



**G A O**

Accountability \* Integrity \* Reliability

**United States Government Accountability Office**  
**Washington, DC 20548**

---

August 17, 2012

The Honorable John D. Rockefeller, IV  
Chairman  
Subcommittee on Health Care  
Committee on Finance  
United States Senate

The Honorable Henry A. Waxman  
Ranking Member  
Committee on Energy and Commerce  
House of Representatives

Subject: *Medicaid: States' Use of Managed Care*

The Medicaid program, a joint federal-state program that finances health insurance coverage for certain categories of low-income individuals, is an important source of health care coverage for about 67 million beneficiaries. As Medicaid enrollment and spending have increased significantly over the past decade, so too has states' use of managed care to provide services to Medicaid beneficiaries, and nearly all states enroll some Medicaid beneficiaries in a form of managed care. Within some general requirements set out by the Centers for Medicare & Medicaid Services (CMS), the federal agency responsible for overseeing the Medicaid program, states have broad flexibility to implement Medicaid managed care programs. As a result, states vary widely in terms of the scope of services they provide and the populations they enroll in managed care. For example, while states commonly contract with managed care organizations (MCO) to provide the full range of covered Medicaid services to certain enrollees,<sup>1</sup> they also frequently rely on other arrangements, such as limited benefit plans,<sup>2</sup> which provide a limited set of services, such as dental care or behavioral health services, or primary care case management (PCCM) programs, in which enrollees are assigned a primary care provider (PCP) who is responsible for providing primary care services and for coordinating other needed health care

---

<sup>1</sup>States pay MCOs a set, or capitated, per member per month fee to provide enrollees access to contracted services and coordination of care.

<sup>2</sup>Some states enroll Medicaid beneficiaries into limited benefit plans, which generally are paid on a prepaid basis for providing a limited set of covered services, such as dental care, behavioral health care, and transportation, to beneficiaries.

services.<sup>3</sup> States also vary in their use of managed care for other reasons, such as differences in the availability of certain providers or the concentration of program beneficiaries that live in urban or rural areas.

The Patient Protection and Affordable Care Act (PPACA) of 2010 requires that all states expand eligibility for Medicaid to nonelderly individuals whose income does not exceed 133 percent of the federal poverty level (FPL);<sup>4</sup> this expansion is estimated to result in the enrollment of an additional 7 million individuals in 2014.<sup>5</sup> As initially set forth in PPACA, states that did not fully implement this Medicaid expansion faced the potential loss of all federal Medicaid matching funds, including for the population already covered under existing program rules. However, the U.S. Supreme Court has ruled that states that choose not to expand Medicaid eligibility to these newly eligible individuals will forgo only the federal matching funds associated with such expanded coverage.<sup>6</sup> States that choose to provide Medicaid services to newly eligible individuals may do so through managed care arrangements.<sup>7</sup>

Because of your interest in the potential increase in Medicaid managed care enrollment and related implications, you asked us to describe states' use of Medicaid managed care, including the type of managed care arrangements they have in place, and their enrollment of populations with complex health care needs.<sup>8</sup> Understanding how states use Medicaid managed care—and related similarities and differences among them—may be informative as states consider expanding their use of managed care to new geographic areas or new populations, such as disabled beneficiaries who traditionally have more complex health care needs. This report examines variation in states' use of Medicaid managed care, and identifies groups of

---

<sup>3</sup>GAO has historically described PCCM programs as a predominantly fee-for-service arrangement because most services provided by participating PCPs are reimbursed on a fee-for-service basis. Under a PCCM system, states pay participating PCPs a monthly, per person case management fee for coordinating enrollee health care services, and separately reimburse them on a fee-for-service basis for specific health care services they provide. For purposes of this report, however, we include PCCM programs in the broader discussion of managed care arrangements, which is consistent with CMS's current practice. In addition, CMS officials noted that the agency is thinking more broadly about how PCCM authority can be used in the future in a non-managed care delivery system.

<sup>4</sup>Patient Protection and Affordable Care Act of 2010 (PPACA), 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.

<sup>5</sup>Pub. L. No. 111-148, § 2001, 124 Stat. 271. The 7 million estimate includes new enrollment in both Medicaid and the Children's Health Insurance Program. See 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).

<sup>6</sup>See *National Federation of Independent Business, et al., vs. Sebelius, Sec. of Health and Human Services, et al.*, No. 11-393 (U.S. June 28, 2012).

<sup>7</sup>States will receive an increased federal match for newly eligible individuals at 100 percent for 2014 through 2016, 95 percent in 2017, 94 percent in 2018, 93 percent in 2019, and 90 percent in 2020 and beyond. Pub. L. No. 111-148, §§ 2001(a)(3), 10201(c), 124 Stat. 272, 918, as amended by Pub. L. No. 111-152, § 1201, 124 Stat. 1051.

<sup>8</sup>Our definition of "Medicaid beneficiaries with complex health care needs" includes beneficiaries who were aged, blind/disabled, medically needy, or dually eligible for Medicare and Medicaid. We excluded from our definition dual eligibles who only received Medicare cost-sharing assistance through Medicaid.

states that share similarities, such as program enrollment composition and general market characteristics.

To examine variation in states' use of Medicaid managed care, we reviewed multiple data sources, such as CMS's Medicaid Statistical Information System (MSIS) and the Census Bureau's American Community Survey (ACS), and ultimately identified 12 indicators that were informative in understanding the context in which states use Medicaid managed care.<sup>9</sup> The indicators are grouped into two broad categories: (1) population-based characteristics, such as state-reported enrollment in MCOs and PCCM programs<sup>10</sup> and the degree of potential Medicaid expansion that could occur in 2014;<sup>11</sup> and (2) state market and other characteristics, such as the health maintenance organization (HMO) penetration rate, and the concentration of low-income individuals who lived in urban areas.<sup>12</sup> We excluded other indicators, such as states' regulatory environment and use of limited benefit managed care plans due to the lack of available or reliable data. Specifically, we excluded data on oversight activities because they were not available in a format that was suitable for our analysis, and enrollment in limited benefit plans because of inconsistencies in state-reported data.

We then conducted a cluster analysis, a statistical method that assessed these indicators simultaneously in an effort to cluster states into groups, which were as similar as possible on the indicators within groups and as different as possible among the groups. Cluster analysis is a technique that allows us to focus on broad, shared patterns among states and can yield insights that are difficult to discern just by looking at simple comparisons of data across states. States that are similar with respect to multiple indicators may be able to gain insights from each other in terms of administering or expanding their Medicaid managed care programs. We also interviewed officials from CMS and other national policy experts, including officials

---

<sup>9</sup>The 12 indicators were: (1) the percentage of Medicaid beneficiaries enrolled in MCOs; (2) the percentage of Medicaid beneficiaries with complex health care needs enrolled in MCOs; (3) the percentage of Medicaid beneficiaries enrolled in PCCM programs; (4) the percentage of Medicaid beneficiaries with complex health care needs enrolled in PCCM programs; (5) the Medicaid Expansion Index, which is the degree of potential Medicaid expansion; (6) the concentration of low-income individuals that lived in urban areas; (7) the HMO penetration rate; (8) the commercial HMO Market Competition Index; (9) the number of MCOs per 100,000 Medicaid beneficiaries; (10) the Primary Care Capacity Index; (11) the allowable PCPs in MCOs; and (12) the allowable PCPs in PCCM programs.

<sup>10</sup>Enrollment data are derived from state-reported data to CMS's MSIS and provide detailed enrollment for the various managed care arrangements states have in place.

<sup>11</sup>The Medicaid Expansion Index is derived from projections of the number of individuals considered potentially eligible for Medicaid in 2014 as a result of PPACA's expansion of eligibility in relation to the number of low-income individuals in the state. For more details, see L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623. This measure was developed prior to the Supreme Court decision and assumes expanded participation by all states; however, the extent to which states will implement PPACA's eligibility expansion is uncertain at this time. Its purpose as a measure is not to assume states' actions with regard to expanding Medicaid, but to provide a relative indicator of the extent of potentially eligible individuals within a state.

<sup>12</sup>Historically, there have been differences in state implementation of Medicaid managed care in urban and rural areas; states have been more likely to contract with MCOs to provide care in urban areas.

from the Medicaid and CHIP Payment and Access Commission and the National Association of Medicaid Directors, and reviewed published reports and surveys related to states' use of Medicaid managed care.<sup>13</sup> (See enc. I for more information on our scope and methodology, and enc. III for a detailed description of the indicators we examined.)

To determine the reliability of data sources we identified, we reviewed related documentation and conducted electronic testing for missing data, outliers, and apparent errors, and determined that the data were sufficiently reliable for our purposes. We conducted this performance audit from March 2011 through August 2012 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. We completed our field work prior to the June 28, 2012 decision by the Supreme Court on certain aspects of PPACA, including the Medicaid expansion provision.

In summary, we identified four groups of states that differed in their use of Medicaid managed care on the basis of the 12 indicators we included in our analysis. A handful of these indicators—namely Medicaid enrollment in MCOs and PCCM programs, HMO penetration rates, and the concentration of low-income individuals that lived in urban areas—had significant influence on how states grouped. In contrast, within the four groups, considerable variation existed among the other indicators we examined, such as states' primary care capacity and commercial HMO market index. For labeling purposes, we typically describe the four groups on the basis of states' enrollment of Medicaid beneficiaries in MCOs and PCCM programs—generally the predominant similarity among the states within each group (see fig. 1.):

- Group 1 states were PCCM predominant, enrolling a high percentage of beneficiaries in PCCM programs, but typically not in MCOs;
- Group 2 states typically enrolled beneficiaries in both MCOs and PCCM programs;
- Group 3 states were MCO predominant, enrolling a high percentage of beneficiaries in MCOs, but typically not in PCCM programs; and
- Group 4 states were considered “other” states in that although their enrollment of beneficiaries was similar to Group 3, they were outliers on other indicators, which differentiated them from states in the other groups we identified.<sup>14</sup>

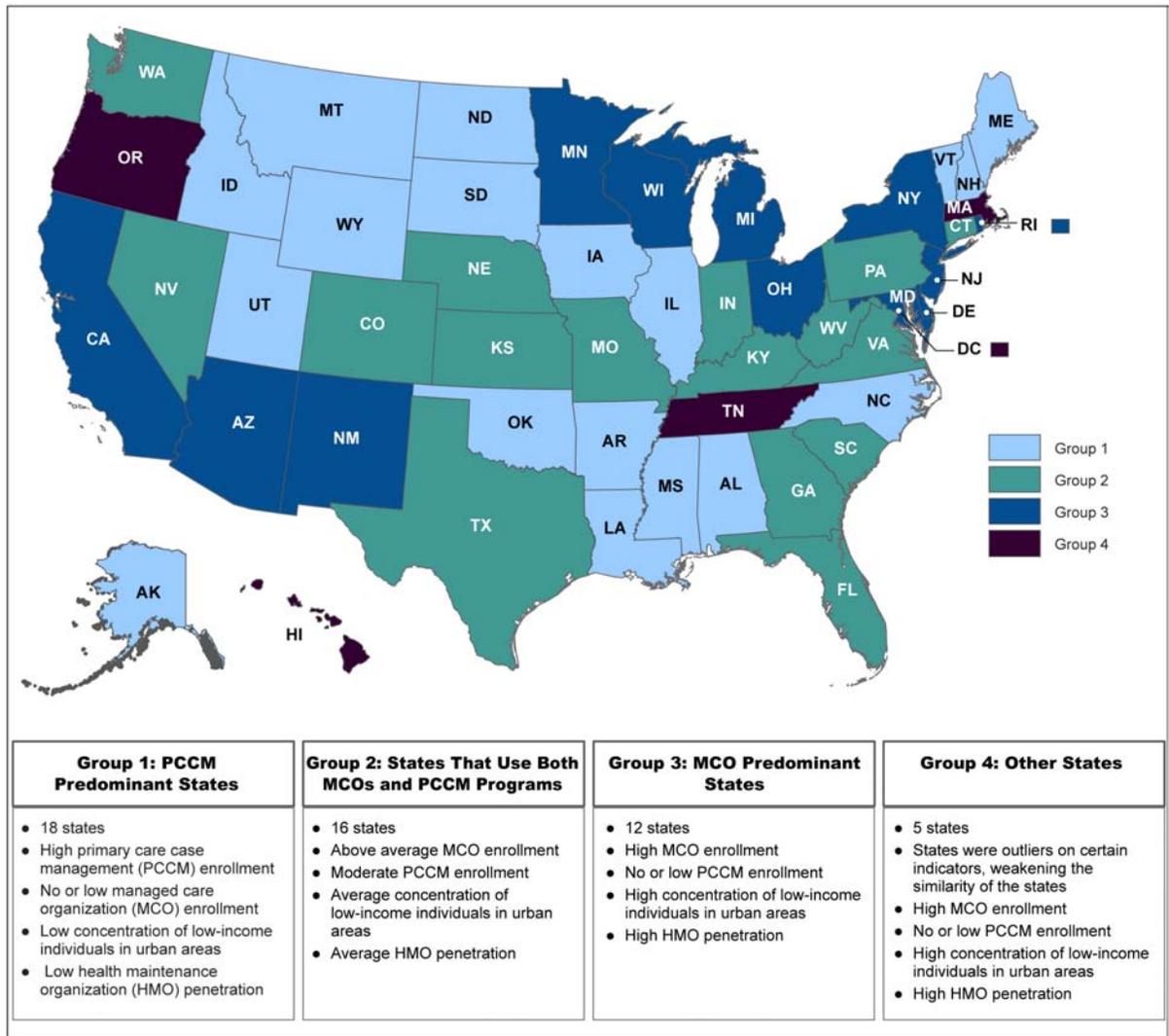
Enclosure II provides additional information on these groups of states, and enclosure III provides state-specific data related to each of the indicators.

---

<sup>13</sup>We use “states” to refer to the 50 states and the District of Columbia for the purposes of this report.

<sup>14</sup>In addition, the similarity identified among states in Group 4 was weaker than the similarities identified among states in Groups 1, 2, and 3.

**Figure 1: Summary of Selected Indicators by State Groups**



Sources: GAO analysis; Map Resources (map).

Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file, U.S. Census Bureau 2005-2009 American Community Survey, and Kaiser Family Foundation data. Some states in each group were exceptions to the general group descriptions presented in this figure. We use "states" to refer to the 50 states and the District of Columbia.

The cluster analysis results provide perspective on how states have implemented Medicaid managed care and highlight strong similarities shared among states within each of the groups, particularly with regard to MCO and PCCM enrollment. States within each of these groups could look to one another as a resource as they consider expanding their Medicaid managed care programs.

The results also provide specific information about challenges states may face in expanding their use of Medicaid managed care. For example, each of the groups emerging from our analysis included states that may face greater than average Medicaid program expansions in 2014 if they fully implement PPACA's eligibility expansion, and it is likely that many of these states will look to managed care to provide services to their newly eligible population. Specifically, 10 of the 12 states with the greatest potential Medicaid expansion are in Groups 1 and 2—states with

high enrollment in PCCM programs only or using a mix of MCOs and PCCM programs. However, 8 of these 10 states have a below average primary care capacity, and 9 of the 10 states had a comparatively small concentration of low-income individuals that lived in urban areas or a low HMO penetration rate, which may affect the states' capacity to expand their managed care programs to serve additional beneficiaries. For example, these states may face challenges attracting MCOs that may have concerns about the availability of adequate provider networks or the sufficiency of enrollment, and thus may not have a strong business case for entering the state's Medicaid managed care market. Similarly, states with low primary care capacity may not have enough providers to expand their PCCM programs further, or MCOs that the state contracts with may have challenges building an adequate network of PCPs. Therefore, in determining whether to implement or expand the use of Medicaid managed care and related challenges, these states will need to consider these indicators, as well as other contextual factors that may affect their capacity to do so, and may look to similarly situated states for guidance.

