

# State-Based Risk Adjustment System Assessment and Feasibility Study

REPORT TO THE MINNESOTA LEGISLATURE OCTOBER 2016

## **State-Based Risk Adjustment System Assessment Feasibility Study**

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# Contents

Letter to Committee Chairs

Milliman, Inc. Report and Appendices

Comment from the Minnesota Council of Health Plans



Minnesota  
Department  
of Health

PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS

October 26, 2016

The Honorable Kathy Sheran  
Chair, Health, Human Services and Housing  
Committee  
Minnesota Senate  
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The Honorable Tony Lourey  
Chair, Finance - Health and Human Services  
Budget Division Committee  
Minnesota Senate  
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The Honorable Tara Mack  
Chair, Health and Human Services Reform  
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The Honorable Matt Dean  
Chair, Health and Human Services  
Finance Committee  
Minnesota House of Representatives  
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Saint Paul, MN 55155

Dear Senator Sheran, Senator Lourey, Representative Mack, and Representative Dean:

The Minnesota Department of Health is pleased to present this report on the feasibility of a state-based risk adjustment program for Minnesota's individual and small group market.

In drawing on actuarial modeling and statistical analysis, examination of federal regulations, and a range of policy considerations, the research team reached the conclusion that **given the current performance of the federal risk adjustment model in Minnesota, a state-based approach with Minnesota data could have significant advantages to the state.** At the same time, should Minnesota choose to pursue state-based risk adjustment, the state would need to make additional investments in technical and analytic infrastructure, and commit to a lengthy implementation window.

The enclosed report is submitted in fulfillment of requirements by the 2013 Minnesota Legislature to conduct, in partnership with the Minnesota Departments of Commerce and Human Services, and Minnesota's insurance exchange, MNsure, a study related to performing state-based risk adjustment in the individual and small group market in Minnesota using the state's All Payer Claims Database (MN APCD). Specifically, the Commissioner of Health was directed to:

1. - Assess the extent to which data in the APCD are sufficient for development and operation of a state-based risk adjustment program under applicable federal rules;
2. - Collect all data required for conducting risk adjustment with standard risk adjusters from health insurers in the individual and small group health insurance markets;

3. - Assess the readiness of the data for state-based risk adjustment by performing audits of data submitted by carriers; and
4. - If data are determined to be sufficient for these purposes, perform an analysis to determine if a state-based risk adjustment program using either a federal or Minnesota-based risk adjustment model can be more cost effective and perform better than risk adjustment conducted by federal agencies.

To produce the legislative report, MDH worked over a period of 17 months with actuarial consultants from the New York office of the business consulting firm, Milliman, and a workgroup of experts from the Minnesota Departments of Commerce and Human Services. MDH also sought input from the general public through a number of webinars and a Request for Information, and from the insurance industry through a number of meetings with health plan experts. Comments from the Minnesota Council of Health Plans, the trade association of Minnesota's seven nonprofit health plans, are attached as an appendix to the report.

Key findings from the study, which have broad relevance to a range of discussions about ensuring stability of the individual and small group markets overall, are as follows:

- A state-based risk adjustment program developed using Minnesota data and making a number of select refinements to the federal risk adjustment model would significantly improve the accuracy of risk adjustment in Minnesota and thereby help stabilize the market.
- Such an approach offers Minnesota the opportunity to enhance other policy priorities, such as driving towards value-based payment, ensuring broad access to key medical benefits and creating market stability, and would help ensure that risk adjustment does not create unintended consequences that work against these priorities.
- The MN APCD contains robust, high quality data pertaining to the individual and small group market, making it a strong platform for risk adjustment. However, to administer risk adjustment, the state would need to require submission of additional data elements and make process refinements.
- Implementing and operationalizing a state-based risk adjustment program will require - substantial lead time of at least 18 months. -
- A state-based approach offers certain operational efficiencies to carriers and the administrator of risk adjustments, but will also require investments in infrastructure and expertise. Without specific program design, it is difficult to say with certainty if a state-based risk adjustment program will be more or less expensive to Minnesota rate payers than the federal approach.

Questions or comments on the report may be directed to Stefan Gildemeister, Director of the Health Economics Program at (651) 201-3550 or [stefan.gildemeister@state.mn.us](mailto:stefan.gildemeister@state.mn.us).

Sincerely,



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# State-based risk adjustment feasibility analysis

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## TABLE OF CONTENTS

|   |           |
|---|-----------|
| <b>EXECUTIVE SUMMARY</b>  | <b>1</b>  |
| Overall findings  | 2         |
| Specific findings   | 4         |
| <b>SECTION 1: BACKGROUND</b>  | <b>8</b>  |
| 1.1 Environmental scan  | 8         |
| 1.2 Risk adjustment under the ACA   | 14        |
| 1.3 Key components of the federal risk adjustment program                             | 15        |
| 1.4 Considerations for policy makers  | 18        |
| 1.5 Stakeholder perspectives  | 19        |
| <b>SECTION 2: MN APCD DATA QUALITY AND READINESS</b>                                  | <b>22</b> |
| 2.1 Background of the MN APCD   | 22        |
| 2.2 Technical description of the MN APCD  | 22        |
| 2.3 MN APCD data quality assessment   | 23        |
| 2.4 Development of the risk adjustment study data set                                 | 24        |
| 2.5 Assessment of the completeness of the risk adjustment study data set              | 28        |
| 2.6 Detailed insurer-specific data quality assessment                                 | 29        |
| <b>SECTION 3: RISK ADJUSTMENT DESIGN CONSIDERATIONS</b>                               | <b>36</b> |
| <b>SECTION 4: RISK ADJUSTMENT MODELING</b>  | <b>38</b> |
| 4.1 Evaluation of the Federal Model on Minnesota data (Scenarios 1-3)                 | 41        |
| 4.2 Development of the State Model (Scenarios 4-7)                                    | 42        |
| 4.3 Magnitude of funds transfers from modeling scenarios                              | 47        |
| 4.4 Direction of funds transfers from modeling scenarios – market-level analysis      | 49        |
| 4.5 Additional consideration  | 51        |
| <b>SECTION 5: IMPLEMENTATION CONSIDERATIONS</b>                                       | <b>54</b> |
| 5.1 Federal requirements for state-based risk adjustment                              | 54        |
| 5.2 Recommended enhancements to the MN APCD for operating state-based risk adjustment | 60        |
| 5.3 Considerations to ensure a smooth transition                                      | 66        |
| 5.4 Costs associated with operating state-based risk adjustment                       | 67        |
| <b>SECTION 6: KEY FINDINGS &amp; RECOMMENDATIONS</b>                                  | <b>69</b> |
| <b>SECTION 7: CONCLUSIONS</b>   | <b>72</b> |
| <b>CAVEATS AND LIMITATIONS</b>  | <b>73</b> |

## LIST OF FIGURES

- Figure 1: Supplemental File Member Matching to MN APCD
- Figure 2: Summary of the MN APCD Database, Includes All Market Segments
- Figure 3: Summary of the Risk Adjustment Study Data Set Population, Only Includes Individual, Small Group <= 50, Small Group 51-100, and MinnesotaCare
- Figure 4: Comparison of 2016 URRTs With CY2014 MN APCD
- Figure 5: Reasonability Metrics for Data Quality Reports
- Figure 6: Modeling Scenarios
- Figure 7: The Induced Demand Curve Using Minnesota Data
- Figure 8: Average Percentage of Premium Transfers by Market Segment
- Figure 9: Relative Risk Scores by Market Segment, Normalized to 1.0
- Figure 10: Timeline for Initial Approval for Benefit Year 2018
- Figure 11: Data Fields to Add to Support ACA Risk Adjustment

## LIST OF TECHNICAL APPENDICES

- 1A: HHS Risk Adjustment Model
- 2A: Technical Description of the Development of the Risk Adjustment Study Data Set
- 2B: Carrier-Specific Data Quality Assessment Report Template (No Data)
- 2C: Data Quality Assessment Report by Market Segment
- 2D: Description of Insurer-Specific Data Quality Reports
- 4A: Model R-Squared Comparison
- 4B: Predictive Ratio by Enrollment Duration
- 4C: Federal Model Predictive Ratio by HHS-HCCs, Using MN APCD Data
- 4D: Parameters of State Model and the State Model with Reinsurance
- 4E: State Model vs. Federal Model R-Squared
- 4F: State Model vs. Federal Model Predictive Ratio by Enrollment Duration
- 4G: State Model vs. Federal Model Predictive Ratio by HHS-HCCs, Using MN APCD Data
- 4H: Derivation of the Induced Demand Curve Using Minnesota Data
- 4I: Reinsurance and Risk Adjustment
- 4J: Average Actuarial Factors by Model
- 4K: Factors Used in Risk Adjustment Study
- 4L: Modeling Data Set Creation and Adjustments
- 4M: List of Disabling Medical Conditions Used in Modeling
- 5A: HHS's Discussion on the Risk Adjustment User Fee Estimates



## EXECUTIVE SUMMARY

The Patient Protection and Affordable Care Act (ACA) made significant regulatory changes to the individual and small group insurance markets. The three ACA provisions, guaranteed issue and renewal, adjusted community rating and single risk pool, mean that health insurers are no longer able to charge higher premiums to sicker-than-average individuals to offset their greater health care expenses.

To support the functioning of a stable market, the ACA established a permanent risk adjustment program such that health plans enrolling sicker-than-average individuals receive payment from the rest of the market to offset the excess risk.<sup>1</sup> In the 2014 benefit year, an estimated average of 10 percent of premiums were transferred in the individual market nationwide, and an average of 6 percent of premiums were transferred in the small group market nationwide.<sup>2</sup> For Minnesota, the transferred volume of premiums due to risk differentials in plans in 2014 amounted to approximately \$33.8 million and \$25.0 million, respectively. If the risk adjustment system were well-functioning, health insurers would have no incentives to avoid enrollees with high insurance risk, and would instead focus on competing over health care quality and outcomes.

Under the ACA, states that operate their own health insurance exchanges have the option to elect operating their own risk adjustment system (state-based risk adjustment) in place of the federal system, permitting them to customize the program to their specific market conditions. In 2013, the Minnesota Legislature directed the Minnesota Department of Health (MDH) to perform a study, in partnership with the Minnesota Departments of Commerce and Human Services, as well as Minnesota's insurance exchange, MNsure, on the feasibility and potential costs and benefits of conducting state-based risk adjustment for key stakeholders in Minnesota's individual and small group health insurance markets.<sup>3</sup>

MDH retained Milliman to evaluate how Minnesota-based risk adjustment model alternatives under a number of potential market reform scenarios would impact the market and its consumers compared with the U.S. Department of Health and Human Services hierarchical condition categories (HHS-HCC) risk adjustment model (Federal Model). As part of the study, Milliman assessed the current state of data quality in the Minnesota All Payer Claims Database (MN APCD) from the perspective of informing the risk adjustment modeling and assessing the readiness of using it to operate a state-based risk adjustment program.

Milliman also conducted significant statistical and actuarial analyses to evaluate the statistical performance of the Federal Model on MN APCD data, identified areas where the Federal Model may need improvements, and made refinements to the Federal Model to derive a State Model. Milliman then estimated the direction and magnitude of risk adjustment funds transfers under alternative market reform scenarios, and discussed market outcomes relating to risk adjustment from a policy standpoint. To guide the work and seek input from the key stakeholders, MDH worked with partner agencies, consulted with health insurance insurers (insurers) and their trade

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<sup>1</sup> For further reading on the policy and technical details of the ACA risk adjustment program, please refer to CMS (March 24, 2016) <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>.

<sup>2</sup> CMS (September 17, 2015). [2014, Summary Report on Transitional Reinsurance Payments and Permanent Risk Adjustment Transfers For the 2014 Benefit Year from https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RI-RA-Report-REVISED-9-17-15.pdf](https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RI-RA-Report-REVISED-9-17-15.pdf).

<sup>3</sup> Laws of Minnesota 2013, chapter 108, article 1, section 65.

associations, held a number of webinars with stakeholders and interested parties, and issued a request for information (RFI).<sup>4</sup> Milliman's findings take into consideration actuarial modeling, federal rules, regulations and guidance, as well as Minnesota's stakeholder views and policy considerations.

In assessing these findings, the Minnesota Legislature may wish to consider the following points as it reviews Milliman's analyses:

- Because risk adjustment is an important mechanism to ensure a functioning health insurance market, it has significant implications for all stakeholders.
- A well-designed risk-adjustment system is one that properly aligns incentives, limits gaming by insurance carriers (insurers), and protects these risk-bearing entities as well as consumers.
- The decision of whether to replace federally administered risk adjustment with a state-based model requires consideration of many issues, including an assessment of the Minnesota health insurance market, stakeholder perspectives, potential market outcomes, program operations and costs, and staffing and resource requirements.
- The decision also requires consideration of the extent to which a tailored state-based risk adjustment could further advance the goals of other health care reform initiatives and broader state health policy goals.
- Finally, while state-based risk adjustment presents a unique opportunity for a state to customize an important risk mitigation mechanism to its own market characteristics and align with its own policy goals, the cost and administrative burden of developing, implementing, and operating the system could be considerable.

## Overall findings

Over the last few years, Minnesota has been considering a number of market reforms that could impact the Basic Health Program (BHP; MinnesotaCare) and the individual and small group markets, including merging the BHP with the individual market, merging the individual and small group markets, expanding the definition of small group market consistent with earlier federal guidance, and operating a state-based reinsurance program.

Whether operated under the federal methodology or one tailored for the state, risk adjustment as a risk mitigation tool transfers funds across the market, and impacts health insurance premiums, health care access and affordability. Insurers with different types of enrollees could be impacted differently under different risk adjustment models.

The advantage of developing and operating a state-specific methodology is that it can be built to specifically take into consideration these and other market reform proposals and be designed to address the complex interactions within Minnesota's unique market. This would help foster access to care and support policy aimed at creating sustainability of health coverage. At the same time, the development and operation of state-based risk adjustment would require the state to make certain investments.

Overall, the study found that:

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<sup>4</sup> Responses to the RFI are available online at <http://www.health.state.mn.us/divs/hpsc/hep/riskadjustment/rarfi.html>

- **A state-based risk adjustment program developed using Minnesota data and making a number of select refinements on the federal risk adjustment model would significantly improve the predictive accuracy of the Federal Model**, particularly for certain consumers with costly medical conditions. In other words, a state-based risk adjustment program could create a model that better correlates specific health care conditions to their actual costs, making insurers more agnostic to the types of members they enroll. That could result in lower premiums and better health care access.
- **There is an opportunity to align state-based risk adjustment with other state-based policy initiatives as a means of enhancing these other initiatives and to ensure that the interaction of risk adjustment with these policies does not create unintended consequences.**
- **A Minnesota-based reinsurance strategy that is aligned with risk adjustment necessitates implementation of a state-based risk adjustment mechanism.** Because it did not interact with the federal risk adjustment model, the federal transitional reinsurance program likely resulted in overcompensating insurers that enrolled high-cost members. The federal program expires at the end of 2016, but if Minnesota creates a permanent state-based reinsurance program, a state-based risk adjustment program could be designed to specifically account for the level of reinsurance protection provided, resulting in a risk adjustment transfer that more accurately aligns with the insurer's actual liability and limits the impact on premiums from both programs.
- **The MN APCD represents a strong data platform for state-based risk adjustment in the individual and small group market.** Because the MN APCD was not specifically created to support risk adjustment, it would require new investments to take in additional, routine payer data, enhance data management processes, and strengthen the infrastructure to support risk adjustment.
- **Implementing and operationalizing a state-based risk adjustment program requires substantial lead time of at least 18 months** - taking into account required federal approvals, as well as necessary data enhancements to the MN APCD.
- **From a cost perspective, it is difficult to say with certainty if a state-based risk adjustment program will be more or less expensive than the current Minnesota contributions to the federally-operated risk adjustment program.**

**Recommendations:** Weighing the technical benefits and operational costs to the state, a state-based risk adjustment approach could present meaningful advantages to Minnesota.

- (1) A state-based risk adjustment system would create greater transparency in trends of health insurance risk in Minnesota, which would enhance predictability in the insurance market and premium development;
- (2) State-based risk adjustment would give Minnesota the opportunity to align and integrate risk adjustment with broader policy goals and initiatives, including potentially establishing a reinsurance mechanism and creating incentives to covering additional critical services; and
- (3) In the MN APCD, the state already has in place a strong data platform on which to build.

## Specific findings

### **MN APCD and data quality**

For purposes of the risk adjustment feasibility study required by the Minnesota Legislature, we find that the quality of the individual and small group portion of the MN APCD data are high.

- We initially identified a number of data quality issues during our assessment resulting from the need to integrate insurer-provided supplemental files with the MN APCD.<sup>5</sup> After following up with insurers, all major data quality issues were addressed and rectified. The result was a robust data set that we were able to leverage as the main data source for our risk adjustment modeling and simulations analyses.
- Minor data quality issues affecting a small number of records and members, such as some members assigned to incorrect market segments or some claim lines having invalid diagnosis codes, were noted but did not influence the conclusions or analyses.

### **Minnesota state-based risk adjustment**

- The federal risk adjustment model applied against Minnesota data predicted member claims costs, on average, more accurately for individual and small group Minnesota enrollees during 2013 and 2014 compared with HHS's findings using a national data set.<sup>6,7</sup> This suggests that the Federal Model is operating as anticipated in the Minnesota market. In addition, the level of predictive accuracy measured using the Federal Model with Minnesota data confirms the high quality of data residing in the MN APCD.
- The Federal Model has “prediction biases” - meaning it produces less accurate results - for certain subpopulations. As in any statistical model, there are under-predictions as well as over-predictions in the Federal Model. A model is said to be under-predicting for a subpopulation when the predicted cost is lower than the actual cost of the subpopulation. We find that individuals who are enrolled for only a portion of the year, and individuals with certain high-cost health care conditions are under-predicted by the Federal Model.<sup>8</sup> These high-cost conditions include HIV/AIDS, multiple sclerosis, certain types of diabetes, and certain types of mental health and behavioral health conditions such as personality disorders, autistic disorders and pervasive developmental disorders.
- A model is over-predicting for a subpopulation if the predicted cost exceeds the actual cost for the subpopulation. We find that the Federal Model over-predicts for conditions such as cirrhosis of liver, congestive heart failure, heart arrhythmias, and pulmonary embolism and deep vein thrombosis. Health insurers enrolling a disproportionate share of the conditions that are over-predicted by the Federal Model potentially may receive more

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<sup>5</sup> With the addition of certain data elements in the insurer's routine data submissions, these data integration challenges would typically not be present.

<sup>6</sup> As measured by model R-Squared. R-Squared is a measure of the model's performance—technically, how much variation in observed cost between enrollees is explained by the model.

<sup>7</sup> Federal Register (March 11, 2013). [Patient Protection and Affordable Care Act: HHS Notice of Benefit and Payment Parameters for 2014](https://www.federalregister.gov/articles/2013/03/11/2013-04902/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2014). Retrieved May 5, 2016, from <https://www.federalregister.gov/articles/2013/03/11/2013-04902/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2014>.

<sup>8</sup> March 31, 2016, HHS-Operated Risk Adjustment Methodology Meeting. Discussion Paper. Retrieved May 5, 2016, from <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>

premium transfers through risk adjustment, whereas those enrolling a disproportionate share of the conditions that are under-predicted may be undercompensated.

- If Minnesota were to merge the current BHP with the commercial individual market (such as might be permitted through a Section 1332 waiver), and provide these members additional cost-sharing assistance above the current BHP benefit level, data health care use patterns from MinnesotaCare in 2014, before the program had fully transitioned to a BHP suggest the federal risk adjustment program would not adequately adjust for the induced demand associated with this additional cost-sharing assistance (because the Federal Model assumes a lower level of assistance). This would result in risk adjustment undercompensating insurers for BHP members.<sup>9</sup>
- If Minnesota were to expand its small group market to include groups of up to 100 employees, and merge with the commercial individual market, all things equal, we expect that the individual non-catastrophic plans will receive transfers from the other two small group segments because they have the highest risk scores of all market segments. This transfer may lead to lower premiums for the individual plans and higher premiums for the expanded small group plans.
- Our analysis shows that under the current system both reinsurance and risk adjustment provide payments to insurers for covering high-cost members. This “double payment” issue is not addressed in the federal risk adjustment methodology, due to the transitional nature of the ACA reinsurance program.<sup>10</sup> If Minnesota were to implement a permanent state-based reinsurance program for its individual market, we find that the risk adjustment model needs to be designed to reflect the interaction between reinsurance and risk adjustment in order to avoid potential double payments to high-cost members under both programs. To demonstrate how to link risk adjustment with reinsurance, we developed a State Model with Reinsurance using the Minnesota APCD data and hypothetical reinsurance program.

### Stakeholder impact

The ACA risk adjustment program is a market-wide zero-sum mechanism to transfer funds among insurers to compensate those with higher-risk enrollees. Depending on the actual market conditions and the risk adjustment methodology, the magnitude and direction of risk adjustment funds transfers will impact stakeholders differently:

- MinnesotaCare members in 2014, prior to having fully transitioned to a BHP, generally had higher risk scores than the current commercial individual market. If Minnesota decided to merge the BHP with the commercial individual market and the unfavorable risk mix were present in later years and provider contracts remained largely unchanged, we would expect that BHP plans would likely lower their premiums to account for receiving more transfers under the risk adjustment program. Conversely, individual plans would have to raise premiums to net out the higher expected transfers they would need to pay into the risk adjustment program.

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<sup>9</sup> Throughout this report the readers should be aware that more recent data may affect the conclusions from modeling. This is particularly true for the BHP and MinnesotaCare in that calendar year 2014 represents a transition year. During the year, members transitioned between MinnesotaCare and Medical Assistance, Minnesota’s Medicaid program, and MinnesotaCare and the private market, likely resulting in a substantially different risk mix in 2015 and years following.

<sup>10</sup> The transitional reinsurance program expires at the end of the 2016 benefit year. HHS indicated that it intends to pay out all remaining reinsurance receipts for the 2016 benefit year, although by statute any unused funds collected under the program could be paid out through 2018.

- Commercial individual members generally have higher risk scores than the current small group market. If Minnesota decides to merge the commercial individual market with the commercial small group market, we would expect that individual plans would lower their premiums to account for receiving more transfers under the risk adjustment program. Conversely, small group plans would have to raise premiums to net out the higher expected transfers they would need to pay into the risk adjustment program.
- Under a more accurate risk adjustment program, where funds transfers align better with claims liability, insurers are better protected against adverse selection, and therefore are more capable of designing products and provider networks to provide adequate access to sicker and more complex patients. Providers, especially those that have certain clinical specialties that appeal to chronic and complex patients, may be more likely to be included in insurers' networks resulting in better access to care.

### **Implementation and operational considerations**

- For a state to administer its own risk adjustment program, there is a set of federal rules and guidance to follow, a rigorous timeline, and many operational processes to be established. All of them would require a lead time of at least 18 months after the methodology is designed.
- For the MN APCD to support operations of state-based risk adjustment in Minnesota, the following refinements should be considered:
  - The MN APCD data intake process includes data edits and quality checks, which are an important component of maintaining risk adjustment program integrity. We recommend further routine and targeted data quality enhancements to better identify incomplete data, outliers, and inconsistencies among submitted files.
  - As the data were not designed with state-based risk adjustment in mind, the MN APCD does not currently collect key elements required for risk adjustment. They include benefit plan, market segment, metallic tier level, and billable member indicators.
- It is difficult to say with certainty whether a state-based risk adjustment program will be more or less expensive to insurers and consumers in Minnesota than the existing federal system. While under a state-based risk adjustment, Minnesota insurers may no longer be required to pay the federal user fee for Minnesota residents or submit data to the federal government, the development of a risk adjustment process in Minnesota, its implementation and ongoing operational support, even if somewhat aligned with federal approaches, could be considerable. On the other hand, cost is only one of several factors to consider with respect to state-based risk adjustment. Interim reporting of risk relativities and data quality through state-based risk adjustment could provide the insurers and consumers valuable insights, transparency and predictability, which are also important features that are not currently available under the federal risk adjustment program.

### **Future areas of exploration**

- At this point, both the Federal and the State Model exclusively rely on administrative health care data (i.e., membership and claims information). Recent research has suggested that factors such as income, race and ethnicity may also influence health care costs, thereby affecting the precision and accuracy of risk adjustment and payment transfers. A state-based framework would enable the state to experiment with these so-called “non-traditional” factors linked to health care membership and claims data to evaluate risk adjustment models incorporating both traditional and non-traditional factors.

- The analyses presented in this report were based on data from the 2013 and 2014 MN APCD, during which the Minnesota market as well as the rest of the country went through significant changes. Given the importance of risk adjustment as a risk mitigation and premium stabilization mechanism, and its impact on all stakeholders, **we suggest that the state consider updating the risk adjustment modeling analyses included in this report with more recent data.**

## SECTION 1: BACKGROUND

Under Minnesota Laws of 2013, Chapter 108, Article 1, Section 65, the Minnesota Department of Health (MDH) is tasked to study, in partnership with the Departments of Commerce and Human Services, as well as Minnesota's insurance exchange, MNsure, the feasibility of performing state-based risk adjustment in Minnesota. To conduct the study, MDH retained Milliman to assess the data quality of the Minnesota All Payer Claims Database (MN APCD) and its readiness for the purpose of risk adjustment, evaluate whether a Minnesota-based risk adjustment model can perform as well as or better than the Federal model, and estimate the impact of risk adjustment on the insurers and consumers under a number of potential market reform scenarios.

The purpose of the study is to inform the Minnesota Legislature on flexibility granted by the federal Patient Protection and Affordable Care Act (ACA), about its choice to implement a state-based approach to risk adjusting the Minnesota individual and small group insurance markets.

In this section we provide an environmental scan of the Minnesota market, a description of the key components of the federal risk adjustment program, and the perspectives from stakeholders that we interacted with throughout the project.

### 1.1 Environmental scan

Historically, Minnesota has been a state that exhibited some of the highest rates of health insurance coverage in the nation. Contributing factors to this are:

- High rates of employer coverage, fueled by cultural support to hold insurance coverage and an employer market with high median wages and employment compared to the nation.
- Relatively generous public program eligibility standards that included MinnesotaCare, a sliding-fee scale program for low and middle-income families and adults.

In addition, Minnesota has been operating one of the largest high-risk pools in the country that helped support the existence of an apparently functional individual market with levels of enrollment about 16 percent below those in 2014.<sup>11</sup>

### **Coverage rates**

The level of uninsured adults in Minnesota dropped from 8.2 percent in 2013 to 5.9 percent in 2014.<sup>12,13</sup> This is significantly lower than the U.S. average rate of uninsured (11.7 percent in

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<sup>11</sup> Minnesota Department of Health, Health Economics Program, Health Care Market Statistics – Chartbook, Section 4; <http://www.health.state.mn.us/divs/hpsc/hep/chartbook/section4.pdf>

<sup>12</sup> Minnesota Department of Health, Health Economics Program, "Health Insurance Coverage in Minnesota: Results from the 2015 Minnesota Health Access Survey," February 2016 and U.S. Census Bureau, American Community Survey: <http://www.census.gov/hhes/www/hlthins/data/incpovhlth/2014/acs-tables.html>, accessed May 12, 2016, 5:16PM

<sup>13</sup> U.S. Census Bureau, American Community Survey 1-Year Estimates: Minnesota total civilian noninstitutionalized percent of uninsured. <http://www.census.gov/hhes/www/hlthins/data/incpovhlth/2014/acs-tables.html>, accessed May 12, 2016.



2014).<sup>14</sup> A survey by MDH found that the percentage of Minnesotans without health insurance fell to 4.3 percent in 2015—the lowest rate in state history.<sup>15</sup>

## Individual and small group health insurance markets

### **Enrollment:**

- At least prior to the implementation of the ACA market reforms and exchanges, enrollment in Minnesota’s small group fully insured market was declining. Total enrollment was estimated at 491,079 in 2001, and this had declined to 322,671 in 2013.<sup>16</sup>
- Enrollment in the individual market during that same period increased, and jumped considerably in 2014. Enrollment was estimated at 200,695 in 2000, and this rose to 247,315 in 2012. By the third quarter of 2014, enrollment had jumped to nearly 300,000.<sup>17</sup>

### **Premium trends:**

- The average annual premium increase in the small group market was relatively low in the years leading up to the ACA. Members in the small group market experienced average premium increases of 0.4 percent in 2011, 0.9 percent in 2012, and 0.8 percent in 2013.<sup>18</sup> Small group plans in 2015 were on average 3 percent higher than in 2014.<sup>19</sup> However, both the individual and small group markets experienced considerable changes to benefits and cost-sharing.
- Premium increases were higher in the individual market—with average increases of 5.2 percent in 2011, 2.2 percent in 2012, and 3.3 percent in 2013.<sup>20</sup> Individual market plans in 2015 varied substantially by insurer experience (for example, a nearly 9 percent decrease (for one insurer’s products) to a nearly 76 percent increase (for an insurer that exited the exchange portion of the individual group market, MNSure).<sup>21</sup> In 2016, individual premiums increased from 14 to 49 percent, which was due to in part to a higher percentage of less healthy, more costly enrollees than expected entering the market.<sup>22</sup> Insurers experienced significantly higher claims than expected, especially in high-cost specialty drugs, and a relatively small individual market compared with other states.<sup>23</sup>

<sup>14</sup> U.S. Census Bureau, American Community Survey 1-Year Estimates: United States total civilian noninstitutionalized percent of uninsured. <http://www.census.gov/hhes/www/hlthins/data/incpovhlth/2014/acs-tables.html>, accessed May 12, 2016. <http://www.census.gov/hhes/www/hlthins/data/incpovhlth/2014/acs-tables.html>, accessed May 12, 2016, 5:16PM

<sup>15</sup> MDH (February 29, 2016). [Percent of Minnesotans without health insurance drops to historic low. News Release. Retrieved May 5, 2016, from http://www.health.state.mn.us/news/pressrel/2016/insurance022916.html.](http://www.health.state.mn.us/news/pressrel/2016/insurance022916.html)

<sup>16</sup> MDH. [Minnesota Health Care Markets Chartbook. Section 4: Small Group and Individual Health Insurance Markets. Retrieved May 5, 2016, from http://www.health.state.mn.us/divs/hpsc/hep/chartbook/section4.pdf.](http://www.health.state.mn.us/divs/hpsc/hep/chartbook/section4.pdf)

<sup>17</sup> Chartbook, Section 4, *ibid*.

