United States Government Accountability Office

Report to the Honorable Charles E. Grassley, U.S. Senate

February 2014

MEDICAID

Demographics and Service Usage of Certain High-Expenditure Beneficiaries

GAO-14-176

GAO Highlights

Highlights of GAO-14-176, a report to the Honorable Charles E. Grassley, U.S. Senate

February 2014

MEDICAID

Demographics and Service Usage of Certain High-Expenditure Beneficiaries

Why GAO Did This Study

Medicaid is an important source of health coverage for millions of low-income individuals. Research on Medicaid has demonstrated that a small percentage of beneficiaries account for a disproportionately large share of Medicaid expenditures. Understanding states' expenditures for high-expenditure populations—both those dually eligible for Medicare and Medicaid, and those who are Medicaid-only—could enhance efforts to manage Medicaid expenditures.

GAO was asked to examine the demographics and service usage of Medicaid beneficiaries, particularly those who are not eligible for Medicare. This report examines high-expenditure Medicaid-only beneficiaries, considering (1) states' spending on them compared with all other Medicaid beneficiaries; (2) their key characteristics; and (3) their service usage compared with all other Medicaid-only beneficiaries.

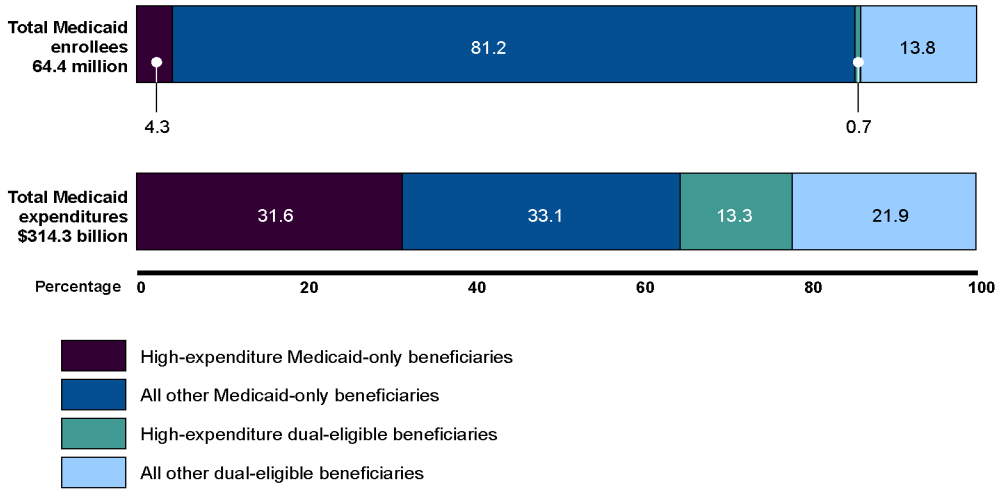
GAO analyzed beneficiary and expenditure data from the Medicaid Statistical Information System Annual Person Summary File for 2009, the most recent year available at the time GAO conducted its work. GAO defined high-expenditure beneficiaries as those with total expenditures in the top 5 percent of expenditures within each state. GAO combined these data at a national level, and analyzed the characteristics associated with being a high-expenditure beneficiary, the probability of being a high-expenditure Medicaid beneficiary, and what services contributed to high expenditures.

View GAO-14-176. For more information, contact Carolyn L. Yocom at (202) 512-7114 or YocomC@gao.gov.

What GAO Found

In fiscal year 2009, states spent nearly a third (31.6 percent) of all Medicaid expenditures on the most expensive Medicaid-only beneficiaries, who were 4.3 percent of total Medicaid beneficiaries. States spent another third (33.1 percent) on all other Medicaid-only beneficiaries, who represented 81.2 percent of total Medicaid beneficiaries. Among dual eligible beneficiaries, a similar pattern existed, with a small proportion of the population accounting for a disproportionate share of expenditures.

Percent of Total Medicaid Expenditures on Beneficiary Spending Groups, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Certain characteristics significantly increased the probability of being a high-expenditure Medicaid-only beneficiary. Specifically, the results of GAO's analyses indicate that the probability of being a high-expenditure Medicaid-only beneficiary was:

- 24.4 percent for those residing in a long-term care facility,
- 20.8 percent for those with human immunodeficiency virus/acquired immunodeficiency syndrome,
- 18.3 percent for those with disabilities, and
- 13.3 percent for new mothers or infants.

Overall, hospital services and long-term services and supports in non-institutional and institutional settings comprised nearly 65 percent of the total expenditures for high-expenditure Medicaid-only beneficiaries, with smaller proportions for drugs, payments to managed care organizations and premium assistance, and non-hospital acute care. In contrast to high-expenditure beneficiaries, payments to managed care organizations and premium assistance comprised 57.2 percent of total expenditures for all other Medicaid-only beneficiaries.

HHS provided technical comments on a draft of this report, which were incorporated as appropriate.

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Abbreviations

CHIP	Children's Health Insurance Program
CMS	Centers for Medicare & Medicaid Services
FPL	federal poverty level
HHS	Department of Health and Human Services
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
HMO	health maintenance organization
LTC	long-term care
LTSS	long-term services and supports
MSIS	Medicaid Statistical Information System
PPACA	Patient Protection and Affordable Care Act

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
441 G St. N.W.
Washington, DC 20548

February 19, 2014

The Honorable Charles E. Grassley
United States Senate

Dear Senator Grassley:

Medicaid, a joint federal-state program for certain low-income individuals, is an important source of health coverage for millions of children, adults, aged individuals (individuals aged 65 and older), and those with disabilities. In fiscal year 2012, the Medicaid program spent approximately $435.5 billion to provide health care services to about 72.6 million beneficiaries. Additionally, Medicaid enrollment is likely to grow within states that choose to expand eligibility for Medicaid in response to the Patient Protection and Affordable Care Act of 2010 (PPACA).[1] The Congressional Budget Office estimated that, as a result of PPACA, 10 million additional people could be enrolled in Medicaid and the Children's Health Insurance Program (CHIP) by 2016 compared with 2012.[2] Within Medicaid, there are two groups of beneficiaries—one composed of individuals who are only enrolled in Medicaid, and another composed of individuals enrolled in both Medicaid and Medicare, commonly referred to as dual-eligible beneficiaries.[3] Research on Medicaid enrollment and spending has demonstrated that a small percentage of beneficiaries account for a disproportionately large share of

[1]The expansion will apply to Americans with incomes at or below 138 percent of the federal poverty level (FPL), including previously ineligible categories, such as childless adults. PPACA established 133 percent of the FPL as the income limit for expanded Medicaid eligibility; however, it also specified that an income disregard in the amount of 5 percent of the FPL be deducted from an individual's income when determining Medicaid eligibility, which effectively raised the eligibility limit for newly eligible Medicaid recipients to 138 percent of the FPL. Pub. L. No. 111-148, 124 Stat. 119, as amended by the Health Care and Education Reconciliation Act of 2010 (HCERA), Pub. L. No. 111-152, 124 Stat. 1029. For purposes of this report, references to PPACA include the amendments made by HCERA.

[2]CHIP is an insurance program for certain low-income, uninsured children whose family income is too high for Medicaid. Congressional Budget Office, *Estimates for the Insurance Coverage Provisions of the Affordable Care Act Updated for the Recent Supreme Court Decision* (Washington, D.C.: July 2012).

[3]Medicare is the federally financed health insurance program for persons aged 65 and over, certain individuals with disabilities, and individuals with end-stage renal disease.

Medicaid expenditures. Understanding states' expenditures for both high-expenditure populations—those dually eligible and those who are Medicaid-only—could enhance efforts to manage Medicaid expenditures for particular types of beneficiaries.

You asked us to provide information on the demographics and service usage of different types of high-expenditure Medicaid beneficiaries, noting that less attention has been paid to the demographics and service utilization of high-expenditure Medicaid-only beneficiaries compared with dual-eligible beneficiaries. In this report, we examine (1) states' spending for high-expenditure beneficiaries, both Medicaid-only and dual-eligible beneficiaries, compared with other Medicaid beneficiaries; (2) the characteristics associated with high-expenditure Medicaid-only beneficiaries; and (3) the services that contributed to high expenditures for Medicaid-only beneficiaries, and how they compared with service usage by all other Medicaid-only beneficiaries.

To examine states' spending for high-expenditure Medicaid-only beneficiaries compared with other Medicaid beneficiaries, we used data from the fiscal year 2009 Medicaid Statistical Information System (MSIS) Annual Person Summary File.[4] We first calculated the total number of Medicaid enrollees and total Medicaid expenditures in each state separately for both the Medicaid-only and dual-eligible beneficiaries.[5] We then determined the number of beneficiaries whose total expenditures fell within the top 5 percent of total expenditures within each state for each of these groups, designating them as high-expenditure beneficiaries. Finally, we calculated the total expenditures for high-expenditure Medicaid-only beneficiaries and all other Medicaid-only beneficiaries in each state, and combined these data at a national level.

[4]MSIS data provides a summary of expenditures linked to specific beneficiaries on the basis of their medical claims for care. These data exclude other aspects of the Medicaid program that are not tied to specific beneficiaries. For example, the MSIS data do not contain supplemental payments to providers that are separate from standard Medicaid payments for services.

[5]We excluded individuals who were only enrolled in a stand-alone, separate Children's Health Insurance Program during the year.

To examine the characteristics associated with high-expenditure Medicaid-only beneficiaries, we determined the percentage of high-expenditure Medicaid-only beneficiaries with key characteristics and used logistic regression to examine the effect of having key beneficiary characteristics on the probability of being a high-expenditure Medicaid-only beneficiary.[6] The key beneficiary characteristics represented as independent variables in our logistic regression model included: eligibility group (disabled, child, adult, aged), age, gender, race/ethnicity, geographic location,[7] participation in capitated managed care,[8] period of enrollment in Medicaid (whether full year or partial year), as well as whether the beneficiaries had any of five health conditions or had received any of two services.[9] Finally, our logistic regression models included characteristics of states' Medicaid programs, such as their spending on high-expenditure beneficiaries and long-term services and supports (LTSS) in non-institutional settings (also called home and community based services) and capitated managed care penetration

[6]Probabilities were calculated by converting the odds that resulted from our logistic regression models. The size of the effect of each enrollee characteristic is expressed as a probability, greater values reflecting a greater chance that the characteristic increased the likelihood of being a high-expenditure beneficiary. Medicaid-only beneficiaries had a hypothetical 5 percent probability of being in the high-expenditure group by chance alone. All probabilities were significant at the 0.05 level.

[7]We classified counties as metropolitan or nonmetropolitan using the 2009 Area Resource File provided by the Health Resources and Services Administration.

[8]Capitated managed care included enrollment in a health maintenance organization (HMO) or capitated risk-based managed care plans. We did not consider enrollment in limited benefit plans as an indicator of this beneficiary characteristic.

