and Assisted Living Facilities.” *Journal of Gerontological Social Work*, vol. 43, no. 1, 2004.

Grabowski, David. “The Cost-Effectiveness of Noninstitutional Long-Term Care Services: Review and Synthesis of the Most Recent Evidence.” *Medical Care Research and Review*, vol. 63, no. 3, February 2006, pp. 3-28.

Green, Angela, Joshua Wiener, Galina Khatutsky, et al. "Medicaid in Residential Care." Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, 2013. Available at http://aspe.hhs.gov/daltcp/reports/2013/FacBenDif.shtml.

Harrington, Charlene, Terence Ng, and Martin Kitchener. "Do Medicaid Home and Community Based Service Waivers Save Money?" *Home Health Care Services Quarterly*, vol. 30, no. 4, 2011, pp. 198–213. Available at http://www.tandfonline.com/doi/abs/10.1080/01621424.2011.622249.

Health Care Financing Administration. "Long Term Care: Background and Future Directions." HCFA 81-20047. January 1981.

Howes, Candace. "The Best and Worst State Practices in Medicaid Long-Term Care." *Direct Care Alliance Policy Brief*, no. 3, April 2010. Available at http://www.hcbs.org/files/180/8982/HowesMedicaidPolicyBrief.pdf.

Irvin, Carol V., and Jeffrey Ballou. "The Starting Point: The Balance of State Long-Term Care Systems Before the Implementation of the Money Follows the Person Demonstration." Reports from the Field: The National Evaluation of the Money Follows the Person Demonstration Grant Program, no. 4. Princeton, NJ: Mathematica Policy Research, May 2010. Available at http://www.mathematica-mpr.com/publications/pdfs/health/mfpfieldrpt4.pdf.

Kaiser Family Foundation (KFF). "Medicaid Home and Community-Based Service Programs: 2009 Data Update." Washington, DC: Kaiser Commission on Medicaid and the Uninsured, December 2012. Available at http://kaiserfamilyfoundation.files.wordpress.com/2013/01/7720-06.pdf.

Kaiser Family Foundation (KFF). "State Options That Expand Access to Medicaid Home and Community-Based Services." Washington, DC: Kaiser Commission on Medicaid and the Uninsured, October 2011. Available at http://kaiserfamilyfoundation.files.wordpress.com/2013/01/8241.pdf.

Kane, Rosalie, Robert Kane, Reinhard Priester, and Patricia Homyak. "Research on State Management Practices for the Rebalancing of State Long-Term Care Systems: Final Report." Submitted to the Centers for Medicare and Medicaid Services, Division of Advocacy and Special Initiatives. June 2008.

Kassner, Enid, Susan Reinhard, Wendy Fox-Grage, Ari Houser, and Jean Accius, with Barbara Coleman and Dann Milne. "A Balancing Act: State Long-Term Care Reform." Washington, DC: AARP Public Policy Institute, July 2008. Available at http://assets.aarp.org/rgcenter/il/2008_10_ltc.pdf.

Kaye, H. Stephen. "Gradual Rebalancing of Medicaid Long-Term Services and Supports Saves Money and Serves More People, Statistical Model Shows." *Health Affairs*, vol. 31, no. 6, 2012.

Kaye, H. Stephen, Mitchell LaPlante, and Charlene Harrington. "Do Noninstitutional Long-Term Care Services Reduce Medicaid Spending?" *Health Affairs*, vol. 28, no. 1, 2009, pp. 262-272. Available at http://content.healthaffairs.org/content/28/1/262.full.pdf+html.

Keenan, Teresa. "Home and Community Preferences of the 45+ Population." Washington, DC: AARP Research and Strategic Analysis, November 2010. Available at http://assets.aarp.org/rgcenter/general/home-community-services-10.pdf.

Kemper, Peter, Robert Applebaum, and Margaret Harrigan. “Community Care Demonstrations: What Have We Learned?” *Health Care Financing Review*, vol. 8, no. 4, Summer 1987, pp. 87-100.

Kemper, Peter. “Evaluation of the National Long Term Care Demonstration: Overview of Findings.” *Health Services Research*, vol. 23, no. 1, April 1988, pp. 161-174.

Kitchener, Martin, Terence Ng, Nancy Miller, and Charlene Harrington. “Institutional and Community-Based Long-Term Care: A Comparative Estimate of Public Costs.” *Journal of Health and Social Policy*, vol. 22, no. 2, August 2006, pp. 31-50.

Lakin, Charlie. “Behavioral Outcomes of Deinstitutionalization for People with Intellectual and/or Developmental Disabilities: Third Decennial Review of U.S. Studies, 1977-2010.” Policy Research Brief. Minneapolis, MN: University of Minnesota Research and Training Center on Community Living, April 2011. Available at http://ici.umn.edu/products/prb/212/212.pdf.

Lakin, K. Charlie, Sheryl Larson, Pat Salmi, and Naomi Scott. “Residential Services for Persons with Developmental Disabilities: Status and Trends Through 2008.” Minneapolis, MN: University of Minnesota, Research and Training Center on Community Living, Institute on Community Integration, 2009. Available at http://rtc.umn.edu/risp/docs/risp2008.pdf.

LaPlante, Mitchell. “The Woodwork Effect in Medicaid Long-Term Services and Supports.” *Journal of Aging and Social Policy*, vol. 25, no. 2, 2013, pp. 161-180.

Lester, Rebecca Sweetland, Carol V. Irvin, and Wilfredo Lim. "Recent Developments in State Efforts to Rebalance Long-Term Services and Supports." Reports from the Field: The National Evaluation of the MFP Demonstration, no. 13. Cambridge, MA: Mathematica Policy Research, October 2013. Available at http://www.mathematica-mpr.com/publications/redirect_PubsDB.asp?strSite=PDFs/health/MFPfieldrpt13.pdf.

Lightfoot, Elizabeth. “Older Adults with Developmental Disabilities.” In *Handbook of Social Work in Health and Aging*, edited by Barbara Berkman and Sarah D’Aambruoso. New York, NY: Oxford University Press, 2006.

Louisiana Department of Health and Hospitals. “Louisiana’s Plan for Choice in Long-Term Care: Comprehensive Long-Term Care Reform Plan.” October 2007. Available at http://www.dhh.louisiana.gov/assets/docs/OAAS/LTCSysChange/ChoiceinLTCPlan.pdf.

MetLife. “Market Survey of Long-Term Care Costs: The 2009 MetLife Market Survey of Nursing Home, Assisted Living, Adult Day Services, and Home Care Costs.” October 2009. Available at https://www.metlife.com/assets/cao/mmi/publications/studies/mmi-market-survey-nursing-home-assisted-living.pdf.

Miller, Nancy A. “Relations Among Home- and Community-Based Services Investment and Nursing Home Rates of Use for Working-Age and Older Adults: A State-Level Analysis.” *American Journal of Public Health*, vol. 101, no. 9, September 2011.

Mills, K., A.C. Graham, B.T. Winslow, and K.L. Springer. “Treatment of Nursing Home-Acquired Pneumonia.” *American Family Physician*, vol. 79, no. 11, June 1, 2009, pp. 976-982.

Mollica, Robert. “State Medicaid Reimbursement Policies and Practices in Assisted Living.” Washington, DC: National Center for Assisted Living, September 2009. Available at http://www.ahcancal.org/ncal/resources/documents/medicaidassistedlivingreport.pdf.

Mollica, Robert, and Jennifer Gillespie. “Single Entry Point Systems: State Survey Results.” New Brunswick, NJ: Rutgers/NASHP Community Living Exchange Collaborative, August 2003. Available at http://www.onceinaweil.org/sites/default/files/CLE_single_entry_point.pdf.

Mollica, Robert L., and Susan C. Reinhard. “Rebalancing State Long-Term Care Systems.” *Ethics, Law, and Aging Review*, vol. 11, 2005, pp. 23-41.

Moore, Judith, and David Smith. “Legislating Medicaid: Considering Medicaid and Its Origins.” *Health Care Financing Review*, vol. 27, no. 2, Winter 2005-2006. Available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/HealthCareFinancingReview/downloads/05-06Winpg45.pdf.

Muramatsu, Naoko, Hongjun Yin, and Donald Hedeker. “Functional Declines, Social Support, and Mental Health in the Elderly: Does Living in a State Supportive of Home and Community-Based Services Make a Difference?” *Social Science and Medicine*, vol. 70, no. 7, April 2010.

National Association of State Budget Officers. “Fiscal Year 2009 State Expenditure Report.” Fall 2010. Available at http://www.nasbo.org/node/59.

National Oceanic and Atmospheric Administration (NOAA). “Area-Weighted Seasonal Normals, 1971-2000 (and Previous Periods).” In *State, Regional, and National Seasonal Temperature and Precipitation, Historical Climatography Series No. 4-3*, August 2002. Available at http://cdo.ncdc.noaa.gov/climatenormals/hcs/HCS_43.pdf.

New Jersey Department of Health and Senior Services. "Independence, Dignity and Choice in Long-Term Care Act: Annual Report." July 1, 2009. Available at http://www.state.nj.us/humanservices/doas/documents/idc_report_709.pdf.

Ng, Terence. "HCBS Waiver Wait Lists: National Estimates 2012." Presented at the National Home and Community Based Services Conference, Arlington, VA, September 2013. Available at http://www.nasuad.org/documentation/HCBS_2013/Presentations/9.11%2010.00-11.15%20Roosevelt.pdf.

Park-Lee, Eunice, Christine Caffrey, Manisha Sengupta, et al. “Residential Care Facilities: A Key Sector in the Spectrum of Long-Term Care Providers in the United States.” Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, December 2011. Available at http://aspe.hhs.gov/daltcp/reports/2011/RCFkey.shtml.

Peterson, Greg, Randall Brown, and Allison Barrett. “The Impacts of Waiting Periods for Home- and Community-Based Services on Consumers and Medicaid Costs in Iowa.” Presented at the National Home and Community Based Services Conference, Arlington VA, September 2013. Available at http://www.nasuad.org/documentation/HCBS_2013/Presentations/9.11%2010.00-11.15%20Roosevelt.pdf.

Prohaska, Thomas R., Lynda A. Anderson, and Robert H. Binstock. "Public Health for an Aging Society." Baltimore, MD: Johns Hopkins University Press, 2012.

Pruchno, Rachel A., and Miriam S. Rose. “Effect of Long-Term Care Environments on Health Outcomes.” *Gerontologist*, vol. 40, no. 4, 2000.

Reinhard, Susan. “Money Follows the Person: Un-burning Bridges and Facilitating a Return to the Community.” *Generations*, 2012. Available at http://asaging.org/blog/money-follows-person-un-burning-bridges-and-facilitating-return-community.

Reinhard, Susan, Enid Kassner, Ari Houser, and Robert Mollica. “Raising Expectations: A State Scorecard on Long-Term Services and Supports for Older Adults, People with Physical Disabilities, and Family Caregivers.” Washington, DC: AARP, September 2011. Available at http://www.longtermscorecard.org/Report.aspx?page=all.

Rose, Miriam, Farida K. Ejaz, Linda S. Noelker, and Melissa Castora-Binkley. “Recent Findings on Home and Community-Based Services Across States.” In “Advancing Home and Community-Based Services: Transforming Policies, Programs, and Service Delivery in Long-Term Care.” *Public Policy and Aging Report*, vol. 20, no. 1, Winter/Spring 2010. Available at http://www.hcbs.org/files/193/9616/PP&AR.pdf.

Rozario, Philip A., and Elizabeth Palley. “When the Private Sphere Goes Public: Exploring the Issues Facing Family Caregiver Organizations in the Development of Long-Term Care Policies.” *Social Work in Public Health*, vol. 23, no. 4, October 2008.

Ruttner, Laura, and Carol V. Irvin. “Implications of State Methods for Offering Personal Assistance Services.” Medicaid Policy Brief no. 18. Chicago, IL: Mathematica Policy Research, June 2013. Available at http://www.mathematica-mpr.com/publications/pdfs/health/max_ib18.pdf.

Shirk, Cynthia. "Rebalancing Long-Term Care: The Role of the Medicaid HCBS Waiver Program." National Health Policy Forum Background Paper, March 3, 2006. Available at http://www.nhpf.org/library/background-papers/BP_HCBS.Waivers_03-03-06.pdf.

Siebenaler, Kristin, Janet O’Keeffe, David Brown, and Christine O’Keeffe. “Nursing Facility Transition Initiatives of the Fiscal Year 2001 and 2002 Grantees: Progress and Challenges, Final Report.” Research Triangle Park, NC: RTI International, 2005. Available at http://www.hcbs.org/files/74/3656/NFT_final_web.pdf.

Smith, Gary, Janet O'Keeffe, Letty Carpenter, Pamela Doty, Gavin Kennedy, Brian Burwell, Robert Mollica, and Loretta Williams. "Understanding Medicaid Home and Community Services: A Primer." Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, October 2000. Available at http://aspe.hhs.gov/daltcp/reports/primer.htm.

Smith, Gary, John Agosta, Jon Fortune, and Janet O'Keeffe. "Gauging the Use of HCBS Supports Waivers for People with Intellectual and Developmental Disabilities: Final Project Report." Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, April 2007. Available at http://aspe.hhs.gov/daltcp/reports/2007/gaugingfr.htm#hcbs.

Smith, Vernon K., Kathleen Gifford, Eileen Ellis, Robin Rudowitz, Molly O'Malley Watts, and Caryn Marks. "The Crunch Continues: Medicaid Spending, Coverage and Policy in the Midst of a Recession. Results from a 50-State Medicaid Budget Survey for State Fiscal years 2009 and 2010." Washington, DC: Kaiser Commission on Medicaid and the Uninsured, September 2009. Available at http://www.kff.org/medicaid/upload/7985.pdf.

