

August 25, 2009

Ms. Margaret Liston  
Chief, Financial Management Section  
California Department of Health Care Services  
Medi-Cal Managed Care Division  
1501 Capital Avenue, PO Box 997413  
MS 4400  
Sacramento, CA 95899-74163

**FINAL**

Subject: Medi-Cal Contract Year 2010 Risk Adjustment Methodology

Dear Ms. Liston:

The California Department of Health Care Services (DHCS) contracted with Mercer Government Human Services Consulting (Mercer), a part of Mercer Health & Benefits LLC, to develop a risk adjustment methodology to be used in conjunction with actuarially sound capitation rate ranges for payments made during the Contract Year 2010 (ContractY10) period. The risk adjustment methodology will be applied to county average capitation rates that have been developed for the Two-Plan model MCOs for each applicable county. Risk adjusted county average rates will be blended at 20 percent, with “plan-specific” rates blended at 80 percent. The risk adjustment process applies to the following Category of Aid (COA) groups within the Two Plan model:

- Adult & Family
- Aged/Disabled/Medi-Cal Only

Capitation rates for the Aged and Disabled dual eligible, BCCTP and AIDS COA groups will not be risk adjusted. Also, beginning in ContractY10, a separate supplemental maternity payment rate has been developed. The risk adjustment process is only applicable to the non-maternity capitation rates and is applied after the removal of maternity costs related to the supplemental payment. The development of risk adjustment factors are analyzed separately for adults and children in the Adult & Family COA group, but will be applied to the combined Adult & Family rate.

Prior to the development of the final risk score factors outlined in this letter, Mercer performed several preliminary risk adjustment analyses using the State’s historical claims and encounter data. The methodology used for these prior analyses was presented to the



Page 2  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

Medi-Cal MCOs in meetings held on November 6, 2008, and April 1, 2009. This letter builds on the general concepts provided in those meetings and outlines the specific methodology used in the development of the risk adjustment factors for the ContractY10 rating period.

## Medicaid Rx background

DHCS and Mercer selected the Medicaid Rx model to be used for risk adjusting the ContractY10 Two-Plan model capitation payments. While many risk adjustment models exist, this risk adjustment model was specifically designed for Medicaid programs such as Medi-Cal. Medicaid Rx is a disease classification system developed by Todd Gilmer and other researchers from the University of California, San Diego (UCSD). This model uses pharmacy data to classify individuals into disease conditions. The pharmacy data were determined to be the most accurate and complete source of claims-level information for the Medi-Cal managed care program. The pharmacy data were used in conjunction with member demographics (age and gender categories) to measure a population's anticipated health risk. The model assigns each member to one or more of 45 medical condition categories based on the prescription drugs used by each member and to one of 11 age/gender categories.

The initial framework of the Medicaid Rx model was created specifically for the Medicaid population and is an update and expansion to the Chronic Disease Score model developed by the Group Health Cooperative of Puget Sound. Medicaid Rx was originally released in 2000 using data (1991 – 1999) from California, Colorado, Georgia and Tennessee. The underlying data have been updated on two occasions since the model's inception and most recently uses fee-for-service (FFS) data (2000 – 2001) from over 30 state Medicaid programs. The Medicaid Rx model framework was updated in 2008 by UCSD to account for changes in medical practice patterns over time and new pharmaceuticals that have been introduced into the market place. The Medicaid Rx version 5.0 model is available to the public and can be downloaded at <http://medicaidrx.ucsd.edu/>.

## California-specific Medicaid Rx model

The Medicaid Rx model offers two methods for assessing health risk. The first approach is referred to as the "prospective method," which measures existing conditions and their ability to predict future health care costs. The second approach is referred to as the "concurrent method," which measures existing conditions and their ability to measure existing or past risk. Because the prospective application methodology which uses existing conditions to



Page 3  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

predict future health care intensity, is consistent with the current prospective capitation rate range development process, the prospective method was used for DHCS' Two-Plan model.