<sup>18</sup> Chartbook, Section 4, *ibid*.

<sup>19</sup> Unpublished analysis conducted by the Minnesota Department of Commerce based on 2015 rate filing actuarial memorandums and 2014 enrollment experience as reported in the Unified Rate Review Template (URRT) for plan years 2016. Individual market average rate increases varied by insurer.

<sup>20</sup> Chartbook, Section 4, *ibid*.

<sup>21</sup> Unpublished analysis conducted by the Minnesota Department of Commerce based on 2015 rate filing actuarial memorandums and 2014 enrollment experience as reported in the Unified Rate Review Template (URRT) for plan years 2016. Individual market average rate increases varied by insurer.

<sup>22</sup> [Minnesota Department of Commerce 2015 Rate Release Packet \(October 1, 2015\), accessed June 20, 2016 http://mn.gov/commerce-stat/pdfs/health-insurance-rates-2016-news-release.pdf.](http://mn.gov/commerce-stat/pdfs/health-insurance-rates-2016-news-release.pdf)

<sup>23</sup> [Minnesota Department of Commerce. 2016 Rate Summary. Retrieved May 5, 2016, from http://mn.gov/commerce-stat/pdfs/health-insurance-rate-release-packet-2016.pdf.](http://mn.gov/commerce-stat/pdfs/health-insurance-rate-release-packet-2016.pdf)

## Some factors potentially impacting the 2014 and 2015 market

We highlight below some Minnesota-specific factors that we considered during our analysis. They are related to the continuation of plans that were not required to comply with ACA market reform requirements and their potential impact on 2014 market data and related risk adjustment results.

- *Early renewal plans in the small group market and guaranteed renewability in the individual market:* Some plans chose to “early renew” in late 2013. This would have delayed their deadlines to come into compliance with the ACA’s market reforms (in spite of the fact that Minnesota did not adopt the administration’s transitional policy, as noted below). In turn, this may have had some impact on the type of individuals and small groups participating in ACA-compliant plans in 2014. In addition to early renewal, the Minnesota guaranteed renewability provision in the individual market forces insurers to continue to offer legacy plans in which they have enrollees. The combination of both policies may have created polarizing forces for the 2014 Minnesota market in terms of risk selection.
- *Transitional plans:* Minnesota did not adopt the federal government’s “transitional policy,” by which states could allow issuers to renew plans that were in existence prior to 2014, in either the individual or small group market (at the state’s option), without those plans coming into compliance with the ACA’s market reforms.<sup>24</sup> Thus, the Minnesota market as a whole might not have seen the same degree of adverse selection as states that had “transitional plans”.
- *Group size:* The Protecting Affordable Coverage for Employees (PACE) Act, passed by Congress in October 2015, gave states the flexibility to determine whether to keep the definition of “small employer” as an employer with 50 or fewer employees, or to expand the definition to include up to 100 employees. Minnesota has not chosen to expand the definition of small employer.<sup>25</sup> Thus, Minnesota’s definition of small employer will continue to include only employers up to 50 employees.

## Minnesota Exchange (MNSure)

MNSure is Minnesota’s state-based health insurance exchange for both the individual and the small group markets. As discussed in more detail below, there have recently been a number of legislative proposals to modify various aspects of MNSure, which may interact with risk adjustment which applies to plans offered **both** on and off MNSure. Additionally, as premiums in the market have risen and participating insurers on the exchange have changed since 2014, the mix of enrollees on the exchange and the type of products they purchase likely changed considerably as well.

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<sup>24</sup> This transitional policy was initially described in guidance released in November 2013 (see <http://www.cms.gov/CCIIO/Resources/Letters/Downloads/commissioner-letter-11-14-2013.PDF>). CMS later extended this transitional policy an additional two years, giving states the ability to allow issuers to renew existing policies through plan years beginning on or before October 1, 2016, without coming into compliance with the ACA’s market reforms, and extended the policy to also apply to large groups that would become small group plans under the changed definition (see <http://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/transition-to-compliant-policies-03-06-2015.pdf>). Note that HHS and CMS use issuers when referencing insurance companies instead of insurers. For purposes of this report, we have kept consistent with CMS and HHS terminology when referencing information from CMS and HHS.

<sup>25</sup> [MDH and Minnesota Department of Commerce \(October 22, 2015\). Guidance on Minnesota requirements and deadlines. Letter to Minnesota health plan companies. Retrieved May 5, 2016, from http://mn.gov/commerce-stat/pdfs/sm-group-pace-ltr.pdf.](http://mn.gov/commerce-stat/pdfs/sm-group-pace-ltr.pdf)

## Medical Assistance (Medicaid)

*Medical Assistance (MA)*, Minnesota's Medicaid program, provided coverage to a monthly average of 1.05 million individuals in 2015 (up from 739,000 in 2013).<sup>26</sup>

*Eligibility:* MA currently covers infants (up to age 2) in households with incomes up to 283 percent of the federal poverty level (FPL), pregnant women up to 278 percent of FPL, and children age 2-18 years old up to 275 percent of FPL.<sup>27</sup> Parents, caretaker relatives, children 19-20 years old, and adults without children are covered up to 133 percent of FPL. As discussed below, other low-income individuals may be eligible via coverage through MinnesotaCare, and it is possible that some members may be flowing in and out between MA and MinnesotaCare. It is worth considering issues relating to coverage continuity, transition, program payment methodology, and data collection, etc., for this subset of members.

*Use of managed care:* In July 2011, about two-thirds of MA beneficiaries were enrolled in some form of managed care.<sup>28</sup> Several entities offer managed care plans, including county-based purchasing plans and private insurers. Many of these insurers also participate in MinnesotaCare and in the individual and small group markets. Risk adjustment is used in the state's payment to managed care plans.

## Basic Health Program (MinnesotaCare)

In December 2014, Minnesota submitted to the Centers for Medicare and Medicaid Services (CMS) a blueprint to operate a BHP. MinnesotaCare began operating as a BHP on January 1, 2015.<sup>29</sup>

Minnesota's BHP builds off of the existing MinnesotaCare program. This program uses managed care to provide coverage for some low-income residents who do not have access to affordable health insurance coverage and who are not eligible for regular Medicaid or Children's Health Insurance Plan (CHIP) benefits. This generally includes enrollees age 19 and over, with incomes between 133 percent and 200 percent FPL, as well as enrollees with incomes less than 200 percent FPL who are not eligible for Medicaid or other assistance for various reasons, such as immigration status.<sup>30</sup>

Prior to implementation of the BHP, MinnesotaCare was funded in part from state funds and in part from federal funds under a Medicaid 1115 waiver.<sup>31</sup>

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<sup>26</sup> Minnesota Department of Human Services (February 2016). Family Self-Sufficiency and Health Care Program Statistics.

<sup>27</sup> Minnesota Department of Human Services, Insurance Affordability Programs (IAPs) Income and Asset Guidelines. Retrieved June 20, 2016, from <https://edocs.dhs.state.mn.us/lfservlet/Public/DHS-3461A-ENG>

<sup>28</sup> [Managed Care in Minnesota. Retrieved May 5, 2016, from http://www.medicaid.gov/medicaid-chip-program-information/by-topics/delivery-systems/managed-care/downloads/minnesota-mcp.pdf.](http://www.medicaid.gov/medicaid-chip-program-information/by-topics/delivery-systems/managed-care/downloads/minnesota-mcp.pdf)

<sup>29</sup> Medicaid.gov. [Basic Health Program. Retrieved May 5, 2016, from http://www.medicaid.gov/basic-health-program/basic-health-program.html.](http://www.medicaid.gov/basic-health-program/basic-health-program.html) Throughout this report the readers should be aware that more recent data may affect the conclusions derived from modeling. This is particularly true for the BHP and MinnesotaCare in that calendar year 2014 represents a transition year. During the year, members transitioned between MinnesotaCare and Medical Assistance (Minnesota's Medicaid program), and, MinnesotaCare and the private market, likely resulting in a substantially different risk mix in 2015 and years following.

<sup>30</sup> BHP Blueprint, *ibid*, note 1.

<sup>31</sup> Fish-Parcham, C. (November 18, 2014). [Why Minnesota and New York are pursuing Basic Health Programs. FamiliesUSA blog. Retrieved May 5, 2016, from http://familiesusa.org/blog/2014/11/why-minnesota-and-new-york-are-considering-basic-health-programs.](http://familiesusa.org/blog/2014/11/why-minnesota-and-new-york-are-considering-basic-health-programs)

MinnesotaCare is closely aligned with Minnesota's Medicaid program. MinnesotaCare enrollees under age 21 receive the full Medicaid state plan benefits. Adult enrollees receive the state plan benefits with certain exclusions and limitations.<sup>32</sup> The plans that provide coverage to MinnesotaCare beneficiaries are the same plans that provide coverage under Medicaid managed care.

In Section 4, we also discuss potential impacts on risk adjustment if the current BHP were to be integrated into the individual market as part of a federal provision that offers states the flexibility to employ innovative strategies for providing high quality, affordable health insurance under the basic framework established by the ACA (Section 1332 waiver).<sup>33</sup>

### **Closure of the Minnesota Comprehensive Health Association**

As noted, in the Minnesota Comprehensive Health Association (MCHA), Minnesota operated the largest high risk pool in the nation. Coverage for individuals, who qualified because they had been denied coverage in the individual market due to a pre-existing condition, was funded primarily with premiums on enrollees that included an administrative load and an assessment on premium revenue earned by insurers in the individual market. In its last year of operation, 2014, MCHA raised \$119.9 million through the assessment.<sup>34</sup> Closure of MCHA is attributed to ACA prohibitions on underwriting in the individual market.

In November 2014, the Minnesota Department of Commerce issued an updated final draft transition plan outlining resources and plans for assisting MCHA enrollees with finding new coverage, and an appeal process allowing certain enrollees who were unable to find new coverage to request a temporary reinstatement of MCHA coverage.<sup>35</sup> The updated transition plan indicated that as of September 8, 2014, the number of people enrolled in MCHA had decreased by 72 percent from 25,663 individuals enrolled in mid-2013 to 7,167 individuals remaining in September 2014. Of the remaining MCHA enrollees reported at the time, 85.2 percent, or 6,108, were said to be policyholders, and 14.8 percent or 1,059 were said to be dependents.

The migration into the individual market of MCHA enrollees (who are likely on average to reflect higher health care risk) is important to take account of in regard to understanding the impact of this migration on the individual market and in relation to risk adjustment and any potential associated issues or implications. However, not all previous enrollees of the high-risk pool would have transitioned to the individual market, as some would have availed themselves of public program coverage, including Medicare, and others could have become eligible for employer-based health insurance.

### **2015 legislation on Minnesota health care programs**

Several pieces of legislation were proposed in 2015 relating to Minnesota's health care programs. Although the legislature finished its 2015 session without passing most of these proposals, some were reflected in an omnibus spending bill as noted below.

Legislative proposals that were introduced include:

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<sup>32</sup> BHP Blueprint, *ibid.*

<sup>33</sup> See for example: [https://www.cms.gov/CCIIO/Programs-and-Initiatives/State-Innovation-Waivers/Section\\_1332\\_state\\_Innovation\\_Waivers-.html](https://www.cms.gov/CCIIO/Programs-and-Initiatives/State-Innovation-Waivers/Section_1332_state_Innovation_Waivers-.html)

<sup>34</sup> Minnesota Department of Health, unpublished analysis of data from the Minnesota Comprehensive Health Association, October 2015.

<sup>35</sup> Minnesota Department of Commerce 2014 MCHA Transition Plan Update

- Proposals to make MNsure a state agency.<sup>36</sup>
- Proposals to limit the ability of MNsure to become an “active purchaser” exchange or to set standards for exchange qualified health plans (QHPs) beyond the basic federal requirements.<sup>37</sup>
- Proposals to transition from a state exchange to a federally facilitated exchange.<sup>38</sup>
- Proposals to repeal the MinnesotaCare program.<sup>39</sup> One such proposal creates a replacement “MinnesotaCare II” program that provides subsidized private insurance through MNsure.<sup>40</sup>

Although much of this legislation did not pass, several of these proposals were reflected in some form in an omnibus health and human services appropriations bill passed by the legislature and signed by the governor in May 2015.<sup>41</sup> Provisions of this law include:

- MNsure, though not converted into a state agency, is now subject to state oversight requirements it was previously exempt from, including requirements related to open meetings, procurement, information technology (IT) systems, and expedited rulemaking.
- The Commissioner of Commerce is required to develop a proposal and seek a federal waiver to allow individuals to receive premium tax credits and cost-sharing reductions for coverage purchased outside of the exchange. It similarly requires the Commissioner of Human Services to develop a proposal for small businesses to receive small business tax credits for coverage purchased outside of the exchange.
- Establishment of a Health Care Financing Task Force to examine the future of MNsure, MA, MinnesotaCare, and related programs.<sup>42</sup>
- Modifications to the MinnesotaCare program including eligibility redetermination requirements and modifications to the premium structure to comply with federal regulations.

The Health Care Financing Task Force submitted a final report with recommendations on January 29, 2016. The report included recommendations for policy changes or adjustments to MinnesotaCare, MA, and MNsure.<sup>43</sup> Some recommendations included:

- Broadening access to MA and other programs to individuals ineligible because of immigration status
- Providing a fix for the ACA’s “family glitch,” which prevents some families that have access to only partially affordable employer coverage from obtaining premium tax credits (this might presumably require a federal waiver)
- Considering options to establish MNsure plans with no enrollee cost-sharing (through a Section 1332 waiver)
- Expanding eligibility for MinnesotaCare up to 275 percent FPL

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<sup>36</sup> Minnesota 2015 Legislature HF 1496, SF 139.

<sup>37</sup> Minnesota 2015 Legislature HF 5, SF 390.

<sup>38</sup> Minnesota 2015 Legislature HF 1664

<sup>39</sup> Minnesota 2015 Legislature HF 2211.

<sup>40</sup> Minnesota 2015 Legislature HF 1664.

<sup>41</sup> Minnesota 2015 Legislature SF 1458.

<sup>42</sup> Additional information on work by the Governor’s Health Care Financing Task Force is available online: <http://mn.gov/dhs/hcftf/>

<sup>43</sup> Minnesota Health Care Financing Task Force, January 28, 2016 Final Report.

- Studying opportunities to stabilize premiums, such as through a state-operated reinsurance program and merged markets
- Seeking alignment across public and private payers in areas such as quality measurement and payment models

## 1.2 Risk adjustment under the ACA

The ACA made significant regulatory changes to the individual and small group insurance markets. The three ACA provisions, guaranteed issue and renewal, adjusted community rating and single risk pool, mean that health insurers are not allowed to charge higher premiums for sicker-than-average individuals, which could create an incentive for health insurers to avoid designing products that might attract sicker individuals.

To address this, Sections 1341, 1342, and 1343 of the ACA respectively address and create specific risk mitigation mechanisms involving “transitional reinsurance,” “risk corridors,” and “risk adjustment” (commonly referred to as the “3Rs”). Risk adjustment is the only permanent risk mitigation program under the ACA. Under risk adjustment, health plans enrolling sicker-than-average individuals may receive a payment from the rest of the market to offset the excess risk they are unable to reflect in pricing.<sup>44</sup> In theory, under perfect risk adjustment, health insurers would be made agnostic with respect to the relative health status of their enrollees, and would instead focus on competing over health care quality and outcomes. As a premium stabilization mechanism for the commercial individual and small group market, risk adjustment has deep financial and operational implications for insurers. From a technical perspective, the ACA risk adjustment program seeks to equalize health insurance risks – the chance that individuals would require health care services – across a market by transferring premium revenue from insurers with lower actuarial risks to those with higher actuarial risks, where the actuarial risk of an insurer is calculated based on a number of factors, including the relative risk scores derived from demographic and medical diagnoses in claims, average plan benefit design, cost-sharing reduction and the associated induced utilization, geographic cost differences, and allowable rating factors. ACA risk adjustment has been constructed to be a zero-sum funds transfer mechanism within a market in a state. The direction and magnitude of funds transfer for a given insurer depends on the above health plan’s factors relative to other health plans in the same market, and its market share as well as the basis for funds transfer, which is the state average premium under the current federal risk adjustment methodology.

HHS defined five basic elements of a risk adjustment methodology:

- The risk adjustment model for calculating individual risk scores
- The calculation of plan (i.e., insurer) average actuarial risk
- The calculation of payments and charges<sup>45</sup>
- The data collection approach
- The schedule for implementation

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<sup>44</sup> March 31, 2016, [HHS-Operated Risk Adjustment Methodology Meeting](https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf). Discussion Paper. Retrieved May 5, 2016, from <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>.

<sup>45</sup> HHS has indicated that it will require states to follow the federal approach for this element, at least for the 2014 benefit year.

Each year, HHS publishes the federal risk adjustment methodology for the policy year that begins on January of the following year as part of its annual Notice of Benefit and Payment Parameters (Federal NBPP). The Federal NBPP sets the program parameters for the risk adjustment funds settlement for the upcoming year. Prior to the publication of the Federal NBPP in the Federal Register, HHS publishes a draft NBPP a few months earlier for public comment.

Insurers are instructed by state insurance regulators to incorporate risk adjustment funds transfers in their rate filings. In other words, if an insurer is expected to receive risk adjustment funds transfers, holding everything else equal, the insurer will lower its premium rates accordingly, and vice versa. The timing of the final NBPP is such that insurers would be able to incorporate the risk adjustment funds transfer estimates into their rate filings for the upcoming year.

### 1.3 Key components of the federal risk adjustment program

Consistent with the ACA and through regulation and guidance, HHS has made clear that a state that operates an exchange has the option to operate its own risk adjustment program. States that operate their own programs also have flexibility to offer enhancements or to deviate from the federal methodology, subject to HHS approval. A state that operates its own risk adjustment program can either use the Federal Model or an alternative methodology that has been certified by HHS. If a state does not operate an exchange or chooses not to operate a risk adjustment program, the federal government will administer the risk adjustment program on behalf of the state.<sup>46</sup> Currently, only one state (Massachusetts) has chosen to operate its own risk adjustment program, and it has recently been announced that Massachusetts will transition to a federally operated risk adjustment program beginning with the 2017 benefit year. HHS currently operates risk adjustment programs in all other 49 states and the District of Columbia.

There are two key aspects for a state to obtain approval to perform risk adjustment—operational approval to operate the program and, if the state wishes to develop its own methodology, certification of that methodology.

- *Operational approval:* A state operating its own risk adjustment program must receive operational approval from CMS. This approval focuses on the capacity of the risk adjustment entity to perform the functions required.
- *Methodology certification:* If the state wishes to develop its own risk adjustment methodology, it must seek certification of the methodology. Alternatively, a state could operate the risk adjustment program using HHS's methodology (or another state's methodology that has been certified by HHS). In this case, the state would not have to seek certification (but would still have to seek operational approval).

These processes are described in greater detail in Section 5.

### **HHS methodology**

HHS has described several aspects of a risk adjustment methodology—the risk adjustment model, payment transfer formula, data collection approach, and risk adjustment schedule. The federal risk adjustment model and payment transfer formula are described further in Appendix 1A.

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<sup>46</sup> 45 CFR 153.310(a).

## Data collection approach

HHS uses a distributed approach to collect the necessary data for the federally operated risk adjustment and reinsurance programs.<sup>47</sup> This approach is designed to minimize the amount of personally identifiable information that is transferred to HHS. Under this approach, issuers set up data servers, also known as “EDGE servers” with software developed by HHS. The server can be on premise or through a “cloud” solution utilizing Amazon Web Services. Issuers upload enrollment and claims data to the EDGE server in formats specified by HHS. The EDGE server will then verify the submitted data and perform risk adjustment and reinsurance calculations. The EDGE server provides summary reports to CMS, extracting only summary-level information required to conduct market-level payment transfers. The server provides more detailed data reports to the issuer. In this way, member-level identifiable information is never transmitted to HHS.

Issuers must upload all claims and enrollment data for a benefit year to their EDGE servers by April 30 of the year following the benefit year. For example, for the 2014 benefit year, issuers are required to have all data uploaded by April 30, 2015. This date is intended to balance the need for issuers to have time for sufficient claims run-out and to work through the technical processes of submitting data, and the importance of having risk adjustment calculations finalized by June 30 as required by federal regulation.

## Risk adjustment schedule

Under the federal methodology, claims incurred during a benefit year and submitted to the EDGE servers by April 30 of the following year are used to calculate risk adjustment funds transfers.<sup>48</sup> CMS will provide issuers notification of the payments and charges by June 30 of the following year. Issuers that fail to comply with federal data submission requirements will be assessed a default risk adjustment charge or a civil monetary penalty, depending on the nature of the problem.

## Discrepancy resolution process

HHS has created a discrepancy resolution process to identify discrepancies between the data submitted by the issuer and the calculation reports provided by the EDGE server. HHS has emphasized “informal” discrepancy reporting, in which issuers and HHS work together in an informal way to identify and resolve concerns. However, there is also a more formal discrepancy reporting process that occurs following the end of the data submission period for a given year.

Under the informal process, HHS, via the EDGE server, will periodically perform calculations and provide EDGE server reports to issuers. These reports will describe interim calculations of risk scores for each member, the data elements that went into those calculations, and other information, based on the data submitted to the EDGE server. Issuers will then have the opportunity to identify any discrepancies to HHS.

The formal process begins following the April 30 data submission deadline. Issuers will receive final EDGE server reports calculating risk scores and providing other data. The issuer would be required, within 15 calendar days of the receipt of the final report, to either confirm that the report accurately reflects the data uploaded to the dedicated data environment, or to describe any

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<sup>47</sup> Massachusetts uses its State All-Payer Claims Database as the venue for collecting data for risk adjustment.

<sup>48</sup> Although there is no specific “run-out” period under the federal methodology, claims must have been adjudicated and paid in order to be submitted to the EDGE server.



discrepancies it identifies.<sup>49</sup> HHS notes that this tight time frame is necessary so that HHS can notify issuers of their final risk adjustment transfers and reinsurance payments by June 30.

An issuer's identifying (or not identifying) a discrepancy in this formal reporting period can affect an issuer's later rights under HHS's appeals process. In order to preserve the ability to raise an issue during the reconsideration process, the discrepancy must first be identified in the formal discrepancy window. HHS has stated that an issue that could have been raised in the formal discrepancy report that was not raised cannot be the subject of an appeal.

### **Risk adjustment data validation (RADV) requirements**

Below, we briefly explain how HHS will perform RADV for federally operated risk adjustment starting for the 2016 benefit year. It is expected to begin after the completion of the funds transfer calculation, by June 30, 2017 (more information is contained in Section 5.1.3). A state could presumably follow a similar approach when conducting RADV — but, as indicated above, a state could also have flexibility.

HHS has described several basic stages involved in HHS-operated RADV:

- *Sample selection:* HHS will select a sample of enrollees from each issuer. In the initial years, this sample will generally be up to 200 enrollees—although it could be less in some circumstances. The sample will be divided into several “strata,” based on the age and relative risks of the enrollees in the sample.
- *Initial validation audit (IVA):* Each issuer must retain one or more independent auditor to perform an IVA of the sample selected by HHS. The issuer provides the auditor with all relevant source enrollment documentation, claims and encounter data, and medical record documentation from providers of services to each enrollee in the sample. This information will be used by the auditor to validate the enrollment, demographic, and health status data of each enrollee.
- *Second validation audit (SVA):* Following the IVA, an auditor retained by HHS will perform a second validation audit on a subsample of the sample of enrollees used in the IVA.
- *Error estimation:* HHS will use the results of the IVA and/or the SVA to adjust the average risk score for each risk-adjustment-covered plan offered by the issuer.<sup>50</sup> This error rate would be used to adjust the issuer's payments in future years.
- *Appeals:* HHS has said it will have an appeals process for HHS-operated RADV beginning with the 2017 benefit year—but has not yet described that process.
- *Payment adjustments:* As noted, HHS did not conduct RADV on 2014 data. For the 2015 benefit year, HHS will not use RADV results to adjust issuers' risk adjustment payments and charges. Rather, during this “pilot year,” information and experience gained in the RADV process would be used to further refine the RADV process and to serve as an educational tool to issuers. The RADV results will impact risk adjustment payment transfers beginning with the 2016 benefit year data. The error rates calculated for a given benefit year would be used to adjust the issuer's payments in *future* years, rather than to adjust the issuer's payments for that year, because payments will have already been

<sup>49</sup> 45 CFR §153.710(e).

<sup>50</sup> In determining whether to use the results of the IVA or the SVA, HHS would first use pairwise testing to determine whether there is a statistically significant difference between the IVA and SVA results. If there is no significant difference, HHS would accept the IVA results. If there is a statistically significant difference, HHS would use the SVA results to adjust the IVA results. See the Final 2015 HHS Payment Notice, pp. 13761-62.

assessed. This method is designed to avoid a complex reconciliation process—given that risk adjustment transfers are to net to zero within a state.

#### 1.4 Considerations for policy makers

As the primary regulators of the fully insured small group and individual markets, states must balance a number of important considerations. These considerations would exist in either the current Federal Model or a state model. However, a state-operated risk adjustment program may have flexibility to align the risk adjustment methodology with these broader considerations.

**Potential concerns or areas of interest for customized state-based risk adjustment could include:**

- **Geographic presence – whether the current federal risk adjustment methodology has accurately captured the geographic cost differences:** Under the federal risk adjustment methodology, the age-normalized silver plan premium rates are used to approximate geographic cost differences. The underlying assumption here is that silver plan premiums were accurately developed by insurers and hence are good representations of the unit cost differences across geographic areas. In practice, this assumption may not hold, because premium development is typically done months in advance of the actual plan year and may not be very accurate. State-based risk adjustment could assess to what extent pricing inaccuracies impact premium rates and therefore the calculation of the geographic cost factors, and make appropriate adjustments.
- **The impact of risk adjustment on specific network types:** State-based risk adjustment could consider the relationship between network types—such as tiered or “narrow” networks—and access to care and coverage considerations for specific subpopulations that may be prevalent in local communities. Network design impact risk selection and is not accounted in the current federal risk adjustment methodology.
- **Transfer formula decisions – whether the risk adjustment payments are based on a plan’s actual premiums rather than state average premiums:** Currently the federal risk adjustment methodology uses the state average premium as the basis for funds transfer. Some insurers may have set premiums much lower than the state average premium. If they attract healthier-than-average members and pay into the risk adjustment pool, they will be paying at a higher basis than their own premium. This potentially may lead to financial stability concerns.<sup>51</sup>
- **Accuracy in premium development:** During the initial years of ACA implementation the landscape of the individual and small group insurance markets have been changing, with insurers implementing evolving strategies and consumers realigning to different health plans. Because risk adjustment funds settlement results are not available until six months after the close of the previous benefit year, or months after the plan design and premium development, there is a chance for inaccuracies in the premium development process.

<sup>51</sup> Although the decision to calculate transfers based on premiums instead, as is often done, on claims is an intentional, policy-driven one by the federal government, aimed at limiting gaming and setting incentives for providing efficient health care services, it has created a disadvantage for transfer recipients in which claims outpaced premiums. Please see March 31, 2016, [HHS-Operated Risk Adjustment Methodology Meeting](https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf). Discussion Paper. Retrieved May 5, 2016, from <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>.

Quarterly information to insurers via state-based risk adjustment about relative risk in the insurance market could reduce the chance of inaccurate pricing and unexpected risk adjustment transfers which would have positive effects on financial performance and solvency considerations for insurers.

- **Operation of risk adjustment without federal reinsurance or risk corridors program:** Of the three risk mitigation systems put in place by the ACA for the individual and small group markets, two were temporary. They sunset at a time when the markets continue to experience volatility and have the potential to create substantial price increases and access barriers, as insurers consider participation in the market. State-based risk adjustment would permit the state to integrate state-based risk mitigation approaches in a way that creates financial efficiencies.