Social Security Administration. "State Assistance Programs for SSI Recipients, January 2009." Office of Research, Evaluation, and Statistics, October, 2009. Available at http://www.ssa.gov/policy/docs/progdesc/ssi_st_asst/2009/ssi_st_asst09.pdf.

Spillman, Brenda, Korbin Liu, and Carey McGilliard. "Trends in Residential Long-Term Care: Use of Nursing Homes and Assisted Living and Characteristics of Facilities and Residents." Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, November 25, 2002. Available at http://aspe.hhs.gov/daltcp/reports/2002/rltct.htm.

University of Colorado. "The State of the States in Developmental Disabilities Project." Boulder, CO: American Association on Intellectual and Developmental Disabilities, 2013. Available at http://www.stateofthestates.org/index.php/intellectualdevelopmental-disabilities/state-profiles.

U.S. Court of Appeals. "Pennsylvania Protection and Advocacy, Inc. v. Pennsylvania Department of Public Welfare." Third Circuit. 402 F.3d 374 (2005). Available at http://www.clearinghouse.net/chDocs/not_public/PB-PA-0005-0003.pdf.

U.S. Department of Health and Human Services (HHS), Office of the Assistant Secretary for Planning and Evaluation (ASPE), Office of Social Services Policy. "Working Paper on Long-Term Care." Under Secretary's Task Force on Long-Term Care, October 1981. Available at http://aspe.hhs.gov/daltcp/reports/wrkppres.htm.

U.S. Department of Health and Human Services (HHS). "Medicaid Program: Final Rule." *Federal Register*, vol. 79, no. 11, January 16, 2014, pp. 2948-3039.

U.S. Government Accountability Office. "Medicaid: States' Plans to Pursue New and Revised Options for Home- and Community-Based Services." GAO-12-649. June 2012. Available at http://www.gao.gov/assets/600/591560.pdf.

U.S. Supreme Court. "Olmstead v. L. C. (98-536) 527 U.S. 581." 1999. Available at http://www.law.cornell.edu/supct/pdf/98-536P.ZO.

Vladeck, Bruce C. "Unloving Care: The Nursing Home Tragedy." New York, NY: Basic Books, 1980.

Walker, Lina. “Fact Sheet: Health Care Reform Improves Access to Medicaid Home and Community-Based Services.” Fact Sheet 192. Washington, DC: AARP Public Policy Institute, June 2010. Available at http://assets.aarp.org/rgcenter/ppi/ltc/fs192-hcbs.pdf.

Walls, Jenna, Kathleen Gifford, Catherine Rudd, Rex O’Rourke, Martha Roherty, Lindsey Copeland, and Wendy Fox-Grage. “Weathering the Storm: The Impact of the Great Recession on Long-Term Services and Supports.” Washington, DC: AARP Public Policy Institute, January 2011. Available at http://www.hcbs.org/files/201/10001/ResearchReport.pdf.

Wenzlow, Audra T., Robert Schmitz, and Kathy Shepperson. “A Profile of Medicaid Institutional and Community-Based Long-Term Care Service Use and Expenditures Among the Aged and Disabled Using MAX 2002: Final Report.” Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Disability, Aging and Long-Term Care Policy, January 18, 2008. Available at http://aspe.hhs.gov/daltcp/reports/2008/profileMAX.htm.

Wenzlow, Audra, Rosemary Borck, and Dean Miller. “An Investigation of Interstate Variation in Medicaid Long-Term Care Use and Expenditures.” Report for the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Cambridge, MA: Mathematica Policy Research, April 2011.

Wiener, Joshua M., Wayne L. Anderson, and David Brown. “Why Are Nursing Home Utilization Rates Declining?” Research Triangle Park, NC: RTI International, 2009. Available at https://www.hcbs.org/files/160/7990/SCGNursing.pdf.

Wodchis, Walter P., John P. Hirdes, and David H. Feeny. “Health-Related Quality of Life Measure Based on the Minimum Data Set.” *International Journal of Technology Assessment in Health Care*, vol. 19, no. 3, 2003.

APPENDIX A. GLOSSARY OF TERMS

This glossary summarizes the operational definitions of terms used in this report.

Age: Age is defined as of December 31, 2009.

Adult (BOE Group): A Basis of Eligibility (BOE) group that includes pregnant women and caretaker relatives in families with dependent children. (Adults who are eligible for Medicaid due to disability are coded as individuals with disabilities.)

Aged (BOE Group): A BOE group that includes enrollees age 65 or older who qualify for Medicaid due to their age. Because some states code all people over 65 as aged, enrollees older than 65 but categorized in another BOE group in MAX were recoded as aged for this study.

Basis of Eligibility (BOE): Eligibility grouping that traditionally has been used by CMS to classify enrollees as children, adults, aged, or individuals with disabilities.

Child (BOE Group): A BOE group that includes persons under age 18 or under age 21 in states electing to cover older children. (Children who are eligible for Medicaid due to disability are coded as individuals with disabilities.)

Disabled (BOE Group): A BOE group that includes persons of any age (including children) who are unable to engage in substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months. Because people over 65 with disabilities are often but not always categorized as aged, all people over 65 with disabilities were recoded as aged in this study.

Fee-For-Service (FFS): A payment mechanism in which payment is made for each utilized service. FFS services exclude services provided under capitated arrangements.

Home and Community-Based Services (HCBS): Services covered under Section 1915(c) waivers and personal care, residential care, home health care, adult day care, and private duty nursing services that are mandatory or provided at state option.

Home Health: Services provided at a patient's place of residence (typically a patient's home), in compliance with a physician's written plan of care that is reviewed every 62 days. These include nursing services, as defined in the State Nurse Practice Act, home health aide services, physical therapy, occupational therapy or speech pathology, and audiology services that are provided by a HHA or a facility licensed by the state to provide these medical rehabilitation services.

Institutional Long-Term Care (ILTC): NF services, services provided in ICFs/IID, mental hospital services for people over age 65, and inpatient psychiatric facility services for individuals under age 21.

Intermediate Care Facility for People with Intellectual Disabilities (ICF/IID): ICFs/IID are Medicaid-financed facilities for the care of individuals with ID/DD. These institutions are an optional Medicaid benefit that states may choose to offer; they are required to have four or more beds and offer treatment or rehabilitative services to people with ID/DD.

Managed Care: Payment mechanism used to manage health care, including services provided by health maintenance organizations, PACE, prepaid health plans, and primary care case management plans. Services provided under managed care plans are not included in the measures summarized in this report.

Personal Care: Personal services, such as bathing and toileting, sometimes expanded to include light housekeeping furnished to an individual who is not an inpatient or a resident of a group home, assisted living facility, or long-term facility, such as a hospital, NF, ICF/IID, or institution for mental disease. Personal care services are those that individuals typically would accomplish themselves if they did not have a disability.

Private Duty Nursing: Services, except those for mental health or substance abuse treatment, provided by registered nurses or licensed practical nurses under direction of a physician to recipients in their own homes, hospitals, or NFs, as specified by the state.

Program of All-Inclusive Care for the Elderly (PACE): A managed care plan that coordinates both acute and LTSS for eligible enrollees (those 55 and older, living in a PACE area, and otherwise eligible for nursing home care). A capitated payment mechanism is used for PACE plan enrollees. As a result, service-specific information is not available for services provided under PACE or other managed plans.

Residential Care: Although room and board services provided in residential care facilities are not covered by Medicaid, other components of residential care -- for example, personal care, 24-hour services, and chore services -- can be covered. Residential care includes group, family, or individual home residential care; cluster residential care; and therapeutic residential care services, assisted living, supported living, and night supervision.

Restricted-Benefit Enrollees: Enrollees who receive limited Medicaid coverage, including unqualified aliens eligible only for emergency benefits, Qualified Medicare Beneficiaries, and people eligible for only family-planning services. Some enrollees may be eligible for a restricted set of services but are coded as full-benefit enrollees -- for example, those eligible for prescription drug coverage and Medicare cost-sharing only.

Waiver: Services provided under Section 1915(c) of the Social Security Act that enable states to provide Medicaid-financed community-based LTSS for people who otherwise would require Medicaid-covered hospital care, NF care, or care in an ICF/IID. These programs can be designed to target individuals in specific age groups and with specific conditions, and the services can be restricted to certain areas of the state. (Other types of Medicaid waivers -- for example, 1115 waivers that cover population subgroups not generally covered under Medicaid, or those that fundamentally change service delivery -- are not discussed in this report.)

APPENDIX B. DATA AND METHODS

The indicators of LTSS system performance presented in this report are based on data from the 2009 MAX PS files. In addition, we used a variety of publicly available data sources to develop indicators of state factors and policies associated with Medicaid LTSS. In this appendix, we describe the data, their strengths and limitations, and the methods we used to develop variables and conduct our analysis.

A. Medicaid Analytic eXtract Data and Analysis Methods

The MAX and its source data -- the Medicaid Statistical Information System (MSIS) -- are the primary sources of information about each of the more than 50 million people enrolled in Medicaid each year. CMS produces both MSIS and MAX and makes them available publicly (with a data use agreement) for research purposes. Because Medicaid is the largest insurer of LTSS in the United States, these data provide the most detailed information currently available about people using LTSS services nationally.

Most MAX data are derived directly from MSIS. MSIS contains FY Medicaid enrollment and claims-paid information for each state and the District of Columbia. The MAX data system is a cleaned and enhanced version of MSIS that enables analyses of enrollment, utilization, and expenditures at the person level. Unlike MSIS, which reflects claims as of the date they were paid, MAX includes the services used by Medicaid enrollees during a calendar year.

We used the MAX PS files for 2009 for the analyses presented in this report. The MAX PS files are person-level files that contain information on enrollee demographic and eligibility characteristics and summary information on claims paid for services used by each enrollee during the year. Summary expenditure information in the MAX PS file is disaggregated by type of service.

1. Demographic and LTSS Variables

For the most part, we followed the methods used in our previous report, and originally developed in Wenzlow et al. (2008), to construct demographic profiles, HCBS and institutional care use, and expenditures using MAX 2009 for this study.

As described in Chapter I, we measure HCBS by use of Section 1915(c) waiver services or one of five state plan services -- personal care, residential care, home health, adult day care, and private duty nursing. HCBS are challenging to identify because they may include a variety of services -- for example, transportation or targeted case management -- that also may be used for reasons unrelated to LTSS. For this

reason, we exclude such services from our definition of HCBS unless they were provided under waivers. Moreover, our analysis of MAX data suggested that, in many states, a large portion of hospice care is provided to people leaving nursing homes for short periods prior to death. Also, in many cases, this care is provided in hospices or nursing homes rather than the home. Because our aim is to understand the degree to which states support HCBS as an alternative to institutional care, we excluded state plan hospice from our operational definition of HCBS.

We identified Medicaid institutional LTSS solely by using service type information in MAX. The four institutional LTSS types of service include NF services, services provided in ICFs/IID, mental hospital services for people age 65 and older, and inpatient psychiatric facility services for people under age 21. Thus, we are not including people who are institutionalized and receiving LTSS in inpatient hospitals or other facilities.

2. Data strengths and limitations

In-depth analyses of LTSS use and spending rely on detailed person-level data, such as those available in MAX. However, the data do have some limitations that should be kept in mind when interpreting MAX-based findings.

a. Timeliness of Data

Due to extensive reporting, data cleaning, and file construction requirements, MAX data are not as current as may be needed to address certain policy questions. Many states are altering their Medicaid LTSS programs as a result of new legislation and the economic environment. The results presented in the report reflect Medicaid programs in 2009.

b. Information Not Captured in MAX

Some Medicaid LTSS expenditures are not included in MAX:

- **Managed Care**. LTSS utilization and expenditures reported here reflect FFS use and expenditures only.[20] In the past, LTSS rarely was covered under managed care arrangements, with Arizona's program a notable exception. However, managed care now also covers all elderly in Minnesota and most LTSS users in New Mexico and is growing in other states.

- **Bulk Payments**. Because MAX contains only person-level data, services paid (or debited) for multiple individuals in lump sum -- for example, HCBS waiver, some capitated payments, and disproportionate-share hospital payments -- are not included in the files.

[20] Expenditures for any institutional or community-based LTC services provided under managed care are subsumed into managed care capitated payments. Services covered under managed care (including any for LTC) generally cannot be identified in MAX as they are reported in "encounter records," which are incomplete for many states in MSIS and MAX (Borck et al. 2013).

- **Services Not Covered by Medicaid**. Medicaid premium payments paid on behalf of dual Medicare and Medicaid enrollees are not included in MAX. Co-insurance payments for duals are included in MAX only if Medicaid made payments for such services.

Because these data are not included in MAX, statistics for states with a significant portion of their LTSS expenditures paid in bulk or with extensive LTSS managed care programs cannot be compared directly with statistics computed for other states using MAX.

c. Double-Counting of Enrollees

Individuals who use Medicaid services in more than one state are observed as two people living in separate states in MAX. This double-counting implies that national measures of Medicaid LTSS use are somewhat overestimated. However, while movement across states among the general elderly population is common, we expect movement across states among low-income aged or individuals with disabilities using LTSS to be very limited and have a small impact on our estimates overall.

d. Data Anomalies and Exclusions

As with most administrative files of similar size and scope, MAX data contain a variety of data anomalies. A list of data anomalies associated with MAX LTSS measures used in this analysis for 2009 is provided in Appendix C.