[9]The five conditions identified in the MSIS summary file (using indicators created with the ICD-9 diagnosis codes from the full claims file) are: (1) human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), (2) asthma, (3) diabetes, (4) mental health, and (5) substance abuse. The two service categories also identified are delivery/childbirth, which includes newborns and women who have given birth, and long-term care residence. The summary file does not provide information on all conditions that may affect the likelihood of the beneficiary being a high-expenditure Medicaid-only beneficiary. As a result, we could not include all relevant conditions in our models.

rates.[10] We report percentages that describe the high-expenditure beneficiary population, as well as the probabilities that demonstrate the association of each characteristic with the likelihood of being in the high-expenditure group.

To examine the services that contributed to high expenditures for Medicaid-only beneficiaries and how they compared with service usage by all other Medicaid-only beneficiaries, we determined the distribution of expenditures for high-expenditure Medicaid-only beneficiaries. The data allowed us to describe patterns of usage for the following six service categories: (1) hospital care, (2) non-hospital acute care, (3) drugs, (4) managed care and premium assistance,[11] (5) LTSS in non-institutional settings, and (6) LTSS in institutional settings.[12] We compared their distribution to those of all other Medicaid-only beneficiaries.

We assessed the reliability of the 2009 MSIS Annual Summary File data we received from the Centers for Medicare & Medicaid Services (CMS) by performing appropriate electronic data checks and by interviewing agency officials who were knowledgeable about the data. This allowed us to determine that the data were suitable for our purposes. We retained approximately 64.5 million of the original 71.6 million records (90 percent) for our analysis; the majority of exclusions were due to unknown eligibility status. For a more complete description of our methodology, see appendix I.

[10]LTSS includes services such as home health and personal care. We created variables on state spending on high-expenditure Medicaid-only beneficiaries using information from MSIS on the percent of expenditures for the Medicaid-only group and separating states by quartiles. We created variables for state spending on home and community-based services by dividing the total Medicaid expenditures for these services by expenditures for all Medicaid services and separating states into quartiles. We obtained data for state spending on home and community-based services from MSIS and Kaiser Family Foundation, *Medicaid Home and Community-Based Services: 2009 Data Update* (Washington, D.C.: December 2012). We created variables for state managed care penetration using data on the percentage of individuals covered by HMO and other risk-based capitated managed care (HMO penetration rates) by state and separating states by quartiles. We obtained data for this variable from GAO, *Medicaid: States' Use of Managed Care*, GAO-12-872R (Washington, D.C.: Aug. 17, 2012).

[11]Managed care and premium assistance describe Medicaid health insurance payments made toward HMO/capitated risk-based, primary care case management, and prepaid managed care health plans.

[12]Includes facilities such as skilled nursing facilities and intermediate care facilities for persons with intellectual disabilities.

We conducted this performance audit from September 2012 through February 2014 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform our work to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

At the federal level, CMS, within the Department of Health and Human Services (HHS), is responsible for overseeing the design and operation of states' Medicaid programs, and states administer their respective Medicaid programs' day-to-day operations. In conformance with federal requirements, states establish beneficiaries' eligibility for Medicaid, and determine the services that will be provided to beneficiaries and how they will be provided in their state.

Medicaid Eligibility and Financing

Eligibility for Medicaid is based on a variety of categorical and financial requirements. Historically, categories of Medicaid eligibility included pregnant women, low-income children and their parents, individuals who are aged, and individuals with disabilities. In 2014, certain low-income adults who did not fall into one of these groups may be eligible for Medicaid in states that chose to expand coverage to these individuals under PPACA. Dual-eligible beneficiaries, who are eligible for both Medicaid and Medicare, generally fall into two categories: (1) low-income seniors (individuals aged 65 years old and over) and (2) individuals with disabilities under the age of 65.

While some characteristics of state programs vary, Medicaid generally covers a wide range of health care services. These include hospital care; outpatient services, such as physician services, laboratory and other diagnostic tests; prescription drugs; dental care; and LTSS in institutions and in the community.[13] Non-institutional LTSS include home health and personal care services, among other services. Medicaid is the nation's

[13]GAO, Medicaid: Data Sets Provide Inconsistent Picture of Expenditures, GAO-13-47 (Washington, D.C.: Oct. 29, 2012).

primary payer for LTSS, and provided approximately 41 percent of LTSS funding in the United States in 2010.[14]

As we have previously reported, nearly all states enroll some Medicaid beneficiaries in a form of managed care.[15] States vary widely in terms of the scope of services they provide and the populations they enroll in managed care. Some states contract with managed care organizations to provide the full range of covered Medicaid services to certain enrollees, for which they pay a set, or capitated, amount per member per month. Alternatively, states may rely on arrangements, such as limited benefit plans—which provide a limited set of services, including dental care or behavioral health services—or primary care case management programs in which enrollees are assigned a primary care provider who is responsible for providing primary care services and for coordinating other needed health care. States often provide long-term care services outside of managed care arrangements.[16]

Service Utilization and Expenditures among Medicaid Beneficiaries

Researchers have examined patterns of service utilization and expenditures within the Medicaid population, with a number of articles focused on dual-eligible beneficiaries. For example, one study examining Medicaid enrollment and expenditures found that dual-eligible beneficiaries comprised 14 percent of all Medicaid enrollees, but 36 percent of Medicaid expenditures in 2010.[17] Studies focused on dual-eligible beneficiaries have further found that a small proportion of these beneficiaries were responsible for a significant portion of Medicaid expenditures spent on dual-eligible beneficiaries. For example, one study found that in 2007 full benefit dual-eligible beneficiaries who were in the

[14]Kaiser Family Foundation, *Medicaid's Role in Meeting the Long Term Care Needs of America's Seniors* (Washington, D.C.: January 2013).

[15]GAO, Medicaid: States' Use of Managed Care, GAO-12-872R (Washington, D.C.: Aug. 17, 2012).

[16]Kaiser Family Foundation, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: September 2011).

[17]Kaiser Family Foundation, *Medicaid's Role for Dual Eligible Beneficiaries* (Washington, D.C., August 2013).

top 10 percent of Medicaid spending were responsible for 51 percent of Medicaid spending on dual-eligible beneficiaries.[18]

The research also indicates that there is a subset of Medicaid-only beneficiaries who are very costly, such as those with institutional care needs or chronic conditions. One study showed that high-expenditure Medicaid beneficiaries in 2001 included subgroups from each eligibility category, with the elderly and disabled making up the greatest shares of this high-expenditure group. The largest portions of spending were for hospital care for children and adults, intermediate care for individuals with disabilities, and nursing home care for the elderly.[19] Another study showed that annual per capita expenditures ranged from $8,000 to nearly $16,000 for Medicaid beneficiaries with chronic conditions, including asthma, coronary heart disease, congestive heart failure, diabetes, or hypertension. This study also noted that annual per capita expenditures may double and sometimes triple when single chronic conditions are coupled with mental illness and a drug or alcohol disorder.[20]

Nearly One-Third of States' Medicaid Expenditures Were for High-Expenditure Medicaid-Only Beneficiaries

High-expenditure Medicaid-only beneficiaries accounted for almost a third of states' total Medicaid expenditures. When aggregated at the national level, states spent 31.6 percent of Medicaid expenditures on these beneficiaries, who represented 4.3 percent of all beneficiaries. States spent another 33.1 percent of Medicaid expenditures on all other Medicaid-only beneficiaries, who represented 81.2 percent of total Medicaid beneficiaries. The last 35.2 percent of state Medicaid expenditures went for dual-eligible Medicaid beneficiaries. States spent 13.3 percent of total Medicaid expenditures on high-cost dual-eligible

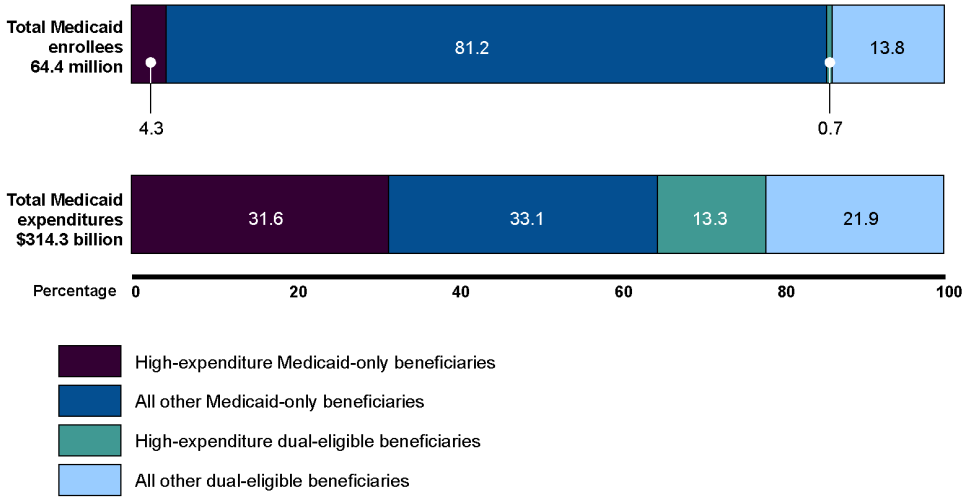
[18]Full benefit dual-eligible beneficiaries may receive the entire range of Medicaid benefits as opposed to partial dual-eligible beneficiaries. Partial dual-eligible beneficiaries may receive assistance for covering Medicare premiums, cost-sharing, or both. Medicaid and CHIP Payment and Access Commission, *Report to the Congress on Medicaid and CHIP* (Washington, D.C.: March 2013).

[19]Intermediate care included intermediate care facility services for persons with intellectual disabilities, services in institutions for mental disease for the elderly, and inpatient psychiatric care under age 21. Kaiser Family Foundation, *Medicaid's High Cost Enrollees* (Washington, D.C.: March 2006).

[20]Center for Health Care Strategy, Inc., *Clarifying Multimorbidity Patterns to Improve Targeting and Delivery of Clinical Services for Medicaid Populations* (Hamilton, N.J.: December 2010).

beneficiaries (less than 1 percent of the total Medicaid population) and 21.9 percent of total Medicaid expenditures on other dual-eligible beneficiaries (13.8 percent of total Medicaid beneficiaries). (See fig. 1).

Figure 1: Percent of Total Medicaid Expenditures by Beneficiary Spending Group, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Note: Dual-eligible beneficiaries are eligible for Medicare and Medicaid. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare. Both dual-eligible and Medicaid-only beneficiaries may also have other sources of health care coverage. High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state for their group—Medicaid-only or dual-eligible beneficiaries. All other beneficiaries represent those whose spending for their group was less than the spending for the top 5 percent. Percentages may not add to 100 due to rounding.

At the beneficiary level, per-capita spending on high-expenditure Medicaid-only beneficiaries greatly exceeded that of all other Medicaid-only beneficiaries, but was less than what was spent on high-expenditure dual-eligible beneficiaries. (See table 1.) Overall, per capita spending by states on high-expenditure Medicaid-only beneficiaries was approximately 18 times higher than per capita spending on all other Medicaid-only beneficiaries. This was similar to the pattern of spending for dual-eligible beneficiaries, with per capita spending significantly higher for high-expenditure dual-eligible beneficiaries compared with all other dual-eligible beneficiaries.