### 1.5 Stakeholder perspectives

As part of the risk adjustment feasibility study, we have worked with MDH to seek input and feedback from state agencies, Minnesota insurers, the local trade association of Minnesota health plans, and other stakeholders in the marketplace. The stakeholder engagement began with MDH's RFI in spring 2015, followed up by open forum and one-on-one discussions throughout the remainder of 2015. In summer 2015, MDH also reached out to the insurers to collect additional data to inform the risk adjustment study, had a series of question and answer (Q&A) sessions with insurers regarding the purpose of the study and the data collection, and looked at the technical details and data quality of the supplemental data.<sup>52</sup>

#### **Health Insurers**

Risk adjustment has a significant impact on insurers, both financially and operationally. Thus, insurers are a vital stakeholder in the consideration of a potential state-operated risk adjustment program. During the stakeholder engagement, we offered health insurers multiple opportunities to comment on the study, including through public meetings, meetings with representatives and their trade association, the Minnesota Council of Health Plans, and in on-on-one meetings with health insurer representatives. We discussed the following range of issues in this forums:

- How well the Federal Model predicts claims cost for the Minnesota market and how that may compare to a Minnesota-based model
- The predictability of risk adjustment transfers, and concerns about potential disruption caused if transfers differ from expectations
- The operational and administrative burden of submitting data, both with regard to the current study, and ultimately to participation in a state-based risk adjustment program
- The value of regular reports throughout the benefit year that will provide both insurer-specific and market-wide risk adjustment data, allowing tracking prior to receiving a payment and charges report (i.e., payment transfer notice) on June 30 following the applicable benefit year
- The level of support an insurer might expect to address data collection, data quality, and other issues related to risk adjustment

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<sup>52</sup> For more information on the RFI, please refer to <http://www.health.state.mn.us/divs/hpsc/hep/riskadjustment/rarfi.html>

- Confidence in the program administrator with respect to the accuracy and integrity of the overall program, including data discrepancy resolutions, risk adjustment data validation, and protections against gaming of the system
- Any potential financial and operational burden or disruption from moving from the federally operated risk adjustment program to a state-operated risk adjustment program, both for insurers operating in Minnesota exclusively and for insurers operating in multiple states
- The funding of the risk adjustment program

Some insurers and the Minnesota Council of Health Plans that responded to MDH’s initial RFI expressed concern about moving to state-based risk adjustment, noting that the Federal Model has undergone significant development with more changes expected, and that economies of scale make federal risk adjustment cost-effective.<sup>53</sup>

Insurers that we interviewed regarding their experiences with the federal risk adjustment program noted that the federal program appeared to operate reasonably well, producing results within the range of expectations. Some insurers noted they encountered challenges in the early stages of the program.

- Some insurers said that the 2014 funds transfer results were within expectations, and some said that it was more than they expected
- Most insurers commented that they expected the federal program to continue to improve
- A number of insurers commented that the federal risk adjustment operation has economies of scale, and may be less costly to the insurers than if it were run at the state level
- One insurer commented that a state-based risk adjustment program leveraging the MN APCD for data collection could reduce the insurer’s administrative burden
- Some insurers noted that providing data for the risk adjustment study itself imposed a burden, and therefore requested clarification on how each data element would be used to inform the study and remove noncritical data elements
- One insurer expressed concerns about how the risk adjustment funding mechanism could differentially impact small insurers, whether there could be a credibility threshold for very small insurers, and whether risk adjustment would be “phased in” for new entrants

### **Health care providers**

Risk adjustment impacts health care providers both directly and indirectly. For example, risk scores are largely driven by claims and diagnosis information submitted by providers. One major provider noted that risk adjustment models may encourage plans to include or exclude particular providers in their networks and reimburse for particular services and conditions to maximize their gain from the ACA risk adjustment.

Moreover, risk adjustment can have administrative implications for providers. Diagnosis data largely determines an individual enrollee’s risk score. RADV also requires insurers to provide medical record information to substantiate the HCCs submitted as part of the risk adjustment process. Insurers thus require the cooperation of providers in obtaining these records and ensuring proper documentation as part of the RADV process.

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<sup>53</sup> Responses to the RFI are available online: <http://www.health.state.mn.us/divs/hpsc/hep/riskadjustment/rarfi.html>

## **Community health centers and other essential community providers**

We highlight the community health centers and other essential community providers here separately, as they serve predominantly low-income or other underserved populations, such as those enrolled in the Minnesota BHP, and may require a particular focus from risk adjustment, specifically, whether a risk adjustment methodology might encourage or discourage high-quality coverage of these populations.

For example, one comment, representing several community health centers, noted the potential impact of the risk adjustment program on the coverage and care available to underserved populations. They recommended a risk adjustment model that includes metrics for the social determinants of health, such as socioeconomic status, race, ethnicity, language, etc.

## **Patients/consumers and patient advocates**

Patient advocates, particularly those who focus on certain patient populations or health conditions, have a strong interest in the accuracy and effectiveness of the risk adjustment program. The effectiveness of risk adjustment may impact the ability of insurers to offer coverage options or network designs that meet the needs of individuals with complex conditions in all rating regions. One stakeholder commented that the risk adjustment methodology should reflect differentiated levels of disease severity for patients requiring referral services in the risk adjustment model and transfer formula.

## **Employers**

Employers, particularly small employers in the fully insured market, could have an interest in risk adjustment. The accuracy and efficiency of the risk adjustment program may impact the coverage choices available to small employers, both on and off the exchange at affordable prices. Risk adjustment addresses the fact that insurers can no longer vary premiums based on the health status of the group, such that the effectiveness of risk adjustment can be important to ensuring access to coverage for small businesses. While Minnesota has legislative provisions in place that limit the potential for smaller employers exiting the fully insured market in favor of self-insurance, inefficient risk adjustment or risk adjustment not well-customized to the market can strengthen incentives for certain small groups leaving this market space.

If the state adopted additional market reforms, such as expanding the current small group market to include groups up to 100 employees (which at this point the state has actively opted not to do), or a merger of the individual and small group markets, or establishing a state-based reinsurance program, then the question of how risk adjustment impacts premiums and availability of coverage for the newly defined small group market will be an important consideration.

## SECTION 2: MN APCD DATA QUALITY AND READINESS

### 2.1 Background of the MN APCD

The development of a MN APCD was established in state law by the Minnesota legislature in 2008 to improve provider price and quality transparency.<sup>54</sup> Until 2014, the MN APCD only supported the Provider Peer Group (PPG) initiative to compare the cost, efficiency, and quality across providers. In 2014, the state broadened the use of the MN APCD to inform, among other things, an evaluation of the Health Care Homes program, a study of hospital readmissions, an analysis of regional variations in cost, quality, utilization, and severity, and a study to assess the feasibility of implementing state-based risk adjustment for the individual and small group markets. At the same time, the legislature suspended the PPG initiative.

To securely collect, store, manage, aggregate, and ensure integrity of the data, MDH selects a data aggregation vendor to administer the MN APCD. All insurers, third-party administrators (TPAs), and pharmacy benefit managers (PBMs) are required to submit medical claims, pharmacy claims, and member enrollment information to the data aggregation vendor if minimum thresholds of \$3 million in annual medical claims and/or \$300,000 in annual pharmacy claims are met. In addition, the MN APCD also integrates data from public payers (Medicare and Medicaid). It is the largest source of Minnesota-specific health claims and membership data and captures enrollment and claims for approximately 85 percent of the state's population and a greater share of those with coverage.

### 2.2 Technical description of the MN APCD

Every insurer, TPA, and PBM is required to securely submit data to MDH's data aggregation vendor at least semiannually, according to detailed submission guidelines established in Minnesota Administrative Rules, Chapter 4653. Many organizations submit monthly. MDH's current vendor maintains the software for data upload, data verification, and ultimately data integration within the existing MN APCD. In addition, the vendor, assisted by MDH, follows up with all submitting entities to ensure timely submissions that meet minimum quality thresholds.

All data submissions begin with the submitting entity running software locally that "hashes," or one-way encrypts, sensitive fields (the encryption cannot be reversed and the original data cannot be obtained) prior to any data that are uploaded to MDH's current vendor's servers. This ensures that no identifying information is passed on to the vendor, MDH, or other data users without the proper level of encryption.

After the hashing process, MDH's current data aggregation vendor separates its processes into three main components: Transform, Load, and Consolidation and Extract. The aggregation vendor employs over 500 data quality and validation checks during these components. We summarize each step below:

- *Transform*: This step initiates the data upload and uniquely stamps each upload attempt for tracking and status purposes. At this point the data go through a number of high-level quality checks to ensure that certain populated fields match insurer-provided control totals, that fields are populated with the correct length and data type (i.e., number versus

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<sup>54</sup> Minnesota Statutes, Section 62U.04.

alphabetical), and that identical or similar fields across files are populated in a consistent way.

- *Load:* During this step the data go through more rigorous data quality testing. If the data passes all tests, it is transferred and loaded into the data warehouse. It is at this stage that the data are tested for missing or invalid values, i.e., Healthcare Common Procedure Coding System (HCPCS), International Classification of Diseases (ICD)-9 diagnosis and procedure codes. In addition, several trend reports are created to highlight possible data anomalies over time. MDH's current data aggregation vendor's staff works with each data submitter if any data quality tests fail and assists with rectifying issues through resubmitting data. Data reports are available to each submitter for internal verification.
- *Consolidation and Extract:* In the last step in the process, MDH's current data aggregation vendor adds a number of fields that assist in the usefulness of the end product such as Medicare Severity Diagnosis-Related Groups (MS-DRGs) and All Payer Refined Diagnosis-Related Groups (APR-DRGs), creation of unique admissions from multiple claims lines, and working with insurers to flag final, paid claims. After these additional fields are created, they are assessed from a data quality perspective by reviewing trends and consistency over time. If they pass the final data checks, the files are extracted from the data warehouse and transferred to MDH.

Final data are delivered to MDH as updated data extracts, which are stored in a secure environment where only authorized users have access either onsite at MDH or through secure Virtual Private Network (VPN) technology. The data files are accessible in Statistical Analysis Software (SAS) and MDH has added fields to supplement those supplied by the current data aggregation vendor. One example is a flag that attempts to identify duplicate pharmacy claims across data submitters, which may happen if the payer and the PBM are both submitting claims on behalf of the member.

### [2.3 MN APCD data quality assessment](#)

Milliman performed a detailed assessment of the underlying claims and membership data submitted to the MN APCD for the 2013 and 2014 calendar years for those members and plans that were (in 2014) or would have been (had ACA rules been in effect in 2013) subject to risk adjustment in the individual, small group, and MinnesotaCare markets. Insurers self-reported members that would be included in the risk adjustment study through supplemental filings, per MDH instructions, using familiar data submission processes established by MDH's data aggregation vendor.<sup>55</sup> In this section we present a number of data quality analyses:

- To assess if the data can be used as the main source to inform the risk adjustment modeling
- To identify any data limitations that will require adjustments with respect to the risk adjustment modeling
- To highlight any data quality issues that would have to be addressed prior to using the MN APCD for operating state-based risk adjustment
- To develop a set of exhibits that will provide templates to monitor and evaluate data quality on an ongoing basis

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<sup>55</sup> For more information, visit the [Minnesota Department of Health website at http://www.health.state.mn.us](http://www.health.state.mn.us).

Based on these analyses we believe that:

- The MN APCD, together with the supplemental files, provide a robust data source for use in our risk adjustment modeling. Specifically:
  - The data capture the majority of members enrolled in plans subject to risk adjustment
  - At a market level, diagnosis codes, which are the main input into a risk adjustment model, are well populated compared with other data sets that have been used for other risk adjustment modeling
  - Other data elements used in risk scoring, such as revenue codes and HCPCS codes, are well populated
  - Utilization rates by detailed service category seem generally reasonable for the vast majority of the market and insurers
- While the MN APCD exhibits high data quality for most of its larger data submitters, there are a number of issues that affect a small subset of the risk adjustment study data set, such as gaps in membership and claims, as well as incomplete matching between the supplemental file and the existing MN APCD data. These data issues are minor with respect to the total market and will not adversely impact our conclusions in our risk adjustment modeling.

#### [2.4 Development of the risk adjustment study data set](#)

The MN APCD houses data on all market segments for Minnesota residents with health insurance coverage. The supplemental file submitted by insurers to MDH's data aggregator vendor enabled us to subset the MN APCD to identify members to include in the risk adjustment study modeling. In these supplemental files, insurers provided necessary data to link to the claims records they had submitted earlier to the MN APCD.

MDH's current data aggregation vendor creates a unique member identifier from existing insurer-submitted data fields, with the intent of matching members across all submitters in the MN APCD. We used this unique member identifier to match the members submitted in the supplemental file to those members currently residing in the MN APCD. These "matched" members form the basis of the risk adjustment study data set for commercial members (individual, small group of one to 50, and small group of 51 to 100). MinnesotaCare members were added to our risk adjustment study data set directly from the existing MN APCD, as these members were readily identifiable. A technical description of the data set creation process is provided in Appendix 2A.

The table in Figure 1 shows by insurer and market segment that well over 90 percent of total members appearing in the supplemental file had a match in the MN APCD.



**Figure 1:**  
**Supplemental File Member Matching to MN APCD**  
 Source: Insurer-submitted supplemental files and 2013 and 2014 MN APCD

| Insurer Name                            | Market Category    | Member Months in Supplemental File |           | Matched Member Months Between Supplemental File and Medical Membership File |           | Percent of Matching |        |
|---|--------------------|------------------------------------|-----------|---|-----------|---------------------|--------|
|   |                    | CY2013                             | CY2014    | CY2013  | CY2014    | CY2013              | CY2014 |
| HealthPartners                          | Small Group 51-100 | 87,164                             | 431,301   | 84,448  | 420,966   | 96.9%               | 97.6%  |
|   | Small Group 1-50   | 268,953                            | 495,001   | 261,896   | 486,390   | 97.4%               | 98.3%  |
|   | Individual         | 58,799                             | 245,970   | 56,032  | 237,388   | 95.3%               | 96.5%  |
| Blue Cross and Blue Shield of Minnesota | Small Group 51-100 | 209,293                            | 294,832   | 206,799   | 290,694   | 98.8%               | 98.6%  |
|   | Small Group 1-50   | 1,527,889                          | 1,295,655 | 1,512,890   | 1,276,930 | 99.0%               | 98.6%  |
|   | Individual         | 1,682,198                          | 1,779,299 | 1,650,596   | 1,745,524 | 98.1%               | 98.1%  |
| Federated Mutual Insurance Company      | Small Group 51-100 | 4,571                              | 17,530    | 4,519   | 17,331    | 98.9%               | 98.9%  |
|   | Small Group 1-50   | 20,891                             | 84,669    | 20,648  | 84,001    | 98.8%               | 99.2%  |
| Medica Health Plans                     | Small Group 51-100 | 539,031                            | 634,783   | 529,416   | 626,420   | 98.2%               | 98.7%  |
|   | Small Group 1-50   | 538,770                            | 534,599   | 530,817   | 529,380   | 98.5%               | 99.0%  |
|   | Individual         | 561,179                            | 345,029   | 558,828   | 331,784   | 99.6%               | 96.2%  |
| Sanford Health Plan of Minnesota        | Small Group 1-50   | -                                  | 1,002     | -   | -         |                     | 0.0%   |
| John Alden Life Insurance Company       | Small Group 1-50   | 583                                | 310       | 369   | 196       | 63.3%               | 63.2%  |
|   | Individual         | 12,083                             | 8,071     | 11,718  | 7,745     | 97.0%               | 96.0%  |
| Time Insurance Company                  | Small Group 1-50   | 721                                | 642       | 229   | 226       | 31.8%               | 35.2%  |
|   | Individual         | 182,854                            | 152,055   | 176,155   | 142,853   | 96.3%               | 93.9%  |
| UCare                                   | Individual         | -                                  | 5,739     | -   | 5,520     |                     | 96.2%  |
| PreferredOne Community Health Plan      | Small Group 51-100 | 9,653                              | 35,866    | 9,449   | 35,319    | 97.9%               | 98.5%  |
|   | Small Group 1-50   | 28,846                             | 101,139   | 28,431  | 99,931    | 98.6%               | 98.8%  |
| PreferredOne Insurance Company          | Small Group 51-100 | 34,630                             | 129,835   | 33,889  | 128,433   | 97.9%               | 98.9%  |
|   | Small Group 1-50   | 33,577                             | 178,886   | 33,026  | 176,901   | 98.4%               | 98.9%  |
|   | Individual         | 44,023                             | 885,791   | 42,528  | 876,657   | 96.6%               | 99.0%  |

Note: Insurers with common ownership generally submitted data under one submission identification. Throughout this report, these insurers were treated as one entity, even though they may be selectively present in different market spaces in Minnesota.

We note that John Alden and Time Insurance had low matching rates, while Sanford had a 0 percent match rate. Based on discussions with MDH’s data aggregation vendor, John Alden and Time Insurance did not provide all members in their data submissions to the MN APCD, while they correctly provided members in the supplemental files, resulting in a low match rate. Sanford did not meet reporting thresholds and therefore did not submit any files to the MN APCD in 2013 and 2014.

The tables in Figures 2 and 3 provide summaries of the current MN APCD and the final data set that will be used in the risk adjustment study, respectively. Unless otherwise noted, Figure 3 summarizes the underlying data for the insurer-specific and market-level data quality reports discussed above in Section 2.3.

**Figure 2:**  
**Summary of the MN APCD Database,**  
**Source: 2013 and 2014 MN APCD, including all market segments**

|   | CY 2013          | CY 2014          |
|---|------------------|------------------|
| <b>Medical Membership File</b>          |                  |                  |
| Total Number of Records                 | 46,606,152       | 47,902,334       |
| Total Number of Submitters <sup>1</sup> | 50               | 46               |
| Total Number of Members <sup>2</sup>    | 4,674,529        | 4,882,521        |
| <b>Medical Claims File</b>              |                  |                  |
| Total Number of Records                 | 110,793,897      | 115,838,627      |
| Total Number of Submitters <sup>1</sup> | 53               | 52               |
| Total Number of Members <sup>2</sup>    | 3,610,691        | 3,729,799        |
| Total Allowed (\$)                      | \$15,086,106,023 | \$15,595,341,733 |
| <b>Pharmacy Membership File</b>         |                  |                  |
| Total Number of Records                 | 67,427,610       | 69,056,596       |
| Total Number of Submitters <sup>1</sup> | 55               | 54               |
| Total Number of Members <sup>2</sup>    | 6,060,048        | 6,256,582        |
| <b>Pharmacy Claims File</b>             |                  |                  |
| Total Number of Records                 | 69,310,086       | 70,015,300       |
| Total Number of Submitters <sup>1</sup> | 55               | 54               |
| Total Number of Members <sup>2</sup>    | 3,473,719        | 3,599,152        |
| Total Allowed (\$)                      | \$5,218,924,693  | \$5,830,943,961  |

<sup>1</sup> Unique count of the data element field “PayerID” (includes TPAs and PBMs).

<sup>2</sup> Unique count of the data element field “MemberIDN.”

**Figure 3:**  
**Summary of the Risk Adjustment Study Data Set Population,**  
 Source: 2013 and 2014 MN APCD, including the following market segments: individual, small group <= 50, small group 51-100, and MinnesotaCare

|   | CY 2013         | Percent<br>-age of<br>MN<br>APCD | CY 2014         | Percent<br>-age of<br>MN<br>APCD |
|---|-----------------|----------------------------------|-----------------|----------------------------------|
| <b>Medical Membership File</b>          |                 |                                  |                 |                                  |
| Total Number of Records                 | 7,269,925       | 16%                              | 8,402,699       | 18%                              |
| Total Number of Submitters <sup>1</sup> | 46              | 92%                              | 43              | 93%                              |
| Total Number of Members <sup>2</sup>    | 941,412         | 20%                              | 1,009,161       | 21%                              |
| <b>Medical Claims File</b>              |                 |                                  |                 |                                  |
| Total Number of Records                 | 12,219,267      | 11%                              | 14,252,762      | 12%                              |
| Total Number of Submitters <sup>1</sup> | 42              | 79%                              | 45              | 87%                              |
| Total Number of Members <sup>2</sup>    | 643,650         | 18%                              | 697,507         | 19%                              |
| Total Allowed (\$)                      | \$1,764,050,898 | 12%                              | \$2,392,160,153 | 15%                              |
| <b>Pharmacy Membership File</b>         |                 |                                  |                 |                                  |
| Total Number of Records                 | 7,624,470       | 11%                              | 8,778,322       | 13%                              |
| Total Number of Submitters <sup>1</sup> | 47              | 85%                              | 47              | 87%                              |
| Total Number of Members <sup>2</sup>    | 938,781         | 15%                              | 1,007,310       | 16%                              |
| <b>Pharmacy Claims File</b>             |                 |                                  |                 |                                  |
| Total Number of Records                 | 5,261,139       | 8%                               | 5,922,540       | 8%                               |
| Total Number of Submitters <sup>1</sup> | 41              | 75%                              | 45              | 83%                              |
| Total Number of Members <sup>2</sup>    | 491,986         | 14%                              | 526,516         | 15%                              |
| Total Allowed (\$)                      | \$410,768,872   | 8%                               | \$541,848,570   | 9%                               |

Study population as a percent of records, submitters and members of the complete data in the MN APCD

<sup>1</sup> Unique count of the data element field "PayerID" (includes TPAs and PBMs).

<sup>2</sup> Unique count of the data element field "MemberIDN."

## 2.5 Assessment of the completeness of the risk adjustment study data set

To assess the completeness of the data submitted in the supplemental file, for the 2014 individual and small group markets we compared the MN APCD membership and claims with 2016 rate filings. Minnesota released insurers' 2016 rate filings submitted to the System for Electronic Rate and Form Filing (SERFF) of the National Association of Insurance Commissioners (NAIC), which includes the Unified Rate Review Template (URRT) summarizing, by plan, 2014 membership and claims cost.<sup>56</sup>

The table in Figure 4 summarizes our findings.

**Figure 4:**  
**Comparison of 2016 URRTs With CY2014 MN APCD**  
 Source: 2016 URRTs and 2014 MN APCD

| Insurer <sup>1</sup>                    | Market Category <sup>2</sup> | URRT Member Months <sup>3</sup> | MN APCD Member Months <sup>3</sup> | Percent Difference |
|---|------------------------------|---------------------------------|------------------------------------|--------------------|
| <b>BCBS MN</b>                          | Individual                   | 1,346,495                       | 1,306,484                          | 3%                 |
|   | Small Group                  | 632,149                         | 562,292                            | 11%                |
| <b>Federated</b>                        | Small Group                  | 10,462                          | 9,806                              | 6%                 |
| <b>HealthPartners Insurance Company</b> | Individual                   | 184,517                         | 176,482                            | 5%                 |
|   | Small Group                  | 81,282                          | 74,416                             | 8%                 |
| <b>HealthPartners, Inc.</b>             | Individual <sup>4</sup>      | 54,742                          | 53,266                             | 3%                 |
|   | Small Group                  | 447,408                         | 413,934                            | 8%                 |
| <b>Medica</b>                           | Individual                   | 271,268                         | 296,446                            | -9%                |
| <b>PreferredOne Insurance Company</b>   | Individual                   | 877,877                         | 867,242                            | 1%                 |
|   | Small Group                  | 184,526                         | 96,327                             | 48%                |
| <b>UCare Commercial</b>                 | Individual                   | 5,927                           | 5,523                              | 7%                 |

<sup>1</sup> Excludes insurers only participating in MinnesotaCare—Itasca Medical Care, PrimeWest, and South Country Health Alliance—and also excludes insurers not participating in individual and small group markets in 2016: John Alden Life Insurance Company and Time Insurance Company.

<sup>2</sup> Small group includes groups of size less than 50.

<sup>3</sup> Only includes those plans that were subject to risk adjustment in 2014.

<sup>4</sup> HealthPartners, Inc. Individual products were submitted under Group Health (GHI).

<sup>56</sup> Please visit the [SERFF website at http://www.serff.com](http://www.serff.com).

Our analysis generally finds concordance between data in the MN APCD and the URRTs. Where differences exist, they appear to be driven largely by data included in the URRTs that are not subject to risk adjustment. For example, we note the following:

- BCBS MN believes the difference in member months between the URRT and the MN APCD are due to out-of-state members. The URRT includes residents outside of Minnesota, while the supplemental file does not.
- PreferredOne Insurance Company addressed the difference between the URRT and MN APCD member months for small group. The MN APCD numbers summarized above only include those subject to risk adjustment, whereas plans not subject to risk adjustment were included in PreferredOne's URRT.

In addition, we validated the completeness of each MinnesotaCare insurer by comparing the MN APCD enrollment counts with those reported by the Minnesota Department of Human Services (DHS).<sup>57</sup> In total, these two sources matched closely: within 2.5 percent for 2013 and within 1 percent for 2014. By insurer, the two sources matched closely, with the largest deviations caused by small county-based insurers' MN APCD submission schedules. The absolute difference in membership figures is small compared with the total market and will not impact the conclusions of our risk adjustment study.

Data from one insurer was ultimately omitted from the analysis of the small group market, because membership of the insurer was not accurately identified in various rounds of data submissions. The impact of that omission would not be material to change the high-level conclusions of the study.

## [2.6 Detailed insurer-specific data quality assessment](#)

To assess data quality on specific elements important in the risk adjustment process, we created detailed, insurer-specific reports that, among other things:

- Validate codes, such as ICD-9/-10 diagnoses, revenue codes, and HCPCS/Current Procedural Terminology (CPT) codes
- Cross-check the Health Insurance Oversight System identification (HIOS ID) to metallic tier level, i.e., Cost Sharing Reduction (CSR) silver variant plans only show up under silver metallic levels
- Cross-check the market segment to metallic level (i.e., catastrophic plans only show up under individual plans)
- Assess the reasonableness of the percentage of members with no claims during a 12-month period
- Assess the reasonableness of utilization rates by costs by detailed service category
- Assess the reasonableness of monthly membership and per member per month (PMPM) cost trends

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<sup>57</sup> DHS's 2013 and 2014 MinnesotaCare Programs managed care enrollment totals are available on the [DHS website at http://www.dhs.state.mn.us/main/idcplg?IdcService=GET\\_DYNAMIC\\_CONVERSION&RevisionSelectionMethod=LatestReleased&dDocName=dhs16\\_141529](http://www.dhs.state.mn.us/main/idcplg?IdcService=GET_DYNAMIC_CONVERSION&RevisionSelectionMethod=LatestReleased&dDocName=dhs16_141529).

Please refer to Appendix 2D for the technical description of the insurer-specific data quality assessment reports.<sup>58</sup>

Based on the results from these reports, as we proceeded through our data quality process, we identified a number of data quality issues, such as meaningful gaps in membership and claims, insurers not correctly identifying those plans that are subject to risk adjustment, and incorrectly labeling plan names. Findings that had the potential to affect the risk adjustment model results and conclusions were presented to individual insurers and each insurer was able to successfully resubmit data rectifying any data quality issues that would have impacted the risk adjustment study.

We highlight our final findings, incorporating the corrections discussed, below. MDH will be sharing the results for each insurer that operated in MinnesotaCare, the individual, or the small group market in 2013 or 2014. The report templates are provided in Appendix 2B and do not contain any real data.<sup>59</sup> Should the state consider moving toward implementing state-based risk adjustment, routine preparation of these types of templates with enhanced data for the MN APCD is recommended. Market-level summaries of many of these exhibits are provided in Appendix 2C. We have included a subset of exhibits that are meaningful, informative, and insightful at the market level.

The findings in these reports demonstrate that, overall, the combined data from the MN APCD and the insurer-submitted supplemental data are of high quality and can be used as the main data source for the study on state-based risk adjustment. We did not identify systematic gaps in data or poorly coded information in the MN APCD. Where data limitations existed, such as some members assigned to incorrect market segments or some claim lines having invalid diagnosis codes, they were minor and would not adversely affect the conclusions of the risk adjustment modelling detailed in Section 4.

The table in Figure 5 details the checks we performed on each insurer's data. Each check compares data summaries in the MN APCD against a "reasonable" threshold based on Milliman's experience from risk adjustment studies.

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<sup>58</sup> For purposes of Appendices 2B, 2C, and 2D the term carrier is used interchangeably with insurer.

<sup>59</sup> For purposes of Appendices 2B, 2C, and 2D the term carrier is used interchangeably with insurer.

