



2013: Volume 3, Number 4

*A publication of the Centers for Medicare & Medicaid Services,
Office of Information Products & Data Analytics*

Migration Patterns for Medicaid Enrollees 2005–2007

David K. Baugh and Shinu Verghese
Mathematica Policy Research, Inc.

Background: Although Medicaid is a federal program, it is administered primarily by the states. Enrollees move from state to state, but their migration patterns have remained largely unknown. There are concerns about the possibility of enrollment gaps, lack of health insurance coverage, breaks in continuity of care, unmet need, risks to health status, and increased system-wide costs due to uncompensated care and the use of higher cost emergency room services because of enrollment gaps. There is also concern about the extent to which people enrolled in more than one state are double counted.

Objective: To examine the migration of Medicaid enrollees across states.

Methods: We use 2005–2007 Medicaid enrollment records that were unduplicated and linked across states and over the study period. We report descriptive statistics on enrollee migration across states.

Results: Among all enrollees, 3.7 percent moved to another state at least once and most moved only once. Overall, 72.2 percent of moves did not result in an enrollment gap, whereas 8.2 percent of moves resulted in gaps of fewer than three months, and 11.4 percent of moves resulted in gaps of more than six months.

Conclusions: These initial findings provide a context for further examining the consequences of enrollee moves on their health and on program expenditures. The consequences of enrollment gaps will become increasingly important as the Medicaid population grows under the provisions of the Affordable Care Act.

Keywords: MAX, Medicaid, Eligibility, Enrollment, Migration, Moving

ISSN: 2159-0354

doi: <http://dx.doi.org/10.5600/mmrr.003.04.b02>

Medicare & Medicaid Research Review
2013: Volume 3, Number 4

Mission Statement

Medicare & Medicaid Research Review is a peer-reviewed, online journal reporting data and research that informs current and future directions of the Medicare, Medicaid, and Children's Health Insurance programs. The journal seeks to examine and evaluate health care coverage, quality and access to care for beneficiaries, and payment for health services.

<http://www.cms.gov/MMRR/>

U.S. Department of Health & Human Services
Kathleen Sebelius
Secretary

Centers for Medicare & Medicaid Services
Marilyn Tavenner
Administrator

Editor-in-Chief
David M. Bott, Ph.D.

The complete list of Editorial Staff and
Editorial Board members
may be found on the MMRR Web site (click link):

[MMRR Editorial Staff Page](#)

Contact: mmrr-editors@cms.hhs.gov

Published by the
Centers for Medicare & Medicaid Services.

All material in the *Medicare & Medicaid Research Review* is in the public domain and may be duplicated without permission. Citation to source is requested.

Background

Throughout the history of Medicaid, little has been known about cross-state enrollee migration. The state-based administration of Medicaid has raised concerns about enrollment gaps that may occur when enrollees move to another state. Some moves are driven by loss (or a gap) in Medicaid coverage, and some enrollees with gaps may obtain private coverage. However, Medicaid enrollment gaps are often associated with gaps in health insurance coverage (Czajka, 1999; Sommers, 2009), affecting continuity of care, increasing unmet need and elevating health status risks. Such gaps often lead to increased use of emergency room services and increased overall health care system costs.

National Medicaid statistics are typically aggregates of state statistics. Therefore, individuals enrolled in more than one state are double counted. An analysis of the underestimate of Medicaid enrollment in the Current Population Survey, as part of the Medicaid Undercount project (Call et al., 2001; Davern et al., 2009), highlighted the importance of un-duplicating enrollees who move across states, to count national Medicaid enrollment accurately and produce better estimates of the number of uninsured individuals. Better estimates of Medicaid enrollment lead to better estimates of the uninsured in support of policy options to meet their health care needs (Dubay, Holahan, & Cook, 2007).

This study provides a focus on Medicaid eligibility issues related to two primary questions:

To what extent do Medicaid enrollees move across states, causing national Medicaid enrollment estimates to be artificially high and uninsured estimates to be artificially low?

To what extent are Medicaid enrollee cross-state moves associated with gaps in enrollment?

