

The Hilltop Institute



analysis to advance the health of vulnerable populations

Examining Rate Setting for Medicaid Managed Long-Term Care

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Examining Rate Setting for Medicaid Managed Long-Term Care

Table of Contents

Executive Summary	i
Introduction	1
Rate Setting for Medicaid Managed Long-Term Care	4
Concurrent and Prospective Distributions of Medicare and Medicaid Payments	4
Concurrent versus Prospective Perspectives on Calculating Payment Rates	10
Resource Use across Rating Factors for Medicaid Managed Long-Term Care	12
Levels of Medicaid Resource Use.....	12
The Study Population.....	13
The Population by Rate Group	15
Medicaid Rate Group Assignments over Time	16
The Study Population by Disability Status and Age Category	18
Medicaid Expenditures	22
Direct Medicaid Benefits	22
Medicaid Crossover Costs for Medicare Cost Sharing.....	26
Medicare Resource Use	29
Medicare Cost Sharing Reported on Claims.....	29
Medicare Claim Payments	33
Simulating Medicaid Expected and Actual Payments	36
Modeling Direct Medicaid Benefit Costs	36
Calculating Expected Values.....	37
Comparing Expected and Actual Direct Medicaid Benefit Costs	38
Medicare Cost Sharing and Medicaid Crossover Costs.....	46
Estimating a Fixed Capitation Rate for Crossover Costs	46
Modeling CMS-HCC Relative Risk and Medicare-Reported Cost Sharing.....	47
Modeling CMS-HCC Relative Risk and Medicaid Crossover Payments	49
Modeling Maryland Medicaid Rate Group Relative Risk and Crossover Payments...	50
A Note on Modeling CMS-HCC Relative Risk and Medicare Claim Payments.....	51
Next Steps	54
Appendix A. A Comparison of Managed Long-Term Care Programs.....	56



Examining Rate Setting for Medicaid Managed Long-Term Care

List of Tables and Figures

Tables

1a. Medicare and Medicaid Claim Payment Amounts for 2005 and 2006 (Per-Member-Per-Month) by Selected Chronic Conditions Identified as of 2005	5
1b. Relative Weights Reflecting Medicare and Medicaid Claim Payment Amounts for 2005 and 2006 by Selected Chronic Conditions Identified as of 2005.....	6
2. Dually Eligible in Maryland by Medicaid Rate Group and Age Category at Selected Points in Time, Calendar Years 2005 through 2007	14
3. Medicaid Rate Group Transitions, 1st and 2nd Group Assignments (2005–2007)	17
4a. Maryland Dually Eligible by Rate Group and Age Category at Selected Points in Time (2005–2007): Old Age Medicare Only (non-EvD)	19
4b. Maryland Dually Eligible by Rate Group and Age Category at Selected Points in Time (2005–2007): Ever Medicare Disabled (EvD).....	20
5. Percentage Distribution of Maryland Duals by Resource Group within Age Category at Selected Points in Time (2005–2007)	21
6. Medicaid Direct Benefit PMPM and 12-Month Prospective PMPM by Rate Group and Age Category at Selected Points in Time (2005–2007)	23
7. Medicaid Direct Benefit PMPM by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007)	25
8. Medicaid Crossover PMPM and 12-Month Prospective PMPM by Rate Group and Age Category at Selected Points in Time (2005–2007)	27
9. Medicaid Crossover 12-Month Prospective PMPM by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007).....	28
10. Medicare-Reported Cost Share PMPM and 12-Month Prospective PMPM by Rate Group and Age Category at Selected Points in Time (2005–2007)	31
11. Medicare-Reported Cost Share 12-Month Prospective PMPM by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007)	32



12. Medicare Payments PMPM and 12-Month Prospective PMPM by Rate Group and Age Category at Selected Points in Time (2005–2007)	34
13. Medicare Payments 12-Month Prospective PMPM by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007)	35
14. Summary of Actual and Expected Direct Medicaid Benefit Costs Using Alternative Estimation Approaches	41
15. Differences in Actual and Expected Costs as a Percentage of Total Using Alternative Estimation Approaches	43
16. Individual-Level Variation Explained (R^2) For Selected Rate Calculation Approaches: Total Simulation Population and by EvD Status	44
17. CMS-HCC versus Actual Relative Risk Based on Medicare-Reported Cost Sharing	48
18. CMS-HCC versus Actual Relative Risk Based on Medicaid Crossover Payments	50
19. Maryland Rate Group versus Actual Relative Risk Based on Medicaid Crossover Payments	51
20. CMS-HCC versus Actual Relative Risk Based on Medicare-Paid Claim Payments	52
21. CMS-HCC versus Actual Relative Risk Based on Medicare-Paid Claim Payments: NF Rate Group Removed	53

Figures

1. The Hilltop Crossover Framework	2
2. Differences in Concurrent and Prospective Relative Costs, 2006–2005, by Selected Chronic Conditions and Payor	9
3. Perspectives for Setting Expected Values for Capitation Rates	11





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Examining Rate Setting for Medicaid Managed Long-Term Care

Executive Summary

As part of its larger effort to examine the coordination of care for Medicaid recipients who are dually eligible for Medicare benefits, the Maryland Department of Health and Mental Hygiene is exploring the cross-payer effects of providing Medicaid long-term supports and services on Medicare acute care resource use. With grant support from the Robert Wood Johnson Foundation (Changes in Health Care Financing and Organization Grant #63756), the study, entitled *Medicaid Long-Term Care Programs: Simulating Rate Setting and Cross-Payer Effects*, is investigating cross-payer effects primarily from the perspective of state Medicaid program administrators, looking in particular at issues related to setting Medicaid payment rates. This document is the second of four reports that are planned under the grant.

The first report, *A Framework for State-Level Analysis of Duals: Interleaving Medicare and Medicaid Data* (Tucker, Johnson, Rubin & Fogler, 2008), presented a basic analytical framework for analyzing Medicare and Medicaid data together. This second report examines further detail about the overall patterns of resource use, including the presentation and simulation of a rate setting system to cover the Medicaid portion of costs associated with coordinated care in an integrated Medicaid and Medicare environment. Although based on Maryland data alone, the broader objective of this and other reports drawn from this study is to provide administrators and analysts across states and at the federal level with a framework and the background to approach analyses that integrate Medicare and Medicaid resource use.

For this analysis, the study population is limited to dually eligible recipients in Maryland with full Medicaid benefits. Patterns of Medicaid eligibility, as well as resource use under both Medicaid and Medicare are examined primarily within the context of service-use-based groups that might be used to set rates for Medicaid capitation payments for managed long-term care.

General Patterns of Medicaid and Medicare Costs

The nature and pattern of Medicaid resource use and costs for dually eligible recipients is significantly different from that for primary/acute care under Medicare. Acute care costs exhibit “regression to the mean” associated with those services and vary sharply by medical condition. In contrast, the relative payments associated with direct Medicaid benefits tend to be the same or slightly higher on a condition-specific basis from one year to the next. This pattern is consistent with the general underlying pattern for such services in that, once an individual begins to use support services, he or she will tend to continue to do so as part of a broader process of disablement. Thus, with respect to setting capitation payment rates, it may be more important to reflect the types of services needed than specific conditions.

These basic patterns have implications for how capitation rate setting systems are typically developed for acute versus long-term care. Risk adjustment applied in rate setting to cover acute



care is primarily accomplished using diagnoses and other sociodemographic factors to establish prospective capitation rates. In contrast, comparable systems for Medicaid managed care more commonly use estimates of costs associated with a limited set of service-use categories (or levels of care), because costs for Medicaid-covered services tend to vary less by diagnosis than by a limited number of types (or packages) of services provided to support functional needs.

Levels of Medicaid Resource Use

The rate setting model included in this report is based on seven initial groupings that represent distinct levels of service need. Each individual is associated with one resource-level category that is hierarchically assigned, from highest to lowest, based on prior resource use. The prior-use period was defined as both a month and a year for different aspects of this study. This model also accounted for whether an individual was first eligible for Medicare benefits because of a disability. This report is not intended to develop and defend a specific risk-adjustment methodology to set rates for dually eligible recipients under managed long-term care, but rather to illustrate the kind of system that might be used and related implications.

The categories of resource use initially examined in this report include individuals who:

1. Had at least 30 days of Medicaid-paid coverage in a chronic hospital
2. Had at least 30 days of Medicaid-paid custodial care in a nursing facility
3. Were enrolled under the state's home and community-based services (HCBS) Living at Home (LAH) Waiver for individuals who are 18 to 64 years of age
4. Were enrolled under the state's HCBS Older Adult Waiver (OAW) for individuals who are 50 years of age or older
5. Received medical day care (a service based on need at a nursing facility level of care)
6. Received personal care (a state plan service that is not necessarily tied to a nursing facility level of care)
7. Did not fall into any of the other groupings when the assignment was made

These resource-use categories were initially assigned on a month-specific basis for January 2005 through December 2007 and the prior resource use considered for rate group assignment reflected the 30 days prior to the beginning of each month. As part of this preliminary examination, member months and various components of Medicaid and Medicare costs were shown as of selected months across the study period.

Summary Table 1 shows the distribution of the study population as of January 2006. Almost 24 percent of the study population was in a Medicaid-paid nursing facility (NF) stay of at least 30 days as of January 2005. The chronic hospital (CH) and LAH Waiver groups accounted for less than 1 percent that month. The other groups that represent individuals who recently received some level of community-based support accounted for slightly higher percentages of the



population: 4.6 percent (OAW), 3.8 percent medical day care (MDC), and 2.3 percent personal care (PC). The remaining 65 percent were flagged as “other.”

**Summary Table 1. Dually Eligible in Maryland
by Medicaid Rate Group and Age Category
January 2006**

	January 2006	
	Persons	Percent
Total	54,303	100
Non-EvD	32,730	60.3
EvD	21,573	39.7
Group		
(1) chronic hospital	82	0.2
(2) nursing facility	12,897	23.8
(3) waiver (LAH)	240	0.4
(4) waiver (OAW)	2,509	4.6
(5) medical day care	2,061	3.8
(6) personal care	1,231	2.3
(7) other	35,283	65.0
Age Category		
< 35	2,897	5.3
35-49	7,044	13.0
50-64	6,928	12.8
65-74	13,127	24.2
75-84	14,528	26.8
85+	9,779	18.0

Notes: EvD (Ever Disabled) denotes original reason for Medicare coverage as disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).

Almost 40 percent of the population as a whole was first eligible for Medicare because of a disability, or ever Medicare disabled (EvD). The remaining 60 percent were eligible for Medicare because of age. One marked difference between recipients who were EvD and those who were non-EvD was that roughly 13 percent of those identified as EvD were associated with the NF rate group, whereas closer to 30 percent of the non-EvD were associated with that group.

The pattern of results is remarkably stable over time. Between January 2005 and December 2007 there was a slight shift toward a lower percentage of recipients identified as NF overall and a higher percentage of recipients identified as EvD. This pattern seems to be associated with a slow but steady decrease in the number and percentage of non-EvD recipients who were assigned to the NF group, as well as growth in the percentage of EvD across resource groups of individuals who are 50 to 64 years of age.

Stability in group assignment is also evident at the individual level. Thirty-eight percent of the full study population was eligible under both Medicaid and Medicare for the entire 36 months between January 2005 and December 2007. Close to 72 percent of the full population was



assigned to only one of the seven resource-use groups over the 36 months. Another 26 percent were assigned to only two different groups during the study period. Individuals who were assigned to more than one rate group may have changed between those groups more than once. However, the majority of member months generally were associated with the first rate group identified, with one exception: Individuals who were assigned first to the “other” group and then changed to higher resource-level groups had more member months associated with the higher resource-use groups. As a general pattern, those recipients who became associated with a higher-resource Medicaid rate group tended to remain associated with that or a higher resource-use group, reaffirming the general pattern of stability in prospective Medicaid resource use noted above.

Medicaid Expenditures

For this analysis, direct Medicaid benefit costs were treated separately from Medicare crossover costs (i.e., payments that Medicaid actually paid for cost sharing reported on Medicare claims). As was the case for Medicaid enrollment by these factors, patterns of direct Medicaid benefit costs are stable over time at the rate-group level. Average overall payments range from approximately \$1,600 to \$1,700 per month during this period (unadjusted for inflation), with costs for individuals who were non-EvD averaging roughly \$500 per-member-per-month (PMPM) more than costs for EvD. As expected, average costs PMPM decrease by Medicaid resource group—from \$26,428 for individuals identified as CH to \$366 for the “other” group. Those relationships are also consistent over time. Average costs increase with age, as might be expected, with the exception of a noticeable drop between the age categories of 50 to 64 years and 65 to 74 years. This drop can be explained largely by disability status; that is, the 65 to 74 years age category includes a high proportion of newly enrolled, lower-cost dual eligible recipients who reduce average costs overall in that category. Average costs for the EvD are noticeably higher across each of the age categories that include both EvD and non-EvD recipients (those 65 years and older).

Month-specific costs per member are examined along with 12-month prospective costs PMPM relative to each month. Direct Medicaid benefit costs per member for any given month in this analysis are very close or only slightly higher across the subsequent year on a PMPM basis by resource-use category. Monthly (concurrent) direct Medicaid benefit costs per member are a relatively reliable measure of subsequent prospective PMPM costs across Medicaid resource-use categories.

Medicaid crossover costs exhibit different patterns than do direct Medicaid benefits. Whereas direct Medicaid benefit costs show a clear pattern of decreasing average costs from high to low resource-use groups and generally increasing costs from low to high age categories, average crossover payments are more mixed across groups and age categories. Month-specific costs per member are also less stable across time, largely because there is a seasonal pattern to Medicare cost sharing: Part B deductibles, which are paid once per year, tend to accrue at the beginning of the year. Patterns also differ with respect to prospective costs. Twelve-month prospective crossover payments are generally lower than month-specific amounts, because the 12-month



perspective smoothes the seasonal effects evident in the month-specific results. Although direct Medicaid benefit costs are generally lower for recipients identified as EvD, crossover costs are higher on average for that population. Average annual crossover costs were roughly \$127 PMPM for the population as a whole during the study period. The non-EvD population averaged close to \$112 PMPM, and the EvD population averaged closer to \$145 PMPM.

Medicare Resource Use

Although the primary focus of this report is on rate setting for the Medicaid portion of managed long-term care, Medicare claim costs are also examined within the context of the Medicaid population in this study. Medicare resource use is examined in two distinct parts: what the Medicare program identified on claims as the cost-sharing amount and the portion of allowed costs that the Medicare program paid for covered services.

With respect to cost sharing, Medicaid programs cover those costs on behalf of dually eligible recipients to varying degrees across states. In Maryland, Medicaid covers nearly all Medicare cost sharing for hospital and physician services, but limits copayments for Medicare skilled nursing facility (SNF) days of care to reflect what the state would otherwise pay under its Medicaid fee schedule. In some cases, providers may not actually report Medicare cost sharing for payment to Medicaid. Thus, cost-sharing amounts reported on Medicare claims may differ from what is actually paid, both because the state limits certain payments and because providers or provider plans may not submit the claim.

Medicare cost sharing reported on claims rose slightly across the study period, with an average of roughly \$170 PMPM on a 12-month prospective basis over that time. Although the average cost share is roughly \$10 to \$15 higher for the EvD population than the non-EvD population in most cases, the totals are much closer across those populations based on Medicare claims than is evident in Medicaid-paid (crossover) amounts. This result implies that limits on SNF copayments affect non-EvD payments more than payments for EvD. This study shows that Maryland Medicaid consistently pays a little more than 70 percent of the Medicare cost sharing reported on Medicare claims. Roughly 80 percent of those costs are covered by Medicaid for the EvD population, and less than 67 percent of those costs are typically covered for the non-EvD population.

The amount Medicare paid of allowable charges, as opposed to cost sharing, also rose slightly on a prospective basis (unadjusted for inflation) across the study period to \$1,161 PMPM for the population as a whole. Average costs were a little more than \$110 higher for EvD than non-EvD. The general pattern of results based on Medicare payments is similar to those for other costs related to acute care in this study in that they are mixed across the resource groups and age categories.



Simulating Medicaid Expected and Actual Payments

This analysis also included a simulation within which payment rate estimates—derived using cost data from one year and a collapsed version of the resource-use groupings described above—were compared with actual costs in a subsequent year. Different rating scenarios reflected whether the payment rate was assigned and applied once a year or allowed to change each month during the payment year. The rates applied for each of those payment approaches (annual versus month-specific) were established using both a concurrent and a prospective calculation perspective. Thus, four rating scenarios were examined.

Expected values were first calculated using cost data for calendar year (CY) 2005 and both annual and month-specific rate-group assignments. Those expected values were then adjusted for mean overall actual costs in CY 2006 for a “target” payment population enrolled as of January 1, 2006. The simulation population also was required to have at least one prior month of enrollment in 2005 to ensure some level of prior use for rate-group assignment. The adjustment for mean actual costs in 2006 makes it feasible to compare results from the different rating calculation approaches on an even basis, that is, without regard to unknown external factors, such as inflation, which might otherwise affect the results. This approach also makes it possible to examine how well expected costs (payments) compare to actual costs at the rate-cell level across the different calculation options—all else being equal. Summary measures were used to “locate” where differences between expected and actual costs appear across rate cells.

Under a full-year prospective approach (FYP), for example, expected values were estimated on a prospective basis using 2004 and 2005 data, and rate-group assignments used for “payment” in 2006 were the highest resource-use level for any given individual during all of 2005. The rate assignment was made once for the entire payment year (2006)—that is, regardless of whether the individual changed resource-use status during the year. This approach is comparable to that used to establish individual-level relative risk for capitation payments under Medicare Advantage.

Summary Table 2 shows partial results based on an FYP estimation/payment scenario. Member months and actual average PMPM payments for the simulation population during 2006 are shown in total and by rate group in the leftmost data column of the table. Expected (FYP) values are shown to the right, along with the total dollar difference between expected and actual values. Because of the zero-sum nature of this simulation, total expected costs equal total actual costs for the population as a whole, and differences at the rate-group level are an indication of how a given calculation approach addresses each rate group relative to the other rate groups.

FYP-estimated PMPM values for the CH and NF groups in Summary Table 2 are higher on average than actual costs for the population as a whole (\$20,649 and \$4,719 versus \$19,825 and \$4,620, respectively). Those differences result in relatively higher payments for those groups relative to the other rate groups. If a given managed care plan enrolled a random sample of this population, differences across rate groups would not matter as long as the overall rate was correct. However, an enrollee population that is drawn disproportionately from these groups



would be more likely to result in favorable or adverse selection (and attendant profit or loss), depending on the particular draw.

Summary Table 2. Summary of Actual and Expected Direct Medicaid Benefit Costs Using a Prospectively-Calculated Payment Rate Adjusted Once for a Full Year

Rate Group	Rate Group Assigned Once for 2006 Reflecting Full 2005 Data			
	Actual CY 06		FYP Expected	
	Months	PMPM	PMPM	Total \$ difference (expected minus actual)
Total	583,995	\$1,765	\$1,765	\$0
CH	1,307	\$19,825	\$20,649	1,076,232
NF	146,188	\$4,620	\$4,719	14,490,945
CNHLOC	54,248	\$2,489	\$2,474	(805,144)
PC	15,093	\$1,170	\$1,072	(1,480,209)
Other	367,159	\$482	\$446	(13,281,824)

Notes: CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care); Other (No other assigned). Rate approach: FYP(full-year prospective).

The other full-year rate approach (i.e., using a concurrent calculation of expected values) resulted in markedly greater differences between actual and expected costs across rate groups than the prospective approach (FYP), particularly for the NF group. Results based on both month-specific approaches (concurrent and prospective) were roughly comparable in scale overall to the FYP results. A notable exception to this finding was that the direction of the differences is reversed for the NF and “other” rate groups using the month-specific prospective (MSP) approach. Specifically, under the FYP and both annual and month-specific concurrent approaches, managed care plans would have an incentive to draw from the institutionalized populations, and the reverse would be true using the MSP approach.

Results from this simulation suggest, on the one hand, that the choice of a concurrent versus a prospective calculation in setting capitation rates on a month-specific basis would be more narrowly related to the differing incentives that each calculation provides. Slightly higher relative payments for the NF group could encourage providers to focus on enrolling that group, with little concern for moderating those costs or working to offset them in the future. The reverse could be true if higher relative payments were made for the “other” category.

On the other hand, the rate-group level results using a full-year approach suggest that, although the direction of the incentive is the same in both cases (both the concurrent and the prospective approaches show relatively high payments for the NF group, in particular), the choice of a concurrent versus a prospective calculation can make a notable difference in the extent of “error” at the rate-group level. Aside from the nature of the underlying incentive, the results suggest that



the choice of calculation perspectives (concurrent versus prospective) becomes more important the longer the period used for rate-group assignment and payment.

It is also worth noting that the choice between a full-year and a month-specific rate perspective has important administrative implications. If rates are set once at the beginning of the year, there is less administrative burden involved in monitoring how rate assignments are made. One annual rate also makes it simpler to forecast costs for the system as a whole for the year. If rates are allowed to change each month, a more elaborate system is necessary to track those changes, there is a greater opportunity on the part of health plans to “game the system” by moving and maintaining lower-risk cases into higher-cost categories, and annual costs for the system can be harder to manage as a result.