Despite the robustness of our analysis, it provides an incomplete picture because data on additional indicators that affect states' implementation of Medicaid managed care were not available or were unreliable. For example, data on states' Medicaid program oversight capacity and activities could provide a more complete picture of states' Medicaid managed care programs and related challenges, and could provide insight on resources and expertise they may need to expand their managed care programs. Similarly, reliable enrollment data for limited benefit plans would provide a more comprehensive picture of states' use of Medicaid managed care. A cluster analysis that includes these data would offer even more robust groupings of states, which could be more useful for states that are considering Medicaid managed care expansions. Ensuring the availability of more complete and reliable data and conducting research on additional indicators will be important to developing a more comprehensive picture of how states use Medicaid managed care.

### **Agency Comments**

We provided a draft of this report to the Department of Health and Human Services (HHS) for comment. HHS responded that it did not have any comments on the draft report.

-----

As we agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days from its date. We are sending copies of this report to the Secretary of Health and Human Services and other interested parties. 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](mailto: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 enclosure IV.

A handwritten signature in black ink, appearing to read "Carolyn L. Yocom". The signature is fluid and cursive, with a long horizontal stroke at the end.

Carolyn L. Yocom  
Director, Health Care

Enclosures – 4

## Scope and Methodology

To examine how states used managed care to provide services to their Medicaid beneficiaries, we conducted a cluster analysis, a statistical method that allowed us to identify groups of states that were similar across multiple characteristics simultaneously. As a first step, we identified the following data sources to collect specific information related to states' use of managed care and other related characteristics:

- The Centers for Medicare & Medicaid Services' (CMS) Medicaid Statistical Information System (MSIS) Annual Person Summary File (APS): The MSIS APS file contains individual-level demographic, enrollment, and service utilization data summarized for each beneficiary at an annual level from quarterly MSIS files submitted by states.<sup>1</sup>
- CMS's Medicaid Managed Care Data Collection System (MMCDCS): The MMCDCS includes state-reported information on states' Medicaid managed care programs, including enrollment by type of managed care plan; program characteristics, such as the types of providers states permit to act as a primary care provider (PCP) in their Medicaid managed care programs; and state program management activities.<sup>2</sup>
- Census Bureau's American Community Survey (ACS): The ACS provides data annually on population demographics, income, health insurance, education, employment, and other characteristics. We used information from the ACS to determine the concentration of low-income individuals that lived in urban areas in each state.<sup>3</sup>

---

<sup>1</sup>At the time of our analysis, 2008 was the most recent year for which MSIS APS data were available; however, 2009 MSIS APS data are now available. Given the extensive time and effort required to identify and correct inconsistencies in the 2008 MSIS APS enrollment data, we opted to rely on the 2008 data rather than taking additional time to undertake similar data cleaning efforts with the 2009 data. State Medicaid agencies provide CMS with quarterly electronic files through MSIS that contain data on: (1) persons covered by Medicaid, known as "eligible files;" and (2) adjudicated claims, known as "paid claims files," for medical services reimbursed by the Medicaid program. Each state's eligible file contains one record for each person covered by Medicaid for at least 1 day during the reporting quarter; eligible records consist of demographic, eligibility, and monthly enrollment data. Paid claims files contain information on medical service-related claims and capitation payments, but only include expenditures that can be linked to a specific enrollee. The APS, however, summarizes the demographic, eligibility, enrollment, utilization, and expenditure data for each person for an entire fiscal year.

<sup>2</sup>At the time of our analysis, 2009 MMCDCS data were the most recent available. CMS indicated that overall MMCDCS enrollment data are more reliable than MSIS enrollment data; however, MMCDCS data do not provide enrollment on the basis of Medicaid eligibility category, which was integral to our analysis.

<sup>3</sup>Low-income individuals are defined as those individuals with incomes below 125 percent of the federal poverty level (FPL). Urban areas comprise areas that consist of a central place(s), have a minimum population density of 1,000 people per square mile, and have an overall minimum population of 50,000 people. It also includes adjacent areas that have lower population density but are linked to the more densely settled area and have a population of at least 2,500 people, but fewer than 50,000.

## Enclosure I

- Kaiser Family Foundation data sources on states: The foundation's website included information compiled by another organization on health maintenance organization (HMO) penetration rates, and the results of the foundation's 50-state survey on states' use and future planned uses of Medicaid managed care.<sup>4</sup>
- American Medical Association (AMA) data: A recent AMA report on competition in the health insurance industry included measures of state-level competition among commercial HMO plans based on data from another organization.
- Leighton Ku and colleagues' data published in the New England Journal of Medicine: A 2010 journal article on states' capacity to meet expanded demand for health care services if states fully implement the Medicaid eligibility expansions under PPACA included measures of state-level primary care capacity and potential increases in Medicaid enrollment.<sup>5</sup>

From these sources, we identified 12 indicators in 2 general categories of states' use of Medicaid managed care: (1) population-based characteristics, such as enrollment in managed care organizations (MCO) and primary care case management (PCCM) programs; and (2) state market characteristics. (Table 1 and enc. III provide a detailed description of the indicators we examined.)

---

<sup>4</sup>The Kaiser Family Foundation recently conducted a survey of state Medicaid managed care programs to collect information on states' use of managed care and their future plans to use or expand the use of managed care. For more details, see K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

<sup>5</sup>The Primary Care Capacity Index is based on measures of states' primary care workforce in relation to the state's population. For purposes of this index, the primary care workers include internists, family or general practitioners, pediatricians, obstetricians/gynecologists, nurse practitioners, and physician assistants. It also accounts for the number of patients seen at federally qualified health centers. The Medicaid Expansion Index is derived from projections of the number of individuals considered potentially eligible for Medicaid in 2014 as a result of the Patient Protection and Affordable Care Act's (PPACA) expansion of eligibility in relation to the number of low-income individuals in the state. For more details, see L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623. This measure was developed prior to the U.S. Supreme Court ruling that states may choose not to expand coverage under PPACA and forgo only the federal matching funds associated with such expanded coverage, and assumes expanded participation by all states. See *National Federation of Independent Business, et al., vs. Sebelius, Sec. of Health and Human Services, et al.*, No. 11-393 (U.S. June 28, 2012). However, the extent to which states will fully implement PPACA's eligibility expansion is uncertain at this time.

**Table 1: Description of Indicators Included In the Cluster Analysis**

Indicator name	Description of indicator	Year of data	Source
<b>Population-based Characteristics</b>			
Percent of Medicaid beneficiaries enrolled in managed care organizations (MCO)	Percentage of Medicaid beneficiaries that were enrolled in an MCO and had a capitated payment made on their behalf to an MCO. <sup>a</sup>	Fiscal year 2008	Medicaid Statistical Information System (MSIS) Annual Person Summary (APS) file
Percent of Medicaid beneficiaries with complex health care needs enrolled in MCOs	Percentage of Medicaid beneficiaries with complex health care needs that were enrolled in an MCO and had a capitated payment made on their behalf to an MCO. <sup>a,b</sup>	Fiscal year 2008	MSIS APS file
Percent of Medicaid beneficiaries enrolled in primary care case management (PCCM) programs	Percentage of Medicaid beneficiaries that were enrolled in a PCCM program and had a per member per month case management fee made on their behalf to a PCCM provider. <sup>c</sup>	Fiscal year 2008	MSIS APS file
Percent of Medicaid beneficiaries with complex health care needs enrolled in PCCM programs	Percentage of Medicaid beneficiaries with complex health care needs who were enrolled in a PCCM program and had a per member per month case management fee made on their behalf to a PCCM provider. <sup>b,c</sup>	Fiscal year 2008	MSIS APS file
Medicaid Expansion Index	Index based on the number of uninsured, nonelderly adults with incomes below 138 percent of the federal poverty level (FPL) who are either currently eligible for Medicaid, but not insured, or who could become eligible for Medicaid if states fully implement PPACA's Medicaid expansion requirements in 2014. <sup>d</sup>	Calendar years 2007-2009 <sup>d</sup>	Ku et al., 2010 <sup>e</sup>
<b>State Market and Other Characteristics</b>			
Concentration of low-income individuals in urban areas	Percentage of the population earning less than 125 percent of the FPL that lived in urban areas.	Calendar years 2005-2009	American Community Survey
Health maintenance organization (HMO) penetration rate	Percentage of the total population enrolled in an HMO plan, such as a commercial HMO plan, or a Medicaid or Medicare managed care plan.	July 2010	Kaiser Family Foundation
Commercial HMO market competition index	A Herfindahl-Hirschman Index (HHI) of the competitiveness of the statewide commercial HMO market. The index is the sum of the squared market share of all HMO plans in a state. <sup>f</sup>	January 2009	American Medical Association (AMA)
Number of MCOs per 100,000 Medicaid beneficiaries	Number of MCOs that each state contracts with per 100,000 Medicaid beneficiaries.	October 2010	Kaiser Family Foundation
Primary Care Capacity Index	Index based on the number of primary care providers (PCP) and the number of unduplicated patients seen at federally qualified health centers in the state. <sup>g</sup>	Calendar years 2008-2009 <sup>g</sup>	Ku et al., 2010 <sup>e</sup>

## Enclosure I

Indicator name	Description of indicator	Year of data	Source
Allowable PCPs: MCO	Average number of different types of providers that a state allows MCOs to consider as PCPs.	June 2009	Medicaid Managed Care Data Collection System (MMDCS) <sup>h</sup>
Allowable PCPs: PCCM	Average number of different types of providers that a state allows to participate as PCPs in its PCCM program.	June 2009	MMDCS <sup>h</sup>

Source: GAO.

<sup>a</sup>In general, we considered individuals as enrolled in an MCO if they were reported as being enrolled in an MCO and had a capitated payment made to an MCO on their behalf. For three states—Alabama, Idaho, and Utah—we assumed there was no MCO enrollment in 2008 to address data reporting issues. Specifically, Alabama did not enroll Medicaid beneficiaries into MCOs, but reported dually eligible enrollees for whom Medicaid pays for Medicare cost sharing as an MCO enrollee. Idaho and Utah erroneously reported enrollment in MCOs; neither state enrolled Medicaid beneficiaries into MCOs in 2008.

<sup>b</sup>Our definition of “Medicaid beneficiaries with complex health care needs” includes beneficiaries who were aged, blind/disabled, medically needy, or dually eligible for Medicare and Medicaid. We excluded dual eligibles who only received Medicare cost-sharing assistance through Medicaid from our definition.

<sup>c</sup>In general, we considered individuals as enrolled in a PCCM program if they were reported as being enrolled in a PCCM program and had a monthly case management fee paid on their behalf. Because of the way Colorado, Delaware, Maine, Massachusetts, New York, South Dakota, and Utah reported PCCM case management payments, we relied only on the PCCM enrollment data to determine the number of enrollees. To determine PCCM enrollment in Oklahoma, we relied on the limited benefit plan enrollment data because Oklahoma typically reports those enrolled in its comprehensive PCCM program as enrolled in a limited benefit plan instead.

<sup>d</sup>The Medicaid Expansion Index is based on two measures: (1) adults aged 19 to 64 who could become eligible, or who are already eligible for Medicaid but not enrolled; and (2) an Urban Institute estimate of individuals who may become newly eligible for Medicaid and may enroll. The number of individuals who would potentially become eligible for Medicaid under PPACA’s eligibility expansion is standardized by the number of the individuals with incomes below 200 percent of FPL. This index was calculated using data from calendar years 2007 to 2009 and assumes that all states will expand Medicaid eligibility.

<sup>e</sup>L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, “The State’s Next Challenge—Securing Primary Care for Expanded Medicaid Populations,” *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623.

<sup>f</sup>The market share is calculated on the basis of the number of insured individuals enrolled in a single, commercial HMO plan divided by the sum of all commercial HMO enrollment in a state, which is then multiplied by 100.

<sup>g</sup>The number of “primary care providers” included the number of internists, family/general practitioners, pediatricians, obstetricians/gynecologists, 50 percent of the number of nurse practitioners and physician assistants, and the unduplicated number of patients seen at federally qualified health centers (FQHC). To create this index, the number of primary care providers was standardized by the state population, and the number of patients served by FQHCs was standardized by number of people with incomes below 200 percent of the FPL. This index was based on the following data sources: estimates of nonfederal physicians from the AMA; nurse practitioners in 2009 based on the Pearson Report; projected number of physician assistants in December 2008 from the American Academy of Physician Assistants; number of patients served in FQHCs in 2009 from the Health Resources and Services Administration, Bureau of Primary Health Care’s Uniform Data System.

<sup>h</sup>Because of reporting issues in the 2009 MMDCS for Wisconsin and Vermont, for our cluster analysis, we substituted data on the number of allowable primary care types in the state’s MCO program(s) for Minnesota and the number of allowable types in Vermont’s PCCM program with data collected by the Kaiser Family Foundation in a 50-state survey on Medicaid managed care. See K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

## Limitations of Our Analysis

Our analysis captures state information with respect to the selected indicators described above; however, several other factors that reflect or affect states’ use of Medicaid managed care were not included in our analysis. For example, states vary in their use of limited benefit plans, which provide a limited set of Medicaid benefits, such as behavioral health and dental services, and are a key component of the overall Medicaid managed care delivery system in some states.<sup>6</sup> Although the MSIS

<sup>6</sup>Previous research has shown that Medicaid beneficiaries sometimes experience challenges in accessing behavioral health and dental care. For some populations, such as individuals with complex health care needs, these access challenges can be especially problematic.

data included information on states' enrollment in limited benefit plans, we identified cases where state-reported data were incomplete or inconsistent, and thus determined that the data were not reliable for our purposes.<sup>7</sup> Another factor we considered, but ultimately excluded from our analysis, was the extent of states' Medicaid managed care program management and oversight activities. According to CMS officials, the agency's most readily available data source on state Medicaid managed care programs—the MMCDCS—contains descriptive and qualitative data on state program management and oversight activities, which were not suitable for a cluster analysis, which requires continuous, quantitative data.<sup>8</sup> We considered other factors that could affect states' use of Medicaid managed care, such as states' regulatory environment and staff capacity to oversee Medicaid managed care programs, but found these to be either difficult to quantify or not readily available, and we ultimately excluded these factors from our analysis.

### **Data Reliability**

To determine the reliability of the data sources we used, we reviewed related documentation and, when necessary, interviewed experts most knowledgeable in the collection and validation of the data. For large electronic data sets that we used, such as the MSIS APS, we conducted electronic testing for missing data, outliers, and other apparent errors. For example, we tested whether states known to not use a certain type of Medicaid managed care, such as MCOs, erroneously reported enrollment in or capitated payments to such plans. We also compared our results, when possible, to similar estimates of managed care enrollment available in other data sources, such as the 2008 Medicaid Managed Care Enrollment Report, which is derived from the MMCDCS. We also compared our estimates to other publicly available estimates, such as those compiled by the Kaiser Commission on Medicaid and the Uninsured and the Medicaid and CHIP Payment and Access Commission. We determined that the data sources we used were sufficiently reliable for the purposes of our engagement.