Methods

This study used unduplicated Medicaid Analytic eXtract (MAX) enrollment data for 2005–2007, the most recent unduplicated data available at the time of this study. We sought to develop a methodology that would enable us to examine all cross-state migration that occurred during 2005–2007, even though Medicaid enrollee migration was affected by Hurricane Katrina during these years.¹ MAX data are annual state-specific data files in which Medicaid Statistical Information System (MSIS) enrollment records and claims are aggregated by calendar year, and interim MSIS transactions are adjusted to produce final-action records. States submit person-level data on Medicaid enrollment, services, and payments to the Centers for Medicare & Medicaid Services (CMS) through the MSIS (CMS, 2010). Because MSIS administrative data cannot easily be used for research, CMS developed MAX data, person-level enrollment and event-level services data for each Medicaid enrollee, including Medicaid expansion Children’s Health Insurance Program (CHIP) enrollees.

MAX data are widely used for research and policy analysis, but their utility is limited for certain types of research, because eligibility records have not been linked for people who are enrolled in more than one state. To address this limitation, CMS contracted with Mathematica Policy Research to design and construct unduplicated research files that reconcile duplicate Medicaid enrollment records in MAX 2005, 2006, and 2007, creating an unduplicated research file that contains one record for each enrolled person in the United States. The un-duplication algorithm links a pair of records hierarchically if they agree on any one of the following:

- MSIS Identifier (within a state only)
- MAX Social Security Number (SSN) + sex + at least two parts of the Date of Birth (DOB) elements (DOB year, DOB month, DOB day)
- Medicare Enrollment Data Base (EDB) SSN + sex + at least two of (DOB year, DOB month, DOB day)
- EDB-Medicare Health Insurance Claim (HIC) number + sex + at least two of (DOB year, DOB month, DOB day)

A comprehensive analysis of the un-duplication process is available in the report “Continuing Development of the Medicaid Analytic Extract Enrollee Master (MAXEM) File” (Czajka, Wenzlow, & Sykes, 2010; Czajka & Verghese, 2011).

For each person enrolled in Medicaid at any time in 2005 through 2007, we created a record of their Medicaid eligibility for each of the 36 months. We defined an enrollment episode to consist of a number of consecutive months in which a person was enrolled in at least one state, preceded by and followed by months in which the person was not enrolled in any state. An enrollment episode includes enrollment in either one state or multiple states.

An examination of enrollment episodes identified a number of unexpected patterns. There were 306,456 enrollees with a date of enrollment in one state that was completely contained within a span of enrollment in another state. For these and most other instances of enrollment in more than one state at the same time, we identified a criterion that we called “resetting the clock.” For example, if a person was enrolled in state A, and in a later month became enrolled in state B without termination in state A, we treated the person’s record as though they were terminated in state A upon enrollment in State B. In addition, there were 364,540 enrollees who were enrolled in at least two

¹ Because the data did not include reasons for a move, we could not exclude moves associated with Hurricane Katrina.

states with the same starting month. Because it was not possible to determine if a move occurred or to identify the origin and destination state of a move, records for these enrollees were excluded from the analysis of moves.

This study presents a focus on cross-state moves, not moves within a state. If a person moved from one state to another, but did not become enrolled in the destination state, we had no record of the move. We determined that a move occurred if the person had enrollment in one state (origin state), followed by enrollment in another state (destination state). Similarly, if a person was enrolled in one state, then enrolled in different state, and finally enrolled in the original state, we determined that two moves had occurred. Gaps in enrollment were defined as months during which the person was not enrolled in Medicaid in any state. We examined the number of moves per enrollee, and the number of states to which an enrollee moved, to determine if a greater number of moves, or moves to more states, increased the length of enrollment gaps. An enrollee had an enrollment gap associated with a move if enrollment was not continuous across the states.

We performed analyses by major basis of eligibility (BOE) categories: aged, disabled, adults, foster care children, and other children (further categorized by age: over age 6, age 1–6, and under age 1). The in-migration rate for a state is the number of moves to the state during 2005–2007, based on the last recorded move to the state (one move per enrollee) divided by the number of state enrollees in 2005–2007, based on the last recorded state of residence.

