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January 2, 2015

Mr. Christian Soura
Director
State of South Carolina
Department of Health and Human Services
1801 Main Street
Columbia, SC 29202-8206

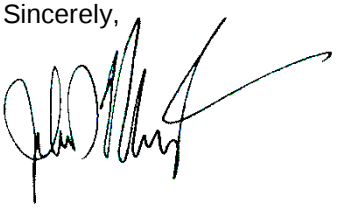
Re: Proviso 33.16: Medicaid Cost Effectiveness Analysis

Dear Mr. Soura:

Thank you for the opportunity to assist the South Carolina Department of Health and Human Services with this important project. Our report summarizes the results of our analysis of the cost effectiveness of South Carolina's Medicaid managed care programs as required by Proviso 33.16. The cost effectiveness analysis included in this report covers the period January 1, 2013 through December 31, 2013.

Please call me at 262-796-3434 if you have questions.

Sincerely,



John D. Meerschaert, FSA, MAAA
Principal and Consulting Actuary

JDM/zk

Attachments

State of South Carolina
Department of Health and Human Services
Medicaid Cost Effectiveness Analysis
January 2013 – December 2013

Prepared for:
State of South Carolina
Department of Health and Human Services

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January 2, 2015

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I. EXECUTIVE SUMMARY

This report documents our analysis of the cost effectiveness of South Carolina's Medicaid programs as required by Proviso 33.16 for the period January 1, 2013 through December 31, 2013 (CY 2013). We selected CY 2013 for our study period due to the conversion of MHNs to MCOs effective January 1, 2014.

The South Carolina Department of Health and Human Services (SCDHHS) retained Milliman to assess and measure the cost effectiveness of the two forms of Medicaid managed care, Managed Care Organizations (MCOs) and Medical Home Networks (MHNs). We prepared this analysis to assess the cost effectiveness of the two managed care programs compared to the fee-for-service (FFS) program. Our analysis provides SCDHHS with an actuarially sound determination of the programs' cost effectiveness.

Migration of the FFS population into MCOs and MHNs due to mandatory managed care enrollment has significantly impacted the credibility of the continuously shrinking FFS population. Over the past two years, the FFS population has decreased from 21% of the total MCO- eligible population in the April 2010 – March 2011 time period to 8% in the CY 2013 time period.

Given the small size of the FFS population in the more recent time period, we modified our methodology to evaluate the cost-effectiveness of the managed care programs using adjusted historical FFS data (April 2011 – March 2012) as the basis for comparison. Even after this change, there remains considerable potential variability in the results of our analysis due to the small size of the FFS population. Readers of this report should be cautious in the interpretation of the results presented here due to this potential variability.

We anticipate any future cost effectiveness analyses will continue to rely on aging historical FFS data, as enrollment of managed care-eligible individuals in the FFS program continues to decrease. We may need to discuss alternative methodologies if SCDHHS is required to continue demonstrating cost-effectiveness of the managed care program.

The results presented in this report are based on information from the most recent period examined.

RESULTS

We developed the cost effectiveness comparison based on SCDHHS expenses for MCO-eligible Medicaid beneficiaries for CY 2013. The following expenditures were considered in our analysis:

- MCO capitation payments
- All programs include FFS expenditures for the services included in the MCO capitation rates during the study period
- MCO expenditures include the estimated FQHC and RHC wraparound payments paid by SCDHHS for MCO enrollees
- MHN expenditures include the $10 PMPM management fee, but do not include MHN shared savings settlements
- FFS and MHN expenditures include an estimate of the additional SCDHHS administrative expenses incurred by the FFS and MHN programs compared to the MCO program. We estimate SCDHHS spends an additional $5.00 PMPM, or 2% of total program cost, on administrative services for the FFS and MHN programs compared to the MCO program.

The analysis presented in this report does not reflect the impact of pharmacy rebates.

Please refer to our report supplement dated December 23, 2014 for a more detailed discussion of the impact of including pharmacy rebates in the cost effectiveness analysis.

It is important to note that differences exist between the MHN and MCO programs that have not been accounted for in this analysis. Specifically, the MCO capitation rates assume reimbursement of facility expenses at a level exceeding Medicaid fee-for-service reimbursement. Additionally, the pharmacy rebate program creates differences in how the prescription drug benefit is managed between the MCO and MHN programs: the MCOs target their efforts to manage gross costs while SCDHHS, through the MHN program, aims at reducing net costs. Those differences contribute to the disparity between the cost effectiveness of the MCO and MHN programs as determined in this analysis.