Table 1: Per Capita Spending by Beneficiary Group, Fiscal Year 2009

Beneficiary group	Per capita spending, high-expenditure beneficiaries	Per capita spending, all other beneficiaries
Medicaid-only	$35,983	$1,989
Dual-eligible	$89,440	$7,762

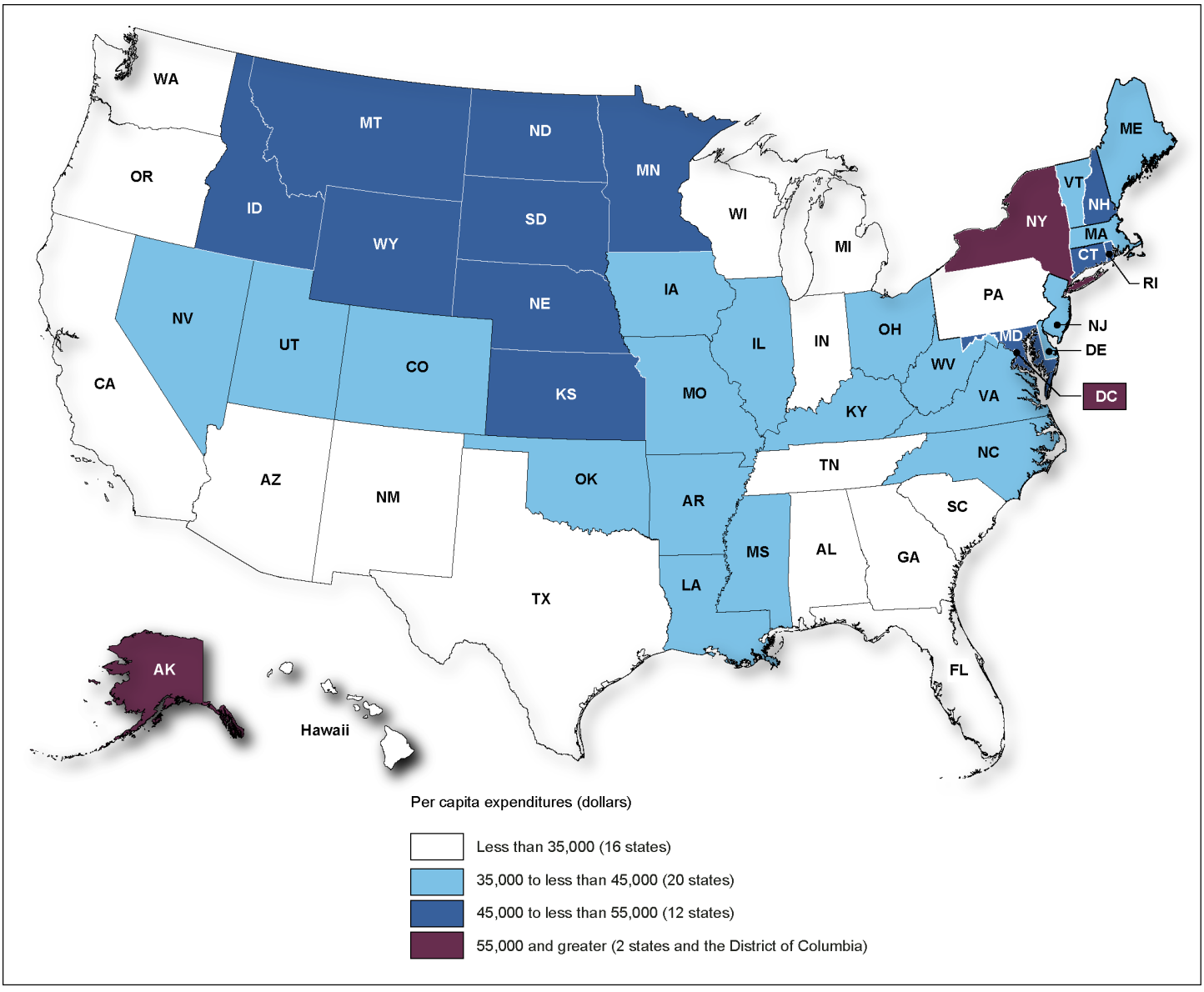
Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Note: Medicaid-only beneficiaries are eligible for Medicaid but not Medicare. Dual-eligible beneficiaries are eligible for Medicare and Medicaid. Medicaid-only and dual–eligible beneficiaries may also have other sources of health care coverage. High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state.

At the state level, there was wide variation in spending per capita on high-expenditure Medicaid-only beneficiaries. (See fig. 2.) Per-capita expenditures by state per beneficiary ranged from $20,896 to $83,365.[21]

[21]Figures include beneficiaries with restricted benefits, such as those who only receive family planning benefits.

Figure 2: State Variation in Per Capita Spending on High-Expenditure Medicaid-Only Beneficiaries, Fiscal Year 2009



Sources: GAO analysis of Centers for Medicare & Medicaid Services data; Map Resources (map).

Note: Medicaid-only beneficiaries are eligible for Medicaid but not Medicare. Medicaid-only beneficiaries may also have other sources of health care coverage. High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state.

Figures include beneficiaries with restricted benefits, such as those who only receive family planning benefits.

Disability, Certain Conditions, Delivery/Childbirth, and Long-Term Care Residency Were Strongly Associated with Being a High-Expenditure Medicaid-Only Beneficiary

Key characteristics—such as having a disability, having certain conditions, delivery/childbirth, and residing in a LTC facility—were strongly associated with being a high-expenditure Medicaid-only beneficiary. These key characteristics had consistently strong associations with being a high-expenditure Medicaid-only beneficiary even when the data were examined separately for each eligibility group.[22]

We found that about two-thirds of the high-expenditure group was comprised of beneficiaries who were eligible for Medicaid due to disability.[23] Further, the probability of being a high-expenditure Medicaid-only beneficiary was 18.3 percent for disabled Medicaid-only beneficiaries, which was higher than for any other eligibility group. (See table 2.) In contrast, non-disabled children and adult beneficiaries each had less than a 3 percent probability of being in the high-expenditure group, but made up 16.1 and 15 percent, respectively, of the high-expenditure Medicaid-only beneficiaries.

Table 2: Percentage and Estimated Probability of Being a High-Expenditure Medicaid-Only Beneficiary by Eligibility Group, Fiscal Year 2009

Eligibility Category	Percentage of high-expenditure population	Probability of being a high-expenditure beneficiary (percent)
Child	16.1	2.0
Adult	15.0	2.6
Aged	2.5	10.5
Disabled	66.3	18.3

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Note: High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

Probabilities were derived from logistic regression results. A probability greater than 5 percent indicates that a characteristic's influence on the beneficiary being in the high-expenditure group was

[22]Delivery/childbirth may include costs attributed to a mother during delivery or the child soon after birth.

[23]Some individuals with a disability may be enrolled in Medicaid under other eligibility groups. For example, in some states, children with disabilities may be assigned to an eligibility group based on their age and not their disability status. Our analysis of beneficiaries who resided in a long-term care facility found that 15.3 percent were in the eligibility group for children, while 74.3 percent were in the disabled eligibility group, and the rest were in the aged or adult eligibility groups.

more than what would have occurred by chance alone. All probabilities were significant at the 0.05 level.

Residing in a long-term care (LTC) facility or having certain conditions, such as human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), was also strongly associated with being a high-expenditure Medicaid-only beneficiary. (See table 3.) We found that while beneficiaries residing in a LTC facility comprised 8.8 percent of the Medicaid-only high-expenditure group, they had a 24.2 percent probability of being high-expenditure beneficiaries. Regarding the impact of certain conditions, beneficiaries with HIV/AIDS comprised just 3.4 percent of the high-expenditure group, but had a 20.8 percent probability of being high-expenditure beneficiaries. Additionally, delivery/childbirth—giving birth for the mother or being born for the infant—increased the probability of being a high-cost beneficiary. New mothers and infants were 9.8 percent of the high-expenditure population, but had a 13.3 percent probability of being high-expenditure beneficiaries. (See app. II for characteristics of high-expenditure beneficiaries.)

Table 3: Percentage and Estimated Probability of Being a High-Expenditure Medicaid-Only Beneficiary, by Selected Conditions and Services, Fiscal Year 2009

Characteristic	Percentage of high-expenditure population	Probability of being a high-expenditure beneficiary (percent)
Conditions		
HIV/AIDS[a]	3.4	20.8
Mental health condition	51.8	9.1
Diabetes	18.6	8.8
Substance abuse	19.1	7.9
Asthma	14.5	6.8
Services		
Long-term care residence	8.8	24.2
Delivery/childbirth[b]	9.8	13.3

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Note: High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

Probabilities were derived from logistic regression results. A probability greater than 5 percent indicates that a characteristic's influence on the beneficiary being in the high-expenditure group was more than what would have occurred by chance alone. All probabilities were significant at the 0.05 level.

[a]HIV/AIDS stands for human immunodeficiency virus/acquired immunodeficiency syndrome.

[b]Delivery/childbirth may include costs attributed to a mother during delivery or the child soon after birth.

We also found that while demographic factors like age and race, capitated managed care participation, and characteristics of the state where the beneficiary was enrolled helped to describe the Medicaid-only population,[24] these factors were generally less strongly associated with being a high-expenditure beneficiary. (See app. III for a complete table of probabilities.)

In addition, we used logistic regression to examine the factors that influence the probability of being a high-expenditure beneficiary separately for each of the four eligibility groups (children, adults, aged, and disabled). We found that having one of the identified conditions or using one of the included services was consistently associated with a greater probability of being a high-expenditure Medicaid-only beneficiary compared with those without such characteristics. However, the size of their influence differed. For example, children had an 11.4 percent probability of being high-expenditure Medicaid-only beneficiaries if they had HIV/AIDS, but individuals with disabilities had a 71.6 percent probability if they had that condition. (See app. III for complete table of probabilities.)

[24]Characteristics of the state included state spending on high-expenditure Medicaid-only beneficiaries, state spending on home and community based services, and state managed care penetration rates.