### **Methodology**

After compiling data on the indicators we identified, we used cluster analysis to identify states that were similar across multiple indicators simultaneously. Cluster analysis is a method of measuring the degree to which groups of objects—in our case, states—resemble each other on many different characteristics. One can measure group similarity on a single characteristic simply by using graphs, descriptive statistics, or manually inspecting the data. However, these methods are less useful in describing similarities on multiple characteristics at once. The form of

---

<sup>7</sup>States were inconsistent in how they defined limited benefit plans or how they reported enrollment and capitated payments. Cluster analysis requires that all observations in the sample data have complete information, as missing or incorrect values could skew results.

<sup>8</sup>CMS officials advised us that these are data are the only available program management data collected from states systematically and stored centrally, and that the data are an important source of high-level information on states' activities. However, the officials acknowledged that the data are limited in their robustness and level of detail.

## Enclosure I

cluster analysis we used creates an index from multiple indicators of interest, and then uses the index to form a sequence of clusters that range from most similar, with each state as its own cluster, to least similar, with all states in a single cluster. We did not have strong prior hypotheses about the multivariate distribution of the data, or where potential clusters may be located. As a result, the nonparametric and exploratory nature of our clustering method was appropriate to identify many clusters at varying degrees of similarity.

Because this method uses mathematical clustering rules and measures of similarity, it identifies potential clusters in a more objective, systematic, and replicable way than methods that require more human judgment. Cluster analysis requires us to decide (1) how to measure similarity across multiple variables, and (2) how to identify clusters of states that are similar to each other. The diversity of our indicator scales makes the measurement of similarity somewhat difficult. As table 2 shows, several of our indicators are scaled as proportions, but others are small counts or broader concepts measured on arbitrary scales. The maximum values across all indicators range from 2.79 to 10,000.

**Table 2: Descriptive Statistics for Indicators Used in Cluster Analysis**

Indicator	Mean	Minimum	25th Percentile	Median	75th Percentile	Maximum
<b>Population-based Characteristics</b>						
Percent of Medicaid beneficiaries enrolled in managed care organizations (MCO)	36.2	0	0	46.2	65.1	92.9
Percent of Medicaid beneficiaries with complex health care needs enrolled in MCOs	16.9	0	0	7.1	31.2	98.0
Percent of Medicaid beneficiaries enrolled in primary care case management (PCCM) programs	20.3	0	0	6.9	40.8	86.1
Percent of Medicaid beneficiaries with complex health care needs enrolled in PCCM programs	15.0	0	0	5.0	22.1	93.9
Medicaid Expansion Index	100	25	90.2	101	117.1	153.9
<b>State Market and Other Characteristics</b>						
Concentration of low-income individuals in urban areas	74.5	45.2	62.8	75.9	86.4	100
Health maintenance organization (HMO) penetration rate	17.2	0.1	7.7	16.6	24.2	54.1
Commercial HMO market competition index	3,889	1,293	2,426	3,414	4,758	10,000
Number of MCOs per 100,000 Medicaid beneficiaries	0.53	0	0	0.46	0.76	2.79
Primary Care Capacity Index	100	55.5	75.7	85.2	115.7	244.4
Allowable primary care providers (PCP): MCO	6.0	0	0	7.5	9.2	13
Allowable PCPs: PCCM	5.2	0	0	6	9	14

Source: GAO.

To make the indicators comparable, we standardized their scales in two different ways. First, we normalized each indicator so that its mean and standard deviation equaled 0 and 1, respectively. Second, we rescaled the indicators so that they ranged on the unit interval. Because both transformations are affine (or order-preserving), they eliminated scale differences, while preserving the relative position of the states in each univariate distribution. This, in turn, allowed us to compare the relative location of each state in multiple dimensions. After rescaling the data, we calculated the Euclidean distance between each of the  $(N*(N-1))/2 = 1,275$  possible

## Enclosure I

pairs of states and arranged the results in a symmetric matrix. This served as our final measure of multivariate distance. Using Euclidean distance, the normal standardization assumes that each variable has equal weight on the overall distance, but the unit interval standardization relaxes this assumption.

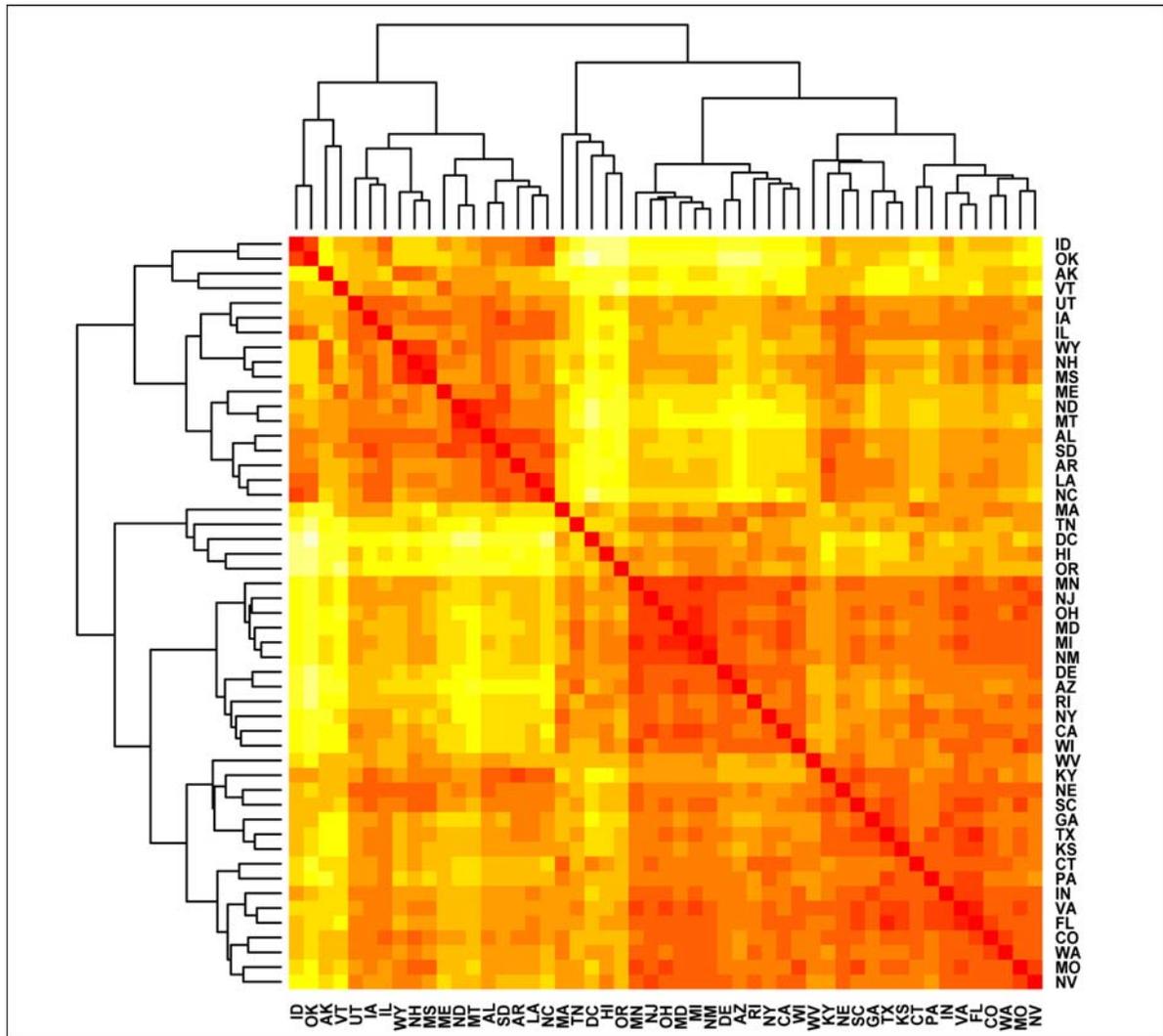
We used a hierarchical, agglomerative algorithm to identify clusters from the distance matrix. We first assumed that each state was its own cluster, and then combined states into larger clusters using the “complete linkage” method. This clustering rule avoided giving too much weight to the moderate number of outliers in the data, particularly states that enrolled zero participants in Medicaid managed care, unlike single or, to a lesser extent, average or median linkage methods. Our method produced a sequence of cluster options that varied from most to least homogenous within clusters. Working from these many clustering options, we used our knowledge of Medicaid managed care, and PPACA to create a final set of clusters that meaningfully described variation across states.

Specifically, our clustering algorithm had the following form. For any multivariate distance  $h \geq 0$ , let  $i = 1, 2, \dots, N$  index states and  $j = 1, 2, \dots, N_h$  index clusters (subsets of states). Let  $X_{ij}$  denote the vector of observations for state  $i$  in cluster  $j$ . The complete linkage algorithm initializes with  $h_0 = 0$  and  $i = j$ . For each  $j$  and  $h > h_0$ , complete linkage adds state  $i$  to cluster  $j$  if  $\max(d(X_i, X_j)) \leq h$  for all  $i$  in  $j$ , where  $d(\cdot)$  is the Euclidean distance function and the maximum is taken over  $i$ . This step of the algorithm repeats until  $N_h = 1$ . We then chose from the sequence of clusters formed along values of  $h$ .

## Results

Figure 2 presents the results of our cluster analysis. This version of the analysis used the normalized standardization and all variables in table 2. The figure plots the distance between each pair of states as a matrix of colors, or a “heat map,” in which states that are more similar are shaded in darker red and those that are dissimilar are shaded in yellow. A “dendrogram” above the heat map represents the clustering process. Each line at the bottom of the dendrogram denotes a single state. The convergence of lines represents the combination of states into larger clusters at decreasing levels of similarity, which is measured on the vertical axis. Because distance matrices are symmetric, the plot is reflected above and below the diagonal. The results show four broad clusters, or groups, of states, based predominantly on the proportions of Medicaid beneficiaries enrolled in MCOs or PCCM programs, relative to other states. Within these large clusters, subclusters form around the degree of potential Medicaid expansion, the structure of the health care market, and the concentration of low-income individuals that lived in urban areas.

**Figure 2: Distance Matrix and Results of Cluster Analysis**



Source: GAO analysis.

Because rescaling on the unit interval did not meaningfully change the four broad clusters we identified, we concluded that our choice of scale was not critical, given the moderate stability of the results and our focus on the four broad clusters. Our four broad clusters persisted when removing various indicators from the multivariate measure of distance. As with rescaling the data, some subclusters included different states, and some states might have been reclassified as outliers. Ultimately, we decided to include all of the variables in table 2 in order to allow each variable to contribute to the final results.

## Summary of States' Use of Medicaid Managed Care by Groups of Similar States

This enclosure highlights the indicators of states' use of Medicaid managed care that were generally shared among states in each of the four distinct clusters, or groups, of states we identified. The descriptions provided in this enclosure generally focus on the indicators that appeared to have had significant influence on how states grouped. For labeling purposes, we typically describe the four groups on the basis of states' enrollment of Medicaid beneficiaries in managed care organizations (MCO) and primary care case management (PCCM) programs, which was generally the predominant similarity among states within each group.

### Summary of Group 1: PCCM Predominant States

Group 1 was the largest group of states we identified and included 18 states: Alabama, Alaska, Arkansas, Idaho, Illinois, Iowa, Louisiana, Maine, Mississippi, Montana, New Hampshire, North Carolina, North Dakota, Oklahoma, South Dakota, Utah, Vermont, and Wyoming. These states enrolled, on average, the highest percentage of beneficiaries in PCCM programs, and typically did not enroll any Medicaid beneficiaries in MCOs. In addition, these states generally had a low concentration of low-income individuals that lived in urban areas, and lower managed care penetration in their overall health insurance markets compared to states in the other groups we identified. States in Group 1 generally shared the following characteristics:

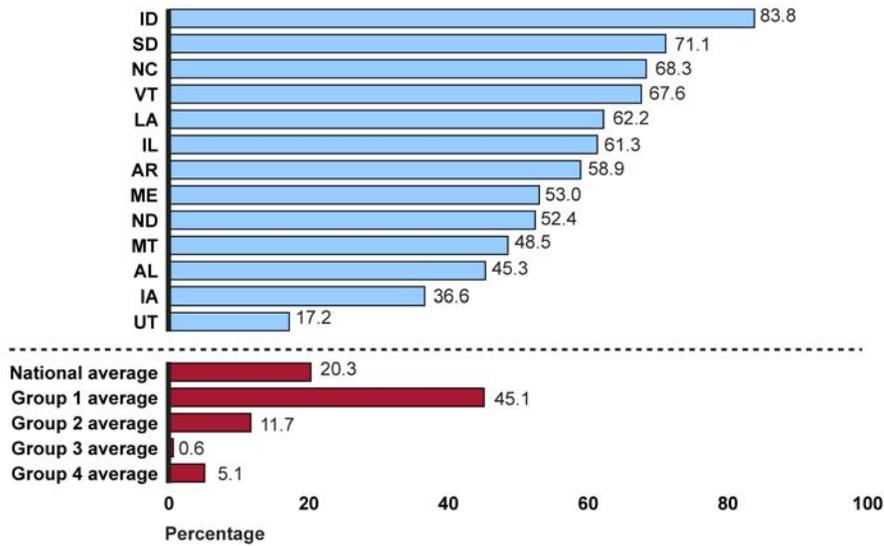
#### High PCCM and No or Low MCO Enrollment

- **PCCM Enrollment:** Fourteen of 18 states enrolled Medicaid beneficiaries, including those with complex health care needs, in PCCM programs. On average, states in Group 1 enrolled 45 percent of all Medicaid beneficiaries in PCCM programs, which was higher than the national average of 20 percent, and highest among the four groups we identified. (See fig. 3.) In addition, these states typically extended enrollment to Medicaid beneficiaries with complex health care needs, though to a lesser degree than their general Medicaid population. In 2008, most of these states enrolled between 20 to 50 percent of Medicaid beneficiaries with complex health care needs in PCCM programs.<sup>1</sup>

---

<sup>1</sup>Our definition of "Medicaid beneficiaries with complex health care needs" includes beneficiaries who were aged, blind/disabled, medically needy, or dually eligible for Medicare and Medicaid. We excluded from our definition dual eligibles who only received Medicare cost-sharing assistance through Medicaid.

**Figure 3: Percentage of Medicaid Beneficiaries Enrolled in Primary Care Case Management (PCCM) Programs among Group 1 States, Fiscal Year 2008**



Sources: CMS and GAO.

Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file. Oklahoma operates an enhanced PCCM program, but the state's enrollment data are excluded from this figure because we determined that they were unreliable for our purposes. Specifically, the state reports enrollment in its enhanced PCCM program as enrollment in a limited benefit plan rather than in the PCCM program category in the MSIS. Therefore, we could not accurately estimate enrollment numbers in the state's PCCM program. The following states did not enroll any Medicaid beneficiaries in PCCM programs and were excluded from this figure: Alaska, Mississippi, New Hampshire, and Wyoming. However, Alaska, Mississippi, New Hampshire, Oklahoma, and Wyoming were included in our calculation of the Group 1 average percentage of Medicaid beneficiaries enrolled in PCCM programs.