In addition to choosing a prospective Medicaid Rx model, DHCS and Mercer worked with the model developers at UCSD to develop a California-specific version of the model. While the Medicaid Rx framework utilized to classify pharmacy claims into disease categories remains unchanged, the weights within the model were adjusted to match the covered benefits within the Medi-Cal managed care program for the Two-Plan model. For example, since major organ transplants are not a health plan covered benefit, the weight for this disease condition was removed from the model. In some cases, the California-specific weights were adjusted using the national data set to account for conditions that had low observations using the California experience alone. Adjustments were also made to the model to account for the removal of maternity services that are captured within the separate supplemental maternity payment rate.

Because of the distinct differences in acuity amongst the unique population groups covered by Medicaid, the model developers at UCSD created three separate cost weight structures within the Medicaid Rx model. The three distinct groups are listed in the table below, along with the corresponding Medi-Cal population COA group used for risk adjustment.

Medicaid Rx Cost Weight	Medi-Cal COA Group
TANF Children	Adult & Family – Children (age 1 through 18)
TANF Adults	Adult & Family – Adults (19 and over)
SSI (non dual) Child and Adult combined	Aged/Disabled/Medi-Cal Only

A cost weight is the value relative to the average (1.0) assigned to each disease condition within the Medicaid Rx model. Each population is evaluated independent of one another in the development of the cost weights for the three distinct population groups. Since the capitation rates for the Adult & Family COA represent the combined adult and child experience, an adjustment factor was developed and applied to the adult enrollees' cost weights in order for the risk scores to be combined with the children's risk scores. The California-specific cost weights for the Two-Plan model can be found in Appendix A of this document.



Page 4  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

After the Medicaid Rx model was adjusted for the California-specific benefits, the most recent complete data were used to evaluate the underlying risk of the managed care program. Below are the high-level steps that were used in assessing the populations' risk for payments and will be covered in more detail in the remainder of this document.

- Collect pharmacy and eligibility data
- Calculate the recipient risk scores for those with sufficient historical experience within the selected twelve-month measurement period
- Select the appropriate Medicaid Rx model based on each recipient's COA
- Assign recipients to a COA and health plan
- Calculate raw risk scores by county, health plan and COA group
- Adjust raw risk scores to maintain budget neutrality
- Apply final adjusted risk scores to county average capitated rates
- Blend the final risk adjusted county average capitated rates with the "plan-specific" rates (20 percent risk adjusted county average rate and 80 percent "plan-specific" rate)

## Individual acuity factors development

The cornerstone of any risk adjustment process is the data used to identify member demographics and to classify members into disease conditions. Consistent with the Medicaid Rx model development, twelve months of data were used to measure the anticipated health risk for each recipient. This twelve-month time period is referred to as the study period. The individual acuity factors that will be in effect for ContractY10 were based on pharmacy encounters and claims incurred December 1, 2007, through November 30, 2008, with process dates through the end of February 2009. Three months of data lag was used to help complete the pharmacy claims and encounters. Although the MCOs are not at risk for claims paid by FFS (and the risk adjustment model was adjusted accordingly) for MCO enrolled members, pharmacy claims paid for through the FFS program were also included in the analysis for disease condition flagging.

Using the data in the study period, each recipient was processed through the Medicaid Rx model. This step resulted in recipients being assigned to demographic categories and disease conditions. For demographic classifications, each recipient's age was calculated on November 30, 2008, the end of the study period. This information was then combined with the cost weight associated with each of the applicable Medicaid Rx model categories. The combination of the Medicaid Rx categories and the appropriate cost weights produces a risk score for each recipient, referred to as an acuity factor. Acuity factors are only developed for



Page 5  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

recipients with at least six months of Medi-Cal eligibility within the twelve-month study period. Medi-Cal eligibility includes FFS and managed care enrollment segments. The six-month scoring criteria does not require continuous eligibility.

