



# Analysis of Community Care of North Carolina Cost Savings

Prepared for:  
**North Carolina Division of Medical Assistance**

Prepared by:  
**Robert Cosway, FSA, MAAA**  
Principal and Consulting Actuary  
858-587-5302  
[bob.cosway@milliman.com](mailto:bob.cosway@milliman.com)

**Chris Girod, FSA, MAAA**  
Principal and Consulting Actuary  
858-587-5304  
[chris.girod@milliman.com](mailto:chris.girod@milliman.com)

**Barbara Abbott, ASA, MAAA**  
Actuary  
858-202-5010  
[barbara.abbott@milliman.com](mailto:barbara.abbott@milliman.com)

Milliman, Inc.  
4370 La Jolla Village Drive  
Suite 700  
San Diego, CA 92122

Tel +1 858 558 8400  
Fax +1 858 597 0111

[milliman.com](http://milliman.com)

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## EXECUTIVE SUMMARY

### Introduction

The purpose of this analysis is to report on Medicaid cost savings achieved by the Community Care of North Carolina (CCNC) networks for the Division of Medical Assistance (DMA) during state fiscal years 2007 to 2010 (July 1, 2006 to June 30, 2010). Specifically, this report addresses the following two objectives, which are outlined in more detail in RFP No. 30-DMA-259-11:

1. Determine the savings CCNC is providing to the Medicaid program relative to what program costs would have been without any concerted efforts to control costs (effective fiscal year-over-year savings).
2. Determine year-over-year cost savings from any new intervention implemented by CCNC.

During State fiscal years 2007 to 2010, CCNC's efforts were primarily broad, membership-wide initiatives consistent with the medical home model. Accordingly, our analysis focused on overall program costs. Several new interventions, the "enhanced services," were introduced April 1, 2010. Later Milliman reports will estimate the cost savings attributable to these and any other new interventions implemented by CCNC during the period July 1, 2009 to June 30, 2010, and then each successive fiscal year.

In this report we present results for the following eligibility groups, as defined in RFP No. 30-DMA-259-11:

- Aged, blind and disabled (ABD) Medicaid only
- Aged, blind and disabled (ABD) dual eligibles
- Children age 20 and under (excluding ABD)
- Adults (excluding ABD)

These groups represent the vast majority of all Medicaid members, so the results of this analysis are a credible representation of the entire program's results.

It is very difficult to estimate the impact of care management efforts, such as those provided by CCNC, on health care costs. The medical home model emphasizes quality and improved access to comprehensive and proactive primary care. This emphasis has a cost, as members receive more primary care services and prescription drugs. Also, the medical home model has direct costs, related to required infrastructure and increased medical management activities.

Under the medical home model, it is assumed that these additional costs will be more than offset by reduced costs for emergency room visits, inpatient hospital admissions, and other services as members receive improved access to primary care, prescription drugs, and other appropriate treatments for chronic conditions. Thus, the expected cost savings are due to future medical services that would have occurred absent the care management effort, but were avoided by earlier intervention. It is impossible to measure directly the cost of services that "would have occurred." In addition, there is a time lag between the increased medical home activity and when the avoided, more expensive episodes would have occurred.

There is no single method to perform this type of analysis. This report contains the results of three analyses we performed on the North Carolina Medicaid claims data. The primary method allows the most direct estimation of cost savings, and is the basis for the results presented in this Executive Summary. The results of the other methods are generally consistent with the primary method, and allow for different views of the data. Each analysis attempts to isolate the impact of CCNC on the health care costs of an individual or group of Medicaid beneficiaries.

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**Results**

Under the primary method, Method 1, we calculated observed costs per member for CCNC and non-CCNC members, adjusted them to reflect an equivalent health status, and then attributed the remaining cost differences to the managed care efforts of CCNC.

Under this method, we compared the per member per month (PMPM) costs in each fiscal year for the beneficiaries who were, and were not, enrolled in CCNC. The following table summarizes the estimated PMPM costs in FY10 for each of the eligibility groups studied, separately for CCNC, non-CCNC, and total. With the exception of ABD Dual Eligibles, the costs have been adjusted to remove the impact of the estimated differences in health status between CCNC and non-CCNC members. For ABD Dual Eligibles, we could not make a reliable health status adjustment, as described in the table footnote.

North Carolina Division of Medical Assistance Comparison of CCNC and Non-CCNC PMPM Costs Method 1 Summary Results Risk-Adjusted Medical and Management PMPM Costs in FY2010						
Eligibility Category	CCNC Average Members per Month	Non-CCNC Average Members per Month	Total Average Members per Month	CCNC PMPM Costs	Non-CCNC PMPM Costs	CCNC as a Percentage of Non-CCNC PMPM Costs
ABD Medicaid Only	103,844	56,786	160,629	\$1,247.82	\$1,289.95	96.7%
ABD Dual Eligibles	51,240	130,631	181,871	\$567.04	\$556.76	101.8%
Children age 20 and under (excluding ABD)	633,967	122,168	756,136	\$185.15	\$218.09	84.9%
Adults (excluding ABD)	103,357	51,300	154,657	\$441.05	\$518.61	85.0%

(1) Duals are not adjusted for changes in health status differences because risk scores were not provided by TREO. Given that Medicare is the primary payer for the dual eligibles, the Medicaid claims system does not have complete claims history for dual eligible members, with which to calculate risk scores.