- MCO Enrollment:** Sixteen of the 18 states did not enroll any Medicaid beneficiaries in MCOs in 2008. In the 2 states that did enroll Medicaid beneficiaries in MCOs—Illinois and Iowa—less than 10 percent of all beneficiaries were enrolled in MCOs, and an even lower percentage of beneficiaries with complex health care needs were enrolled.
- No PCCM or MCO Enrollment:** Four states—Alaska, Mississippi, New Hampshire, and Wyoming—did not enroll any Medicaid beneficiaries in PCCM programs or MCOs in 2008.

Low Concentration of Low-Income Individuals in Urban Areas

Sixteen of the 18 states had a lower percentage of low-income individuals that lived in urban areas than the national average (75 percent). Most commonly, the overall percentages of low-income individuals that lived in urban areas was between 45 and 75 percent, which was generally a lower percentage than in states in other groups.

## Enclosure II

### Low HMO Penetration

The health maintenance organization (HMO) penetration rate, which measured the percentage of the total population enrolled in an HMO, such as commercial HMOs, Medicaid MCOs, and Medicare managed care plans, was lower than the national average (17.2 percent) in 17 of the 18 states, and was typically less than 10 percent.

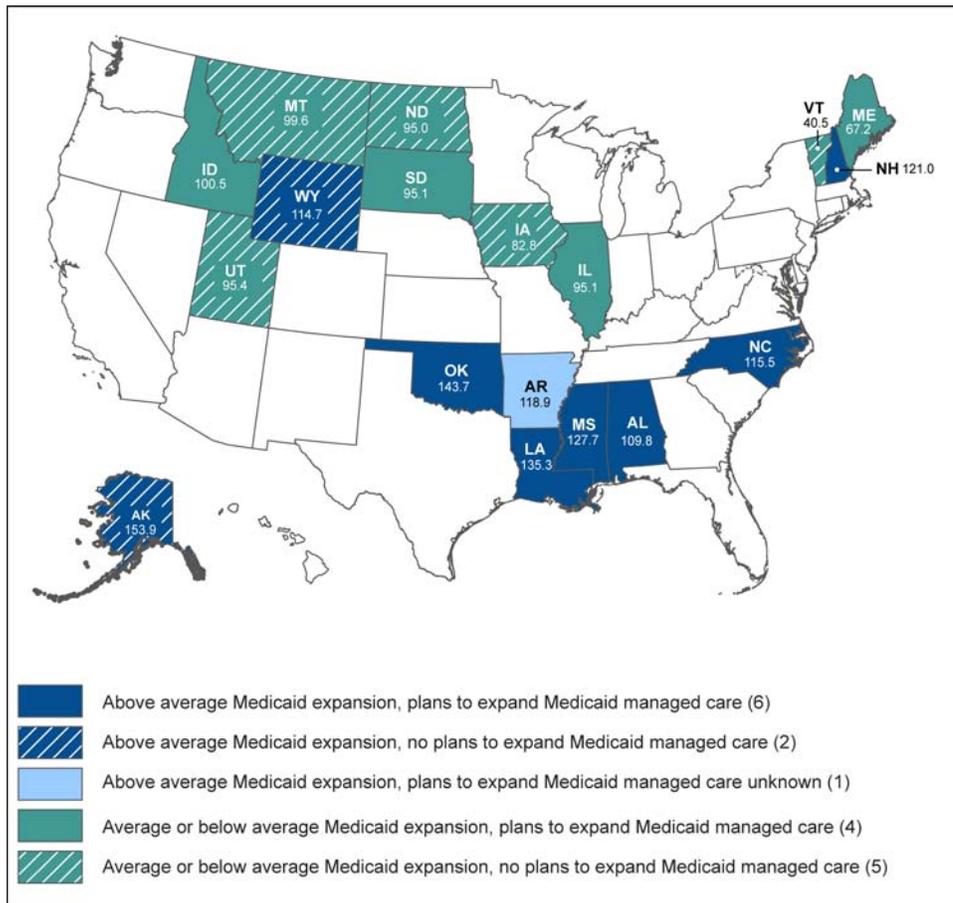
### Variation in Potential Expansion of Medicaid and Managed Care

These states varied with regard to the degree of potential Medicaid expansion, in that 8 states were above the national average and 10 states were below. (See fig. 4.) However, 4 of these states—Alaska, Louisiana, Mississippi, and Oklahoma—had the highest potential expansion index of all states. Ten states reported plans to expand the use of Medicaid managed care, 6 of which had a potential Medicaid expansion that was above the national average.<sup>2</sup>

---

<sup>2</sup>In a 50-state survey, the Kaiser Commission on Medicaid and the Uninsured asked states to describe the future direction of Medicaid managed care in their states, including any plans to expand its use. For more information, see K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

**Figure 4: Group 1 States by Potential Medicaid Expansion Index and Medicaid Managed Care Expansion Plans**



Sources: GAO, New England Journal of Medicine, and Kaiser Commission on Medicaid and the Uninsured; Map Resources (map).

Note: The potential Medicaid Expansion Index values are presented on this map for each state in Group 1. GAO analysis of data from L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623; and K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

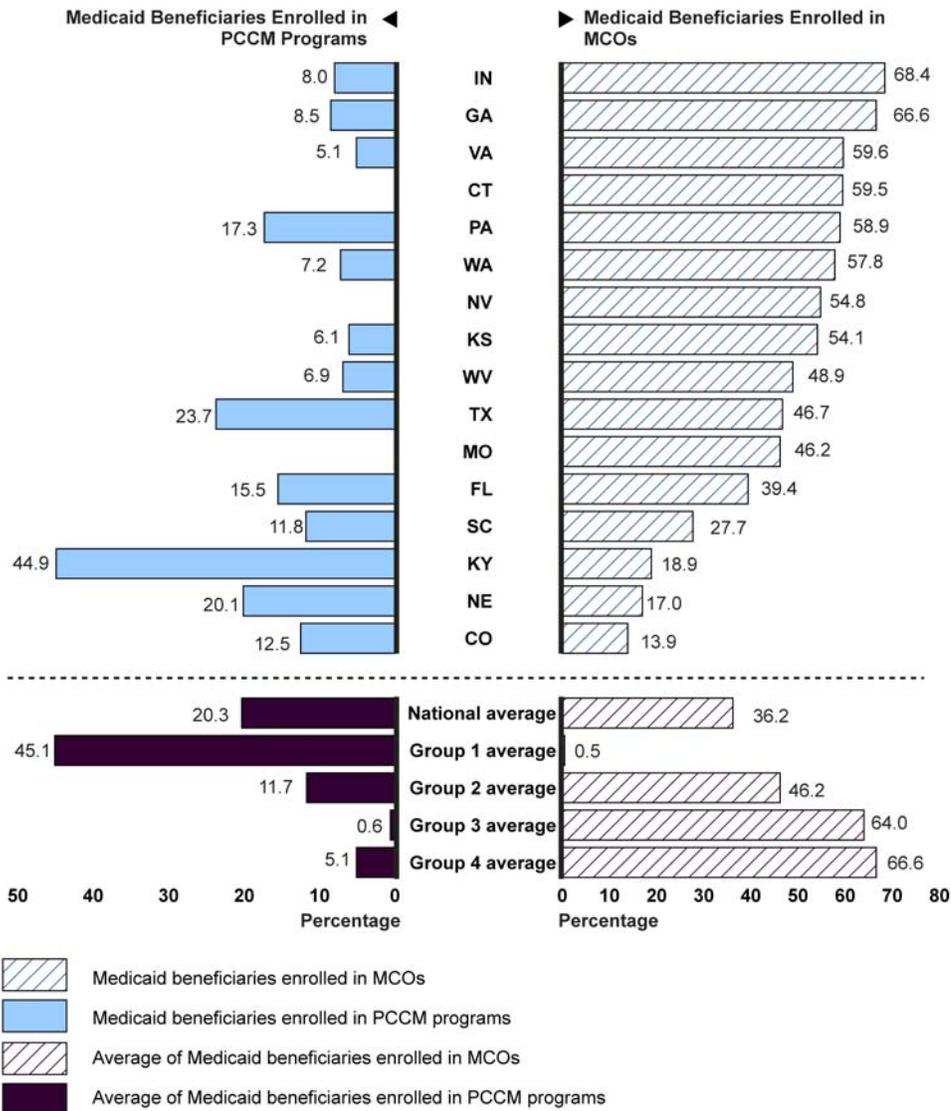
### Summary of Group 2: States That Use Both MCOs and PCCM Programs

Group 2 was the second largest group of states we identified, and included 16 states: Colorado, Connecticut, Florida, Georgia, Indiana, Kansas, Kentucky, Missouri, Nebraska, Nevada, Pennsylvania, South Carolina, Texas, Virginia, Washington, and West Virginia. Most notably, these states were generally characterized by their enrollment of Medicaid beneficiaries, including those with complex health care needs, in MCOs and PCCM programs. However, these states enrolled beneficiaries in MCOs or PCCM programs to a lesser extent than the other groups of states that used such arrangements. (See fig. 5.) Additionally, when compared to the other groups of states, Group 2 states generally had an average concentration of low-income individuals that lived in urban areas and average managed care penetration.

MCO and PCCM Enrollment

- **Above Average MCO Enrollment:** All 16 states enrolled Medicaid beneficiaries, including those with complex health care needs, into MCOs in 2008. On average, these states enrolled 46 percent of all Medicaid beneficiaries in such plans, which was 10 percentage points higher than the national average (36 percent), but notably lower than the average percentage of beneficiaries enrolled in MCOs in Group 3 (64 percent) and Group 4 (67 percent). Over half of these states enrolled between 40 and 60 percent of all Medicaid beneficiaries in MCOs, but notable variation in enrollment existed among the states. Four states—Colorado, Kentucky, Nebraska, and South Carolina—enrolled less than a third of all beneficiaries; and two states—Georgia and Indiana—enrolled two-thirds or more of all beneficiaries. While all these states extended MCO enrollment to Medicaid beneficiaries with complex health care needs, they most commonly enrolled less than 20 percent of such beneficiaries in MCOs.
- **Moderate PCCM Enrollment:** Thirteen states enrolled Medicaid beneficiaries, including those with complex health care needs, in PCCM programs in 2008. Enrollment in these states varied widely, ranging from less than 10 percent of all Medicaid beneficiaries in about half of the states, to 45 percent of beneficiaries in Kentucky. While 8 of the 13 states enrolled beneficiaries with complex health care needs to a lesser extent than their total population, 5 states—Colorado, Georgia, Indiana, Kansas, and Washington—enrolled a considerably higher percentage of beneficiaries with complex health care needs than the percentage of overall beneficiaries.

**Figure 5: Percentage of Medicaid Beneficiaries Enrolled in Managed Care Organizations (MCO) and Primary Care Case Management (PCCM) Programs among Group 2 States, Fiscal Year 2008**



Sources: CMS and GAO.

Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file.

**Average Concentration of Low-Income Individuals in Urban Areas**

On average, the percentage of low-income individuals that lived in urban areas in this group of states (76 percent) was roughly equal to the national average of 75 percent, and was over 10 percentage points higher than the average of states in Group 1 (63 percent). It was also about 10 percentage points lower than the average of states in Group 3 (85 percent) and Group 4 (87 percent).

Average HMO Penetration

This group of states had an average HMO penetration rate (16 percent) that was roughly equal to the national average of 17 percent. When compared to the other groups, the average HMO penetration rate in these states was higher than those in Group 1 (7 percent), but lower than those in Group 3 (26 percent) and Group 4 (36 percent).

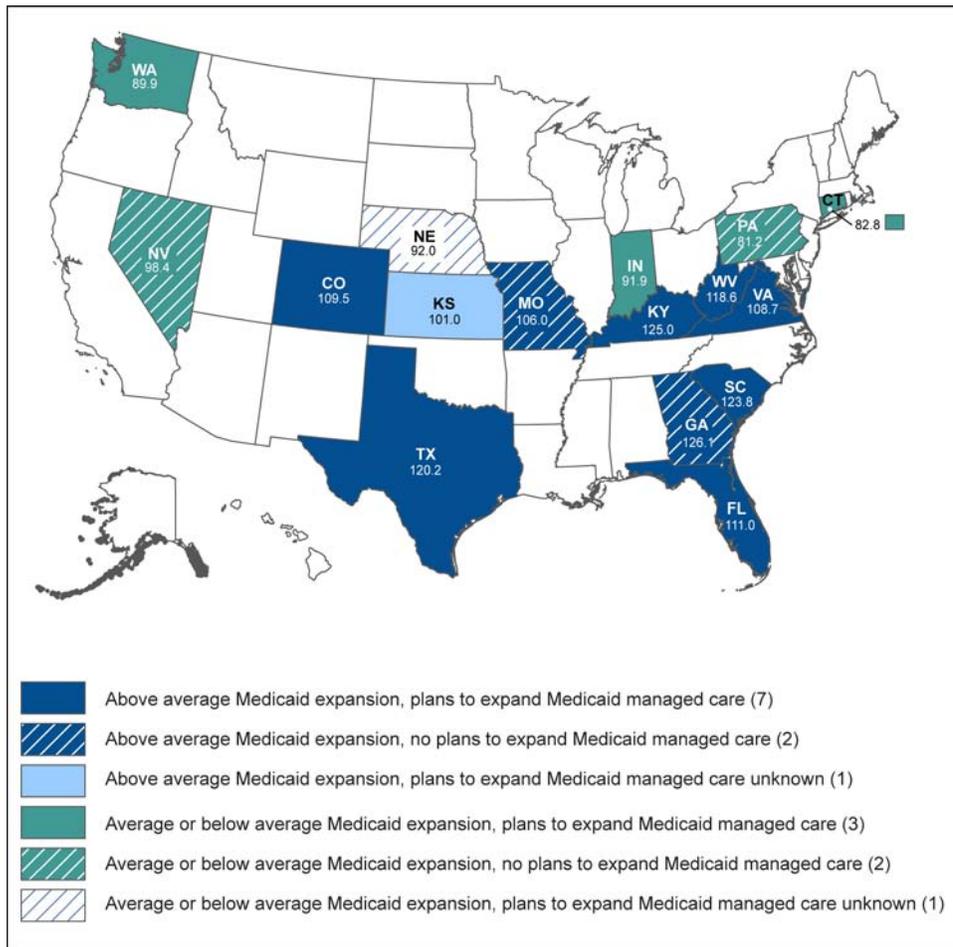
Variation in Potential Expansion of Medicaid and Managed Care

These states varied with regard to the degree of potential Medicaid expansion, in that 10 states were higher than the national average and 6 states were lower. (See fig. 6.) However, three of these states—Georgia, Kentucky and South Carolina—were among the 10 states with the largest potential Medicaid expansions. Ten states reported plans to expand the use of Medicaid managed care in the future, seven of which had a potential Medicaid expansion that was above the national average.<sup>3</sup>

---

<sup>3</sup>See K. Gifford et al., *A Profile of Medicaid Managed Care Programs in 2010*.

**Figure 6: Group 2 States by Potential Medicaid Expansion Index and Medicaid Managed Care Expansion Plans**



Sources: GAO, New England Journal of Medicine, and Kaiser Commission on Medicaid and the Uninsured; Map Resources (map).