Findings

Enrollees Who Moved

Of nearly 76 million Medicaid enrollees from 2005 to 2007, over 73 million (96.3 percent) did not move,

leaving 2.8 million (3.7 percent) who moved at least once and obtained Medicaid coverage in more than one state (Exhibit 1). The highest percentage of enrollees who moved were other children age 1 to 6 (5.5 percent) and foster care children (5.3 percent). At just 2.0 percent, aged enrollees accounted for the lowest percentage of movers. Those who moved twice, and those who moved 3 or more times, represented 19.1 percent and 3.8 percent, respectively, of all movers (Exhibit 2). Among enrollees who moved twice, 80.2 percent moved to a new state and then back to the original state. For enrollees who moved 3 or more times, less than half (44.3 percent) enrolled in only 2 states, while the remainder had various movement patterns with enrollment in more than 2 states.

Number of Moves and Number of States

Nearly four percent of Medicaid enrollees moved at least once between states in 2005–2007. Among movers, most moved only once (2.9 percent), while some moved twice (0.7 percent) or 3 times or more (0.1 percent; Exhibit 2). Among movers, the vast majority (3.5 of 3.7 percent) moved between only 2 states, 1 or more times (Exhibit 2). Among all movers, 77.1 percent moved only once during the study period, varying by BOE group from 73.2 percent (other children age 1 to 6) to 87.7 percent (aged; Exhibit 3).

Moves Associated with Enrollment Gaps

For all enrollees, 72.2 percent of moves were not associated with an enrollment gap (Exhibit 4). The percent of moves associated with enrollment gaps of fewer than 3 months (8.2 percent) was fairly consistent as the number of moves increased, ranging from 7.9 to 8.8 percent. The share of all enrollees with gaps of more than 6 months was 11.4 percent, but it declined monotonically as the

Exhibit 1. Number and Percent of Medicaid Enrollees Who Moved and Did Not Move, by Eligibility Group, 2005–2007

Medicaid Eligibility Group	Number of Enrollees	Number of Enrollees Who Did Not Move	Percent of Enrollees Who Did Not Move	Number of Enrollees Who Moved	Percent of Enrollees Who Moved
Aged	6,930,227	6,794,393	98.0	135,834	2.0
Disabled	10,181,053	9,724,575	95.5	456,478	4.5
Adult	22,306,979	21,654,909	97.1	652,070	2.9
Foster care children	1,160,948	1,099,513	94.7	61,435	5.3
Other children	35,020,313	33,495,672	95.6	1,524,641	4.4
Other children under age 1	3,531,965	3,443,899	97.5	88,066	2.5
Other children age 1 to 6	12,795,395	12,093,524	94.5	701,871	5.5
Other children over age 6	18,692,953	17,958,249	96.1	734,704	3.9
All enrollees ^{1,2}	75,960,337	73,129,879	96.3	2,830,458	3.7

NOTES: ¹Includes 360,817 child enrollees of unknown age.

²Excludes 364,540 enrollees for whom it was not possible to determine whether a move occurred nor the origin and destination states of a move, and three enrollees with no BOE.

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007.

Exhibit 2. Number and Percentage of All Medicaid Enrollees by Number of Moves¹ and Number of States in Which They Were Enrolled, 2005–2007

	Number, Any State	Percent, Any State	Number of States			
			One State	Two States	Three States	Four or More States
All Enrollees	75,960,337	100.0	96.3	3.5	0.2	0.0
No Moves ²	73,129,879	96.3	100.0	NA	NA	NA
One Move ²	2,182,791	2.9	NA	100.0	NA	NA
Two Moves ²	539,678	0.7	NA	80.2	19.8	NA
Three or More Moves ²	107,989	0.1	NA	44.3	44.5	11.2
One or More Moves ²	2,830,458	3.7	NA	94.1	5.5	0.4

NOTES: NA = not applicable.

¹An enrollee can move back to a state in which he or she was previously enrolled.

²Percentages by number of states (row percentages) add to 100 percent.

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007.

number of moves increased—14.4 percent for one move versus 1.2 percent for 5 or more moves.

declined only slightly as the number of moves increased (Exhibit 5).