The table above suggests that the CCNC risk-adjusted PMPM costs for fiscal year 2010 are about 15% lower than the non-CCNC PMPM costs for both Children and Adult eligibility groups. For the ABD Medicaid Only eligibility group, CCNC risk adjusted PMPM costs are about 3.3% lower than the non-CCNC PMPM costs. The ABD Dual Eligible group shows CCNC PMPM costs that are 1.8% higher than the non-CCNC PMPM costs.

Based on these PMPM savings estimates, and similarly calculated estimates for prior fiscal years which are shown in Attachment 1B, the following table estimates the total cost savings attributable to CCNC. The table suggests the savings potentially attributable to CCNC have grown during the four-year study period. In FY07, the total savings was approximately \$103 million, or about \$8.73 PMPM, with costs approximately 1.9% lower than expected if all members were not enrolled in CCNC. In FY10, the total savings was approximately \$382 million, or about \$25.40 PMPM, with costs approximately 5.8% lower than expected if all members were not enrolled. Note that all savings estimates are net of the PMPM payments paid to CCNC (i.e., CCNC management fees have been included in the expenses).

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North Carolina Division of Medical Assistance Estimated Cost Savings Calculated Using Method 1				
Fiscal Year	Average Members per Month	PMPM Savings	Total Annual Savings	Percent Savings
FY07	983,356	\$8.73	\$103,000,000	1.9%
FY08	1,083,636	\$15.69	\$204,000,000	3.4%
FY09	1,176,778	\$20.89	\$295,000,000	4.6%
FY10	1,253,292	\$25.40	\$382,000,000	5.8%

The following table shows a breakout of the cost savings by eligibility group for each of the fiscal years.

North Carolina Division of Medical Assistance Estimated Cost Savings Calculated Using Method 1 by Fiscal Year and Eligibility Group					
Fiscal Year	ABD Medicaid Only	ABD Dual Eligibles	Children age 20 and under (excluding ABD)	Adults (excluding ABD)	Totals
FY07	(\$82,000,000)	(\$14,000,000)	\$177,000,000	\$22,000,000	\$103,000,000
FY08	(\$34,000,000)	(\$9,000,000)	\$202,000,000	\$45,000,000	\$204,000,000
FY09	(\$13,000,000)	(\$11,000,000)	\$261,000,000	\$58,000,000	\$295,000,000
FY10	\$53,000,000	(\$6,000,000)	\$238,000,000	\$97,000,000	\$382,000,000

This table suggests that Children and Adults have been the largest contributors of cost savings. We estimate that savings were positive for the ABD Medicaid Only category in FY10, but not in prior years. This result is consistent with the more recent increased focus on this population, and the observation that the short-term cost impact of CCNC on a new ABD member may actually be an increase, due to increased primary care and prescription drugs costs.

The result for Dual Eligibles may be less credible due to the lack of risk adjustment in their costs. Also, the medical costs in this report include only the amounts paid by Medicaid. It is possible that CCNC care management results in cost savings for the Medicare portion of Dual Eligible costs, which includes almost all of the costs for inpatient services.

### Reasonableness Assessments

All of our analysis was based entirely on North Carolina Medicaid claims data. As a reasonableness test for our results, we also discuss independent actuarial estimates of the impact of managed care activities on the costs for any health plan. We concluded that the CCNC savings estimates are consistent with what has been achieved by programs using similar managed care techniques.

The Milliman Health Cost Guidelines (HCGs) are widely viewed as the preeminent health cost estimation tool in the actuarial profession. They have been used to evaluate the managed care approaches used in other state Medicaid programs. Based on the HCGs, and our experience in other states, we believe that the current CCNC medical management structure should be expected to produce health cost savings of approximately 7% to 15%. The estimating 2010 CCNC savings for Children and Adults are within this range. The lower estimated savings for ABD Medicaid Only may be because CCNC's enrollment has grown rapidly among ABD Medicaid Only beneficiaries in recent years, and the first year CCNC cost for an ABD Medicaid Only member may actually increase due to the increased utilization of primary care and

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prescription drugs. Once enrolled, it appears that trends in later years for ABD Medicaid Only members are lower for CCNC members. This issue is discussed further in the following section.

### Alternative Methods

As previously mentioned, we used three methods to identify savings potentially attributable to CCNC. Each of the three methods attempts to isolate the impact of CCNC on the health care costs of an individual or group of Medicaid beneficiaries. Methods 2 and 3 do not produce annual cost savings estimates, but may provide other insights into the cost impact of CCNC.