## Health plan risk score development

Each recipient is assigned to a health plan and a consolidated risk adjustment rating category based upon the recipient's enrollment as of December 31, 2008. Each recipient's risk adjustment rating category determined which Medicaid Rx model and which corresponding cost weights were used to measure that recipient's health risk. The TANF Children cost weights were used for children in the Adult & Family risk adjustment rating category. The TANF Adults cost weights were used for the adult members of the Adult & Family risk adjustment rating category. The SSI (non dual) cost weights were used for the Aged/Disabled/Medi-Cal Only risk adjustment rating category. The COA determination for each member was made at the end of the study period.

The raw health plan risk scores were developed by aggregating the individual acuity factors by risk adjustment rating category, where each scored individual is equally weighted (straight average). Members that did not meet the six-month scoring criteria receive the average of the scored individuals' aggregate factor for the health plan to which they are enrolled. The reason for the application of the average score to the unscored members is that health plans are assumed to continue to attract and retain members with similar acuity and demographic characteristics as members that are currently enrolled within their plan.

## Budget neutrality

To ensure that the risk adjustment application would not result in unintended reductions or increases in total capitation payments, the raw health plan risk scores were adjusted by the population's (i.e., county's) average risk score. This produces the health plans' relative risk scores. The intent of this adjustment is to recalibrate all of the health plan risk scores to yield a population average of 1.0, thereby maintaining the budget neutrality of the managed care program. To calculate the population average used within the budget neutrality calculation, each health plan's raw risk score was weighted by the number of total enrolled members, including scored and unscored recipients. The count of total recipients is based on DHCS projected enrollment. Budget neutrality calculations were performed separately for each county and each risk adjustment rating category.

Page 6  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

## Risk adjusted county average capitation rates

To calculate the final capitation rates, the final MCO adjusted risk scores are applied to the developed county average capitation rates by population and county. This step produces the final MCO-specific risk adjusted capitation rates. The MCO-specific risk adjusted rates are blended with the "plan-specific" rates (80 percent "plan-specific" and 20 percent risk adjusted county average) to develop the final Two-Plan model rates to be paid for the ContractY10 rating period.

The risk adjustment process described above was developed in accordance with the Medicaid Rx model, a generally accepted risk adjustment grouper, and meets the requirements of the Centers for Medicare and Medicaid Services (CMS) Checklist Appendix A, dated July 22, 2003. The use of the Medicaid Rx model has been CMS-approved to risk adjust payments for other Medicaid programs.

## Contact information

If you have any questions or concerns regarding the above risk adjustment methodology applied for the ContractY10 risk adjustment analysis, please contact Ryan Johnson at +1 602 522 8576, Jim Meulemans at +1 602 522 8597 or Branch McNeal at +1 602 522 6599.

Sincerely,



Ryan Johnson



James J. Meulemans, ASA, MAAA

# MERCER



MARSH MERCER KROLL  
GUY CARPENTER OLIVER WYMAN

Page 7  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

Copy:  
Stuart Busby, DHCS  
Arlene Livingston, DHCS  
Gary McHolland, DHCS  
Sylvia Wong, DHCS  
Sundee Easter, Mercer  
Branch McNeal, Mercer  
Mike Nordstrom, Mercer