The analyses presented in this report capitalize on the strengths of MAX while taking into account the aforementioned limitations of the data. Our analyses represent Medicaid enrollees from 38 states that we believe have reliable data.[21] We excluded states with extensive missing data or data that vary significantly from summary measures reported for other data sources. In our previous study, we used MAX 2006 data and excluded 11 states from the analysis due to data quality concerns. Two of the states excluded in 2006 (New Hampshire and Texas) could be included in the analysis of MAX 2009 data, because data quality concerns from 2006 had been resolved. We excluded 13 states from all analyses in this study (Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). We list data anomalies for these and all other states in Appendix C. We based exclusion decisions on comparisons with statistics prepared by Eiken et al. (2011) that reflect CMS Form 64 data, comparisons with waiver statistics reported by Kaiser (2012), and knowledge about the structure of state Medicaid programs in terms of their institutional and community LTSS provisions, comparison of community LTC expenditures in MAX and in, comparison of Section 1915(c) waiver enrollees in MAX with Form 372 data, and information in the MAX anomaly tables about major data quality limitations in relevant data fields (such as

[21] In this report, the use of the word "states" encompasses the 50 states and the District of Columbia.

missing claims data or missing waiver enrollment). In addition, we excluded the District of Columbia, Vermont, and Washington from our analyses of compared system performance for people with physical disabilities and those with ID/DD. In these states, we could not adequately differentiate people with ID/DD from those with physical disabilities.

We note that not all excluded states are known to have problematic LTSS data in MAX. We excluded states from the analysis when statistics obtained using MAX varied substantially from other published reports and the accuracy of MAX data could not be confirmed. MAX data for such states indeed may be accurate but are not included in our results.

3. Analysis Methods

In our analyses, we limited the population of LTSS users to those eligible for Medicaid as a result of age or disability and those eligible for comprehensive benefits at some point during the entire year.[22] Aged enrollees include all enrollees age 65 and older in 2009. Enrollees with disabilities include people of all ages who were under 65 in 2009 and who were eligible for Medicaid on the basis of disability. These two groups include almost all enrollees using Medicaid LTSS. However, a small number of states have a notable number of Section 1915(c) waiver enrollees reported as eligible on the basis of being children or adults without disabilities: Montana (9 percent), which was excluded from our analysis, and New Hampshire (1 percent) and North Dakota (5 percent), which were included. Total HCBS use and expenditures may be somewhat underestimated in these two states. See Appendix A for further descriptions of the BOE groups.

While we present national averages based on 38 states (or 35 states in our comparative analyses of people with physical disabilities or ID/DD), the excluded states may bias our results. Some excluded states -- Oregon, for example -- are known to have strong community-based LTSS programs. However, others -- Pennsylvania, for example -- typically have spent less on community-based services than institutional care in the past. As a result, it is plausible that our national totals based on the 38 states represented in this study closely match true averages for all Medicaid enrollees, although it is also possible that significant biases are present. The national estimates should be interpreted with a bit of caution.

[22] We excluded people reported to be eligible only for family-planning services, unqualified aliens eligible only for emergency services, and restricted-benefit duals receiving coverage only for Medicare premiums and cost-sharing.

APPENDIX C. STATE LONG-TERM SERVICES AND SUPPORTS DATA ANOMALIES

MAX data are derived from enrollment and claims data files that are submitted by states to CMS. Due to differences in state reporting systems and capabilities, MAX data contain some state-specific anomalous and possibly incomplete or incorrect data. Data anomalies that are most relevant to the analyses of MAX 2009 data that are presented in this report are listed in Table C.1. A detailed list of all MAX 2009 data anomalies is available from the CMS website at: http://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/MAXGeneralInformation.html.

In addition to examining MAX 2009 data anomalies, we compared reported expenditures for LTSS, including Section 1915(c) waiver services, all HCBS, and also institutional LTSS (NF and ID/DD services), to expenditures for FY 2009 reported by states to CMS in the Form 64. We also compared Section 1915(c) waiver enrollment to enrollment counts in Form 372 data (as reported in KFF 2012). These sources provided additional benchmarks for assessing the magnitude of MAX data anomalies and context for our results.

Based on these analyses, we excluded 13 states from all analyses. Maine was excluded because complete 2009 data were unavailable. Arizona, Hawaii, Minnesota, New Mexico, Oregon, Pennsylvania, and Tennessee were excluded because they provide most services, or at least the majority of LTSS, to Medicaid enrollees who are aged or have disabilities via managed care arrangements and this analysis focused on services provided on a FFS basis. Massachusetts, Michigan, Montana, Rhode Island, and Wisconsin were excluded because we concluded from comparisons with Form 64 and assessments of MAX data anomalies that their HCBS data were potentially unreliable. The District of Columbia, Vermont, and Washington were excluded from analyses of populations with physical disabilities or ID/DD because waiver data used to identify these populations was not reported in MAX 2009 and individuals with ID/DD could not be distinguished from other enrollees in these states.

TABLE C.1. MAX 2009 State LTSS Data Anomalies		
State	**Excluded From Study**	**Anomalies**
All States	**---**	**Expenditures reported as service tracking claims are not included in MAX as they cannot be attributed to specific enrollees.**
Alabama	---	No notes.
Alaska	---	Alaska had a state-operated Pioneers Home System, not included in Medicaid that provided services to many people who might otherwise be in a NF. NF expenditures in MAX ($81 million) were about 31% lower than in Form 64 ($119 million). Average Medicaid expenditures in MAX for NF services, however, were consistent with previous years.
Arizona	X	Over half of enrollees who are aged or had disabilities were enrolled in managed care in 2009, including about 55,000 enrollees in managed LTSS, and more than half of the remaining Medicaid enrollees are in the Indian Health Service, so FFS distributions are unusual. HCBS expenditures in MAX (about $420,000) were about 95% lower than in Form 64 ($9.0 million). As a result, Arizona is excluded from the analyses presented in this report.
Arkansas	---	Arkansas reported a small PACE program with fewer than 50 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
California	---	California reported a PACE program with about 2,700 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Colorado	---	Colorado reported a PACE program with about 1,900 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Connecticut	---	Section 1915(c) waiver expenditures were about 36% lower in MAX ($808 million) than in Form 64 ($1.3 million) due to lower than expected claims for individuals in ID/DD waivers.
Delaware	---	No notes.
District of Columbia	Excluded from analyses of individuals with physical disabilities and ID/DD only	There were about 40% more Section 1915(c) waiver enrollees in MAX (4,300) than in Form 372 data (3,100). Reported waiver expenditures in MAX, however, were within 5% of expenditures in Form 64. District of Columbia did not report any individuals with ID/DD who used LTSS and was excluded from analyses that focused on the individuals with physical disabilities and those with ID/DD.
Florida	---	Florida reported a PACE program with about 300 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Georgia	---	No notes.
Hawaii	X	Almost all Medicaid enrollees who were aged or had disabilities were enrolled in managed care in 2009, so FFS distributions are unusual. HCBS expenditures in MAX ($25,000) were more than 95% lower than expenditures in Form 64 ($139 million). In addition, ILTC expenditures were about 99% lower in MAX ($250,000) than in Form 64 ($115 million). As a result, Hawaii is excluded from the analyses presented in this report.
Idaho	---	No notes.
Illinois	---	HCBS expenditures in MAX ($1.4 million) were about 52% higher than expenditures in CMS-54 data ($917 million). There are no indications, however, that HCBS information in MAX should be considered unreliable for Illinois.
Indiana	---	No notes.
Iowa	---	Iowa reported a PACE program with fewer than 100 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.

TABLE C.1 (*continued*)		
State	**Excluded From Study**	**Anomalies**
Kansas	---	Kansas reported a PACE program with about 300 enrollees in MAX 2009. Services provided through this program are not reported in MAX FFS data.
Kentucky	---	There were about 37% more Section 1915(c) waiver enrollees reported in MAX (18,000) than in Form 372 data (13,000). Reported expenditures for these waivers in MAX ($341 million), however, were within 1% of reported expenditures in Form 64 ($344 million).
Louisiana	---	Louisiana reported a PACE program with about 200 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Maine	X	Maine did not submit complete and reliable inpatient, LTSS, or other claims in 2009. As a result, Maine is excluded from the analyses presented in this report.
Maryland	---	Section 1915(c) waiver expenditures in MAX ($460 million) were about 35% lower than in Form 64 ($711 million). Lower expenditures in MAX appear to be caused by low levels of reported claims for children in autism waivers as well as for enrollees in waivers for individuals with physical disabilities. Maryland also reported a PACE plan with about 200 enrollees in MAX 2009.
Massachusetts	X	Massachusetts enrolled about 14,000 aged Medicaid enrollees in PACE and Senior Care Options plans in 2009, the latter being similar to PACE plans. Expenditures for services provided through these plans cannot be identified in MAX. Estimates of HCBS expenditures in MAX ($1.1 million) were about one-third lower than in Form 64 data ($1.7 million). Also, Section 1915(c) waiver enrollment cannot be identified in MAX 2009. As a result, Massachusetts is excluded from the analyses presented in this report.
Michigan	X	HCBS expenditures in MAX ($295 million) were about 65% lower than expenditures in Form 64 ($838 million). Estimated Section 1915(c) enrollment in MAX (11,500 enrollees) was about 40% lower than in Form 372 data (19,600 enrollees). MAX estimates may be lower in part due to enrollment in Section 1915(b)/(c) waivers in the state that provide HCBS through managed care arrangements. As a result, Michigan is excluded from the analyses presented in this report.
Minnesota	X	In 2009, Minnesota enrolled more than half of aged enrollees and about 15% of enrollees with disabilities in managed care plans, which included coverage for HCBS and 180 days of NF care. LTSS provided through these plans cannot be identified in MAX. Also, institutional LTSS expenditures were about 68% lower in MAX ($326 million) than in Form 64 ($1.0 billion). As a result, Minnesota is excluded from the analyses presented in this report.
Mississippi	---	No notes.
Missouri	---	No notes.
Montana	X	HCBS expenditures in MAX ($76 million) were about half the amount reported in Form 64 ($167 million). This discrepancy was partly caused by problems with linkages of claims and eligibility data in MAX 2009, which resulted in claims not always being appropriately linked to the enrollee who received the service. As a result, Montana is excluded from the analyses presented in this report.
Nebraska	---	No notes.
Nevada	---	No notes.
New Hampshire	---	No notes.
New Jersey	---	New Jersey reported a PACE program with about 130 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.

TABLE C.1 (*continued*)		
State	**Excluded From Study**	**Anomalies**
New Mexico	X	In 2009, New Mexico moved all enrollees who used LTSS and all dual-eligibles into managed care, covering about 42,000 aged and Medicaid enrollees with disabilities in managed LTSS and PACE plans. Services provided through these plans are not included in MAX FFS data. HCBS expenditures in MAX ($213 million) were about 49% lower than in Form 64 ($420 million). Expenditures for institutional LTSS were about 50% lower in MAX ($40 million) than in Form 64 data ($84 million). As a result, New Mexico is excluded from the analyses presented in the report.
New York	---	New York covered about 32,000 aged and Medicaid enrollees with disabilities in managed LTSS and PACE plans in 2009. Services provided through these plans are not included in MAX FFS data. HCBS expenditures, however, compare well with Form 64.
North Carolina	---	North Carolina reported a PACE program with fewer than 100 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
North Dakota	---	North Dakota reported a PACE program with fewer than 50 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Ohio	---	Ohio had a PACE program in 2009 that was not reported in MAX data.
Oklahoma	---	North Dakota reported a PACE program with about 50 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Oregon	X	Over half of enrollees who were aged or had disabilities were enrolled in managed care plans in 2009, including about 850 enrollees in PACE plans. HCBS expenditures in MAX ($197 million) were about 79% lower than in Form 64 ($959 million). Also, institutional LTSS expenditures in MAX ($226 million) were about 35% lower than in Form 64 ($349 million). As a result, Oregon is excluded from the analyses presented in this report.
Pennsylvania	X	About half (55%) of enrollees with disabilities were covered by managed care plans in 2009, including about 2,600 enrollees in PACE and managed LTSS plans. Services provided through managed care plans are not included in MAX FFS data. HCBS expenditures in MAX ($1.2 billion) were about 45% lower than in Form 64 ($2.2 billion). As a result, Pennsylvania is excluded from the analyses presented in this report.
Rhode Island	X	In July 2009, Rhode Island moved all Section 1915(c) waiver coverage to a Section 1115 waiver program and the enrollees in HCBS programs were no longer identifiable in MAX data. HCBS expenditures in MAX ($78 million) were about 71% lower than in Form 64 ($266 million). Also, institutional LTSS expenditures in MAX ($505 million) were about 65% higher than expenditures in Form 64 ($305 million). As a result, Rhode Island is excluded from the analyses presented in this report.
South Carolina	---	South Carolina reported a PACE program with about 450 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
South Dakota	---	No notes.