Setting a Capitation Rate for Crossover Costs

This study also modeled Medicare cost sharing reported on claims and crossover costs within the context of a separate capitation rate to cover crossover costs alone for Medicaid recipients who are enrolled in Medicare Advantage (MA) plans. In addition to the examining existing Medicaid crossover payments, which may be used as a fixed rate PMPM for those costs, the study explored a comparable rate that is adjusted for relative resource risk using Hierarchical Condition Categories (HCCs) as they are applied under Medicare for MA plans. Risk adjustment applied in this case was analyzed using a zero-sum simulation approach much like that used for direct Medicaid benefit costs.

Results from this analysis show that the relative risk indicated by the Centers for Medicare and Medicaid Services HCC (CMS-HCC) system is markedly higher than the relative actual risk associated with Medicaid recipients in long-term nursing facility stays. If the average relative risk that is evident in actual crossover payments is a more accurate measure of the real relative risk of the NF group, in particular, a payment system based on CMS-HCC relative risk would “overpay” for the population as a whole.

The results based on Medicare-reported cost sharing are not confounded by other state-specific factors, such as whether claims are submitted to Medicaid or limits on SNF copayments. Nursing facility coverage, in particular, is comparable to that in other states; thus, the results based on Medicare-reported cost sharing and long-term NF care are generally relevant to other states.

However, in considering a state-specific approach to estimating a capitation rate for crossover costs in the context of managed care, it is more appropriate to use actual crossover payments rather than those reported on Medicare claims as a measure of what the state will typically pay. Results from this simulation show that the relative risk based on actual crossover payments for the NF group dropped from 1.20 using Medicare-reported cost sharing to 0.93. When actual crossover payments are used, the primary effect is to increase overall differences between CMS-HCC–based expected values and actual values that are evident using cost sharing reported on Medicare claims. The most significant implication of these results is that CMS-HCC relative risk tends to over-represent Medicare cost sharing of recipients who receive Medicaid support for



long-term NF care. If diagnosis-based risk adjustment is used to adjust capitation rates for Medicaid crossover payments, some accounting should be made of patterns of institutional care and state limits on crossover payments.

The simulation approach used to examine Medicare-reported cost sharing and crossover payments was also applied to Medicare payments. Again, relative overpayment for the NF group suggested overpayment for the system as a whole on the basis of CMS-HCC risk. That is, CMS-HCC relative risk tends to over-represent the relative Medicare cost of recipients who receive longer-term institutional supports under Medicaid. More broadly, this study also suggests that there is an underlying institutional bias in Medicare payments to MA plans.

As a final note related to these results, it is very difficult to assess the nature and extent of the value in added Medicare costs associated with long-term institutional care in the absence of claim data reporting from MA plans. Although this is a problem for states when assessing integrated/coordinated programs for dually eligible recipients, it can be at least partially addressed by Medicaid agencies if those agencies require MA plans to report claim or encounter data as a condition for participation in those programs. At the same time, data reporting is a problem for assessing the MA program as a whole. A federal requirement for MA plans to report claim or encounter data would provide more accurate and complete information across states.





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Introduction

As part of its larger effort to examine the coordination of care for Medicaid recipients who are dually eligible for Medicare benefits, the Maryland Department of Health and Mental Hygiene is exploring the cross-payer effects of providing Medicaid long-term supports and services on Medicare acute care resource use under a grant from the Robert Wood Johnson Foundation (Changes in Health Care Financing and Organization Grant #63756). The study, entitled *Medicaid Long-Term Care Programs: Simulating Rate Setting and Cross-Payer Effects*, is looking at these issues primarily from the perspective of state Medicaid program administrators, for issues related to setting Medicaid payment rates in particular. This document is the second of four reports planned under the grant.

The first report under the grant, *A Framework for State-Level Analysis of Duals: Interleaving Medicare and Medicaid Data* (Tucker, Johnson, Rubin & Fogler, 2008), presented a basic analytical framework for looking at Medicare and Medicaid data together. It introduced The Hilltop Crossover Framework (Figure 1) as a reference device to conceptually summarize data from linked Medicare and Medicaid claims—with specific reference to Medicaid crossover¹ claims—to support analyses of integrated care. That report, which was written largely as a primer for analysts working with state programs, also includes: (1) a basic introduction to Medicare and Medicaid benefits; (2) a detailed outline of the dually eligible population in Maryland, with reference to select demographic and administrative markers; and (3) an overview of resource use that is revealed in Medicare and Medicaid claims data by type of service using the crossover framework.

This second report examines further detail about the overall patterns of resource use for dually eligible recipients (“duals”), including the presentation and simulation of a rate setting system to cover the Medicaid portion of costs associated with coordinated care in an integrated Medicaid and Medicare environment. The Medicaid rate setting system outlined below is a version of one that was initially developed for a federal 1115 waiver program of managed long-term care that was proposed for the dually eligible in Maryland, called CommunityChoice.² Under that program, all Medicaid recipients would enroll in one of multiple managed care plans. The managed care plans would receive a prospective capitation payment to cover all Medicaid benefits. The capitation rate would initially be derived from historical costs for those services and adjusted in some way for the level of services expected for enrollees in a given plan. One underlying assumption of this approach is that the managed care plan would be responsible for

¹ The term “crossover” is commonly used to refer to claims in Medicaid claim files that reflect the portion of Medicare payments that state Medicaid programs are responsible for on behalf of Medicaid beneficiaries. Medicare claims are first processed; then, if the patient is identified as Medicaid, a copy of the claim “crosses over” to the appropriate state Medicaid agency. Crossover payments generally include deductibles and copayments for Medicare-covered services.

² Although CommunityChoice was not implemented, recent legislation has been introduced in Maryland to revive efforts to move toward better coordination of care for those who are dually eligible in the state, and a study will be conducted in the fall of 2009.



allocating home and community-based services (HCBS), in particular, so that those services could be distributed more equitably based on need rather than waiver status alone.

Figure 1. The Hilltop Crossover Framework

The Hilltop framework is based on a two-by-two format to array Medicare and Medicaid claims data to highlight relationships between government programs and service use. Medicare and Medicaid claims data are represented to the left and right, respectively.

A MEDICARE claims linked to crossover claims	B MEDICAID claims crossover
C MEDICARE claims NOT linked to crossover claims	D MEDICAID claims NOT crossover

- **Section A** reflects Medicare activity that can be directly linked to Medicaid crossover claims.
- **Section B** reflects Medicaid crossover claims for Medicare deductibles and copayments.
- **Section C** shows Medicare activity that is not reflected in Medicaid claims.
- **Section D** reflects direct Medicaid benefits that are not otherwise associated with Medicare payments. These are services covered only as a Medicaid benefit, such as long-term custodial care, as well as hospital costs incurred once the Medicare benefit is exhausted.

The rate setting approach outlined here is comparable to those that support managed long-term care programs in other states (Kronick & LLanos, 2008).³ More specifically, rate factors (or groups) are defined based on categories of Medicaid-paid service use. It is important to note that this report is not intended to develop and defend a specific risk-adjustment methodology to set rates for the dually eligible under managed long-term care, but rather to illustrate the kind of system that can be used. An overview of total Medicaid and Medicare expenditures by tentative risk rating criteria is presented, using data for calendar years 2005 through 2007, as an introduction to the rationale that underlies the development of such a system. Then, a limited simulation is presented that compares expected and actual values for various components of that resource use within the context of the Medicaid rate setting approach illustrated here.

The third report under the grant will look in greater detail at the resource use of selected subgroups within the larger dually eligible population, with special emphasis placed on the cross-

³ Kronick and LLanos (2008) provide a review of rate setting systems for Medicaid managed long-term care that describes current practice across ten states and the thinking that underlies them. Appendix A is a table summary of managed long-term care programs in eight states developed by The Hilltop Institute. It includes a brief description of each program's rate setting approach and additional detail regarding other aspects of those programs.



payer effects of providing Medicaid long-term supports and services on Medicare acute care resource use. The fourth and final report will provide a synthesis of the rate assumptions from the second report and results from the subgroup analysis of the third report to explore how the lessons learned about resource use across subgroups can be applied to assumptions about rate setting, particularly by state-level analysts charged to develop and administer programs of integrated care for duals.



Rate Setting for Medicaid Managed Long-Term Care

A full discussion of rate setting for Medicaid managed long-term care is beyond the scope of this report. However, several initial observations are important to note. First, although there is considerable literature on risk adjustment and rate setting to support acute care programs, and for Medicare managed care in particular, there is very limited literature that specifically addresses rate setting for Medicaid long-term care (Iezzoni, 2003; Wrightson, 2002; Kronick & Llanos, 2008)⁴. This circumstance is in part due to the fact that Medicaid programs for managed long-term care are relatively new and few. Also, unlike the federal Medicare program, these programs vary markedly in scope and structure across states (Saucier, Burwell, & Gerst, 2005; Palmer & Sommers, 2005).⁵ Consequently, rate setting systems for Medicaid managed long-term care programs use largely “home-grown” methods developed by specific states, often with outside actuarial support, to reflect local circumstances and needs.

Key considerations that underlie all rate setting systems still apply, including:

- How well does the system explain (and predict) relevant costs?
- Do appropriate data exist, and is the system administratively feasible?
- Is the system understandable in a practical sense?
- What incentives does the system provide?
- To what extent can participating health plans or enrollees “game the system” unfairly?

Concurrent and Prospective Distributions of Medicare and Medicaid Payments

The nature and pattern of Medicaid resource use and costs for duals is significantly different from that for primary/acute care under Medicare. As one way to illustrate this, Tables 1a and 1b show actual costs and related relative cost weights, respectively, for a cohort of dually eligible beneficiaries who were enrolled in Maryland for 12 months in 2005, with full benefits under both Medicare and Medicaid, and continuously enrolled from January 1, 2006, until death or year end. Table 1a shows per-member-per-month (PMPM) costs—separately for each year—for several cost components, including, from left to right: Medicare paid claim amounts, total Medicare coinsurance (deductibles and copayments) reported on Medicare claims, Medicare crossover costs that were actually paid by Medicaid for Medicare coinsurance, and Medicaid payments for direct Medicaid benefits.⁶

⁴ Iezzoni (2003) is a comprehensive guide to risk adjustment for health outcomes. Wrightson (2002) provides a private-sector perspective, including chapters on risk adjustment and rate setting for Medicare.

⁵ Saucier, Burwell, and Gerst (2005) and Palmer and Sommers (2005) both provide a broader discussion of the potential in managed and/or integrated long-term care, although they do not focus as directly on rate setting methods for those programs.

⁶ These cost components can be considered in the context of The Hilltop Crossover Framework in that Medicare amounts reflect claims included in the combined left-hand (blue and yellow) sections. Medicare crossover payments made by Medicaid reflect the upper-right (green) section of the framework, and direct Medicaid payments reflect the lower-right (purple) section of the framework.



**Table 1a. Medicare and Medicaid Claim Payment Amounts for 2005 and 2006 (Per-Member-Per-Month)
by Selected Chronic Conditions Identified as of 2005**

	Persons	Medicare Claims Paid/Reported				Medicaid Claims Paid			
		\$ Per-Member-Per-Month				\$ Per-Member-Per-Month			
		Paid		Coinsurance Reported		Medicare Crossover		Direct Medicaid Benefit	
		2005	2006	2005	2006	2005	2006	2005	2006
Total Population	39,963	\$915	\$1,127	\$153	\$172	\$127	\$140	\$1,340	\$1,385
1 Acute Myocardial Infarction	493	4,636	3,161	520	444	402	322	1,636	1,972
2 Alzheimer's Disease	2,706	1,229	1,230	209	191	137	119	3,605	3,893
3 Alzheimer's/Dementia	7,367	1,365	1,461	225	223	154	143	3,593	3,826
4 Atrial Fibrillation	3,416	2,176	2,174	308	308	231	218	2,288	2,432
5 Cataract	8,558	980	1,232	172	191	139	150	1,414	1,474
6 Chronic Kidney Disease	5,158	2,875	2,955	427	428	340	343	1,926	2,074
7 COPD	6,526	1,843	1,979	276	276	217	216	1,695	1,778
8 Colorectal Cancer	501	2,222	1,986	337	303	272	235	1,628	1,712
9 Depression	8,098	1,604	1,611	252	245	205	197	1,850	1,963
10 Diabetes Mellitus	13,739	1,412	1,635	224	244	182	193	1,622	1,695
11 Endometrial Cancer	63	1,587	1,963	260	269	234	221	1,123	1,357
12 Female Breast Cancer	730	1,316	1,375	242	225	194	175	1,408	1,435
13 Glaucoma	4,304	1,011	1,307	179	202	149	164	1,195	1,264
14 Heart Failure	6,918	2,302	2,384	329	335	251	250	2,142	2,305
15 Hip/Pelvic Fracture	727	2,454	1,814	367	271	213	166	2,827	3,230
16 Ischemic Heart Disease	9,671	1,809	1,876	274	271	216	210	1,620	1,720
17 Lung Cancer	341	3,048	3,334	490	462	439	389	1,258	1,496
18 Osteoporosis	4,184	1,079	1,144	179	175	134	132	1,721	1,811
19 Prostate Cancer	641	1,323	1,602	224	247	189	192	1,386	1,434
20 Rheumatoid/Osteoarthritis	8,726	1,231	1,337	199	205	157	159	1,415	1,504
21 Stroke/TIA	4,495	2,076	1,975	307	295	226	211	2,867	3,058
22 No Listed Chronic Condition	8,565	155	392	37	64	37	58	598	629

Notes: Population limited to duals who enrolled with full benefits under Medicare and Medicaid for 12 months in 2005 and were continuously enrolled in 2006 (from January 1, 2006 until death or year end). Those under a waiver for the developmentally disabled and those who had any Medicare Group Health Plan enrollment are excluded. Chronic conditions were defined using criteria established for the federal Chronic Condition Data Warehouse (<http://www.resdac.umn.edu/CCW>) but are based on 1 year of Medicare claims as of the end of 2005.

COPD: Chronic Obstructive Pulmonary Disease; TIA: Transient Ischemic Attack.



**Table 1b. Relative Weights Reflecting Medicare and Medicaid Claim Payment Amounts for 2005 and 2006
by Selected Chronic Conditions Identified as of 2005**

	Persons	Medicare Claims Paid/Reported				Medicaid Claims Paid			
		Relative Weight				Relative Weight			
		Paid		Coinsurance Reported		Medicare Crossover		Direct Medicaid Benefit	
		2005	2006	2005	2006	2005	2006	2005	2006
Total Population	39,963	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Acute Myocardial Infarction	493	5.07	2.80	3.40	2.58	3.16	2.30	1.22	1.42
2 Alzheimer's Disease	2,706	1.34	1.09	1.36	1.11	1.08	0.85	2.69	2.81
3 Alzheimer's/Dementia	7,367	1.49	1.30	1.47	1.29	1.21	1.02	2.68	2.76
4 Atrial Fibrillation	3,416	2.38	1.93	2.01	1.79	1.81	1.56	1.71	1.76
5 Cataract	8,558	1.07	1.09	1.12	1.11	1.09	1.07	1.06	1.06
6 Chronic Kidney Disease	5,158	3.14	2.62	2.79	2.49	2.67	2.45	1.44	1.50
7 COPD	6,526	2.01	1.76	1.80	1.60	1.70	1.54	1.26	1.28
8 Colorectal Cancer	501	2.43	1.76	2.20	1.76	2.13	1.68	1.21	1.24
9 Depression	8,098	1.75	1.43	1.64	1.42	1.61	1.41	1.38	1.42
10 Diabetes Mellitus	13,739	1.54	1.45	1.46	1.41	1.43	1.38	1.21	1.22
11 Endometrial Cancer	63	1.74	1.74	1.70	1.56	1.84	1.58	0.84	0.98
12 Female Breast Cancer	730	1.44	1.22	1.58	1.31	1.53	1.25	1.05	1.04
13 Glaucoma	4,304	1.11	1.16	1.17	1.17	1.17	1.17	0.89	0.91
14 Heart Failure	6,918	2.52	2.11	2.15	1.94	1.97	1.79	1.60	1.66
15 Hip/Pelvic Fracture	727	2.68	1.61	2.40	1.57	1.67	1.18	2.11	2.33
16 Ischemic Heart Disease	9,671	1.98	1.66	1.79	1.57	1.70	1.50	1.21	1.24
17 Lung Cancer	341	3.33	2.96	3.20	2.68	3.45	2.77	0.94	1.08
18 Osteoporosis	4,184	1.18	1.02	1.17	1.02	1.05	0.94	1.28	1.31
19 Prostate Cancer	641	1.45	1.42	1.46	1.43	1.49	1.37	1.03	1.04
20 Rheumatoid/Osteoarthritis	8,726	1.35	1.19	1.30	1.19	1.23	1.13	1.06	1.09
21 Stroke/TIA	4,495	2.27	1.75	2.00	1.71	1.77	1.50	2.14	2.21
22 No Listed Chronic Condition	8,565	0.17	0.35	0.24	0.37	0.29	0.42	0.45	0.45

Notes: Population limited to duals who enrolled with full benefits under Medicare and Medicaid for 12 months in 2005 and were continuously enrolled in 2006 (from January 1, 2006 until death or year end). Those under a waiver for the developmentally disabled and those who had any Medicare Group Health Plan enrollment are excluded. Chronic conditions were defined using criteria established for the federal Chronic Condition Data Warehouse (<http://www.resdac.umn.edu/CCW>) but are based on 1 year of Medicare claims as of the end of 2005. COPD: Chronic Obstructive Pulmonary Disease; TIA: Transient Ischemic Attack. Weights are relative to the underlying column total payment/reported amount. See Table 1a for \$ totals.



Tables 1a and 1b also include rows that reflect subgroups of the population as a whole that have one of 21 chronic conditions (or no listed condition). This list of conditions includes those that the Centers for Medicare and Medicaid Services (CMS) have identified for more focused attention among Medicare beneficiaries in its Chronic Condition Data Warehouse.⁷ Individuals with more than one of the listed conditions are included in more than one condition-specific row. Diagnoses used to identify these conditions were drawn from Medicare claims data reported for 2005.

Because the identification of diagnoses was based on 2005 data, cost amounts for 2005 are considered the concurrent costs for this population. The 2006 cost amounts are the prospective (future) expenses for the population, as defined using information from 2005. The total line in Table 1a shows that 39,963 continuously enrolled duals generated \$915 and \$1,127 in Medicare claim payments PMPM in 2005 and 2006, respectively. This population also generated \$1,340 and \$1,385 in PMPM payments for direct Medicaid benefits during those years, respectively. Although Medicare claims reported \$153 and \$172 in coinsurance liability PMPM, Maryland Medicaid paid \$127 and \$140 of those costs in 2005 and 2006, respectively.⁸ Roughly 78 percent (all but 8,565 individuals) of this population had one or more of the listed conditions.

Table 1b shows the relative weight of the PMPM amounts in each column shown in Table 1a, relative to the respective column dollar total. Note that the relative weights for Medicare-paid amounts in 2005, which are generally for primary and acute care services, are higher than the comparable weights for 2006 in all but three condition-specific rows. The range of these weights (the highest rate minus the lowest rate) for 2005 is 4.00, and the comparable range for 2006 is 1.94. This illustrates “regression to the mean” associated with acute care services, whereby groups of individuals who use relatively more or fewer services during one period tend to use services at a rate closer to the mean in a subsequent period. The columns for coinsurance reported and Medicaid-paid crossover costs exhibit the same broad patterns as Medicare-paid amounts, both across years and across conditions, because they are generally determined on a percentage basis from total Medicare allowed costs.

In contrast to costs associated with Medicare coverage, the relative weights for payments associated with direct Medicaid benefits, which are largely long-term supports and services, tend to be the same or slightly higher on a condition-specific basis from 2005 to 2006. These relative weights are more stable across time and do not reflect the regression to the mean evident in acute care costs. This pattern is consistent with the general underlying pattern for such services under Medicaid in that, once an individual begins to use support services, he or she will tend to continue to do so as part of a broader process of disablement. The range of these weights across condition categories for 2005 is 1.85, and the comparable range for 2006 is 1.90. There are some differences in relative values across conditions, but those tend to be less variable than for acute care costs, in part because direct Medicaid benefits include a more limited set of functional

⁷ See <http://www.resdac.umn.edu/CCW> for more information on the Chronic Condition Data Warehouse.

⁸ The difference between Medicare-reported coinsurance and Medicaid-paid crossover costs is a result of both Medicare claims that are not submitted to Medicaid for payment for a variety of reasons, as well as limits that Maryland Medicaid puts on such payments, particularly for skilled nursing facility coinsurance (Tucker et al., 2008).