Length of Enrollment Episodes

With the exception of disabled and foster care child enrollees, the average enrollment episode length

Migration Patterns

In general, Medicaid migration patterns mirrored population migration patterns in that states with

Exhibit 3. Number and Percent of Medicaid Enrollees Who Moved, by BOE Group and the Number of Moves, 2005–2007

BOE Group	Number of Enrollees Who Moved	Number of Moves		
		One	Two	Three or More
Aged	135,834	87.7	10.8	1.5
Disabled	456,478	77.1	18.6	4.3
Adult	652,068	78.0	18.6	3.4
Foster care children	61,435	80.0	16.8	3.5
Other children	1,524,641	75.7	20.3	4.1
Other children under age 1	88,066	84.0	13.8	2.3
Other children age 1 to 6	701,871	73.2	22.2	4.7
Other children over age 6	734,704	77.1	19.2	3.7
All enrollees	2,830,458	77.1	19.1	3.8

NOTE: An enrollee can move back to a state in which he or she was previously enrolled.

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007.

Exhibit 4. Number of All Medicaid Enrollees, Number of Moves, and Percent of Moves with Gaps in Enrollment, 2005–2007

	Number of Enrollees ¹	Number of Moves	No Gap	Percent of Moves with		
				Gap of less than 3 Months ²	Gap of 3 to 6 Months ³	Gap of 6 or more Months ³
All enrollees	75,960,337					
No moves	73,129,879					
One move	2,182,791	2,182,791	69.3	7.9	8.5	14.4
Two moves	539,678	1,079,356	75.3	8.8	7.9	8.0
Three or more moves	107,979	360,445	81.2	8.6	6.3	3.8
One or more moves	2,830,458	3,622,592	72.2	8.2	8.1	11.4

NOTES: ¹These numbers include 360,817 child enrollees of unknown age.

²A gap of fewer than three months may reflect the time required by the new state to determine eligibility.

³A gap of more than three months may mean that the person was not granted eligibility in the new state.

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007.

higher Medicaid in-migration rates had higher population in-migration rates (correlation coefficient = 0.55; Exhibit 6). For most states, Medicaid in-migration rates differed by fewer than 3 percentage points from population in-migration rates, but Medicaid in-migration rates were more than 4 percentage points

higher than population in-migration rates for four states: Nevada, Wyoming, North Dakota, and South Dakota. Medicaid in-migration rates were lower than those in the general population for five states: Alaska, California, the District of Columbia, Hawaii, and Vermont (Exhibit 6).

Exhibit 5. Average Multi-State Medicaid Eligibility Episode Length, in Months, by BOE Group and Number of Moves, 2005–2007

BOE Group	Number of Moves					
	None	One	Two	Three	Four	Five +
Aged	22.4	22.5	23.0	22.3	22.0	20.4
Disabled	25.7	22.7	23.1	21.7	21.6	19.9
Adult	13.0	12.5	12.7	12.6	12.6	11.9
Foster care children	23.8	20.8	18.7	17.3	15.6	17.3
Other children under age 12	7.4	13.6	14.1	15.1	15.7	15.3
Other children age 1 to 6	17.9	17.5	17.4	17.3	17.3	18.2
Other children over age 6	18.9	17.6	17.4	17.0	16.6	18.2
All enrollees ¹	17.7	17.4	17.3	17.1	17.0	17.6

NOTES: ¹Includes 360,817 children of unknown age.

²These statistics for one or more moves are skewed, because of conflicts in reported birth dates across states.

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007.

Enrollee Moves for State Pairs

By a wide margin, the largest number of enrollees (68,964) moved from Louisiana to Texas, undoubtedly in response to Hurricane Katrina (Exhibit 7). This number was two-thirds higher than the number of enrollees who moved from California to Arizona, the pair of states with the next highest number of movers. The number of enrollees moving from Texas to Louisiana ranked sixth among state pairs. State pairs with the highest rankings were often neighboring states. For several pairs, the number of enrollees who moved was high in both directions. In other instances, a substantial number of enrollees moved in one direction but not in the other. For state pairs with more than 20,000 moves, the only state pair that had more than 40 percent of moves resulting in an enrollment gap was Texas to Louisiana (42.5 percent).