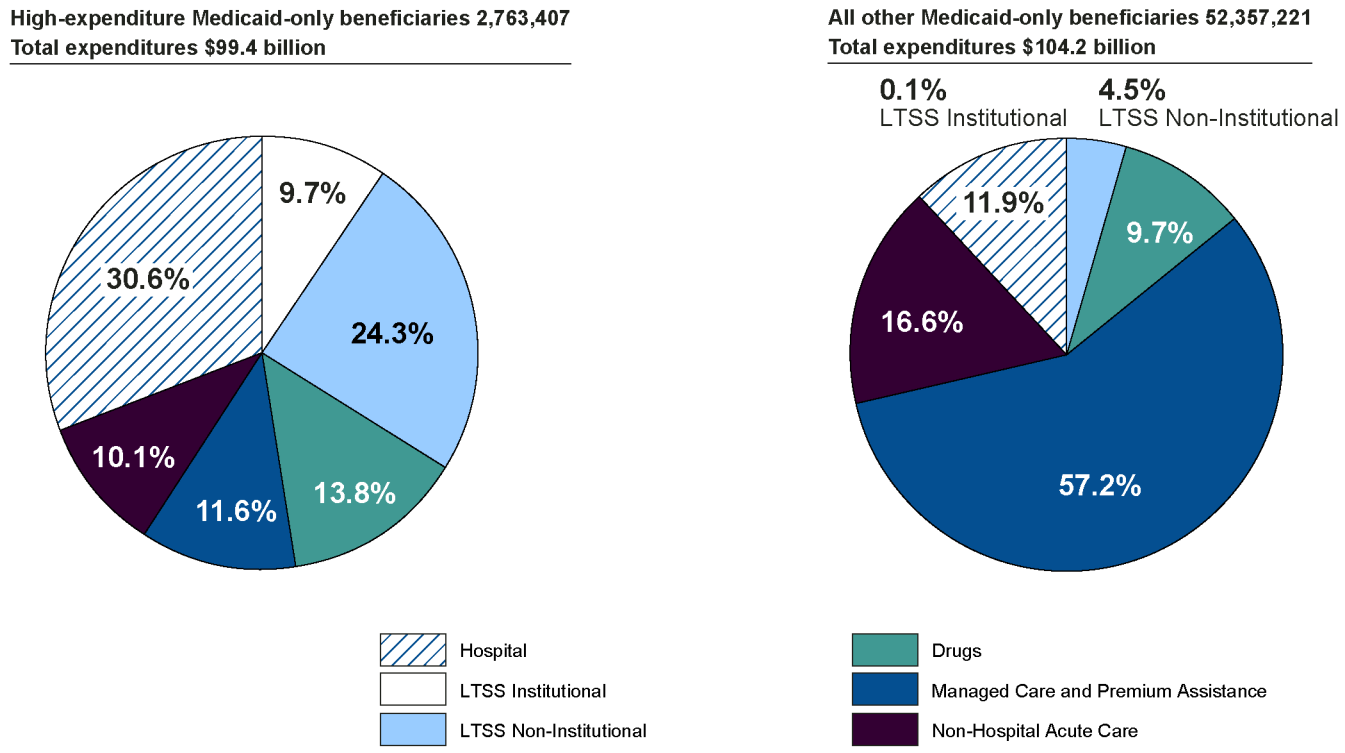
High-Expenditure Beneficiaries Had High Hospital Expenditures and Significantly Different Spending Patterns Compared with All Other Medicaid-Only Beneficiaries

Overall, hospital services and LTSS represented the bulk of spending for high expenditure Medicaid-only beneficiaries—almost 65 percent. In contrast, payments to managed care organizations and premium assistance constituted the largest proportion of expenditures for all other Medicaid-only beneficiaries. In addition, when we examined Medicaid-only high-expenditure and other beneficiaries separately by eligibility group, the differences in service use were generally consistent, but the proportion of expenditures for the different services varied. Separately examining high-expenditure Medicaid-only beneficiaries in LTC institutions and beneficiaries with spending in the top 1 percent of expenditures showed that these beneficiaries had the highest spending for hospital services and LTSS.

Spending Patterns for All High-Expenditure Medicaid-Only Beneficiaries Compared with All Other Medicaid-Only Beneficiaries

For high-expenditure Medicaid-only beneficiaries as a whole, hospital services comprised 30.6 percent, LTSS in non-institutional settings comprised 24.3 percent, and LTSS in institutions comprised 9.7 percent of their expenditures. Other expenditures were for drugs, managed care and premium assistance, and non-hospital acute care. In contrast to high-expenditure Medicaid-only beneficiaries, the largest share of total expenditures for all other Medicaid-only beneficiaries was for managed care and premium assistance (57.2 percent), followed by non-hospital acute care (16.6 percent), hospital services (11.9 percent), drugs (9.7 percent) and LTSS in non-institutional settings (4.5 percent). (See fig. 3.)

Figure 3: Percentage of Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure, and All Other Medicaid-Only Beneficiaries, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Notes: High-expenditure beneficiaries are those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

LTSS stands for long-term care services and supports. The spending category managed care and premium assistance includes Medicaid health insurance payments made to risk-based health maintenance organizations, primary care case management services, and prepaid health plans.

Percentages may not add to 100 due to rounding.

Spending Patterns for Eligibility Groups

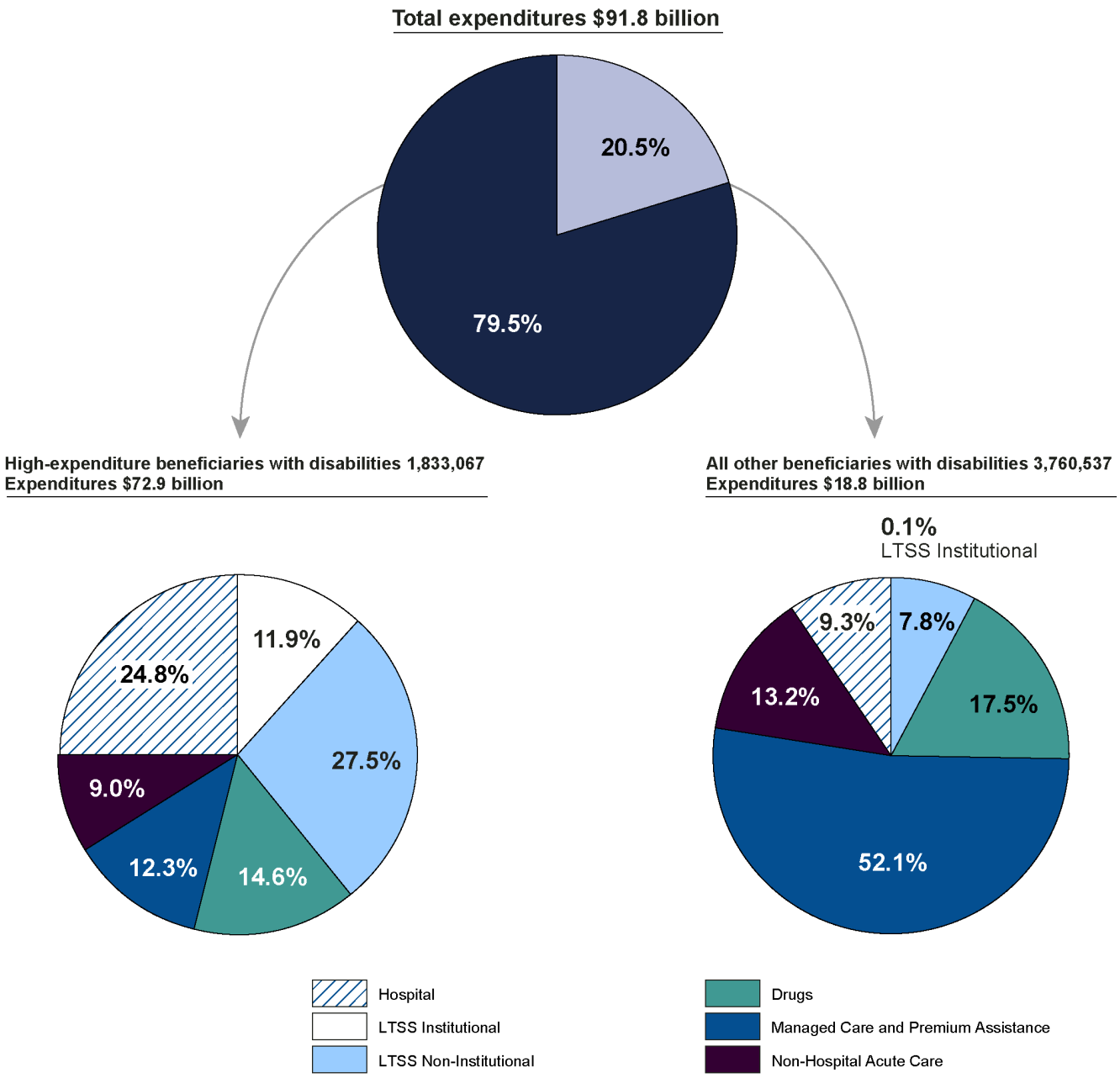
The general pattern of greater hospital and LTSS service use by high expenditure Medicaid-only beneficiaries compared with greater spending on managed care and premium support by all other Medicaid-only beneficiaries was consistent across eligibility groups. However, there were some differences in expenditures by eligibility category among high-expenditure Medicaid-only beneficiaries and all other Medicaid-only beneficiaries.

Beneficiary Profile

Beneficiary A was a 61-year-old disabled African American male in 2009, with $73,539 in total Medicaid expenditures in that year. He was not enrolled in managed care at any point in the year. He was indicated to have diabetes, a mental health condition, and resided in a long-term care facility. His expenditures were highly concentrated in LTSS non-institutional care (81.9 percent). About 10 percent of his expenditures were for prescription drugs.

- **Disabled**: For high expenditure Medicaid-only beneficiaries in the disabled category, LTSS non-institutional (27.5 percent), hospital (24.8 percent), and LTSS institutional services (11.9 percent) represent almost two-thirds of their expenditures. (See fig. 4.) In contrast, all other Medicaid-only beneficiaries in the disabled category had over half of their expenditures for managed care and premium assistance (52.1 percent), and had almost no LTSS institutional expenditures (0.1 percent). Overall, 79.5 percent of expenditures for Medicaid-only beneficiaries in the disabled group were for the high-expenditure beneficiaries.

Figure 4: Percentage of Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure, and All Other Medicaid-Only Disabled Beneficiaries, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Notes: High-expenditure beneficiaries are those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was

Beneficiary Profile

Beneficiary B was a 1-year-old white male in the child eligibility group in 2009, with $90,609 in total Medicaid expenditures in that year. He was not enrolled in managed care, but had costs associated with his delivery. His total expenditures were highly concentrated in hospital services (79.4 percent). About 12 percent of his expenditures were for non-hospital acute care.