Table 1 shows the results of our analysis. Excluding the impact of pharmacy rebates, we estimate the MHN program saves 9.5% and the MCO program saves 9.3% compared to the FFS program.

Table 1
South Carolina Department of Health and Human Services
Risk Adjusted CY 2013 Cost Per Member Per Month (PMPM)
Excluding Impact of Pharmacy Rebates

Population	FFS Cost PMPM	MCO Cost PMPM	MHN Cost PMPM
TANF Children	$128.23	$123.69	$117.12
TANF Adult	321.11	325.45	299.93
SSI	805.54	689.78	710.24
Total Population	247.56	229.14	223.58
Marginal SCDHHS Administrative Expenses Compared to MCO Program	5.00	0.00	5.00
Total with Marginal SCDHHS Administrative Expenses	***$252.56***	***$229.14***	***$228.58***
Ratio of Total Cost to Total FFS Cost		***90.7%***	***90.5%***

The infant and pregnant women populations are excluded from our analysis.

DATA RELIANCE AND IMPORTANT CAVEATS

We used FFS program expenditures for April 2011 through March 2012 dates of service, managed care program experience and Medicaid eligibility for CY 2013, and the results of several other SCDHHS analyses to determine the cost effectiveness of the Medicaid managed care programs compared to FFS. This data was provided by SCDHHS. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Milliman prepared this report for the specific purpose of determining the cost effectiveness of the Medicaid managed care programs. This report should not be used for any other purpose. This report was prepared solely for the internal business use of and is only to be relied upon by the management of SCDHHS. We anticipate the report will be shared with contracted MCOs, MHNs, and other interested parties. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work. It should only be reviewed in its entirety.

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

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

The terms of Milliman's contract with SCDHHS dated July 1, 2014 apply to this report and its use.

II. BACKGROUND

During the study period, there were two types of Medicaid managed care plans in South Carolina: Traditional Managed Care Organizations (MCOs) and Medical Home Networks (MHNs).

Medicaid MCOs have been operating in South Carolina since 1996. The MCOs are financially responsible for the services in the MCO contract under a full risk capitated payment arrangement. In August 2007, SC DHHS implemented the South Carolina Healthy Connections Choices program to more effectively enroll members in health plans. When members enroll, they choose a health plan and a doctor (or clinic). Healthy Connections Choices helps members choose a health plan that is best for them. SCDHHS currently contracts with six MCOs.

The MHN program is a primary care case management program and is composed of a Care Coordination Services Organization (CSO) and the PCPs enrolled in that network. The CSO supports the physicians and enrolled members by providing care coordination, disease management, and data management. The PCPs manage the health care of their members, which includes authorizing services provided by other health care providers. The MHNs receive a monthly payment to manage the services delivered to their enrollees. Services are paid through the FFS system.

As of January 2014, existing MHNs converted to MCO status to receive full risk capitation payments. There are now six MCOs participating in the South Carolina Medicaid program.

With the help of MCOs and MHNs, SCDHHS seeks to increase care coordination and disease prevention methods not found in traditional FFS Medicaid.

The South Carolina General Assembly originally included proviso 33.16 in the fiscal 2014 Appropriations Act:

> *"The Department of Health and Human Services shall establish a procedure to assess the various forms of health care delivery systems to measure cost effectiveness and quality. These measures must be compiled on an annual basis on identifiable benchmarks. These measures must broadly address agency program areas and initiatives using national and state measures. Cost effectiveness shall be determined in an actuarially sound manner and data must be aggregated in a manner to be determined by a third party. The methodology must use appropriate case-mix and actuarial adjustments. The department shall issue an annual healthcare report of statewide measures deemed appropriate by the department required under state and federal guidelines. The report shall be formatted in a clear, concise manner in order to be easily understood by Medicaid beneficiaries and other stakeholders. The annual results of the cost effectiveness calculations, quality measures and the report cards shall be made public on the department's website by December thirty-first for the prior state fiscal year."*

This report covers the measurement of the cost effectiveness required by proviso 33.16.

III. METHODOLOGY

This section of our report documents the methodology used in developing an actuarially sound analysis of the cost effectiveness of the Medicaid managed care programs in South Carolina.

GENERAL DESCRIPTION

This analysis compares SCDHHS costs for the FFS program to the two managed care options available to Medicaid enrollees in South Carolina during the CY 2013 period. In order to consistently assess the cost effectiveness of the two managed care programs compared to FFS, we limited our analysis to a comparable population and a defined set of services.