Discussion

National Medicaid data count enrollees for each state in which they were enrolled, over-counting national enrollment. However, the magnitude of the over-count was relatively small, with only 3.7

percent enrolled in more than one state during the study period (Exhibit 1). Whenever possible, unduplicated enrollee data should be used for estimates of national enrollment and corresponding estimates of the uninsured population.²

For movers, 72.2 percent (Exhibit 3) did not have gaps. The percent of moves with gaps shorter than three months remained constant as the number of moves increased. In contrast, the percent of moves associated with gaps longer than 6 months decreased as the number of moves increased from 1 to 5 or more moves (14.4 percent and 1.2 percent, respectively) (Exhibit 3). Various factors may account for this decrease.³ First, the socioeconomic characteristics of enrollees with more moves (e.g., lower income) may have differed from the characteristics of those with fewer moves, increasing the likelihood that the former would qualify for Medicaid in a new state. Second, enrollees who moved more times may have gained

² If this is not possible, adjustment factors (1.4 percent for a single year or 3.7 percent for three years) would improve national Medicaid enrollment estimates based on administrative data.

³ This finding could also be an artifact of state eligibility policies that do not necessarily terminate eligibility for people who move.

Exhibit 6. Comparison of Medicaid to U.S. Population In-Migration Rates by State, 2005–2007

State	Medicaid			U.S. Population		
	Total Unduplicated Number of Enrollees ¹	Number of Enrollees Who Moved into the State ^{1,2}	In-Migration Rate (%) ³	Population as of July 1, 2006 ⁴	Number of Persons Who Moved into the State, 2005–2007 ⁵	In-Migration Rate (%) ⁶
Alabama	1,142,114	46,016	4.0	4,628,981	133,990	2.9
Alaska	164,407	9,004	5.5	675,302	37,218	5.5
Arizona	1,948,818	98,500	5.1	6,029,141	283,972	4.7
Arkansas	896,002	52,362	5.8	2,821,761	102,126	3.6
California	14,541,148	176,756	1.2	36,021,202	506,723	1.4
Colorado	733,900	41,851	5.7	4,720,423	192,717	4.1
Connecticut	655,239	26,373	4.0	3,517,460	87,516	2.5
Delaware	228,173	13,731	6.0	859,268	37,488	4.4
District of Columbia	190,362	9,810	5.2	570,681	51,421	9.0
Florida	3,824,219	182,154	4.8	18,166,990	602,203	3.3
Georgia	2,292,036	140,466	6.1	9,155,813	356,471	3.9
Hawaii	284,996	8,299	2.9	1,309,731	59,810	4.6
Idaho	284,358	22,105	7.8	1,468,669	73,781	5.0
Illinois	2,994,028	98,575	3.3	12,643,955	235,118	1.9
Indiana	1,305,847	73,311	5.6	6,332,669	152,483	2.4
Iowa	591,102	37,427	6.3	2,982,644	86,447	2.9
Kansas	456,212	32,740	7.2	2,762,931	93,517	3.4
Kentucky	1,064,129	53,874	5.1	4,219,239	121,122	2.9
Louisiana	1,330,061	66,886	5.0	4,302,665	108,050	2.5
Maine	414,079	14,039	3.4	1,323,619	38,154	2.9
Maryland	1,050,884	40,130	3.8	5,627,367	170,792	3.0
Massachusetts	1,553,054	37,072	2.4	6,410,084	140,092	2.2
Michigan	2,372,375	65,334	2.8	10,036,081	135,513	1.4
Minnesota	1,022,459	47,578	4.7	5,163,555	107,945	2.1
Mississippi	928,157	38,760	4.2	2,904,978	85,141	2.9
Missouri	1,416,442	68,193	4.8	5,842,704	163,274	2.8
Montana	145,161	11,422	7.9	952,692	38,359	4.0
Nebraska	326,742	22,266	6.8	1,772,693	51,384	2.9
Nevada	359,504	42,912	11.9	2,522,658	137,389	5.4
New Hampshire	178,598	11,542	6.5	1,308,389	49,623	3.8
New Jersey	1,334,686	48,009	3.6	8,661,679	162,517	1.9
New Mexico	639,980	35,013	5.5	1,962,137	74,790	3.8