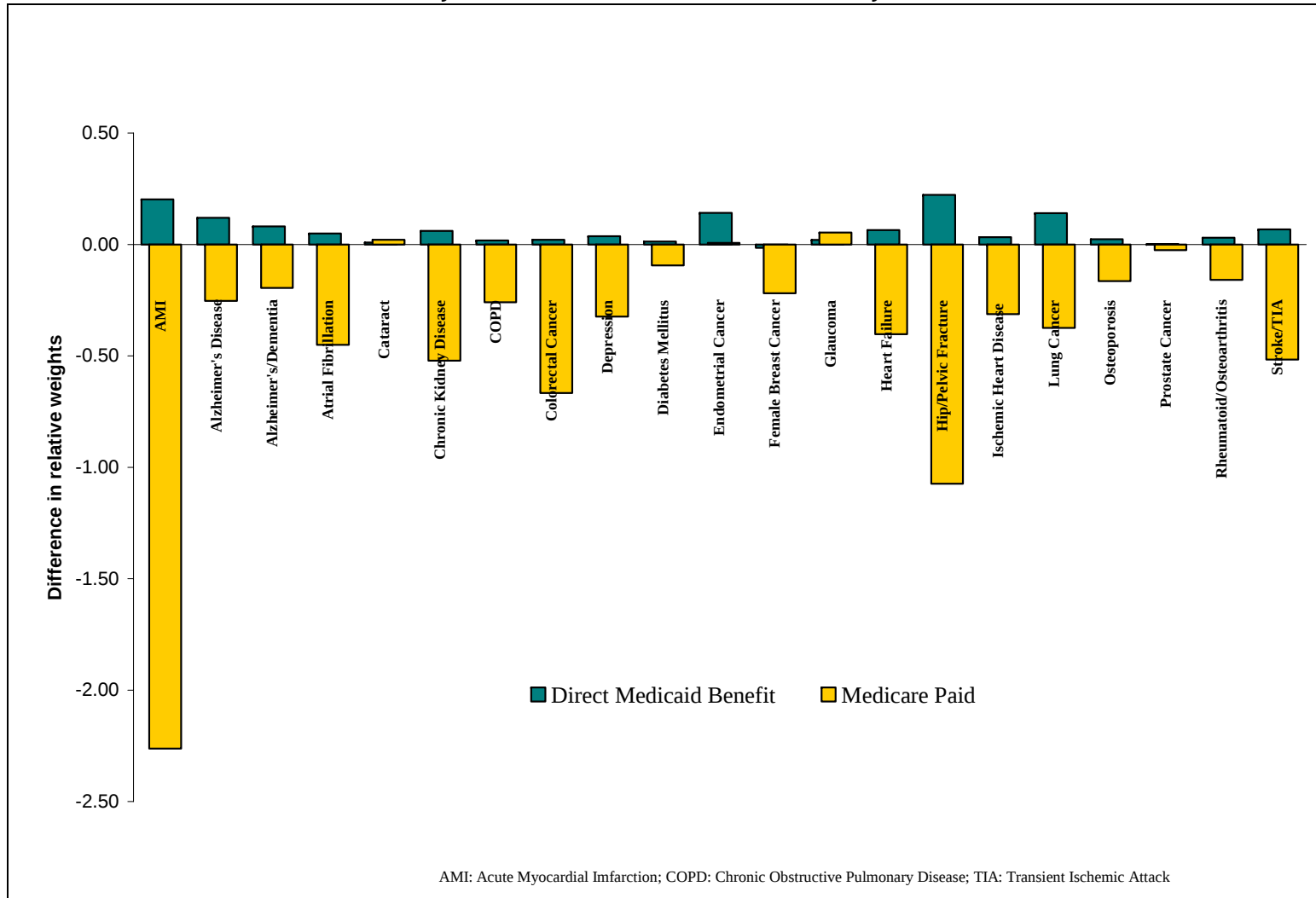


support needs that are not necessarily related only to those conditions. In other words, with respect to setting capitation payment rates, it may be more important to reflect the types of services needed rather than specific conditions.

To illustrate this further, Figure 2 reflects the difference between prospective (2006) and concurrent (2005) relative costs for each of the chronic conditions included in Table 1b. Those differences are all positive and limited for direct Medicaid benefit costs. In contrast, those differences are generally negative and quite varied across conditions for Medicare acute care costs.



Figure 2. Differences in Concurrent and Prospective Relative Costs, 2006–2005, By Selected Chronic Conditions and Payor



Concurrent versus Prospective Perspectives on Calculating Payment Rates

The basic patterns of service use illustrated in Figure 2 have implications for how rate setting systems are typically developed for acute versus long-term care service use. Medicare-covered services can include a wide variety of different types of resources depending on the disease burden and circumstances of each recipient. Because of the variability in patterns of Medicare costs across conditions and attendant regression to the mean, risk adjustment applied for rate setting to cover acute care, particularly under Medicare managed care, is primarily accomplished using diagnoses and other sociodemographic factors to establish prospective capitation rates (Pope et al., 2004).⁹ That is, estimates of what individuals associated with certain risk factors in one period will cost in a subsequent period are used to establish payment rates for a target payment period.

In contrast, rate systems for Medicaid managed care more commonly use estimates of costs associated with a limited set of service-use categories (or levels of care) during a base period, adjusted for trend over time, because costs for Medicaid-covered services tend to vary less by diagnosis than by a limited number of types (or packages) of services provided to support functional needs. In other words, Medicaid-covered supports and services come in fewer forms, and the average daily/monthly costs to provide them vary less with respect to disease burden alone than the complex of potential primary/acute care costs that can be associated with a given disease. For example, as indicated by the relative weights in Table 1b, Alzheimer's disease is associated with relatively higher costs for direct Medicaid benefits than other conditions, but that may be more related to the extent to which those patients require institutional custodial care than the variability in the day-to-day cost of that care.

Risk rating factors that reflect prior use of specific services are not typically used to set capitation rates for acute care, because this could provide an incentive to use resources unnecessarily. A rate setting system that pays more if an individual has a prior hospital stay, for example, can encourage hospital use in some cases when it is less than clinically optimal simply to ensure higher payment later. That risk is mitigated to a large extent for Medicaid long-term supports and services because recipients are usually subject to prior screening based on standardized criteria that are used to establish the level of care needed for specific functional supports.¹⁰ That assessment is also typically made and/or reviewed by a third party other than the specific provider entity that initiates the service.

As a final background note about rate setting, Figure 3 illustrates two generally defined approaches that are used to set payment rates for risk-based managed care, whereby a provider entity, such as a health plan, receives a set capitation rate to cover a defined package of benefits

⁹ Pope et al. (2004) describes the rationale and development of the CMS-HCC risk adjustment system used for Medicare capitation payments.

¹⁰ Recipients are routinely screened before Medicaid coverage for a nursing home stay or HCBS waiver services. See Maryland's form 3871b (<http://www.dhmf.state.md.us/mma/longtermcare/pdf/Guide3871BBooklet.pdf>) as an example. Also, see Shirk (2009) for a survey of comprehensive assessment instruments used to support HCBS programs.



during a target (payment) period. In each case, a specific set of risk factors is associated with costs related to resource use in order to establish expected cost values that are then used for payment during a subsequent coverage period. Using a concurrent approach, both the risk factors and the related costs used to establish the expected payment amounts are drawn from the same period in time. This is similar to what is commonly done to establish capitation rates for level-of-care categories for Medicaid managed care.¹¹ Under a prospective approach, risk factors are identified during an initial period and associated with costs in a subsequent period to establish payment amounts. This is the general approach used for diagnosis-based risk adjustment to support Medicare Advantage. From an administrative perspective, a concurrent approach is somewhat less demanding in that it requires just one year of data, whereas a prospective approach typically requires a minimum of two years to estimate the relationship between risk factors and subsequent costs. Cost estimates for a given payment period under both approaches are adjusted for benefit changes and trend across time.

Figure 3. Perspectives for Setting Expected Values for Capitation Rates

Perspective	Period 1	Period 2	Period 3
Concurrent		<---trend *----->	
Weighting			
Risk Factor		XX	
Resource Estimates		XX	
Target (Payment) Period			XX
Prospective			
Weighting			
Risk Factor	XX		
Resource Estimates		XX	
Target (Payment) Period			XX

Note: For simplicity, data lag that may affect both the calculation of prospective cost estimates, as well as the application of both concurrent and prospective payment rates, is ignored here.

*Trend reflects an adjustment for risk category cost estimates between baseline cost data and the target period.

Among the issues that are explored later in this report is whether—and if so, to what extent—cost estimates established on a concurrent versus a prospective basis provide better estimates of actual payments for Medicaid managed care costs.

¹¹ See Appendix A for examples of such categories.



Resource Use across Rating Factors for Medicaid Managed Long-Term Care

This section explores patterns of resource use for dually eligible recipients within the context of potential payment rate categories for Medicaid managed long-term care. As noted above, the rate setting model included in this report is a version of the general model considered for a statewide waiver to establish managed long-term care for Medicaid recipients in Maryland. That model was derived based on seven initial groupings defined to represent distinct levels of service need and that could be identified using historical data.¹² All seven categories are included in this initial examination of patterns of services and costs.

Levels of Medicaid Resource Use

Using the seven initial groupings, each individual is associated with one resource-use category that is hierarchically assigned, from highest to lowest prior resource use, to include individuals who:

1. Had at least 30 days of Medicaid-paid coverage in a chronic hospital
2. Had at least 30 days of Medicaid-paid custodial care in a nursing facility
3. Were enrolled under the state's HCBS Living at Home (LAH) Waiver for those who are 18 to 64 years of age¹³
4. Were enrolled under the state's HCBS Older Adult Waiver (OAW) for those who are 50 years of age or older
5. Received Medicaid-paid medical day care (a service based on need at a nursing facility level of care)
6. Received Medicaid-paid personal care (a state plan service that is not necessarily tied to a nursing facility level of care)
7. Did not fall into any of the other groupings

For rate setting purposes, individuals are assigned to only one grouping based on the highest service level that they required during a prescribed prior period as of the point in time relative to which the assignment is made. It should be noted that additional rating factors would have been considered had Maryland actually implemented the initial waiver program it proposed. Two such factors that are examined to some extent in this descriptive analysis are age and disability status.¹⁴ Age is represented in selected categories. Disability status is based on the initial reason for entitlement to Medicare services (Tucker et al., 2008). Also, although all seven groups are included in many of the tables below, waiver and other services that require a nursing home level of care (NHLOC) would no longer be reflected in a specific waiver status under a managed care program. Thus, in the final rate setting model examined later in this report, groups (3), (4), and

¹² It would be preferable to base rating categories on better information about the functional status needs of each individual, but such data were not available and are not collected on a routine basis for this population as a whole.

¹³ Rate groupings (3) through (6) represent community-based supports and services that are described in more detail in the first report in this series (Tucker et al., 2008).

¹⁴ Separate rates would also be required for non-duals over 65 years of age or enrolled on the basis of level of care.



(5) are collapsed into one group that represents community-based supports that require a formal NHLOC. Personal care is retained as a separate group in the rate model because it reflects a state plan benefit for community support with less stringent eligibility requirements and a more limited level of available resources. The lowest resource rate group can be thought of as “well” duals, with certain caveats that are described later.

The Study Population

The population included for this report is generally limited to Medicaid recipients with full benefits who are dually eligible for Medicare. However, duals covered under the state’s developmental disabilities (DD) waiver and those with end-stage renal disease (ESRD) are excluded. The DD waiver enrollment would likely be exempt from a more broadly defined managed long-term program because of the more narrowly defined supports provided to that group in the state. Individuals with ESRD are excluded because of the special nature (and level of cost) of the services they require and because they are treated as a special population under Medicare. A small number of additional dually eligible recipients who are younger than 65 years of age, but receive Medicare under special deemed status rather than because of a disability, are also excluded because they are rare and would likely need to be treated as special cases.

Direct Medicaid benefits are examined separately from Medicaid crossover payments for Medicare coinsurance (or cost sharing) in this report. Aside from the distinctly different patterns of the cost components described in the context of Tables 1a and 1b, estimates of prospective crossover costs should account for the fact that Medicare cost sharing is not generally reported in claims by Medicare managed care plans. Thus although direct Medicaid benefits can be estimated using the full defined population because all relevant Medicaid claims are reported, estimates of crossover costs, and Medicare costs more generally, need to be based on the more limited population that is *not* enrolled in a Medicare managed care plan during the study period. Consequently, tables below related to direct Medicaid benefits reflect the full study population, but those related to Medicare resource use (including crossover costs) are limited further to exclude Medicare managed care enrollment.

Table 2 shows the full study population at selected points in time between January 2005 and December 2007. The top one-half of the table shows the number of persons: in total, by disability status as defined by the initial reason for Medicare coverage, by the seven Medicaid rate groupings described above, and separately by selected age categories. The bottom one-half of Table 2 shows the percentages associated with the population breakdown shown in the top part of the table. In January 2005, for example, there were 53,573 dually eligible enrollees with full Medicaid benefits and (by definition) Part A and Part B Medicare coverage. More than one-third of that total (38.7 percent) was first entitled to Medicare because of a disability, or Ever Medicare Disabled (EvD). The remaining 61.3 percent of the total study population in January 2005 were duals who were first eligible for Medicare benefits based on age (non-EvD). In terms of age, 30.9 percent of the January 2005 dually eligible population was younger than 65 years of age. Note that the 7.8 percent difference in the percentage of those who were EvD versus those younger than 65 years of age reflects duals who were first identified as disabled and then “aged-in” to regular Medicare coverage at the age of 65 years.



**Table 2. Dually Eligible in Maryland by Medicaid Rate Group and Age Category
at Selected Points in Time, Calendar Years 2005 through 2007**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	Persons						
Total	53,573	53,600	54,303	54,290	54,872	54,641	54,031
Non-EvD	32,832	32,343	32,730	32,701	32,426	31,948	31,329
EvD	20,741	21,257	21,573	21,589	22,446	22,693	22,702
Group							
(1) chronic hospital	91	86	82	82	85	89	88
(2) nursing facility	13,092	12,770	12,897	12,805	12,671	12,301	12,113
(3) waiver (LAH)	240	242	240	243	265	293	297
(4) waiver (OAW)	2,214	2,447	2,509	2,451	2,500	2,543	2,534
(5) medical day care	2,011	2,090	2,061	2,028	1,946	1,907	1,929
(6) personal care	1,275	1,209	1,231	1,177	1,200	1,248	1,248
(7) other	34,650	34,756	35,283	35,504	36,205	36,260	35,822
Age Category							
< 35	2,854	2,874	2,897	2,916	3,189	3,235	3,234
35-49	7,111	7,103	7,044	6,932	7,113	7,140	7,039
50-64	6,594	6,725	6,928	6,989	7,405	7,562	7,681
65-74	13,052	13,065	13,127	13,218	13,069	12,922	12,726
75-84	14,438	14,327	14,528	14,392	14,236	14,019	13,697
85+	9,524	9,506	9,779	9,843	9,860	9,763	9,654
	Percentages of Persons						
	100	100	100	100	100	100	100
Total	100	100	100	100	100	100	100
Non-EvD	61.3	60.3	60.3	60.2	59.1	58.5	58.0
EvD	38.7	39.7	39.7	39.8	40.9	41.5	42.0
Group							
(1) chronic hospital	0.2	0.2	0.2	0.2	0.2	0.2	0.2
(2) nursing facility	24.4	23.8	23.8	23.6	23.1	22.5	22.4
(3) waiver (LAH)	0.4	0.5	0.4	0.4	0.5	0.5	0.5
(4) waiver (OAW)	4.1	4.6	4.6	4.5	4.6	4.7	4.7
(5) medical day care	3.8	3.9	3.8	3.7	3.5	3.5	3.6
(6) personal care	2.4	2.3	2.3	2.2	2.2	2.3	2.3
(7) other	64.7	64.8	65.0	65.4	66.0	66.4	66.3
Age Category							
< 35	5.3	5.4	5.3	5.4	5.8	5.9	6.0
35-49	13.3	13.3	13.0	12.8	13.0	13.1	13.0
50-64	12.3	12.5	12.8	12.9	13.5	13.8	14.2
65-74	24.4	24.4	24.2	24.3	23.8	23.6	23.6
75-84	27.0	26.7	26.8	26.5	25.9	25.7	25.4
85+	17.8	17.7	18.0	18.1	18.0	17.9	17.9

Notes: CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver). See further notes on population in text.



The Population by Rate Group

The rate group assignments shown in Table 2 were made as of the first of each month using the basic rules outlined above. With reference to the seven groups described earlier, individuals identified as “chronic hospital” (CH) were in a Medicaid-paid CH stay on the first of the month and had been over the previous 30 days. Those identified as “nursing facility” (NF) were in a Medicaid-paid NF stay and had been for the previous 30 days. Those in the waiver groups were enrolled in the respective waiver as of the first of the month and did not fall into the CH or NF groups. Individuals identified as “medical day care” (MDC) had an MDC claim within the previous month, but did not fall into any higher resource-use group. Those identified as “personal care” (PC) had at least one PC claim in the prior month. Those in the “other” group did not fall into any other group as of the beginning of the month. Although this last group can generally be thought of as “well” duals, it is important to note that individuals in this category may have had an NF stay, for example, within the past month, but not meet the 30-day criterion needed for the NF group at the point in time that assignments were made. Similarly, because group assignment is made at the beginning of a given (month) period, those who begin to use a higher level of services during that same period (e.g., begin an NF stay) will remain in the lower resource-use rate group until another assignment is made. Moreover, any group other than the CH or NF rate groups can include individuals who had a Medicare-covered skilled nursing facility (SNF) stay because Medicare resource use is not reflected in the Medicaid rate group assignments.

Table 2 shows that, in January 2005, 24.4 percent of the study population was in a Medicaid-paid NF stay of at least 30 days. The CH and LAH Waiver groups accounted for less than 1 percent that month. The other groups that specifically represent individuals who recently received some level of community-based support accounted for slightly higher percentages of the population: 4.1 percent (OAW), 3.8 percent (MDC), and 2.4 percent (PC). A remaining 64.7 percent were identified as “other.”

This pattern of results is remarkably stable over time. To some extent, this is not a surprise for HCBS waiver groups, because enrollment under the waiver is largely limited to a prescribed number of waiver “slots.” But each of the other groups reflects levels of service that were available without formal limits other than the requirement to meet an NHLOC, in the case of the first five groups in this hierarchy of service use, or a physician’s statement in the case of PC. Over the 36 months represented in Table 2, there was a slight shift toward a higher percentage of EvD in this population. On the basis of more detailed data not otherwise shown in Table 2, this seems to be associated with a small but steady decrease in the number and percentage of individuals who were assigned to the NF group and an increase in the percentage of EvD who are 50 to 64 years of age.



Medicaid Rate Group Assignments Over Time

Stability in rate group assignment is also evident at the individual level. There were 85,572 individuals in the full study population underlying Table 2, with a total of 1,954,497 member months of full dual eligibility. Thirty-eight percent of this population was eligible for the entire 36 months between January 2005 and December 2007. Close to 72 percent of the full population was assigned to only one rate group over the 36 months. Another 26 percent was assigned to only two different rate groups during the period. Almost all of the remaining 2 percent of the full population was assigned to three rate groups over the course of the 36 months of this study. Individuals who were assigned to more than one rate group during the study period may have changed between those groups more than once. However, the majority of member months generally were associated with the first rate group identified, with the exception that individuals who were assigned first to the “other” group and then changed over time to either the NF or one of the Community NHLOC groups (groups (3), (4), and (5) in Table 2) had more member months associated with the higher resource-use groups.

To illustrate this further, Table 3 shows the percentage distribution of persons and member months by combinations of rate-group assignments for the 98 percent of the study population that was assigned to either one or two different rate groups during 2005 through 2007. Each row in the table reflects a different combination of rate-group assignments. In order to reduce the number of permutations shown here, the three Community NHLOC groups were combined, as they will be in the final rate setting model discussed later in this report.

The right-most columns of Table 3 show the distribution of member months by rate group for each row in the table. The overall total row in Table 3 shows, for example, that 23.1 percent of all member months underlying the table were associated with the NF rate group. The row labeled “Total 1st NF” indicates that 16.1 percent of the table population was first assigned to the NF group. More than one-half of that total (8.8 percent shown in the “NF-only” row) was only assigned to that group. The vast majority of member months associated with the 7.1 percent who were first assigned NF and then transitioned to “other” (86 percent shown in the row labeled “NF/other”) were flagged as NF months.

Although the overall percentage of member months for those who are first assigned to the PC and “other” groups is also associated with those respective groups (80.2 percent shown in the “Total 1st PC” row and 86.6 percent shown in the “Total 1st Other” row, respectively), those who change to the NF and Community NHLOC groups tend to have more member months attributable to the higher resource level groups. As a general pattern, those who become associated with a higher-resource Medicaid rate group tend to remain associated with that or another higher resource-use group. This reaffirms the general pattern of stability in Medicaid resource use over time described in the context of Figure 2, in which costs remain much the same or increase slowly from one period to the next.