less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

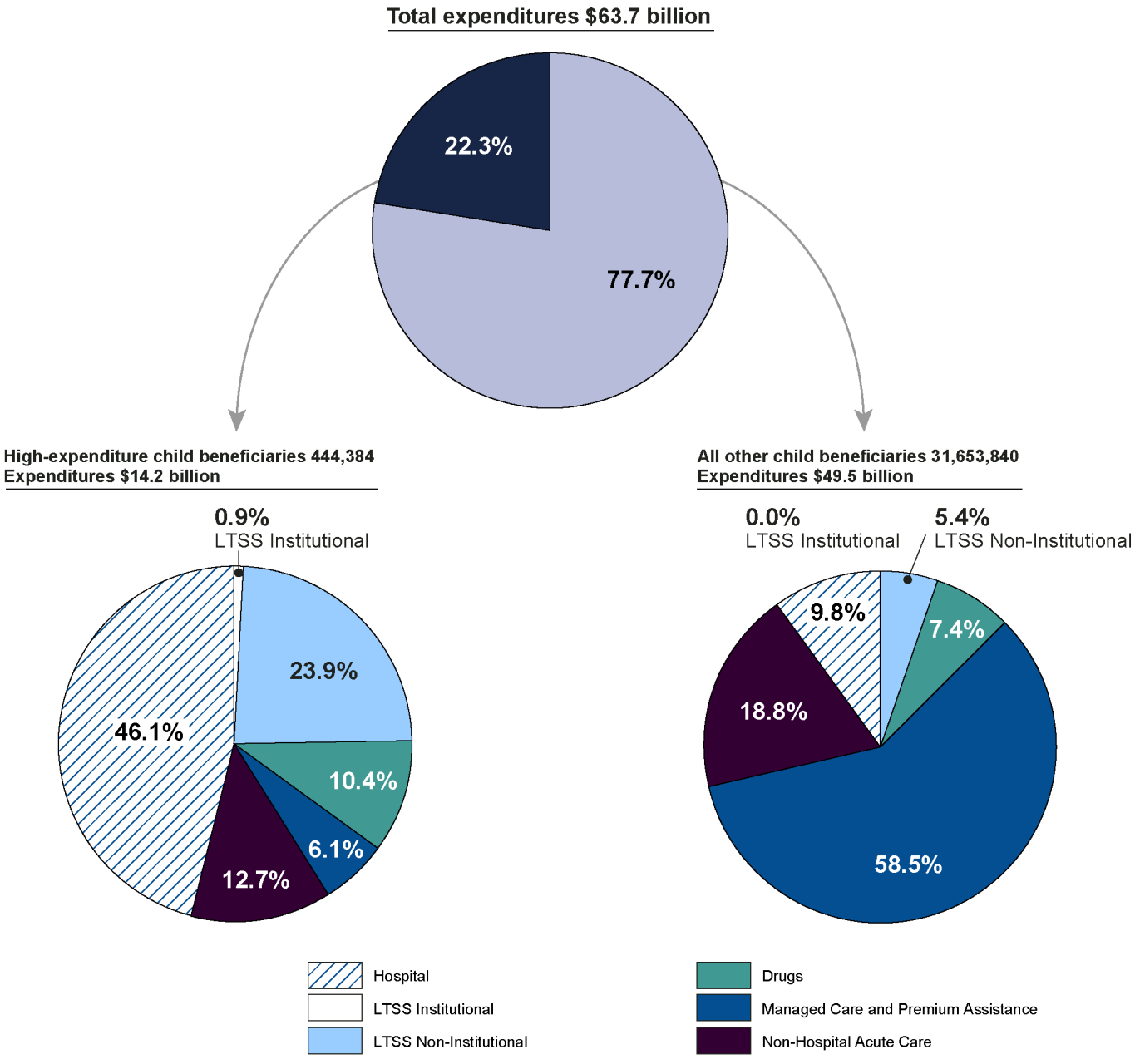
LTSS stands for long-term care services and supports. The spending category managed care and premium assistance includes Medicaid health insurance payments made to risk-based health maintenance organizations, primary care case management services, and prepaid health plans.

Percentages may not add to 100 due to rounding.

Children: Medicaid-only children had almost no LTSS institutional expenditures (less than 1 percent), whether in the high-expenditure group or not.[25] (See fig. 5.) High-expenditure Medicaid-only children had 70 percent of their expenditures for hospital (46.1 percent) and LTSS non-institutional services (23.9 percent). For all other Medicaid-only children, over 58 percent of their expenditures were for managed care and premium assistance, followed by non-hospital acute (18.8 percent) and hospital services (9.8 percent). About 22 percent of expenditures for Medicaid-only children were for those in the high-expenditure group.

[25]This suggests that states are generally classifying beneficiaries aged 21 and under who need institutional care as disabled. Our data shows that 27.8 percent of beneficiaries receiving LTSS institutional care were aged 21 and under.

Figure 5: Percentage of Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure, and All Other Medicaid-Only Child Beneficiaries, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Notes: High-expenditure beneficiaries are those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was

Beneficiary Profile

Beneficiary C was a 21-year-old disabled white female in 2009 with $267,202 in total Medicaid expenditures in that year. She was not enrolled in Medicaid managed care at any point in the year, but was indicated to have a mental health condition, a substance abuse condition, and reside in a long-term care facility. Her expenditures were highly concentrated in hospital services (54.4 percent) and LTSS non-institutional care (30.8 percent).

less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

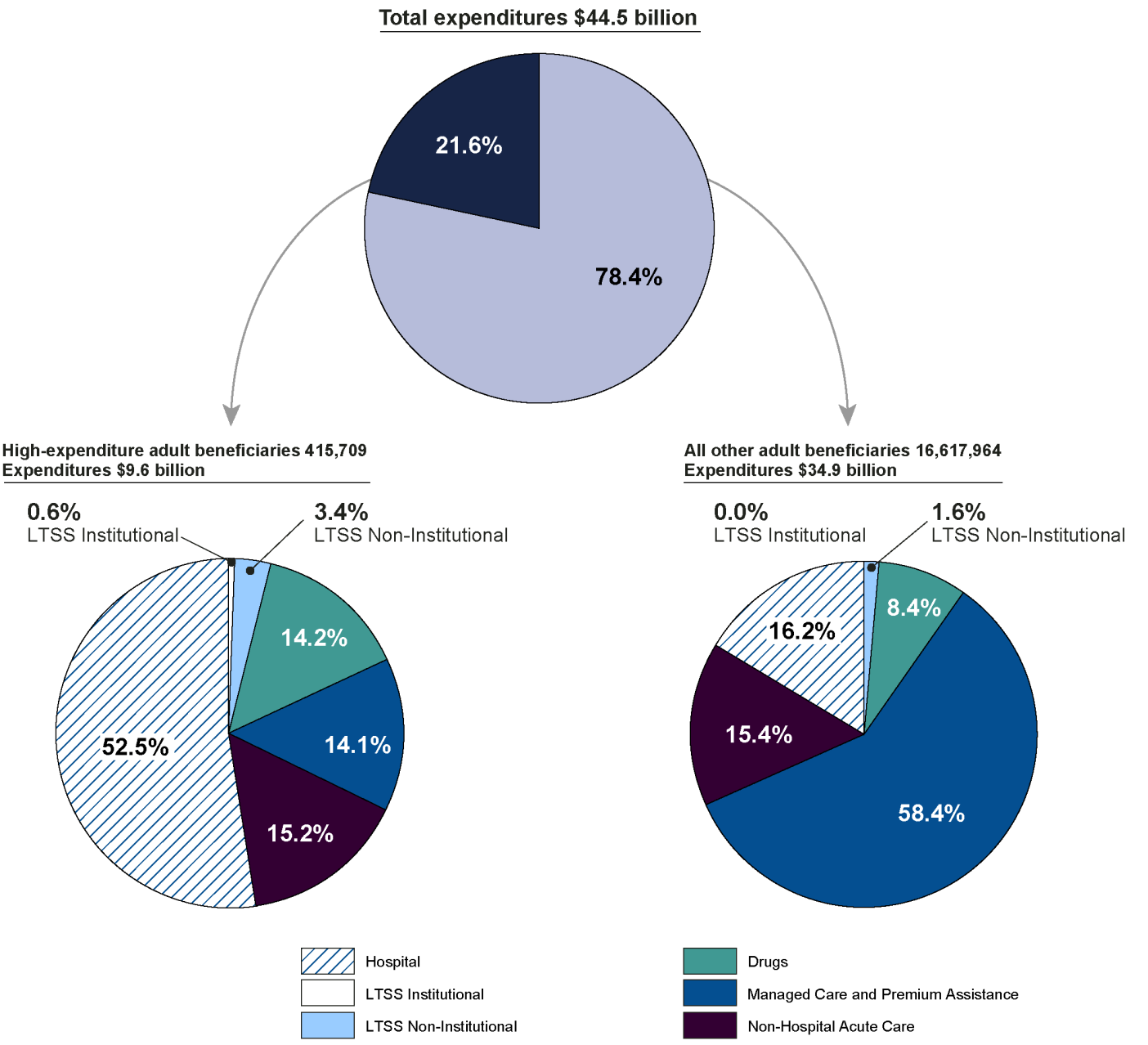
LTSS stands for long-term care services and supports. The spending category managed care and premium assistance includes Medicaid health insurance payments made to risk-based health maintenance organizations, primary care case management services, and prepaid health plans.

Percentages may not add to 100 due to rounding.

- **Adults**: Similar to children, Medicaid-only adult beneficiaries had almost no LTSS institutional expenditures (less than 1 percent of each of their total expenditures) whether in the high-expenditure group or not.[26] (See fig. 6.) Hospital services represented over half the expenditures for high-expenditure adult beneficiaries. The remaining expenditures were almost equally distributed between non-hospital acute care (15.2 percent), drugs (14.2 percent), and managed care and premium support (14.1 percent). LTSS non-institutional services were a relatively small part of their total expenditures (3.4 percent). The greatest share of expenditures for all other Medicaid-only adult beneficiaries were for managed care and premium support (58.4 percent) followed by hospital (16.2 percent) and non-hospital acute care (15.4 percent) services. About 22 percent of expenditures for Medicaid-only adult beneficiaries were for the high-expenditure group.

[26]This suggests that states are generally classifying individuals of adult age who need institutional care as disabled. Our data shows that 18.3 percent of beneficiaries receiving LTSS institutional care were aged 22 to 44, and 44 percent were aged 45 to 64.

Figure 6: Percentage of Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure, and All Other Medicaid-Only Adult Beneficiaries, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Notes: High-expenditure beneficiaries are those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was