- We only included individuals that are eligible to enroll in the MCO program.
- We excluded individuals enrolled through the "Express Lane Eligibility" program.
- We included the cost of services included in the MCO capitation rates during CY 2013.
- We risk adjusted the cost of each population to reflect the differences in population acuity for MCO, MHN, and FFS enrollees.

Not all Medicaid recipients are eligible to enroll in the Medicaid managed care program as defined by Payment Category and Waiver Program codes. Table 2 below shows the ineligible payment categories.

Table 2
South Carolina Department of Health and Human Services
Excluded Payment Category Codes

Payment Category	Description	Payment Category	Description
10	MAO (Nursing Home)	49	S3 SLMB
14	MAO (General Hospital)	50	Qualified Working Disabled
15	MAO (CLTC Waiver)	52	SLMB
33	ABD Nursing Home	54	SSI Nursing Home
41	Reinstatement	56	COSY / ISCEDC
42	Silver Card and SLMB	70	Refugee Entrant
43	Silver Card and S2 SLMB	90	QMB
48	S2 SLMB	92	Silver Card

Table 3 shows the only waiver programs eligible for Medicaid Managed Care. All other waiver program enrollees are excluded.

Table 3
South Carolina Department of Health and Human Services
Included Waiver Programs

Waiver Program Code	Description
CHPC	Children's Personal Care Aid
ISED	Emotionally Disturbed Children
MCPC	Integrated Personal Care Service CRCF Recipients
WAHS	Healthy Start

We excluded the newborn and pregnant women population from our analysis. Our analysis compares costs on an incurred claims basis and the timing of the delivery makes it difficult for analysis since the pre-natal costs may be incurred FFS, while the higher delivery costs may occur in an MCO or under the MHN enrollment period. The cost for newborns presents a similar challenge due to the timing of the more expensive birth month within the TANF 0-2 month rate cell.

We excluded Express Lane Eligibility children from our analysis because a large proportion of that group did not have appropriate data to effectively calculate a risk score and adjust the results of our analysis to a risk neutral comparison. We also excluded the Dual Eligible population due to the retroactive nature of the dual status determination.

Please refer to our January 14, 2013, August 22, 2013 and February 11, 2014 MCO rate setting reports for a detailed description of the benefits included in the MCO capitation rates during the CY 2013 rate period.

FFS POPULATION COST

To calculate the FFS population cost, we summarized the April 2011 – March 2012 FFS medical expenditures for services included in the MCO capitation rates for FFS enrollees that would be eligible for the MCO program. We used an historical time period due to the difficulties in developing a credible cost effectiveness comparison related to the migration of the FFS population into MCOs and MHNs following the mandatory managed care enrollment. This enrollment migration has left a very specialized population in the FFS program. We believe that the risk score and costs are not well correlated for the remaining FFS population which makes the cost effectiveness comparison challenging.

We removed Graduate Medical Education payments and adjusted for incurred but not reported (IBNR) claims. The claims data used in developing the FFS population cost includes claims paid through October 31, 2012 allowing for seven months of run-out from the time this information was summarized. The IBNR adjustment reflects an estimate of the claims that will be paid after October 31, 2012. The FFS data used in our analysis is consistent with the data used for the cost effectiveness analysis under Proviso 21.33.

We then applied an adjustment for Third Party Liability to reflect recoveries that are not included in the claims data. We used a 0.995 adjustment factor consistent with previous analyses of Third Party Liability for the FFS program enrollees. Finally, we applied an adjustment for hospital administrative days to account for administrative hospital day payments that are not included in the claims data. We used a 1.0007 adjustment factor consistent with previous analyses of administrative day payments for the FFS program enrollees.

We trended the April 2011 – March 2012 cost to CY 2013 using annual trend rates consistent with the MCO capitation rate development. We also made an adjustment to account for the benefit and reimbursement changes that occurred between April 2011 – March 2012 and CY 2013. Table 4 below shows the adjustment factors from April 2011 – March 2012 to CY 2013.