Method 2 looks at year-to-year cost trends for all beneficiaries. Method 2 results show that after adjusting for program changes and changes in health status, the cumulative trends experienced by all of these eligibility groups, for CCNC and non-CCNC members combined, are lower than we would expect under typical utilization trends. We cannot estimate with any precision how much of these utilization trends were avoided due to CCNC's efforts, but the magnitude of the avoided trend is not inconsistent with what we might expect given CCNC's expanded efforts and the increased percentage of eligible members enrolled in CCNC.

Method 3 looks at individual beneficiaries who became CCNC members during the study period, and compares their health costs in the 12 months before and after their enrollment. Method 3 results vary by eligibility group, but generally suggest that CCNC members have lower trends than non-CCNC members when comparing trends for otherwise similar beneficiaries over a 24-month period.

For the Adult and Children eligibility categories, in the year after CCNC enrollment, Method 3 indicated that total PMPM costs decreased, whereas we saw increases for similar individuals that were either (1) in CCNC the entire time or (2) were never in CCNC. As might be expected, the costs for new enrollees increased for primary care and pharmacy in the year after enrollment. However, these cost increases were more than offset by decreases in other costs, particularly hospital costs.

For the ABD Medicaid Only eligibility category, in the year after enrollment, costs increased more than similar individuals that were either (1) in CCNC the whole time, or (2) were never in CCNC. As might be expected, the costs increased for primary care and pharmacy, and decreased for emergency room and inpatient admissions. This result suggests that the first year costs to treat ABD beneficiaries in a medical home environment may be higher than the short term savings resulting from avoided emergency room and inpatient admissions. Trends for ABD members continuously enrolled in CCNC over a 24-month period are lower than for similar beneficiaries that were never enrolled during the same 24-month period.

### Potential Sources of Uncertainty

The methods we used to measure cost savings do not guarantee that the calculated savings are in fact exclusively attributable to the activities of CCNC. We attempted to identify and remove other sources of cost differences, such as a member's age, gender, and health status. However, it is possible that there are other unidentified factors that, if they could have been measured, would have produced different estimates of the cost impact of CCNC. For example, CCNC enrollment has been voluntary for many Medicaid beneficiaries during the study period. It may be that beneficiaries that voluntarily enroll in CCNC have expected health costs that differ from those that do not enroll, and those differences were not fully captured in our health status adjustment, which was based on each beneficiary's diagnoses and prescription drug utilization.

Many results in this report are based on adjusting observed health costs for a group of beneficiaries to account for their health status. This adjustment is designed to address the common argument that the costs of two populations cannot be compared because "our patients are sicker than yours." While no health status adjustment method is perfect, approaches like the one used in this report are widely used to

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adjust payments to health plans and providers in Medicare Advantage and Medicaid managed care plans. This type of health status adjustment will also be an important element of the Exchanges for the commercial population starting in 2014.

We received annual CRG risk scores for each Medicaid beneficiary from CCNC. We relied on these assignments without audit, but reviewed them for reasonableness. We did not find any issues with the scores provided by CCNC that would have a material effect on the results in this report. Nevertheless, it is important to bear in mind that such risk adjustors, sophisticated as they are, are not perfect predictors of differences in health care costs.

## Conclusions

Our analysis suggests that CCNC has reduced North Carolina Medicaid costs through care management activities. The reductions are mainly seen in hospital and emergency room costs. However, there are significant sources of uncertainty in this type of analysis. We recommend that DMA continue to monitor the cost and savings of the CCNC program.

The goal of a medical home model is to improve clinical outcomes and to reduce health care costs. Our analysis focused only on health care costs. The short and long term value of improved clinical outcomes, both to the member and the State, is not measured but should be considered in any discussion of the CCNC program.

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## DISCLOSURES AND LIMITATIONS

Milliman, Inc. was engaged by the North Carolina Department of Health and Human Services (DHHS) to complete this study. The scope of the study was defined in RFP number 30-DMA-259-11 issued by the DHHS and was further clarified through discussions with the staff of DHHS.

The purpose of this study is to assess whether the CCNC program is producing savings for the State. Data and information published in this report may not be suitable and should not be used for other purposes. This report should only be reviewed in its entirety.

The estimations described in this report are not predictions. Rather, they are estimations of consequences that will occur if the underlying assumptions are realized precisely. Actual experience will deviate from these projections due to a variety of influences.

In performing this study, Milliman has relied on data and information from many sources, including data provided by DMA, CCNC, NCCCN, and TREO. We have not audited the data for accuracy, although we have reviewed them for reasonableness. If data or information provided to us were inaccurate or incomplete, then our calculations and conclusions may also be inaccurate.

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The information presented in this report may not be appropriate for states other than North Carolina. It would also be inappropriate to extrapolate the results presented in this report to any given CCNC network or subpopulation.

The results in this report are technical in nature and are dependent upon specific assumptions and methods. No party should rely upon this report without a thorough understanding of those assumptions and methods. Such an understanding may require consultation with qualified professionals.

The views expressed in this paper are being made by the authors of this paper and do not represent the opinion of Milliman, Inc. Other Milliman consultants may hold different views.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. The authors of this paper are members of the American Academy of Actuaries, and meet the qualification standards for performing this analysis.

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