Beneficiary Profile

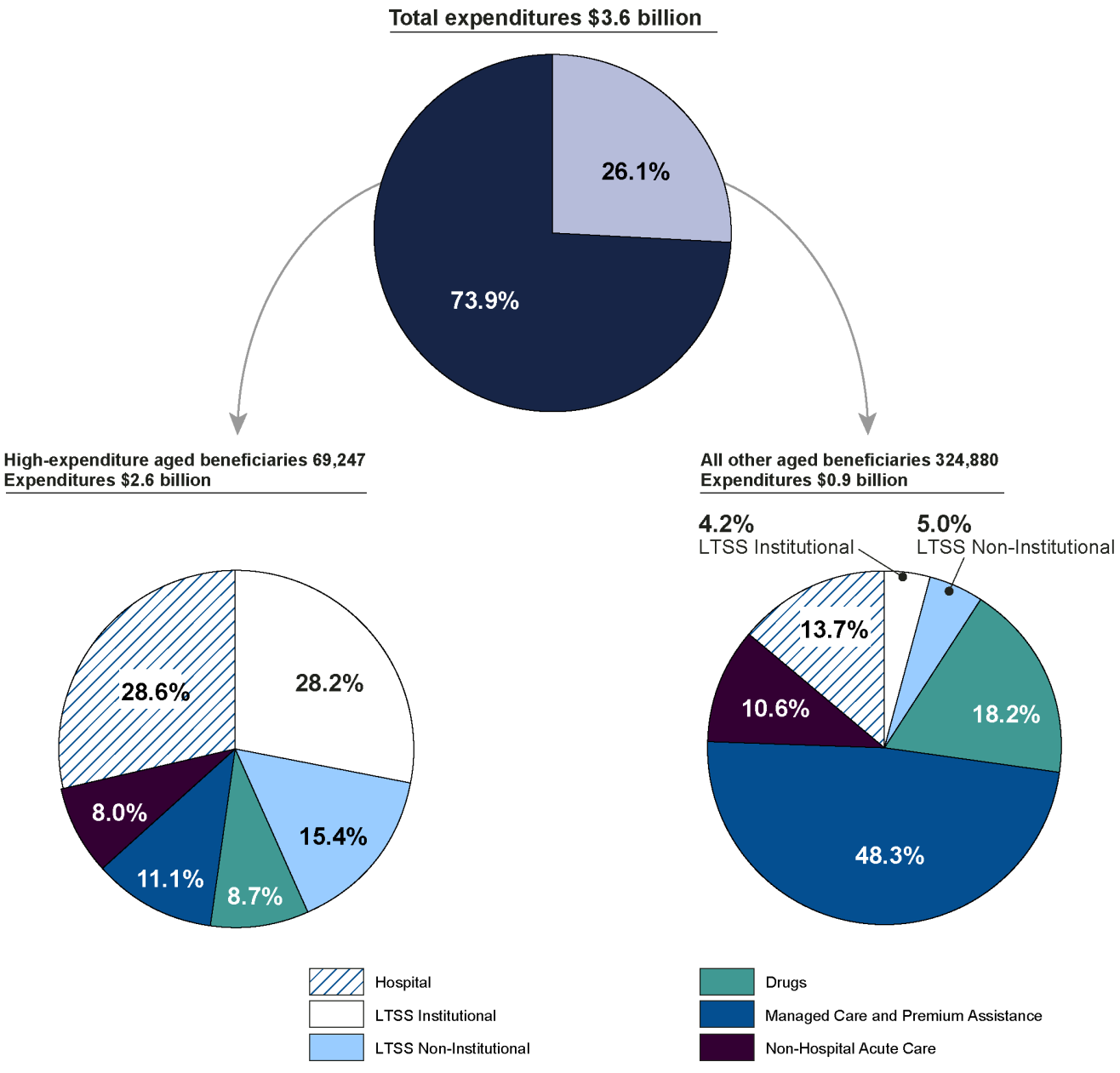
Beneficiary D was an under 1-year-old disabled male of unknown race in 2009, with $101,225 in total Medicaid expenditures in that year. He was enrolled in Medicaid managed care for 6 to 11 months. He was indicated to have asthma and costs associated with his delivery. His expenditures were highly concentrated in hospital services (84.9 percent). About 9 percent of his expenditures were for non-acute hospital care.

less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

LTSS stands for long-term care services and supports. The spending category managed care and premium assistance includes Medicaid health insurance payments made to risk-based health maintenance organizations, primary care case management services, and prepaid health plans.

- **Aged**: For the aged, both high-expenditure and all other Medicaid-only beneficiaries had LTC institutional expenditures, but the share of those expenditures differed—28.2 percent compared with 4.2 percent. Among the high-expenditure Medicaid-only aged beneficiaries, hospital (28.6 percent), LTSS institutional (28.2 percent), and LTSS non-institutional (15.4 percent) services represented over 70 percent of total expenditures. (See fig.7.) For all other Medicaid-only aged beneficiaries, managed care and premium support represented 48.3 percent of their expenditures, followed by drugs (18.2 percent), hospital (13.7 percent), and non-hospital acute care (10.6 percent) services. Over 73 percent of expenditures for the Medicaid-only aged were for those in the high-expenditure group.

Figure 7: Percentage of Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure, and All Other Medicaid-Only Aged Beneficiaries, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Notes: High-expenditure beneficiaries are those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was

less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

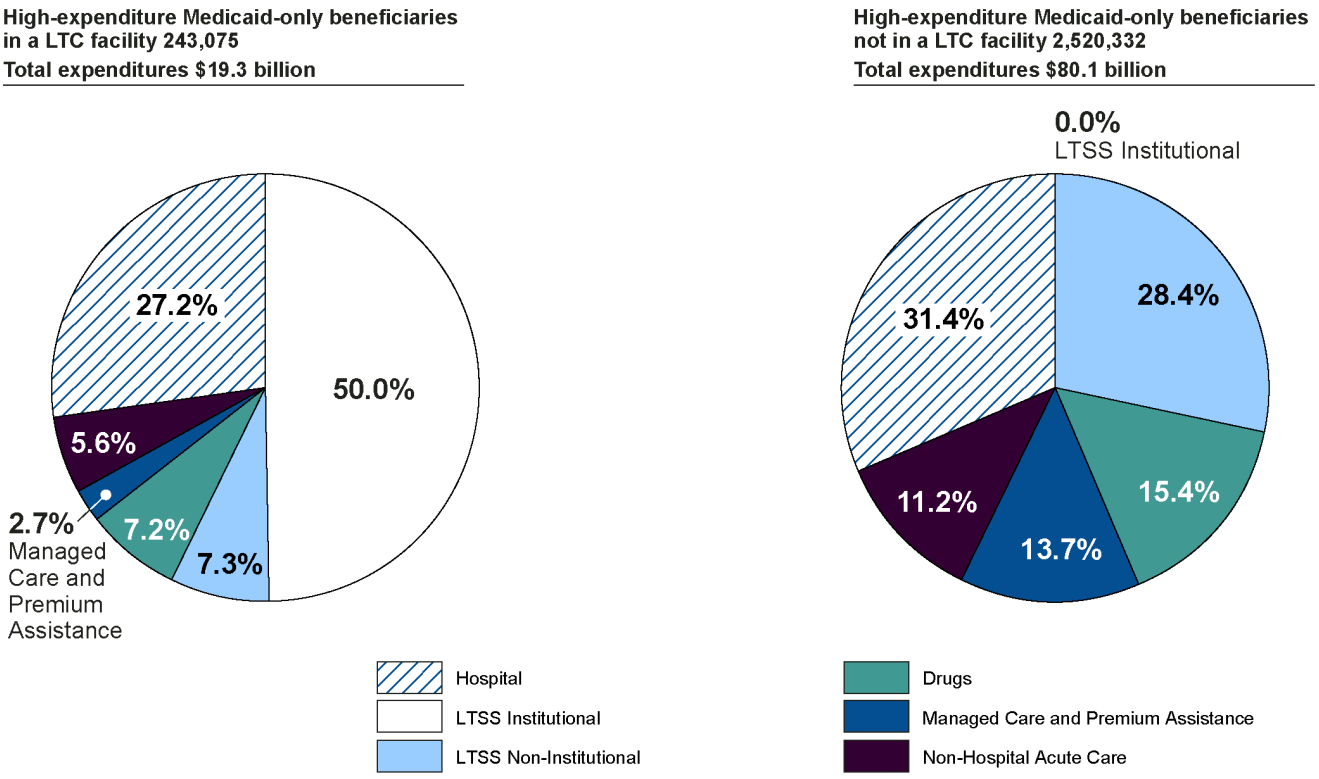
LTSS stands for long-term care services and supports. The spending category managed care and premium assistance includes Medicaid health insurance payments made to risk-based health maintenance organizations, primary care case management services, and prepaid health plans.

Spending Patterns for High-Expenditure Medicaid-Only Beneficiaries by LTC Facility Residence Status

LTSS spending differed for high expenditure Medicaid-only beneficiaries living in LTC facilities and those living in the community. (See fig. 8.)

- Among high-expenditure Medicaid-only beneficiaries residing in a LTC facility, expenditures for LTSS in institutional settings (50 percent), hospital services (27.2 percent), and LTSS in non-institutional settings (7.3 percent) accounted for almost 85 percent of their total expenditures.
- Among high-expenditure beneficiaries not residing in a LTC facility, expenditures for LTSS in non-institutional settings (28.4 percent) were much greater, and expenditures for hospital services were similar (31.4 percent)—and these two services represented almost 60 percent of their total expenditures. In addition, the percentage of expenditures on drugs and non-hospital acute care was greater for high expenditure Medicaid-only beneficiaries who were not living in LTC facilities.

Figure 8: Percentage of Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure Medicaid-Only Beneficiaries, by Long-Term Care Residence Status, Fiscal Year 2009



Source: GAO analysis of Centers for Medicare & Medicaid Services data.

Notes: High-expenditure beneficiaries are those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

LTC stands for long-term care. LTSS stands for long-term care services and supports. The spending category managed care and premium assistance includes Medicaid health insurance payments made to risk-based health maintenance organizations, primary care case management services, and prepaid health plans.

Percentages may not add to 100 due to rounding.

While hospital services were the largest expenditure category among high-expenditure beneficiaries not residing in a LTC facility, per-capita hospital expenditures for beneficiaries residing in a LTC facility were over two times as much ($21,589 compared with $9,978). (See table 4.)

Table 4: Per Capita Expenditures for Services and Managed Care and Premium Assistance for High-Expenditure Medicaid-Only Beneficiaries by Long-Term Care Residence Status, Fiscal Year 2009

	Long-term care facility	No long-term care facility
	Per capita expenditures (dollars)	Per capita expenditures (dollars)
Hospital	21,589	9,978
Non-Hospital Acute Care	4,420	3,543
Drugs	5,738	4,879
Managed Care & Premium Assistance	2,151	4,349
LTSS Non-Institutional	5,833	9,022
LTSS Institutional	39,671	0

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Note: LTSS stands for long-term services and supports.

Spending Patterns for Beneficiaries in the Top 1 Percent of Expenditures

Beneficiaries with expenditures within the top 1 percent for their state—the top one-fifth of the high-expenditure group—had a greater share of spending on hospital services, LTSS in non-institutional settings, and LTSS in institutional settings compared with all of the high-expenditure beneficiaries. Spending on these services comprised almost 80 percent of the total expenditures for beneficiaries with expenditures within the top 1 percent for their state. (See app. IV for complete table of results, and app. V for the demographic characteristics and spending for some randomly selected beneficiaries in that group.)

Agency Comments

HHS reviewed a draft of this report and provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the Secretary of HHS and to interested congressional committees. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-7114 or YocomC@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix VI.

Sincerely yours,

Carolyn L. Yocom
Director, Health Care

Appendix I: Objectives, Scope, and Methodology

This appendix describes the methodology for addressing three objectives that examine: (1) states' spending for high-expenditure beneficiaries, both Medicaid-only and dual-eligible beneficiaries, compared with other Medicaid beneficiaries; (2) the characteristics associated with high-expenditure Medicaid-only beneficiaries; and (3) the services that contributed to high expenditures for Medicaid-only beneficiaries, and how they compared with service usage by all other Medicaid-only beneficiaries.

We analyzed data from the fiscal year 2009 Medicaid Statistical Information System (MSIS) Annual Person Summary File.[1] The summary file consolidates individual beneficiaries' claims for the fiscal year, including data on their enrollment and information on their expenditures. The summary file also includes beneficiary specific information regarding enrollment categories, expenditures among six categories,[2] dual eligibility status, age, gender, payment arrangements—including fee-for-service payments and capitated payments made to managed care organizations—and indicators for five conditions and two service categories.[3] The summary file excludes some encounter details included in the full claims files (for example, the summary file may not include

[1]MSIS data provide a summary of expenditures linked to specific beneficiaries on the basis of their medical claims for care. These data exclude other aspects of the Medicaid program that are not tied to specific beneficiaries. For example, the MSIS data do not contain supplemental payments to providers that are separate from standard Medicaid payments for services.