Note: The potential Medicaid Expansion Index values are presented on this map for each state in Group 2. GAO analysis of data from L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623; and K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

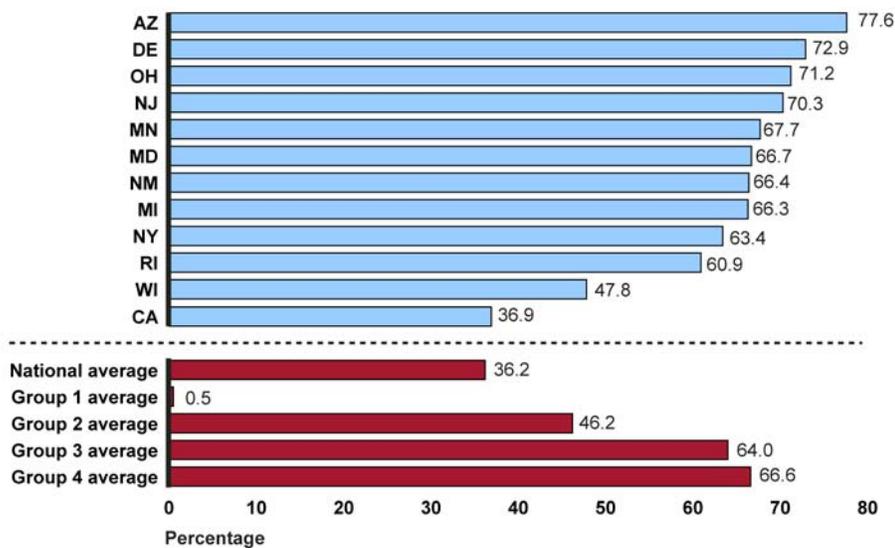
### Summary of Group 3: MCO Predominant States

The 12 states in Group 3—Arizona, California, Delaware, Maryland, Michigan, Minnesota, New Jersey, New Mexico, New York, Ohio, Rhode Island, and Wisconsin—were among those that generally enrolled the highest percentage of Medicaid beneficiaries in MCOs, and typically did not enroll any Medicaid beneficiaries in PCCM programs. In addition, these states generally had a high concentration of low-income individuals that lived in urban areas, and high managed care penetration within the states' overall health insurance markets when compared to the other groups of states we identified.

High MCO and No or Low PCCM Enrollment

- MCO Enrollment:** All 12 states enrolled Medicaid beneficiaries, including those with complex health care needs, in MCOs in 2008. On average, these states enrolled 64 percent of all Medicaid beneficiaries in MCOs, which was substantially higher than the national average of 36 percent and the enrollment averages in Groups 1 and 2. (See fig. 7.) All 12 states also extended MCO enrollment to Medicaid beneficiaries with complex health care needs, though to a lesser degree than their general Medicaid population. These states typically enrolled between one-third and two-thirds of Medicaid beneficiaries with complex health care needs in MCOs.

**Figure 7: Percentage of Medicaid Beneficiaries Enrolled in Managed Care Organizations among Group 3 States, Fiscal Year 2008**



Sources: CMS and GAO.

Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file.

- PCCM Enrollment:** Ten of the 12 states did not enroll any Medicaid beneficiaries in PCCM programs in 2008. The 2 states that did enroll Medicaid beneficiaries in PCCM programs at this time—Delaware and New York—enrolled less than 10 percent of enrollees in PCCM programs, and enrolled an even lower percentage of beneficiaries with complex health care needs in such programs.

High Concentration of Low-Income Individuals in Urban Areas

The average percentage of low-income individuals that lived in urban areas in these states was 85 percent, which was notably higher than the national average (75 percent) and the averages in both Group 1 (63 percent) and Group 2 (76 percent).

## Enclosure II

### High HMO Penetration

The HMO penetration rate was higher than the national average (17 percent) in all 12 states, and these states, on average, had a higher HMO penetration rate (27 percent) than that of both Group 1 (7 percent) and Group 2 (16 percent).

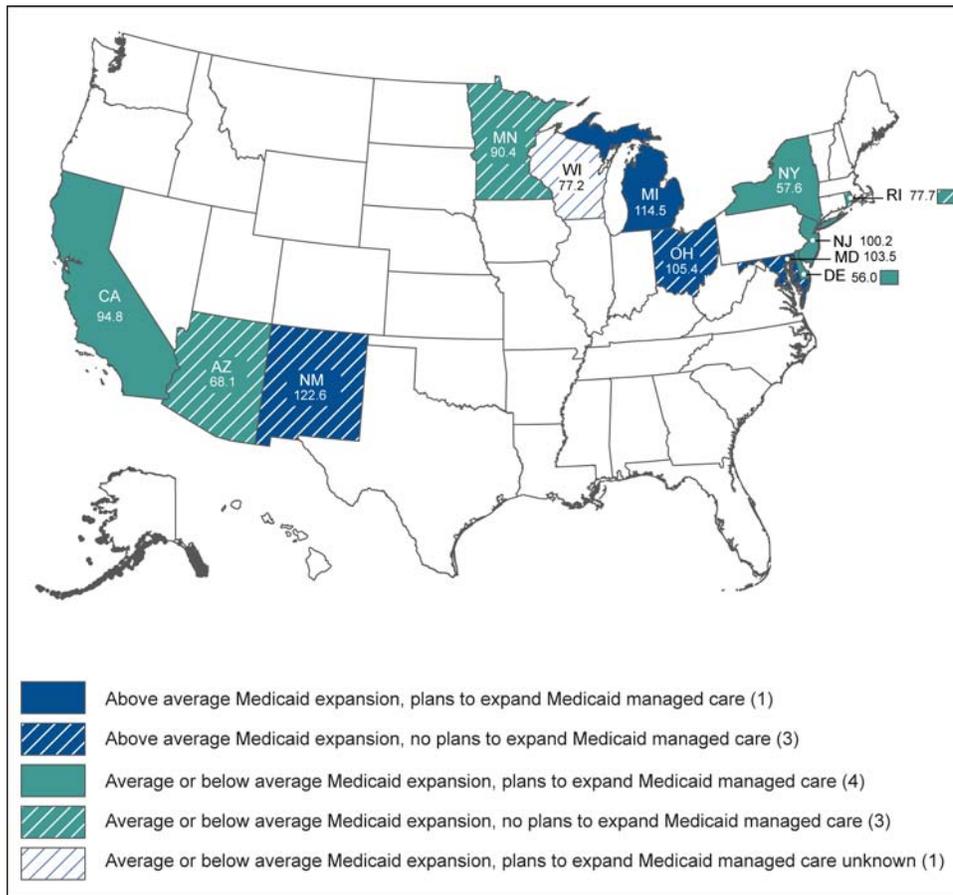
### Variation in Potential Expansion of Medicaid and Managed Care

These states varied with regard to the degree of potential Medicaid expansion, in that 7 states were above the national average for potential Medicaid expansion and 5 states were below the national average. (See fig. 8.) New Mexico was among the 10 states with the largest potential degree of Medicaid expansion in the United States. Five states reported plans to expand the use of Medicaid managed care, one of which, Michigan, had a potential Medicaid expansion that was above the national average.<sup>4</sup>

---

<sup>4</sup>See K. Gifford et al., *A Profile of Medicaid Managed Care Programs in 2010*.

**Figure 8: Group 3 States by Potential Medicaid Expansion Index and Medicaid Managed Care Expansion Plans**



Sources: GAO, New England Journal of Medicine, and Kaiser Commission on Medicaid and the Uninsured; Map Resources (map).

Note: The potential Medicaid Expansion Index values are presented on this map for each state in Group 3. GAO analysis of data from L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623; and K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

### Summary of Group 4: Other States

Group 4 consisted of five states—the District of Columbia, Hawaii, Massachusetts, Oregon, and Tennessee.<sup>5</sup> When compared to the other three groups we identified, the degree of similarity across these five states was the weakest, which may be due to the fact that one of these states was typically an "outlier" on one or more of the indicators we examined. That is, at least one state had a value on an indicator that was either markedly higher or lower than the values for the other four states, thus diminishing the degree of overall similarity across states in this group. Although these states exhibited similarities on certain key indicators—such as MCO enrollment or concentration of low-income individuals that lived in urban areas—to

<sup>5</sup>We use "states" to refer to the 50 states and the District of Columbia.

states in the other groups, they did not cluster with those states, possibly as result of the states' "outlier" values on indicators.

### High MCO Enrollment and No or Low PCCM Enrollment

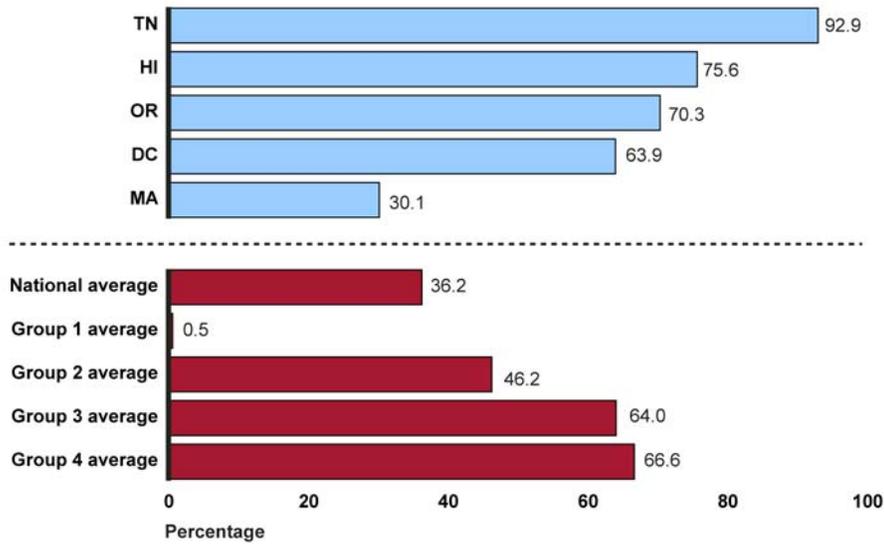
All five states enrolled Medicaid beneficiaries, including those with complex health care needs, into MCOs, and with the exception of Massachusetts, did not typically enroll beneficiaries in PCCM programs.<sup>6</sup> Specifically, these states enrolled an average of 67 percent of all Medicaid beneficiaries in MCOs, which was the highest average among all groups. (See fig. 9.) At 93 percent, Tennessee had the highest MCO enrollment of all states, which was 15 percentage points higher than the next highest state. All five states also enrolled Medicaid beneficiaries with complex health care needs in MCOs, but generally to a lesser degree than their overall Medicaid population.<sup>7</sup> Massachusetts differed from the other 4 states in that it enrolled a smaller percentage of Medicaid beneficiaries in MCOs, and did enroll a sizeable percentage of beneficiaries in PCCM programs. Specifically, Massachusetts enrolled 30 percent of all Medicaid beneficiaries in MCOs, and 24 percent of beneficiaries in PCCM programs, which was similar to MCO and PCCM enrollment of states in Group 2. In contrast, the other four states in this group—the District of Columbia, Hawaii, Oregon, and Tennessee—were most similar to Group 3 states in terms of MCO and PCCM enrollment.

---

<sup>6</sup>Although Oregon did use a PCCM program in 2008, it enrolled 1 percent of its Medicaid beneficiaries in this program, which was the second smallest percentage of Medicaid beneficiaries enrolled among states that used PCCM programs.

<sup>7</sup>Although Hawaii enrolled a high percentage of Medicaid beneficiaries in MCOs, which was similar to some other states in this group, it enrolled a distinctly smaller percentage of beneficiaries with complex health care needs (8 percent) than those other states enrolled.

**Figure 9: Percentage of Medicaid Beneficiaries Enrolled in Managed Care Organizations (MCO) among Group 4 States, Fiscal Year 2008**



Sources: CMS and GAO.

Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file. We use "states" to refer to the 50 states and the District of Columbia.

### High Concentration of Low-Income Individuals in Urban Areas

On average, 86 percent of low-income individuals in these states lived in urban areas, which was the highest concentration of all groups we identified. The District of Columbia had the highest concentration of low-income individuals that lived in urban areas (100 percent) of all states. With respect to this indicator, states in this group generally were similar to states in Group 3; however, Tennessee, where the concentration of low-income individuals that lived in urban areas was 65 percent, was most similar to states in Group 1.

### High HMO Penetration

All 5 states had HMO penetration rates that were higher than the national average (17 percent), and three of the states—the District of Columbia, Hawaii, and Massachusetts—had HMO penetration rates that were among the top 5 states nationally. At 54 percent, Hawaii had the highest HMO penetration of any other state, which was 12 percentage points higher than the second highest state. Generally, states in this group exhibited similar HMO penetration rates as states in Group 3.

Variation in Potential Expansion of Medicaid and Managed Care

Like the other three groups we identified, states in Group 4 varied with regard to the degree of potential Medicaid expansion in that two states were above the national average for potential Medicaid expansion and three states were below.

Massachusetts, which implemented a statewide health care reform in 2006 that included an expansion of Medicaid, was expected to have the smallest potential Medicaid expansion of any state as a result of Medicaid eligibility expansion requirements under the Patient Protection and Affordable Care Act.<sup>8</sup> Oregon, however, was among the 10 states with the largest potential degree of Medicaid expansion, and reported plans to expand the use of Medicaid managed care.<sup>9</sup>

---

<sup>8</sup>Patient Protection and Affordable Care Act of 2010 (PPACA), 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.

<sup>9</sup>See K. Gifford et al., *A Profile of Medicaid Managed Care Programs in 2010*.

## Summary of Indicators for States

This enclosure provides state-specific data on each of the indicators that we included in our analysis. We describe each indicator and its relevant data source, and provide general observations of differences among groups of states with respect to each indicator.

### Percentage of Medicaid Beneficiaries Enrolled in Managed Care Organizations and Primary Care Case Management Programs

The Medicaid managed care enrollment indicators we identified provide information on the

- percentage of Medicaid beneficiaries who were enrolled in a managed care organization (MCO);<sup>1</sup>
- percentage of Medicaid beneficiaries with complex health care needs enrolled in an MCO;<sup>2</sup>
- percentage of Medicaid beneficiaries enrolled in a primary care case management (PCCM) program;<sup>3</sup> and
- percentage of Medicaid beneficiaries with complex health care needs enrolled in a PCCM program.

We obtained data from the Centers for Medicare & Medicaid Services' (CMS) Medicaid Statistical Information System, which states report to CMS quarterly, and which are summarized at an individual level annually in CMS's Annual Person Summary (APS) file. Using the APS, we identified the beneficiaries who were enrolled in MCOs or PCCM programs, including beneficiaries that we considered to have complex health care needs.

---

<sup>1</sup>We considered someone as enrolled in an MCO if they were both reported as enrolled and had a capitated payment made on their behalf to an MCO.