Table 3. Medicaid Rate Group Transitions, 1st and 2nd Group Assignments (2005–2007)

Rate Group Combinations	Persons	Member Months	Chronic Hospital (CH)	Nursing Facility (NF)	Community NHLOC (CNHLOC)	Personal Care (PC)	Other
Total	Percent of Column	Percent of Row (Member Months)					
	100	100	0.1	23.1	8.0	2.1	66.7
Chronic Hospital							
CH-only	0.1	0.0	100	0.0	0.0	0.0	0.0
CH/NF	0.0	0.0	33.3	66.7	0.0	0.0	0.0
CH/Other	0.1	0.0	80.3	0.0	0.0	0.0	19.7
Total 1st CH	0.1	0.1	87.7	1.5	0.0	0.0	10.9
Nursing Facility							
NF-only	8.8	8.5	0.0	100	0.0	0.0	0.0
NF/CNHLOC	0.2	0.2	0.0	33.0	67.0	0.0	0.0
NF/Other	7.1	7.7	0.0	86.0	0.0	0.0	14.0
Total 1st NF	16.1	16.4	0.0	92.6	0.9	0.0	6.6
Community Nursing Home Level of Care							
CNHLOC-only	4.1	5.0	0.0	0.0	100	0.0	0.0
CNHLOC/CH	0.0	0.0	6.7	0.0	93.3	0.0	0.0
CNHLOC/NF	0.1	0.1	0.0	43.1	56.9	0.0	0.0
CNHLOC/PC	0.1	0.2	0.0	0.0	78.9	21.1	0.0
CNHLOC/Other	0.9	1.1	0.0	0.0	75.0	0.0	25.0
Total 1st CNHLOC	5.3	6.5	0.0	0.7	94.3	0.6	4.4
Personal Care							
PC-only	0.8	0.9	0.0	0.0	0.0	100	0.0
PC/NF	0.0	0.0	0.0	62.5	0.0	37.5	0.0
PC/CNHLOC	0.2	0.3	0.0	0.0	62.5	37.5	0.0
PC/Other	0.4	0.6	0.0	0.0	0.0	69.0	31.0
Total 1st PC	1.4	1.8	0.0	0.8	9.4	80.2	9.7
Other							
Other-only	59.4	60.1	0.0	0.0	0.0	0.0	100
Other/CH	0.2	0.1	44.6	0.0	0.0	0.0	55.4
Other/NF	13.9	10.8	0.0	72.6	0.0	0.0	27.4
Other/CNHLOC	2.4	2.6	0.0	0.0	60.0	0.0	40.0
Other/PC	1.2	1.6	0.0	0.0	0.0	36.4	63.6
Total 1st Other	77.1	75.2	0.1	10.5	2.0	0.8	86.6

Notes: Rate group assignments were made for each month, January 2005 through December 2007, using rules described in the text. Table limited to the 98 percent of persons who received one or two different group assignments during the study period. More than one change may have been made between pairs of assignments (e.g., someone first assigned Other may have changed to NF and back to Other again). The CNHLOC group includes HCBS waiver participants and those who received medical day care.



The Study Population by Disability Status and Age Category

As explained above, this analysis examines disability status and age categories in addition to the initial service-based rate groups defined for Medicaid managed long-term care in Maryland. With respect to disability status, Tables 4a and 4b show the same information presented in Table 2, but separately for those who were first eligible for Medicare based on age (non-EvD) and those who were ever Medicare disabled (EvD), respectively. In Table 4a, there are no individuals in the row for the LAH Waiver because enrollment under that waiver is limited to those who are 18 to 64 years of age. Also, there are no individuals in the rows for age categories less than 65 years of age because nearly all of the dually eligible who are younger than 65 at any point in time meet Medicare criteria for disability and thus are included in Table 4b.¹⁵ Table 4a also shows that 31.6 percent of non-EvD duals were associated with the NF category on January 2005, as opposed to 24.4 percent for the dually eligible as a whole shown in Table 2. The declining percentages in that category over time evident in Table 4a were much the same as for the population as a whole.

Only 13 percent of dually eligible recipients who were identified as EvD and included in Table 4b were assigned to the NF category in January 2005. Unlike the non-EvD and the population as a whole, the number and percentage of individuals in this category did not decline, but remained largely stable across the three-year period included here. A higher percentage of the EvD were assigned to the “other” resource-use group than the population as a whole. The distribution by age category shown in Table 4b also reflects sharp differences from those for the non-EvD in Table 4a. Nearly 80 percent of those identified as EvD were younger than 65 years of age at any given point in time.

Because age can be used as a kind of proxy for EvD status in the study population, some of the following tables reflect the total population rather than non-EvD and EvD separately. For example, Table 5 shows the distribution of the population as a whole at selected points in time by the seven resource-use groups within age categories. There is a strong relationship evident in the table between age and the NF group: the older the age category, the higher the rate of assignment to the NF group. Also, there is an inverse relationship between age and assignment to the “other” group. Interestingly, the two middle age categories (50 to 64 years and 65 to 74 years) exhibit similar patterns by resource-use group, with roughly three-fourths of duals assigned to the “other” group and 12 percent to 14 percent assigned to the NF group.

The tables by rate group, age categories, and EvD status shown in this report are selected examples from more detailed tables that were developed for this analysis. A more extensive set of detailed tables is available from the authors upon request.

¹⁵ As explained earlier in the text, the few dually eligibles who are younger than 65 years of age and not identified as disabled under Medicare, such as some individuals with ESRD or other special deemed status under Medicare, have been excluded from this analysis.



**Table 4a. Maryland Dually Eligible by Rate Group and Age Category
at Selected Points in Time (2005–2007)
Old Age Medicare Only (non-EvD)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	Persons						
Total Non-EvD	32,832	32,343	32,730	32,701	32,426	31,948	31,329
<i>Group</i>							
(1) chronic hospital	44	37	34	31	36	32	35
(2) nursing home	10,386	9,893	9,938	9,831	9,672	9,336	9,121
(3) waiver (LAH)	0	0	0	0	0	0	0
(4) waiver (OAW)	1,677	1,826	1,870	1,794	1,811	1,847	1,850
(5) medical day care	1,245	1,315	1,328	1,325	1,288	1,285	1,307
(6) personal care	937	870	885	841	866	911	910
(7) other	18,543	18,402	18,675	18,879	18,753	18,537	18,106
<i>Age Category</i>							
< 35	0	0	0	0	0	0	0
35-49	0	0	0	0	0	0	0
50-64	0	0	0	0	0	0	0
65-74	10,474	10,299	10,253	10,310	10,154	9,979	9,786
75-84	13,266	13,041	13,219	13,093	12,971	12,744	12,411
85+	9,092	9,003	9,258	9,298	9,301	9,225	9,132
	Percentages of Persons						
Total Non-EvD	100	100	100	100	100	100	100
<i>Group</i>							
(1) chronic hospital	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(2) nursing home	31.6	30.6	30.4	30.1	29.8	29.2	29.1
(3) waiver (LAH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(4) waiver (OAW)	5.1	5.6	5.7	5.5	5.6	5.8	5.9
(5) medical day care	3.8	4.1	4.1	4.1	4.0	4.0	4.2
(6) personal care	2.9	2.7	2.7	2.6	2.7	2.9	2.9
(7) other	56.5	56.9	57.1	57.7	57.8	58.0	57.8
<i>Age Category</i>							
< 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-49	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-74	31.9	31.8	31.3	31.5	31.3	31.2	31.2
75-84	40.4	40.3	40.4	40.0	40.0	39.9	39.6
85+	27.7	27.8	28.3	28.4	28.7	28.9	29.1

Notes: CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability;
LAH (Living at Home Waiver); OAW (Older Adult Waiver). See further notes on population in text.



**Table 4b. Maryland Dually Eligible by Rate Group and Age Category
at Selected Points in Time (2005–2007)
Ever Medicare Disabled (EvD)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	Persons						
Total EvD	20,741	21,257	21,573	21,589	22,446	22,693	22,702
Group							
(1) chronic hospital	47	49	48	51	49	57	53
(2) nursing home	2,706	2,877	2,959	2,974	2,999	2,965	2,992
(3) waiver (LAH)	240	242	240	243	265	293	297
(4) waiver (OAW)	537	621	639	657	689	696	684
(5) medical day care	766	775	733	703	658	622	622
(6) personal care	338	339	346	336	334	337	338
(7) other	16,107	16,354	16,608	16,625	17,452	17,723	17,716
Age Category							
< 35	2,854	2,874	2,897	2,916	3,189	3,235	3,234
35-49	7,111	7,103	7,044	6,932	7,113	7,140	7,039
50-64	6,594	6,725	6,928	6,989	7,405	7,562	7,681
65-74	2,578	2,766	2,874	2,908	2,915	2,943	2,940
75-84	1,172	1,286	1,309	1,299	1,265	1,275	1,286
85+	432	503	521	545	559	538	522
	Percentages of Persons						
Total EvD	100	100	100	100	100	100	100
Group							
(1) chronic hospital	0.2	0.2	0.2	0.2	0.2	0.3	0.2
(2) nursing home	13.0	13.5	13.7	13.8	13.4	13.1	13.2
(3) waiver (LAH)	1.2	1.1	1.1	1.1	1.2	1.3	1.3
(4) waiver (OAW)	2.6	2.9	3.0	3.0	3.1	3.1	3.0
(5) medical day care	3.7	3.6	3.4	3.3	2.9	2.7	2.7
(6) personal care	1.6	1.6	1.6	1.6	1.5	1.5	1.5
(7) other	77.7	76.9	77.0	77.0	77.8	78.1	78.0
Age Category							
< 35	13.8	13.5	13.4	13.5	14.2	14.3	14.2
35-49	34.3	33.4	32.7	32.1	31.7	31.5	31.0
50-64	31.8	31.6	32.1	32.4	33.0	33.3	33.8
65-74	12.4	13.0	13.3	13.5	13.0	13.0	13.0
75-84	5.7	6.0	6.1	6.0	5.6	5.6	5.7
85+	2.1	2.4	2.4	2.5	2.5	2.4	2.3

Notes: CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver). See further notes on population in text.



**Table 5. Percentage Distribution of Maryland Duals
by Resource Group within Age Category at Selected Points in Time (2005–2007)**

Age Category	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
< 35							
Chronic hospital	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Nursing facility	1.2	1.2	1.2	1.3	1.3	1.2	1.3
Waiver (LAH)	1.4	1.4	1.3	1.4	1.3	1.4	1.3
Medical day care	2.0	1.9	1.5	1.4	1.2	1.0	0.9
Personal care	0.9	0.9	0.9	0.8	0.7	0.6	0.5
Other	94.3	94.5	94.9	95.0	95.4	95.8	95.8
35-49							
Chronic hospital	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nursing facility	3.9	4.1	4.3	4.0	4.1	3.7	3.9
Waiver (LAH)	1.8	1.8	1.8	1.9	1.9	2.0	2.1
Medical day care	2.9	3.1	3.1	2.8	2.7	2.4	2.3
Personal care	1.2	1.1	1.1	1.1	1.0	1.0	1.1
Other	90.0	89.7	89.4	90.0	90.1	90.7	90.4
50-64							
Chronic hospital	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nursing facility	13.3	12.7	13.0	12.9	12.3	12.4	12.2
Waiver (LAH)	1.1	1.1	1.1	1.0	1.1	1.4	1.4
Waiver (OAW)	3.6	3.9	3.8	3.8	3.7	3.6	3.4
Medical day care	4.5	4.3	4.0	4.0	3.5	3.3	3.3
Personal care	1.7	1.8	1.7	1.7	1.6	1.7	1.6
Other	75.5	75.9	76.1	76.3	77.5	77.3	77.9
65-74							
Chronic hospital	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Nursing facility	14.6	14.2	13.9	14.3	14.2	14.0	14.0
Waiver (OAW)	3.5	3.9	3.9	3.9	4.0	4.1	4.1
Medical day care	3.6	3.7	3.5	3.2	3.0	3.0	3.0
Personal care	2.4	2.3	2.4	2.2	2.4	2.5	2.4
Other	75.8	75.8	76.1	76.2	76.2	76.1	76.4
75-84							
Chronic hospital	0.1	0.2	0.2	0.1	0.2	0.1	0.2
Nursing facility	31.5	30.8	30.1	29.6	29.1	28.5	28.3
Waiver (OAW)	5.5	6.1	6.2	5.9	6.0	6.3	6.4
Medical day care	5.0	5.4	5.4	5.6	5.4	5.3	5.6
Personal care	3.4	3.1	3.1	3.0	3.2	3.4	3.5
Other	54.5	54.5	55.0	55.8	56.2	56.4	56.1
85+							
Chronic hospital	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nursing facility	57.4	56.0	55.7	55.3	55.1	53.7	54.0
Waiver (OAW)	7.5	8.5	8.5	8.3	8.6	8.8	9.1
Medical day care	2.8	2.9	2.8	2.9	3.0	3.2	3.5
Personal care	2.6	2.5	2.5	2.3	2.2	2.3	2.6
Other	29.5	30.0	30.5	31.1	31.1	31.9	30.8

Note: CY (Calendar Year); LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Medicaid Expenditures

Medicaid claim payments that are made on behalf of the dually eligible can be divided into two distinct portions: direct Medicaid benefits and crossover costs associated with Medicare cost sharing. Although capitation rates for Medicaid managed long-term care typically reflect those costs combined, the separate components are treated independently in this report to highlight their differing patterns and levels of contribution to overall Medicaid payments. Moreover, Medicaid crossover payments may sometimes be made in the form of a capitation payment separate from direct Medicaid benefits. Medicare Advantage Special Needs Plans (SNPs), in particular, may enroll Medicaid recipients to cover their Medicare benefits alone on a capitation basis (Verdier, 2006).¹⁶ In some states, such as Maryland, SNPs that do not otherwise include cost sharing in their premium calculations may receive a capitation payment from Medicaid to cover the state's obligation for those costs, at a rate and pursuant to a contract established by the state. As a state's treatment of those costs evolves, it has an interest and need to examine them separately from direct Medicaid benefits as well.

Direct Medicaid Benefits

Table 6 shows the average direct Medicaid benefit expenditures for the full study population at selected points in time, by rate group and age category. The top one-half of Table 6 shows average expenditures for the month reflected in each column. The bottom one-half of the table shows the average 12-month prospective expenditures for the eligible population each month. In the case of January 2005, for example, the prospective PMPM amounts reflect average costs for January through December 2005 for the population eligible on January 1, 2005. In other words, the prospective amounts are equivalent to a 12-month prospective rate for each row in the table.

As was the case for Medicaid enrollment by these factors, patterns of costs are stable over time. Average overall payments range from approximately \$1,600 to \$1,700 per month during this period (unadjusted for inflation), with average costs for individuals who were non-EvD roughly \$500 PMPM more than those for the EvD. Average costs decrease, as expected, by Medicaid resource group—and that pattern is consistent over time. Average costs increase with age, as might be expected, except for a noticeable drop between the 50 to 64 years and 65 to 74 years age categories. This drop can be explained largely by disability status; the 65 to 74 years age category includes a high proportion of new Medicare enrollment of lower-cost duals, which reduces average costs overall in that category.

The lower one-half of Table 6 shows that prospective annual costs are similar to average concurrent (monthly) costs, much like the general patterns seen in Tables 1a and 1b, suggesting no regression to mean over time. Instead, there is a slight increase in prospective average costs PMPM for resource groups other than the two top institutional (CH and NF) groups.

¹⁶ Verdier (2006) points out that, although Medicaid is not required to make Medicare cost-sharing payments to existing Medicare Advantage plans, it is one of a collection of specific issues that states may want to discuss with SNPs in order to facilitate better integrated care for duals. The federal Medicare Improvement for Patients and Providers Act of 2008 requires that SNPs now contract with states when moving into new service areas.



**Table 6. Medicaid Direct Benefit PMPM and 12-Month Prospective PMPM
by Rate Group and Age Category at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	PMPM						
Total	\$1,564	\$1,671	\$1,648	\$1,699	\$1,667	\$1,702	\$1,734
Non-EvD	1,764	1,877	1,846	1,896	1,874	1,932	1,973
EvD	1,248	1,357	1,346	1,401	1,367	1,379	1,404
Group							
(1) chronic hospital	26,428	27,162	27,850	27,232	30,204	28,843	32,686
(2) nursing facility	4,439	4,802	4,735	4,940	4,896	5,112	5,332
(3) waiver (LAH)	3,026	3,323	3,499	3,604	3,585	3,523	3,671
(4) waiver (OAW)	2,491	2,554	2,680	2,740	2,704	2,709	2,713
(5) medical day care	1,608	1,712	1,745	1,760	1,859	1,881	1,760
(6) personal care	868	891	910	915	1,002	1,001	988
(7) other	366	408	392	409	396	408	381
Age Category							
< 35	424	446	430	453	448	428	414
35-49	867	893	894	922	893	906	902
50-64	1,396	1,462	1,449	1,481	1,449	1,453	1,455
65-74	970	1,045	1,028	1,083	1,101	1,138	1,177
75-84	1,810	1,969	1,917	1,951	1,923	1,960	2,010
85+	2,983	3,179	3,125	3,231	3,163	3,276	3,348
	12-month Prospective PMPM						
Total	\$1,580	\$1,630	\$1,649	\$1,665	\$1,666	\$1,702	\$1,710
Non-EvD	1,743	1,804	1,812	1,826	1,848	1,906	1,923
EvD	1,329	1,369	1,403	1,423	1,404	1,418	1,419
Group							
(1) chronic hospital	25,576	24,775	26,985	26,073	28,567	30,730	30,554
(2) nursing facility	4,402	4,560	4,606	4,682	4,794	5,015	5,186
(3) waiver (LAH)	3,272	3,386	3,556	3,635	3,618	3,639	3,811
(4) waiver (OAW)	2,710	2,739	2,762	2,757	2,779	2,781	2,858
(5) medical day care	1,801	1,803	1,819	1,872	1,905	1,901	1,910
(6) personal care	1,030	983	1,030	1,045	1,088	1,096	1,123
(7) other	459	478	476	494	481	487	453
Age Category							
< 35	474	474	483	484	475	465	464
35-49	930	940	949	959	932	925	929
50-64	1,467	1,487	1,514	1,526	1,516	1,513	1,481
65-74	991	1,020	1,048	1,082	1,107	1,156	1,182
75-84	1,828	1,904	1,902	1,906	1,917	1,962	1,978
85+	3,036	3,118	3,122	3,144	3,186	3,285	3,330

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Table 7 shows month-specific average payments per member by resource group and age category separately for the non-EvD and EvD populations in the top and bottom portions of the table, respectively. The total line for each population is the same as that shown in Table 6. There is some indication of increased costs for the EvD population in the NF rate group, but overall there do not appear to be marked differences between average monthly costs across the higher-resource groups. In contrast, for the “other” group, costs for the EvD population are twice or more than those for the non-EvD. Costs by age category are also sharply different for the non-EvD and EvD populations, although some of those differences can be attributed to different rates of service use across the top six resource groups.

The overall effect of these differences on payments is largely dependent on the proportion of individuals in each group/category. For example, average PMPM for the “other” group in the total population was \$366 in January 2005 (shown in the top one-half of Table 6). That average payment was \$145 more than the comparable payment for the non-EvD population shown in the top one-half of Table 7 and \$166 PMPM less than average costs of \$532 for the comparable group among the EvD. Not adjusting for disability status might induce participating health plans to avoid enrolling individuals who are disabled unless they are likely to fall into (and stay in) one of the top six resource groups. Given the results in Tables 6 and 7, there is some suggestion that adjusting for age may be appropriate as well. A close examination of more detailed tables¹⁷ suggests that, although average costs for the top six resource-use groups are very similar by age category across non-EvD and EvD populations, there are noticeable differences by age where those populations overlap in the 65 years and older age categories among the “other” group.

The question arises whether it would be more appropriate to address evident differences beyond those associated with the primary resource-use groups by adjusting for disability status or age or both, if at all. Considerations include the number of rate cells in the final model and whether a given state’s program is mandatory or voluntary, both of which can affect the size and stability of rate cohorts, as well as selection. The primary resource groups examined here include relatively small numbers, particularly in the CH and (combined) Community NHLOC groups. Using five rate groups alone would not address clear remaining differences between the non-EvD and EvD populations. Adjusting for age alone, even with the limited age categories examined here, would require at least four additional rate groups and would obscure known differences associated with EvD status that could unnecessarily encourage adverse/favorable selection. Adjusting for EvD status and age would result in at least twice as many rate cells, although that may be optimal with more extensive consideration of subclassifications by age. In the absence of more detailed consideration that would be needed if such a rate setting model were actually implemented, and in order to limit the number of rate cells for this analysis, the final Medicaid rate setting model used here is limited to five primary service-use categories. It is also adjusted for EvD status as a partial proxy for age.

¹⁷ A more detailed set of tables underlying this analysis is available from the authors upon request.