[2]The summary file includes information on spending for 30 types of services. We consolidated 28 of these types of services into the six categories we report:(1) hospital care, (2) non-hospital acute care, (3) drugs, (4) managed care and premium assistance, (5) long-term services and supports in non-institutional settings, and (6) long-term services and supports in institutional settings. The summary file does not provide information on all conditions that may affect the likelihood of the beneficiary being a high-expenditure Medicaid-only beneficiary. As a result, we could not include all relevant conditions in our models.

[3]The five chronic condition indicators are for human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), mental health issues, diabetes, substance abuse, and asthma. The two service category indicators are for delivery/childbirth and long-term care residency. Childbirth may include costs attributed to a mother during delivery or the child soon after birth. We reviewed the algorithms the indicators were based on by looking up the ICD-9 codes indicated and, where possible, comparing them to codes included in CMS's Chronic Condition Data Warehouse indicators. We determined that despite small differences with the Chronic Condition Data Warehouse (e.g., MSIS did not include secondary diabetes diagnoses) they were sufficient for our purposes.

details regarding the care encounter, such as individual cost per encounter; however, it does include monthly enrollment data).

We made several adjustments to the summary file in order to ensure that the data were reliable for our purposes. Specifically we excluded:

- records with unknown eligibility status (eliminated 5,166,648 records, or 7.21 percent of total records);
- all records associated with duplicate MSIS IDs or Social Security numbers within a state (eliminated 277,363 records, or 0.39 percent of total records);
- records with negative total spending amounts (eliminated 975,869 records, or 1.36 percent of total records), which may reflect adjustments to claims made in the prior year;
- records of individuals who were only enrolled in a stand-alone, separate Children's Health Insurance Program during the year (eliminated 471,507 records, or 0.66 percent of total records);
- records associated with a payment adjustment rather than an individual (eliminated 202,456 records, or 0.28 percent of total records);
- records of individuals whose age appeared to conflict with their identified eligibility group (eliminated 65,016 records, or 0.09 percent of total records). For example, records of individuals in the child eligibility group whose age was 85 and older;
- records with unknown dual status (eliminated 698 records, or less than 0.01 percent of total records); and,
- records of individuals whose age was over 65, but indicated as having delivered a child (eliminated 126 records, or less than 0.01 percent of total records).

After making these adjustments, we were able to retain 64,457,343, or 90 percent, of the summary file's 71,617,026 original records.

In order to determine variations in states' spending for high-expenditure Medicaid-only beneficiaries compared with other Medicaid beneficiaries, we calculated the total number of Medicaid enrollees and total Medicaid expenditures in each state. We then calculated these same statistics for our subpopulations of Medicaid-only and dual-eligible beneficiaries based on the "last-best" indicator of dual eligibility status available in the summary file. Medicaid-only beneficiaries were eligible for Medicaid but

not Medicare. Dual-eligible beneficiaries were eligible for both Medicaid and Medicare. Next, we determined the number of beneficiaries whose total expenditures fell within the top 5 percent of total expenditures within each state (we calculated these figures separately for Medicaid-only and dual-eligible beneficiaries). We termed these 2,763,407 beneficiaries as high-expenditure beneficiaries. We then separately calculated the total expenditures for our high-expenditure beneficiaries and other beneficiaries in each state for Medicaid-only and dual-eligible beneficiaries, and summed this data at a national level.

To examine the characteristics associated with high-expenditure Medicaid-only beneficiaries, we determined the percentage of high-expenditure Medicaid-only beneficiaries with key characteristics and used logistic regression to examine the effect of having key beneficiary characteristics on the probability of being a high-expenditure Medicaid-only beneficiary. The key beneficiary characteristics for which we describe the high-expenditure beneficiary population and represented as independent variables in our logistic regression model included: eligibility group (disabled, child, adult, aged), age, gender, race/ethnicity, geographic location,[4] participation in capitated managed care,[5] period of enrollment in Medicaid (whether full year or partial year), as well as whether the beneficiaries had any of five health conditions or had received any of two services. Finally, our logistic regression models included characteristics of states' Medicaid programs, including their spending on high-expenditure beneficiaries and long-term services and supports (LTSS) in non-institutional settings (also called home and community based services) and capitated managed care penetration

[4]We classified counties as metropolitan or nonmetropolitan using the 2009 Area Resource File provided by the Health Resources and Services Administration.

[5]Capitated managed care included enrollment in a HMO or capitated risk-based managed care plans. We did not consider enrollment in limited benefit plans as an indicator of this beneficiary characteristic.

rates.[6] We report percentages that describe the high-expenditure beneficiary population, as well as the probabilities that demonstrate the association of each characteristic with the likelihood of being in the high-expenditure group if all beneficiaries had a particular characteristic while holding all other characteristics constant. Probabilities were calculated by converting the odds that resulted from our logistic regression models. The size of the independent effect of each enrollee characteristic is expressed as a probability, with greater values reflecting a greater chance that the characteristic increased the likelihood of being a high-expenditure beneficiary. Medicaid-only beneficiaries had a hypothetical 5 percent probability of being in the high-expenditure group by chance alone. All probabilities were significant at the 0.05 level.

In order to determine which service categories contributed to expenditures for high-expenditure Medicaid-only beneficiaries, we examined how total expenditures for high-expenditure Medicaid-only beneficiaries were distributed among the following six expenditure categories: (1) hospital care, (2) non-hospital acute care, (3) drugs, (4) managed care and premium assistance, (5) long-term services and supports (LTSS) in non-institutional settings, and (6) long-term services and supports in institutional settings.[7] We then examined the distribution of spending among each of the six expenditure categories for beneficiaries in our high-expenditure group compared to the distribution of spending among each of the six expenditure categories for all other Medicaid-only beneficiaries.

[6]LTSS includes services such as home health and personal care. We created variables on state spending on high-expenditure Medicaid-only beneficiaries using information from MSIS on the percent of expenditures for the Medicaid-only group and separating states by quartiles. We created variables for state spending on home and community-based services by dividing the total Medicaid expenditures for these services by expenditures for all Medicaid services and separating states into quartiles. We obtained data for state spending on home and community-based services from MSIS and Kaiser Family Foundation, *Medicaid Home and Community-Based Services: 2009 Data Update* (Washington, D.C.: December 2012). We created variables for state managed care penetration using data on the percentage of individuals covered by HMO and other risk-based capitated managed care (HMO penetration rates) by state and separating states by quartiles. We obtained data for this variable from GAO, *Medicaid: States' Use of Managed Care*, GAO-12-872R (Washington, D.C.: Aug. 17, 2012).

[7]The summary file includes information on spending for 30 types of services. We consolidated 28 of these types of services into the six categories we report.

We conducted this performance audit from September 2012 through February 2014 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Characteristics of High-Expenditure Medicaid-Only Beneficiaries

The table below demonstrates the characteristics of high-expenditure Medicaid-only beneficiaries, and how expenditures were distributed within each characteristic of interest. For each subpopulation, we also calculated the per-capita expenditures in dollars. High-expenditure Medicaid-only beneficiaries who resided in a long-term care (LTC) facility during fiscal year 2009 had the highest per capita expenditures ($79,464).

Table 5: Characteristics of High-Expenditure Medicaid-Only Beneficiaries (Top 5 Percent of Expenditures), Fiscal Year 2009

	Beneficiaries (percent)	Expenditures (percent)	Per capita expenditures (dollars)
Overall	100	100	35,983
Eligibility Group			
Children	16.1	14.3	32,005
Adults	15.0	9.6	23,064
Disabled	66.3	73.4	39,799
Aged	2.5	2.7	38,112
Age			
Under 1	2.8	3.8	48,069
1-21	31.1	30.4	35,177
22-44	28.3	28.2	35,942
45-64	34.6	34.1	35,465
65-84	2.8	3.0	38,705
85 & Over	0.4	0.5	40,422
Gender			
Female	55.1	49.5	32,368
Male	44.9	50.5	40,404
Race/Ethnicity			
White	45.7	45.9	36,110
Black or African American	23.9	24.6	37,089
American Indian or Alaska Native	1.7	1.7	37,345
Asian	2.0	1.9	33,638
Hispanic or Latino (includes Hispanic or Latino with 1+ races)	16.6	14.8	32,136
Native Hawaiian or other Pacific Islander	1.1	0.8	27,468
More than one race	0.2	0.4	53,682

	Beneficiaries (percent)	Expenditures (percent)	Per capita expenditures (dollars)
Capitated Managed Care			
12 months	25.3	16.0	22,780
6-11 months	8.2	6.0	26,462
1-5 months	5.2	5.2	35,900
0 months	61.4	72.8	42,703
Length of Medicaid Coverage			
Partial-year coverage	11.5	12.0	37,630
Full-year coverage	88.5	88.0	35,769
Metropolitan Status			
Metropolitan counties	79.5	78.8	35,674
Nonmetropolitan counties	17.6	16.9	34,615
Condition and Services			
HIV/AIDS	3.4	4.4	45,825
Asthma	14.5	15.4	38,324
Diabetes	18.6	20.5	39,642
Delivery/Childbirth	9.8	8.0	29,227
Mental health	51.8	55.2	38,374
Substance abuse	19.1	19.3	36,302
Long-term care residence	8.8	19.4	79,464

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Notes: High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

Capitated managed care includes enrollment in a health maintenance organization or capitated risk-based managed care plans. Limited benefit plans were excluded from this analysis.

HIV/AIDS stands for human immunodeficiency virus/acquired immunodeficiency syndrome. Delivery/childbirth may include costs attributed to a mother during delivery or the child soon after birth.

Percentages may not add to 100 due to missing or unknown data.

Appendix III: Key Characteristics Associated with Estimated Probability of Being a High-Expenditure Beneficiary

Our logistic regression analysis found that key characteristics—such as having a disability, having certain conditions, delivery/childbirth, and residing in a LTC facility—were consistently strongly associated with being a high-expenditure Medicaid-only beneficiary when looking at all records, and when the data was examined separately for each eligibility group.