TABLE C.1 (*continued*)		
State	**Excluded From Study**	**Anomalies**
Tennessee	X	By 2009, Tennessee had moved almost all Medicaid enrollees to managed care plans -- with more than 80% of enrollees who were aged or had disabilities in these plans. HCBS expenditures in MAX ($123 million) were about 82% lower than in Form 64 ($674 million). Also, Section 1915(c) waiver enrollment was about 41% higher in MAX (14,900 enrollees) than in Form 372 data (10,500 enrollees). Finally, institutional LTSS expenditures were about 99% lower in MAX ($11.5 million) than in Form 64 data ($1.2 billion). As a result, Tennessee is excluded from the analyses presented in this report.
Texas	---	Texas enrolled about one-third of Medicaid enrollees who were aged or had disabilities in managed care plans, including about 1,000 enrollees in PACE plans. Services provided through managed care plans are not included in MAX FFS data. Also, Texas did not report enrollment in two of its Section 1915(c) waivers in MAX in 2009. Reported expenditures for HCBS and ILTC in MAX, however, were comparable to Form 64 data.
Utah	---	No notes.
Vermont	Excluded from analyses of individuals with physical disabilities and ID/DD only	Section 1915(c) waiver services were covered under Vermont's Section 1115 Global Commitment to Health waiver. The Global waiver puts most enrollees into a public managed care organization, but most services are reported as FFS in MAX. HCBS expenditures in MAX ($197 million) were about 250% higher than in Form 64 ($57 million). This difference may be the result of Vermont's coverage through an 1115 waiver and not an indication of the unreliability of MAX data. Individuals with ID/DD cannot be distinguished from enrollees with physical disabilities due to the way that Vermont provides HCBS.
Virginia	---	Virginia reported a PACE program with about 500 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data.
Washington	Excluded from analyses of individuals with physical disabilities and ID/DD only	Washington did not report Section 1915(c) waiver enrollment in 2009, so people with physical disabilities and those with ID/DD could not be differentiated. Washington reported a PACE program with about 400 enrollees in MAX 2009. Services provided through this program are not included in MAX FFS data. Expenditures for institutional LTSS were about 36% lower in MAX ($477 million) than in Form 64 ($739 million). This was primarily caused by very low expenditures for ICFs/IID in MAX 2009.
West Virginia	---	No notes.
Wisconsin	X	Lags in the submission of claims data for MAX 2009 resulted in missing Section 1915(c) waiver claims. Wisconsin had a PACE program in 2009 that was not reported in MAX data. HCBS expenditures were about 66% lower in MAX ($300 million) than in Form 64 ($873 million). Also, MAX (19,900 enrollees) includes about 65% fewer Section 1915(c) enrollees than Form 372 data (57,600 enrollees). Finally, institutional LTSS expenditures in MAX ($947 million) were about 32% lower than in Form 64 ($1.4 billion). As a result, Wisconsin is excluded from the analyses presented in this report.
Wyoming	---	No notes.

APPENDIX D. ADDITIONAL TABLES

TABLE D.1. Number of Enrollees Who Were Aged or Had Disabilities and Used Medicaid FFS LTSS Compared with the Total Number of Full-Benefit Enrollees in 2009								
State	**All Full-Benefit Medicaid Enrollees**	**All Full-Benefit Enrollees Who Were Aged or Had Disabilities**	**Non-LTSS Enrollees[a]**	**Total LTSS Enrollees[b]**	**Total HCBS Enrollees[b]**	**Enrollees Who Were Aged of Had Disabilities Using Any FFS LTSS**	**Enrollees Who Were Aged of Had Disabilities Enrollees Using HCBS**	**Enrollees Who Were Aged of Had Disabilities Using ILTC**
All 38 States	**45,081,240**	**10,515,083**	**41,884,297**	**3,196,943**	**2,170,127**	**3,130,010**	**2,085,312**	**1,204,507**
Alabama	731,954	222,490	667,910	64,044	43,423	63,918	43,256	24,940
Alaska	131,811	24,418	123,940	7,871	7,081	7,764	6,956	1,083
Arkansas	638,989	160,707	595,326	43,663	23,950	41,000	21,011	21,663
California	7,611,377	1,996,587	6,944,186	667,191	567,384	664,249	564,223	124,871
Colorado	619,470	135,281	571,996	47,474	35,216	46,665	34,211	14,575
Connecticut	566,782	115,466	509,173	57,609	32,849	57,372	32,310	29,928
Delaware	186,267	25,866	179,463	6,804	3,341	6,710	3,236	3,776
District of Columbia	171,754	48,988	160,370	11,384	7,907	11,121	7,623	4,001
Florida	3,146,373	757,806	2,987,924	158,449	91,916	140,198	72,723	69,646
Georgia	1,684,389	347,266	1,616,958	67,431	31,903	66,755	30,873	37,266
Idaho	222,086	46,225	201,910	20,176	16,437	19,703	15,772	5,568
Illinois	2,743,532	492,654	2,570,434	173,098	115,800	155,287	89,588	77,642
Indiana	1,108,486	202,327	1,043,916	64,570	27,296	64,197	26,891	39,631
Iowa	495,748	107,783	440,017	55,731	41,868	55,299	41,222	19,956
Kansas	355,745	95,262	309,467	46,278	33,354	41,457	28,154	15,006
Kentucky	858,576	261,201	809,937	48,639	22,685	47,681	21,594	27,654
Louisiana	1,079,361	253,389	1,006,921	72,440	36,158	72,174	35,863	38,868
Maryland	925,138	180,504	870,672	54,466	32,791	53,822	32,088	22,865
Mississippi	625,701	183,660	585,026	40,675	19,201	40,506	18,881	22,679
Missouri	1,071,615	286,262	973,803	97,812	69,613	96,068	67,271	37,877
Nebraska	270,855	57,956	249,125	21,730	12,100	21,549	11,754	11,227
Nevada	281,917	48,819	268,368	13,549	9,288	13,403	9,099	4,728
New Hampshire	152,933	35,423	138,845	14,088	8,039	13,941	7,835	6,915
New Jersey	1,161,066	302,666	1,058,152	102,914	62,490	102,389	61,663	44,157
New York	5,139,173	1,178,954	4,787,146	352,027	230,832	345,398	222,936	140,219
North Carolina	1,689,693	443,798	1,539,986	149,707	110,677	149,371	110,261	45,234
North Dakota	76,868	17,775	67,995	8,873	4,136	8,846	4,101	5,208
Ohio	2,261,497	484,297	2,091,963	169,534	101,606	168,011	99,686	86,304
Oklahoma	788,052	171,017	733,521	54,531	34,618	53,604	33,504	22,096
South Carolina	876,589	223,432	831,267	45,322	28,730	45,072	28,447	17,811
South Dakota	127,020	24,076	116,272	10,748	5,487	10,680	5,398	5,781
Texas	4,222,589	873,046	3,974,721	247,868	154,105	246,814	150,891	104,441
Utah	327,631	54,070	316,092	11,539	6,393	10,975	5,528	5,724
Vermont	165,471	31,983	154,770	10,701	7,871	10,701	7,871	3,620
Virginia	944,921	225,580	885,469	59,452	43,320	59,028	42,854	27,159

TABLE D.1 (*continued*)								
State	**All Full-Benefit Medicaid Enrollees**	**All Full-Benefit Enrollees Who Were Aged or Had Disabilities**	**Non-LTSS Enrollees[a]**	**Total LTSS Enrollees[b]**	**Total HCBS Enrollees[b]**	**Enrollees Who Were Aged of Had Disabilities Using Any FFS LTSS**	**Enrollees Who Were Aged of Had Disabilities Enrollees Using HCBS**	**Enrollees Who Were Aged of Had Disabilities Using ILTC**
Washington	1,158,655	256,877	1,075,684	82,971	67,814	82,971	67,814	19,625
West Virginia	385,905	127,937	356,992	28,913	17,961	28,750	17,575	12,288
Wyoming	75,251	13,235	68,580	6,671	4,487	6,561	4,349	2,475

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Non-LTSS enrollees include all full-benefit enrollees eligible as children and adults without disabilities. Only enrollees who are aged or had disabilities are included in counts of LTSS enrollees and users.

b. Individuals who are enrolled in 1915(c) waivers, but do not receive HCBS are included in counts of LTSS and HCBS enrollees but excluded from counts of LTSS and HCBS users.

TABLE D.2. Medicaid LTSS System Performance Indicators for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 38 States	**90,014,728,763**	**3,130,010**	**45.3**	**55.1**	**66.6**	**19,547**	**40,890**	**0.478**
Alabama	1,332,176,146	63,918	29.7	49.2	67.7	9,154	37,538	0.244
Alaska	344,563,447	7,764	73.8	79.2	89.6	36,547	83,417	0.438
Arkansas	989,454,103	41,000	27.3	42.2	51.2	12,867	33,195	0.388
California	12,064,245,829	664,249	60.8	70.8	84.9	12,993	37,908	0.343
Colorado	1,300,230,159	46,665	57.6	64.4	73.3	21,887	37,835	0.578
Connecticut	2,498,041,847	57,372	36.2	45.5	56.3	27,961	53,282	0.525
Delaware	340,623,579	6,710	35.9	40.2	48.2	37,758	57,849	0.653
District of Columbia	590,462,733	11,121	50.5	58.0	68.5	39,142	73,003	0.536
Florida	4,155,577,858	140,198	30.0	38.4	51.9	17,164	41,745	0.411
Georgia	1,683,701,045	66,755	33.0	43.2	46.2	17,987	30,279	0.594
Idaho	461,085,970	19,703	42.5	64.3	80.0	12,425	47,614	0.261
Illinois	3,540,342,818	155,287	35.4	48.4	57.7	13,974	29,474	0.474
Indiana	2,160,937,796	64,197	36.0	42.3	41.9	28,928	34,898	0.829
Iowa	1,355,006,858	55,299	42.2	60.0	74.5	13,882	39,225	0.354
Kansas	1,006,566,458	41,457	56.2	66.7	67.9	20,087	29,390	0.683
Kentucky	1,342,891,916	47,681	27.2	38.8	45.3	16,914	35,353	0.478
Louisiana	2,035,834,502	72,174	38.0	46.1	49.7	21,569	32,476	0.664
Maryland	1,996,568,849	53,822	45.7	52.0	59.6	28,423	47,433	0.599
Mississippi	1,175,187,746	40,506	14.7	25.6	46.6	9,172	44,183	0.208
Missouri	1,836,511,964	96,068	45.0	62.9	70.0	12,289	26,660	0.461
Nebraska	612,132,766	21,549	42.1	49.8	54.5	21,932	31,562	0.695
Nevada	339,047,042	13,403	45.6	53.4	67.9	16,990	39,014	0.435
New Hampshire	463,202,438	13,941	53.6	60.2	56.2	31,664	31,108	1.018
New Jersey	3,835,410,402	102,389	33.6	40.4	60.2	20,897	57,678	0.362
New York	20,116,573,292	345,398	50.0	56.7	64.5	45,150	71,681	0.630
North Carolina	3,182,180,366	149,371	45.8	59.4	73.8	13,204	38,163	0.346
North Dakota	338,845,939	8,846	28.1	34.1	46.4	23,223	46,776	0.496
Ohio	5,415,944,206	168,011	39.6	49.8	59.3	21,492	37,930	0.567
Oklahoma	1,151,255,033	53,604	43.7	53.9	62.5	15,030	29,312	0.513
South Carolina	1,075,756,276	45,072	41.4	52.8	63.1	15,658	35,390	0.442
South Dakota	286,371,345	10,680	38.2	45.1	50.5	20,285	30,596	0.663
Texas	5,505,748,864	246,814	42.1	51.0	61.1	15,356	30,531	0.503
Utah	369,135,855	10,975	42.7	48.6	50.4	28,505	36,960	0.771
Vermont	298,904,023	10,701	61.2	73.6	73.6	23,243	32,034	0.726
Virginia	1,775,061,683	59,028	48.7	72.5	72.6	20,181	33,514	0.602

TABLE D.2 (*continued*)								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Washington	1,930,549,587	82,971	74.8	78.0	81.7	21,284	24,825	0.857
West Virginia	902,596,728	28,750	41.2	50.6	61.1	21,142	43,215	0.489
Wyoming	206,001,295	6,561	56.4	62.6	66.3	26,736	36,252	0.738

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). Potential LTSS Users are based on data from the ACS 2009 Public Use Microdata Sample.

NOTE: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

TABLE D.3. Medicaid LTSS System Performance Indicators for Aged Enrollees Eligible for Full Medicaid Benefits in 2009								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 38 States	**43,542,067,317**	**1,699,811**	**30.2**	**36.8**	**54.5**	**14,184**	**34,769**	**0.408**
Alabama	798,789,081	27,246	10.2	22.2	38.1	7,853	36,938	0.213
Alaska	145,918,539	3,338	58.5	65.1	85.5	29,909	95,972	0.312
Arkansas	545,644,965	25,383	18.8	31.2	45.1	8,975	29,106	0.308
California	6,030,924,709	368,695	50.8	57.8	80.2	10,354	32,954	0.314
Colorado	579,818,876	22,764	27.2	32.9	55.4	12,520	36,365	0.344
Connecticut	1,368,450,337	35,122	17.7	24.2	42.3	16,311	47,888	0.341
Delaware	166,532,142	3,800	12.8	15.2	27.3	20,505	48,935	0.419
District of Columbia	269,103,829	5,410	38.4	44.8	59.1	32,294	66,691	0.484
Florida	2,278,225,670	73,070	7.2	9.9	27.2	8,241	38,819	0.212
Georgia	942,216,129	37,961	10.4	13.5	24.3	10,630	28,603	0.372
Idaho	214,481,724	8,473	25.0	43.1	69.9	9,061	45,712	0.198
Illinois	1,431,772,815	78,717	25.4	32.5	48.9	9,449	24,061	0.393
Indiana	1,029,592,595	35,428	11.9	15.3	19.9	17,342	30,738	0.564
Iowa	567,551,590	28,126	29.1	47.0	62.8	9,354	26,550	0.352
Kansas	440,558,701	20,082	26.4	33.0	44.8	12,918	26,907	0.480
Kentucky	728,444,867	25,184	6.4	9.9	23.4	7,906	34,264	0.231
Louisiana	810,362,044	30,932	25.4	26.4	31.2	21,336	27,681	0.771
Maryland	962,335,502	24,857	17.6	21.5	32.3	21,145	45,559	0.464
Mississippi	661,716,115	23,869	10.1	14.3	37.3	7,518	38,135	0.197
Missouri	880,171,218	50,972	22.5	41.8	57.7	6,736	24,144	0.279
Nebraska	286,634,662	12,105	18.2	25.0	37.4	11,508	27,352	0.421
Nevada	161,830,788	7,299	27.5	32.1	58.8	10,383	36,314	0.286
New Hampshire	230,828,321	8,159	19.7	25.3	32.4	17,181	30,537	0.563
New Jersey	2,086,380,248	66,019	24.4	29.4	51.9	14,886	46,160	0.322
New York	9,178,193,027	192,985	41.9	45.5	51.0	39,051	50,683	0.770
North Carolina	1,556,727,737	77,544	31.7	37.7	61.5	10,345	31,299	0.331
North Dakota	176,746,660	5,297	8.6	13.4	27.6	10,453	38,954	0.268
Ohio	2,729,954,943	95,814	24.5	35.4	50.6	13,803	33,854	0.408
Oklahoma	539,724,212	29,828	24.7	31.5	52.2	8,559	25,995	0.329
South Carolina	544,061,191	24,064	20.5	24.5	44.1	10,496	30,234	0.347
South Dakota	136,855,305	5,881	10.3	14.4	25.7	9,292	26,319	0.353
Texas	2,518,841,602	141,598	28.4	33.2	52.1	9,699	24,584	0.395
Utah	107,862,695	4,118	9.5	11.8	20.4	12,243	28,967	0.423
Vermont	137,190,289	5,276	24.6	42.8	54.3	11,798	34,375	0.343
Virginia	842,951,829	33,746	25.5	49.3	58.5	10,875	29,987	0.363

TABLE D.3 (*continued*)								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Washington	905,122,858	43,443	58.5	63.9	74.5	16,368	26,812	0.610
West Virginia	465,807,853	14,250	16.0	19.2	40.7	12,823	43,655	0.294
Wyoming	83,741,649	2,956	16.5	25.3	37.6	12,432	34,591	0.359

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). Potential LTSS Users are based on data from the ACS 2009 Public Use Microdata Sample.