**Figure 5:  
Reasonability Metrics for Data Quality Reports**  
Source: Milliman Analysis of the MN APCD, 2013 and 2014

| Metric  | Threshold                       | Flag = NO (Potential Data Quality Issue), where:  |
|---|---------------------------------|---|
| <b>Membership</b>   |                                 |   |
| Members Who Have Both Medical and Rx Coverage   | 99%                             | If in any month less than 99% of members having both medical and Rx coverage.   |
| Monthly Trends  | 10%                             | If the monthly membership trend is greater than plus or minus 10%.  |
| January 2014 Over December 2013 Trend   | 30%                             | If January 2014 over December 2013 is greater than plus or minus 30%.   |
| End of Year (EOY) 2014 Over Beginning of Year (BOY) 2013 Trend  | 50%                             | If the difference in membership from earliest available 2013 month (BOY2013) to the latest available 2014 month (EOY2014) is greater than plus or minus 50%.              |
| Percentage of Members With Full Year of Eligibility With No Claims  | 20%                             | If percentage of full-year enrollees with no claims exceeds 20%.  |
| <b>Claims</b>   |                                 |   |
| Medical Paid (PMPM)   | \$200-\$500                     | If a month has a PMPM outside of the range.   |
| Rx Paid PMPM  | \$30-\$120                      | If a month has a PMPM outside of the range.   |
| Paid PMPM Monthly Trends  | 15%                             | If a monthly trend is greater than plus or minus 15%.   |
| Payer Responsibility (commercial)   | 30%-90%                         | If a month's average payer cost share is outside of the range.  |
| Payer Responsibility (MinnesotaCare)  | 90%                             | If a month's average payer cost share is below 90%.   |
| Claims Triangles  | > \$0                           | If any of the first three paid months for a particular incurred month reported \$0.   |
| Completeness and Validity of Diagnosis Codes (data element required for risk scoring)                       | Dx1: 5%<br>Dx2: 50%<br>Dx3: 80% | If the diagnosis code is missing or invalid more than: <ul style="list-style-type: none"> <li>• Primary: 5%</li> <li>• Secondary: 50%</li> <li>• Tertiary: 80%</li> </ul> |
| Completeness and Validity of Procedure Code on Professional Claims (data element required for risk scoring) | 99%                             | If procedure code is missing or invalid for more than 1% of professional claims.  |
| Completeness and Validity of Revenue Code on Facility Claims (data element required for risk scoring)       | 99%                             | If revenue code is missing or invalid for more than 1% of facility claims.  |
| <b>Claims by Detailed Service Category</b>  |                                 |   |
| Utilization   | *                               | If a typically highly utilized service category shows utilization lower than expected.  |

| Metric                                  | Threshold   | Flag = NO (Potential Data Quality Issue), where:   |
|---|---|--|
| Length of Stay for Inpatient Admissions | Medical: 7<br>Other Newborn: 15<br>Surgical: 7<br>Psych: 50<br>Alcohol and Drug: 25 | If the average length of stay for inpatient admissions exceeds length of stays expected for an average population. |
| Member Cost Sharing                     | 70%   | If average member cost share is larger than 70% in any service category or less than zero.                         |
| Service Category Mapping                | 5%  | If a large percentage (5% or more) of total claims/dollars are mapped to the “Other Unknown” service category.     |

**Membership Distribution Across Risk Adjustment Characteristics**

|   |       |  |
|---|-------|--|
| Metallic Tier Validity<br>(not applicable to 2013 plans or 2014 MinnesotaCare or small group > 50 plans)  | 1%    | If more than 1% of plans subject to risk adjustment report an “Unknown” metallic tier.                 |
| Rating Region Validity  | 1%    | If rating region reports an unknown (value of ‘0’) for more than 1% of total members.                  |
| Rating Region Completeness  | 1%    | If rating region is missing for more than 1% of total members  |
| Reasonability of Insurers Flagging Plans as Subject to Risk Adjustment (plans are considered subject to risk adjustment if the Benefit Plan ID is in HIOS Plan ID format)<br>(not applicable to 2013 plans or 2014 MinnesotaCare or small group > 50 plans) | 100 % | If 100% of members are flagged as either not subject to risk adjustment or subject to risk adjustment. |

The remainder of this section describes particular components of the data quality reports and highlights areas of possible low data quality.

**2.6.1 Validity and completeness of membership data elements related to risk adjustment**

Tab 2B-F in Appendix 2B provides the template we used in our insurer-specific analyses for member month distributions for important data elements used in risk adjustment funds transfer calculations, the calculation used to compute premium charges and credits for plans in the individual and small group markets: metallic tier, rating region, and benefit plans that were identified by insurers in the supplemental file as subject to risk adjustment.

In risk adjustment funds transfer calculations, metallic tier is required for calculating the induced demand factor (the extent to which there is greater health care use when cost sharing is lower) and is also used to determine the risk weights to apply in risk scoring at the member level. Rating region is used for estimating the geographic cost factors. Finally, risk adjustment funds settlement



should only be applied to benefit plans that are subject to risk adjustment, i.e., ACA-compliant non-grandfathered individual and small group plans.

For each insurer, we tested that these data elements are populated and not missing or invalid, and that the member distributions appear reasonable given regulatory changes from 2013 and 2014 and compared with external data sources. We highlight the following:

- Metallic tier and rating region
  - Metallic tier and rating region were generally well populated, with only a small number of the members not having a valid value. Specifically:
    - For one insurer in one market segment, information on rating region was missing for 1 percent of the membership in 2013 and 3 percent of membership in 2014
    - For one insurer in one market segment, information on rating region was assigned to "Unknown" (a value of 0) for 3 percent of the membership in 2013 and 2014
    - For one insurer with low membership in one market segment, information on rating region was missing for 100 percent of the membership in 2014

Metallic tier determines the member level risk scores, actuarial value, and induced demand factors used in calculating risk adjustment funds transfers. Rating region determines the geographic cost factor that is also used in calculating risk adjustment funds transfers. In the risk adjustment modeling analyses, members with missing metallic tier were excluded, and members with metallic tier levels but missing rating region were assigned to Region 8. Rating Region 8 has the greatest number of billable member months and the lowest geographic cost factor in HHS's 2014 risk adjustment funds settlement calculations.

## 2.6.2 Validity and completeness of claims data elements related to risk adjustment

Risk scoring, or the measure of a plan member's relative health status based on health care administrative data, is a key component of the risk adjustment modeling. To assign risk scores to each member, we used CMS's HHS-HCC risk adjustment methodology, which uses four key variables on medical claims: diagnosis code, bill type, revenue code, and procedure code (CPT-4 and HCPCS).

Bill type, revenue codes, and procedure codes are used to determine the type of service that led to the diagnosis codes on the claims, and diagnosis codes are used to assign members into HCCs, which have risk weights that will be added together to obtain a final member risk score. The higher the risk score, everything else being held equal, the higher the funds transfer amount a plan would receive from the risk adjustment program. Diagnosis codes appearing on service types such as lab, radiology, transportation, and durable medical equipment (DME) are not considered clinically confirmed—either because they were meant to be ruled out or because they were not coded by a clinician. Given the importance of these codes on member risk scores, it is important to evaluate the quality of these fields.

Tab 2B-D in Appendix 2B provides a summary and reports on the number of invalid or missing codes. We note the following:

- Valid revenue codes are populated on nearly 100 percent of all facility claims
- Valid procedure codes are populated on nearly 100 percent of all professional claims
  - There is one exception for one insurer who populated 25 percent of its procedure codes in one market segment with an invalid procedure code
- While insurers generally coded diagnosis codes consistently across the market, and the coding is similar to results we see in other states, there are a few outliers:
  - Two MinnesotaCare insurers had high missing primary diagnosis codes, spanning between 7 percent and 15 percent in 2013 and 2014
  - One small group insurer had high missing secondary diagnosis codes, spanning between 43 percent and 50 percent in 2013 and 2014

While MDH and its data aggregation vendor may wish to work with insurers to address the above issues, we find the identified gaps in the data to be minor in the broader context of the risk adjustment study. Thus, we believe the data are sufficiently valid and complete, making it appropriately robust for risk adjustment modeling.

### **2.6.3 Member month and paid claims trends**

Tabs 2B-B and 2B-C in Appendix 2B are templates that provide insight into potential data submission gaps. The exhibit in Tab 2B-B provides member counts and paid claims by month from January 2013 through December 2014. Large monthly fluctuations in membership or claims could indicate data submission gaps or poor matching of member identifiers between the eligibility and claims tables. We only include claims for a member if the member identifier is also found in the eligibility table in the MN APCD.

Tab 2B-C provides a claims lag triangle that summarizes paid claims for every combination of incurred and paid dates from January 2013 through December 2014. Cells with low or \$0 amounts might indicate data gaps.

We highlight a number of larger data gaps below. In the risk adjustment modeling analyses, we applied partial-year adjustments to data from these insurers with missing membership and claims data so that their experiences were incorporated into the models as far as possible:

- One insurer did not submit pharmacy membership and claims to the MN APCD for Q2 through Q4 of 2014 across all market categories, despite reporting medical experience during this time period
- Two insurers did not submit membership data to the MN APCD for Q4 of 2014 because both insurers only submit data on a semiannual basis

### **2.6.4 Claims experience by detailed service category**

Appendix 2B-E provides templates that allocate each insurer's claims into one of approximately 60 detailed service categories using Milliman's Health Cost Guidelines™ (HCGs).<sup>60</sup> Summarizing

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<sup>60</sup> The Health Cost Guidelines (HCGs) is Milliman's proprietary actuarial information base. The HCGs, which are revised annually, are widely used to develop premium rates for all kinds of medical products, including consumer-driven health plans. The series includes a core commercial medical rating volume plus area factors, claims probability distributions age 65 and over, reinsurance, dental, and medical underwriting. Almost 100 insurers' actuarial and underwriting departments license the HCGs.

data in this way allows us to easily observe if utilization rates for certain service areas may be higher or lower than we would expect in a standard population, possibly indicating a data quality issue or gaps in submitted data.

Generally, we find that the utilization rates for major service categories appear within reasonable ranges compared with standard populations, indicating a high likelihood that insurers are capturing and submitting all service types for an individual.

We highlight some utilization rates that are outside ranges we typically see in a standard population:

- Four smaller insurers each in one market segment had little inpatient utilization in both 2013 and 2014
- One small insurer in one market segment had high inpatient utilization in both 2013 and 2014

If inpatient admissions are underreported, risk scores for these members would be artificially low. We therefore tested the sensitivity of the models including and excluding these insurers. As these insurers have small market shares, they do not significantly impact the model's performance at the market level and do not affect our conclusions. However, estimates for risk adjustment funds settlement outcomes will be significantly impacted by members' risk scores for these particular insurers.

## SECTION 3: RISK ADJUSTMENT DESIGN CONSIDERATIONS

Over the last 24 months, Minnesota has considered a number of market reforms that would affect the individual and small group health insurance markets:

- Expanding the small group market to include groups up to 100 employees
- Merging the individual and small group markets
- Establishing a state-based reinsurance program to replace the federal program that is ending in 2016
- Providing subsidized insurance to BHP enrollees through the individual commercial market under an ACA 1332 waiver<sup>61</sup>

State-based risk adjustment would provide Minnesota with the unique opportunity to design a program that aligns a risk adjustment methodology to these or other future market reforms while balancing key stakeholders' perspectives.

Using the risk adjustment study data set, discussed in Section 2 above, we have modeled the impact of the above market reforms under (1) the current Federal Model and (2) seven alternative state-based options (State Models). Based on discussions with MDH, we believe using the Federal Model as a structural starting point for all the alternative state-based scenarios is an important first step in assessing the opportunity for a state-based risk adjustment program, by comparing results with the existing, prominent model in the market. The Federal Model, and our State Model, take into consideration the following methodology design options:

1. *Concurrent vs. prospective*: The Federal Model uses a concurrent risk adjustment approach. A concurrent risk adjustment approach uses claims from the current year to predict risk scores in the current year whereas a prospective risk adjustment approach uses claims from the current year to predict risk scores in the future year.

Typically, a prospective approach will produce risk adjustment settlements earlier than a concurrent approach because a prospective approach uses claims from the prior year and does not need to allow time for claims to be paid in the current year. Timely settlements would aid insurers in setting reserves and estimating premiums in future years. On the other hand, a prospective approach would be difficult for enrollees without past claims experience. For all other enrollees, it would require associating claims to a unique individual across years and across insurers, which may pose operational challenges to insurers as well as cause concerns over data sharing across the market. The prospective approach is based on past claims experience as opposed to actual, and therefore is less accurate than the concurrent approach.

Based on these considerations, plus that the calculations of the medical loss ratio and rebates as well as other regulatory reporting timelines are assuming concurrent risk adjustment, we chose to model concurrent risk adjustment for this study.

2. *HCC vs. non-HCC*: The Federal Model is based on the HCC system. HCC is only one of several leading clinical classification systems used in risk adjustment. Others, such as the Chronic Illness and Disability Payment System (CDPS), Adjusted Clinical Groups (ACGs), and Episode Treatment Groups (ETGs) are also found in other risk adjustment programs.

<sup>61</sup> Conceptually, if the BHP were merged with the individual market risk pool through the 1332 waiver, BHP plans would qualify for payments from, or be required to make payments into, the broader risk adjustment program, depending on how BHP plan risk scores compare with other plans in the pool. See also: [http://mn.gov/dhs/assets/final-materials-final-report\\_01-28-2016\\_tcm1053-165972.pdf](http://mn.gov/dhs/assets/final-materials-final-report_01-28-2016_tcm1053-165972.pdf)

Federal regulations require alternative risk adjustment systems to be open source, and CDPS is the only leading open-source methodology other than HCC. However, CDPS was originally developed for Medicaid and has since been limited to Medicaid managed care programs. As such, we chose to model using the HCC methodology for this study.

3. *Leveraging prescription drug claims in risk adjustment:* The Federal Model only uses demographic information and medical claims to predict an enrollee's total claims cost, inclusive of pharmacy costs.

Adding pharmacy claims data into a risk adjustment system will likely improve predictive accuracy in the sense that the model predictions align better with actual claims experience, because members can be assigned to clinical classifications based solely on prescription drugs, even if a medical claim is not present. On the other hand, prescription drug data can be sensitive to discretionary prescriptions and changes in its intended or off-label use, resulting in frequent updates to the National Drug Codes (NDC) code set and recalibrations. HHS is investigating the use of pharmacy data in the federal risk adjustment program. Given that this is still in an exploratory phase on the federal side, we chose to model risk adjustment without using prescription drug claims. We do, however, encourage the state to revisit this issue when there is more guidance from HHS on how the federal methodology will incorporate prescription drug data.

4. *Alternative basis for funds transfer:* Under the federal methodology, funds transfer is conducted in a revenue-neutral way across the market. The basis for funds transfer has been the statewide average premium. In 2011, CMS released a white paper to outline a range of risk adjustment methodology design issues. It presented options for determining the basis for funds transfer—weighted state average premiums (finalized in the 2014 Federal NBPP), weighted rating area average premiums, actuarial-value-adjusted weighted average premiums, and the plan's own premiums. CMS discussed the unintended consequences and potential room for gaming of the system when payments and charges are not balanced. Under the plan's own premium approach, a low-risk plan that is paying into the risk adjustment program is incentivized to lower its premiums to reduce its risk adjustment charges. On the other hand, a high-risk plan that is receiving a transfer from the risk adjustment program is incentivized to increase its premiums to increase its risk adjustment receipts. Both may cause market sustainability and affordability issues. Given these significant concerns we did not model the impact of alternative basis for funds transfers quantitatively.

## SECTION 4: RISK ADJUSTMENT MODELING

The purpose of modeling a range of risk adjustment scenarios is to determine: (1) how well the current Federal Model performs on the Minnesota market; (2) whether state modifications to the current Federal Model can produce improved outcomes in reflecting actual risk in the market; (3) to what extent a State Model can produce efficiencies and alignment with state policy goals that are not achievable under a federally administered system; and (4) estimates of market outcomes under different market reform scenarios such as market mergers and expansions.

The focus and perspective of the modeling work in this section is about simulating likely future market outcomes under alternative risk adjustment scenarios. We started with the data set used for our data quality assessment in Section 2 and made additional data adjustments and assumptions so as to maximize the amount of data usable to inform modeling (further detailed in Appendix 4L). The resulting data set used in risk adjustment modeling contains more than 1.7 million members, or more than 13 million member months. The implications from this work are discussed in the next section.

As shown in Figure 6, we modeled seven scenarios, each of which includes different assumptions on how the market is organized and whether the Federal Model or State Model is applied. Using the current Federal Model and current market conditions as the baseline (Scenario 1), we used the results from the six alternative scenarios to draw inferences about how a given state-based risk adjustment methodology and respective market scenarios impacts the market compared to the baseline.

The following alternative scenarios were modeled for this study. As noted, they assume continued federal administration (scenarios 1 through 3) and state administration (scenarios 4 through 7):

**Scenario 1:** HHS continues to administer risk adjustment for Minnesota using the Federal Model. This scenario represents the status quo in terms of the model design. However, in the scenario, the Federal Model is applied against Minnesota data, using the MN APCD and the insurer-provided supplemental files. This scenario is used as a reference point to the other scenarios.

**Scenario 2:** HHS continues to administer risk adjustment for Minnesota using the Federal Model but the state is permitted to use a state-specific induced demand factor (IDF) for the BHP population calibrated to the BHP benefit design.<sup>62</sup> The purpose of this adjustment is to account for potential “induced demand” where more health care services are used as a consequence of the BHP’s more generous benefit package compared with the standard individual market benchmark. This change does not result in changes in funds transfers for commercial plans but potentially could lead to higher federal payments to the Minnesota BHP.

**Scenario 3:** HHS continues to administer risk adjustment for Minnesota using the Federal Model but the state combines the individual market through a Section 1332 waiver with the BHP. The BHP members would retain their cost-sharing levels, which are lower than the current individual market. The BHP population and the commercial individual market members are different in demographic composition, medical condition profile, benefit design and health

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<sup>62</sup> In Minnesota, the BHP is the state’s MinnesotaCare program as of plan year 2015. In 2014, MinnesotaCare covered individuals with incomes between 133 and 200 percent of the Federal Poverty Level and had not yet fully transitioned to a BHP under federal regulation. Throughout this report the readers should be aware that more recent data may affect the conclusions drawn from modeling. This is particularly true for the BHP and MinnesotaCare in that calendar year 2014 represents a transition year. During the year, members transitioned between MinnesotaCare and Medical Assistance, Minnesota’s Medicaid program, and MinnesotaCare and the private market, likely resulting in a substantially different risk mix in 2015 and years following.

care utilization, etc. This scenario is intended to estimate the direction and magnitude of risk adjustment funds transfers between the two market segments, and the impact on premiums and the consumers.

**Scenario 4:** Minnesota administers its own risk adjustment program using a State Model, while maintaining separate individual and small group markets. The State Model makes the following enhancements to the Federal Model:

- Makes adjustments for members with only a partial year of eligibility
- Uses Minnesota-specific data to recalculate the model weights
- Refines the risk weights of a number of HCCs used in the current Federal Model to correct potential prediction biases

The rationale for why these specific adjustments were made is discussed in Sections 4.1 and 4.2.1 below. At a high level, we found that the Federal Model has prediction biases – meaning it produces less accurate results – for certain subpopulations. The State Model was developed to address these biases. Prediction biases in risk adjustment could lead to unintended consequences and reduce the efficacy of risk adjustment. In comparison with Scenario 1, this scenario helps us understand the funds transfer outcome from the State Model that addresses the prediction biases.

**Scenario 5:** Assumes the establishment of a state-based reinsurance program, and calibrates the State Model to reflect the level of protection the reinsurance program would convey. Under a reinsurance program, claims above the reinsurance “attachment point” would be reimbursed at the rate of coinsurance, such that insurers would be responsible for only a portion of overall claim spending. By design, a reinsurance program could protect the individual market against an unanticipated large number of high-cost members, thereby providing premium stability across the market.

A state-based reinsurance program could replace the federal transitional reinsurance program which ends with 2016. Because high-cost members will continue to be covered in the individual market, insurers will likely increase individual premiums to reflect the risks associated with large claims no longer covered through reinsurance.

While Milliman did not estimate the specific impact a state-based reinsurance program could have on premium rates, generally speaking, the individual market premium would be lowered in the presence of a state-based reinsurance program, so long as funding of the reinsurance program comes from a market basis that is broader than the individual market itself (as is currently done in the federal transitional reinsurance program). The magnitude of premium alleviation is a function of the actual reinsurance program design.

The Minnesota state legislature has received proposals for establishing a state-based reinsurance program. The actual effect of reinsurance on risk mitigation and the interplay between reinsurance and risk adjustment would depend substantially on design elements of both programs.

**Scenario 6:** Uses the State Model in Scenario 4, but combines the BHP population with the individual market for purposes of risk pooling. This scenario uses the state-specific induced utilization factors (IDFs) calculated in Scenario 2, but otherwise is identical to Scenario 3.<sup>63</sup> Estimating this scenario separately allows us to better understand the impact of the state-

<sup>63</sup> For all BHP plans (above 0.95 actuarial value), we used the state-based induced utilization factor. We used the federal induced utilization factors for commercial plans (below 0.95 actuarial value).

specific IDFs on risk adjustment funds settlement, in addition to combining BHP with the individual market.

**Scenario 7:** Uses the State Model in Scenario 4, but creates one risk pool composed of the current individual market, the small group market with groups up to 50 employees, and the enhanced small group market with groups that have 51 to 100 employees. From a policy standpoint, the state is interested in finding ways to improve premium stabilization, and market merger is a potential strategy. Our modeling estimates the risk adjustment funds transfer outcomes under a merged individual and small group market.

**Figure 6: Modeling Scenarios**

|   | Scenario  | Interaction With Reinsurance | State-Based Induced Demand | Special Pooling   |
|---|---|------------------------------|----------------------------|---|
| <b><u>Federal Risk Adjustment Model</u></b> |   |                              |                            |   |
| HHS Administration                          | 1 Status quo: Evaluation of Federal Model with Minnesota data |                              |                            |   |
|   | 2 Status quo and BHP federal payment flexibility              |                              | X                          |   |
|   | 3 Status quo and BHP merged with individual market            |                              |                            | Combines individual market and BHP populations such as might be allowed under a Section 1332 waiver |
| <b><u>State Risk Adjustment Model</u></b>   |   |                              |                            |   |
| State Administration                        | 4 Current market conditions                                   |                              |                            |   |
|   | 5 Current market conditions and state reinsurance             | X                            |                            |   |
|   | 6 BHP merged with current individual market                   |                              | X                          | Combines individual market and BHP populations such as might be allowed under a Section 1332 waiver |
|   | 7 Individual market merged with enhanced small group market   |                              |                            | Individual market merged with market for groups up to 100 employees                                 |



#### [4.1 Evaluation of the Federal Model on Minnesota data \(Scenarios 1-3\)](#)

The Federal Model was calibrated using the Truven Health Analytic MarketScan data set (MarketScan). The MarketScan data, a commercially available data set, consists mainly of large groups and self-insured employers and therefore does not necessarily align well with each state's unique individual and small group population. Although CMS worked on adjusting the data to reflect the benefit designs in the markets subject to risk adjustment, there is the potential that the data may not well reflect the underlying risk of people in the relevant markets.

Thus, this first step was designed to model how closely the Federal Model worked within the Minnesota market. We applied the Federal Model to the Minnesota risk adjustment study data set, which includes the following markets: individual, small group up to 50 employees, small group of 51 to 100 employees, and MinnesotaCare. This helps us better understand how well the Federal Model performs on Minnesota-specific data.<sup>64</sup>

Detailed modeling results -- including statistical measures of model performance and predictive ratios-- can be found in the Appendices 4A, 4B, and 4C. Key findings of this modeling include:

- The Federal Model, when applied to Minnesota data, produces overall higher R-Squared values to those produced by HHS on a national data set. From this, we infer that (1) the Federal Model is working as intended by HHS for the Minnesota market. This is consistent with feedback from the Minnesota insurers. Furthermore, (2) this provides another validation of the MN APCD's high data quality because the model's statistical performance would be significantly lower if the data had serious quality issues. And, finally, (3) Minnesota data improve the predictive accuracy of the model vis-à-vis using national data.
- The Federal Model has significant prediction bias based on duration of enrollment.<sup>65</sup> Specifically, our analysis shows that the Federal Model significantly under-predicts expected costs for enrollees with fewer than six months of enrollment. This means, in its current form, that the Federal Model underestimates the health status of members with shorter enrollment periods. This is particularly the case for plans with more generous benefits (platinum and gold metallic tier levels), as shown in Appendix 4B.

Partial-year eligibility is common in the small group market, where group renewal dates occur throughout the year. Insurers have different concentrations in different market segments and could potentially be impacted differently by the inherent prediction biases in the Federal Model as a result. Specifically, insurers with a disproportionately higher share of partial-year members than the average of the market could lower funds transfer receipts or higher funds payments in risk adjustment than would be the case with a more accurate assessment of health status. If not corrected, the impacted insurers would need to increase premiums to offset this bias, which in turn causes access and affordability issues for consumers.

- We also found that the Federal Model has significant prediction bias for certain condition groups, or HCCs. For example, we found that the Federal Model significantly under-predicts spending for conditions such as HIV/AIDS, multiple sclerosis, certain types of

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<sup>64</sup> We included MinnesotaCare and the group market for employers with 51 to 100 employees because future decisions on how these groups will be included within the larger risk pool can affect model performance.

<sup>65</sup> Prediction biases are measured by predictive ratios, which is the ratio between the predicted cost and actual cost by a defined subpopulation. A 1.0 predictive ratio means that the model is predicting for the subpopulation exactly right. A predictive ratio less than 1.0 indicates an under-prediction for the subpopulation, and a predictive ratio greater than 1.0 indicates that there is an over prediction by the model.

diabetes, and certain types of mental health and behavioral health conditions that can complicate care for other medical conditions (e.g., personality disorders, autistic disorders and pervasive developmental disorders). The Federal Model significantly over-predicts for conditions such as cirrhosis of liver, congestive heart failure, heart arrhythmias, and pulmonary embolism and deep vein thrombosis.

Knowing that the Federal Model has prediction biases, insurers may react by designing provider networks to lower their appeal to members with the conditions that are significantly under-predicted, and to attract other members that have conditions that are over-predicted. This could also lead to access and affordability issues for consumers.

These findings provide important guidance into our subsequent modeling work, especially in the calibration of a State Model.

## [4.2 Development of the State Model \(Scenarios 4-7\)](#)

To help address the limitations and potential unintended consequences in the Federal Model discussed in Section 4.1, we designed the State Model by testing and modifying components of the Federal Model. This section describes the development of the State Model, which is used in Scenarios 4 through 7.

### **4.2.1 Calibration of the model**

We explored three key approaches to calibrating, or designing, a Minnesota-specific risk adjustment model. As noted, these build off the existing Federal Model, but make modifications that are expected to increase the statistical accuracy of the model as measured by the model R-Squared and predictive ratios.

1. *Minnesota model, light recalibrations*

As noted above, the risk weights in the Federal Model, which represent the expected relative average resource intensity of condition grouping, were calibrated using the national MarketScan database. One question would be whether risk weights calibrated using Minnesota-specific data would be more accurate than the national model. To answer this question, we conducted a “light recalibration” of the Federal Model by developing the HCC risk weights using the MN APCD data, but without making changes to the HCC clinical classification. We found that the light recalibration – developing Minnesota risk weights - did not yield a significantly more accurate model than the current Federal Model. This means that, for the study period, national patterns of HCC prevalence and health care resource use are reasonably reflective of Minnesota’s population.

2. *Minnesota model, HCC expansion*

As mentioned above, the Federal Model classifies a subset of the ICD-9 diagnosis codes into 127 clinical categories. At this point, approximately 25 percent of ICD-9 diagnosis codes are reflected in these categories.<sup>66</sup> Risk adjustment models typically predict more accurately if a greater number of clinical categories are recognized and included in the model. Our modeling analysis suggested that, based on the 2013 and 2014 data, significant expansion of the HCC clinical categories is not feasible, which is due to the small sample size for certain medical conditions. However, research with additional data

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<sup>66</sup> The assumption underlying the decision to recognize just a small subset of diagnoses is that additional conditions would not meaningfully improve statistical metrics of model performance. However, the downside of that approach can possibly be that insurers with a certain, healthier risk distribution may be underestimated for their health risks because the relevant diagnoses codes are not recognized.

may arrive at a different conclusion. For instance, if the state were to update this study with 2015 data or more years of data on the Minnesota market in the future, given that more data would be available, it is likely that more HCCs may be added to the Minnesota model because there would be adequate sample size for estimating these HCCs. When considering expanding the HCC classification, the state may also need to obtain clinical input, in addition to actuarial and policy/regulatory input, such that the expanded HCCs are clinically meaningful, can predict health care costs accurately, and meet all the federal risk adjustment model design principles.<sup>67</sup>

3. *Minnesota model, two-stage model*

A third approach was to create an alternative model using the Federal Model risk scores as input in the first stage, and then in the second stage make adjustments for partial-year eligibility and conditions that have significant prediction biases under the Federal Model, including disabling conditions (see Appendix 4M). Similar to the Federal Model, risk weights vary by metal level. We did not further split the model weights by age group, in order to retain sufficient HCC sample size for each estimation level. In other words, the State Model in its current form does not make additional adjustments beyond the age-specific adjustments accounted for in the Federal Model risk scores that are used in the first stage. Splitting the model by age results in age-specific risk weights for the same HCCs, accounting for the fact that clinical practice and the treatment cost of the same conditions vary by patient age. An age-split model therefore may have higher statistical accuracy than a model that does not split by age. The state may wish to consider evaluating the need for further age group split models as more data becomes available over time. Please see Appendix 4D for the risk weights and calculation of the two-stage State Model.

As shown in more detail in Appendices 4E, 4F, and 4G, our modeling shows that the two-stage model discussed above results in a significantly more accurate model than the Federal Model in terms of model R-Squared, prediction biases by enrollment duration, and prediction biases by HCCs.