Table 6: Estimated Probability of Being a High-Expenditure Medicaid-Only Beneficiary (Full Model Results), by Selected Conditions and Services, Fiscal Year 2009

Probability (Percent)					
	(1) All Records	**(2) Children**	**(3) Adults**	**(4) Aged**	**(5) Disabled**
Eligibility Group					
Children	2.0	N/A[a]	N/A	N/A	N/A
Adult	2.6	N/A	N/A	N/A	N/A
Disabled	18.3	N/A	N/A	N/A	N/A
Aged	10.5	N/A	N/A	N/A	N/A
Age					
Under <1	7.7	N/A	N/A	N/A	63.7
1-21	5.4	N/A	N/A	N/A	35.9
22-44	5.9	N/A	N/A	N/A	39.9
45-64	6.8	N/A	N/A	N/A	41.2
65-84	6.8	N/A	N/A	N/A	40.7
85 & over	7.0	N/A	N/A	N/A	32.7
Gender					
Males	5.1	1.5	2.6	17.6	32.5
Females	4.9	1.3	2.4	16.6	32.8
Race/Ethnicity					
White	4.9	1.5	2.5	16.2	31.7
Black or African American	4.5	1.6	2.7	17.7	27.0
Hispanic or Latino (includes Hispanic or Latino with 1+ races)	4.5	1.5	2.4	13.4	30.7
Asian	4.4	1.4	2.2	12.2	35.0
American Indian or Alaska Native	6.8	2.7	4.7	16.1	33.3
Native Hawaiian or other Pacific Islander	4.2	1.5	2.9	11.6	27.5
More than one race	4.2	1.4	2.2	11.5	27.1
Unknown	4.3	1.6	2.3	12.0	28.8

Probability (Percent)					
	(1) All Records	(2) Children	(3) Adults	(4) Aged	(5) Disabled
Capitated Managed Care					
12 months	4.9	0.9	1.5	15.0	36.9
6-11 months	3.8	0.9	2.0	12.3	24.7
1-5 months	4.3	1.3	2.5	13.6	24.9
0 months	5.4	2.0	3.2	18.1	32.3
Length of Medicaid Coverage					
Partial-year coverage	2.9	0.8	1.4	9.1	18.4
Full-year coverage	5.6	1.6	3.2	21.7	34.9
Metropolitan Status					
Metropolitan counties	5.1	1.4	2.4	17.3	33.2
Non-metropolitan counties	4.6	1.2	2.5	13.5	30.5
Condition and Services					
HIV/AIDS	20.8	11.4	23.9	41.2	71.6
No HIV/AIDS	4.9	1.4	2.3	16.9	32.1
Asthma	6.8	2.3	4.4	29.7	39.4
No asthma	4.8	1.3	2.3	16.4	31.8
Delivery/childbirth	13.3	8.2	8.9	17.0	46.7
No delivery/childbirth	4.6	1.1	1.8	17.0	32.5
Diabetic	8.8	5.9	7.7	26.3	47.1
Not diabetic	4.6	1.4	2.2	14.2	30.3
Long-term care	24.2	11.6	8.6	53.9	82.1
Not long-term care	4.7	1.3	2.4	14.0	31.0
Mental health conditions	9.1	7.0	5.4	32.0	42.4
No mental health conditions	3.7	0.7	1.9	14.7	26.4
Substance abuse	7.9	3.5	6.3	30.2	42.7
No substance abuse	4.7	1.3	2.0	16.7	31.2
State Characteristics					
State’s HMO penetration in Q1	4.2	1.0	1.5	21.7	30.3
State’s HMO penetration in Q2	4.3	1.4	1.7	16.6	27.1
State’s HMO penetration in Q3	5.3	1.3	2.8	24.1	35.1
State’s HMO penetration in Q4	5.5	1.8	2.9	14.5	35.1
State’s Medicaid spending in Q1	4.6	1.0	1.7	16.3	31.5
State’s Medicaid spending in Q2	5.1	1.5	2.4	17.3	33.7
State’s Medicaid spending in Q3	4.5	1.3	2.7	12.9	27.4
State’s Medicaid spending in Q4	5.8	1.6	3.1	20.4	39.2
State home and community-based services spending in Q1	4.7	1.5	4.0	14.0	27.6

Probability (Percent)					
	(1) All Records	(2) Children	(3) Adults	(4) Aged	(5) Disabled
State home and community-based services spending in Q2	5.3	1.3	2.6	17.1	36.3
State home and community-based services spending in Q3	5.1	1.7	2.1	17.0	32.8
State home and community-based services spending in Q4	4.4	0.9	1.9	18.3	32.0

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Notes:

High-expenditure beneficiaries represent those whose total expenditures fell within the top 5 percent of total expenditures within each state. All other beneficiaries represent those whose spending was less than the spending for the top 5 percent. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare.

Probabilities are derived from logistic regression results. Medicaid-only beneficiaries had a hypothetical 5 percent probability of being in the high-expenditure group by chance alone. A probability less than 5 percent indicates that a characteristic's influence on the beneficiary's being in the high-expenditure group was less than what would have occurred by chance alone, while probabilities greater than 5 percent indicate the opposite. All probabilities were significant at the 0.05 level.

The probabilities in each column are derived from logistic regressions that used different samples and are therefore inappropriate for cross comparison.

Capitated managed care includes enrollment in a health maintenance organization (HMO) or capitated risk-based managed care plans. Limited benefit plans were excluded from this analysis.

HIV/AIDS stands for human immunodeficiency virus/acquired immunodeficiency syndrome.

Q stands for quarter of the fiscal year.

Delivery/childbirth may include costs attributed to a mother during delivery or the child soon after birth.

State spending on high-expenditure Medicaid-only beneficiaries uses information on the distribution of expenditures for the Medicaid-only group and separates states by quartiles. The variable for state spending on home and community-based services divides the total Medicaid expenditures for home and community-based services by expenditures for all Medicaid beneficiaries, and separates states into quartiles. The state managed care penetration variable of data on HMO penetration rates by state also separates states by quartiles.

[a]Not included in model.

Appendix IV: Characteristics of High-Expenditure Beneficiaries in the Top 1 Percent of Expenditures

The table below demonstrates the characteristics of Medicaid-only beneficiaries with expenditures in the top 1 percent of total expenditures (558,798 beneficiaries). For each subpopulation, we also calculated the per capita expenditures in dollars. The top 1 percent of Medicaid-only beneficiaries had per capita spending of $94,821, over 2.5 times that of beneficiaries in the top 5 percent of total expenditures whose per capita spending was $35,983 (top 1 percent included).

Table 7: Characteristics of High-Expenditure Medicaid-Only Beneficiaries (Top 1 Percent of Expenditures), Fiscal Year 2009

	Beneficiaries (percent)	Expenditures (percent)	Per capita expenditures (dollars)
Overall	100	100	94,821
Eligibility Category			
Children	11.8	12.4	99,588
Adults	5.3	4.7	83,809
Disabled	79.8	80.2	95,279
Aged	3.1	2.7	83,621
Age			
Under 1	4.0	4.8	113,685
1-21	28.2	29.9	100,686
22-44	28.2	29.2	97,910
45-64	35.4	32.4	86,746
65-84	3.6	3.3	85,610
85 & Over	0.6	0.5	76,137
Gender			
Female	47.3	44.8	89,842
Male	52.7	55.1	99,268
Race/Ethnicity			
White	47.7	45.8	91,141
Black or African American	23.4	24.2	97,848
American Indian or Alaska Native	1.7	1.7	94,123
Asian	1.9	1.8	89,060
Hispanic or Latino (includes Hispanic or Latino with 1+ races)	14.0	14.2	95,667
Native Hawaiian or other Pacific Islander	1.0	0.9	82,900
More than one race	0.2	0.4	171,292

	Beneficiaries (percent)	Expenditures (percent)	Per capita expenditures (dollars)
Capitated Managed Care			
12 months	10.5	8.3	75,519
6-11 months	4.8	4.2	82,202
1-5 months	5.2	5.1	92,982
0 months	79.5	82.4	98,245
Length of Medicaid Coverage			
Partial-year coverage	12.1	12.3	97,035
Full-year coverage	88.0	87.7	94,518
Metropolitan Status			
Metropolitan counties	80.5	79.4	93,582
Non-metropolitan counties	16.6	15.5	88,696
Condition and Service Flags			
HIV/AIDS	4.0	4.2	98,379
Asthma	14.7	15.5	99,783
Diabetes	22.4	21.9	92,790
Delivery	6.4	7.5	110,078
Mental health	56.7	56.5	94,468
Substance abuse	18.2	17.2	89,500
Long-term care residence	26.0	30.8	112,528
Expenditure Categories			
Hospital		34.8	32,967
Non-hospital acute care		7.6	7,157
Drugs		9.8	9,326
Managed care & premium assistance		4.6	4,402
LTSS non-institutional		26.4	25,043
LTSS institutional		16.7	15,849

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Notes: The top 1 percent of beneficiaries represent those whose total expenditures fell within the top 1 percent of total expenditures within each state. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare. However, Medicaid-only beneficiaries may have other sources of health care coverage.

Capitated managed care includes enrollment in a health maintenance organization or capitated risk-based managed care plans. Limited benefit plans were excluded from this analysis.

HIV/AIDS stands for human immunodeficiency virus/acquired immunodeficiency syndrome.

Delivery/childbirth may include costs attributed to a mother during delivery or the child soon after birth.

Percentages may not add to 100 due to missing or unknown data.

Appendix V: Selected Cases of Medicaid-Only Beneficiaries with Expenditures in the Top 1 Percent

We examined individual cases of a random group of Medicaid-only beneficiaries in the top 1 percent of expenditures. Some of these beneficiaries illustrated the trends identified in our analysis, but we also found beneficiaries who demonstrated that there was diversity among the high-expenditure group. Below are some examples of the characteristics and spending patterns for individual beneficiaries. Overall, per capita spending in the top 1 percent ranged from $19,068 to $43,728,641, with an average expenditure of $94,821.

Table 8: Characteristics of Selected Cases of Medicaid-Only Beneficiaries with Expenditures in the Top 1 Percent, Fiscal Year 2009

Beneficiary	Eligibility category	Conditions and/or services	HMO/capitated risk-based managed care enrollment	Total expenditures in 2009 (dollars)	Largest expenditure category
74-year-old black or African American male	Aged	None	None	142,809	95.3 percent hospital
55-year-old black or African American male	Disabled	Diabetes, mental health, substance abuse, LTC residence	None	107,182	44.9 percent LTSS institutional
Under 1-year-old white female	Child	Mental health	None	91,314	84.5 percent hospital
85-year-old black or African American male	Aged	Diabetes, mental health, LTC residence	None	71,346	84.6 percent LTSS institutional
57-year-old white male	Disabled	Diabetes, substance abuse	None	57,719	76.3 percent LTSS non-institutional
15-year-old Hispanic or Latino female	Disabled	Mental health	12 months	55,736	65.1 percent LTSS non-institutional
7-year-old male, race unknown	Disabled	None	12 months	46,153	81 percent prescription drugs
3-year-old white male	Disabled	Mental health	None	42,027	100 percent managed care and premium assistance
40-year-old Hispanic or Latino female	Adult	None	1-5 months	39,182	87 percent non-hospital acute care
52-year-old white female	Adult	Asthma, mental health	None	20,363	54.2 percent prescription drugs

Source: GAO analysis of Centers for Medicare & Medicaid Services' data.

Note: The top 1 percent of beneficiaries represent those whose total expenditures fell within the top 1 percent of total expenditures within each state. Medicaid-only beneficiaries are eligible for Medicaid but not Medicare. However, Medicaid-only beneficiaries may have other sources of health care coverage.

Capitated managed care includes enrollment in a health maintenance organization (HMO) or capitated risk-based managed care plans.

Limited benefit plans were excluded from this analysis.

LTSS stands for long-term services and supports.

Appendix VI: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

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