NOTE: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

TABLE D.4. Medicaid LTSS System Performance Indicators for Enrollees Under 65 with Disabilities Eligible for Full Medicaid Benefits in 2009								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 38 States	**46,472,661,446**	**1,430,199**	**59.4**	**68.5**	**81.0**	**23,840**	**57,084**	**0.418**
Alabama	533,387,065	36,672	58.9	77.2	89.6	9,566	39,645	0.241
Alaska	198,644,908	4,426	85.0	87.2	92.7	41,166	65,890	0.625
Arkansas	443,809,138	15,617	37.8	53.2	61.3	17,522	42,849	0.409
California	6,033,321,120	295,554	70.8	80.3	90.9	15,898	50,748	0.313
Colorado	720,411,283	23,901	82.0	85.2	90.4	27,350	43,583	0.628
Connecticut	1,129,591,510	22,250	58.5	66.2	78.5	37,873	73,067	0.518
Delaware	174,091,437	2,910	58.0	61.1	75.6	45,882	90,645	0.506
District of Columbia	321,358,904	5,711	60.7	66.6	77.5	44,093	83,361	0.529
Florida	1,877,352,188	67,128	57.8	64.0	78.8	20,512	52,252	0.393
Georgia	741,484,916	28,794	61.7	69.3	75.2	21,118	36,662	0.576
Idaho	246,604,246	11,230	57.7	75.6	87.7	14,449	50,877	0.284
Illinois	2,108,570,003	76,570	42.1	56.7	66.7	17,384	36,698	0.474
Indiana	1,131,345,201	28,769	58.0	62.6	69.0	33,044	47,040	0.702
Iowa	787,455,268	27,173	51.7	67.1	86.7	17,277	79,224	0.218
Kansas	566,007,757	21,375	79.4	86.8	89.6	23,457	39,521	0.594
Kentucky	614,447,049	22,497	51.9	61.6	69.8	20,288	38,148	0.532
Louisiana	1,225,472,458	41,242	46.3	55.8	63.6	21,655	38,628	0.561
Maryland	1,034,233,347	28,965	71.8	72.9	83.1	30,848	53,398	0.578
Mississippi	513,471,631	16,637	20.7	36.9	60.0	10,648	57,500	0.185
Missouri	956,340,746	45,096	65.7	77.4	83.9	16,609	34,035	0.488
Nebraska	325,498,104	9,444	63.2	68.1	76.6	28,450	45,188	0.630
Nevada	177,216,254	6,104	62.1	66.7	78.7	22,892	44,830	0.511
New Hampshire	232,374,117	5,782	87.2	89.4	89.8	39,037	35,225	1.108
New Jersey	1,749,030,154	36,370	44.5	51.8	75.4	28,405	97,009	0.293
New York	10,938,380,265	152,413	56.9	64.9	81.7	49,973	134,848	0.371
North Carolina	1,625,452,629	71,827	59.2	72.9	87.1	15,386	58,847	0.261
North Dakota	162,099,279	3,549	49.3	54.4	74.4	30,297	77,276	0.392
Ohio	2,685,989,263	72,197	54.9	61.3	71.0	28,761	47,693	0.603
Oklahoma	611,530,821	23,776	60.5	68.2	75.4	20,651	37,340	0.553
South Carolina	531,695,085	21,008	62.8	73.3	84.9	18,728	56,482	0.332
South Dakota	149,516,040	4,799	63.8	67.5	81.0	24,562	48,492	0.507
Texas	2,986,907,262	105,216	53.6	62.8	73.3	20,765	44,566	0.466
Utah	261,273,160	6,857	56.4	60.3	68.4	31,415	48,394	0.649
Vermont	161,713,734	5,425	92.2	94.2	92.3	29,789	20,526	1.451
Virginia	932,109,854	25,282	69.7	89.7	91.4	28,141	45,407	0.620

TABLE D.4 (*continued*)								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Washington	1,025,426,729	39,528	89.1	87.7	89.7	25,776	19,887	1.296
West Virginia	436,788,875	14,500	68.0	74.8	81.2	25,237	42,026	0.601
Wyoming	122,259,646	3,605	83.8	85.8	89.8	31,639	43,669	0.725

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). Potential LTSS Users are based on data from the ACS 2009 Public Use Microdata Sample.

NOTE: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

TABLE D.5. Medicaid LTS System Performance Indicators for Enrollees Under 65 with Physical Disabilities Eligible for Full Medicaid Benefits in 2009								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 35 States	**17,073,802,672**	**920,598**	**49.0**	**66.1**	**78.0**	**11,638**	**35,751**	**0.326**
Alabama	256,207,753	31,372	26.8	69.3	88.4	2,474	35,610	0.069
Alaska	101,751,840	3,144	73.2	80.0	90.0	26,324	64,735	0.407
Arkansas	181,376,816	10,449	18.0	49.2	57.0	5,495	31,131	0.176
California	3,021,062,573	211,402	62.6	79.0	90.4	9,891	42,136	0.235
Colorado	329,529,631	16,155	68.1	77.5	86.5	16,054	38,158	0.421
Connecticut	327,864,835	13,838	27.4	56.9	71.9	9,022	45,025	0.200
Delaware	67,955,623	2,028	27.9	42.3	70.6	13,242	71,647	0.185
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Florida	717,319,710	36,268	32.3	52.2	67.9	9,413	39,122	0.241
Georgia	330,079,730	16,898	39.3	61.7	63.9	12,014	30,312	0.396
Idaho	119,897,920	8,292	57.6	78.2	88.3	9,441	33,474	0.282
Illinois	981,356,841	54,725	35.5	47.8	57.7	11,033	25,247	0.437
Indiana	373,479,830	14,807	47.3	59.3	63.4	18,812	31,037	0.606
Iowa	191,595,130	14,806	53.0	75.9	87.6	7,823	34,776	0.225
Kansas	230,101,110	13,322	75.4	80.3	84.8	15,350	24,026	0.639
Kentucky	264,026,741	17,386	31.2	56.2	64.1	7,397	25,816	0.287
Louisiana	393,260,705	27,126	41.4	60.0	62.1	9,673	19,372	0.499
Maryland	444,512,376	17,497	42.6	57.2	73.1	14,786	49,275	0.300
Mississippi	224,546,931	12,162	28.5	51.2	66.4	7,920	36,139	0.219
Missouri	447,313,596	36,958	49.8	70.6	81.7	7,373	25,937	0.284
Nebraska	119,587,207	5,418	38.9	56.6	66.8	12,862	33,945	0.379
Nevada	88,875,053	4,360	42.3	55.8	72.5	11,891	37,721	0.315
New Hampshire	75,057,654	2,870	62.5	74.9	79.9	20,458	35,123	0.582
New Jersey	646,885,991	24,257	36.2	51.2	72.8	13,261	55,283	0.240
New York	2,958,557,234	85,495	46.4	63.1	74.6	21,532	59,441	0.362
North Carolina	704,911,398	58,265	67.8	82.3	90.4	9,073	30,616	0.296
North Dakota	33,276,471	1,497	28.3	46.3	67.3	9,357	39,941	0.234
Ohio	1,118,956,917	44,090	47.1	59.0	65.9	18,133	31,393	0.578
Oklahoma	232,418,818	17,070	43.9	63.4	74.7	8,008	26,900	0.298
South Carolina	171,792,995	12,645	57.0	76.1	84.8	9,141	34,358	0.266
South Dakota	38,402,961	1,649	19.1	40.0	53.6	8,295	35,307	0.235
Texas	1,265,628,911	73,611	61.4	71.3	75.9	13,912	24,197	0.575
Utah	73,476,789	2,522	14.2	37.5	42.1	9,826	39,705	0.247
Vermont	NA	NA	NA	NA	NA	NA	NA	NA
Virginia	364,525,160	16,743	48.7	86.4	88.6	11,983	34,001	0.352

TABLE D.5 (*continued*)								
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Washington	NA	NA	NA	NA	NA	NA	NA	NA
West Virginia	152,925,918	9,916	44.8	66.6	76.9	8,993	30,075	0.299
Wyoming	25,283,504	1,555	55.8	72.8	80.8	11,236	29,791	0.377

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). Potential LTSS Users are based on data from the ACS 2009 Public Use Microdata Sample.

NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Enrollees with ID/DD include those enrolled in ID/DD waivers or using ICF/IID services.

NA = not available (ID/DD data were unavailable or unreliable for the District of Columbia, Vermont, and Washington).

TABLE D.6. Medicaid LTSS System Performance Indicators for Enrollees Under 65 with ID/DD and Eligible for Full Medicaid Benefits in 2009										
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Medicaid LTSS $ Allocated to HCBS and Small ICF Services**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Percentage of LTSS Users Receiving HCBS and Small ICF Services**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 35 States	**27,890,359,407**	**458,937**	**64.5**	**67.7**	**69.9**	**86.1**	**88.5**	**45,550**	**125,447**	**0.363**
Alabama	277,179,312	5,300	88.7	88.7	90.7	96.6	96.6	47,977	122,342	0.392
Alaska	96,893,068	1,282	97.4	99.0	98.4	99.2	99.8	74,186	81,567	0.910
Arkansas	262,432,322	5,168	51.4	51.4	58.2	69.9	69.9	37,353	76,354	0.489
California	3,012,258,547	84,152	79.0	87.1	82.4	92.0	96.3	30,722	79,933	0.384
Colorado	390,881,652	7,746	93.8	94.2	95.2	98.5	98.8	48,035	113,773	0.422
Connecticut	801,726,675	8,412	71.3	77.8	73.4	89.3	93.0	76,069	205,255	0.371
Delaware	106,135,814	882	77.3	77.3	78.4	87.2	87.2	106,621	196,292	0.543
District of Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida	1,160,032,478	30,860	73.5	75.1	76.8	91.6	92.2	30,178	111,343	0.271
Georgia	411,405,186	11,896	79.6	79.6	81.1	91.2	91.2	30,180	73,372	0.411
Idaho	126,706,326	2,938	57.8	67.9	71.3	86.0	92.7	28,951	100,407	0.288
Illinois	1,127,213,162	21,845	47.9	48.6	71.4	89.2	89.2	27,683	71,724	0.386
Indiana	757,865,371	13,962	63.2	72.8	65.4	74.8	80.9	45,839	73,930	0.620
Iowa	595,860,138	12,367	51.3	56.0	62.0	85.6	87.4	28,852	131,355	0.220
Kansas	335,906,647	8,053	82.1	84.0	93.9	97.5	97.6	35,129	100,570	0.349
Kentucky	350,420,308	5,111	67.4	67.4	70.2	89.2	89.2	51,817	158,590	0.327
Louisiana	832,211,753	14,116	48.7	60.5	51.8	66.4	77.1	43,176	83,216	0.519
Maryland	589,720,971	11,468	93.8	93.8	94.7	98.3	98.3	49,085	128,620	0.382
Mississippi	288,924,700	4,475	14.6	14.7	17.5	42.5	42.5	22,241	93,470	0.238
Missouri	509,027,150	8,138	79.7	79.8	88.9	94.0	94.0	53,080	106,368	0.499
Nebraska	205,910,897	4,026	77.3	77.9	79.2	89.7	90.0	44,081	93,655	0.471
Nevada	88,341,201	1,744	82.0	86.0	85.5	94.2	96.6	44,069	113,830	0.387
New Hampshire	157,316,463	2,912	99.0	99.0	99.4	99.6	99.6	53,721	37,222	1.443
New Jersey	1,102,144,163	12,113	49.4	49.4	52.3	80.5	80.5	55,839	219,724	0.254
New York	7,979,823,031	66,918	60.8	61.4	66.0	90.8	91.2	79,815	377,336	0.212
North Carolina	920,541,231	13,562	52.6	64.4	57.5	72.9	81.5	48,997	113,263	0.433
North Dakota	128,822,808	2,052	54.7	62.2	57.4	79.5	83.3	43,239	125,108	0.346
Ohio	1,567,032,346	28,107	60.4	62.3	63.8	78.9	80.1	42,693	94,517	0.452
Oklahoma	379,112,003	6,706	70.7	71.7	73.7	77.2	78.4	51,789	68,615	0.755
South Carolina	359,902,090	8,363	65.6	65.6	70.7	85.1	85.1	33,166	91,656	0.362
South Dakota	111,113,079	3,150	79.3	79.3	84.1	95.3	95.3	29,352	97,867	0.300
Texas	1,721,278,351	31,605	47.9	55.0	52.3	67.2	74.3	38,785	82,236	0.472
Utah	187,796,371	4,335	72.9	72.9	75.7	83.7	83.7	37,729	66,384	0.568
Vermont	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Virginia	567,584,694	8,539	83.2	84.1	93.1	96.8	97.0	57,111	132,696	0.430

TABLE D.6 (*continued*)										
State	**Total LTSS $**	**Total LTSS Users**	**Percentage of Medicaid LTSS $ Allocated to HCBS**	**Percentage of Medicaid LTSS $ Allocated to HCBS and Small ICF Services**	**Percentage of Total Medicaid $ for LTSS Users Allocated to HCBS Users**	**Percentage of LTSS Users Receiving HCBS**	**Percentage of LTSS Users Receiving HCBS and Small ICF Services**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Washington	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
West Virginia	283,862,957	4,584	80.6	83.3	83.0	90.6	91.9	55,058	106,994	0.515
Wyoming	96,976,142	2,050	91.1	91.1	92.6	96.7	96.7	44,562	110,391	0.404

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). Potential LTSS Users are based on data from the ACS 2009 Public Use Microdata Sample.

NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Enrollees with ID/DD include those enrolled in ID/DD waivers or using ICF/IID services.

NA = not available (ID/DD data were unavailable or unreliable for the District of Columbia, Vermont, and Washington).

TABLE D.7. States Ranked by Percentages of LTSS Expenditures of HCBS for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of Medicaid LTSS $ Allocated to HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of Medicaid LTSS $ Allocated to HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
---	**All 40 States**	**76,879,134,892**	**40.8**	**---**	**All 38 States**	**108,499,107,346**	**44.1**	**---**
1	Alaska	284,916,040	72.7	1	Washington	1,930,549,587	74.8	9.6
2	New Mexico	687,375,841	70.3	2	Alaska	344,563,447	73.8	1.1
3	Washington	1,510,683,980	65.2	3	Vermont	298,904,023	61.2	3.4
4	Vermont	257,050,002	57.8	4	California	12,064,245,829	60.8	6.0
5	Wyoming	176,243,168	57.0	5	Colorado	1,300,230,159	57.6	6.9
6	California	9,878,514,101	54.7	6	Wyoming	206,001,295	56.4	-0.5
7	Kansas	840,599,103	52.5	7	Kansas	1,006,566,458	56.2	3.7
8	Colorado	1,019,876,958	50.7	8	New Hampshire	463,202,438	53.6	NA
9	New York	17,776,758,555	45.3	9	District of Columbia	590,462,733	50.5	27.3
10	Wisconsin	1,764,144,875	44.5	10	New York	20,116,573,292	50.0	4.7
11	North Carolina	2,701,905,573	43.3	11	Virginia	1,775,061,683	48.7	6.1
12	Nevada	306,338,277	43.3	12	North Carolina	3,182,180,366	45.8	2.4
13	Maryland	1,768,700,598	42.8	13	Maryland	1,996,568,849	45.7	2.8
14	Idaho	371,132,820	42.6	14	Nevada	339,047,042	45.6	2.3
15	Virginia	1,421,468,659	42.6	15	Missouri	1,836,511,964	45.0	4.3
16	Missouri	1,466,773,653	40.7	16	Oklahoma	1,151,255,033	43.7	3.3
17	Oklahoma	1,012,058,004	40.5	17	Utah	369,135,855	42.7	3.7
18	Utah	334,796,035	38.9	18	Idaho	461,085,970	42.5	-0.1
19	Hawaii	329,343,209	38.5	19	Iowa	1,355,006,858	42.2	5.0
20	West Virginia	734,425,562	38.0	20	Nebraska	612,132,766	42.1	4.7
21	Nebraska	562,110,501	37.4	21	Texas	5,505,748,864	42.1	NA
22	Iowa	1,157,728,242	37.2	22	South Carolina	1,075,756,276	41.4	6.9
23	Tennessee	1,854,934,959	37.0	23	West Virginia	902,596,728	41.2	3.2
24	South Dakota	251,692,447	35.9	24	Ohio	5,415,944,206	39.6	6.1
25	South Carolina	909,136,545	34.6	25	South Dakota	286,371,345	38.2	2.3
26	Delaware	301,695,573	34.0	26	Louisiana	2,035,834,502	38.0	10.5
27	Ohio	4,884,852,294	33.5	27	Connecticut	2,498,041,847	36.2	4.6
28	Connecticut	2,238,931,231	31.6	28	Indiana	2,160,937,796	36.0	8.7
29	New Jersey	3,447,275,904	31.2	29	Delaware	340,623,579	35.9	1.8
30	Florida	3,747,337,138	31.1	30	Illinois	3,540,342,818	35.4	4.5
31	Illinois	3,176,627,446	30.8	31	New Jersey	3,835,410,402	33.6	2.4
32	Georgia	1,493,201,190	28.4	32	Georgia	1,683,701,045	33.0	4.6
33	Louisiana	1,525,871,254	27.5	33	Florida	4,155,577,858	30.0	-1.0
34	Indiana	1,828,498,633	27.3	34	Alabama	1,332,176,146	29.7	2.5
35	Alabama	1,130,404,702	27.2	35	North Dakota	338,845,939	28.1	2.3
36	Kentucky	1,209,161,974	25.8	36	Arkansas	989,454,103	27.3	2.4
37	North Dakota	305,327,011	25.8	37	Kentucky[a]	1,342,891,916	27.2	1.4

TABLE D.7 (*continued*)								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of Medicaid LTSS $ Allocated to HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of Medicaid LTSS $ Allocated to HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
38	Arkansas	858,715,978	24.9	38	Mississippi	1,175,187,746	14.7	3.7
39	District of Columbia	315,228,327	23.2	---	---	---	---	---
40	Mississippi	1,037,298,529	11.1	---	---	---	---	---

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). 2006 results taken from Wenzlow et al. 2011.
NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Kentucky incorrectly reported community health claims as HCBS through 2008, so estimates of HCBS use and expenditures from 2006 may be over-reported and are not comparable to rates from 2009.

NA = Data for state were not available for 2006.

TABLE D.8. States Ranked by Percentage of LTSS Users Receiving HCBS for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2004								
2006 Rank	**State**	**Total LTSS Users (2006)**	**% of LTSS Users Receiving HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS Users (2009)**	**% of LTSS Users Receiving HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
---	**All 40 States**	**2,904,883**	**63.8**	**---**	**All 38 States**	**3,739,847**	**64.9**	**---**
1	Alaska	7,591	87.0	1	Alaska	7,764	89.6	2.6
2	California	578,611	82.5	2	California	664,249	84.9	2.4
3	Washington	75,694	78.5	3	Washington	82,971	81.7	3.2
4	Kentucky	50,373	77.5	4	Idaho	19,703	80.0	7.2
5	New Mexico	24,595	76.4	5	Iowa	55,299	74.5	6.4
6	Idaho	17,227	72.9	6	North Carolina	149,371	73.8	1.7
7	North Carolina	145,432	72.2	7	Vermont	10,701	73.6	5.3
8	Colorado	42,632	69.8	8	Colorado	46,665	73.3	3.5
9	Vermont	9,493	68.2	9	Virginia	59,028	72.6	7.0
10	New York	385,991	68.2	10	Missouri	96,068	70.0	3.6
11	Iowa	51,128	68.1	11	District of Columbia	11,121	68.5	23.3
12	Missouri	90,743	66.4	12	Kansas	41,457	67.9	2.5
13	Virginia	52,361	65.6	13	Nevada	13,403	67.9	3.7
14	Kansas	40,507	65.4	14	Alabama	63,918	67.7	6.0
15	Nevada	12,164	64.2	15	Wyoming	6,561	66.3	2.6
16	Wyoming	6,059	63.6	16	New York	345,398	64.5	-3.7
17	Alabama	59,526	61.6	17	South Carolina	45,072	63.1	2.9
18	South Carolina	43,085	60.2	18	Oklahoma	53,604	62.5	4.5
19	Oklahoma	50,793	58.0	19	Texas	246,814	61.1	NA
20	New Jersey	99,441	57.7	20	West Virginia	28,750	61.1	4.1
21	West Virginia	25,825	57.1	21	New Jersey	102,389	60.2	2.5
22	Maryland	52,081	56.7	22	Maryland	53,822	59.6	3.0
23	Hawaii	9,711	56.3	23	Ohio	168,011	59.3	4.0
24	Ohio	163,699	55.3	24	Illinois	155,287	57.7	5.5
25	Connecticut	56,805	53.1	25	Connecticut	57,372	56.3	3.2
26	Illinois	153,120	52.2	26	New Hampshire	13,941	56.2	NA
27	Arkansas	40,947	51.4	27	Nebraska	21,549	54.5	3.4
28	Nebraska	21,186	51.1	28	Florida	140,198	51.9	1.0
29	Florida	153,416	50.9	29	Arkansas	41,000	51.2	-0.2
30	Utah	11,264	49.8	30	South Dakota	10,680	50.5	4.4
31	Wisconsin	61,721	48.4	31	Utah	10,975	50.4	0.5
32	Delaware	6,662	47.9	32	Louisiana	72,174	49.7	11.6
33	South Dakota	10,327	46.2	33	Delaware	6,710	48.2	0.4
34	District of Columbia	7,841	45.3	34	Mississippi	40,506	46.6	5.6
35	North Dakota	9,380	44.3	35	North Dakota	8,846	46.4	2.1
36	Georgia	66,667	43.4	36	Georgia	66,755	46.2	2.8
37	Mississippi	39,336	41.0	37	Kentucky[a]	47,681	45.3	-32.2

TABLE D.8 (*continued*)								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of LTSS Users Receiving HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of LTSS Users Receiving HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
38	Louisiana	60,275	38.1	38	Indiana	64,197	41.9	9.4
39	Tennessee	51,989	35.2	---	---	---	---	---
40	Indiana	59,185	32.5	---	---	---	---	---

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). 2006 data taken from Wenzlow et al. 2011.
NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Kentucky incorrectly reported community health claims as HCBS through 2008, so estimates of HCBS use and expenditures from 2006 may be over-reported and are not comparable to rates from 2009.

NA = Data for state were not available for 2006.

TABLE D.9. States Ranked by Percentage of LTSS Expenditures for HCBS for Enrollees Who Were Aged and Were Eligible for Full Medicaid Benefits, 2006 and 2009								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of Medicaid LTSS $ Allocated to HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of Medicaid LTSS $ Allocated to HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
---	**All 40 states**	**38,970,178,862**	**25.8**	**---**	**All 38 States**	**43,542,067,317**	**30.2**	**---**
1	Alaska	128,395,747	59.0	1	Washington	905,122,858	58.5	12.1
2	New Mexico	289,303,163	48.0	2	Alaska	145,918,539	58.5	-0.5
3	California	5,037,150,509	46.7	3	California	6,030,924,709	50.8	4.0
4	Washington	779,745,608	46.4	4	New York	9,178,193,027	41.9	5.6
5	New York	8,670,454,546	36.3	5	District of Columbia	269,103,829	38.4	12.5
6	North Carolina	1,409,902,537	32.0	6	North Carolina	1,556,727,737	31.7	-0.3
7	Idaho	170,029,106	27.1	7	Iowa	567,551,590	29.1	8.1
8	Nevada	153,086,456	27.0	8	Texas	2,518,841,602	28.4	NA
9	District of Columbia	180,684,788	25.9	9	Nevada	161,830,788	27.5	0.5
10	Kansas	381,859,547	22.7	10	Colorado	579,818,876	27.2	4.9
11	Colorado	504,301,801	22.3	11	Kansas	440,558,701	26.4	3.7
12	New Jersey	1,883,875,180	21.4	12	Virginia	842,951,829	25.5	6.0
13	Iowa	502,596,147	21.0	13	Illinois	1,431,772,815	25.4	6.5
14	Oklahoma	480,456,706	20.9	14	Louisiana	810,362,044	25.4	9.8
15	Vermont	121,855,143	20.3	15	Idaho	214,481,724	25.0	-2.1
16	Virginia	734,087,006	19.4	16	Oklahoma	539,724,212	24.7	3.8
17	Missouri	763,286,271	19.3	17	Vermont	137,190,289	24.6	4.3
18	Ohio	2,571,660,709	19.0	18	Ohio	2,729,954,943	24.5	5.5
19	Illinois	1,301,097,539	18.9	19	New Jersey	2,086,380,248	24.4	3.1
20	Arkansas	487,483,212	17.1	20	Missouri	880,171,218	22.5	3.2
21	Wisconsin	882,718,934	17.0	21	South Carolina	544,061,191	20.5	5.5
22	Nebraska	275,941,618	16.6	22	New Hampshire	230,828,321	19.7	NA
23	Maryland	876,247,758	16.0	23	Arkansas	545,644,965	18.8	1.7
24	Connecticut	1,297,631,176	15.6	24	Nebraska	286,634,662	18.2	1.5
25	Louisiana	627,400,315	15.6	25	Connecticut	1,368,450,337	17.7	2.1
26	South Carolina	462,115,519	14.9	26	Maryland	962,335,502	17.6	1.6
27	Wyoming	68,010,623	14.8	27	Wyoming	83,741,649	16.5	1.7
28	Hawaii	194,837,917	14.1	28	West Virginia	465,807,853	16.0	2.4
29	West Virginia	391,330,106	13.6	29	Delaware	166,532,142	12.8	2.5
30	Tennessee	890,405,688	12.5	30	Indiana	1,029,592,595	11.9	5.9
31	Delaware	155,128,400	10.2	31	Georgia	942,216,129	10.4	0.4
32	Georgia	893,273,614	10.0	32	South Dakota	136,855,305	10.3	1.6
33	Florida	2,109,846,021	9.7	33	Alabama	798,789,081	10.2	1.3
34	Alabama	727,083,255	8.9	34	Mississippi	661,716,115	10.1	3.0
35	South Dakota	127,027,358	8.7	35	Utah	107,862,695	9.5	0.9
36	Utah	106,803,128	8.6	36	North Dakota	176,746,660	8.6	1.1
37	Kentucky	662,878,165	8.0	37	Florida	2,278,225,670	7.2	-2.5

TABLE D.9 (*continued*)								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of Medicaid LTSS $ Allocated to HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of Medicaid LTSS $ Allocated to HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
38	North Dakota	166,576,261	7.6	38	Kentucky[a]	728,444,867	6.4	-1.6
39	Mississippi	616,636,525	7.1	---	---	---	---	---
40	Indiana	886,974,760	5.9	---	---	---	---	---

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). 2006 data taken from Wenzlow et al. 2011.
NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Kentucky incorrectly reported community health claims as HCBS through 2008, so estimates of HCBS use and expenditures from 2006 may be over-reported and are not comparable to rates from 2009.