#### 4.2.2 Developing Minnesota-specific IDFs

We developed Minnesota-specific induced demand factors (IDFs) for modeling Scenarios 2 and 7 using the 2014 risk adjustment study data set, which includes individual, small group, MinnesotaCare, and groups of 51 to 100 employees. IDFs are included in the risk adjustment funds transfer calculations to account for the increased utilization that results from an increase in the relative richness of benefit design. It is directly correlated with the plan actuarial value (AV), which represents the average percentage of health care cost paid by the plan. A higher AV represents lower member cost sharing.

Similar to the design of the federal risk adjustment methodology, the Minnesota-specific IDFs are designed not to be influenced by differences in enrollee health status or provider contracts. Health status is accounted for by the HCC-based risk scores discussed above. Provider contracting price differences are normalized through repricing at the claim line level, such that after repricing, the same services by different providers under different contracts are priced exactly the same.

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<sup>67</sup> [March 31, 2016, HHS-Operated Risk Adjustment Methodology Meeting. Discussion Paper](https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf). Retrieved May 5, 2016, from <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>

The federal IDF for a silver plan with 94 percent AV is 1.12, which means that the federal methodology estimates a 12 percent increase in utilization from the standard silver plan (AV between 68 and 72 percent) when there is additional member cost-sharing reduction. The federal methodology currently does not provide other IDFs for plans with AVs higher than 94 percent. If the state were to lower member cost sharing for the current BHP members that resulted in plan AVs higher than 94 percent, the additional induced demand would lead to higher plan liability that is uncompensated for under the current federal methodology. Insurers covering this population would increase premiums to offset higher plan liability, which could create affordability issues for the impacted consumers. Thus, providing additional cost-sharing reduction should be accompanied with an appropriate risk adjustment design to help achieve the policy goal of coverage and affordability.

Not knowing the exact target plan AVs of such state “wrap” benefits on member cost, we estimated an induced utilization curve to provide a range of possible AVs and corresponding IDFs. The IDF curve was developed by categorizing every member in the 2014 data by his or her plan metal tiers. For members with missing metal tiers, we estimated their metal tiers using the benefit design information submitted by insurers in the Supplemental File. Our results are shown in Figure 7 below, and more detailed information is included in Appendix 4H.

Normalizing the IDF to 1.000 to the AV range of 0.7 to 0.75, Figure 7 shows that the IDF increases to 1.188 for plan AVs greater than 0.95 (or 95 percent). Were the state to increase the BHP benefit design by bringing the current plan AV to a level that is greater than 95 percent, we estimate that the increased utilization or plan liability would be 18.8 percent higher than the utilization or plan liability under standard silver plan. This is a higher value than the 1.12 IDF for the 94 percent AV under the federal methodology.

**Figure 7: The Induced Demand Curve Using 2014 Minnesota APCD Data and Supplemental File Collected for the Risk Adjustment Study**

| Actuarial Value Range | Induced Demand Factor (IDF) |
|-----------------------|-----------------------------|
| 0.55-0.6              | 0.887                       |
| 0.6-0.65              | 0.925                       |
| 0.65-0.7              | 0.962                       |
| 0.7-0.75              | 1.000                       |
| 0.75-0.8              | 1.038                       |
| 0.8-0.85              | 1.075                       |
| 0.85-0.9              | 1.113                       |
| 0.9-0.95              | 1.150                       |
| 0.95+                 | 1.188                       |

### 4.2.3 Linking risk adjustment with state-based reinsurance

State regulators, policy makers and others have discussed in the recent past proposals to establish a permanent state-based reinsurance program. Below we discuss how a Minnesota-based risk adjustment program might be modeled to complement such a reinsurance program.

While the reinsurance proposals have not emerged with sufficient detail to be modeled here specifically, for purposes of this discussion we assume such a program might be similar to the transitional reinsurance program currently operated by the federal government, which is set to expire at the end of 2016. The ACA created this transitional reinsurance program in the individual market to mitigate some of the risk associated with adverse selection in that market, particularly in the first few years of ACA implementation. It is financed from contributions across *all* fully insured and self-insured plans nationwide.

The ACA transitional reinsurance program was set to collect \$10 billion for 2014, \$6 billion for 2015, and \$4 billion for 2016. The fees are due in the year following the benefit year and are divided among the reinsurance fund, the U.S. Treasury and administrative expenses. At a per-person level the transitional reinsurance program is set to collect approximately \$63, \$44 and \$27 per enrollee per year in 2014, 2015, and 2016, respectively. In practice, the ACA transitional reinsurance program is intended to provide *additional* funds to individual insurers with respect to certain high-cost enrollees. This differs from the permanent risk adjustment program, which seeks to equalize risk across insurers with existing funds and is not meant to protect against adverse selection at the market level.

As Minnesota considers whether to pursue state-based reinsurance (integrated presumably with state-based risk adjustment), our analysis of data from the individual market for 2013 and 2014 shows significant numbers of large claims (and associated high-cost enrollees). Our analysis did not aim to assess to what extent these claims are associated with former enrollees in Minnesota's high-risk pool (MCHA) or whether the high-cost claim patterns are likely to be short-lived or permanent. Still, the effect of continuing to cover high-cost enrollees without reinsurance to offset the cost could lead insurers to raise premiums in the market, leading to persistent market sustainability and affordability issues for the general public.<sup>68</sup>

The current Federal Model does not account for the separate financial transfers originating with the transitional reinsurance program, which effectively means that insurers with high risk enrollees were overcompensated (or compensated twice for portions of their enrollees, creating inefficiencies and distortions). Although HHS acknowledged that this may have some impact on the accuracy of the model, HHS determined that, given the temporary nature of the federal reinsurance program, it would not modify the risk adjustment program to account for these interactions.<sup>69</sup>

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<sup>68</sup> Along similar lines, CMS suggested in a recent discussion paper that risk adjustment may not alone adequately adjust for the cost of extremely high-cost enrollees. CMS has proposed, for public comment, potential plans for modifying the federal risk adjustment program to include the creation of an additional pool of funds drawn from all insurers operating in the individual market to reimburse individual market insurers that enroll such high-cost enrollees. CMS is considering designing this pool so that it would operate across states. See "High Risk Enrollee Pooling in HHS Risk Adjustment," at <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>.

<sup>69</sup> The transitional reinsurance program expires at the end of the 2016 benefit year. HHS indicated that it intends to pay out all remaining reinsurance receipts for the 2016 benefit year, although by statute any unused funds collected under the program could be paid out through 2018.

Given the potential interaction between reinsurance and risk adjustment, we sought to examine whether and how a risk adjustment program can be designed to complement the reinsurance program.

As noted, to formalize the analysis in the absence of the design specifications of a state-based reinsurance program, after discussion we modeled with experts at the Commerce Department what reinsurance payments might look like based on the 2014 individual plan experience from the MN APCD data. For purposes of this model, we assumed a reinsurance program design with the following elements:

- A \$90,000 attachment point. (This is the point in the annual of cost member claims at which reinsurance payment).
- 50 percent coinsurance. (For members with spending over \$90,000, 50 percent of claims *above* the attachment point, would be paid by the reinsurance program), and
- A reinsurance cap at \$250,000. (Insurers would not receive payments from the reinsurance program for member costs greater than \$250,000).<sup>70</sup>

Considering these reinsurance program specifications and the 2014 distribution of health insurance risk among the population with individual market coverage (about 3 million member months), we estimate that approximately \$118 million in claims volume would have been subject to reinsurance, for a total payment of \$25 million.<sup>71</sup>

Next, we developed a “linked” reinsurance and risk adjustment model, and calibrated the model's dependent variable to be the plan claims liability after reinsurance, to assess the impact of integrating the risk adjustment model (specified in Appendix 4D) with a state-based reinsurance program. See Appendix 4I for more technical detail. We found that under the given hypothetical reinsurance configuration modeled above,<sup>72</sup> the federal risk adjustment, which does not account for reinsurance, would have potentially transferred premium payments of \$13 per member per month for the entire individual market (\$663 per member per month for high-cost members) without an equivalent plan liability.

Because the state “linked model” predicts plan liability *after* reinsurance, meaning after the impact of high-cost members is reduced, the model R-Squared statistic is found to be substantially higher than the State Model without incorporating reinsurance (which was higher than the Federal Model). The details are included in Appendix 4E.

Based on this analysis, we determined that a state-operated reinsurance program, coupled with the federal risk adjustment model, could lead to some costs being covered by both programs. This could create economic inefficiencies in the transfer payments, reducing the transfer of duplicative payments.

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<sup>70</sup> Under the federal reinsurance program, and for purposes of our model here, payments to insurers are based on a percentage (the “coinsurance rate”) of annual costs for an individual enrollee that exceed an attachment point and fall below a reinsurance cap.

<sup>71</sup> Only the portion of claims that is above \$90,000 and below \$250,000 is paid by the reinsurance program. For instance, for a member with \$100,000 total cost, the insurer would receive  $50\% \times (\$100,000 - \$90,000) = \$5,000$  from the reinsurance program.

<sup>72</sup> As noted, the reinsurance model implemented by HHS in 2014, differed from the specifications in this scenario in the following ways: The attachment point was at \$45,000 (instead of \$90,000) and the coinsurance amount was 80 percent (instead of 50 percent). The cap in the federal reinsurance program was, like the specification for this report, set to \$250,000.

Although designing a state-based reinsurance program and estimating the impact on premium levels is beyond the scope of this study, our analysis demonstrates that, if the state were to establish a state-based reinsurance program on a permanent basis with the goal to create an economically efficient mechanism to help stabilize the individual market, it should be linked with risk adjustment. The risk adjustment methodology would need to reflect a different plan liability under reinsurance, and this would only be possible under a state-based risk adjustment approach.

### 4.3 Magnitude of funds transfers from modeling scenarios

The magnitude of funds transfers that results from a risk adjustment model represents the average degree of premium correction that the model recognizes in a market that are due to factors insurers are unable to price for in their premiums. In the initial years of implementing the federal risk adjustment program, many insurers in the country did not have reliable estimates of the magnitude of funds transfers, although some might have estimated the direction of funds transfer correctly, and were challenged to reflect risk adjustment properly in their pricing and product development. This may have contributed to premium volatility in the market in the years after 2014. With the reinsurance and risk adjustment settlement reports from HHS for 2014, more experience with post-2014 market, and growing familiarity with the risk adjustment program operations, insurers have much more insight into risk adjustment and market outcomes than before.

However, if the market conditions or the risk adjustment methodology were to change, for example because of a state-based approach, insurers would need to again adapt their operations. Here we present the estimated average funds transfers *as a percentage of the state average premium* under different scenarios based on data from 2014, offering detail about the possible magnitude and direction (section 4.4) of funds transfers at a high level.

The table in Figure 8 summarizes the average absolute funds transfer as a percentage of statewide average premium by scenario.<sup>73</sup> Scenario 2 estimated a state-specific IDF based on the Federal Model and current market conditions. It does not result in changes to funds transfers from Scenario 1 and therefore is not included in the table. As the figures in Figure 8 are presented in absolute-value terms, the table does not indicate whether the transfer is a positive or a negative. Rather it seeks to provide a measure of the absolute transfer as a percentage of statewide premium relative to the status quo scenario for how federal risk adjustment operates today.

The magnitude of funds transfer is dependent on the chosen risk adjustment methodology, both in terms of the specific risk adjustment model and in terms of the additional actuarial factors used in funds transfer calculations. It also reflects the characteristics of the insurers in the market in terms of concentrations of health risks and concentrations by market segment. Finally, the magnitude of funds transfer is impacted by the sheer number of insurers competing in a market.

Synthesizing the results, we note the following:

- *Higher predictive accuracy can mean more significant transfers.* As expected, the higher predictive accuracy of the State Model as measured by model R-Squared and predictive ratios, resulted in overall greater transfers between insurers. In practice, this means all things equal that some insurers under these models might need to raise premiums to take into account potential greater payments into the risk adjustment pool, while others might be able to lower premiums in anticipation of greater payments.

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<sup>73</sup> For additional detail on adjustments made to the data set in this modeling, please see Appendix 4L.

For example, in the comparison between Scenario 1 (the status quo in which HHS administers risk adjustment for Minnesota using the federal methodology), and Scenario 4 (current market conditions but using the State Model for risk adjustment), the average funds transfer in the individual market are estimated to be 4.8 percent and 5.9 percent, respectively. Based on the 2014 federal risk adjustment funds settlement results, a total of \$33 million was transferred in Minnesota's individual market. Assuming the same market conditions, the funds transfer under the State Model would rise to a little more than \$40 million (again, about 5.9 percent of the average state premium).

- *Risk adjustment implications for the BHP and potential Section 1332 waiver.* Under the federal risk adjustment methodology, if the state were to provide subsidized coverage to the current BHP population in the individual market presumably as part of a Section 1332 waiver, the magnitude of funds transfer within the individual market, as assessed by 2014 data on relative risk, is also likely to be higher than the status quo.

The MinnesotaCare population (as measured with 2014 data, when the program was in transition) had a higher average risk score than the current commercial individual members (1.277 versus 0.990 in as shown in Section 4.4, Figure 9). In practice, this means, all things equal, were the BHP to be converted to subsidized commercial individual coverage with the same risk structure as measured in 2014, there would be a transfer of funds from the commercial individual segment to the BHP segment, which in turn could increase commercial individual plan premiums, and lower premiums for the BHP segment of the market prior to its conversion.

- *Potential merger of the individual and small group markets.* Under a merged pool containing the individual, small groups of one to 50 employees, and small groups of 51 to 100 employees, the magnitude of funds transfer is likely to be lower than the status quo. One potential implication here is that, because on average small group plans tend to have lower actuarial risk relative to those with individual market coverage, combining the individual and small group markets would tend to lower premiums purchased by individuals, while raising the premiums offered to small employer groups. The potential increase to small group rates would be mitigated to the extent the small market was large in size relative to the individual. However, in Minnesota, the current small group market is smaller than the individual market and, so far, the state has elected not to expand the small group market to encompass firms with more than 50 employees. Thus, the potential premium impact to small group coverage could be material.

In all of these cases involving the magnitude of funds transfers, the underlying policy issue to consider is the potential interaction of risk adjustment with other policy choices. These potential interactions exist regardless of whether risk adjustment follows the federal methodology or one created by the state. However, to the extent a state-based methodology may be more accurate in differentiating risk levels between insurers, it may result in more significant funds transfers between different subpopulations and market segments as describe above.



**Figure 8: Average Percentage of Premium Transfers by Market Segment**

|               | Scenario  | BHP | Individual Non-Catastrophic | Small Group | Groups 51 to 100 Employees | BHP + Individual Non-Catastrophic | Individual Non-Catastrophic + Small Group + Groups 51 to 100 Employees | Individual Catastrophic |
|---------------|---|-----|-----------------------------|-------------|----------------------------|-----------------------------------|--|-------------------------|
| Federal Model | Status quo: Evaluation of Federal Model with Minnesota data | n/a | 4.8%                        | 1.9%        | n/a                        | n/a                               | n/a  | 7.8%                    |
|               | Status quo and BHP merged with individual market            | n/a | n/a                         | 1.9%        | n/a                        | 8.1%                              | n/a  | 7.8%                    |
| State Model   | Current market conditions                                   | n/a | 5.9%                        | 4.1%        | n/a                        | n/a                               | n/a  | 18.2%                   |
|               | Current market conditions and state reinsurance             | n/a | 5.5%                        | 4.1%        | n/a                        | n/a                               | n/a  | 18.2%                   |
|               | BHP merged with current individual market                   | n/a | n/a                         | n/a         | n/a                        | 12.8%                             | n/a  | 18.2%                   |
|               | Individual market merged with enhanced small group market   | n/a | n/a                         | n/a         | n/a                        | n/a                               | 3.8%   | 18.2%                   |

**4.4 Direction of funds transfers from modeling scenarios – market-level analysis**

At a conceptual level, insurers that enrolled members with higher “actuarial risks” will (and have) receive(d) a transfer payment from the risk adjustment program, and insurers that enrolled members with lower actuarial risks will pay into the risk adjustment program. At the market level within a state, the payments and receipts are balanced to \$0. In practice, the actuarial risks are estimated using a set of factors:

- Plan liability risk score (PLRS) - the HCC-driven risk scores with cost-sharing reduction adjustment for silver variant plans. The federal HHS-HCC model assigns member level risk scores based on the age, gender, diagnosis and metal tier information. For silver variant plans at an 87 and 94 percent actuarial value. The HCC-based risk scores are increased to account for extra utilization (or plan liability) resulting from lower member cost-sharing.
- Actuarial value factor (AVAF) – the factors assigned to metal tier plans, which is 0.9 for the platinum tier, 0.8 for the gold tier, 0.7 for the silver tier (also including the silver variant plans), 0.6 for the bronze tier, and 0.57 for catastrophic plans. In other words, on average, the platinum plan pays 90 cents on a dollar for health care costs, and the gold plan pays 80 cents on a dollar for health care costs, etc.
- Induced demand factor (IDF) – a set of factors to account for the induced utilization associated with the richness of plan benefit design.
- Geographic cost factor (GCF) – the age-normalized premium relativity by geographic rating area, intended to reflect the unit cost difference by geography.

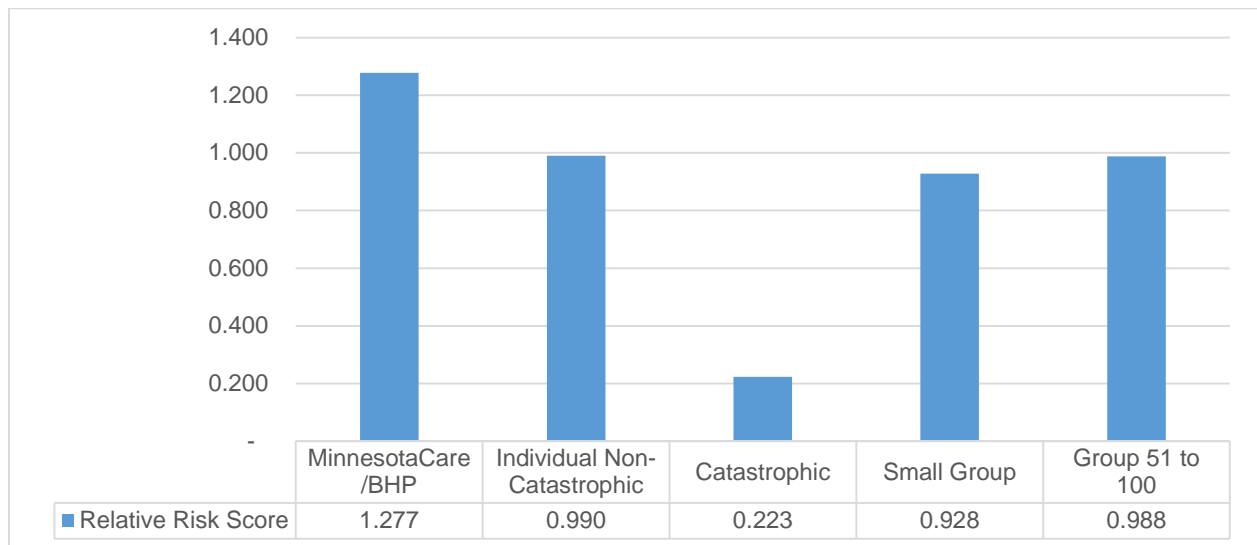
- Allowed rating factor (ARF) – under the federal risk adjustment methodology the allowed rating factor is the federal age curve by default. HHS would use a state’s own age curve when calculating risk adjustment funds transfers for the state.

The risk adjustment funds transfer is calculated as the difference between the “premium factor with risk selection” (which is the member-month weighted product of the PLRS, IDF and GCF and normalized at the market level), and the “premium factor without risk selection” (which is the member-month weighted product of the ARF, AVAF, IDF and GCF and normalized at the market level). If this difference is greater than zero for an insurer, the insurer will receive a transfer payment from risk adjustment. Otherwise the insurer will owe a payment into the risk adjustment program. (For detailed discussions on this, please refer to Section 1.3)

In Figure 9, we illustrate the general direction of funds transfers at the *market segment level* for Scenarios 3, 6, and 7 based on the relative risk scores. Given that individual insurers may adopt different market strategies over time, along with recent changes in market participation by a number of insurers, we refrain from reproducing funds transfer estimates at the insurer level, which we modeled for this study.

Scenarios 3 and 6 both assume a combined BHP and commercial individual market, and the difference is that Scenario 6 uses the State Model and a state-specific IDF that estimates a higher induced demand factor than under Scenario 3. Given that the BHP population has a higher average risk score than the commercial individual members, all things equal, we would expect that in Scenario 3 the BHP segment will receive a payment from the commercial individual market plans. In Scenario 6, the BHP may receive even more payments than under Scenario 3, which would be due to: (1) a higher state-based IDF, and (2) the State Model being better able to predict higher-cost members. In terms of premium impact, combining the BHP with the commercial individual market will likely result in a lower premium for the BHP members, but a higher premium for the commercial individual market plans.

**Figure 9: Relative Risk Scores by Market Segment, Normalized to 1.0 Across All Market Segments**



In addition to the premium impact, the state may also need to consider other implications associated with combining BHP with the commercial individual market. Currently the state contracts with insurers to cover the BHP population through a capitation arrangement similar to that of the Medicaid managed care program. Insurers participating in the program contract with providers using provider reimbursement rates similar to Medicaid managed care. Through this contractual arrangement, the state has direct influence over the benefit levels, and cost and utilization trends for the BHP population. If the BHP were to be combined with the commercial individual market, one question is whether the same reimbursement rate would still apply and, if so, what kind of budgetary implications it may have on the state in terms of the Advanced Premium Tax Credit (APTC) and Cost Sharing Reduction (CSR). Additional policy questions to consider include: How would the federal funding be provided? How smoothly can members be transitioned? How can the state continue to ensure access and affordability for the BHP population without the managed care contracting vehicle? Would the resulting premium pressure on the commercial individual market cause affordability issues for members in that segment? What are the likely market strategies insurers may adopt as a result? Will any of these affect access to health care, in addition to affordability considerations?

In Scenario 7, where the commercial individual non-catastrophic plans, current small groups of one to 50 employees, and small groups of 51 to 100 employees are merged, all things equal, we expect that the individual non-catastrophic plans will receive transfers from the other two small group segments, and thereby result in a lower premium for the individual plans and a higher premium for the small group plans. Here, similar considerations with respect to access and affordability apply.

Appendices 4J and 4K present the average factors by market segment and insurer under the Federal Model and the State Model, including plan liability risk score, AV (inferred from plan design information in data supplied by insurers), age factor (using the Minnesota-specific age curve), and geographic cost factor (from the 2014 HHS funds settlement reports). As previously discussed, Appendix 4L describes the adjustments we made to the modeling data set to reflect changes in the market since 2015. The intent is to make the study more pertinent and reflective of current market conditions.

#### [4.5 Additional consideration](#)

In this section we highlight a number of factors be considered in the decision about state-based risk adjustment. Due to the lack of empirical data and adequate time, we are unable to analyze these considerations as part of the study, but they represent important components of the overall decision-space.

#### **On and Off-Exchange Plans**

Minnesota operates a state-based insurance exchange, MNsure, for its individual and small group markets. In Section 1.1, as part of the environmental scan, we outlined a number of legislative proposals the state has deliberated with regard to potential changes to MNsure. Additionally, there may be value in understanding how well the federal risk adjustment can address potential adverse selection between exchange plans and plans off the exchange.

A number of factors could contribute to adverse selection including: (1) The difference in the availability of health plans, for example cost-sharing subsidy plans (silver variant plans) are only available for purchase on the exchange); (insurers are not uniformly participating in MNsure, or

have exited from MNsure since 2014; and (3) health insurance premiums have risen not uniformly across all products market since the start of 2015. Given the shortcoming of federal risk adjustment documented in this research, it will be important to assess how well risk adjustment has been able to offset the impact of adverse selection between the on and off exchange spaces and understand the direction and magnitude of risk adjustment funds transfers may interact with MNsure’s policy objectives.

Questions that should be considered include: Are plans offered only off the exchange attracting healthier risks than the rest of the market? Are the inherent limitations of risk adjustment affecting plans on the exchange differently than off the exchange? What is the impact on health care access and sustainability of the exchange in the longer term, given the interaction of risk adjustment and plan offering?

Because the data collected and used for this report was from 2014, a year during which Minnesota’s individual and small group markets went through considerable changes that may have further evolved over the past two years, the state may wish to conduct a follow up analysis with more recent data to assess these questions.

### **Non-Traditional Factors in Risk Adjustment**

Current risk adjustment methodologies have been relying nearly exclusively on health care administrative data, namely data from membership and claims files. The benefit of such data are that they are present in large volume, available in an industry standard format, capture clinical factors and health care use well and have been used widely in actuarial, financial and regulatory reporting and analyses. On the other hand, health care administrative data does not capture many other important characteristics of members, providers, and the health care system, which also impact the access, delivery and outcome of health care.

There is a sizable body of literature on the social determinants of health that demonstrates the impact of socioeconomic conditions and their unequal distribution in the population on health status and the ability to live well with a disease. Generally, these factors are viewed as additive to demographic and physiological differences in the population. Socioeconomic characteristics such as race, ethnicity and income, also known as “non-traditional” factors in risk adjustment, have been discussed as elements that should be evaluated for potential addition to risk adjustment.<sup>74,75</sup> But because of the relative sparsity of high-quality, granular data on socio-demographics and the insufficient evidence about how best to capture diverse concepts of patient complexity, there has been little progress in this area to date.

In risk adjustment, the federal methodology accounts for health care cost differences in geography, age/gender mix, member medical conditions, and plan benefit level.<sup>76</sup> As noted, there is an additional induced demand adjustment for silver variant plan members who are eligible for low-income premium and cost-sharing subsidies. These adjustment factors likely correlate with some of the potential “non-traditional” risk adjustment factors.<sup>77</sup>

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<sup>74</sup> “Traditional factors” in this context are the data fields commonly available in health care administrative data

<sup>75</sup> See “[Nontraditional Variables in Healthcare Risk Adjustment](https://www.soa.org/Files/Research/Projects/research-2013-nontrad-var-health-risk.pdf)” by Mehmud, S. (2013). Retrieved on May 6, 2016. (<https://www.soa.org/Files/Research/Projects/research-2013-nontrad-var-health-risk.pdf>).

<sup>76</sup> The federal risk adjustment model lets risk weights associated with the same medical condition vary by metal tier, reflecting the average plan benefit design differences across metal tiers.

<sup>77</sup> For instance, socioeconomic factors are unequally distributed by geographic area, as well as the supply of health care services. By acknowledging that there are geographic differences in health care cost, the federal risk adjustment methodology may have already accounted for the underlying socioeconomic differences by geographic area.

State-based risk adjustment would permit Minnesota the opportunity to conduct pilot studies to assess whether and how non-traditional risk adjustment factors can help explain variation in health care cost, thereby improving risk adjustment and strengthening health equity. It could further help create alignment across the market on the use of socioeconomic factors for risk adjustment and would be consistent with a practice that views risk adjustment as an evolving science that benefits from advancement in data and modeling techniques.

### **Small and New Health Insurers**

Under the current federal risk adjustment methodology, insurers big or small, new or established, are all subject to the same federal rule and requirement in funds transfer calculations. While risk adjustment funds transfer calculations are performed by HHS, health insurers also need to establish the operational and actuarial processes to ensure accurate data submission and settlement results. Given the technical nature and complexity of the risk adjustment program, insurers that are small in size or new to a market may not be as well prepared and equipped as their bigger and more established competitors with respect to risk adjustment. An additional challenge facing a new insurer is that they may require lead time to adequately assess market conditions, including the impact of the federal risk adjustment program within the market.

State-based risk adjustment would permit Minnesota to develop tools that help create a competitive and fair market place. For example:

- To date, HHS has not taken action through federal regulation (or changes in risk adjustment policy), but has acknowledged the challenge publicly<sup>78</sup> and encouraged states to examine whether any local approaches under state legal authority are warranted to help ease a transition for new market entrants.
- With respect to easing the transition for smaller insurers, Minnesota could assess the impact of a number of potential approaches, including: capping the risk adjustment payments such that insurers transfer no more than a certain prefixed percentage of premium or amount; using an alternative basis such as the insurer's own premiums or claims, for funds transfer calculation; or providing smaller insurers (and new market entrants) a grace period on risk adjustment during which the risk adjustment transfer amounts for them can be financially viable.

Our understanding is that, implementing any of the above approaches would require a change to the funds settlement calculations. Given that the funds settlement calculation is considered part of the risk adjustment methodology, we assume that the above approaches would also require approval and certification from HHS should the state decide to review any state-based approaches. The requirements and timeline of federal approval and certification of state-based risk adjustment are discussed in Section 5 of this report.