(Continued)

Exhibit 6 Continued. Comparison of Medicaid to U.S. Population In-Migration Rates by State, 2005–2007

State	Medicaid			U.S. Population		
	Total Unduplicated Number of Enrollees ¹	Number of Enrollees Who Moved into the State ^{1,2}	In-Migration Rate (%) ³	Population as of July 1, 2006 ⁴	Number of Persons Who Moved into the State, 2005–2007 ⁵	In-Migration Rate (%) ⁶
New York	6,208,059	103,493	1.7	19,104,631	280,448	1.5
North Carolina	2,106,808	119,202	5.7	8,917,270	331,211	3.7
North Dakota	95,760	8,006	8.4	649,422	24,395	3.8
Ohio	2,624,193	91,980	3.5	11,481,213	195,287	1.7
Oklahoma	944,323	57,821	6.1	3,594,090	119,160	3.3
Oregon	688,411	46,635	6.8	3,670,883	143,664	3.9
Pennsylvania	2,553,561	92,758	3.6	12,510,809	263,878	2.1
Rhode Island	257,993	10,078	3.9	1,063,096	33,062	3.1
South Carolina	1,182,693	46,768	4.0	4,357,847	168,441	3.9
South Dakota	157,109	12,196	7.8	783,033	28,505	3.6
Tennessee	1,809,765	81,557	4.5	6,088,766	192,095	3.2
Texas	5,566,667	228,787	4.1	23,359,580	581,983	2.5
Utah	430,411	27,748	6.4	2,525,507	100,987	4.0
Vermont	197,077	7,356	3.7	622,892	24,961	4.0
Virginia	1,118,501	59,999	5.4	7,673,725	283,355	3.7
Washington	1,506,780	76,964	5.1	6,370,753	221,910	3.5
West Virginia	474,798	27,669	5.8	1,827,912	53,313	2.9
Wisconsin	1,267,704	48,972	3.9	5,577,655	106,028	1.9
Wyoming	100,455	9,959	9.9	522,667	28,025	5.4

NOTES: ¹Counts are based on the last recorded state of residence and the last recorded move for each enrollee during the study period, so that each enrollee is counted only once.

²Excluding 364,540 people who were enrolled in more than one state with the same starting month for at least two state-specific enrollment episodes.

³The in-migration rate is the # of moves to a state (last recorded move) divided by the # of state enrollees (last recorded state of residence).

⁴Reference: U. S. Census Bureau, 2012.

⁵Reference: U.S. Census Bureau, U.S. Department of Commerce, 2012.

⁶We consulted with staff at the Census Bureau to identify the best sources of numerator and denominator estimates (Marreto, 2012).

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007 and U. S. Census Bureau.

a better understanding of eligibility policies, allowing them to apply more easily for Medicaid in a new state. Third, for enrollees who moved back to a state in which they previously resided, re-enrollment may have been easier. We hope that future research will provide further insight into this finding.

Among all enrollees who moved, the average length of eligibility episodes remained relatively constant as the number of moves increased. This finding indicates that most moves are not associated with enrollment gaps and that enrollees do not appear to become “weary” of the Medicaid application process in new states

Exhibit 7. Number of Enrollees Who Moved and Gaps in Enrollment After the Move, by Pairs of States with More Than 20,000 Medicaid Enrollees Who Moved, 2005–2007

Origin State	Destination State	Number of Enrollees Who Moved	Percent of Moves with an Enrollment Gap		
			Gap of Fewer Than 3 Months ¹	Gap of 3 to 6 Months ²	Gap of More Than 6 Months ²
Louisiana	Texas	68,964	2.7	3.5	3.9
California	Arizona	41,370	8.1	8.8	13.8
New York	Florida	37,261	7.6	8.3	13.2
Florida	Georgia	34,674	7.2	8.0	11.4
California	Texas	32,883	9.1	10.3	14.4
Texas	Louisiana	30,350	8.6	13.3	20.6
New York	Pennsylvania	27,838	6.8	7.7	12.7
California	Nevada	26,845	9.9	10.3	14.2
Arizona	California	25,957	9.6	9.1	11.5
California	Washington	24,904	8.0	7.1	9.8
Florida	New York	24,720	8.9	9.8	15.0
Georgia	Florida	22,840	10.6	10.8	14.5
Illinois	Indiana	22,473	4.4	4.3	6.3

NOTES: ¹A gap in enrollment of fewer than three months may reflect the time required by the new state to determine eligibility.