NA = Data for state were not available for 2006.

TABLE D.10. States Ranked by Percentage of LTSS Users Receiving HCBS for Enrollees Who Were Aged and Eligible for Full Medicaid Benefits, 2006 and 2009								
2006 Rank	**State**	**Total LTSS Users (2006)**	**% of LTSS Users Receiving HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS Users (2009)**	**% of LTSS Users Receiving HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
---	**All 40 states**	**1,648,932**	**51.4**	**---**	**All 38 States**	**1,699,811**	**54.5**	**---**
1	Alaska	3,507	82.2	1	Alaska	3,338	85.5	3.3
2	California	332,832	77.5	2	California	368,695	80.2	2.7
3	Kentucky	27,858	73.5	3	Washington	43,443	74.5	4.6
4	Washington	41,395	69.9	4	Idaho	8,473	69.9	8.5
5	New Mexico	13,160	63.5	5	Iowa	28,126	62.8	8.1
6	Idaho	8,017	61.4	6	North Carolina	77,544	61.5	0.5
7	North Carolina	80,627	61.1	7	District of Columbia	5,410	59.1	16.7
8	New York	215,851	55.5	8	Nevada	7,299	58.8	3.5
9	Nevada	6,952	55.3	9	Virginia	33,746	58.5	8.0
10	Missouri	52,382	55.3	10	Missouri	50,972	57.7	2.5
11	Iowa	27,483	54.7	11	Colorado	22,764	55.4	3.8
12	Colorado	22,023	51.6	12	Vermont	5,276	54.3	7.9
13	Virginia	31,989	50.6	13	Oklahoma	29,828	52.2	4.6
14	New Jersey	64,057	48.1	14	Texas	141,598	52.1	NA
15	Oklahoma	30,023	47.6	15	New Jersey	66,019	51.9	3.8
16	Vermont	4,889	46.3	16	New York	192,985	51.0	-4.5
17	Arkansas	26,288	45.7	17	Ohio	95,814	50.6	5.1
18	Ohio	94,670	45.4	18	Illinois	78,717	48.9	8.1
19	District of Columbia	4,650	42.5	19	Arkansas	25,383	45.1	-0.6
20	Kansas	20,601	42.4	20	Kansas	20,082	44.8	2.4
21	South Carolina	23,702	42.1	21	South Carolina	24,064	44.1	2.0
22	Illinois	80,876	40.8	22	Connecticut	35,122	42.3	2.3
23	Alabama	32,141	40.1	23	West Virginia	14,250	40.7	4.2
24	Connecticut	35,589	39.9	24	Alabama	27,246	38.1	-2.0
25	Hawaii	5,758	38.2	25	Wyoming	2,956	37.6	4.1
26	West Virginia	13,616	36.4	26	Nebraska	12,105	37.4	1.7
27	Nebraska	12,463	35.6	27	Mississippi	23,869	37.3	4.0
28	Florida	91,269	33.6	28	New Hampshire	8,159	32.4	NA
29	Wyoming	2,799	33.5	29	Maryland	24,857	32.3	2.6
30	Mississippi	24,700	33.3	30	Louisiana	30,932	31.2	10.9
31	Maryland	24,857	29.7	31	North Dakota	5,297	27.6	1.6
32	Wisconsin	36,521	26.5	32	Delaware	3,800	27.3	0.9
33	Delaware	3,837	26.3	33	Florida	73,070	27.2	-6.4
34	North Dakota	5,751	26.0	34	South Dakota	5,881	25.7	0.8
35	South Dakota	6,175	24.9	35	Georgia	37,961	24.3	-0.6
36	Georgia	41,087	24.9	36	Kentucky[a]	25,184	23.4	-50.2
37	Utah	4,558	22.2	37	Utah	4,118	20.4	-1.8

TABLE D.10 (*continued*)								
2006 Rank	**State**	**Total LTSS Users (2006)**	**% of LTSS Users Receiving HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS Users (2009)**	**% of LTSS Users Receiving HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
38	Louisiana	29,365	20.2	38	Indiana	35,428	19.9	9.0
39	Indiana	34,198	10.9	---	---	---	---	---
40	Tennessee	30,416	10.7	---	---	---	---	---

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). 2006 data taken from Wenzlow et al. 2011.
NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Kentucky incorrectly reported community health claims as HCBS through 2008, so estimates of HCBS use and expenditures from 2006 may be over-reported and are not comparable to rates from 2009.

NA = Data for state were not available for 2006.

TABLE D.11. States Ranked by Percentage of LTSS Expenditures for HCBS for Enrollees Who Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of Medicaid LTSS $ Allocated to HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of Medicaid LTSS $ Allocated to HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
---	**All 40 states**	**37,908,956,030**	**56.1**	**---**	**All 38 States**	**46,472,661,446**	**59.4**	**---**
1	Vermont	135,194,859	91.5	1	Vermont	161,713,734	92.2	0.7
2	New Mexico	398,072,679	86.5	2	Washington	1,025,426,729	89.1	3.8
3	Washington	730,938,372	85.2	3	New Hampshire	232,374,117	87.2	NA
4	Alaska	156,520,293	84.0	4	Alaska	198,644,908	85.0	1.0
5	Wyoming	108,232,545	83.5	5	Wyoming	122,259,646	83.8	0.3
6	Colorado	515,575,157	78.5	6	Colorado	720,411,283	82.0	3.5
7	Kansas	458,739,556	77.3	7	Kansas	566,007,757	79.4	2.1
8	Hawaii	134,505,292	73.8	8	Maryland	1,034,233,347	71.8	2.6
9	Wisconsin	881,425,941	72.0	9	California	6,033,321,120	70.8	7.7
10	Maryland	892,452,840	69.2	10	Virginia	932,109,854	69.7	2.4
11	Virginia	687,381,653	67.3	11	West Virginia	436,788,875	68.0	2.3
12	West Virginia	343,095,456	65.8	12	Missouri	956,340,746	65.7	1.8
13	Missouri	703,487,382	63.9	13	South Dakota	149,516,040	63.8	0.2
14	South Dakota	124,665,089	63.7	14	Nebraska	325,498,104	63.2	5.8
15	California	4,841,363,592	63.0	15	South Carolina	531,695,085	62.8	8.0
16	Alabama	403,321,447	60.3	16	Nevada	177,216,254	62.1	2.5
17	Tennessee	964,529,271	59.7	17	Georgia	741,484,916	61.7	6.0
18	Nevada	153,251,821	59.6	18	District of Columbia	321,358,904	60.7	41.1
19	Delaware	146,567,173	59.2	19	Oklahoma	611,530,821	60.5	2.5
20	Florida	1,637,491,117	58.6	20	North Carolina	1,625,452,629	59.2	3.6
21	Oklahoma	531,601,298	58.1	21	Alabama	533,387,065	58.9	-1.3
22	Nebraska	286,168,883	57.5	22	Connecticut	1,129,591,510	58.5	4.9
23	Idaho	201,103,714	55.7	23	Delaware	174,091,437	58.0	-1.2
24	Georgia	599,927,576	55.7	24	Indiana	1,131,345,201	58.0	10.5
25	North Carolina	1,292,003,036	55.6	25	Florida	1,877,352,188	57.8	-0.8
26	South Carolina	447,021,026	54.8	26	Idaho	246,604,246	57.7	2.0
27	New York	9,106,304,009	53.9	27	New York	10,938,380,265	56.9	3.0
28	Connecticut	941,300,055	53.7	28	Utah	261,273,160	56.4	3.2
29	Utah	227,992,907	53.2	29	Ohio	2,685,989,263	54.9	5.3
30	Iowa	655,132,095	49.7	30	Texas	2,986,907,262	53.6	NA
31	Ohio	2,313,191,585	49.5	31	Kentucky[a]	614,447,049	51.9	4.5
32	North Dakota	138,750,750	47.6	32	Iowa	787,455,268	51.7	2.0
33	Indiana	941,523,873	47.4	33	North Dakota	162,099,279	49.3	1.7
34	Kentucky	546,283,809	47.4	34	Louisiana	1,225,472,458	46.3	10.5
35	New Jersey	1,563,400,724	43.1	35	New Jersey	1,749,030,154	44.5	1.5
36	Illinois	1,875,529,907	39.1	36	Illinois	2,108,570,003	42.1	3.0
37	Louisiana	898,470,939	35.8	37	Arkansas	443,809,138	37.8	2.5

TABLE D.11 (*continued*)								
2006 Rank	**State**	**Total LTSS $ (2006)**	**% of Medicaid LTSS $ Allocated to HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS $ (2009)**	**% of Medicaid LTSS $ Allocated to HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
38	Arkansas	371,232,766	35.2	38	Mississippi	513,471,631	20.7	3.8
39	District of Columbia	134,543,539	19.6	---	---	---	---	---
40	Mississippi	420,662,004	16.9	---	---	---	---	---

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). 2006 data taken from Wenzlow et al. 2011.
NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Kentucky incorrectly reported community health claims as HCBS through 2008, so estimates of HCBS use and expenditures from 2006 may be over-reported and are not comparable to rates from 2009.

NA = Data for state were not available for 2006.

TABLE D.12. States Ranked by Percentage of LTSS Users Receiving HCBS for Enrollees Who Had Disabilities and Were Eligible for Full Medicaid Benefits, 2006 and 2009								
2006 Rank	**State**	**Total LTSS Users (2006)**	**% of LTSS Users Receiving HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS Users (2009)**	**% of LTSS Users Receiving HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
---	**All 40 states**	**1,255,951**	**80.0**	**---**	**All States**	**1,430,199**	**81.0**	**---**
1	Vermont	4,604	91.5	1	Alaska	4,426	92.7	1.6
2	New Mexico	11,435	91.1	2	Vermont	5,425	92.3	0.8
3	Alaska	4,084	91.1	3	Virginia	25,282	91.4	2.1
4	Wyoming	3,260	89.5	4	California	295,554	90.9	1.6
5	Colorado	20,609	89.4	5	Colorado	23,901	90.4	1.0
6	Kansas	19,906	89.3	6	Wyoming	3,605	89.8	0.3
7	Virginia	20,372	89.3	7	New Hampshire	5,782	89.8	NA
8	California	245,779	89.2	8	Washington	39,528	89.7	0.7
9	Washington	34,299	89.0	9	Alabama	36,672	89.6	2.7
10	Alabama	27,385	86.9	10	Kansas	21,375	89.6	0.3
11	North Carolina	64,805	86.0	11	Idaho	11,230	87.7	4.8
12	New York	170,140	84.3	12	North Carolina	71,827	87.1	1.1
13	Iowa	23,645	83.8	13	Iowa	27,173	86.7	2.9
14	Idaho	9,210	82.9	14	South Carolina	21,008	84.9	2.5
15	Hawaii	3,953	82.6	15	Missouri	45,096	83.9	2.3
16	Kentucky	22,515	82.5	16	Maryland	28,965	83.1	1.8
17	South Carolina	19,383	82.4	17	New York	152,413	81.7	-2.7
18	Missouri	38,361	81.6	18	West Virginia	14,500	81.2	1.1
19	Maryland	27,224	81.3	19	South Dakota	4,799	81.0	3.2
20	Wisconsin	25,200	80.2	20	Florida	67,128	78.8	2.5
21	West Virginia	12,209	80.1	21	Nevada	6,104	78.7	2.7
22	South Dakota	4,152	77.8	22	Connecticut	22,250	78.5	3.2
23	Delaware	2,825	77.1	23	District of Columbia	5,711	77.5	28.1
24	Florida	62,147	76.3	24	Nebraska	9,444	76.6	3.2
25	Nevada	5,212	76.1	25	Delaware	2,910	75.6	-1.5
26	Connecticut	21,216	75.2	26	Oklahoma	23,776	75.4	2.4
27	New Jersey	35,384	75.0	27	New Jersey	36,370	75.4	0.3
28	North Dakota	3,629	73.4	28	Georgia	28,794	75.2	2.0
29	Nebraska	8,723	73.3	29	North Dakota	3,549	74.4	1.0
30	Georgia	25,580	73.2	30	Texas	105,216	73.3	NA
31	Oklahoma	20,770	73.0	31	Ohio	72,197	71.0	2.0
32	Tennessee	21,573	69.9	32	Kentucky[a]	22,497	69.8	-12.6
33	Ohio	69,029	68.9	33	Indiana	28,769	69.0	6.9
34	Utah	6,706	68.6	34	Utah	6,857	68.4	-0.2
35	Illinois	72,244	64.9	35	Illinois	76,570	66.7	1.8
36	Indiana	24,987	62.0	36	Louisiana	41,242	63.6	8.5
37	Arkansas	14,659	61.8	37	Arkansas	15,617	61.3	-0.5

TABLE D.12 (*continued*)								
2006 Rank	**State**	**Total LTSS Users (2006)**	**% of LTSS Users Receiving HCBS (2006)**	**2009 Rank**	**State**	**Total LTSS Users (2009)**	**% of LTSS Users Receiving HCBS (2009)**	**Percentage Point Change from 2006 to 2009**
38	Louisiana	30,910	55.1	38	Mississippi	16,637	60.0	5.8
39	Mississippi	14,636	54.2	---	---	---	---	---
40	District of Columbia	3,191	49.4	---	---	---	---	---

SOURCE: Mathematica analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin). 2006 data taken from Wenzlow et al. 2011.
NOTES: Enrollees in managed LTSS and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Kentucky incorrectly reported community health claims as HCBS through 2008, so estimates of HCBS use and expenditures from 2006 may be over-reported and are not comparable to rates from 2009.