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<sup>78</sup> HHS, May 11, 2016. PPACA; [Amendments to Special Enrollment Periods and the Consumer Operated and Oriented Plan Program](https://www.federalregister.gov/articles/2016/05/11/2016-11017/patient-protection-and-affordable-care-act-amendments-to-special-enrollment-periods-and-the-consumer#h-20). Retrieved on June 9, 2016 (<https://www.federalregister.gov/articles/2016/05/11/2016-11017/patient-protection-and-affordable-care-act-amendments-to-special-enrollment-periods-and-the-consumer#h-20>)

## SECTION 5: IMPLEMENTATION CONSIDERATIONS

As the Minnesota Legislature deliberates whether to avail itself of the opportunity to operate a risk adjustment program customized to Minnesota's market place and policy environment, it may wish to consider factors associated with the successful implementation of a technically and operationally complex system.

Operating a risk adjustment program is a highly sophisticated and technical task that relies heavily on high-quality data from participating insurers, actuarial expertise in design and modeling and a full grasp of local market conditions. At this point, Massachusetts is the only state that operates its own risk adjustment program using a federally certified state risk adjustment methodology and has recently decided to reverse, in 2017, back to the federal risk adjustment methodology implemented and operated by HHS. Two other states, Utah and New York, are believed to be considering state-based risk adjustment but have not made further efforts toward seeking federal certification of a state-based risk adjustment methodology.

Experience from Massachusetts and the federal risk adjustment system suggests that Minnesota would need to make initial and ongoing infrastructure investments in its MN APCD, establish additional actuarial expertise and governance structures to support the program operations, and develop and maintain processes to align with the federal requirements associated with operating state-based risk adjustment. Additional upfront investment would be necessary, presumably with more updated data, to conduct actuarial modeling for the development of a Minnesota-based risk adjustment methodology and the approval process by HHS.<sup>79</sup> As discussed below, these costs would be offset in part or in full by charges insurers currently pay the federal government to conduct federal risk adjustment.

This section presents detailed information on implementation factors that emerged in the course of the study, include the costs of operating state-based risk adjustment.

### [5.1 Federal requirements for state-based risk adjustment](#)

Consistent with the ACA and through regulation and guidance, states that operate their own risk adjustment programs have flexibility to offer enhancements or deviate from the federal methodology, subject to HHS approval along a defined set of criteria.

There are two key aspects for a state to obtain approval to perform risk adjustment—operational approval for the program and, if the state wishes to develop its own methodology, certification of that methodology.

- *Operational approval:* A state operating its own risk adjustment program must receive operational approval from CMS. This approval focuses on the capacity of the risk adjustment entity to perform the functions required.
- *Methodology certification:* If the state wishes to develop its own risk adjustment methodology, it must seek certification of the methodology. Alternatively, a state could operate the risk adjustment program using HHS's methodology (or another state's methodology that has been certified by HHS). In this case, the state would not have to seek certification (but would still have to seek operational approval).

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<sup>79</sup> A state may choose to operate state-based risk adjustment using the federal risk adjustment model. See further discussions in Section 5.1.

It appears the process from developing a state-based risk adjustment methodology, submitting for federal approval and certification, to publishing a State Notice of Benefit and Payment Parameters takes at minimum 18 months.

### 5.1.1 Operational approval

#### Standards for a state to operate risk adjustment

As noted earlier, under HHS regulations, only a state that operates its own exchange is eligible to operate risk adjustment.<sup>80</sup> If a state elects to revert to a federally facilitated exchange, it no longer qualifies to administer a state-based risk adjustment program. In addition, the entity that a state uses to carry out risk adjustment activities must meet certain requirements. That entity may either be the state's health insurance exchange, or another entity that meets HHS's basic standards for entities eligible to carry out exchange functions.<sup>81</sup>

In addition, the entity that operates risk adjustment must be "operationally ready" to implement the applicable risk adjustment methodology, and must have experience relevant to operating a risk adjustment program.<sup>82</sup> The state must also conduct oversight and ensure that the entity complies with all regulatory requirements.<sup>83</sup>

Based on our experience with other states and HHS provisions related to state risk adjustment standards about risk adjustment, HHS has been interested in several different items in determining whether to grant approval to a state<sup>84</sup>:

- Legal authority for operating risk adjustment
- Organizational and other information about the entity performing risk adjustment
- Plans for communicating with issuers in developing and implementing risk adjustment
- Plans for communicating and coordinating with other state agencies
- Plans for data collection, including process, data sources, accuracy, completeness, security, and legal authority
- Process for collecting charges from issuers and making payments to issuers
- How the state will conduct oversight of the risk adjustment program
- The operational schedule
- The state's methodology for risk adjustment data validation

#### ***The process for initial operational approval***

Regulations require the state to submit to HHS, "in a form and manner specified by HHS," evidence that it meets the standards for state operation of risk adjustment.<sup>85</sup>

<sup>80</sup> 45 CFR 153.310(a)(1).

<sup>81</sup> 45 CFR 153.310(b). Although the risk adjustment regulations do not cross-reference any specific standards, this likely refers to HHS regulations regarding governance and other standards for an entity eligible to carry out exchange functions. 45 CFR 155.110.

<sup>82</sup> 45 CFR 153.310(c)(1).

<sup>83</sup> 45 CFR 153.310(c).

<sup>84</sup> 45 CFR 153.300-365

<sup>85</sup> 45 CFR 153.310(d).

Note that, perhaps because of the very small number of states that have expressed interest in risk adjustment, HHS has not at this time publicly released a template for this initial application. Rather, HHS appears to be working with interested states closely on a more ad hoc basis. It seems likely that the application for a state to operate risk adjustment would focus on the standards discussed above.

There is no timeline laid out in regulations for an initial application. However, in line with the timing for submission of an alternative methodology (which, as noted below, CMS has indicated should be submitted within 30 days of CMS publishing the proposed HHS Payment Notice), it seems likely that CMS would expect this application to be submitted shortly after publication of the proposed HHS Payment Notice for the applicable year (e.g., if a state were considering operating risk adjustment beginning in 2018, the application might be submitted at the end of 2016).

### ***The process for ongoing operational approval (for the years after the first year)***

In addition to receiving initial approval to operate risk adjustment, a state must maintain continued approval each year. Again, although a specific timeline/template has not been publicly released, it seems that CMS intends to require states to resubmit at least some portions of the risk adjustment application on an annual basis. However, we understand that CMS has also indicated that plans must be reapproved every three years or after a significant change. Thus there is currently some ambiguity about how often CMS reevaluates a state's risk adjustment program from an operational standpoint.

In addition, a key aspect of ongoing approval is interim and summary reports, as explained below. These reports are required to maintain approval for benefit years after the first and second benefit years.

*Interim report:* The state must submit an “interim report” to HHS at the end of its first benefit year, describing its risk adjustment activities in the first 10 months of operating the program. This is a requirement for a state to be able to operate risk adjustment for a third benefit year.<sup>86</sup> For example, if a state began operating risk adjustment in 2018, the state would be required to submit an interim report at the end of 2018—describing its risk adjustment activities through October 2018—to be approved for 2020 (the third year of risk adjustment).

*Annual summary reports:* To obtain approval for each year *after* the third benefit year, the state must submit an annual “summary report” on its risk adjustment activities in each benefit year. This would be submitted after risk adjustment operations have been completed for each year. For example, if a state begins risk adjustment in 2018, then to be approved for 2021 (the fourth year of risk adjustment), the state would be required to submit a detailed summary report after the end of 2018 operations. (Because “2018 operations” include claims run-out and payments/charges for 2018, this would not be until the last half of 2019.)

This summary must include “the results of a programmatic and financial audit for each benefit year of the state-operated risk adjustment program conducted by an independent qualified auditing entity in accordance with generally accepted auditing standards (GAAS).” In addition, the summary must “identify any material weakness or significant deficiency identified in the audit and address how the state intends to correct any such material weakness or significant deficiency.”<sup>87</sup>

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<sup>86</sup> 45 CFR 153.310(d)(3).

<sup>87</sup> 45 CFR 153.310(d)(4).



### 5.1.2 Methodology certification process

A state operating its own risk adjustment program has the option to use the methodology that HHS uses to operate risk adjustment. Alternatively, a state can seek to have an alternative methodology certified and use that methodology. It also appears that a state could use a methodology developed by another state that has been approved by HHS and published in the appropriate federal Payment Notice.

#### ***What is a “risk adjustment methodology”?***

HHS described the following aspects of a risk adjustment methodology:<sup>88</sup>

- *Risk adjustment model:* The risk adjustment model is the “actuarial tool used to predict health care costs based on the relative actuarial risk of enrollees in risk adjustment covered plans.” This is the method for calculating an individual’s risk score based on that individual’s diagnoses, demographic characteristics, and other variables.
- *Payment transfer formula:* The process for calculating funds to be transferred among plans is referred to as the “payment transfer formula.” HHS has described two aspects of this formula:
  - The “calculation of plan average actuarial risk” means “the specific procedures used to determine plan average actuarial risk from individual risk scores for a risk adjustment covered plan, including adjustments for variable rating and the specification of the risk pool from which average actuarial risk is to be calculated.”
  - The “calculation of payments and charges” means the methodology applied to plan average actuarial risk to determine risk adjustment payments and charges for a risk-adjustment-covered plan.
- *Data collection approach:* The data collection approach is the “procedures by which risk adjustment data is to be stored, collected, accessed, transmitted, and validated and the applicable timeframes, data formats, and privacy and security standards.” This is the approach to obtaining data, such as diagnostic data, from issuers for purposes of calculating individual and plan risk scores.
- The *risk adjustment schedule* is the time frame for risk adjustment operations and payments.

Note that, as described below, risk adjustment programs must also have a process for validating the data and making adjustments to payments and charges based on errors. However, this process is not considered part of the risk adjustment methodology.

#### ***Standards for a risk adjustment methodology***

HHS has said that, in evaluating a risk adjustment methodology, it will look at the extent to which the methodology<sup>89</sup>:

- Minimizes administrative costs
- Accurately explains variation in health care costs for the relevant population
- Links risk factors to daily clinical practice, and is clinically meaningful to providers

<sup>88</sup> 45 CFR 153.20.

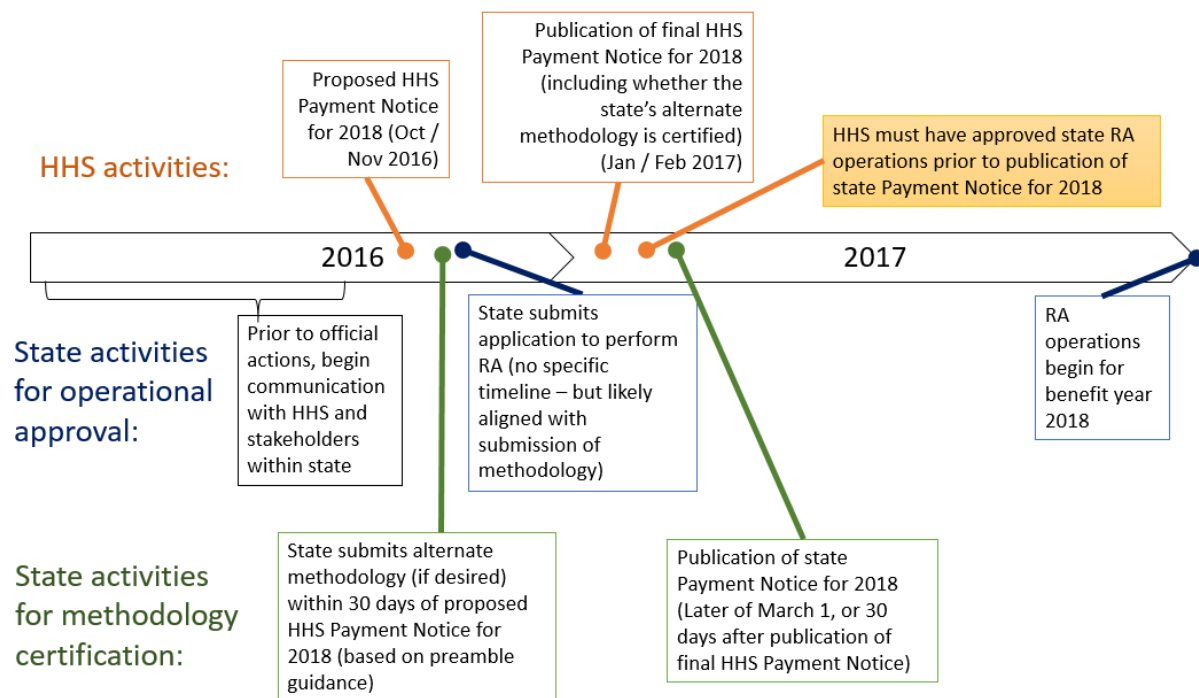
<sup>89</sup> 45 CFR 153.300-365

- Encourages favorable (and discourages unfavorable) behavior among providers and insurers
- Accounts for risk selection across different metallic tier levels
- Uses data that is complete, high quality, and available in a timely fashion
- Is easy for issuers to understand and implement
- Provides stable risk scores over time and across plans
- Complies with regulatory requirements<sup>90</sup>

**Process for certification of an alternative methodology:**

The timeline and process for certification of an alternative methodology follows the timeline for the publication of the annual HHS Payment Notice. Figure 10 is an illustrative timeline of the activities for initial approval, assuming operations beginning in benefit year 2018. It shows that there are at least 18 months between the submission of a state alternative risk adjustment methodology and the final approval of the state methodology.

**Figure 10: Timeline for Initial Approval for Benefit Year 2018**



HHS publishes a proposed Payment Notice in the fall of the calendar year two years prior to the applicable benefit year (e.g., the proposed HHS Payment Notice for 2017 would be released in the fall of 2015). A state would be required to formally submit its alternative methodology within 30 days of the publication of the proposed HHS Notice.<sup>91</sup>

The state's submission must include:

<sup>90</sup> 45 CFR 153.330(a)-(b).

<sup>91</sup> 77 FR 17233.

- Factors to be employed in the model (such as demographic, diagnostic, and utilization factors), the qualifying criteria for establishing that an individual is eligible for a specific factor, and the weights assigned to each factor
- The schedule for the calculation of individual risk scores
- A description of the payment transfer formula
- A description of the risk adjustment data collection approach
- The schedule for the risk adjustment program
- The calibration methodology and frequency of calibration
- Statistical performance metrics as specified by HHS
- A description of the extent to which the methodology meets the standards for a risk adjustment methodology described above<sup>92</sup>

HHS publishes its final Payment Notice at the beginning of the year prior to the benefit year (e.g., the final Payment Notice for 2017 would be expected in January or February of 2016, although it should be noted that HHS has suggested it is trying to advance the process and publish its proposed and final notices on an earlier time frame, to allow insurers more time to take the information into account). In that final Payment Notice, HHS will publish any state alternative risk adjustment methodologies that have been certified (e.g., the alternative methodology used by Massachusetts was initially published in the HHS Payment Notice for 2014, and has been recertified in the 2015 and 2016 payment notices).<sup>93</sup>

Following the publication of the federal Payment Notice, the state must publish its own payment notice describing its alternative methodology. This is due by the later of March 1, or 30 days after the publication of the final federal Payment Notice.<sup>94</sup>

### ***Ongoing certification of an alternative methodology***

HHS regulations indicate that a state must seek recertification if the state chooses to modify or recalibrate its risk adjustment methodology.<sup>95</sup>

### **5.1.3 State requirements relating to validation**

A state operating a risk adjustment program must “ensure proper validation of a statistically valid sample of risk adjustment data from each issuer that offers at least one risk adjustment covered plan in that State.”<sup>96</sup> This process, known as risk adjustment data validation (RADV), generally involves a review of enrollees’ medical records and other information to ensure that the records support the demographic and health status information that has been submitted for risk adjustment purposes.

The federal RADV approach imagines a two-level audit process, in which the first level audit is conducted by insurer-retained initial data validation auditors (IVAs) who will sample 200 to 300 enrollees per issuer based on 10 risk strata specified by HHS. As such, the initial RADV audit is decentralized and funded by the insurers following a set of nationally uniform standards. HHS will

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<sup>92</sup> 45 CFR 153.320(b), 153.330(a).

<sup>93</sup> 45 CFR 153.320(a)(2).

<sup>94</sup> 45 CFR 153.100(c), as amended in the Final Notice of Benefit and Payment Parameters for 2016, Feb. 27, 2015.

<sup>95</sup> 45 CFR 153.330.

<sup>96</sup> 45 CFR 153.350.

then conduct a second level audit (SVA) of a subset of the sample that were audited by the IVAs. To the extent that there may be discrepancies between the first and second level audits, the SVA findings will be extrapolated to the issuer's entire membership and used to make adjustments to funds transfers for the next year's risk adjustment funds settlement.

The regulations do not prescribe in detail any standards for state-operated RADV. Thus, a state would seem to have significant flexibility with regard to its RADV processes. In addition, RADV is not considered an aspect of a "risk adjustment methodology," and thus it is not subject to the methodology certification process (although HHS may consider RADV as part of a state's operational approval to operate risk adjustment).

## [5.2 Recommended enhancements to the MN APCD for operating state-based risk adjustment](#)

As the MN APCD was initially established for use on a number of specific, predetermined analyses, aligning it to the needs of risk adjustment will require changes data collection and processes. The likely changes fall into the following broad categories:

- The addition of data elements to existing file submissions;
- The addition of new file submissions; and
- Modifications to the current data submission process to further assess the data for completeness and quality.

### **5.2.1 Addition of data elements to existing file submissions**

Three files are submitted to MDH's data aggregation vendor by each insurer: a member eligibility file, a medical claims file, and a pharmacy claims file. The data submission guidelines indicate the data elements required for each of these file submissions. The submission guidelines were jointly developed by MDH's current data aggregation vendor and MDH to collect data to inform state analyses, such as the PPG initiative and the Health Care Homes study.

To support state-based risk adjustment, each of these three files will require modification to collect needed additional detail. Some of this added detail will also support MDH and its vendors to assess and strengthen data quality in a more granular fashion, including by offering the ability to benchmark data submissions to available aggregate information (i.e., Unified Rate Review Templates). The table in Figure 11 describes each of the additional data fields and why it is required for risk adjustment. We note that the insurers are already submitting these data elements as part of their EDGE server submissions; therefore, we do not believe adding these fields to the MN APCD's data collection guidelines would produce additional significant burden to data submitters.

**Figure 11:  
Data Fields to Add to Support ACA Risk Adjustment**

| File  | Data Field Name                | Data Field Description   | Reason for Addition  |
|---|--------------------------------|--|--|
| Member Eligibility  | Benefit Plan ID                | A value identifying a unique benefit plan. For plans subject to risk adjustment, we suggest using the federal HIOS Plan ID with the extension code for identification of silver variant plans. Insurers may use this field to identify the different benefit designs within the BHP program. | Risk adjustment is performed at the member and plan level.   |
| Member Eligibility, Medical Claims, and Prescription Claims | Member ID                      | An insurer-specific value identifying a unique enrolled member.  | Risk adjustment is performed at the member and plan level and this should be explicitly submitted, rather than inferred from other data elements.  |
| Member Eligibility  | Benefit Plan Effective Date    | The start date of enrollment under a benefit plan.   | To calculate enrolled months at the member and plan level.   |
| Member Eligibility  | Benefit Plan Termination Date  | The end date of enrollment under a benefit plan.   | To calculate enrolled months at the member and plan level.   |
| Member Eligibility  | Benefit Plan Premium           | The full premium, not just the member portion. We suggest this field to be collected only for the main policyholder's enrolled plans subject to risk adjustment.   | Premium is the basis for funds transfer calculations and is also used to estimate the geographic cost factor (GCF) in funds transfer calculations.   |
| Member Eligibility  | Metallic Level                 | The metallic level for the plan as determined by its actuarial value. For members enrolled in plans subject to risk adjustment.  | Under the federal methodology, risk adjustment models vary by metallic level. The funds transfer calculation also uses the actuarial value average factor (AVAF).  |
| Member Eligibility  | Billable Status                | Whether or not a member is a billable member as defined by the ACA market rules.   | Risk adjustment uses "billable" members to calculate certain metrics in the payment transfer formula.  |
| Member Eligibility  | Market Category Code           | Market category indicator to distinguish between individual, small group up to 50 members, and small groups between 51 and 100 members.  | Risk adjustment applies to the individual and small group market, as defined by the state's market rule. Currently in Minnesota, the individual market and the small group market are separate for rating and for risk adjustment. |
| Member Eligibility  | Subject to ACA Risk Adjustment | Whether or not the plan is subject to ACA risk adjustment. Different values should be used to help identify plans currently subject to risk adjustment and plans   | To identify plans subject to ACA risk adjustment.  |

| File                        | Data Field Name   | Data Field Description   | Reason for Addition   |
|-----------------------------|-------------------|--|---|
|                             |                   | that will in the future be converted to a plan subject to risk adjustment.   |   |
| Member Eligibility          | NAIC Code         | The NAIC code for each issuer.   | Risk adjustment funds settlement calculations are conducted at the issuer level   |
| Member Eligibility          | Employer ZIP Code | For small group plans with 51-100 members.   | Employer ZIP Code is used to infer the geographic rating area, which is used to estimate the GCFs in risk adjustment funds transfer calculations. |
| Medical and Pharmacy Claims | Benefit Plan ID   | Benefit Plan ID that the claims line was paid under (to match the Benefit Plan ID in the member eligibility file). | To identify which plan is liable for a claim.   |

### 5.2.2 Addition of new file submissions

In addition to the new data elements to be collected in the member eligibility, medical claims, and pharmacy claims files to support state-based risk adjustment, we also recommend that MN APCD add three additional data files—a control total file, a supplemental diagnosis file, and a TPA file. While the actual structure and reporting requirements will need to be finalized among MDH, its data aggregation vendor, and the data submitters, we outline the type of data to be collected as well as the intended use below.

#### 5.2.2.1 Control totals file

The funds transfer formula in the risk adjustment process uses results from all insurers subject to risk adjustment. As a result, data quality of one insurer impacts the payment transfers for all insurers in the state. While the MN APCD has a number of data quality checks and verifications throughout the submission process, ultimately each insurer is responsible for ensuring that the information submitted to the MN APCD is of the highest quality, is complete, and accurately represents all of its business subject to ACA risk adjustment. To further enhance this self-regulating approach and the data quality test currently implemented, we recommend an insurer sign-off process, similar to the one we describe below, whereby an insurer has a qualified individual in the organization, one who is removed from the extract creation process, confirm that

the data reported back from the MN APCD matches the insurer's expectations and the data are complete for each data submission:

- Each insurer submits a control total file with each file submission, which includes summary statistics by month for each Benefit Plan ID, metallic level, and geographic rating area, such as:
  - Member counts
  - Premiums
  - Allowed dollars
- After the files are processed and accepted, the MN APCD calculates the above summary statistics and generates a report comparing them with the control total file.
- The report is sent back to each insurer, identifying any discrepancies, and a formal sign-off is required before considering the file submission complete, indicating the data residing in the MN APCD is correct and complete while documenting the reason for any discrepancies.

### **5.2.2.2 Supplemental diagnosis file**

An essential element of a robust risk adjustment program is the collection of accurate member-level diagnosis information. There are a variety of reasons why, once a claim enters the MN APCD, the diagnoses associated with that claim may need to be updated. Consequently, a process whereby insurers can amend existing claims-level diagnosis information or add new claims supporting additional diagnoses is important. The federal risk adjustment program permits the submission of supplemental diagnosis data for risk scoring and for the RADV process.

For example, supplemental diagnoses might be submitted for the following reasons:

- *Truncation of diagnoses:* Because of technical limitations in insurers' claims and data warehousing systems, there may be limits on the number of diagnoses that can be captured for a particular claim. Diagnoses beyond this limit would be truncated and would not initially be submitted to the MN APCD.
- *Medical record review:* In reviewing medical records (such as through a routine medical record review), an insurer may discover that a medical record justifies additional diagnoses that were not included in the original claims submission or, conversely, may discover that previously submitted diagnoses are not justified.
- *Health assessments:* Similar to diagnoses discovered through medical record review, an insurer may discover through the performance of a health assessment that additional diagnoses are justified and appropriate for an individual that did not appear on previous claims during the year.

Because insurers may have different reasons for submitting supplemental diagnosis data, we recommend that MDH engage insurers when developing the rules and guidance for collecting supplemental data, such as what fields to collect, the logic for matching the supplemental diagnosis data to the current MN APCD data, and the frequency for submitting supplemental diagnosis data. At a minimum we recommend collecting the following fields:

- Diagnosis codes to be added
- Diagnosis codes to be deleted

- Reason for addition or deletion (truncation, medical record review, health assessment, etc.)

Supplemental diagnoses will impact the annual risk adjustment transfer payments and therefore will need to be collected and integrated within the MN APCD in advance of the June 30 deadline for funds transfer. Under the federal risk adjustment operational timeline, all data, including supplemental diagnoses, is due by April 30 of the follow year. We envision that when a state operates its own risk adjustment program, the state may adopt a similar timeline.

### **5.2.2.3 Claims from organizations other than a primary payer**

In addition to primary payers, TPAs and PBMs are also required to submit eligibility and claims data to the MN APCD. This results in an additional layer of complexity related to accurately capturing a complete set of diagnoses for an individual member and raises the following questions:

- If the primary payer and TPA/PBM both submit eligibility and the same types of claims for a member, but the underlying data differs, which set of data should be considered accurate and ultimately used in risk adjustment?
- How do we determine if entities other than the primary payer are submitting claims for a particular member?
- If the TPA/PBM use different Member IDs from the primary payer, how do we match claims across submitters at the *member* level?
- If the TPA/PBM use different Member IDs from the primary payer, how do we match claims across submitters at the *plan* level?

The most straightforward way to address these concerns is to follow the current process used for the submissions to the federal risk adjustment process and require the primary payer to submit all claims and eligibility under their own submissions. However, this may increase the administrative burden to insurers if they do not currently capture these claims in their own systems but rely on TPAs and PBMs to capture and adjudicate claims on their behalf. This may lead to insurers not submitting a complete data set to the MN APCD.

The second option is to keep the current structure of the MN APCD and allow TPAs and PBMs to submit on behalf of the primary payers. Under this option, we recommend requiring TPAs and PBMs to submit a TPA file to the MN APCD that will include information such as:

- The primary payer the TPA or PBM submits claims for
- Description of the types of claims submitted by the TPA (e.g., behavioral health, radiology, etc.)
- Indication if the primary payer also submits the same claims for these members to the APCD

Rigorous testing of any claims and eligibility submitted by the TPA and PBM must be performed and compared with any overlapping data from the primary payer. Any discrepancies between the two sources will have to be resolved, adding time and effort. In addition, if the MN APCD does not require consistent reporting of Member IDs and Benefit Plan IDs across primary payer and TPAs/PBMs, imperfect matching algorithms will have to be implemented, resulting in an increased likelihood that some claims are not assigned to a particular member, impacting his or her risk score.



### 5.2.3 Modifications to the current data submission process

In Section 2.2 above, we describe the current data submission process of the MN APCD. This process is not well suited to the timing required in state-based risk adjustment. To meet regulatory deadlines while ensuring complete and accurate underlying data, we recommend the following changes to the current submission process:

- *Frequency of data submissions:* Currently, insurers are required to submit outstanding claims and enrollment information to MN APCD only once every six months (although some insurers choose to submit more frequently). To ensure issues are identified and rectified on a timely basis, we recommend requiring more frequent interim submissions such as on a quarterly or even monthly basis.
- *Retroactivity in member eligibility files:* Managing retroactive updates to eligibility information is currently left to data submitters, which may mean that it is handled differently by submitters: some may include adjustments every six months while others may never include retroactivity. Accurate and final eligibility information is important for the integrity of risk adjustment and therefore we recommend requiring submitters to submit at least a rolling 24 months of the most up-to-date eligibility information monthly. This will ensure all data quality testing is performed on the most current information available.
- *Inclusion of all members enrolled in plans subject to risk adjustment:* Currently, only information on Minnesota residents is required to be submitted to the MN APCD. Because non-Minnesota residents can enroll in Minnesota-issued policies and will be subject to risk adjustment, the MN APCD will need to expand its data collection rules to include these individuals.
- *Determining final claims used in risk adjustment:* Claims submitted to the MN APCD may be altered over time, which is due to re-adjudication (reversals, denials, mistakes, and other retroactivities). Changes to the claims amount paid is the most common cause of this modification, but diagnosis codes may also differ between versions of a claim. MDH's current data aggregation vendor works with each submitter to determine the best way to identify final, paid claims. This process is complicated and differs by submitter because of different adjudication systems.
  - The final paid claim is not always the final claim that should be used in risk adjustment. For example, a capitated claim may carry diagnosis information, but is not considered a final, paid claim because the services under the capitation were reported separately in different claims lines. For purposes of state-based risk adjustment, MDH should work closely with insurers to understand and ultimately determine how to best flag those claims that are subject to risk adjustment.
- *Capturing plan eligibility information:* Currently, insurers submit one record for every month a member is eligible for a particular plan. Exact effective and termination dates are not captured. We recommend, as described in Figure 1 above, to change the structure of the member eligibility table to input exact eligibility spans for a member in a particular plan. This will increase precision and the ability to perform more detailed data quality checks.
- *Intra-file linking data quality checks:* Currently, there are no automatic data quality checks performed between different files at the time of submission. We recommend adding the following checks:
  - Compare all metrics summarized in the control total file to the individual file submissions

- Match claims to the member eligibility file to confirm claims are incurred during a valid eligibility span
- If applicable, overlap member eligibility matching to any TPA/PBM member eligibility files
- If applicable, ensure claims reported by a TPA/PBM can be matched to the primary payer
- Claims and members identified on the supplemental diagnosis file can be matched to the original claim and member in the medical claims file
- *Data quality checks related to risk adjustment:* To assess data quality on data elements important in the risk adjustment process, we recommend creating reports similar to the templates we have prepared for data currently residing in the MN APCD for each insurer. These templates are described below in the Assessment of Data Currently Housed in the MN APCD section and shown in Appendix 2B without data, and help assist in the following checks:
  - Validate reported codes, such as ICD-9/-10 diagnoses, revenue codes, HCPCS/CPT codes
  - Cross-check the HIOS ID to metallic level (i.e., CSR plans only show up under silver levels)
  - Cross-check the market segment to metallic level (i.e., catastrophic plans only show up under individual plans)
  - Identify the percentage of members with no claims during a 12-month period
  - Assess the reasonableness of utilization rates by costs by detailed service category
  - Assess the reasonableness of monthly membership and PMPM cost trends
- *“Completeness” data quality checks:* Currently, there is no formal verification process to assure that the data submitted to the MN APCD accurately captures the insurer’s block in its entirety. Therefore, we recommend formally conducting the following additional checks and aligning their outcomes with data submitters:
  - Match member counts by month and plan from the member eligibility to external data sources, where available, such as internal state enrollment reports or public rate filings
  - Perform data gap analyses, such as claims lag triangles

### [5.3 Considerations to ensure a smooth transition](#)

State-based risk adjustment has operational and financial implications for the state, the insurers, consumers, providers, and other stakeholders. Given that currently the federal government administers risk adjustment for Minnesota using the federal methodology, and the complexity of risk adjustment in general, transitioning to a state-based program using a state model should be carefully planned, tested, and rolled out as smoothly as possible, while keeping the insurers and other key stakeholders involved throughout the process.