Table 4
South Carolina Department of Health and Human Services
Adjustment Factors for Benefit and Reimbursement Changes

Rate Cell	Gender	Adjustment Factor
TANF: Age 1 - 6	Unisex	1.021
TANF: Age 7 - 13	Unisex	0.989
TANF: Age 14 - 18	Male	1.062
TANF: Age 14 - 18	Female	1.041
TANF: Age 19 - 44	Male	1.013
TANF: Age 19 - 44	Female	1.052
TANF: Age 45+	Unisex	1.035
SSI: Child*	Unisex	0.567
SSI: Adult*	Unisex	1.227

**Adjustment factors reflect the change from one to two SSI rate cells.*

We normalized the projected FFS cost using risk scores developed from April 2011 – March 2012 claims data consistent with the base period cost information. We then used risk scores developed from October 2012 - September 2013 claims data for the FFS population to estimate effective CY 2013 un-normalized FFS costs. The October 2012 - September 2013 time period used in developing the risk scores is intended to be used as a proxy for CY 2013, due to insufficient data received from one MCO starting October 1, 2013.

Table 5 below shows the estimated CY 2013 FFS population cost. Note that detailed rate cell results are combined into the TANF Children, TANF Adult, and SSI categories using the total MCO-eligible population demographics (including FFS, MCO and MHN enrollees).

Table 5
South Carolina Department of Health and Human Services
CY 2013 FFS Population Cost
Excluding the Impact of Pharmacy Rebates

Rate Cell	Gender	CY 2013 MCO Eligible Member Months	Total Cost PMPM
TANF: Age 1 - 6	Unisex	2,136,863	$106.13
TANF: Age 7 - 13	Unisex	2,037,273	143.68
TANF: Age 14 - 18	Male	555,678	274.92
TANF: Age 14 - 18	Female	570,302	260.74
TANF: Age 19 - 44	Male	170,267	258.47
TANF: Age 19 - 44	Female	749,324	262.33
TANF: Age 45+	Unisex	112,206	510.47
SSI: Child	Unisex	302,768	492.29
SSI: Adult	Unisex	694,752	1,053.60
Prior to Risk Adjustment			
TANF Children		5,300,116	$154.90
TANF Adult		1,031,797	288.68
SSI		997,520	883.23
Risk Adjusted			
TANF Children		5,300,116	$128.23
TANF Adult		1,031,797	321.11
SSI		997,520	805.54

MCO POPULATION COST

The cost of the MCO population is comprised of three components:

- The capitation amount paid to the MCOs,
- FQHC and RHC wraparound payments made by SCDHHS for MCO enrollees, and
- FFS expenditures for services already included in the MCO capitation rates and related services provided by other providers.

Table 6 below shows the development of the MCO population cost. Note that detailed rate cell results are combined into the TANF Children, TANF Adult, and SSI categories using the total MCO-eligible population demographics (including FFS, MCO and MHN enrollees).

Table 6
South Carolina Department of Health and Human Services
CY 2013 MCO Population Cost
Excluding the Impact of Pharmacy Rebates

Rate Cell	Gender	CY 2013 MCO Eligible Member Months	Capitation PMPM*	FFS Cost PMPM	Total Cost PMPM
TANF: Age 1 - 6	Unisex	2,136,863	$123.57	$1.55	$125.12
TANF: Age 7 - 13	Unisex	2,037,273	109.19	3.35	112.54
TANF: Age 14 - 18	Male	555,678	125.77	7.91	133.68
TANF: Age 14 - 18	Female	570,302	158.35	7.33	165.67
TANF: Age 19 - 44	Male	170,267	250.33	1.25	251.58
TANF: Age 19 - 44	Female	749,324	350.88	2.67	353.55
TANF: Age 45+	Unisex	112,206	538.16	2.07	540.23
SSI: Child	Unisex	302,768	430.77	28.61	459.38
SSI: Adult	Unisex	694,752	924.84	6.33	931.17
Prior to Risk Adjustment					
TANF Children		5,300,116	$122.01	$3.53	$125.55
TANF Adult		1,031,797	354.65	2.37	357.02
SSI		997,520	774.88	13.09	787.97
Risk Adjusted					
TANF Children		5,300,116	$120.21	$3.48	$123.69
TANF Adult		1,031,797	323.29	2.16	325.45
SSI		997,520	676.07	13.71	689.78

**Includes $2.92 PMPM for FQHC / RHC wraparound payments.*

For the capitation amount component, we summarized the MCO enrollment during the CY 2013 analysis period and developed composite capitation rates PMPM using the November 2012 – January 2013, February 2013 – March 2013, April 2013 – September 2013 and October 2013 – December 2013 capitation rates for the standard benefit package effective during the study period. We removed the Supplemental Teaching Payment component of the MCO capitation rates.

We increased the TANF children rate cells by 0.9% to remove the impact of the ELE kids since they are included in the MCO capitation rates.