NA = Data for state were not available for 2006.

TABLE D.13. Percentage of Medicaid LTSS Expenditures for HCBS in 2009, by Eligibility Group			
State	**Total**	**Aged**	**Disabled**
Mississippi	14.7	10.1	20.7
Kentucky	27.2	6.4	51.9
Arkansas	27.3	18.8	37.8
North Dakota	28.1	8.6	49.3
Alabama	29.7	10.2	58.9
Florida	30.0	7.2	57.8
Georgia	33.0	10.4	61.7
New Jersey	33.6	24.4	44.5
Illinois	35.4	25.4	42.1
Delaware	35.9	12.8	58.0
Indiana	36.0	11.9	58.0
Connecticut	36.2	17.7	58.5
Louisiana	38.0	25.4	46.3
South Dakota	38.2	10.3	63.8
Ohio	39.6	24.5	54.9
West Virginia	41.2	16.0	68.0
South Carolina	41.4	20.5	62.8
Texas	42.1	28.4	53.6
Nebraska	42.1	18.2	63.2
Iowa	42.2	29.1	51.7
Idaho	42.5	25.0	57.7
Utah	42.7	9.5	56.4
Oklahoma	43.7	24.7	60.5
Missouri	45.0	22.5	65.7
Nevada	45.6	27.5	62.1
Maryland	45.7	17.6	71.8
North Carolina	45.8	31.7	59.2
Virginia	48.7	25.5	69.7
New York	50.0	41.9	56.9
District of Columbia	50.5	38.4	60.7
New Hampshire	53.6	19.7	87.2
Kansas	56.2	26.4	79.4
Wyoming	56.4	16.5	83.8
Colorado	57.6	27.2	82.0
California	60.8	50.8	70.8
Vermont	61.2	24.6	92.2
Alaska	73.8	58.5	85.0
Washington	74.8	58.5	89.1

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. States in figure are sorted based on percentage of Medicaid LTSS expenditures overall for aged and enrollees with disabilities. The data in this table was used to generate Figure II.3.

TABLE D.14. Percentage of LTSS Users Receiving HCBS in 2009, by Eligibility Group			
State	**Total**	**Aged**	**Disabled**
Indiana	41.9	19.9	69.0
Kentucky	45.3	23.4	69.8
Georgia	46.2	24.3	75.2
North Dakota	46.4	27.6	74.4
Mississippi	46.6	37.3	60.0
Delaware	48.2	27.3	75.6
Louisiana	49.7	31.2	63.6
Utah	50.4	20.4	68.4
South Dakota	50.5	25.7	81.0
Arkansas	51.2	45.1	61.3
Florida	51.9	27.2	78.8
Nebraska	54.5	37.4	76.6
New Hampshire	56.2	32.4	89.8
Connecticut	56.3	42.3	78.5
Illinois	57.7	48.9	66.7
Ohio	59.3	50.6	71.0
Maryland	59.6	32.3	83.1
New Jersey	60.2	51.9	75.4
West Virginia	61.1	40.7	81.2
Texas	61.1	52.1	73.3
Oklahoma	62.5	52.2	75.4
South Carolina	63.1	44.1	84.9
New York	64.5	51.0	81.7
Wyoming	66.3	37.6	89.8
Alabama	67.7	38.1	89.6
Nevada	67.9	58.8	78.7
Kansas	67.9	44.8	89.6
District of Columbia	68.5	59.1	77.5
Missouri	70.0	57.7	83.9
Virginia	72.6	58.5	91.4
Colorado	73.3	55.4	90.4
Vermont	73.6	54.3	92.3
North Carolina	73.8	61.5	87.1
Iowa	74.5	62.8	86.7
Idaho	80.0	69.9	87.7
Washington	81.7	74.5	89.7
California	84.9	80.2	90.9
Alaska	89.6	85.5	92.7

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data (excludes data from Arizona, Hawaii, Maine, Massachusetts, Michigan, Minnesota, Montana, New Mexico, Oregon, Pennsylvania, Rhode Island, Tennessee, and Wisconsin).

NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. States in figure are sorted based on percentage of Medicaid LTSS users receiving HCBS among all aged and enrollees with disabilities. The data in this table was used to generate Figure II.4.

TABLE D.15. Progress in Re-Balancing Toward HCBS from 2006 to 2009, 35 States		
State	**Percentage Point Change in $ to HCBS, 2006 to 2009**	**Percentage Point Change in HCBS Users, 2006 to 2009**
Alabama	3	6.0
Alaska	1	2.6
Arkansas	2	-0.2
California	6	2.4
Colorado	7	3.5
Connecticut	5	3.2
District of Columbia	27	23.3
Delaware	2	0.4
Florida	-1	1.0
Georgia	5	2.8
Idaho	0	7.2
Illinois	5	5.5
Indiana	9	9.4
Iowa	5	6.4
Kansas	4	2.5
Louisiana	11	11.6
Maryland	3	3.0
Mississippi	4	5.6
Missouri	4	3.6
Nebraska	5	3.4
Nevada	2	3.7
New Jersey	2	2.5
New York	5	-3.7
North Carolina	2	1.7
North Dakota	2	2.1
Ohio	6	4.0
Oklahoma	3	4.5
South Carolina	7	2.9
South Dakota	2	4.4
Utah	4	0.5
Vermont	3	5.3
Virginia	6	7.0
Washington	10	3.2
West Virginia	3	4.1
Wyoming	-1	2.6

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data. Analysis of 2006 MAX data taken from Wenzlow et al. 2011. Figure includes all states with reliable LTSS data in both years.

NOTE: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. The data in this table was used to generate Figure II.5.

TABLE D.16. Percentage Point Differences in Percentage of Medicaid LTSS Expenditures for HCBS for 2006 to 2009, 35 States			
State	**Total**	**Aged**	**Disabled**
Alaska	-0.5	-1.9	1.5
Alabama	1.3	0.0	1.0
Arkansas	1.7	6.6	-1.8
California	4.0	9.5	6.3
Colorado	4.9	0.9	7.7
Connecticut	2.1	4.2	0.8
District of Columbia	12.5	---	---
Delaware	2.5	1.6	-7.6
Florida	-2.5	0.3	3.5
Georgia	0.4	8.0	2.5
Iowa	8.1	2.6	-0.1
Idaho	-2.1	7.3	-4.9
Illinois	6.5	4.2	2.5
Indiana	5.9	10.6	12.7
Kansas	3.7	3.8	-0.2
Kentucky	-1.6	8.2	-1.8
Louisiana	9.8	10.4	11.5
Maryland	1.6	4.6	1.5
Missouri	3.2	30.6	-19.1
Mississippi	3.0	0.5	7.0
North Carolina	-0.3	6.6	-0.8
North Dakota	1.1	1.5	3.9
Nebraska	1.5	8.1	1.9
New Jersey	3.1	2.5	0.2
Nevada	0.5	8.6	-1.9
New York	5.6	3.2	0.6
Ohio	5.5	5.0	6.5
Oklahoma	3.8	2.8	5.7
South Carolina	5.5	8.3	7.7
South Dakota	1.6	0.3	3.1
Utah	0.9	5.2	-1.2
Virginia	6.0	1.8	3.4
Vermont	4.3	---	---
Washington	12.1	---	---
West Virginia	2.4	2.9	3.6
Wyoming	1.7	0.6	3.7

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data. Analysis of 2006 MAX data taken from Wenzlow et al. 2011. Figure includes all states with reliable LTSS data in both years.

NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. In the District of Columbia, Vermont, and Washington, individuals with ID/DD could not be distinguished from enrollees with other disabilities. As a result, these states are excluded from analyses of the population under age 65 with ID/DD and enrollees with other disabilities. The data in this table was used to generate Figure II.6.

TABLE D.17. Percentage Point Changes in Percentage of LTSS Users Receiving HCBS from 2006 to 2009, 35 States			
State	**Total**	**Aged**	**Disabled**
Alaska	-2.0	-0.6	1.6
Alabama	3.3	0.5	3.6
Arkansas	-0.6	2.6	-2.0
California	2.7	2.3	1.4
Colorado	3.8	-0.1	2.2
Connecticut	2.3	2.7	2.9
District of Columbia	16.7	---	---
Delaware	0.9	1.7	-2.9
Florida	-6.4	0.4	7.2
Georgia	-0.6	1.8	0.3
Iowa	8.5	3.3	2.4
Idaho	8.1	4.7	4.9
Illinois	9.0	2.6	1.7
Indiana	8.1	4.2	9.9
Kansas	2.4	5.5	-2.9
Louisiana	10.9	15.1	5.1
Maryland	2.6	1.2	1.6
Missouri	4.0	23.4	-0.9
Mississippi	2.5	0.5	7.0
North Carolina	1.7	2.2	0.6
North Dakota	3.5	1.3	1.2
Nebraska	3.8	4.5	2.3
New Jersey	-4.5	1.9	-0.3
Nevada	0.5	3.0	2.8
New York	1.6	-1.2	-5.6
Ohio	5.1	5.5	-0.6
Oklahoma	4.6	0.8	3.4
South Carolina	2.0	7.7	0.0
South Dakota	0.8	0.6	9.4
Utah	-1.8	1.0	-2.4
Virginia	7.9	1.3	2.9
Vermont	8.0	---	---
Washington	4.6	---	---
West Virginia	4.2	1.7	1.2
Wyoming	4.1	0.4	2.5

SOURCE: Mathematica Policy Research analysis of 2009 MAX data for 37 states and the District of Columbia with representative FFS LTSS data. Analysis of 2006 MAX data taken from Wenzlow et al. 2011. Figure includes all states with reliable LTSS data in both years.

NOTES: Excludes enrollees in managed care and those eligible for only restricted Medicaid benefits. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. In the District of Columbia, Vermont, and Washington, individuals with ID/DD could not be distinguished from enrollees with other disabilities. As a result, these states are excluded from analyses of the population under age 65 with ID/DD and enrollees with other disabilities. The data in this table was used to generate Figure II.7.

MEASURING STATES' PROGRESS IN MAINTAINING AND EXPANDING MEDICAID HOME AND COMMUNITY-BASED SERVICES

REPORTS AVAILABLE

An Investigation of Interstate Variation in Medicaid Long-Term Care Use and Expenditures Across 40 States in 2006

Executive Summary	http://aspe.hhs.gov/daltcp/reports/2013/40Statees.shtml
HTML	http://aspe.hhs.gov/daltcp/reports/2013/40State.shtml
PDF	http://aspe.hhs.gov/daltcp/reports/2013/40State.pdf

Interstate Variation and Progress Toward Balance in Use of and Expenditure for Long-Term Services and Supports in 2009

Executive Summary	http://aspe.hhs.gov/daltcp/reports/2014/ProgBales.cfm
HTML	http://aspe.hhs.gov/daltcp/reports/2014/ProgBal.cfm
PDF	http://aspe.hhs.gov/daltcp/reports/2014/ProgBal.pdf

Medicaid-Financed Institutional Services: Characteristics of Nursing Home and ICF/IID Residents and Their Patterns of Care

Executive Summary	http://aspe.hhs.gov/daltcp/reports/2013/MFISes.shtml
HTML	http://aspe.hhs.gov/daltcp/reports/2013/MFIS.shtml
PDF	http://aspe.hhs.gov/daltcp/reports/2013/MFIS.pdf

Medicaid-Financed Institutional Services: Patterns of Care for Residents of Nursing Homes and Intermediate Care Facilities for Individuals with Intellectual Disabilities in 2008 and 2009

Executive Summary	http://aspe.hhs.gov/daltcp/reports/2014/CarePattes.cfm
HTML	http://aspe.hhs.gov/daltcp/reports/2014/CarePatt.cfm
PDF	http://aspe.hhs.gov/daltcp/reports/2014/CarePatt.pdf

To obtain a printed copy of this report, send the full report title and your mailing information to:

U.S. Department of Health and Human Services
Office of Disability, Aging and Long-Term Care Policy
Room 424E, H.H. Humphrey Building
200 Independence Avenue, S.W.
Washington, D.C. 20201
FAX: 202-401-7733
Email: webmaster.DALTCP@hhs.gov

NOTE: All requests must be in writing.

RETURN TO:

Office of Disability, Aging and Long-Term Care Policy (DALTCP) Home
http://aspe.hhs.gov/office_specific/daltcp.cfm

Assistant Secretary for Planning and Evaluation (ASPE) Home
http://aspe.hhs.gov

U.S. Department of Health and Human Services (HHS) Home
http://www.hhs.gov