One approach may be to conduct statewide risk adjustment simulations prior to a full implementation, because such simulations, similar to national initiatives currently conducted by Wakely Consulting, can help to ensure that accurate data are being submitted to the MN APCD

for funds settlement calculations, to provide risk adjustment estimates for the market and support insurer pricing, to validate the funds settlement calculation algorithms, and to stress-test the entire operation for all parties involved.

To ensure the integrity of program operations, the state will need to establish rules and regulations to incentivize appropriate market conduct. For instance, under the federal risk adjustment program, to ensure timely data submission, insurers that fail to set up EDGE servers or fail to submit data before the data lockdown date would be subject to a default charge. Insurers are also given the opportunity, after funds settlement calculations are completed, to raise concerns about data discrepancies and go through an appeals process to seek adjustments and rectifications. Through supplemental diagnoses submissions, insurers can further complete the diagnostic profiles of their enrollees for a more accurate result. To ensure the accuracy of the diagnosis information on the claims, CMS also implements the RADV audit, as previously discussed. Such mechanisms require lead time to develop and allow for stakeholder input and feedback prior to implementation.

#### 5.4 Costs associated with operating state-based risk adjustment

Under the federal risk adjustment program, operational costs are funded through a risk adjustment (RA) user fee paid for by insurers with policies subject to risk adjustment. This fee, which has risen from \$0.96 per enrollee per in 2014, will increase to \$1.56 per enrollee per year for 2017, largely to account for expenses associated with auditing tasks that the federal government is beginning to implement. The user fee is used to support the risk adjustment funds settlement calculations, recalibration of models, and conducting second-level federal RADV audits.

Insurers directly bear the cost of establishing and maintaining EDGE servers or using the Amazon Cloud to make their data available to the HHS risk adjustment programs. Insurers also bear the cost of investments to meet internal data audit and reconciliations requirements (see also Appendix 5A for additional detail on HHS’s estimates of the federal risk adjustment program user fee).

Under state-based risk adjustment, insurers participating in risk adjustment are not required to pay the federal risk adjustment user fee; however, all of the above functional elements are still required to ensure smooth operations at the state level. Thus, the state-based risk adjustment program may need to be funded through user fees or another source.

It is unclear, whether a state-based risk adjustment program can be more cost-effective than the federally administered program.

- On the one hand, the state would be lacking the ability in some functional areas to spread the operational costs as far as the federal government.
- On the other hand, potential areas of savings for the state exist with regard to risk adjustment development – significant alignment with federal methodology will help to reduce development cost – and the availability of the MN APCD as an existing data platform. We note, however, that HHS has not made it clear whether insurers under a state-based risk adjustment program would be exempt from aggregating data for HHS through the EDGE servers.<sup>97</sup>

<sup>97</sup> Massachusetts as the only state that administers its own risk adjustment program uses the Massachusetts APCD for data collection. Insurers participating in the Massachusetts risk adjustment program do not submit user fees to HHS. However, they are still submitting data through the EDGE servers for the federal transitional reinsurance program, which will expire with policy year 2016.

Another potential area of savings may come from a state-based RADV program. As noted, the federal RADV program in essence is a two-layer audit process. Under state-based risk adjustment, the state can model RADV either after the HHS specifications, or design a program that could be more cost-effective for both the state and the insurers. For instance, instead of sampling every insurer every year for RADV audits, the state may consider using statistical algorithms to identify potential diagnosis coding issues as being significant deviations from past average coding patterns, which triggers targeted RADV audits. Targeted RADV audits may not involve every insurer and may not need to be done every year. Another approach is to discourage inappropriate diagnosis coding practices through significant financial penalties.

The cost of operating a state-based risk adjustment program should be considered in the bigger context of state flexibility. To the extent that there may be state-level health care reforms that could impact health care access, market structure, population risk profiles, and premiums, a state-based risk adjustment program that better aligns with these initiatives may be more practical and valuable to the stakeholders, even if operationally there are greater upfront costs to the system.

## SECTION 6: KEY FINDINGS & RECOMMENDATIONS

The development of a risk adjustment methodology and associated mechanisms required for implementation requires striking a balance between competing policy priorities. A well designed risk adjustment program is a health care market risk mitigation tool that properly aligns incentives, limits gaming, and protects risk-bearing entities from the impact of adverse selection.<sup>98</sup>

The potential for state-based risk adjustment is that it affords greater local control over this balance by allowing the various levers of risk adjustment to be tailored to the local marketplace and be better aligned with and supportive of broader state health policy priorities. This is important because risk adjustment on its own, and in conjunction with other state policy initiatives, impacts access to and affordability of coverage through its effects on premium levels, insurance market competition, provider network development, and benefit design,

At the same time, the federally-operated risk adjustment system was found to be performing reasonably adequately relative to expectations despite the weaknesses documented in this report, and any consideration of operating a state-based risk adjustment system should take this baseline level of performance into account in determining the state's decision.

To summarize, key findings from the study are as follows:

- A state-based risk adjustment program developed using Minnesota data and making a number of select refinements on the federal risk adjustment model would significantly improve the predictive accuracy of the Federal Model.
- There is an opportunity to align state-based risk adjustment with other state-based policy initiatives as a means of enhancing these other initiatives and to ensure that the interaction of risk adjustment with these policies does not create unintended consequences.
- The MN APCD represents a strong data platform; to support the administration of state-based risk adjustment it requires pass-through of additional data elements and process refinements.
- Implementing and operationalizing a state-based risk adjustment program requires substantial lead time of at least 18 months - taking into account required federal approvals, as well as necessary data enhancements to the MN APCD.
- From a cost perspective, it is difficult to say with certainty if a state-based risk adjustment program will be more or less expensive than the current Minnesota contributions to the federally-operated risk adjustment program. The operational cost depends on the level of program sophistication and the frequency of interim risk score reports, as well as other factors.
- There are likely some efficiencies available to the state and to the insurers, such as using the MN APCD for data collection instead of the EDGE servers as required under the federal risk adjustment program, and conducting statistically-driven RADV audits to reduce the administrative and operational burden for insurers that would lend themselves to operating at lower costs. At the same time, a state system will always lack the economies of scale available to the federal government. Ultimately, program cost should be considered in the context of the technical benefits and opportunities.

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<sup>98</sup> [American Academy of Actuaries Issue Brief, May 2010, Risk Assessment and Risk Adjustment. https://www.actuary.org/pdf/health/Risk\\_Adjustment\\_Issue\\_Brief\\_Final\\_5-26-10.pdf](https://www.actuary.org/pdf/health/Risk_Adjustment_Issue_Brief_Final_5-26-10.pdf)

**Recommendation:** Weighing the technical benefits and operational costs to the state, a state-based risk adjustment approach could present meaningful advantages.

(1) A state-based risk adjustment system would create greater transparency in trends of health insurance risk in Minnesota, which would create greater predictability in the insurance market and premium development;

(2) State-based risk adjustment would give Minnesota the opportunity to align and integrate risk adjustment with broader policy goals and initiatives, including potentially establishing a reinsurance mechanism and creating incentives to covering additional critical services; and

(3) In the MN APCD, the state already has in place a strong data platform.

To make the decision more deliberate, Minnesota may wish to pursue the following additional preparatory steps and analyses. As the market has been experiencing a particularly volatile period, this additional work would ensure that the decision to pursue state-based risk adjustment is based on the most current available information on market conditions.

- *Create a small number of specific options for state-based risk adjustment to better support and promote market competition by modifying the risk adjustment model to address predication bias*

This study demonstrated that the existing federal methodology both under-predicts and over-predicts costs for certain conditions and for those with certain disabilities. Thus, a focus could be given to the “two tails”, recognizing that both under- and over-prediction of cost in risk adjustment can create inefficiencies in premium development and lead to access problems for “high cost” populations with specific conditions, disabilities, or socioeconomic barriers that can lead to higher health care costs. Similarly, under-prediction of cost for enrollees that appear healthy in relation to measured levels of actuarial risk can pose potential challenges for new market entrants, as well as existing insurers.

A next step would be to employ more recent data to further evaluate how a specific state-based methodology that alters the existing HCC structure and incorporates consideration of non-traditional factors to help explain health care costs might improve predication accuracy and generate tangible policy improvements (e.g., expanded availability of benefit designs or provider network options that would improve access for important sub-populations).

Similarly, while not addressed quantitatively in this study, an extension of this work evaluation might consider the potential predication bias for relatively healthy populations. If improvements in this area were warranted, addressing the issue would help to mitigate the potential that insurers covering relatively healthy enrollees are unable to offer as competitive premiums as they otherwise would because of the requirement to pay into risk adjustment above what is actuarially justified.

- *Outline specific proposals for how risk adjustment considerations could support other state policy priorities*

The study found that state-based risk adjustment has the potential to improve the performance of other state-based policy initiatives. Specific proposals for achieving this potential would be aided by closely integrating consideration of risk adjustment design choices into the planning of these other initiatives.

Key initiatives the study considered in this regard include: a) refinement of the BHP; b) conversion of the BHP into a Section 1332 waiver that combines the BHP population with the individual market; and c) merger of the individual and small group markets. A goal for this

work would be to evaluate more closely how different risk adjustment design choices might better align with these policy initiatives and to what extent.

- *Determine the feasibility of a permanent, state-based reinsurance program*

The study found that to maximize premium efficiencies, a Minnesota-based reinsurance strategy necessitates implementation of a state-based risk adjustment mechanism. However, it was beyond the study's scope to consider the feasibility of effectively operating a permanent reinsurance program on a state-basis, although to advance the study's goals we assumed operation of state-based reinsurance and designed a methodology for integrating these programs to help ensure that risk adjustment transfers more accurately align with an insurer's actual liability when both programs operate.

While our methodology can be applied to a range of reinsurance program designs, implementing state-based reinsurance would benefit from modeling its impact based on a defined set of parameters, including details about funding (magnitude and source).

- *Operational and implementation considerations*

Because of the long lead time required to implement risk adjustment, an important step would be to begin developing a nominal timeline for seeking to implement a risk adjustment program to the extent the state wished to proceed in that direction. Early communications with the federal government to obtain their perspective and the latest insights would likely aid in the development of a successful application to conduct state-based risk adjustment, particularly given federal government's effort in refining its own methodology and approach.

Similarly important would be the development of an organizational framework for considering the cost of developing a state-based risk adjustment program in greater detail. Such an analysis would be aided by a focus on the upfront fixed costs, as well as recurring costs, and an analysis of the potential benefits to broader state-based policy initiatives.

- *Develop as part of the operational plan a system that guarantees increased transparency and predictability in risk adjustment transfers through timely data analysis in reporting*

A key focus of operational enhancements in risk adjustment should also be to help offer insurers greater transparency and predictability in risk adjustment. Greater transparency such as through providing insurers with regular data quality and risk adjustment simulation reports can help insurers better understand their performance under the program. This can improve how risk adjustment transfers are factored into premiums, leading to premiums that are more accurately correlated with insurer risk and liability.

A better "line of sight" to these transfers can improve market competition by affording insurers greater predictability and pricing information to support exploring innovations in benefit design, provider network development.

- *Testing additional model and statistical enhancement to a state-based approach to fully assess the potential in state-based risk adjustment.*

Additional modifications to test with Minnesota data include assessing if individual and small group risk adjustment should include different factors, given the different potential for adverse selection; exploring more reasonable statistical credibility adjustments for smaller insurers; and using prescription drug claims in risk adjustment modeling and data validation.

## SECTION 7: CONCLUSIONS

Implementation of the ACA ushered in substantial changes to the individual and small group markets in Minnesota, as it did in most other states in the country where coverage in these markets had previously been underwritten, in other words, where premiums took into consideration health risk.

A key focus of these changes was aimed at improving access to health insurance coverage by making purchasing for health insurance easier and reducing the cost for people with the greatest need for insurance. In the individual market, the ACA also sought to expand coverage by making advanced premium tax credits and cost-sharing reductions available to enrollees based on income.

Recognizing the sweep of these changes, the ACA required implementation of a number of “premium stabilization” programs: risk adjustment, transitional reinsurance, and the transitional risk corridors program. Of the three premium stabilization programs, risk adjustment is the only permanent program. The permanent nature of this program recognizes the importance of maintaining a mechanism that seeks to ensure premium revenue is allocated to insurers in relation to the liability and levels of health insurance risk they bear, given that premiums can no longer vary with incremental levels of individuals or groups.

Absent effective risk adjustment, insurers that attract a disproportionate share of enrollees with high health care needs would not remain financially viable over the long term. It is this form of “adverse selection” that risk adjustment seeks to offset in an effort to support the individual and small group market’s ability to make affordable coverage available to all, independent of health care needs.

As the findings of this report and the preceding discussion show, the decision for Minnesota about whether to take advantage of the opportunity to develop and implement risk adjustment customized to Minnesota’s market is both complex and far-reaching. Risk adjustment is a powerful, constantly evolving science that requires high-levels of expertise in actuarial modeling, statistical analysis, data management, and clinical practice. At the same time, as is the case with any statistical and actuarial tool, it also has inherent limitations in predicting or explaining the relationship between health status and health care service use or costs. Even the most sophisticated models may have some form of prediction bias for certain populations or fail to accurately predict the effect of changes in clinical practice, technological development, and demand for health services. And, risk adjustment is also an art, in that it aims to avoid gaming by market participants or producing unintended behaviors by insurers or health care providers.

Given the technical complexities and the potential consequences for a health insurance marketplace with several hundred-thousand policy-holders, only a few states have considered the opportunity offered by the ACA, and just one – Massachusetts – has chosen to operate (until recently) a state-based system. However, while we have found strong arguments in favor of the status quo, under which the federal government continues to be responsible for Minnesota’s risk-mitigation system through its national approach – economies of scale, expertise, and a reasonable track record – there are several characteristics of the state of Minnesota that make state-based risk adjustment feasible and even meaningful.



Minnesota has a reputation for leadership in health system reform with public/private partnerships and initiatives that inform regulatory frameworks and policy development.<sup>99</sup> Together with the availability of effective data systems on which to build, a state-based system presents Minnesota with an opportunity to take control of a key policy lever to support competition in its insurance markets while exploring approaches to improve access for important sub-populations and stability. If used intentionally and with skill, state-based risk adjustment in Minnesota could help strengthen initiatives aimed at delivery system reform to produce more effective and affordable health care services.

## CAVEATS AND LIMITATIONS

Milliman's work is prepared solely for the use and benefit of the State of Minnesota in accordance with its statutory and regulatory requirements. Milliman recognizes that materials it delivers to the State of Minnesota may be public records subject to disclosure to third parties. However, Milliman does not intend to benefit and assumes no duty or liability to any third parties who receive Milliman's work in this fashion.

In preparing for this report, Milliman used 2013 and 2014 data in the MN APCD pertaining to enrollees in the commercial individual market, the small group market with employer groups of up to 50 employees, the group market with employer groups that have 51 to 100 employees, and MinnesotaCare, and supplemented with data collected from insurers by MDH. We made adjustments to the data in the risk adjustment modeling analyses to ensure that the model development sample has sufficient data quality and is representative of the Minnesota market. To address data quality concerns for a few very small insurers, we made adjustments to ensure the data were representative of the population mix in the Minnesota market. The observations and findings are specific to the source data and these data adjustments. We expect the observations and findings to change if the same analyses were performed on the same population from a different time period or when the Minnesota market conditions change.

The authors of this report, Rong Yi and Howard Kahn are employed by Milliman; Gary Bacher, founding member of Healthspieren, worked as a subcontractor to Milliman on this project. Howard Kahn is a member of the American Academy of Actuaries and meets the qualification standards to render the opinion contained herein.

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<sup>99</sup> See for example: Courtot, B, Dorn S, and V. Chen, "ACA Implementation--Monitoring and Tracking: Minnesota Site Visit Report, The Urban Institute, July 2012.

## Appendix 1A: HHS Risk Adjustment Model

At a high level, the federal Department of Health and Human Services (HHS) Hierarchical Condition Categories risk adjustment model (HHS-HCC model) uses demographic, enrollment, and diagnosis information at the member level to establish each member's relative health status.

The model classifies diagnoses using a modified version of the HCC grouping logic currently used in Medicare, but adapted and calibrated to the commercial individual and small group markets under ACA market reform.

The HHS-HCC model begins by grouping member-level diagnosis information into HCCs. This works by classifying diagnosis codes (initially, ICD-9 diagnosis codes, and currently ICD-10 codes) into "diagnostic groups." These diagnostic groups are further aggregated into "Condition Categories." Hierarchies are imposed among related condition categories to create "hierarchical condition categories" or HCCs. For use in commercial risk adjustment, HHS selected 127 HCCs.

Risk weights associated with the HCCs vary by metallic levels—platinum, gold, silver, bronze, and catastrophic—and are largely reflective of cost-sharing differences across metallic levels. Within a benefit level, the HCC risk weights further differ by age cohorts—infants, children under age 20, and adults. Under this design, there are a total of 15 sets of risk weights within the HHS-HCC model.

The HCC risk weights used for the 2014 and 2015 benefit years were calibrated using the 2010 Truven Health Analytics MarketScan® Commercial database (MarketScan). The risk weights to be used for the 2016 benefit year were calibrated using the 2011 to 2013 MarketScan data.

For the most part,<sup>1</sup> the HHS model is additive, i.e., a member's risk score is derived by adding the demographic component and the risk weights for the member's HCCs. When aggregated at the health plan level, the risk score provides an estimate, on a relative basis, of the expected plan liability for a member's given benefit design, and the member's demographic status and medical conditions as coded in medical claims.

In developing the risk adjustment model, HHS followed a number of design principles and considerations, which were articulated in the 2014 proposed HHS Notice of Benefit and Payment Parameters. For instance, the diagnosis categories should be clinically meaningful, should predict medical and drug expenditures, and should have adequate sample size for accurate and stable estimations; the design of the clinical hierarchy should reflect disease progression while allowing for unrelated disease processes to accumulate; the classification

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<sup>1</sup> The HHS-HCC model for infants is not linearly additive. Rather, the infant model categorizes infants into one of 25 mutually exclusive categories. 78 FR 15422.

should encourage specific coding and should not reward coding proliferation.<sup>23</sup> These principles affected how the model development sample data sets were constructed, how the 127 HCCs were selected, how the conditions within a clinical hierarchy relate to each other, and how the risk weights were developed and constrained in model calibration. In other words, the HHS-HCC model was not designed purely based on the rules of statistics. Clinical and policy considerations also heavily influenced the model.

#### Payment transfer formula

The payment transfer formula includes development of the “plan liability risk score”—which is a calculation of plan average actuarial risk based on the individual risk scores of members in that plan—as well as the methodology for calculating payments and charges.

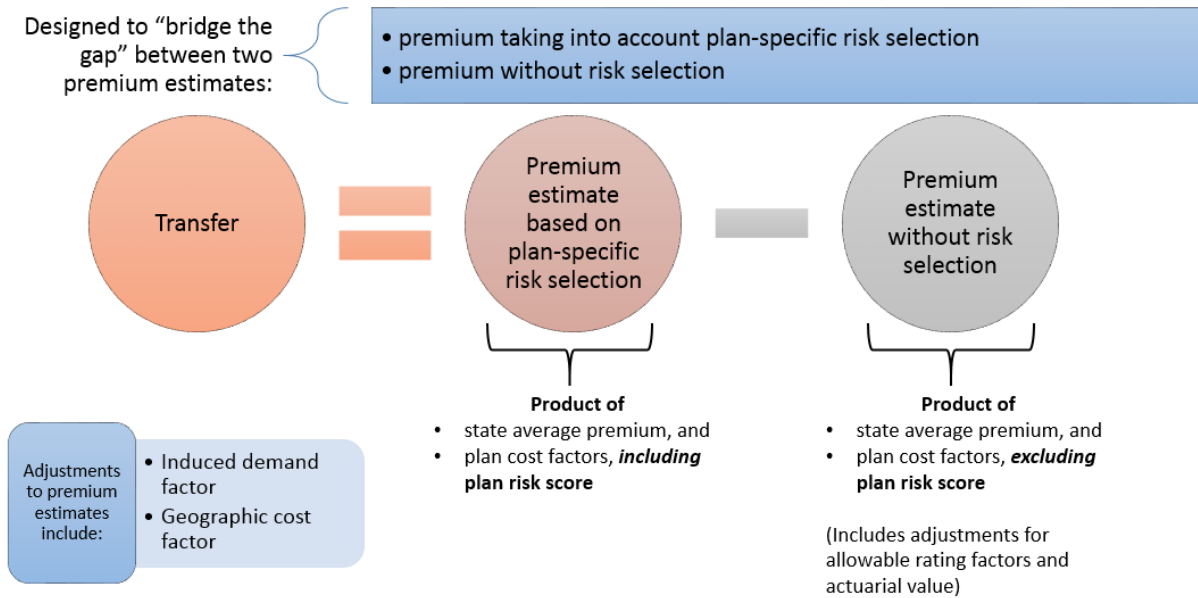
Conceptually, the HHS payment transfer formula calculates the difference between the premium with risk selection and the premium without risk selection. Premium with risk selection is the hypothetical premium that a health plan would charge if it could price according to member health status as reflected by the HHS-HCC model, induced utilization as it relates to benefit design,<sup>4</sup> and geographic area. Premium without risk selection, on the other hand, represents the actual premium that a health plan is allowed to charge under the ACA rating rules. The difference between the two premiums reflects the extent to which a health plan is able (or unable) to reflect the full risk of its members under ACA rating rules. Health plans whose premium with risk selection (relative to the market) is greater than the premium without risk selection (also relative to the market) would receive payment transfers from those whose premiums with risk selection is less than the premium without risk selection.

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<sup>2</sup> See [“March 31, 2016, HHS-Operated Risk Adjustment Methodology Meeting, Discussion Paper” \(https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf\)](https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf). By coding proliferation, CMS explains that “...*The classification should not measure greater disease burden simply because more diagnosis codes are present. Hence, neither the number of times that a particular code appears, nor the presence of additional, closely related codes that indicate the same condition should increase predicted costs....*”

<sup>3</sup> 77 FR 73128

<sup>4</sup> The federal risk adjustment methodology considers two types of induced utilization—one has to do with the ACA metallic levels, and the other one has to do with cost-sharing reduction for silver variant plans.



Under the HHS-HCC model, there are three risk adjustment pools in a state—small group, individual non-catastrophic, and catastrophic risk adjustment pools. The relativities in plan actuarial risk are established within each risk adjustment pool at the plan and rating area level. Payments and charges will be aggregated at the issuer level.

Under the HHS methodology, the basis for funds transfers is the state average premium. The difference between the premium with risk selection and the premium without risk selection is first calculated on a per-billable-member-per-month basis, and then multiplied by the state average premium and by the total billable member months of the plan. The 2014 HHS Notice of Benefit and Payment Parameters contains<sup>5</sup> the technical details of the factors and calculations used in funds transfer.

#### Potential future adjustments to HHS model and payment transfer formula

It is important to recognize that the HHS risk adjustment methodology is not static, and HHS is currently considering potential changes to the ACA risk adjustment methodology in response to the feedback from the market. HHS has released a Risk Adjustment “discussion document” with options for potential changes to the risk adjustment model and payment transfer formula. For example, the document discusses potential changes to better account for the costs of partial-year enrollees, incorporating prescription drug utilization into the model, better accounting for the costs of high-risk enrollees, and other changes. As of the date of this report, HHS has not published proposed changes for public comment prior to final approval.<sup>6</sup>

<sup>5</sup> Federal Register (March 11, 2013). [Patient Protection and Affordable Care Act: HHS Notice of Benefit and Payment Parameters for 2014](https://www.federalregister.gov/articles/2013/03/11/2013-04902/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2014). Retrieved May 6, 2016, from <https://www.federalregister.gov/articles/2013/03/11/2013-04902/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2014>.

<sup>6</sup> CMS (March 24, 2016). [March 31, 2016, HHS-Operated Risk Adjustment Methodology Meeting, Discussion Paper](https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf). Retrieved May 6, 2016, from <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>.

## Appendix 2A – Technical Description of the Development of the Risk Adjustment Study Data Set

To identify the subset of individuals in the MN APCD to inform the risk adjustment study, MDH asked carriers to submit a supplemental file, which among other things, would allow the identification of those members enrolled in the individual and small group markets. Below are the steps we took to merge the supplemental file to the existing MN APCD files to create the dataset for data quality evaluation, risk adjustment readiness assessment and risk adjustment modeling. Column names are in **bold** and MN APCD tables are in *italics*:

- 1) Exclude members on the supplemental file who are not fully insured
  - a) Members where **fully\_insured\_member** does not equal '1'
- 2) Pull in **PayerID** into the supplemental file from the *Ref\_Payer* file in the MN APCD to be able to link between the MN APCD eligibility tables and the supplemental file.
  - a) We joined the supplemental file to the *Ref\_Payer* file by matching the first seven digits of the **SubmitterCode** field in the supplemental file to **PayerCode** in the *Ref\_Payer* file.
- 3) Reshape the supplemental file such that each record contains one member month.
  - a) **START\_YM** is created as the year and month from the field **ENROLLMENT\_START\_DT**.
  - b) **END\_YM** is created as the year and month from the field **ENROLLMENT\_END\_DT**.
  - c) For each member (**PAYERID**, **PRODUCT**, and **MEMBERIDN**) and month of eligibility (as determined by **START\_YM** and **END\_YM**) within 1/2013 and 12/2014, a separate data record is created.
  - d) **MTIME** is calculated as the month/year each record represents. We created **MTIME** in order to join the supplemental file records to Medical Membership, which is described in #4 below.

For example, after reshaping, a member enrolled between **ENROLLMENT\_START\_DT** 1/1/2013 and **ENROLLMENT\_END\_DT** 12/31/2014 would have 24 rows in the reshaped file with **MTIME** ranging from 201301 to 201412.

- 4) Join the reshaped supplemental file (from #3 above) to the *Medical Membership* file in the MN APCD.
  - a) We joined the supplemental file to the *Medical Membership File* using the fields **PAYERID**, **PRODUCT**, **MEMBERIDN**, and **MTIME**.
  - b) Where the value of **PAYERID** differed from those reported in the *Medical Membership* file, we identified members in the supplemental file using the appropriate **SUBMITTERCODE**.
- 5) Identify MinnesotaCare members (not provided in the Supplemental file) in the *Medical Membership* file and join with the reshaped supplemental file (from #4 above).
  - a) MinnesotaCare members were identified as those who reported **PRODUCT** 'XXMNCR.'
  - b) Rating region, which was supplied for all other market segments by the supplemental file, had to be derived from **MN\_COUNTY\_NAME**.
  - c) Metal level was assigned to SILVER.
  - d) MinnesotaCare member data was then appended to the supplemental file generated in #4 above.

- 6) Pull the 2013 and 2014 eligibility data for members from the *Medical Membership* and *RX Membership* files for member and member months identified in #4.
  - a) Unique member months were identified as unique month/year values (of field **MTIME**) by **PAYERID**, **MARKET\_CATEGORY\_CD**, **MEMBERIDN**, and **PRODUCT**.
  - b) One carrier was identified under multiple **PAYERIDs**. One **PAYERID** was selected and applied to all members so that the carrier could be analyzed collectively.
  - c) We included all members regardless of whether or not they had pharmacy coverage in 2013 and 2014.
  - d) Some members switched from one plan to another during a month. The member month was counted for each market category and/or product reported.
  