SCDHHS made FQHC and RHC wraparound payments totaling $2.92 PMPM for CY 2013. We reflected these payments as a flat PMPM amount by rate cell.

For the FFS cost component, we summarized the CY 2013 FFS expenditures for services included in the MCO capitation rates during CY 2013 and related services provided by other providers. We removed Graduate Medical Education payments and adjusted for IBNR.

MHN POPULATION COST

To calculate the MHN population cost, we summarized the CY 2013 FFS expenditures for services included in the MCO capitation rates during CY 2013.

We removed Graduate Medical Education payments and adjusted for IBNR claims. The claims data used in developing the FFS cost component includes claims paid through November 30, 2014 allowing for eleven months of run-out for the CY 2013 study period. The IBNR adjustment reflects an estimate of the claims that will be paid after November 30, 2014.

We then applied an adjustment for Third Party Liability to reflect recoveries that are not included in the claims data. We used a 0.995 adjustment factor consistent with previous analyses of Third Party Liability for the FFS program enrollees. Finally, we applied an adjustment for hospital administrative days to account for administrative hospital day payments that are not included in the claims data. We used a 1.0007 adjustment factor consistent with previous analyses of administrative day payments for the FFS program enrollees.

We also added the $10 PMPM MHN management fee to all rate cells but excluded MHN shared savings settlements.

Table 7 below shows the estimated CY 2013 MHN population cost. Note that detailed rate cell results are combined into the TANF Children, TANF Adult, and SSI categories using the total MCO-eligible population demographics (including FFS, MCO and MHN enrollees).

Table 7
South Carolina Department of Health and Human Services
CY 2013 MHN Cost Component
Excluding the Impact of Pharmacy Rebates

Rate Cell	Gender	CY 2013 MCO Eligible Member Months	Cost PMPM	MHN Management Fee PMPM	Total Cost PMPM
TANF: Age 1 - 6	Unisex	2,136,863	$106.50	$10.00	$116.50
TANF: Age 7 - 13	Unisex	2,037,273	114.45	10.00	124.45
TANF: Age 14 - 18	Male	555,678	141.23	10.00	151.23
TANF: Age 14 - 18	Female	570,302	153.54	10.00	163.54
TANF: Age 19 - 44	Male	170,267	232.84	10.00	242.84
TANF: Age 19 - 44	Female	749,324	342.71	10.00	352.71
TANF: Age 45+	Unisex	112,206	520.00	10.00	530.00
SSI: Child	Unisex	302,768	561.99	10.00	571.99
SSI: Adult	Unisex	694,752	990.73	10.00	1,000.73
Prior to Risk Adjustment					
TANF Children		5,300,116	$118.26	$10.00	$128.26
TANF Adult		1,031,797	343.86	10.00	353.86
SSI		997,520	860.60	10.00	870.60
Risk Adjusted					
TANF Children		5,300,116	$107.12	$10.00	$117.12
TANF Adult		1,031,797	289.93	10.00	299.93
SSI		997,520	700.24	10.00	710.24

RISK ADJUSTMENT PROCESS

We used the CPDS+Rx version 5.4 model for the determination of risk adjustment factors used in this analysis. CPDS+Rx is a diagnostic and pharmacy based risk adjustment system developed by the researchers at the University of California, San Diego (UCSD).

The risk scores were developed based on medical and pharmacy claims experience in both the FFS and encounter data. Individual recipients were required to have a minimum of six months of Medicaid eligibility during the data period to be included in the analysis. We used data from October 2012 - September 2013 estimate effective CY 2013 risk scores. This time period is intended to be used as a proxy for CY 2013, due to insufficient data received from one MCO starting October 1, 2013. FFS and MHN enrollees were limited to those meeting MCO eligibility requirements. Retroactive eligibility months were excluded consistent with the MCO rate development methodology as follows:

- Three months of claims and eligibility are removed for SSI and SSI related payment categories,
- Two months of claims and eligibility are removed for all other payment categories

MHN enrollment periods were isolated from FFS enrollment periods. The ELE population is excluded from the risk adjustment process.

Table 8 shows the average risk scores for the various eligibility categories for each program.

Table 8
South Carolina Department of Health and Human Services
CY 2013 Risk Scores

Eligibility Group	FFS Population	MCO Population	MHN Population	Total Population
TANF Children	1.208	1.015	1.104	1.050
TANF Adult	0.899	1.097	1.186	1.090
SSI Children	1.197	0.858	1.014	0.997
SSI Adult	1.078	1.230	1.297	1.228