**Table 7: Medicaid Direct Benefit PMPM by Rate Group,
Age Category, and EvD Status at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	PMPM (Non-EvD)						
Total Non-EvD	\$1,764	\$1,877	\$1,846	\$1,896	\$1,874	\$1,932	\$1,973
<i>Group</i>							
(1) chronic hospital	28,114	27,860	30,050	26,920	30,532	31,690	35,077
(2) nursing home	4,387	4,752	4,679	4,882	4,815	5,034	5,248
(3) waiver (LAH)	0	0	0	0	0	0	0
(4) waiver (OAW)	2,500	2,577	2,693	2,760	2,718	2,756	2,748
(5) medical day care	1,616	1,702	1,726	1,749	1,850	1,896	1,782
(6) personal care	856	881	898	878	971	983	980
(7) other	221	269	256	274	264	285	244
<i>Age Category</i>							
< 35	0	0	0	0	0	0	0
35-49	0	0	0	0	0	0	0
50-64	0	0	0	0	0	0	0
65-74	768	785	763	794	801	812	817
75-84	1,729	1,858	1,809	1,841	1,821	1,864	1,901
85+	2,962	3,152	3,099	3,196	3,120	3,236	3,311
	PMPM (EvD)						
Total EvD	\$1,248	\$1,357	\$1,346	\$1,401	\$1,367	\$1,379	\$1,404
<i>Group</i>							
(1) chronic hospital	24,849	26,635	26,291	27,422	29,962	27,244	31,108
(2) nursing home	4,642	4,974	4,923	5,130	5,156	5,360	5,588
(3) waiver (LAH)	3,026	3,323	3,499	3,604	3,585	3,523	3,671
(4) waiver (OAW)	2,464	2,487	2,640	2,686	2,669	2,582	2,617
(5) medical day care	1,595	1,730	1,779	1,781	1,876	1,850	1,713
(6) personal care	901	917	942	1,008	1,083	1,050	1,010
(7) other	532	564	545	564	537	537	520
<i>Age Category</i>							
< 35	424	446	430	453	448	428	414
35-49	867	893	894	922	893	906	902
50-64	1,396	1,462	1,449	1,481	1,449	1,453	1,455
65-74	1,792	2,014	1,974	2,111	2,148	2,242	2,373
75-84	2,733	3,095	2,998	3,055	2,970	2,920	3,059
85+	3,422	3,650	3,586	3,823	3,874	3,959	4,005

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Medicaid Crossover Costs for Medicare Cost Sharing

Table 8 is similar to Table 6, with the exception that it reflects Medicaid crossover costs that were actually paid by Medicaid for Medicare cost sharing.¹⁸ With reference to The Hilltop Crossover Framework, this reflects the upper-right green section of the framework. One important difference from Table 6 is that the population underlying Table 8 is limited to dually eligible recipients who were not enrolled in a Medicare Advantage (MA) group health plan that month or in any month of the subsequent prospective period. The population was limited in this way because Medicare claims, which are the primary source of crossover claims, are generally not reported by MA plans. If no accounting was made of MA enrollment, average crossover costs would generally undervalue those expenses for rate setting purposes.

The pattern of results is also markedly different between Table 6 and Table 8. Whereas Table 6 showed a clear pattern of decreasing average costs from high to low resource-use group, and generally increasing costs from low to high age category, average crossover payments shown in Table 8 are more mixed across groups and categories. CH is associated with relatively high related costs because that group represents individuals who have transitioned to Medicaid coverage during an intense-resource hospital stay. Results for specific months at the top of Table 8 are also less stable across time. This is largely because there is a seasonal pattern to Medicare cost sharing: Part B deductibles, which are paid once per year, tend to accrue at the beginning of the year.

Patterns are also different with respect to 12-month prospective amounts shown in the bottom of Table 8. Twelve-month prospective crossover payments are generally lower than the month-specific amounts at the top of the table, largely because the 12-month perspective smooths the seasonal effect evident in the month-specific results. Although overall average direct Medicaid benefit costs were generally lower for individuals identified as EvD, crossover costs are higher on average for the EvD population.

Table 9 is roughly comparable to Table 7 in that it reflects separate results for the non-EvD and EvD populations, but it shows the 12-month prospective instead of the month-specific results because they are more stable over time. Overall average crossover costs are consistently higher for the EvD population in the largest resource-use groups (NF and “other”) and across the highest age categories. At the same time, it is important to remember that crossover costs that accrue are not directly related to the Medicaid services that underlie the rate-group assignment. In the case of the NF group, for example, the higher average crossover payment for the EvD population (\$160 or more versus roughly \$100 for the non-EvD) may be related in some (inverse) way to the lower proportion of the EvD assigned to that group (13 percent versus 30 percent), but those crossover costs more directly represent higher Medicare hospital and physician resource use on the part of the EvD assigned to the NF group.

¹⁸ Although the terms “crossover costs” and “Medicare cost sharing” are used somewhat interchangeably with respect to Medicaid, the general distinction intended here is that Medicare cost sharing refers to what is reported on Medicare claims, and crossover costs refer to what Medicaid actually pays on behalf of duals to cover Medicare cost sharing.



**Table 8. Medicaid Crossover PMPM and 12-Month Prospective PMPM
by Rate Group and Age Category at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	PMPM						
Total	\$167	\$109	\$158	\$118	\$167	\$119	\$120
Non-EvD	163	96	145	105	151	108	105
EvD	173	128	176	137	189	135	139
Group							
(1) chronic hospital	1,203	1,231	1,205	1,277	797	792	891
(2) nursing facility	150	88	150	101	158	103	111
(3) waiver (LAH)	181	168	226	166	286	156	211
(4) waiver (OAW)	224	133	194	145	205	123	148
(5) medical day care	163	118	196	135	211	150	138
(6) personal care	237	159	223	149	218	178	171
(7) other	163	108	150	116	161	118	114
Age Category							
< 35	111	92	113	101	142	105	111
35-49	159	122	162	121	175	131	120
50-64	202	148	208	154	211	145	155
65-74	170	114	163	125	168	124	129
75-84	173	99	150	113	165	116	112
85+	152	81	136	89	137	90	89
	12-month Prospective PMPM						
Total	\$127	\$119	\$125	\$126	\$126	\$129	\$128
Non-EvD	117	107	111	112	111	115	114
EvD	141	136	144	147	147	148	146
Group							
(1) chronic hospital	485	475	423	572	478	587	473
(2) nursing facility	125	107	117	117	115	120	124
(3) waiver (LAH)	186	196	212	225	223	226	213
(4) waiver (OAW)	163	148	155	158	153	153	153
(5) medical day care	140	144	147	149	157	158	155
(6) personal care	190	176	179	173	175	186	192
(7) other	121	115	120	122	123	124	122
Age Category							
< 35	100	97	101	111	112	111	110
35-49	133	132	137	137	137	138	136
50-64	157	151	160	165	167	165	160
65-74	130	125	130	129	127	136	136
75-84	125	112	116	119	120	123	122
85+	105	91	96	97	96	96	96

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



**Table 9. Medicaid Crossover 12-Month Prospective PMPM
by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	12-month Prospective PMPM (Non-EvD)						
Total Non-EvD	\$117	\$107	\$111	\$112	\$111	\$115	\$114
<i>Group</i>							
(1) chronic hospital	690	427	302	594	498	443	395
(2) nursing home	109	91	99	102	99	101	103
(3) waiver (LAH)	0	0	0	0	0	0	0
(4) waiver (OAW)	158	140	146	146	136	140	140
(5) medical day care	146	147	149	147	161	162	157
(6) personal care	182	163	168	158	164	175	186
(7) other	111	103	107	107	107	111	109
<i>Age Category</i>							
< 35	0	0	0	0	0	0	0
35-49	0	0	0	0	0	0	0
50-64	0	0	0	0	0	0	0
65-74	121	117	121	119	117	124	124
75-84	122	109	114	116	117	121	120
85+	104	89	94	94	94	94	94
	12-month Prospective PMPM (EvD)						
Total EvD	\$141	\$136	\$144	\$147	\$147	\$148	\$146
<i>Group</i>							
(1) chronic hospital	329	509	496	559	465	664	524
(2) nursing home	182	159	176	166	166	179	189
(3) waiver (LAH)	186	196	212	225	223	226	213
(4) waiver (OAW)	179	170	180	192	200	189	188
(5) medical day care	128	138	141	153	150	150	152
(6) personal care	209	210	208	211	202	216	209
(7) other	133	128	134	139	140	138	135
<i>Age Category</i>							
< 35	100	97	101	111	112	111	110
35-49	133	132	137	137	137	138	136
50-64	157	151	160	165	167	165	160
65-74	169	158	167	169	168	179	181
75-84	160	139	145	154	152	149	152
85+	112	125	140	139	137	125	133

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Medicare Resource Use

Although the primary focus of this report is on rate setting for the Medicaid portion of managed long-term care, and cross-payer effects will be more fully explored in subsequent reports, Medicare claim costs are examined in this section within the context of the Medicaid population described thus far to provide a more complete picture of what integrated Medicaid and Medicare involves in terms of resource use. Medicare resource use is presented below in two distinct parts: one reflects what the Medicare program identified on claims as the cost-sharing amount, which can be compared with what Medicaid actually paid of those amounts, and the other reflects the portion of allowed costs that the Medicare program paid for covered services.

As was the case with Medicaid crossover costs, the population used to examine Medicare resource use was limited to individuals who had no enrollment in an MA plan during the relevant period, because claims data for those individuals are not regularly reported under the MA program. Dually eligible enrollment in MA plans was roughly 10 percent of full duals in Maryland during the period studied here. Although there are some notable differences between the duals who enroll in MA plans and those who remain in fee-for-service, primarily because MA SNPs target specific subpopulations,¹⁹ what can be formally examined about those differences is limited by the lack of comprehensive data and is not addressed in more detail in this report. This non-MA population is, nevertheless, assumed to be reasonably representative of the dually eligible with full Medicaid benefits in Maryland as a whole. Detailed tables that show the distribution of the more limited (non-MA) population by Medicaid resource-use group and age category are available from the authors upon request.

Medicare Cost Sharing Reported on Claims

With respect to Medicaid rate setting, the most relevant portion of Medicare claims data consists of deductibles and coinsurance amounts because they underlie crossover claims. As explained in more detail in the first report in this series, Medicaid programs cover those costs on behalf of dually eligible recipients to varying degrees across states. In Maryland, Medicaid covers all Medicare cost sharing for hospital and physician services, but limits copayments for Medicare SNF days of care to reflect what the state would otherwise pay under its Medicaid fee schedule. Also explained in the first report, Medicare cost sharing may or may not actually be reported for payment to Medicaid for a variety of reasons. Thus cost-sharing amounts reported on Medicare claims can differ from what is actually paid, both because the state limits certain payments and because providers and/or health plans may not submit the claim for payment.

Tables 10 and 11 show average Medicare-reported cost sharing comparable to the distributions of what Medicaid actually paid, as shown in Tables 8 and 9, respectively. As might be expected, Table 10 exhibits the same basic pattern of mixed results across rate groups and categories seen in Table 8. The 12-month prospective PMPM amounts shown in the bottom one-half of Table 10

¹⁹ The population that is associated with MA plans has a higher percentage of member months assigned to the nursing home rate group than the dually eligible population as a whole because one of the largest MA plans in the state is an SNP that targets institutionalized patients.



are slightly lower in each cell than corresponding amounts in the top one-half of the table, because they moderate the seasonal effect evident in the month-specific results. Medicare cost sharing reported on claims rose slightly across the study period, with an average of roughly \$170 PMPM over that time on a prospective basis. Although the results in Table 11 are slightly higher for the EvD population compared with the non-EvD population in most cases, the totals are much closer for those populations overall based on Medicare claims than is evident in Medicaid-paid amounts shown in Table 9. Differences between what is reported on Medicare claims and what is actually paid by Medicaid are greater for the non-EvD population than for the EvD population. This indicates that Maryland Medicaid covers more Medicare-reported cost sharing for the EvD population, although it is not clear from these data to what extent that occurs because providers and health plans are less likely to submit crossover claims or because more SNF copayments are limited by Medicaid payment rules for the non-EvD population.

Perhaps the most salient aspect of these results is the general extent to which Medicaid actually covers Medicare cost sharing through crossover claims. On the basis of 12-month prospective PMPM results in Tables 8 and 10, Maryland Medicaid pays a little more than 70 percent of the Medicare cost sharing reported on Medicare claims. Less than 67 percent of those costs are typically covered for the non-EvD population. Roughly 80 percent of those costs are covered by Medicaid for the EvD population. The percentage differences noted here decline over the period of this study, in part because Maryland's limitation of SNF copayments began in July of 2005. Results for calendar year 2007 are a more accurate indication of what is now covered of reported cost sharing in Maryland. Because the extent to which these costs are covered varies from state to state, these measures will also exhibit different patterns from state to state.



**Table 10. Medicare-Reported Cost Share PMPM and 12-Month Prospective PMPM
by Rate Group and Age Category at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	PMPM						
Total	\$215	\$159	\$221	\$172	\$234	\$175	\$172
Non-EvD	220	158	222	172	233	174	170
EvD	206	159	220	173	236	175	175
Group							
(1) chronic hospital	1,564	1,393	1,377	1,525	911	1,131	1,044
(2) nursing facility	215	131	215	142	235	153	164
(3) waiver (LAH)	276	232	290	234	353	213	227
(4) waiver (OAW)	291	180	251	194	281	172	201
(5) medical day care	175	125	204	142	223	159	150
(6) personal care	259	174	249	163	242	197	197
(7) other	206	163	218	178	229	178	170
Age Category							
< 35	132	95	128	105	150	112	114
35-49	183	135	184	138	196	147	134
50-64	242	188	245	190	269	191	196
65-74	211	158	219	176	224	168	180
75-84	235	166	235	187	255	197	182
85+	225	168	249	181	253	183	177
	12-month Prospective PMPM						
Total	\$162	\$161	\$170	\$172	\$176	-	-
Non-EvD	159	157	164	166	169	-	-
EvD	166	166	179	181	187	-	-
Group							
(1) chronic hospital	682	689	627	727	663	-	-
(2) nursing facility	198	193	206	207	217	-	-
(3) waiver (LAH)	244	260	266	303	305	-	-
(4) waiver (OAW)	224	213	217	227	224	-	-
(5) medical day care	151	163	165	173	185	-	-
(6) personal care	212	213	221	208	213	-	-
(7) other	145	144	154	155	158	-	-
Age Category							
< 35	110	108	110	117	126	-	-
35-49	152	148	158	154	159	-	-
50-64	185	186	201	204	212	-	-
65-74	159	162	171	172	171	-	-
75-84	170	166	174	179	185	-	-
85+	163	162	173	171	177	-	-

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Table 11. Medicare-Reported Cost Share 12-Month Prospective PMPM by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007)

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	12-month Prospective PMPM (Non-EvD)						
Total Non-EvD	\$159	\$157	\$164	\$166	\$169	-	-
<i>Group</i>							
(1) chronic hospital	939	665	456	729	675	-	-
(2) nursing home	185	179	189	194	201	-	-
(3) waiver (LAH)	0	0	0	0	0	-	-
(4) waiver (OAW)	223	205	209	217	208	-	-
(5) medical day care	160	169	167	171	189	-	-
(6) personal care	205	205	212	192	196	-	-
(7) other	139	139	147	147	149	-	-
<i>Age Category</i>							
< 35	0	0	0	0	0	-	-
35-49	0	0	0	0	0	-	-
50-64	0	0	0	0	0	-	-
65-74	148	149	155	153	152	-	-
75-84	167	162	169	174	180	-	-
85+	162	160	170	169	174	-	-
	12-month Prospective PMPM (EvD)						
Total EvD	\$166	\$166	\$179	\$181	\$187	-	-
<i>Group</i>							
(1) chronic hospital	486	705	730	726	655	-	-
(2) nursing home	242	238	260	248	268	-	-
(3) waiver (LAH)	244	260	266	303	305	-	-
(4) waiver (OAW)	226	236	239	256	268	-	-
(5) medical day care	136	153	161	175	177	-	-
(6) personal care	230	234	246	248	260	-	-
(7) other	152	150	162	165	168	-	-
<i>Age Category</i>							
< 35	110	108	110	117	126	-	-
35-49	152	148	158	154	159	-	-
50-64	185	186	201	204	212	-	-
65-74	206	214	234	244	243	-	-
75-84	213	208	226	230	236	-	-
85+	169	199	219	218	241	-	-

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Medicare Claim Payments

Medicare-paid amounts are included in this report primarily to complete the picture of claims-based payments for duals under Medicaid and Medicare. Tables 12 and 13 are comparable to the distributions shown in Tables 10 and 11, respectively, except that they reflect what Medicare paid as opposed to what Medicare reported as cost sharing. These costs also rose slightly across the study period to \$1,161 PMPM on a prospective basis for the population as a whole enrolled in January 2007. Average costs were a little more than \$110 higher for the EvD than the non-EvD. The general pattern of the results in Table 12 is similar to that for other components related to acute care costs in that they are mixed across the resource groups and age categories included in the table. The MDC group is consistently lower than both the other Community NHLOC groups (waivers) and the PC group, even though MDC requires a formal NHLOC. Average Medicare payments for the NF group are about the same as average total costs on a month-specific basis and consistently lower than the waivers and PC group each month and prospectively. There is less of a seasonal pattern evident in the month-specific amounts shown in the top one-half of the table and generally less of a drop in average month-specific amounts versus the 12-month prospective amounts than is evident in what is reported for cost sharing (see Table 10). Table 13 shows higher average prospective costs for the EvD population by age category and for most resource groups with the notable exception, also seen in the cost sharing amounts from Table 11, of MDC.



**Table 12. Medicare Payments PMPM and 12-Month Prospective PMPM
by Rate Group and Age Category at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	PMPM						
Total	\$1,105	\$1,007	\$1,101	\$1,101	\$1,205	\$1,104	\$1,195
Non-EvD	1,147	994	1,125	1,087	1,205	1,092	1,172
EvD	1,042	1,026	1,067	1,120	1,206	1,121	1,225
Group							
(1) chronic hospital	4,870	5,725	3,155	4,576	2,794	3,374	3,267
(2) nursing facility	1,078	912	1,060	1,043	1,216	1,067	1,224
(3) waiver (LAH)	1,432	1,491	1,931	1,606	2,225	1,688	2,377
(4) waiver (OAW)	1,771	1,433	1,645	1,627	1,714	1,320	1,657
(5) medical day care	660	765	915	1,134	953	1,193	1,109
(6) personal care	1,874	1,261	1,446	1,146	1,209	1,449	1,393
(7) other	1,056	995	1,062	1,066	1,168	1,073	1,136
Age Category							
< 35	522	666	575	687	700	638	805
35-49	947	894	863	924	951	977	1,012
50-64	1,294	1,192	1,225	1,254	1,400	1,249	1,379
65-74	1,138	1,006	1,131	1,107	1,153	1,016	1,201
75-84	1,186	1,035	1,175	1,155	1,360	1,218	1,221
85+	1,122	1,041	1,227	1,177	1,290	1,222	1,289
	12-month Prospective PMPM						
Total	\$1,049	\$1,043	\$1,113	\$1,144	\$1,161	-	-
Non-EvD	1,034	1,020	1,076	1,100	1,113	-	-
EvD	1,071	1,075	1,167	1,206	1,227	-	-
Group							
(1) chronic hospital	2,556	2,999	3,135	3,327	3,099	-	-
(2) nursing facility	1,259	1,210	1,303	1,348	1,398	-	-
(3) waiver (LAH)	1,734	1,937	1,957	2,238	2,369	-	-
(4) waiver (OAW)	1,655	1,627	1,719	1,792	1,733	-	-
(5) medical day care	941	1,023	1,081	1,129	1,194	-	-
(6) personal care	1,529	1,576	1,588	1,478	1,532	-	-
(7) other	932	927	992	1,019	1,029	-	-
Age Category							
< 35	631	615	654	722	786	-	-
35-49	974	946	1,011	1,014	1,036	-	-
50-64	1,223	1,224	1,346	1,382	1,403	-	-
65-74	1,041	1,066	1,129	1,126	1,124	-	-
75-84	1,110	1,076	1,130	1,187	1,210	-	-
85+	1,041	1,050	1,128	1,169	1,189	-	-

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



**Table 13. Medicare Payments 12-Month Prospective PMPM
by Rate Group, Age Category, and EvD Status at Selected Points in Time (2005–2007)**

	CY 2005		CY 2006		CY 2007		
	Jan-05	Jul-05	Jan-06	Jul-06	Jan-07	Jul-07	Dec-07
	12-month Prospective PMPM (Non-EvD)						
Total Non-EvD	\$1,034	\$1,020	\$1,076	\$1,100	\$1,113	-	-
<i>Group</i>							
(1) chronic hospital	3,250	2,931	3,549	3,747	3,130	-	-
(2) nursing home	1,167	1,112	1,192	1,252	1,285	-	-
(3) waiver (LAH)	0	0	0	0	0	-	-
(4) waiver (OAW)	1,641	1,557	1,671	1,709	1,603	-	-
(5) medical day care	1,008	1,048	1,034	1,060	1,208	-	-
(6) personal care	1,454	1,473	1,489	1,289	1,361	-	-
(7) other	902	902	950	971	973	-	-
<i>Age Category</i>							
< 35	0	0	0	0	0	-	-
35-49	0	0	0	0	0	-	-
50-64	0	0	0	0	0	-	-
65-74	965	974	1,024	1,004	1,000	-	-
75-84	1,088	1,049	1,097	1,150	1,176	-	-
85+	1,039	1,036	1,112	1,147	1,159	-	-
	12-month Prospective PMPM (EvD)						
Total EvD	\$1,071	\$1,075	\$1,167	\$1,206	\$1,227	-	-
<i>Group</i>							
(1) chronic hospital	2,029	3,047	2,885	3,094	3,080	-	-
(2) nursing home	1,582	1,535	1,666	1,659	1,758	-	-
(3) waiver (LAH)	1,734	1,937	1,957	2,238	2,369	-	-
(4) waiver (OAW)	1,695	1,831	1,860	2,024	2,086	-	-
(5) medical day care	832	980	1,168	1,258	1,168	-	-
(6) personal care	1,725	1,843	1,838	1,957	1,988	-	-
(7) other	967	953	1,039	1,073	1,088	-	-
<i>Age Category</i>							
< 35	631	615	654	722	786	-	-
35-49	974	946	1,011	1,014	1,036	-	-
50-64	1,223	1,224	1,346	1,382	1,403	-	-
65-74	1,370	1,442	1,543	1,601	1,607	-	-
75-84	1,355	1,376	1,490	1,600	1,602	-	-
85+	1,074	1,311	1,417	1,570	1,710	-	-

Notes: PMPM (Per Member Per Month); CY (Calendar Year); EvD (Ever Disabled) denotes original reason for Medicare coverage based on disability; LAH (Living at Home Waiver); OAW (Older Adult Waiver).