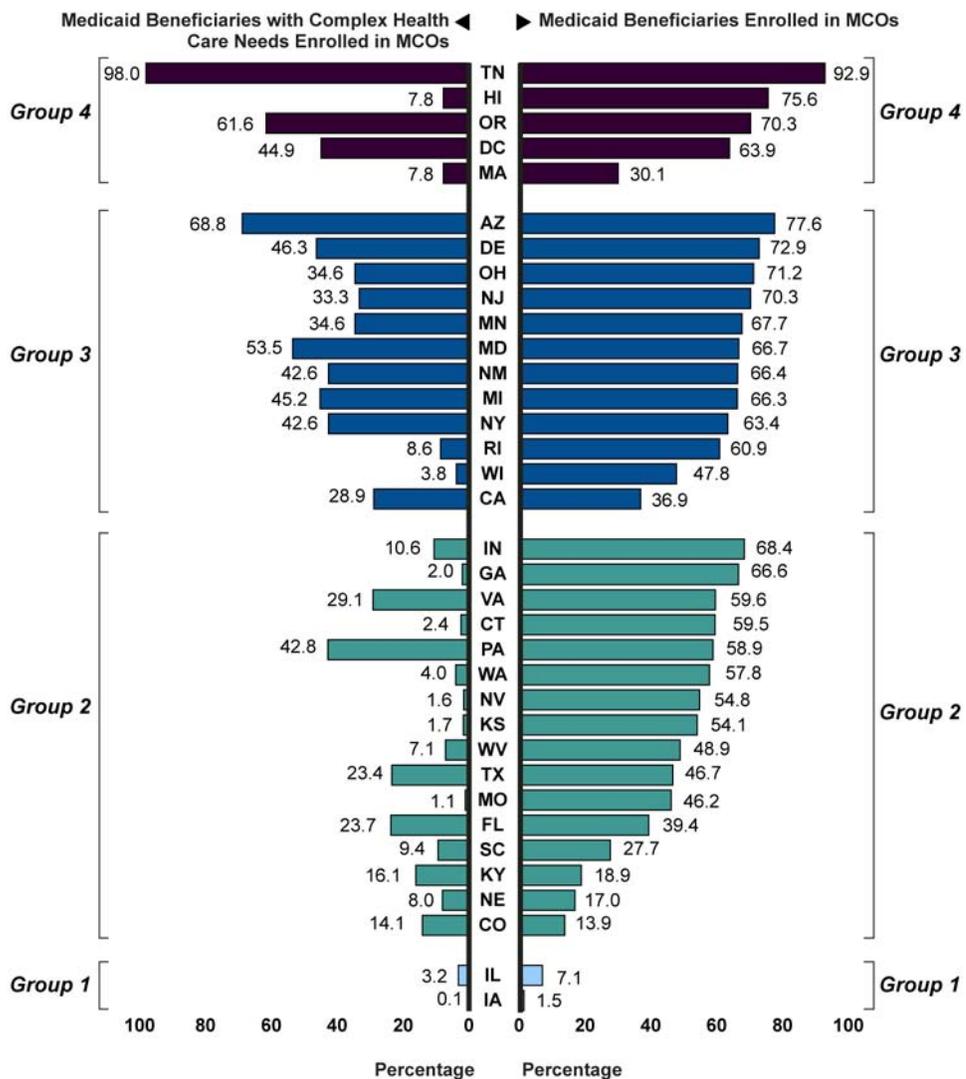
<sup>2</sup>For the purposes of this analysis, "Medicaid beneficiaries with complex health care needs" includes beneficiaries who were aged, blind/disabled, medically needy, or dually eligible for Medicare and Medicaid. We excluded dual eligibles who only received Medicare cost-sharing assistance through Medicaid from our definition.

<sup>3</sup>We considered individuals as enrolled in a PCCM program if they were both reported as enrolled and had a monthly case management fee paid on their behalf to a PCCM provider.

Percentage of Medicaid Beneficiaries Enrolled in MCOs

In 2008, 35 states enrolled Medicaid beneficiaries into MCOs, but enrollment varied widely, ranging from about 1 percent in Iowa to 93 percent in Tennessee. Twenty-eight states, including all states in Group 3, and 4 of 5 states in Group 4, enrolled more than one-third of beneficiaries in MCOs, of which 16 states enrolled more than 60 percent. (See fig. 10.) The 35 states that used MCOs in 2008 also enrolled Medicaid beneficiaries with complex health care needs into MCOs, although to a lesser extent than the overall Medicaid population in all states except Colorado and Tennessee.

**Figure 10: Percentage of Medicaid Beneficiaries Enrolled in Managed Care Organizations (MCO) in 35 States with MCOs, Fiscal Year 2008**



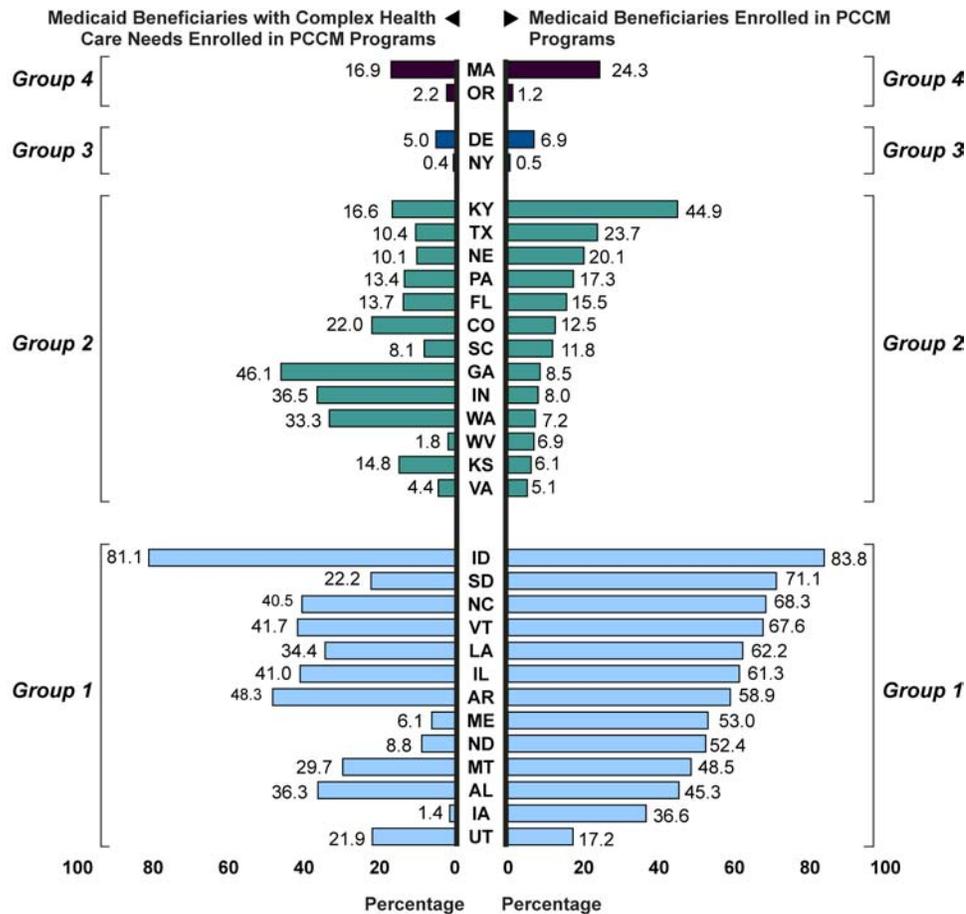
Sources: CMS and GAO.

Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file. We use "states" to refer to the 50 states and the District of Columbia.

Percentage of Medicaid Beneficiaries Enrolled in PCCM Programs

Thirty-one states enrolled Medicaid beneficiaries into PCCM programs, although enrollment was relatively low except in the Group 1 states, which typically enrolled more than 50 percent of Medicaid beneficiaries in such programs.<sup>4</sup> (See fig. 11.) All 31 states also enrolled beneficiaries with complex health care needs in PCCM programs, although generally to a lesser extent than the overall Medicaid population.

**Figure 11: Percentage of Medicaid Beneficiaries in Primary Care Case Management (PCCM) Programs in 30 States with PCCM Programs, Fiscal Year 2008**



Sources: CMS and GAO.

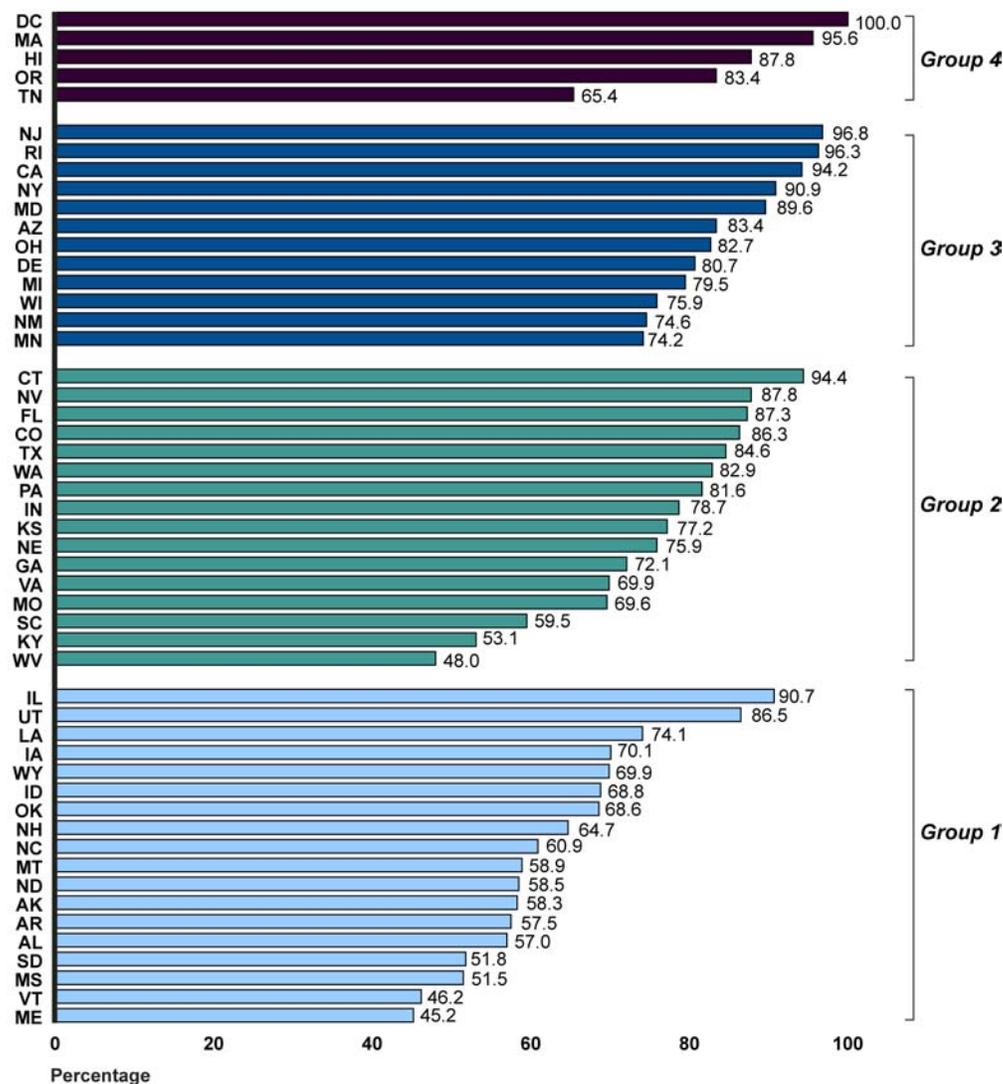
Note: GAO analysis of the Center for Medicare & Medicaid Services' 2008 Medicaid Statistical Information System Annual Person Summary file.

<sup>4</sup>Oklahoma operates an enhanced PCCM program, but the state's enrollment data are excluded from the data presented here because we determined that they were unreliable for our purposes. Specifically, the state reports enrollment in its enhanced PCCM program as enrollment in a limited benefit plan rather than in the PCCM program category in the MSIS. Therefore, we could not accurately estimate enrollment in the state's PCCM program.

### Concentration of Low-Income Individuals in Urban Areas

This indicator measures the percentage of individuals with incomes below 125 percent of the federal poverty level (FPL) that lived in urban areas from calendar year 2005 to 2009. In general, states with higher MCO enrollment, such as those in Groups 3 and 4, had a higher concentration of low-income individuals that lived in urban areas, while states with greater PCCM enrollment and no MCO enrollment, particularly those in Group 1, generally had a lower concentration of low-income individuals that lived in urban areas. States with a comparatively small concentration of low-income individuals in urban areas may face challenges attracting MCOs that may have concerns about the availability of adequate provider networks or the sufficiency of enrollment.

**Figure 12: Concentration of Low-Income Individuals in Urban Areas by State, Calendar Years 2005-2009**



Sources: GAO and U.S. Census Bureau.

Note: GAO analysis of the U.S. Census Bureau 2005-2009 American Community Survey. We use "states" to refer to the 50 states and the District of Columbia.

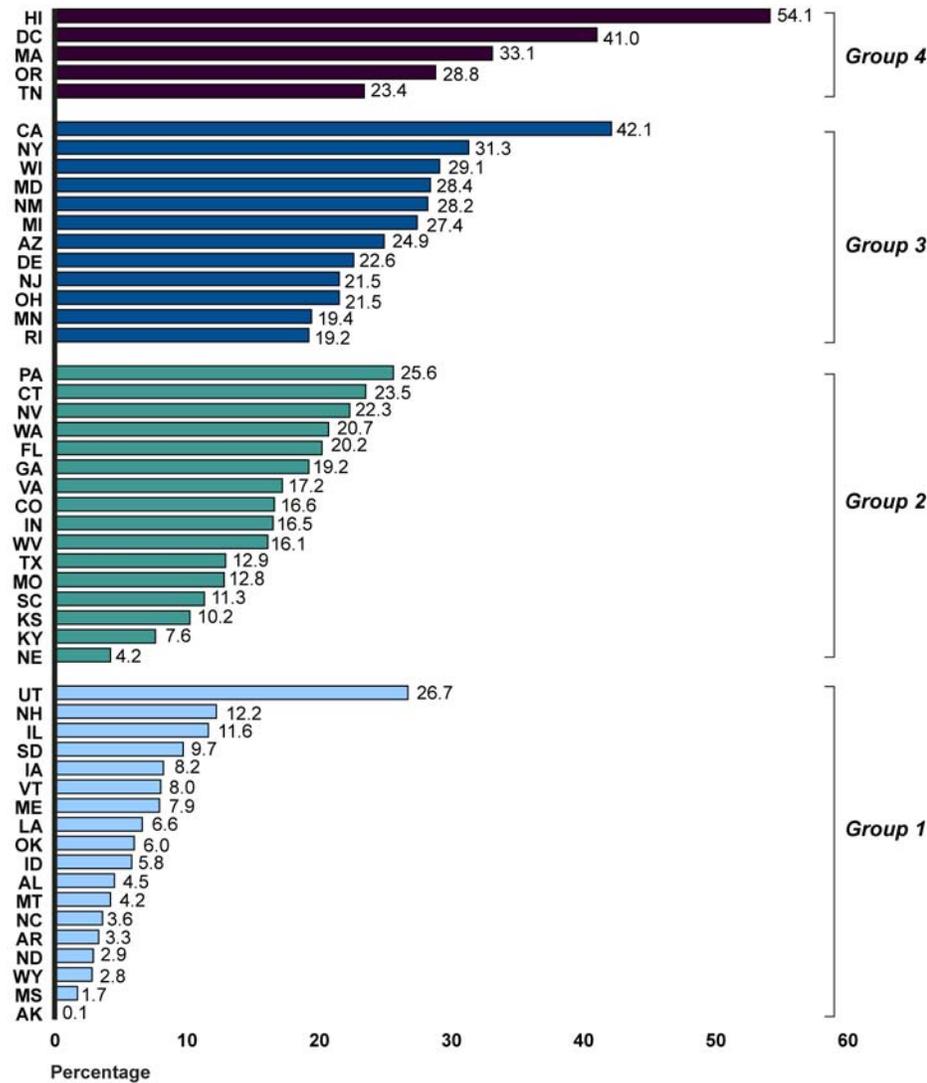
## Health Maintenance Organization Penetration Rate

A state's health maintenance organization (HMO) penetration rate is the percentage of the total population in the state that is enrolled in HMOs, such as commercial HMOs, Medicaid MCOs, and Medicare managed care plans. The state HMO penetration rates we used were based on population data from the U.S. Census Bureau as of July 2010.<sup>5</sup> Typically, less than one-third of a state's population was enrolled in such plans; however, a larger percentage of Medicaid beneficiaries were enrolled in MCOs, on average, than the percentage of the total U.S. population enrolled in any HMOs. In 2008, an average of 36 percent of Medicaid beneficiaries nationwide was enrolled in an MCO, whereas about 17 percent of the general population, on average, was enrolled in an HMO in 2010. States with MCOs that had the highest MCO enrollment, states in Groups 3 and 4, also typically had high HMO penetration rates. As expected, HMO penetration rates were lowest among states in Group 1, which generally did not enroll beneficiaries into MCOs.