²A gap of more than three months may mean that the person was not granted eligibility in the new state.

SOURCE: Mathematica's analysis of unduplicated MAX enrollment records, 2005–2007.

as the number of moves increases. However, the observed decrease in the average length of an eligibility episode for disabled and foster care child enrollees, as the number of moves increased, is a concern.

Across the states, Medicaid in-migration rates ranged from 1.2 percent (California) to 11.9 percent (Nevada). Typically, Medicaid in-migration rates were higher than population in-migration rates.

Exhibit 7 shows the number of enrollees who moved and gaps in enrollment associated with a move for pairs of states with more than 20,000 Medicaid enrollees who moved. Most of these state pairs are neighboring states (e.g., California and Arizona, Florida and Georgia, New York and Pennsylvania) or both states have large Medicaid populations (e.g., New York and Florida, California and Texas). For the pair Louisiana to Texas, the

number of moves was probably greater than it would have been during other times, because of Hurricane Katrina.

Limitations

The findings presented above should be interpreted cautiously, because the analyses have several important limitations, as discussed below.

There is nothing to prevent individuals from simultaneously enrolling in Medicaid in more than one state, because states do not necessarily consult with one another before granting eligibility. When an enrollee moves, the original state may not know of the move and may not terminate eligibility. As noted above, 364,540 enrollees who were enrolled in at least two states simultaneously were excluded from the analysis of moves for methodological

reasons. Had they been included, the overall migration rate for the study period would have increased from 3.7 percent to 4.2 percent.

In addition, the data may not show an enrollment gap when a person does not re-enroll in the destination state at the time of the move. The individual may not know that he or she is still enrolled in the original state and may behave as though he or she is no longer enrolled. We have no information about enrollees who moved, but did not re-enroll until after 2007. For these reasons, the observed migration patterns may not fully reflect the underlying migration patterns for the study years. Also, the percent of enrollees who moved and the percent of moves associated with enrollment gaps (especially longer gaps) could be understated, because the observation period ended in December 2007.

We have no data on the reasons for moves or enrollment gaps, which forces us to speculate about possible reasons for a move. We assume that most moves are driven by reasons other than the need to obtain Medicaid coverage, but it is possible that an enrollee lost Medicaid coverage in one state and moved to another state to obtain coverage. Future research that focuses on a comparison of benefit packages for state pairs with high numbers of moves may yield valuable insights into this possibility.

It is likely that the observed patterns of movement across states in this analysis are not representative of other time periods, because of Hurricane Katrina, particularly with respect to moves between Louisiana and neighboring states. It is also possible that enrollment gaps may be different (and possibly longer) for other time periods, because of the special attention that was expended to relocate individuals from the affected areas and provide needed services as a result of Hurricane Katrina. Still, it is important to understand migration patterns that result from

disasters, such as Hurricane Katrina, because large numbers of in-migrants may place an unusually heavy burden on Medicaid eligibility operations and health care delivery systems.

Beyond Medicare coverage, the data provide only limited information on other health insurance coverage and changes in coverage over time. It is possible that some gaps in coverage may reflect enrollee success in obtaining private insurance coverage. Medicaid enrollee migration patterns for the study years may differ from the patterns observed for other years and may not apply to the Medicaid population after the Affordable Care Act (ACA) is implemented, because the composition of the enrollee population will change.

Conclusions

This study has highlighted two important issues. First, the study has shown that there is over-counting of Medicaid enrollment in national Medicaid statistics. Given that estimates of the uninsured are based, in part, on Medicaid enrollee counts, there is a corresponding undercount of the uninsured. Adjusting national Medicaid enrollment for the over-count will improve the accuracy of estimates of the uninsured population. This will aid policy-makers as they consider how to provide for the needs of the uninsured population during and after implementation of the provisions of the ACA. Second, some enrollee moves are associated with gaps in enrollment. This study has shown that the percentage of moves with short-term gaps is relatively low. However, such gaps may indicate a lack of health insurance coverage, resulting in a lack of continuity of care, risk to patient health outcomes, increased use of higher cost emergency services, and higher system-wide health care costs. With the increase of Medicaid enrollment expected as a result of ACA expansions, substantially increased program

expenditures and increased emphasis on health homes and managed care, there should be further study on the reasons for short-term gaps in enrollment related to enrollee moves, and policy initiatives should be developed to eliminate these gaps to the extent possible.