Simulating Medicaid Expected and Actual Payments

One of the key considerations in assessing a rate setting method for any particular program is the extent to which it explains or predicts relevant costs. Although the choice of rating criteria underlying the method is important, other considerations can also affect how well the “system” as a whole will produce rate estimates that effectively address actual service costs when they are applied for payment. This section presents results from a simulation within which payment rate estimates—derived using cost data from one year and the risk factors described above—are compared with actual costs in a subsequent year. Measures of how well estimated payments meet actual costs are presented.

Modeling Direct Medicaid Benefit Costs

The basic rate setting model defined for this simulation reflects five service-based rate groups that include:

1. *CH*—individuals who had at least 30 days of Medicaid-paid coverage in a chronic hospital
2. *NF*—individuals who had at least 30 days of Medicaid-paid custodial care in a nursing facility
3. *Community NHLOC*—individuals who had a formal NHLOC assessment and were either enrolled under an HCBS waiver (LAH or OAW) or received Medicaid-paid medical day care
4. *PC*—individuals who received Medicaid-paid personal care
5. *Other*—individuals who did not fall into any of the other groupings when the assignment was made

In addition to these five service-based rate groups, the model also reflects EvD status.

Again, the purpose of this report is to highlight patterns of Medicaid resource use, to use one rate setting formula as an example of how the Medicaid payments might be made in an integrated Medicaid and Medicare environment, and to provide a general context within which to examine the implications of more detailed analyses regarding specific subgroups, which will be included in the third report in this series. This report is not intended to promote or defend a specific rate setting model. Results presented in previous sections might suggest, for example, that a rate setting system in Maryland should also reflect age more directly in some way. In the event that Maryland implements a managed long-term care program, the precise rate setting model may vary from the one described here. And, although the community-based rate groups identified here generally reflect the level of services that individuals with functional-support needs may require, how such services are defined will vary across states based on local programs and circumstances.



Moreover, this analysis is based on historical data that would be used to understand existing underlying patterns as a program of coordinated/integrated care is put into place. It would be preferable to have more specific information on individuals' functional needs, reflecting a standard set of activities of daily living, for example. As noted above, programs of coordinated/integrated care typically collect such data. When person-level data on functional needs for the intended coverage population do not exist, the initial rate setting system would need to be recalibrated once the system is established to reflect changes in the patterns of care within the new context that a given program would engender. Any implementation plan would need to include collecting more complete data on functional status from the first stages of the program, if not before the program is implemented. How that might be done is beyond the scope of this report.

Although only one final set of underlying risk factors was chosen for this simulation, two additional considerations are assessed. One consideration is whether it is more accurate to calculate cost estimates using a concurrent or prospective approach, given the nature and pattern of direct Medicaid benefits costs in particular. This issue was discussed above among preliminary comments regarding rate setting and Medicaid managed long-term care and is illustrated in Figure 3. The second consideration involves the implications of setting the rate for an annual period or allowing it to change more frequently—on a month-to-month basis in this case—if circumstances change for an individual. To be clear, the rate would remain the same for each rate category during a payment year in both cases, but rate-group assignments can change for any given individual under a month-specific approach. An annual approach is roughly comparable to rate setting for MA, whereby risk factors associated with an individual are set once a year on the basis of information from the prior year. Under that program, payment rates are established at the provider plan level on the basis of the average individual-level risk associated with a given plan's enrollees (Verdier, 2006). Conversely, many Medicaid managed long-term care programs adjust payments at the individual enrollee level on a month-to-month basis.²⁰ Each of these approaches involves different implications for both the administrative burden and provider plan incentives associated with managed care programs, which will be described with the simulation results below.

Calculating Expected Values

Broadly stated, for this simulation, expected values were first calculated for each of ten rate cells (five basic rate groups separately for the non-EvD and EvD populations), using cost data for Calendar Year 2005 and both annual and month-specific rate group assignments. Those expected values were then adjusted for mean overall actual costs in Calendar Year 2006 for a “target” payment population enrolled as of January 1, 2006. The adjustment for mean actual costs in 2006 allows for a comparison of results from the different rating calculation approaches on a more even basis, that is, without regard to unknown external factors, such as inflation, that might otherwise affect the results. This approach also makes it possible to examine how well expected costs (payments) compare to actual costs at the rate-cell level across the different calculation

²⁰ This feature may reflect the relatively small scale of most of these programs, which makes them more sensitive to small changes in enrollment and risk.



options—all else being equal. Summary measures will be used to “locate” where differences between expected and actual costs appear across rate cells.

Cost estimates for direct Medicaid benefit costs were calculated on a PMPM basis in four ways:

1. Full-Year Concurrent (FYC): rate-group assignments reflect the highest hierarchical assignment for an individual during 2005, and costs reflect all 2005 expenses
2. Full-Year Prospective (FYP): rate-group assignments reflect the highest hierarchical assignment for an individual during 2004 for those active January 1, 2005, and costs reflect all 2005 expenses
3. Month-Specific Concurrent (MSC): rate-group assignments are made as of the first day of each month during 2005, and costs reflect month-specific expenses (comparable to the average of month-specific PMPM values for 2005, first described for Table 2, above)
4. Month-Specific Prospective (MSP): rate-group assignments are made as of January 1, 2005, and costs reflect full annual expenses (comparable to 12-month prospective expenses for January 1, 2005, as first described for Table 2, above)

Comparing Expected and Actual Direct Medicaid Benefit Costs

The payment population in this simulation includes the dually eligible, as described in the first sections of this report, but it is limited to individuals who were enrolled as of January 1, 2006. The simulation population also had to have at least one prior month of enrollment in 2005 to ensure some level of prior use experience for rate-group assignment. This ensures that some prior-use period data are available for each enrollee and also means that new enrollment during 2006 is not addressed in this simulation. Although new enrollees might, for example, get a rate-group assignment based on an initial assessment, such data are not available for modeling in this study.

In order to simulate what would happen if the expected values derived using the four basic approaches were used for payment in 2006, one value for each of the estimation methods was assigned to each individual in the simulation population, given that person’s corresponding rate-group assignment. For full-year payment approaches (FYC and FYP), the assignment is his or her highest resource-use group assignment in 2005. For the month-specific payment approaches (MSC and MSP), that assignment is his or her group assignment each month in 2006, based on the previous 30 days. The sum of total expected costs for 2006 was calculated under each of the estimation approaches. The resultant underlying individual-level data then included total actual expenses for 2006 and four alternative expected values reflecting the different estimation approaches. Because each set of estimation values was adjusted for total actual costs in 2006, total estimated costs for the simulation population as a whole equals total actual costs. At the same time, differences between expected and actual costs can be examined at the rate-group level given each estimation approach. The extent and pattern of those differences across rate groups and estimation approaches can suggest the further implications of choosing one approach over another.



Table 14 is a summary of expected and actual direct Medicaid benefit costs by rate group for the simulation population as a whole (All) and by EvD status. Total member months and average 2006 actual costs PMPM given the full-year and month-specific rate-group assignments are shown in separate sections left to right, respectively. The rate-group assignments made using a full prior year of data remain the same for each individual in the simulation throughout 2006. The month-specific rate-group assignments rely on data from a more limited period (30 days versus a year), but are allowed to change each month during 2006 in the results shown to the right in Table 14. Thus an annual versus month-specific perspective is reflected in both how rate groups are assigned and in how often an individual's rate would be allowed to change.

The first row in Table 14 shows that there were 583,995 member months associated with the simulation population in 2006, with average actual costs of \$1,765 PMPM. Total expected costs, using each approach to calculate those values, were adjusted to that PMPM average.²¹ The second row shows that 1,307 member months were associated with the CH rate group in 2006—given group assignments based on a full year of 2005 data—with an average actual PMPM of \$19,825 in 2006. When rate group assignment was allowed to change each month in 2006, 870 member months were associated with the CH group, with an average actual PMPM of \$29,462. The lower sections of Table 14 show comparable results for the non-EvD and EvD populations.

Two sets of average expected values PMPM are associated with each distribution of member months and actual costs (full-year versus month-specific) in Table 14. The expected values shown separately for the non-EvD and EvD populations are, essentially, the payment rates that were applied in this simulation. Results for the population as a whole are the weighted averages of those non-EvD and EvD rates. The total dollar value of the difference between expected and actual costs is also shown given each approach. Note that, because total expected costs equal total actual costs for the population, differences at the rate-group level are an indication of how each calculation approach addresses each rate group relative to the other rate groups. Under a full-year prospective approach (FYP), for example, expected PMPM values for the CH and NF groups are higher on average than actual costs PMPM for the population as a whole (\$20,649 and \$4,719 versus \$19,825 and \$4,620, respectively). Those differences result in relatively higher payments for those groups relative to the other rate groups. If a given managed care plan enrolled a random sample of this population, differences across rate groups would not matter (as long as the overall rate was correct). However, an enrollee population that is drawn disproportionately from these groups would be more likely to result in favorable or adverse selection (and attendant profit or loss), depending on the particular draw.

Given the full-year rate assignments applied on an annual basis, the concurrent calculation of expected values (FYC) resulted in markedly higher differences between actual and expected costs across rate groups than the prospective approach (FYP) for the population as a whole (shown in the top section of Table 14). Given the month-specific rate assignments and rates that can change each month, both the concurrent (MSC) and the prospective (MSP) approaches resulted in differences that are roughly comparable in scale overall to the FYP results; that is,

²¹ More properly, total expected costs were adjusted to separate totals for the non-EvD and EvD populations, which resulted in total overall actual and expected costs.



with the notable exception that the direction of the differences is reversed for the NF and “other” rate groups using the MSP approach. In other words, under the FYP and MSC approaches, managed care plans would have an incentive to draw from the institutionalized populations, and the reverse would be true using the MSP approach.



Table 14. Summary of Actual and Expected Direct Medicaid Benefit Costs Using Alternative Estimation Approaches

Rate Group	Rate Group Assigned Once for 2006 Reflecting Full 2005 Data						Rate Group Assigned Each Month in 2006 Reflecting Previous Month					
	Actual CY 06		FYC Expected		FYP Expected		Actual CY 06		MSC Expected		MSP Expected	
	Months	PMPM	PMPM	Total \$ difference (expected minus actual)	PMPM	Total \$ difference (expected minus actual)	Months	PMPM	PMPM	Total \$ difference (expected minus actual)	PMPM	Total \$ difference (expected minus actual)
All												
Total	583,995	\$1,765	\$1,765	\$0	\$1,765	\$0	583,995	\$1,765	\$1,765	\$0	\$1,765	\$0
CH	1,307	\$19,825	\$21,903	2,715,924	\$20,649	1,076,232	870	\$29,462	\$29,940	415,278	\$28,042	(1,235,287)
NF	146,188	\$4,620	\$5,037	60,969,210	\$4,719	14,490,945	137,637	\$4,853	\$5,023	23,338,302	\$4,795	(7,993,683)
CNHLOC	54,248	\$2,489	\$2,480	(518,340)	\$2,474	(805,144)	54,191	\$2,513	\$2,476	(2,014,537)	\$2,540	1,446,436
PC	15,093	\$1,170	\$903	(4,032,493)	\$1,072	(1,480,209)	13,935	\$1,100	\$978	(1,709,498)	\$1,122	310,079
Other	367,159	\$482	\$321	(59,134,301)	\$446	(13,281,824)	377,362	\$482	\$439	(16,205,292)	\$512	11,296,707
Non-EvD												
Total	352,430	\$1,908	\$1,908	\$0	\$1,908	\$0	352,430	\$1,908	\$1,908	\$0	\$1,908	\$0
CH	500	\$21,320	\$24,907	1,793,825	\$22,500	590,243	335	\$31,208	\$31,560	118,009	\$30,504	(235,737)
NF	110,457	\$4,560	\$4,970	45,340,968	\$4,602	4,687,744	104,959	\$4,782	\$4,876	9,862,283	\$4,682	(10,531,587)
CNHLOC	35,824	\$2,483	\$2,422	(2,163,011)	\$2,456	(942,322)	35,980	\$2,480	\$2,400	(2,886,199)	\$2,499	676,369
PC	10,609	\$1,149	\$878	(2,873,135)	\$1,083	(699,872)	9,979	\$1,058	\$944	(1,144,939)	\$1,120	616,990
Other	195,040	\$292	\$76	(42,098,646)	\$274	(3,635,793)	201,177	\$297	\$270	(5,360,519)	\$347	10,062,600
EvD												
Total	231,565	\$1,548	\$1,548	\$0	\$1,548	\$0	231,565	\$1,548	\$1,548	\$0	\$1,548	\$0
CH	807	\$18,900	\$20,042	922,099	\$19,502	485,989	535	\$28,369	\$28,925	297,269	\$26,501	(999,550)
NF	35,731	\$4,805	\$5,242	15,628,242	\$5,079	9,803,201	32,678	\$5,082	\$5,494	13,476,019	\$5,160	2,537,904
CNHLOC	18,424	\$2,501	\$2,591	1,644,671	\$2,509	137,178	18,211	\$2,577	\$2,625	871,662	\$2,620	770,067
PC	4,484	\$1,219	\$960	(1,159,357)	\$1,045	(780,337)	3,956	\$1,205	\$1,063	(564,560)	\$1,128	(306,911)
Other	172,119	\$697	\$598	(17,035,655)	\$641	(9,646,031)	176,185	\$694	\$632	(10,844,773)	\$701	1,234,107

Notes: EvD (Ever Disabled, original reason for Medicare entitlement Disabled); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care); Other (No other assigned). Rate approaches: FYC (full-year concurrent); FYP (full-year prospective); MSC (month-specific concurrent); MSP (month-specific prospective). See text for explanation of rate group assignment and alternative expected values. Population limited to dually eligible with full Medicaid benefits as of January 1, 2006. Developmental disability waiver and ESRD excluded.



Although actual and expected values, as well as the level of differences, are generally higher for the EvD as opposed to the non-EvD populations (shown in the bottom two sections of Table 14), the basic pattern of the results is much the same in both cases as that for the population as a whole. There is higher relative payment for the institutionalized groups using the FYP and MSC approaches and lower relative payment for those groups using the MSP approach. The positive difference for the NF group and the lower level of differences overall for the EvD population using the MSP approach (shown in the bottom right corner of Table 14) are notable exceptions to the basic pattern across approaches.

To consider these results from a different perspective, Table 15 shows the percentage that each dollar difference in Table 14 represents of the related rate group (row) and population (column) total dollar amount. For example, the more than \$59 million in “underpayment” for the “other” rate group using the FYC approach (see the sixth row of Table 14) suggests that the payment rate for that group (\$321) was 33.4 percent less than actual costs, which can be considered on a per-case basis. That underpayment equates to 5.7 percent of all costs in this simulation.

The sum of the absolute percentages of differences with total dollars is shown in Table 15 as another measure of the extent of overall differences, or misattribution of dollars, associated with each approach. At close to 3 percent, both prospective approaches (FYP and MSP) exhibit less absolute difference between expected and actual costs across rate groups than the concurrent methods, although interestingly, there are marked differences between the results for the non-EvD and EvD populations. Those absolute differences are higher for the EvD using the full-year approach (FYP) and higher for the non-EvD using the month-specific approach (MSP). This suggests, among other things, that the longer time frame for rate-group assignment produces somewhat more accurate payments for the non-EvD population on the whole and, conversely, the shorter time frame used in the month-specific approach produces somewhat more accurate payments for the EvD population. The underlying source of this pattern is not clear from these data. It may be related, for example, to patterns of nursing facility care across those populations, because the longer period is more consistent with the non-EvD relationship with that category. This type of underlying difference between the non-EvD and EvD populations will be explored as part of the subgroup analysis in the third report in this series.

Tables 14 and 15 reflect group-level summary results. Another overall measure of how well each of these approaches generates expected cost values is the R^2 statistic. R^2 is a standard summary measure of, in this case, the extent to which expected costs in the form of payments differ from actual costs at the individual level. It is reported as a value between zero (0) and 1.00 that is, essentially, the percentage of actual costs that are “explained” by the expected cost values. The higher the R^2 , the better a given set of expected values explain, or predict in the case of setting rates, a matched set of actual values.



Table 15: Differences in Actual and Expected Costs as a Percentage of Total Using Alternative Estimation Approaches

Rate Group	Rate Group Assigned Once for 2006 Reflecting Full 2005 Data						Rate Group Assigned Each Month in 2006 Reflecting Previous Month					
	Actual CY 06		FYC Expected		FYP Expected		Actual CY 06		MSC Expected		MSP Expected	
	Months	Total Dollars	Dif.	Dif.	Dif.	Dif.	Months	PMPM	Dif.	Dif.	Dif.	Dif.
			as % of Row Total	as % of Column Total	as % of Row Total	as % of Column Total			as % of Row Total	as % of Column Total		
All												
Total	583,995	\$1,030,841,139	0.0%	0.0%	0.0%	0.0%	583,995	\$1,030,841,139	0.0%	0.0%	0.0%	0.0%
CH	1,307	\$25,911,889	10.5%	0.3%	4.2%	0.1%	870	\$25,632,214	1.6%	0.1%	-4.8%	-0.2%
NF	146,188	\$675,318,497	9.0%	5.9%	2.1%	1.4%	137,637	\$667,978,727	3.5%	3.5%	-1.2%	-1.2%
CNHLOC	54,248	\$135,028,668	-0.4%	-0.1%	-0.6%	-0.1%	54,191	\$136,178,715	-1.5%	-0.3%	1.1%	0.2%
PC	15,093	\$17,655,101	-22.8%	-0.4%	-8.4%	-0.1%	13,935	\$15,331,187	-11.2%	-0.3%	2.0%	0.0%
Other	367,159	\$176,926,985	-33.4%	-5.7%	-7.5%	-1.3%	377,362	\$181,896,044	-8.9%	-2.4%	6.2%	1.7%
Sum of Absolute Differences ----->				12.4%		3.0%				6.5%		3.3%
Non-EvD												
Total	352,430	\$672,415,343	0.0%	0.0%	0.0%	0.0%	352,430	\$672,415,343	0.0%	0.0%	0.0%	0.0%
CH	500	\$10,659,791	16.8%	0.3%	5.5%	0.1%	335	\$10,454,710	1.1%	0.0%	-2.3%	0.0%
NF	110,457	\$503,629,421	9.0%	6.7%	0.9%	0.7%	104,959	\$501,907,624	2.0%	1.5%	-2.1%	-1.6%
CNHLOC	35,824	\$88,943,794	-2.4%	-0.3%	-1.1%	-0.1%	35,980	\$89,241,296	-3.2%	-0.4%	0.8%	0.1%
PC	10,609	\$12,189,751	-23.6%	-0.4%	-5.7%	-0.1%	9,979	\$10,562,352	-10.8%	-0.2%	5.8%	0.1%
Other	195,040	\$56,992,586	-73.9%	-6.3%	-6.4%	-0.5%	201,177	\$59,660,725	-9.0%	-0.8%	16.9%	1.5%
Sum of Absolute Differences ----->				14.0%		1.6%				2.9%		3.3%
EvD												
Total	231,565	\$358,425,796	0.0%	0.0%	0.0%	0.0%	231,565	\$358,425,796	0.0%	0.0%	0.0%	0.0%
CH	807	\$15,252,098	6.0%	0.3%	3.2%	0.1%	535	\$15,177,504	2.0%	0.0%	-6.6%	-0.1%
NF	35,731	\$171,689,076	9.1%	4.4%	5.7%	2.7%	32,678	\$166,071,103	8.1%	2.0%	1.5%	0.4%
CNHLOC	18,424	\$46,084,873	3.6%	0.5%	0.3%	0.0%	18,211	\$46,937,418	1.9%	0.1%	1.6%	0.1%
PC	4,484	\$5,465,350	-21.2%	-0.3%	-14.3%	-0.2%	3,956	\$4,768,835	-11.8%	-0.1%	-6.4%	0.0%
Other	172,119	\$119,934,399	-14.2%	-4.8%	-8.0%	-2.7%	176,185	\$122,235,319	-8.9%	-1.6%	1.0%	0.2%
Sum of Absolute Differences ----->				10.2%		5.8%				3.9%		0.9%

Notes: EvD (Ever Disabled, original reason for Medicare entitlement Disabled); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care); Other (No other assigned). Rate approaches: FYC (full-year concurrent); FYP (full-year prospective); MSC (month-specific concurrent); MSP (month-specific prospective). See text for explanation of rate group assignment and alternative expected values. Population limited to dually eligible with full Medicaid benefits as of January 1, 2006. Developmental disability waiver and ESRD excluded.