---

<sup>5</sup>The Kaiser Family Foundation reports on HMO penetration rate. See Kaiser Family Foundation, *State HMO Penetration Rate, July 2010* (Washington, D.C.: July 2010), accessed September 30, 2011, <http://statehealthfacts.org/comparemaptable.jsp?ind=349&cat=7>.

**Figure 13: Health Maintenance Organization (HMO) Penetration Rate by State, July 2010**



Sources: GAO and Kaiser Family Foundation.

Note: GAO analysis of Kaiser Family Foundation’s state HMO penetration rate data. We use “states” to refer to the 50 states and the District of Columbia.

### Commercial HMO Market Competition Index

This indicator describes the competitiveness of the commercial HMO market as measured by the Herfindahl-Hirschman Index (HHI), which was calculated on the basis of the market shares of commercial HMOs in each state as of January 2009.<sup>6</sup> In general, states with low HHI values—defined as less than 1,500—are considered to have the most competitive HMO markets, while states with higher HHI values are

<sup>6</sup>We obtained data on state HHI values from the American Medical Association’s (AMA) “Competition in Health Insurance: A Comprehensive Study of U.S. Markets” 2011 Update, which reported on market data as of January 1, 2009. The HHI is the sum of the squared market shares of each firm in the market. See AMA, *Competition in health insurance: A comprehensive study of U.S. Markets—2011 Update* (Chicago, Ill.: AMA, Division of Economic and Health Policy Research, 2011).

### Enclosure III

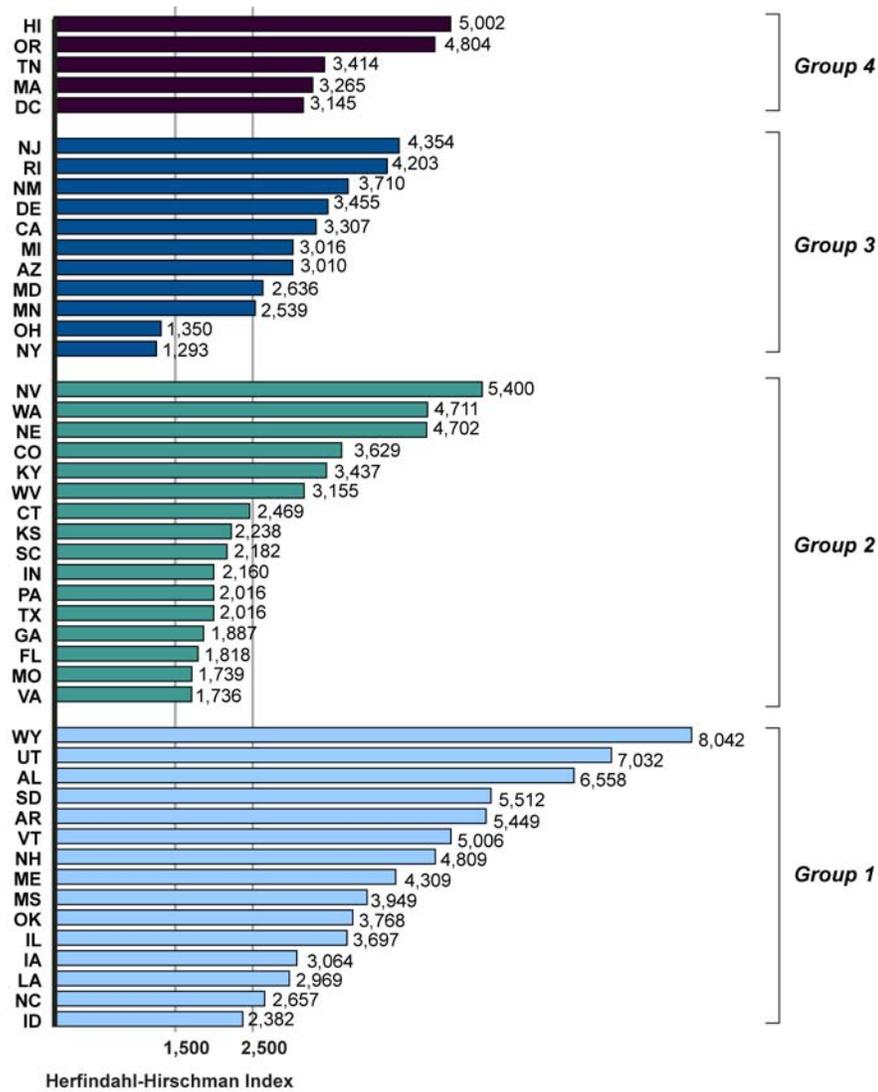
considered to be less competitive. States with HHI values between 1,500 and 2,500 are considered slightly uncompetitive, and those with HHI values greater than 2,500 are considered to be the least competitive.<sup>7</sup>

In general, there was variation among states in all four groups with respect to their HHI values, but overall, most states were not considered to have competitive commercial HMO markets, according to this measure. Only two states, New York and Ohio, which are in Group 3, would be considered to have competitive commercial HMO markets. However, because states in Groups 3 and 4 have been able to establish and maintain high enrollment in MCOs, the relationship between the competitiveness of a state's commercial HMO market and its Medicaid MCO market is unclear.

---

<sup>7</sup>The HHI, which can reach a maximum value of 10,000, is a commonly used measure of market concentration and is one of the measures used by the Department of Justice (DOJ) and the Federal Trade Commission in assessing the effects of mergers on market competition. In general, the more concentrated a market is, the less competitive it is considered to be. The thresholds for classifying varying levels of market competitiveness are based on DOJ guidelines.

**Figure 14: Commercial Health Maintenance Organization Market Competition Index by State, January 2009**



Sources: GAO and American Medical Association.

Notes: GAO analysis of data from American Medical Association (AMA), *Competition in health insurance: A comprehensive study of U.S. markets—2011 Update* (Chicago, Ill.: AMA, Division of Economic and Health Policy Research, 2011). Data for Alaska, Montana, North Dakota, and Wisconsin are excluded above. Data for Alaska, Montana, and North Dakota were excluded because those states do not have measureable commercial HMO markets. Data for Wisconsin were excluded because data were unavailable. We use “states” to refer to the 50 states and the District of Columbia.

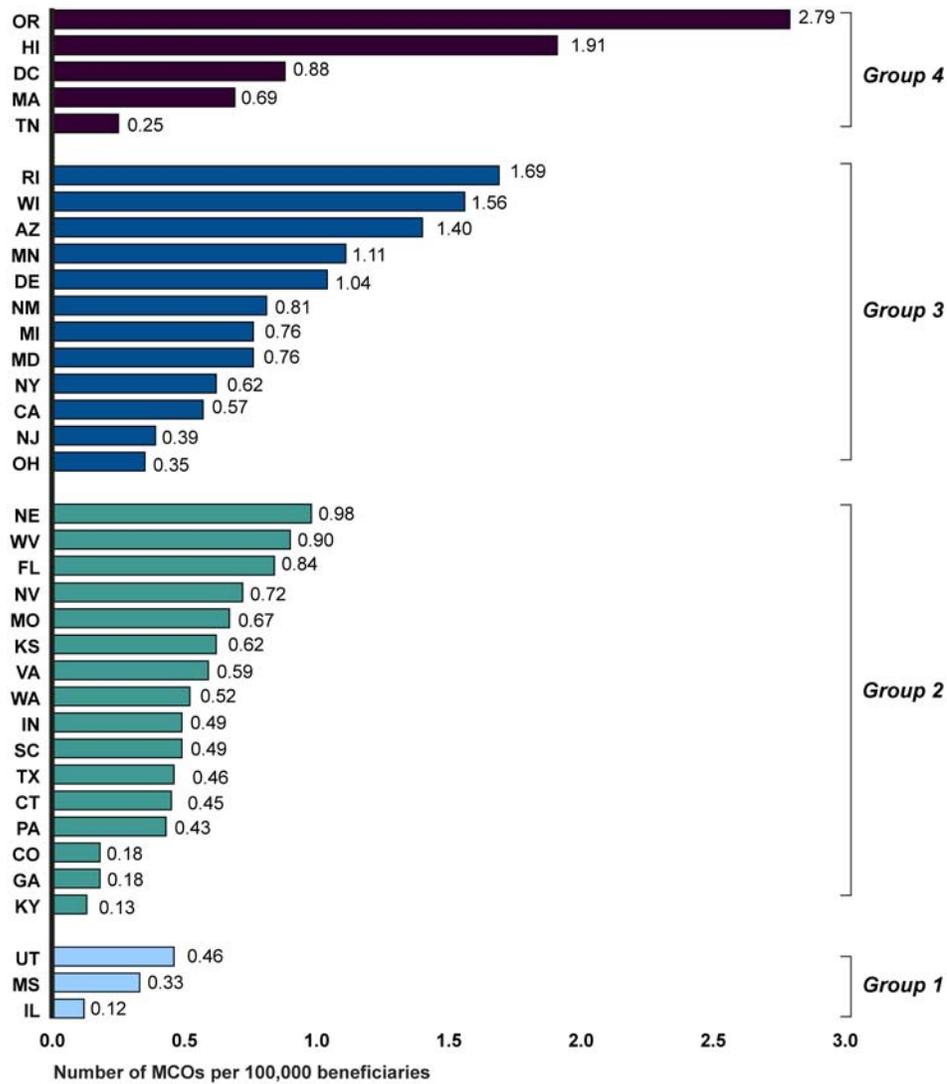
### **Number of MCOs per 100,000 Medicaid Beneficiaries**

This indicator measures the number of MCOs with which each state contracts per 100,000 Medicaid beneficiaries, on the basis of state-reported enrollment data and the number of MCO contracts in a state as of October 1, 2010.<sup>8</sup> The number of MCOs per 100,000 Medicaid beneficiaries ranged from 0.12 in Illinois to 2.79 in Oregon, and averaged 0.75 in the 36 states with MCOs. However, this indicator has limitations and needs to be considered within the broader context of states' Medicaid programs. For example, while Tennessee has the highest MCO enrollment of all states, the number of MCOs serving Medicaid beneficiaries in the state is among the lowest because the state purposefully limits the number of MCOs with which they contract. Similarly, in some states, such as California, certain MCOs operate in limited regions of the state and are not available to Medicaid beneficiaries outside of those areas. Nonetheless, on average, groups of states with more MCOs relative to the size of their Medicaid population also had high percentages of Medicaid beneficiaries enrolled in MCOs, such as states in Groups 3 and 4.

---

<sup>8</sup>See K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011).

**Figure 15: Number of Managed Care Organizations (MCO) per 100,000 Medicaid Beneficiaries in States Contracting with MCOs, October 2010**



Sources: GAO and Kaiser Commission on Medicaid and the Uninsured.

Notes: GAO analysis of data from K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011). GAO used data on the number of MCOs each state contracts with and the total number of Medicaid beneficiaries in each state to calculate the number of MCOs per 100,000 Medicaid beneficiaries. We use "states" to refer to the 50 states and the District of Columbia.

## Medicaid Expansion Index

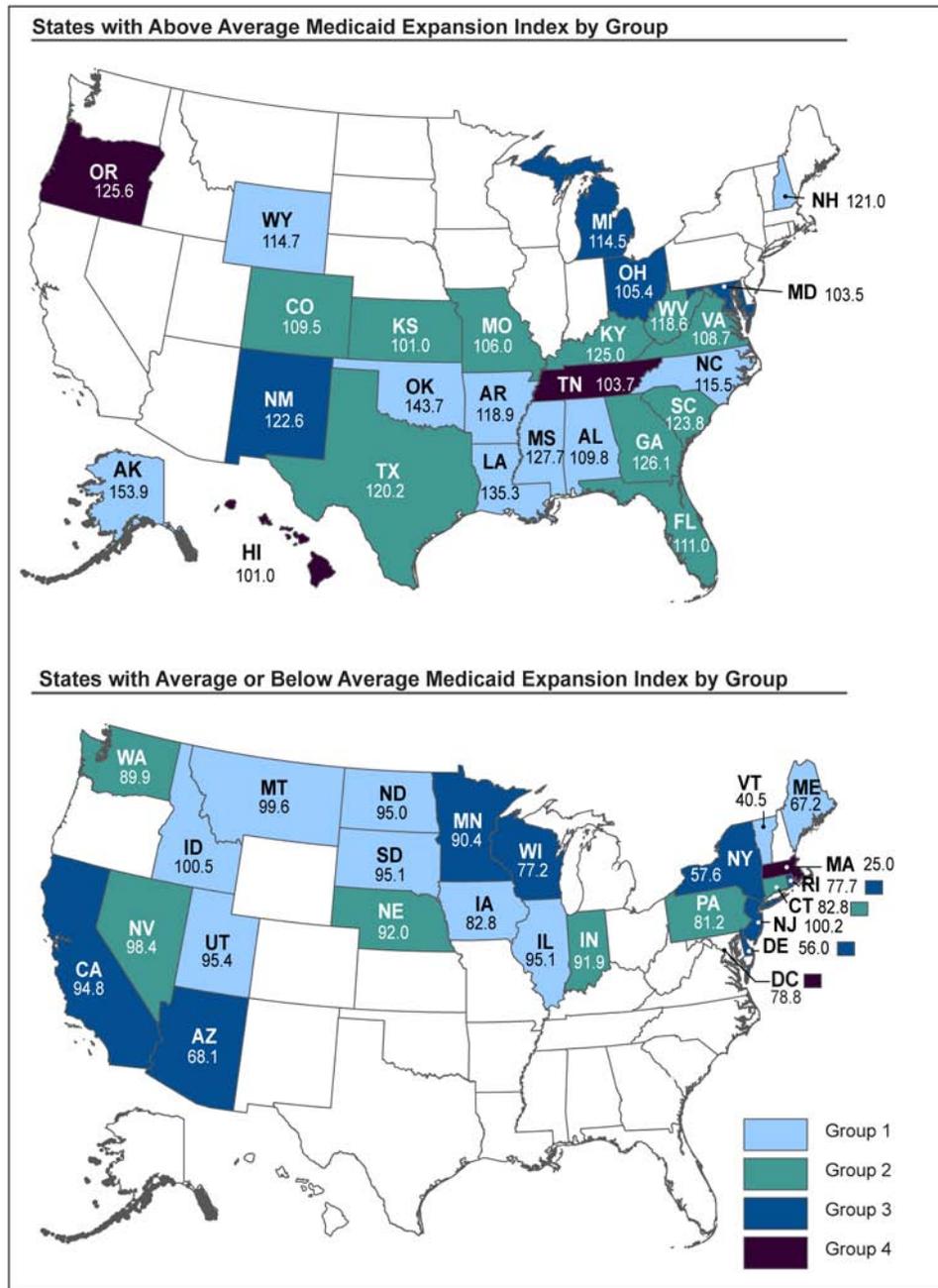
This indicator provides an estimate of the degree to which states would need to expand their Medicaid eligibility to fully implement PPACA's eligibility requirements.<sup>9</sup> The Medicaid expansion index assumed all states would expand Medicaid eligibility up to 133 percent of the FPL and was developed prior to the U.S. Supreme Court ruling that states may choose not to expand coverage under PPACA and forgo only the federal matching funds associated with such expanded coverage. The Medicaid Expansion Index sets the average of all states at 100; states with index values greater than 100 have a higher than average potential expansion and states with a value lower than 100 have a lower than average potential expansion.