Correspondence

David Baugh, M.A., Senior Researcher, Mathematica Policy Research, Inc., 1100 First Street NE, 12th Floor, Washington, D.C. 20002

Acknowledgments

We wish to thank John Czajka for his insight and advice on study methodology and interpretation of early findings, and for his, Allison Hedley Dodd's, and Julie Sykes' helpful comments on the manuscript. We also want to thank Cara Petroski, in the Office of Information Products and Data Analysis, Centers for Medicare & Medicaid Services, for her commitment to the development and continual improvement of MAX for Medicaid research and for her vision for conducting this study.

Disclaimer

The authors have been requested to report any funding sources and other affiliations that may represent a conflict of interest. The authors reported that the development of this brief was funded by the Centers for Medicare & Medicaid Services (CMS) under contract number HHSM-500-2005-00025I, Task Order HHSM-500-T0002. This brief has been developed as a Medicaid Analytic eXtract (MAX) issue brief and it was posted to the MAX Web site in August 2012.

References

- Call, K. T., Davidson, G., Sommers, A., Feldman, R., Farseth, P., & Rockwood, T. (2001, Winter). Uncovering the Missing Medicaid Cases and Assessing Their Bias for Estimates of the Uninsured. *Inquiry*, 38(4), 396–408. PubMed http://dx.doi.org/10.5034/inquiryjrnl_38.4.396
- Centers for Medicare & Medicaid Services (2010, August). Medicaid and CHIP Statistical Information System (MSIS) File Specifications and Data Dictionary, Release 3.1. Retrieved from <http://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MSIS/downloads/msisdd2010.pdf>
- Czajka, J. (1999, May). Analysis of Children's Health Insurance Patterns: Findings from the SIPP. Mathematica Policy Research, 1999.
- Czajka, J. & Verghese, S. (2011, May). Continued Development of the Medicaid Analytic Extract Enrollee Master (MAXEM) File. Retrieved from http://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/Downloads/MAXEMFinalReport_2007.pdf
- Czajka, J., Wenzlow, A., & Sykes, J. (2010, September). Development of the Medicaid Analytic Extract Enrollee Master (MAXEM) File, 2005 and 2006. Retrieved from <http://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/MAXEM.html>
- Davern, M., Klerman, J., Baugh, D., Call, K., & Greenberg, G. (2009, June). An Examination of the Medicaid Undercount in the Current Population Survey: Results from Record Linkage. *Health Services Research*, 44(3), 965–987. PubMed <http://dx.doi.org/10.1111/j.1475-6773.2008.00941.x>
- Dubay, L., Holahan, J., & Cook, A. (2007, January). The Uninsured and the Affordability of Health Insurance Coverage. *Health Affairs*, 26(1),

- w22–w30. PubMed <http://dx.doi.org/10.1377/hlthaff.26.1.w22>
- Marreto, R. (2012, April). Local Government Estimates and Migration Processing Branch, Estimates and Projections Area, U.S. Census Bureau. Personal Communication.
- Sommers, B. D. (2009, January). Loss of Health Insurance Among Non-elderly Adults in Medicaid. *Journal of General Internal Medicine*, 24(1), 1–7. PubMed <http://dx.doi.org/10.1007/s11606-008-0792-9>
- U.S. Census Bureau, U.S. Department of Commerce (2012, March). Geographic Mobility/Migration: State-to-State Migration Flows. Retrieved from <http://www.census.gov/hhes/migration/data/acs/state-to-state.html>
- U.S. Census Bureau (2012, April). Population Estimates: National Intercensal Estimates 2000–2010. Retrieved from <http://www.census.gov/popest/data/intercensal/national/nat2010.html>