Table 16 shows the individual-level R^2 values for each of the rating approaches. Results are shown for the total population and separately by EvD status, with measures that range from 0.86 for non-EvD using a month-specific approach to 0.40 for EvD using a full-year approach.

To put these results in a broader perspective, comparable values can be drawn using Medicare data for this population. The CMS-Hierarchical Condition Categories (HCC) system is a diagnosis-based risk adjustment application that is used under MA to establish payment rates under the program. In addition to accounting for selected diagnoses assigned in the year prior to when it is used for payment, the system reflects age, gender, original reason for Medicare coverage (EvD status), and markers for ESRD, institutionalization, and Medicaid status. Pope et al. (2004) reported R^2 values close to 0.10 overall during the initial CMS-HCC model calibration. More specific to this study, the CMS-HCC system and 2005 diagnosis data were used to calculate relative weights for the dual population eligible for this study in 2006. The R^2 associated with comparing those relative weights to actual Medicare payments in 2006 was 0.13 overall. That measure was 0.15 and 0.13 for the EvD and non-EvD populations, respectively.

**Table 16. Individual-Level Variation Explained (R^2)
For Selected Rate Calculation Approaches
Total Simulation Population and by EvD Status**

	Total Population	Non-EvD	EvD
Full-Year Concurrent (FYC)	0.56	0.75	0.40
Full-Year Prospective (FYP)	0.57	0.75	0.40
Month-Specific Concurrent (MSC)	0.66	0.86	0.50
Month-Specific Prospective (MSP)	0.67	0.86	0.50

Notes: EvD (Ever Disabled) original reason for Medicare coverage based on disability.

On the basis of the results in Table 16, month-specific applications explain more underlying variation than the full-year approaches, which is intuitively appropriate because payment rates are adjusted more often on the basis of an individual's circumstances using the former method. At the same time, the results are noticeably lower for the EvD relative to the non-EvD populations. This pattern is in contrast to the group-level measures, which exhibited remarkably less difference between expected and actual costs across rate groups for the EvD population using the month-specific prospective (MSP) calculation, particularly as evident in Table 15. Nevertheless, overall, these results suggest that further refinement of the rate categories may be appropriate for this population. As noted above, this highlights the fact that the EvD population may use services differently from the non-EvD population, which will be examined to some extent in the third report in this series.



The R^2 results suggest very little difference between concurrent and prospective calculations once the rate-group assignment period (full-year versus month-specific) is accounted for. Although that finding is largely consistent with the month-specific rate-group level results in Table 14, it is not as apparently consistent with the rate-group level results using the full-year assignment, in which there were marked differences across rate groups between the concurrent and prospective calculations.

This suggests, on the one hand, that the choice of a concurrent versus a prospective calculation in setting rates on a month-specific basis would be more narrowly related to the differing incentives that each calculation provides. Slightly higher relative payments for the NF group could encourage health plans that enroll the dually eligible to focus on enrolling the NF group, with little concern for moderating those costs or working to offset them in the future. The reverse could be true if higher relative payments were made for the “other” category. These results also reaffirm the relative stability of risk over time, which was evident in the above discussion of differences in patterns of Medicare and Medicaid resource use.

On the other hand, the rate-group level results using a full-year approach suggest that, even though the direction of the incentive is the same in both cases, the choice of a concurrent versus a prospective calculation can make a notable difference in the extent of “error” at the rate-group level. Aside from the nature of the underlying incentive, the results suggest that the choice of calculation perspectives (concurrent versus prospective) becomes more important the longer the period used for rate-group assignment and payment.

It should also be noted that the choice between a full-year and a month-specific rate perspective has important administrative implications. If rates are set once at the beginning of the year, there is less administrative burden involved in monitoring how rate assignments are made. One annual rate, whether it is applied at a provider plan level or an individual level, also makes it simpler to forecast costs for the system for the year. If rates are allowed to change each month, a more elaborate system would be needed to track those changes, there is more of an opportunity on the part of health plans to “game the system” by moving and maintaining lower-risk cases into higher-cost categories, and annual costs for the system can be harder to manage as a result.

At the same time, the additional administrative burden of tracking changes in patient status on a month-to-month basis can serve the broader purpose of better coordinated care for this population, and appropriate third-party oversight of the rate group identification process could mitigate the threat of gaming. This may be particularly true for voluntary programs in which selection is more of an issue than it is with mandatory programs.

Beyond gaming, unmet need can complicate rate setting for managed long-term care programs, particularly during the initial implementation stages. A 2006 survey of community-dwelling recipients in Maryland indicated that the population receiving community supports could increase by as much as a one-third, or some 2,100 individuals, if all the individuals who reported a need for support for three or more activities of daily living—but did not otherwise receive Medicaid support services—received that support through the program (Center for Health



Program Development and Management, 2006).²² Any given state would need to weigh these types of concerns in the context of that state's needs and capacity as a program of managed long-term care is put in place.

Medicare Cost Sharing and Medicaid Crossover Costs

Although total Medicaid payments made on behalf of the dually eligible include both direct Medicaid benefits and crossover costs associated with Medicare cost sharing, crossover costs are treated separately for several reasons already explained in this report. First, because Medicare cost sharing is a function of Medicare acute care rather than Medicaid service use, the pattern of those costs is not directly related to the rate groups defined here to estimate direct Medicaid resource use. Kronick and LLanos (2008) suggest using diagnosis-based risk adjustment to establish payment for this portion of Medicaid costs under managed long-term care because of their association with acute care. Second, as is the case with Medicare costs generally, not all Medicare cost sharing is reflected in claims, because those data are not routinely reported by MA plans. Thus in order to get a fair estimate of Medicare cost sharing assumptions, the study population should be limited to individuals who are not enrolled in an MA plan during the estimation period. Including MA enrollment would undervalue estimates of those costs.

In addition, some states may wish to consider providing a separate capitation rate to cover crossover costs for Medicaid recipients who are enrolled in MA plans. This is the case in Maryland, where local MA SNPs have suggested that the state offer such a capitation payment if a plan does not already account for cost sharing in the MA SNP bidding process—that is, in lieu of alternative approaches, such as requiring the equivalent of crossover claims. In response, Maryland has considered at least two approaches that are discussed in more detail here: a fixed capitation payment PMPM that reflects what the state typically pays for crossover costs on behalf of duals and a comparable rate that is adjusted in some way for the relative risk differences associated with a given plan's enrollment. SNP administrators in the state have suggested using the plan-level CMS-HCC relative risk that underlies the SNP bidding process with CMS to make that adjustment. Medicaid payments that otherwise reflect the extent to which the state covers crossover costs would be adjusted for the plan-specific relative risk that underlies the MA rate bidding process, under the assumption that crossover costs are distributed in much the same way as Medicare-paid acute care costs are estimated to be distributed. This approach could simplify the state's interactions with SNPs with respect to Medicaid payments, without requiring additional administrative burden of those plans.

Estimating a Fixed Capitation Rate for Crossover Costs

With respect to setting a fixed rate for crossover costs, data presented in Tables 8 through 11 suggest that Maryland Medicaid pays roughly 70 percent, on average, of the Medicare cost share that is reported on Medicare claims for this study population. More specifically, less than 67 percent of those costs are covered for the non-EvD population, and 80 percent of comparable costs are covered for the EvD. In practice, disproportionately more non-EvD duals enroll in MA SNPs than do EvD duals. A further consideration is that the state may want to share in both the

²² The Center for Health Program Development and Management (CHPDM) is the former name of The Hilltop Institute.



plan's reduction in administrative burden associated with receiving a capitation rate—as opposed to having to submit claims for those costs—and the less tangible assumption that managed care plans achieve higher levels of efficiency associated with better managed care. Because these types of considerations are not typically based on existing data, establishing such a fixed capitation rate requires a combination of historical data and judgment. Maryland established a fixed rate of \$115 PMPM for state fiscal year 2010, beginning July 1, 2009.

Modeling CMS-HCC Relative Risk and Medicare-Reported Cost Sharing

To examine the implications of adjusting such a rate for the acute care risk of Medicaid enrollment in SNPs, expected and actual Medicare cost sharing were modeled in much the same way as direct Medicaid benefit costs, above. Full cost sharing as reported on Medicare claims was used initially so that the extent to which Maryland actually covers those costs does not affect the initial results. Data were arrayed using the five service-based rate groups described above. Expected values were based on CMS-HCC relative risk and calibrated to the simulation population. As was the case for the simulation of other Medicare-related costs, the population was limited to duals with full Medicaid benefits who were eligible under the program on January 1, 2006, who had at least one month of Medicaid eligibility in 2005, and who were not associated with an MA SNP during 2006.²³

Table 17 shows a comparison of relative values across the five Medicaid rate groups based on CMS-HCC relative risk versus actual costs reported as coinsurance on Medicare claims. CMS-HCC relative risk was first determined for each individual based on his or her diagnoses in 2005. Those relative weights were then standardized to 1.00 for the population as a whole for comparison to actual costs.²⁴ The column labeled (b) in Table 17, for example, shows that average CMS-HCC relative risk for the CH rate group is 3.80, or nearly 4 times the average relative risk (1.00) for this population. The average CMS-HCC relative risk for the other rate groups descend in hierarchical order from 1.42 for the NF group to 0.84 for the “other” group. PMPM values were then calculated for each rate group relative to the overall average actual cost share amount reported on Medicare claims.

The column labeled (c) in Table 17 shows the average actual cost share reported on Medicare claims for the simulation population in 2006—as a whole (\$171)²⁵ and by rate group. Column (d) shows the relative value of those actual cost amounts. Column (e) shows the PMPM dollar value of the difference between the actual rate and the CMS-HCC expected rate. This value is \$0 for the population as a whole because the simulation is calibrated to this population. Column (f) shows the member months of dual eligibility during 2006, underlying this table. Finally, column (g) shows the total dollars represented by the difference shown in column (e) weighted by the member months in column (f).

²³ Individuals with MA SNP enrollment in 2005 were also excluded to ensure that data needed to establish CMS-HCC relative weights were available.

²⁴ CMS-HCC relative values are theoretically calibrated to 1.00 for an overall Medicare population. Medicaid recipients typically have a higher than average relative risk than the population as a whole. The simulation population had an average relative risk of 1.81 for 2006 based on 2005 data. By adjusting to 1.00 for actual costs in this instance, CMS-HCC relative risk is implicitly assumed to be otherwise correct for this population.

²⁵ These estimates are roughly comparable to the 12-month prospective PMPM values in the bottom one-half of Table 10, except that the simulation population excludes new enrollees in January 2006, whereas Table 10 does not.



**Table 17. CMS-HCC versus Actual Relative Risk
Based on Medicare-Reported Cost Sharing**

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	HCC-risk		Actual (Reported)		Differences (HCC-Actual)		
Rate Group	PMPM	Relative Value	PMPM	Relative Value	PMPM	Member Months	Total
Total	\$171	1.00	\$171	1.00	\$0	524,709	\$0
(1) CH	\$648	3.80	\$645	3.78	\$3	806	\$2,462
(2) NF	\$242	1.42	\$204	1.20	\$38	100,466	\$3,781,868
(3) CNHLOC	\$207	1.21	\$195	1.14	\$12	50,694	\$605,374
(4) PC	\$203	1.19	\$220	1.29	(\$17)	12,569	(\$218,517)
(5) Other	\$143	0.84	\$155	0.91	(\$12)	360,174	(\$4,171,187)

Notes: HCC (Hierarchical Condition Categories); PMPM (Per Member Per Month); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care).

Column (a): HCC-based PMPM if HCC relative factors were used on the overall Actual PMPM.

Column (b): Average Prospective HCC-based relative risk for 2006 calibrated to 1.00 for the population.

Column (c): Actual PMPM reflects Medicare coinsurance reported on Medicare claims for 2006.

Column (d): Actual PMPM relative to overall Actual PMPM.

Column (e): PMPM difference between actual and HCC-derived PMPM amounts.

Column (f): Member months during CY 2006 assuming the same rate group assignment during the year.

Column (g): Total simulated dollar differences.

HCC relative factors based on 2005 calendar year data and 2007 Medicare HCC-system coefficients.

Original HCC risk scores, with an overall average of 1.81, were adjusted to a mean of 1.00.

It is important to note, again, that this analysis is presented as a zero-sum game, in which overall “payments” are assumed to be correct, and relative overpayment to one group will be offset by underpayment to another. That over- and underpayment can be thought of as the extent to which CMS-HCC relative risk would misattribute expected costs across the groups if it were used to adjust a capitation rate in this simulation. In the case of the NF group, for example, the average CMS-HCC relative risk is 1.42, suggesting a payment rate of \$242 PMPM, when the relative value of 1.20 for actual costs reflects \$204 PMPM. The resulting \$3.8 million overpayment represents 4.2 percent of total costs underlying this simulation (not otherwise shown). That overpayment is primarily offset by relative underpayment for the “other” category. This does not necessarily mean that the CMS-HCC relative risk for the “other” category is actually low for that group, but simply that it is low relative to the other groups. If the average actual relative risk of 1.20 is a more accurate measure of the real relative risk of the NF group, a payment system based on CMS-HCC relative risk would “overpay” for the population as a whole. But for the NF group, the CMS-HCC relative risk for the “other” group may be largely the same as actual costs. The key implication of these results is that CMS-HCC relative risk tends to over-represent Medicare cost sharing of recipients who receive Medicaid support for longer-term NF care.



Modeling CMS-HCC Relative Risk and Medicaid Crossover Payments

The results in Table 17 are most relevant to examine the general relationship between CMS-HCC–based relative risk and Medicaid resource use, because, although they are generated in the context of service use in Maryland, they are not confounded by other state-specific factors, such as whether claims are submitted to Medicaid or limits on SNF copayments. Nursing facility coverage, in particular, is comparable to that in other states; thus the results based on Medicare-reported cost sharing and longer-term NF care are generally relevant to other states. However, in considering a Maryland-specific approach to estimating a capitation rate for crossover costs in the context of managed care, it is more appropriate to use actual crossover payments rather than those reported on Medicare claims as a measure of what the state will typically pay.

Table 18 is comparable to Table 17, except that the actual costs included in column (c) reflect what Maryland Medicaid actually paid in crossover costs for the simulation population. PMPM differences in column (e) and total cost differences in column (f) are noticeably higher than those based on Medicare-reported cost sharing. The relative risk based on actual payments for the NF group dropped from 1.20 (in Table 17) to 0.93. The primary effect of using actual crossover payments is to increase overall differences between CMS-HCC-based expected values and actual values that are evident using cost sharing reported on Medicare claims. As mentioned above, the seeming underpayment for the “other” group is generally offset by overpayment for the NF group. Assuming that Medicare expected values are otherwise correct for this population, the system as a whole can be overpaid. Thus, removing, or adjusting for, the influence of the NF group may smooth evident differences between actual and expected costs for the remaining groups.



**Table 18. CMS-HCC versus Actual Relative Risk
Based on Medicaid Crossover Payments**

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	HCC-risk		Actual (Paid)		Differences (HCC-Actual)		
Rate Group	PMPM	Relative Value	PMPM	Relative Value	PMPM	Member Months	Total
Total	\$125	1.00	\$125	1.00	\$0	524,709	\$0
(1) CH	\$474	3.80	\$438	3.52	\$35	806	\$28,594
(2) NF	\$177	1.42	\$116	0.93	\$61	100,466	\$6,107,266
(3) CNHLOC	\$151	1.21	\$153	1.23	(\$1)	50,694	(\$69,251)
(4) PC	\$148	1.19	\$179	1.44	(\$31)	12,569	(\$385,467)
(5) Other	\$105	0.84	\$120	0.97	(\$16)	360,174	(\$5,681,143)

Notes: HCC (Hierarchical Condition Categories); PMPM (Per Member Per Month); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care).

Column (a): HCC-based PMPM if HCC relative factors were used on the overall Actual PMPM.

Column (b): Average Prospective HCC-based relative risk for 2006 calibrated to 1.00 for the population.

Column (c): Actual PMPM reflects Medicaid crossover payments for 2006.

Column (d): Actual PMPM relative to overall Actual PMPM.

Column (e): PMPM difference between actual and HCC-derived PMPM amounts.

Column (f): Member months during CY 2006 assuming the same rate group assignment during the year.

Column (g): Total simulated dollar differences.

HCC relative factors based on 2005 calendar year data and 2007 Medicare HCC-system coefficients.

Original HCC risk scores, with an overall average of 1.81, were adjusted to a mean of 1.00.

Modeling Maryland Medicaid Rate Group Relative Risk and Crossover Payments

One possible alternative to using CMS-HCC relative risk to set a capitation rate for managed long-term care would be to use historical information that reflects the service-based rate groups described for this analysis. For this simulation, estimates based on the prospective actual Medicaid payments associated with the rate groups described above as of January 1, 2005²⁶ were used instead of HCC-based relative risk. As shown in Table 19, the differences between actual and expected costs are markedly reduced at the rate group level. The overall effect of this adjustment is to shift payments away from long-term NF patients and more evenly distribute payments at the rate group level. It should be noted that there still may be marked differences within rate groups, but the pattern of overpayment for the NF group using CMS-HCC relative risk shown in Tables 17 and 18 is clear enough that some adjustment for long-term institutional status—beyond that already included in the CMS-HCC system—is appropriate if a state is interested in reflecting patterns of state-specific crossover payments in a capitation rate that is set to cover those costs for MA plans.

²⁶ These estimates are roughly comparable to the 12-month prospective PMPM values for January 2005 in the bottom one-half of Table 8 with the added requirement of enrollment in 2004.



**Table 19. Maryland Rate Group versus Actual Relative Risk
Based on Medicaid Crossover Payments**

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	MD Prospective Risk		Actual (Paid)		Differences (MD Pro-Actual)		
Rate Group	PMPM	Relative Value	PMPM	Relative Value	PMPM	Member Months	Total
Total	\$125	1.00	\$125	1.00	\$0	524,709	\$0
(1) CH	\$475	3.81	\$438	3.52	\$37	806	\$29,808
(2) NF	\$123	0.99	\$116	0.93	\$7	100,466	\$698,228
(3) CNHLOC	\$151	1.21	\$153	1.23	(\$2)	50,694	(\$97,988)
(4) PC	\$186	1.49	\$179	1.44	\$7	12,569	\$85,375
(5) Other	\$119	0.95	\$120	0.97	(\$2)	360,174	(\$651,709)

Notes: MD (Maryland); PMPM (Per Member Per Month); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care).

Column (a): PMPM if Maryland prospective (2005) relative factors were used on the overall Actual PMPM.

Column (b): Average prospective MD-based relative risk based on 2005 data calibrated to the population.

Column (c): Actual PMPM reflects Medicaid crossover payments for 2006.

Column (d): Actual PMPM relative to overall Actual PMPM.

Column (e): PMPM difference between actual and HCC-derived PMPM amounts.

Column (f): Member months during CY 2006 assuming the same rate group assignment during the year.

Column (g): Total simulated dollar differences.

A Note on Modeling CMS-HCC Relative Risk and Medicare Claim Payments

This study is primarily focused on rate setting for Medicaid costs associated with managed long-term care. The third report in this series will explore Medicare resource use in greater detail, particularly in the context of Medicaid service use. As a precursor to that analysis, and in the context of the rate setting perspective established for this report, Table 20 presents simulation results comparable to those in Table 17, but reflecting actual Medicare claim payments rather than Medicare-reported cost sharing amounts. The simulation population generated \$1,110 PMPM in Medicare claim costs during calendar year 2006. HCC-based relative risk remains the same in Table 20 as it was for Tables 17 and 18. The relative actual value for the CH group was somewhat lower than that based on Medicare-reported cost sharing, but the number of member months for that group is low and can be expected to be somewhat unstable because they are so expensive. More interestingly, perhaps, the CH group represents longer-term institutional care, much as the NF group does, and is generally overpaid relative to the non-institutional groups. At 1.16, the relative actual value for the NF group shown in column (d) is slightly lower than the 1.20 based on Medicare-reported cost sharing (see Table 17), which increases the relative difference between actual and expected costs for that group and accentuates resultant differences for the remaining non-institutional groups.