We found variation across the states with respect to the Medicaid expansion index, although some trends emerged. For example, states with higher than average potential Medicaid expansion index values were largely concentrated in the Southern region of the country, while states in the Northeast, Midwest, and Western regions typically had lower than average potential Medicaid expansion index values. Similarly, on average, states in Groups 1 and 2 had higher than average potential Medicaid expansion index values when compared to the other 2 groups of states. For example, 3 of the 4 states in Group 1 that did not enroll any Medicaid beneficiaries in MCOs or PCCM programs—Alaska, Mississippi, and New Hampshire—were among the 10 states with the highest expansion index values.

---

<sup>9</sup>See L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623. The Medicaid expansion index is derived from projections of the number of individuals considered potentially eligible for Medicaid in 2014 as a result of PPACA's expansion of eligibility up to 133 percent of the federal poverty level in relation to the number of low-income individuals in the state. *National Federation of Independent Business, et al., vs. Sebelius, Sec. of Health and Human Services, et al.*, No. 11-393 (U.S. June 28, 2012). The extent to which states will fully implement PPACA's eligibility expansion is uncertain at this time.

Figure 16: States' Medicaid Expansion Index by Group



Sources: GAO and New England Journal of Medicine; Map Resources (map).

Note: GAO analysis of data from L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623. The Medicaid expansion index was based on measures of insurance status and estimates of the number of nonelderly adults aged 19 to 64 with incomes below 138 percent of the federal poverty level (FPL) from the 2009 and 2010 Annual Social and Economic Supplements (ASEC) of the Current Population Survey (CPS), and projections of the number of newly eligible Medicaid enrollees based on the 2007 and 2008 ASEC of the CPS and its Health Insurance Policy Simulation Model (HIPSM). We use "states" to refer to the 50 states and the District of Columbia.

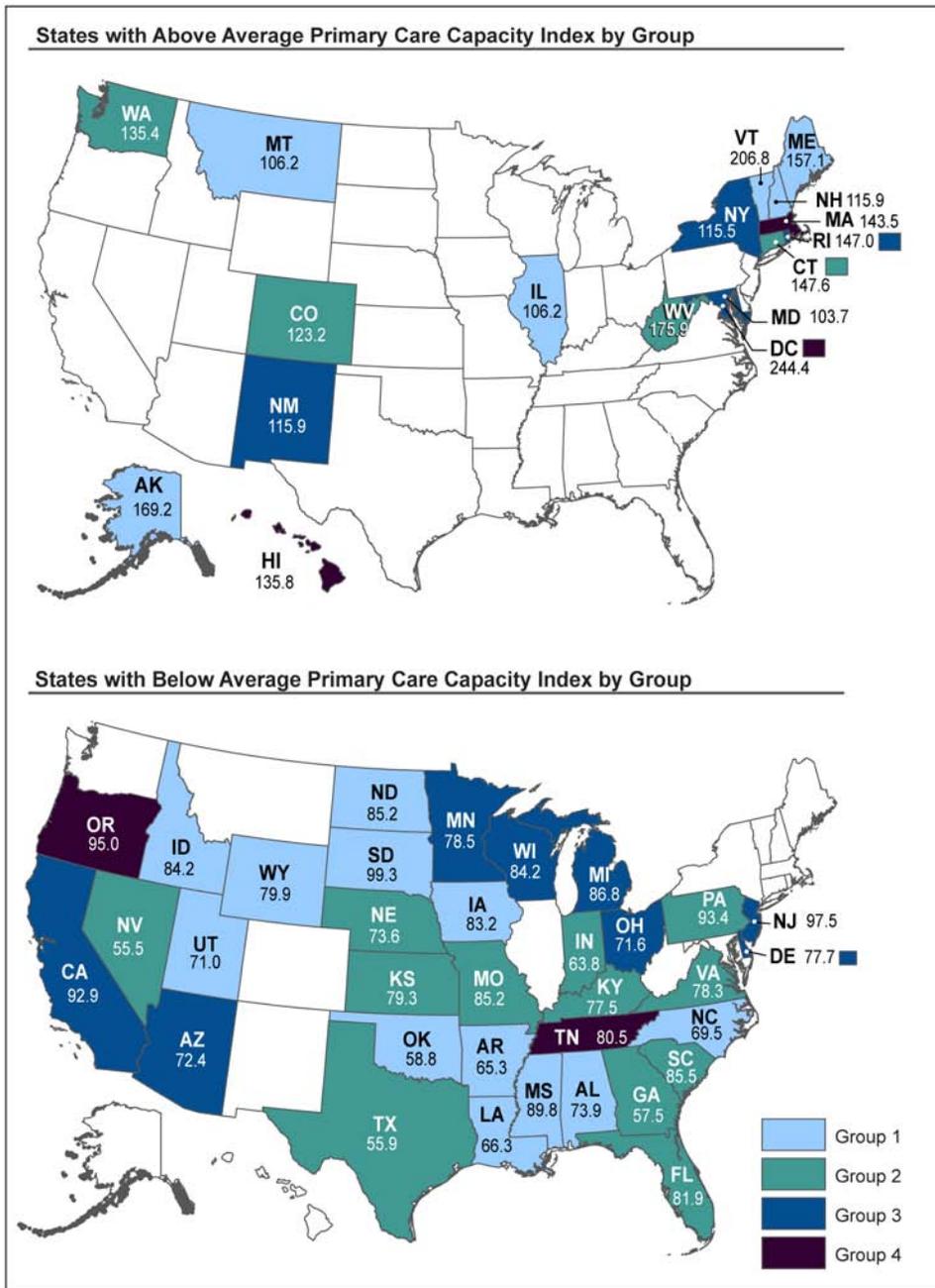
## Primary Care Capacity Index

The primary care capacity index is a measure of current primary care capacity in states based on the number of primary care providers (PCP), such as physicians in general medicine and nurse practitioners, and the number of uninsured patients served at federally qualified health centers.<sup>10</sup> The average for the index was set at 100 across the states so that states with an index value lower than 100 are considered to have a lower than average primary care capacity, and those with index values greater than 100 are considered to have higher than average primary care capacity. In general, states varied with respect to their primary care capacity index, but two-thirds of states had lower than average primary care capacity. Relative to the other groups, states in Groups 1 and 4 had the greatest variation on this measure, and Group 3 states had the least. All states face the potential for enrollment increases, particularly if states fully implement PPACA's Medicaid eligibility expansion. The increased enrollment will likely increase demand for primary care, which could be a challenge in states with low primary care capacity.

---

<sup>10</sup>See L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623. To develop this index, researchers from George Washington University used data from a variety of sources on the numbers of different types of primary care providers in 2008 or 2009, and data on the number of patients served at federally qualified health centers from the Health Resources and Services Administration's Uniform Data System. Data on the number of nonfederal physicians in December 2008 are based on estimates from the American Medical Association; data on the number of nurse practitioners in 2009 are based on the Pearson Report; and data on the number of physician assistants in clinical practice in December 2008 are from estimates by the American Academy of Physician Assistants. Data from the Uniform Data System are for 2009.

Figure 17: States with an Above Average or Below Average Primary Care Capacity Index by Group



Sources: GAO and New England Journal of Medicine; Map Resources (map).

Note: GAO analysis of data from L. Ku, K. Jones, P. Shin, B. Bruen, and K. Hayes, "The State's Next Challenge—Securing Primary Care for Expanded Medicaid Populations," *New England Journal of Medicine*, vol. 364, no. 6 (2011), DOI: 10.1056/NEJMp1011623. The Primary Care Capacity Index is based on the following data sources: estimates of nonfederal physicians from the American Medical Association; nurse practitioners in 2009 based on the Pearson Report; projected number of physician assistants in December 2008 from the American Academy of Physician Assistants; number of patients served in federally qualified health centers in 2009 from the Uniform Data System of the Bureau of Primary Health Care, Health Resources and Services Administration. We use "states" to refer to the 50 states and the District of Columbia.

### **Allowable PCP Types**

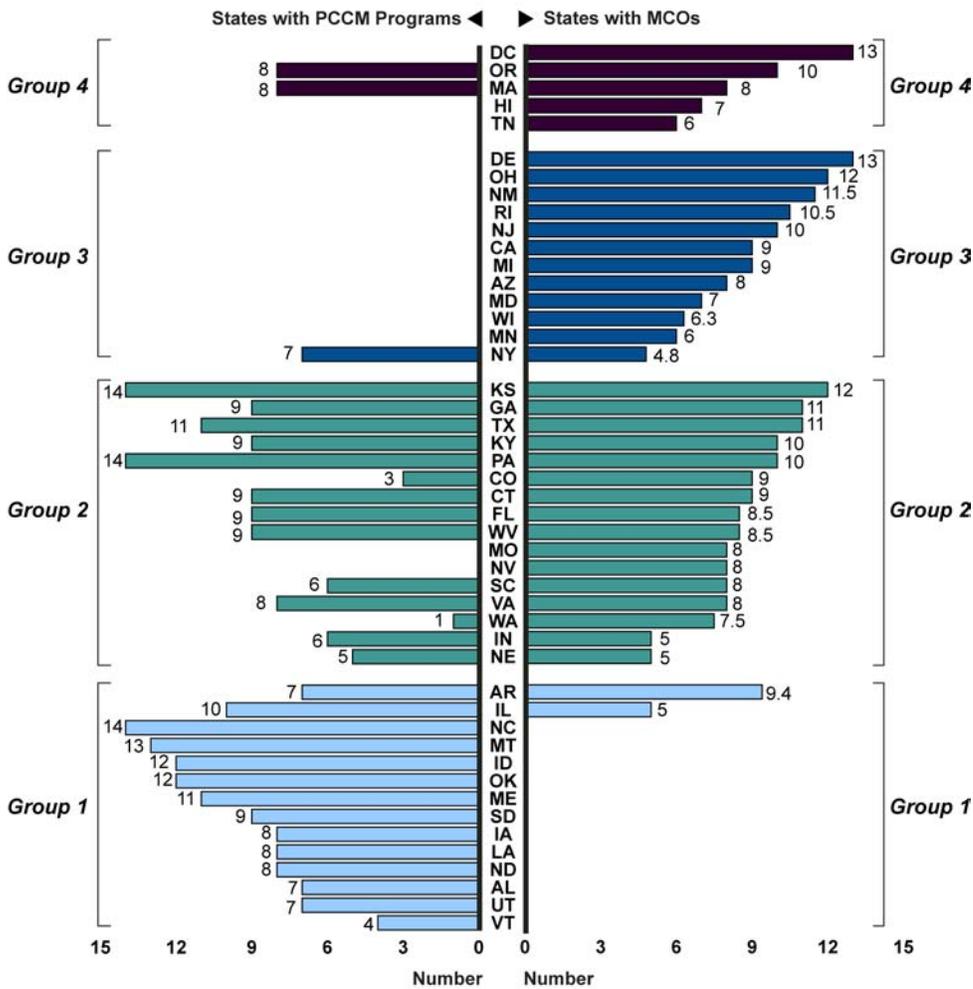
The indicators for allowable PCP types show information on the types of providers that states permitted MCOs to identify as PCPs or permitted as PCPs in their PCCM programs as of June 2009. Providers that were considered PCPs included general practitioners, family practitioners, internists, obstetricians/gynecologists, federally qualified health centers, rural health clinics, nurse practitioners, nurse midwives, Indian Health Service providers, physician assistants, psychiatrists, and psychologists. Within each of the four groups of states we identified, the average number of different types of providers allowed to participate as PCPs in MCOs or PCCM programs varied widely.<sup>11</sup> Some states have a greater number of allowable PCP types, which could be a consideration when assessing a state's capacity to provide primary care services to additional Medicaid beneficiaries.<sup>12</sup>

---

<sup>11</sup>We used state-reported data from the CMS Medicaid Managed Care Data Collection System to calculate the average number of PCP types allowed in a state's MCO programs. For example, California reported having 11 MCO programs for which the number of allowable PCPs types ranged from 6 to 12. We calculated a similar average of the number of allowable PCP types across states' PCCM programs.

<sup>12</sup>The Primary Care Capacity Index described previously in this report measures availability of certain providers including physicians, nurse practitioners, physician assistants, and the number of patients seen at federally qualified health centers; it does not include certain other providers, such as psychiatrists, psychologists, and social workers that some states report to CMS as being allowable primary care providers.

**Figure 18: Average Number of Allowable Primary Care Provider (PCP) Types among States with Managed Care Organizations (MCO) and Primary Care Case Management (PCCM) Programs, June 2009**



Sources: GAO, CMS, and the Kaiser Commission on Medicaid and the Uninsured.

Notes: GAO analysis of data from the Center for Medicare & Medicaid Services' 2009 Medicaid Managed Care Data Collection System and K. Gifford, V. K. Smith, D. Snipes, and J. Paradise, *A Profile of Medicaid Managed Care Programs in 2010: Findings from a 50-State Survey* (Washington, D.C.: Kaiser Family Foundation, Kaiser Commission on Medicaid and the Uninsured, September 2011). Providers that were considered allowable PCPs included general practitioners, family practitioners, internists, obstetricians/gynecologists, federally qualified health centers, rural health clinics, nurse practitioners, nurse midwives, Indian Health Service providers, physician assistants, psychiatrists, and psychologists. We use "states" to refer to the 50 states and the District of Columbia.

Enclosure IV

## **GAO Contact and Staff Acknowledgments**

### **GAO Contact**

Carolyn Yocom, (202) 512-7114 or [yocomc@gao.gov](mailto:yocomc@gao.gov)

### **Staff Acknowledgments**

In addition to the contact named above, key contributors to this report were Susan Anthony, Assistant Director; Emily Beller; Julianne Flowers; Joanne Jee; Drew Long; Katherine Mack; and Jeff Tessin.

(290913)

---

---

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.

---

## GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

---

## Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's website ([www.gao.gov](http://www.gao.gov)). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to [www.gao.gov](http://www.gao.gov) and select "E-mail Updates."

---

## Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <http://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

---

## Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#). Subscribe to our [RSS Feeds](#) or [E-mail Updates](#). Listen to our [Podcasts](#). Visit GAO on the web at [www.gao.gov](http://www.gao.gov).

---

## To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Website: [www.gao.gov/fraudnet/fraudnet.htm](http://www.gao.gov/fraudnet/fraudnet.htm)

E-mail: [fraudnet@gao.gov](mailto:fraudnet@gao.gov)

Automated answering system: (800) 424-5454 or (202) 512-7470

---

## Congressional Relations

Katherine Siggerud, Managing Director, [siggerudk@gao.gov](mailto:siggerudk@gao.gov), (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

---

## Public Affairs

Chuck Young, Managing Director, [youngc1@gao.gov](mailto:youngc1@gao.gov), (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548