Enclosure

## Appendix A

### Medi-Cal Managed Care – Contract Year 2010 Two-Plan Prospective Weights without Maternity Costs

MRX Code	MRX Description	Aged/Disabled/ Medi-Cal Only	Adult & Family	
		Children and Adults	Children	Adults
a_under1	age<=1	1.605	0.841	0.000
a_1_4	1<age<5	0.921	0.463	0.000
a_5_14m	5<age<15 male	0.496	0.437	0.000
a_5_14f	5<age<15 female	0.706	0.423	0.000
a_15_24m	15<=age<25 male	0.232	0.426	0.433
a_15_24f	15<=age<25 female	0.261	0.931	1.440
a_25_44m	25<=age<45 male	0.213	0.000	0.542
a_25_44f	25<=age<45 female	0.066	0.000	1.226
a_45_64m	45<=age<65 male	0.269	0.000	1.319
a_45_64f	45<=age<65 female	0.079	0.000	1.579
a_65	65<=age	0.164	0.000	1.482
MRX1	Alcoholism	0.189	n/a	3.296
MRX2	Alzheimer's	n/a	n/a	n/a
MRX3	Anti-coagulants	1.885	20.168	5.747
MRX4	Asthma/COPD	0.376	0.582	0.818
MRX5	Attention Deficit	n/a	0.569	n/a
MRX6	Burns	0.170	0.095	1.488
MRX7	Cardiac	0.299	1.674	1.740
MRX8	Cystic Fibrosis	0.773	9.802	n/a
MRX9	Depression/Anxiety	0.091	0.754	1.093
MRX10	Diabetes	0.477	1.834	2.942
MRX11	EENT	n/a	0.337	n/a
MRX12	ESRD/Renal	5.296	11.374	13.251
MRX13	Folate Deficiency	0.726	2.612	0.957

Page 9  
 August 25, 2009  
 Ms. Margaret Liston  
 California Department of Health Care Services

**FINAL**

MRX Code	MRX Description	Aged/Disabled/ Medi-Cal Only	Adult & Family	
		Children and Adults	Children	Adults
MRX14	CMV Retinitis	0.992	2.446	4.681
MRX15	Gastric Acid Disorder	0.367	3.642	1.778
MRX16	Glaucoma	0.239	n/a	1.716
MRX17	Gout	n/a	n/a	1.921
MRX18	Growth Hormone	2.921	19.719	7.374
MRX19	Hemophilia/von Willebrand's	26.452	89.976	65.894
MRX20	Hepatitis	0.990	4.453	6.532
MRX21	Herpes	0.146	1.428	0.560
MRX22	HIV	n/a	n/a	n/a
MRX23	Hyperlipidemia	n/a	n/a	0.846
MRX24	Infections, high	6.478	30.679	5.525
MRX25	Infections, medium	0.322	0.522	0.782
MRX26	infections, low	n/a	0.207	0.159
MRX27	Inflammatory/Autoimmune	0.375	0.532	0.689
MRX28	Insomnia	0.223	1.223	2.096
MRX29	Iron Deficiency	0.281	0.165	0.118
MRX30	Irrigating solution	2.515	4.808	3.404
MRX31	Liver Disease	1.670	n/a	3.097
MRX32	Malignancies	1.079	12.812	6.170
MRX33	Multiple Sclerosis/Paralysis	0.763	2.849	2.238
MRX34	Nausea	0.137	0.006	1.505
MRX35	Neurogenic bladder	0.446	1.659	1.161
MRX36	Osteoporosis/Paget's	n/a	n/a	1.271
MRX37	Pain	0.167	0.359	0.654
MRX38	Parkinson's/Tremor	0.191	n/a	0.099
MRX39	Prenatal care	n/a	1.555	1.004
MRX40	Psychotic Illness/Bipolar	n/a	n/a	1.240
MRX41	Replacement solution	0.311	0.254	0.629
MRX42	Seizure disorders	0.600	3.203	2.728

# MERCER

 MARSH MERCER KROLL  
GUY CARPENTER OLIVER WYMAN

Page 10  
August 25, 2009  
Ms. Margaret Liston  
California Department of Health Care Services

**FINAL**

<b>MRX Code</b>	<b>MRX Description</b>	Aged/Disabled/ Medi-Cal Only	Adult & Family	
		<b>Children and Adults</b>	<b>Children</b>	<b>Adults</b>
MRX43	Thyroid disorders	0.126	0.906	0.435
MRX44	Transplant	n/a	n/a	n/a
MRX45	Tuberculosis	0.565	0.452	0.556

Disease categories with "n/a" values represent conditions that were found to be statistically insignificant or services that are non-covered benefits.