**Table 20. CMS-HCC versus Actual Relative Risk
Based on Medicare-Paid Claim Payments**

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	HCC-Risk		Actual (Paid)		Differences (HCC-Actual)		
Rate Group	PMPM	Relative Value	PMPM	Relative Value	PMPM	Member Months	Total
Total	\$1,110	1.00	\$1,110	1.00	\$0	524,709	\$0
(1) CH	\$4,222	3.80	\$3,226	2.91	\$996	806	\$802,702
(2) NF	\$1,575	1.42	\$1,287	1.16	\$287	100,466	\$28,864,752
(3) CNHLOC	\$1,349	1.21	\$1,442	1.30	(\$93)	50,694	(\$4,696,269)
(4) PC	\$1,322	1.19	\$1,571	1.41	(\$249)	12,569	(\$3,127,451)
(5) Other	\$933	0.84	\$994	0.89	(\$61)	360,174	(\$21,843,733)

Notes: HCC (Hierarchical Condition Categories); PMPM (Per Member Per Month); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care).

Column (a): HCC-based PMPM if HCC relative factors were used on the overall Actual PMPM.

Column (b): Average Prospective HCC-based relative risk for 2006 calibrated to 1.00 for the population.

Column (c): Actual PMPM reflects Medicare payments reported on Medicare claims for 2006.

Column (d): Actual PMPM relative to overall Actual PMPM.

Column (e): PMPM difference between actual and HCC-derived PMPM amounts.

Column (f): Member months during CY 2006 assuming the same rate group assignment during the year.

Column (g): Total simulated dollar differences.

HCC relative factors based on 2005 calendar year data and 2007 Medicare HCC-system coefficients.

Original HCC risk scores, with an overall average of 1.81, were adjusted to a mean of 1.00.

Again, the overpayment for the NF group suggests overpayment for the system as a whole on the basis of CMS-HCC risk. To illustrate this point, the simulation was recalculated to exclude the NF population. In this instance, because it is a zero-sum game, the relative values for both the actual and HCC-based results change. Table 21 shows that HCC-based risk for the remaining institutional group (CH) still accounts for a noticeable amount of what differences remain. However, the overall differences between actual and expected costs are much lower than the results that include the NF group. The relative values for the Other group, in particular, are very close. The PC group, which represents more limited state plan benefits than the Community NHLOC and institutional groups, consists of fewer than 1,300 individuals and less than 3 percent of member months in this table, but accounts for almost all of the relative underpayment represented by a difference of nearly \$2 million between actual and expected costs. This may, in fact, hint at some level of unmet need or a lack of coordination of care for this group.



**Table 21. CMS-HCC versus Actual Relative Risk
Based on Medicare-Paid Claim Payments
NF Rate Group Removed**

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	HCC-risk		Actual (Paid)		Differences (HCC-Actual)		
Rate Group	PMPM	Relative Value	PMPM	Relative Value	PMPM	Member Months	Total
Total	\$1,068	1.00	\$1,068	1.00	\$0	424,243	\$0
(1) CH	\$4,510	4.22	\$3,226	3.02	\$1,283	806	\$1,034,152
(2) NF	\$0	0.00	\$0	0.00	\$0	0	\$0
(3) CNHLOC	\$1,441	1.35	\$1,442	1.35	(\$1)	50,694	(\$45,143)
(4) PC	\$1,412	1.32	\$1,571	1.47	(\$159)	12,569	(\$1,997,205)
(5) Other	\$996	0.93	\$994	0.93	\$3	360,174	\$1,008,197

Notes: HCC (Hierarchical Condition Categories); PMPM (Per Member Per Month); CH (Chronic Hospital); NF (Nursing Facility); CNHLOC (Community Nursing Home Level of Care); PC (Personal Care).

Column (a): HCC-based PMPM if HCC relative factors were used on the overall Actual PMPM.
Column (b): Average Prospective HCC-based relative risk for 2006 calibrated to 1.00 for the population.
Column (c): Actual PMPM reflects Medicare coinsurance reported on Medicare claims for 2006.
Column (d): Actual PMPM relative to overall Actual PMPM.
Column (e): PMPM difference between actual and HCC-derived PMPM amounts.
Column (f): Member months during CY 2006 assuming the same rate group assignment during the year.
Column (g): Total simulated dollar differences.

HCC relative factors based on 2005 calendar year data and 2007 Medicare HCC-system coefficients.
Original HCC risk scores, with an overall average of 1.63, were adjusted to a mean of 1.00.

These results reaffirm what was evident in results based on Medicare-reported cost sharing: CMS-HCC relative risk may “over-represent” the relative Medicare cost of recipients who receive longer-term institutional supports under Medicaid. MA plans that have a disproportionate number of such enrollees may also benefit disproportionately, relative to the assumptions underlying Medicare MA payments. Beyond the implications for the association between Medicaid coverage and Medicare costs, because Medicare payment assumptions are calibrated to that system as a whole, overpayment related to Medicaid institutional care will be associated with underpayment elsewhere in that system. Medicare overpayments to MA plans for longer-term NF residents create both an incentive to enroll these individuals and a strong Medicare institutional bias in payment. These results raise important questions about institutional SNPs, in particular, that go beyond much publicized overpayment to MA plans (Medicare Payment Advisory Commission, 2009; Biles, Pozen, & Guterman, 2009).

As a final note related to these results, it is very difficult to assess the nature and extent of the value in added Medicare costs associated with long-term institutional care in the absence of claim data reporting from MA plans. Although this is a problem for states when assessing integrated/coordinated programs for the dually eligible, it can be at least partially addressed by Medicaid agencies by requiring MA plans to report claim or encounter data as a requirement for participation in those programs. At the same, data reporting is a problem for assessing the MA



program as a whole, and a federal approach to data reporting requirements for MA plans would ensure more accurate and complete information across states.

Next Steps

The third report in this series will explore Medicare service use among Maryland's dually eligible population, particularly in the context of Medicaid resource use. Selected subgroups within the larger study population described in this and the previous report will be selected based on Medicaid service use. Measures of Medicare resource use for those groups, such as component costs and days of institutional care, will be examined and compared with those for matched control groups. For example, LAH Waiver participants will be identified along with a matched control group of otherwise comparable dually eligible enrollees who are 18 to 64 years of age with a similar level of need as can be determined using claims data. Descriptive and statistical measures of differences in Medicare resource use, if any, across those case (LAH) and control groups will be presented.

The fourth report in this series will summarize what is learned from the subgroup analysis in the third report within the context of the rate setting issues outlined in this report.

As was the case for the first report under the grant supporting this work, this and the subsequent reports are intended to serve as essentially technical background documents, or primers, written to inform state administrators about key issue that can affect how a state understands the broader context of resource use among dually eligible enrollees as those states develop programs of integrated long-term care for duals.



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Appendix A.

A Comparison of Managed Long-Term Care Programs





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analysis to advance the health of vulnerable populations

A Comparison of Managed Long-Term Care Programs

January 2009

A Comparison of Managed Long-Term Care Programs

The following tables compare managed long-term care programs in eight states. Table 1A (pages 2-6) examines programs in **Arizona, Florida, Massachusetts, and Minnesota**. Table 1B (pages 7-11) examines programs in **New Mexico, New York, Texas, and Wisconsin**. Both tables compare the programs along the same parameters:

- Implementation Date
- Mandatory/Voluntary
- Geographic Coverage
- Waiver Authority
- Eligibility
- Nursing Facility Level-of-Care Required
- Enrollment
- Medicare Integration
- Health Plans
- Covered Medicaid Services
- Risk for Nursing Home Care
- Capitation Rate Methodology
- Rate Cells

The Hilltop Institute researched and compiled the information in these tables. Information sources include published program descriptions, comparisons prepared by other researchers, waiver applications, and telephone interviews with state representatives. Comments and questions may be directed to:

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Table 1A. Arizona, Florida, Massachusetts, Minnesota

	ARIZONA	FLORIDA*	MASSACHUSETTS	MINNESOTA	
	Arizona Long-Term Care System (ALTCS)	Nursing Home Diversion Program	Senior Care Options (SCO)	Senior Health Options (MSHO)	Senior Care Plus (MSC+)
Implementation Date	1989	1988	2004	1997	2005
Mandatory/Voluntary	Mandatory	Voluntary	Voluntary Individuals can opt for fee-for-service.	Voluntary	Mandatory (if not enrolled in MSHO)
Geographic Coverage	Statewide	Limited Available in 30 counties	Limited. Currently: • 3 health plans in Boston/Merrimack Valley • 2 health plans in Springfield • 2 health plans in Worcester • 1 health plan in Taunton/New Bedford	Statewide	Statewide as of January 2009
Waiver Authority	1115	1915(a)(c)	1915(a)	1915(a)(c)	1915(b)(c)
Eligibility	Age 65+, physical disabilities, and developmental disabilities Exclusions: Native Americans on reservations	Age 65+, dual eligible, and meets NF level-of-care and one or more clinical criteria	All Medicaid members age 65+	All Medicaid members age 65+	All Medicaid members age 65+
Nursing Facility Level-of-Care Required	Yes	Yes	No	No	No

* Implementation of Florida Senior Care—the state’s new managed long-term care program—is currently on hold while the program is reassessed. In 2006, CMS approved a combination 1915(b)(c) waiver for Florida Senior Care, which was to be piloted in two regions—one mandatory and the other voluntary. In 2007, at the request of the legislature, the waiver was resubmitted to CMS and later approved as a 1915(a) (c). The state planned to implement what was now a voluntary program in two pilot regions. However, because of concerns voiced by advocates, health plans, and consumers, Florida Senior Care is now “on hold.”



	ARIZONA	FLORIDA*	MASSACHUSETTS	MINNESOTA	
	Arizona Long-Term Care System (ALTCS)	Nursing Home Diversion Program	Senior Care Options (SCO)	Senior Health Options (MSHO)	Senior Care Plus (MSC+)
Enrollment	46,000 in FY 08	10,000 in FY 08	10,600 in FY 08	36,000 in FY 08	11,000 in FY 08. The state expects enrollment to increase significantly when program goes statewide in January 2009.
Medicare Integration	No Health plans are encouraged, but not required, to be dual eligible SNPs.	No Health plans are not required to be dual eligible SNPs, although the state is looking to promote Medicaid-Medicare integration.	Yes. Integrated Medicare-Medicaid program with full Medicaid and Medicare benefits. All plans must be dual eligible SNPs.	Yes. Integrated Medicare-Medicaid program with full Medicaid and Medicare benefits.	No
Health Plans	9 health plans	14 health plans, with minimum of 2 plans in each participating county. Mix of non-profit and for-profit plans. Participating plans include Evercare, Universal, AMERIGROUP, Humana, some of the state's larger HMOs. Counties may participate, but none do so.	3 health plans, each operating in its own selected service areas (see "Geographic Coverage"): • Senior Whole Health (for-profit, approx. 3,000 enrollees) • Evercare (for-profit, approx. 2,000 enrollees) • Community Care Alliance (non-profit, approx. 2,000 enrollees)	Non-profit health plans	Non-profit health plans
Covered Medicaid Services	Acute and long-term care services	Acute and long-term care services	Acute and long-term care services	Acute and long-term care services	Acute and long-term care services



	ARIZONA	FLORIDA*	MASSACHUSETTS	MINNESOTA	
	Arizona Long-Term Care System (ALTCs)	Nursing Home Diversion Program	Senior Care Options (SCO)	Senior Health Options (MSHO)	Senior Care Plus (MSC+)
Risk for Nursing Home Care	Health plans are at full risk for nursing home care.	Health plans are at full risk for nursing home care.	Health plans are at full risk for nursing home care. To encourage NF transitions, if a plan transitions a member from an institution to the community, the plan continues to receive its institutional rate for 90 days. If a plan transitions a member from the community to an institution, the plan continues to receive its community rate for 90 days before shifting to the institutional rate.	Health plans are at risk for up to 180 days of nursing home care for members who are living in the community at the time of enrollment. Nursing home days per member are counted cumulatively (does not have to be a single nursing home stay). After 180 days, the nursing home is paid fee-for-service by the state and the nursing home add-on payment to the health plan ceases. However, the member remains enrolled with the health plan for all other Medicaid services while in the nursing home. Health plans are not responsible for nursing home care for members who are in a nursing home at the time of enrollment. The nursing home is paid fee-for-service by the state.	



	ARIZONA	FLORIDA*	MASSACHUSETTS	MINNESOTA	
	Arizona Long-Term Care System (ALTCs)	Nursing Home Diversion Program	Senior Care Options (SCO)	Senior Health Options (MSHO)	Senior Care Plus (MSC+)
Capitation Rate Methodology	Aged/physically disabled rates are based on financial and encounter data submitted by the MCOs. Cost categories “rolled up” into the capitation rate are: acute care, case management, HCBS, nursing facility, administration, and risk contingency (2%-3% profit margin). MCO-specific rates are weighted prospectively based on anticipated patient mix. There are no carve-outs. However, therapies are authorized and paid separately, outside the capitation rate. MCOs may negotiate with nursing homes to establish a rate for therapies. Rates are not based on acuity; cell sizes are not big enough.	A blended rate consisting of a fee-for-service capitated rate (50% weight) and a capitation rate based on encounter costs (50% weight). The state is moving to using 100% encounter costs. Under this voluntary program, the beneficiary may disenroll and revert to fee-for-service at any time. When an individual requires nursing home care, there is a strong incentive to disenroll because a limited number of nursing homes participate in the network, and nursing homes and hospital discharge planners frequently encourage disenrollment. In 2008, actuary Milliman recommended that the state charge the health plans a disenrollment fee since the capitation rate includes nursing home stays; otherwise, the plans are over-compensated.	24 rating categories differentiate members by setting of care (institution vs. community), level of care, eligibility status (dual vs. non-dual), and geographic location (Boston vs. outside Boston). To determine level of care, the state uses Management Minutes Categories (MMCs), a system established in the 1980s that counts actual minutes of care required by the individual.	Same Medicaid rates for MSHO and MSC+. For community members, health plans are paid a capitation rate equivalent to non-nursing home state plan services plus a “nursing home add-on” to cover the risk that a certain number of members will move into the nursing home in a given year. Fee-for-service per diem nursing home rates are the basis for calculating this add-on. If the member is eligible for Elderly Waiver services, the health plan receives an additional add-on payment. This separate rate cell for HCBS encourages community-based care.	



	ARIZONA	FLORIDA*	MASSACHUSETTS	MINNESOTA	
	Arizona Long-Term Care System (ALTCs)	Nursing Home Diversion Program	Senior Care Options (SCO)	Senior Health Options (MSHO)	Senior Care Plus (MSC+)
Rate Cells	2 rate cells: - Developmentally disabled. Single capitation rate; no risk adjustment. - Aged/physically disabled. Capitation rates are MCO-specific; three rates: with Medicare, without Medicare, and acute care only.	One rate cell for all levels of care. Average FY 09 PMPM is \$1,624. Rates are county- and plan-specific.	6 Medicaid rate cells: - Community Other - Community Alzheimer's Disease - Community Nursing Home Certifiable - Institutional Tier 1 - Institutional Tier 2 - Institutional Tier 3	3 Medicaid rate cells: - Community dwelling/non-nursing home certifiable - Community dwelling/nursing home certifiable - Institutionalized at enrollment or afterwards for at least 30 days There are various rates within each rate cell based on age, sex, region, and Medicare status.	



Table 1B. New Mexico, New York, Texas, Wisconsin

	NEW MEXICO	NEW YORK		TEXAS	WISCONSIN	
	Coordination of Long-Term Services (CoLTS)	Medicaid Advantage Plus	Partial Capitation	STAR+PLUS	Family Care	Family Care Partnership
Implementation Date	2008	2007	1998	1998	2000	1999
Mandatory/Voluntary	Mandatory	Voluntary	Voluntary	Mandatory	Voluntary	Voluntary
Geographic Coverage	Statewide	Limited	Limited	Limited	Limited (but rapidly expanding) Currently in 29 counties	Limited Currently in 15 counties
Waiver Authority	1915(b)(c)	1915(a)	1915(a)	1915(b)(c)	1915(b)(c)	1915(c) and 1932(a) Medicare Advantage SNP
Eligibility	“Healthy” dual eligibles and individuals assessed at NF level-of-care (NF residents, D&E waiver participants, PCO participants, certain persons with brain injury, children <21 with physical disabilities). Excludes DD population.	Age 18+, dual eligible, and meets NF level-of-care. Not eligible if in a NF.	Age 18+ and meets NF level-of-care. Not eligible if in a NF.	Mandatory for Medicaid members and individuals age 21+ with SSI; voluntary for individuals under age 21 with SSI. Residents of NFs are not eligible unless they were enrolled while still in the community.	Frail elders, persons with physical disabilities, and persons with developmental disabilities with long-term service needs.	Dual eligibles and Medicaid-only members certified for NF level-of-care
Nursing Facility Level-of-Care Required	No for dual eligibles; Yes for waiver populations	Yes	Yes	No	No	Yes
Enrollment	Projected enrollment 38,000 by July 2009	216 in FY 2008	21,408 in FY 2008	165,000 in FY 2008	22,000 as of 12/08; 55,000 expected by 2012.	3,100 as of 12/1/08
Medicare Integration	No. Health plans are required to become dual eligible SNPs	Yes. Benefits through Medicaid and a Medicare Advantage SNP.	No	No. Health plans are not required to be SNPs, but most are.	No	Yes. Benefits through Medicaid and a Medicare Advantage SNP.



	NEW MEXICO	NEW YORK		TEXAS	WISCONSIN	
	Coordination of Long-Term Services (CoLTS)	Medicaid Advantage Plus	Partial Capitation	STAR+PLUS	Family Care	Family Care Partnership
Health Plans	Two health plans that operate statewide: AMERIGROUP and Evercare	Currently 17 health plans for the state's 3 models: PACE, Medicaid Advantage Plus, and Partial Capitation. Some plans offer multiple products in the state. Membership in 3 models is growing about 20% per year.		4 health plans: AMERIGROUP, Molina, Superior, Evercare.	MCOs in cooperation with ADRCs are currently operating in 22 counties. One MCO operates in each county. There are currently 8 different MCOs operating in the state. The state anticipates eventually contracting with 12-15 MCOs when Family Care is statewide. MCOs are local entities (not national companies). As Family Care expands, the state is seeking contracts with regional entities. Some MCOs are looking to offer just Family Care; others want to offer other products.	3 of the 8 MCOs operating in the state have SNP contracts and participate in the Partnership program.
Covered Medicaid Services	Acute and long-term care services	Long-term care, ancillary, and ambulatory services	Long-term care, ancillary, and ambulatory services.	Acute and long-term care services	Long-term care only; no acute care	Long-term care and acute care



	NEW MEXICO	NEW YORK		TEXAS	WISCONSIN	
	Coordination of Long-Term Services (CoLTS)	Medicaid Advantage Plus	Partial Capitation	STAR+PLUS	Family Care	Family Care Partnership
Risk for Nursing Home Care	Health plans at full risk for nursing home care	Health plans are at full risk for nursing home care. Rates do not change if a client moves from the community to a NF or vice versa.		<i>Methodology thru January 2009 (after this, the state will begin carving out nursing home care from MCO capitation rates in response to a CMS review):</i> Health plans are at risk for nursing home care for four months only (cumulative over two years); after four months, the member is disenrolled and becomes fee-for-service. A member may be re-enrolled after s/he returns to the community. During nursing home stays, the MCO's service coordinator must visit and assess the individual at 30 days and at 90 days to determine the individual's ability to move back to the community.	Health plans are at full risk for nursing home care.	Health plans are at full risk for nursing home care.



	NEW MEXICO	NEW YORK		TEXAS	WISCONSIN	
	Coordination of Long-Term Services (CoLTS)	Medicaid Advantage Plus	Partial Capitation	STAR+PLUS	Family Care	Family Care Partnership
Capitation Rate Methodology	Blended rate based on historical cost data	Rates are based on historical MCO capitation rates, trended forward. The rates take into account the MCO's assumptions about the percentage of clients in the community versus a NF. MCOs negotiate NF rates directly with the NFs.		Methodology thru January 2009: PMPM is about \$3,500 while member is in the community. PMPM is about \$300 during a member's four-month nursing home stay. This covers the cost of the MCO's service coordinator. The nursing home bills the state directly for the member's nursing home costs. Inpatient hospital is carved out of the capitation rate. Inpatient behavioral health is included in the capitation rate.	Rate is developed each year by compiling projected costs for all clients (based on historical costs, adjusted for inflation and anticipated case mix). Use functional screen-based regression model.	Originally a PACE-like rate methodology, but being phased out by CMS



	NEW MEXICO	NEW YORK		TEXAS	WISCONSIN	
	Coordination of Long-Term Services (CoLTS)	Medicaid Advantage Plus	Partial Capitation	STAR+PLUS	Family Care	Family Care Partnership
Rate Cells	5 rate cells: • NF level of care—dual eligibles • NF level of care—Medicaid only • Mi Via—dual eligibles • Mi Via—Medicaid only • Healthy dual eligibles	2 Medicaid rate cells: • Under age 65 • Age 65+		8 Medicaid rate cells: • Medicaid only OCC (acute and LTC) • Medicaid only CBA (acute and LTC) • Dual eligible OCC (LTC) • Dual eligible CBA (LTC) 4 rate cells above are calculated for “Harris County” and “non-Harris County” to arrive at 8 rate cells. CBA: Community-Based Alternatives OCC: Other community care	2 rate cells: • Comprehensive Level-of-Care (LOC) • Intermediate LOC	





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