- 7) Join the *Medical Membership* and *Rx Membership* files to the *Medical Claims* and *Rx Claims* files respectively by fields **MEMBERIDN**, **PAYERID**, and **MTIME**.
  
- 8) Use **MEMBERIDN** to identify medical and pharmacy claims submitted by other payers (**PAYERID**) for certain individuals; remove duplicate claims submitted by both the primary payers and their TPAs.
  - a) Claims not identified as duplicates of the ones captured by the original **PAYERID**'s data submission, were included in the final dataset.
    - i) These claims represented carve-out medical procedures captured by TPAs and PBMs
  - b) Apply deduplication process provided by MDH for pharmacy claims.
    - i) Process derives a **DROPFLAG** variable.
    - ii) Records where **DROPFLAG** = 0 were included.
    - iii) The original MDH logic identified a number of TPAs, and Milliman identified additional TPAs that were not previously identified by MDH.
  
- 9) Impose payment level (**PAYMENT\_LEVEL**) criteria on claims data.
  - a) If all payment levels on a claim (**CLAIM**) are "H" then SUM all lines.
  - b) If all payment levels on a claim are "L" then SUM all lines.
  - c) If a combination of "H" and "L" are found on same claim then:
    - i) If any "H" lines > 0 then SUM ONLY "H" lines,
    - ii) If all "H" lines = 0 then SUM ONLY "L" lines
  - d) If the sum of claim lines is negative, exclude from the analysis.

## Appendix 2B - Carrier-Specific Data Quality Assessment Report Template (No Data)

This work product was prepared solely to provide assistance to the Minnesota Department of Health. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends such recipients be aided by an actuary or other qualified professional when reviewing the Milliman work product.

Summary of Findings - Data Quality Assessment

Carrier: {Carrier Name}  
Market: {MinnesotaCare, Individual, Small Group <= 50, Small Group > 50}  
 Summary of Findings - Data Quality Assessment

"No" may indicate a potential data quality issue.

|  | Yes | No | Notes |
|--|-----|----|-------|
| <p><b>Exhibit A Cross-File Linkage</b></p> <p><b>2013</b><br/> <u>Medical Membership to Rx Membership</u><br/>                     1 At least 99% of members in medical membership file have corresponding Rx enrollment.<br/> <u>Medical Membership Trends</u><br/>                     2 No fluctuations in member counts month-to-month larger than 10%.<br/>                     3 Change in member counts from BOY to EOY not larger than 30%.<br/> <u>Pharmacy Membership Trends</u><br/>                     4 No fluctuations in member counts month-to-month larger than 10%.<br/>                     5 Change in member counts from BOY to EOY not larger than 30%.<br/> <u>Full Year Enrollees without Claims</u><br/>                     6 Percent of members enrolled for 12 months reporting 0 medical or pharmacy claims not larger than 20%.</p> <p><b>2014</b><br/> <u>Medical Membership to Rx Membership</u><br/>                     1 At least 99% of members in medical membership file have corresponding Rx enrollment.<br/> <u>Medical Membership Trends</u><br/>                     2 No fluctuations in member counts month-to-month larger than 10%.<br/>                     3 Change in member months from BOY to EOY not larger than 30%.<br/> <u>Pharmacy Membership Trends</u><br/>                     4 No fluctuations in member counts month-to-month larger than 10%.<br/>                     5 Change in member counts from BOY to EOY not larger than 30%.<br/> <u>Full Year Enrollees without Claims</u><br/>                     6 Percent of members enrolled for 12 months reporting 0 medical or pharmacy claims not larger than 20%.</p> <p><b>2013 + 2014 Membership Trends</b><br/>                     1 Medical: Change of membership 1/2013-12/2014 smaller than 50%.<br/>                     2 Pharmacy: Change of membership 1/2013-12/2014 smaller than 50%.</p>  |     |    |       |
| <p><b>Exhibit B Monthly Summary of Member Months and Dollars</b></p> <p><b>2013</b><br/> <u>Medical Experience</u><br/>                     1 Membership provided in expected timeframe/member months (10/2013-12/2013)<br/>                     2 Claims provided in expected timeframe/member months (10/2013-12/2013)<br/>                     3 No fluctuations in Paid Per Member Per Month (PMPM) larger than 15%.<br/>                     4 All PMPMs within expected range. (\$200-\$500)<br/>                     5 All months of payment cost share within expected range of 60-90% (&gt; 90% for MNCare)<br/> <u>Pharmacy Experience</u><br/>                     1 Membership provided in expected timeframe/member months (10/2013-12/2013)<br/>                     2 Claims provided in expected timeframe/member months (10/2013-12/2013)<br/>                     3 No fluctuations in Paid Per Member Per Month (PMPM) larger than 15%.<br/>                     4 All PMPMs within expected range. (\$30-\$125)<br/>                     5 All months of payment cost share within expected range of 60-90% (&gt; 90% for MNCare)</p> <p><b>2014</b><br/> <u>Medical Experience</u><br/>                     1 Membership provided in expected timeframe/member months (1/2014-12/2014)<br/>                     2 Claims provided in expected timeframe/member months (1/2014-12/2014)<br/>                     3 No fluctuations in Paid Per Member Per Month (PMPM) larger than 15%.<br/>                     4 All PMPMs within expected range. (\$200-\$500)<br/>                     5 All months of payment cost share within expected range of 60-90% (&gt; 90% for MNCare)<br/> <u>Pharmacy Experience</u><br/>                     1 Membership provided in expected timeframe/member months (1/2014-12/2014)<br/>                     2 Claims provided in expected timeframe/member months (1/2014-12/2014)<br/>                     3 No fluctuations in Paid Per Member Per Month (PMPM) larger than 15%.<br/>                     4 All PMPMs within expected range. (\$30-\$125)<br/>                     5 All months of payment cost share within expected range of 60-90% (&gt; 90% for MNCare)</p> |     |    |       |



Summary of Findings - Data Quality Assessment

Carrier: {Carrier Name}  
Market: {MinnesotaCare, Individual, Small Group <= 50, Small Group > 50}  
 Summary of Findings - Data Quality Assessment

"No" may indicate a potential data quality issue.

|   | Yes | No | Notes |
|---|-----|----|-------|
| <b>Exhibit C Claims Triangle</b><br><b>2013</b><br>1 Medical: No unexpected claim lags (run out periods, gaps/empty cells)<br>2 Pharmacy: No unexpected claims lags (run out periods, gaps/empty cells)<br><b>2014</b><br>1 Medical: No unexpected claim lags (run out periods, gaps/empty cells)<br>2 Pharmacy: No unexpected claims lags (run out periods, gaps/empty cells)  |     |    |       |
| <b>Exhibit D Completeness of Key Risk Scoring Variables</b><br><b>2013</b><br>1 Less than 5% of Primary Diagnosis Code (DX1) missing or invalid.<br>2 Less than 50% of Secondary Diagnosis Code (DX2) missing or invalid.<br>3 Less than 80% of Tertiary Diagnosis Code (DX3) missing or invalid.<br>4 Less than 1% of Procedure Codes on Professional claims missing or invalid.<br>5 Less than 1% of Revenue Codes on Facility claims missing or invalid.<br><b>2014</b><br>1 Less than 5% of Primary Diagnosis Code (DX1) missing or invalid.<br>2 Less than 50% of Secondary Diagnosis Code (DX2) missing or invalid.<br>3 Less than 80% of Tertiary Diagnosis Code (DX3) missing or invalid.<br>4 Less than 1% of Procedure Codes on Professional claims missing or invalid.<br>5 Less than 1% of Revenue Codes on Facility claims missing or invalid. |     |    |       |
| <b>Exhibit E1 2013 2013 Cost Model</b><br>1 All service categories have reasonable utilization.<br>2 Inpatient average length of stay reasonable<br>3 Member cost sharing reasonable<br>4 Low number of services bucketed in "Unknown" category   |     |    |       |
| <b>Exhibit E2 Cost 2014 Cost Model</b><br>1 All service categories have reasonable utilization.<br>2 Inpatient average length of stay reasonable<br>3 Member cost sharing reasonable<br>4 Low number of services bucketed in "Unknown" category   |     |    |       |
| <b>Exhibit F1 2013 Total Membership by Rating Region</b><br>1 Less than 1% of total membership not assigned to any Rating Region (value of 0).<br>2 Less than 1% of total membership missing Rating Region.   |     |    |       |
| <b>Exhibit F2 2014 Membership Distributions</b><br>1 Less than 1% of "Subject to Risk Adjustment" membership assigned to an UNKNOWN Metal Tier.<br>2 Less than 1% of total membership not assigned to any Rating Region (value of 0).<br>3 Less than 1% of total membership missing Rating Region.<br>4 Less than 100% of membership flagged as "Not subject to risk adjustment*" for all of 2014<br>5 Less than 100% of membership flagged as "Subject to risk adjustment*" for all of 2014  |     |    |       |

**\*Note:**

- Carriers were required to submit HIOS Plan IDs for plans subject to risk adjustment and a different plan ID format for those that were not subject to risk adjustment in 2014.
- Members in the individual market had until 3/31/2014 to enroll in a risk adjustment covered plan and we would expect the carriers used HIOS Plan IDs for the risk adjustment covered plan. Prior to that, the members were enrolled under a non-ACA plan and the carriers would be using a different plan ID based on the Supplemental File submission guide.

Members in the small group market have year-round enrollment. The part of their pre-ACA enrollment experience in 2014 should be flagged using the pre-ACA plan ID according to the Supplemental File submission guide. After converting to an ACA-compliant plan, carriers are expected to use the HIOS Plan ID instead.

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Appendix 2B - EXHIBIT A

Carrier: {Carrier Name}  
Market: {MinnesotaCare, Individual, Small Group <= 50, Small Group > 50}  
Cross-File Linkage

**Between Medical Member File and Rx Member File**

| Year Month | Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Members found in both Med & Rx Membership Files | % Medical Members with RX Coverage in Same Month |
|------------|---|---|--|--|
| (A)        | (B)   | (C)   | (D)  | (E)  |
| 2013-01    |   |   |  |  |
| 2013-02    |   |   |  |  |
| 2013-03    |   |   |  |  |
| 2013-04    |   |   |  |  |
| 2013-05    |   |   |  |  |
| 2013-06    |   |   |  |  |
| 2013-07    |   |   |  |  |
| 2013-08    |   |   |  |  |
| 2013-09    |   |   |  |  |
| 2013-10    |   |   |  |  |
| 2013-11    |   |   |  |  |
| 2013-12    |   |   |  |  |
| Total      |   |   |  |  |
| 2014-01    |   |   |  |  |
| 2014-02    |   |   |  |  |
| 2014-03    |   |   |  |  |
| 2014-04    |   |   |  |  |
| 2014-05    |   |   |  |  |
| 2014-06    |   |   |  |  |
| 2014-07    |   |   |  |  |
| 2014-08    |   |   |  |  |
| 2014-09    |   |   |  |  |
| 2014-10    |   |   |  |  |
| 2014-11    |   |   |  |  |
| 2014-12    |   |   |  |  |
| Total      |   |   |  |  |

**Between Medical Member File and Medical Claims File**

| Year Month | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Medical Claims File (after merging with Member File) | Total Incurred Plan Liability in Medical Claims File | % Incurred Plan Liability Submitted by TPA |
|------------|--|--|--|--|
| (F)        | (G)  | (H)  | (I)  | (J)  |
| 2013-01    |  |  |  |  |
| 2013-02    |  |  |  |  |
| 2013-03    |  |  |  |  |
| 2013-04    |  |  |  |  |
| 2013-05    |  |  |  |  |
| 2013-06    |  |  |  |  |
| 2013-07    |  |  |  |  |
| 2013-08    |  |  |  |  |
| 2013-09    |  |  |  |  |
| 2013-10    |  |  |  |  |
| 2013-11    |  |  |  |  |
| 2013-12    |  |  |  |  |
| Total      |  |  |  |  |
| 2014-01    |  |  |  |  |
| 2014-02    |  |  |  |  |
| 2014-03    |  |  |  |  |
| 2014-04    |  |  |  |  |
| 2014-05    |  |  |  |  |
| 2014-06    |  |  |  |  |
| 2014-07    |  |  |  |  |
| 2014-08    |  |  |  |  |
| 2014-09    |  |  |  |  |
| 2014-10    |  |  |  |  |
| 2014-11    |  |  |  |  |
| 2014-12    |  |  |  |  |
| Total      |  |  |  |  |

**Between Pharmacy Member File and Pharmacy Claims File**

| Year Month | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Number of Members in Rx Claims File (after merging with Member File) | Total Incurred Plan Liability in Rx Claims File | % Incurred Plan Liability Submitted by PBM |
|------------|---|---|---|--|
| (K)        | (L)   | (M)   | (N)   | (O)  |
| 2013-01    |   |   |   |  |
| 2013-02    |   |   |   |  |
| 2013-03    |   |   |   |  |
| 2013-04    |   |   |   |  |
| 2013-05    |   |   |   |  |
| 2013-06    |   |   |   |  |
| 2013-07    |   |   |   |  |
| 2013-08    |   |   |   |  |
| 2013-09    |   |   |   |  |
| 2013-10    |   |   |   |  |
| 2013-11    |   |   |   |  |
| 2013-12    |   |   |   |  |
| Total      |   |   |   |  |
| 2014-01    |   |   |   |  |
| 2014-02    |   |   |   |  |
| 2014-03    |   |   |   |  |
| 2014-04    |   |   |   |  |
| 2014-05    |   |   |   |  |
| 2014-06    |   |   |   |  |
| 2014-07    |   |   |   |  |
| 2014-08    |   |   |   |  |
| 2014-09    |   |   |   |  |
| 2014-10    |   |   |   |  |
| 2014-11    |   |   |   |  |
| 2014-12    |   |   |   |  |
| Total      |   |   |   |  |

| Members without any Claims (Medical or Pharmacy) |                |                |                |                |
|--|----------------|----------------|----------------|----------------|
|  | 2013           |                | 2014           |                |
|  | Market Average | {Carrier Name} | Market Average | {Carrier Name} |
| Members with full year eligibility               |                |                |                |                |
| Members with full year eligibility and no claims |                |                |                |                |
| % of Members with no claims                      |                |                |                |                |

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Appendix 2B - Exhibit B

Carrier: {Carrier Name}  
Market: {MinnesotaCare, Individual, Small Group <= 50, Small Group > 50}  
 Monthly Summary of Member Months and Dollars

**2013**

|            | Medical       |               |            |           |                    | Rx            |               |            |           |                    |
|------------|---------------|---------------|------------|-----------|--------------------|---------------|---------------|------------|-----------|--------------------|
|            | Member Months | Total Allowed | Total Paid | PMPM Paid | Payer Cost Sharing | Member Months | Total Allowed | Total Paid | PMPM Paid | Payer Cost Sharing |
| (A)        | (B)           | (C)           | (D)        | (E)       | (F)                | (G)           | (H)           | (I)        | (J)       | (K)                |
| 2013-01    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-02    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-03    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-04    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-05    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-06    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-07    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-08    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-09    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-10    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-11    |               |               |            |           |                    |               |               |            |           |                    |
| 2013-12    |               |               |            |           |                    |               |               |            |           |                    |
| 2013 Total |               |               |            |           |                    |               |               |            |           |                    |

\* Only claims within eligible months  
 \* Allowed = Paid + Copay + Deductible

**2014**

|            | Medical       |               |            |           |                    | Rx            |               |            |           |                    |
|------------|---------------|---------------|------------|-----------|--------------------|---------------|---------------|------------|-----------|--------------------|
|            | Member Months | Total Allowed | Total Paid | PMPM Paid | Payer Cost Sharing | Member Months | Total Allowed | Total Paid | PMPM Paid | Payer Cost Sharing |
| (L)        | (M)           | (N)           | (O)        | (P)       | (Q)                | (R)           | (S)           | (T)        | (U)       | (V)                |
| 2014-01    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-02    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-03    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-04    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-05    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-06    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-07    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-08    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-09    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-10    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-11    |               |               |            |           |                    |               |               |            |           |                    |
| 2014-12    |               |               |            |           |                    |               |               |            |           |                    |
| 2014 Total |               |               |            |           |                    |               |               |            |           |                    |

\* Only claims within eligible months  
 \* Allowed = Paid + Copay + Deductible

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Appendix 2B - Exhibit C

Payer: {Carrier Name}  
 Market: {MinnesotaCare, Individual, Small Group <= 50, Small Group > 50}

Medical Claims Triangle (Paid Dollars)

| Paid*        | Incurred |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  | Total |  |  |
|--------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|-------|--|--|
|              | 2013-01  | 2013-02 | 2013-03 | 2013-04 | 2013-05 | 2013-06 | 2013-07 | 2013-08 | 2013-09 | 2013-10 | 2013-11 | 2013-12 | 2014-01 | 2014-02 | 2014-03 | 2014-04 | 2014-05 | 2014-06 | 2014-07 | 2014-08 | 2014-09 | 2014-10 | 2014-11 | 2014-12 |  |       |  |  |
| 2013-01      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-02      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-03      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-04      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-05      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-06      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-07      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-08      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-09      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-10      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-11      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2013-12      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-01      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-02      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-03      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-04      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-05      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-06      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-07      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-08      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-09      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-10      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-11      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2014-12      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2015-01      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2015-02      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| 2015-03      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |
| <b>Total</b> |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |

\* Last Paid Date

Pharmacy Claims Triangle (Paid Dollars)

| Paid*        | Incurred |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  | Total |  |  |  |
|--------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|-------|--|--|--|
|              | 2013-01  | 2013-02 | 2013-03 | 2013-04 | 2013-05 | 2013-06 | 2013-07 | 2013-08 | 2013-09 | 2013-10 | 2013-11 | 2013-12 | 2014-01 | 2014-02 | 2014-03 | 2014-04 | 2014-05 | 2014-06 | 2014-07 | 2014-08 | 2014-09 | 2014-10 | 2014-11 | 2014-12 |  |       |  |  |  |
| 2013-01      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-02      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-03      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-04      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-05      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-06      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-07      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-08      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-09      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-10      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-11      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2013-12      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-01      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-02      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-03      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-04      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-05      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-06      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-07      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-08      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-09      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-10      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-11      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2014-12      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2015-01      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2015-02      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| 2015-03      |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |
| <b>Total</b> |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |       |  |  |  |

\* Last Paid Date

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Appendix 2B - Exhibit D

**Payer: {Carrier Name}**  
**Market: {MinnesotaCare, Individual, Small Group <= 50, Small Group > 50}**  
**Data Quality Check - Risk Scoring Variables**

**Diagnosis Coding by Position and Year**

|      | 2013    |       |         | 2014    |       |         |
|------|---------|-------|---------|---------|-------|---------|
|      | Missing | Valid | Invalid | Missing | Valid | Invalid |
| DX1  |         |       |         |         |       |         |
| DX2  |         |       |         |         |       |         |
| DX3  |         |       |         |         |       |         |
| DX4  |         |       |         |         |       |         |
| DX5  |         |       |         |         |       |         |
| DX6  |         |       |         |         |       |         |
| DX7  |         |       |         |         |       |         |
| DX8  |         |       |         |         |       |         |
| DX9  |         |       |         |         |       |         |
| DX10 |         |       |         |         |       |         |
| DX11 |         |       |         |         |       |         |
| DX12 |         |       |         |         |       |         |
| DX13 |         |       |         |         |       |         |

**Other Data Elements Used in Risk Scoring**

|  | 2013    |       |         | 2014    |       |         |
|--|---------|-------|---------|---------|-------|---------|
|  | Missing | Valid | Invalid | Missing | Valid | Invalid |
| Type of Bill<br>(All Claims)                       |         |       |         |         |       |         |
| Revenue Codes<br>(Facility Claims <sup>1</sup> )   |         |       |         |         |       |         |
| HCPCS Codes<br>(Professional Claims <sup>1</sup> ) |         |       |         |         |       |         |

<sup>1</sup> As determined by Type of Bill code

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Appendix 2B - Exhibit E

Payer: (Carrier Name)  
 Market: (MinnesotaCare, Individual, Small Group <= 50, Small Group > 50)  
 Cost and Utilization by Service Category - Milliman Health Cost Guidelines  
 Claims Incurred Between January 2013 and December 2013 and Paid thru March 31st, 2014

|  | Annual Admissions per 1,000 | Length of Stay | Annual Utilization per 1,000 | Average Cost per Service (Allowed \$) | Monthly per Member Claim Cost (Allowed \$) | Monthly per Member Cost Share (\$) | Net Monthly per Member Claim Cost (\$) |
|--|-----------------------------|----------------|------------------------------|---------------------------------------|--|------------------------------------|--|
| Facility                                 |                             |                |                              |                                       |  |                                    |  |
| Inpatient                                |                             |                |                              |                                       |  |                                    |  |
| Medical                                  | admits                      |                | days                         |                                       |  |                                    |  |
| Surgical                                 | admits                      |                | days                         |                                       |  |                                    |  |
| Psychiatric                              | admits                      |                | days                         |                                       |  |                                    |  |
| Alcohol/Drug                             | admits                      |                | days                         |                                       |  |                                    |  |
| Maternity - Normal Delivery              | admits                      |                | days                         |                                       |  |                                    |  |
| Maternity - Csect Delivery               | admits                      |                | days                         |                                       |  |                                    |  |
| Well Newborn                             |                             |                |                              |                                       |  |                                    |  |
| Maternity Non-Delivery                   | admits                      |                | days                         |                                       |  |                                    |  |
| Other Newborn                            | admits                      |                | days                         |                                       |  |                                    |  |
| Inpatient Subtotal                       | admits                      |                | days                         |                                       |  |                                    |  |
| SNF                                      | admits                      |                | days                         |                                       |  |                                    |  |
| Outpatient                               |                             |                |                              |                                       |  |                                    |  |
| Emergency Hospital                       |                             |                | cases                        |                                       |  |                                    |  |
| Outpatient Surgery                       |                             |                | cases                        |                                       |  |                                    |  |
| Radiology - General                      |                             |                | cases                        |                                       |  |                                    |  |
| Radiology - CT/MRI/PET                   |                             |                | cases                        |                                       |  |                                    |  |
| Pathology/Lab                            |                             |                | cases                        |                                       |  |                                    |  |
| Pharmacy                                 |                             |                | cases                        |                                       |  |                                    |  |
| Cardiovascular                           |                             |                | cases                        |                                       |  |                                    |  |
| PT/OT/ST                                 |                             |                | cases                        |                                       |  |                                    |  |
| Alcohol/Drug                             |                             |                | cases                        |                                       |  |                                    |  |
| Psychiatric                              |                             |                | cases                        |                                       |  |                                    |  |
| Preventive                               |                             |                | cases                        |                                       |  |                                    |  |
| Other                                    |                             |                | cases                        |                                       |  |                                    |  |
| Outpatient Subtotal                      |                             |                |                              |                                       |  |                                    |  |
| Facility Total                           |                             |                |                              |                                       |  |                                    |  |
| Professional                             |                             |                |                              |                                       |  |                                    |  |
| Inpatient Surgery                        |                             |                | proced                       |                                       |  |                                    |  |
| Inpatient Anesthesia                     |                             |                | proced                       |                                       |  |                                    |  |
| Maternity                                |                             |                | proced                       |                                       |  |                                    |  |
| Outpatient Surgery                       |                             |                | proced                       |                                       |  |                                    |  |
| Office Surgery                           |                             |                | proced                       |                                       |  |                                    |  |
| Outpatient Anesthesia                    |                             |                | proced                       |                                       |  |                                    |  |
| Hospital Visits                          |                             |                | visits                       |                                       |  |                                    |  |
| Office/Home Visits                       |                             |                | visits                       |                                       |  |                                    |  |
| Office Administered Drugs                |                             |                | proced                       |                                       |  |                                    |  |
| Urgent Care Visits                       |                             |                | visits                       |                                       |  |                                    |  |
| Allergy Testing                          |                             |                | proced                       |                                       |  |                                    |  |
| Allergy Immunotherapy                    |                             |                | visits                       |                                       |  |                                    |  |
| Emergency Room & Observation Care Visits |                             |                | visits                       |                                       |  |                                    |  |
| Physical Therapy                         |                             |                | visits                       |                                       |  |                                    |  |
| Cardiovascular                           |                             |                | proced                       |                                       |  |                                    |  |
| Chiropractor                             |                             |                | visits                       |                                       |  |                                    |  |
| Radiology IP - General                   |                             |                | proced                       |                                       |  |                                    |  |
| Radiology IP - CT/MRI/PET                |                             |                | proced                       |                                       |  |                                    |  |
| Radiology Office - General               |                             |                | proced                       |                                       |  |                                    |  |
| Radiology Office - CT/MRI/PET            |                             |                | proced                       |                                       |  |                                    |  |
| Radiology OP - General                   |                             |                | proced                       |                                       |  |                                    |  |
| Radiology OP - CT/MRI/PET                |                             |                | proced                       |                                       |  |                                    |  |
| Pathology/Lab IP & OP                    |                             |                | proced                       |                                       |  |                                    |  |
| Pathology/Lab Office                     |                             |                | proced                       |                                       |  |                                    |  |
| Preventive Immunizations                 |                             |                | proced                       |                                       |  |                                    |  |
| Preventive Physical Exams                |                             |                | visits                       |                                       |  |                                    |  |
| Preventive Well Baby Exams               |                             |                | visits                       |                                       |  |                                    |  |
| Preventive Other                         |                             |                | proced                       |                                       |  |                                    |  |
| Vision Exams                             |                             |                | visits                       |                                       |  |                                    |  |
| Hearing/Speech Exams                     |                             |                | visits                       |                                       |  |                                    |  |
| Outpatient Psychiatric                   |                             |                | visits                       |                                       |  |                                    |  |
| Outpatient Alcohol/Drug                  |                             |                | visits                       |                                       |  |                                    |  |
| Miscellaneous Medical                    |                             |                | proced                       |                                       |  |                                    |  |
| Professional Total                       |                             |                |                              |                                       |  |                                    |  |
| Other                                    |                             |                |                              |                                       |  |                                    |  |
| Prescription Drugs <sup>1</sup>          |                             |                | scripts                      |                                       |  |                                    |  |
| Home Health Care/Private Duty Nursing    |                             |                | visits                       |                                       |  |                                    |  |
| Ambulance                                |                             |                | visits                       |                                       |  |                                    |  |
| Durable Medical Equipment                |                             |                | proced                       |                                       |  |                                    |  |
| Prosthetics                              |                             |                | proced                       |                                       |  |                                    |  |
| Glasses/Contacts                         |                             |                | visits                       |                                       |  |                                    |  |
| Unknown                                  |                             |                | proced                       |                                       |  |                                    |  |
| Other Total                              |                             |                |                              |                                       |  |                                    |  |
| Total                                    |                             |                |                              |                                       |  |                                    |  |
| Member Months - Medical                  |                             |                |                              |                                       |  |                                    |  |
| Member Months - RX <sup>1</sup>          |                             |                |                              |                                       |  |                                    |  |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

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Payer: (Carrier Name)

All Markets

2013 Member Months by Risk Adjustment Data Elements

1. Distribution by Metal Level for Risk Adjustment Covered Plans Only<sup>1</sup>

| Plans Subject to Risk Adjustment | Individual    |                          | Small Group <= 50 |                          | Small Group 51-100 |                          | MinnesotaCare |                          |
|----------------------------------|---------------|--------------------------|-------------------|--------------------------|--------------------|--------------------------|---------------|--------------------------|
|                                  | Member Months | % of Total Member Months | Member Months     | % of Total Member Months | Member Months      | % of Total Member Months | Member Months | % of Total Member Months |
| Metal Level                      |               |                          |                   |                          |                    |                          |               |                          |
| Bronze                           |               |                          |                   |                          |                    |                          |               |                          |
| Silver                           |               |                          |                   |                          |                    |                          |               |                          |
| Gold                             |               |                          |                   |                          |                    |                          |               |                          |
| Platinum                         |               |                          |                   |                          |                    |                          |               |                          |
| Catastrophic                     |               |                          |                   |                          |                    |                          |               |                          |
| Unknown                          |               |                          |                   |                          |                    |                          |               |                          |

| (Carrier Name) | Individual    |                          | Small Group <= 50 |                          | Small Group 51-100 |                          | MinnesotaCare |                          |
|----------------|---------------|--------------------------|-------------------|--------------------------|--------------------|--------------------------|---------------|--------------------------|
|                | Member Months | % of Total Member Months | Member Months     | % of Total Member Months | Member Months      | % of Total Member Months | Member Months | % of Total Member Months |
| Metal Level    |               |                          |                   |                          |                    |                          |               |                          |
| Bronze         |               |                          |                   |                          |                    |                          |               |                          |
| Silver         |               |                          |                   |                          |                    |                          |               |                          |
| Gold           |               |                          |                   |                          |                    |                          |               |                          |
| Platinum       |               |                          |                   |                          |                    |                          |               |                          |
| Catastrophic   |               |                          |                   |                          |                    |                          |               |                          |
| Unknown        |               |                          |                   |                          |                    |                          |               |                          |

2. Distribution by Rating Region

| All Plans                  | Individual    |                          | Small Group <= 50 |                          | Small Group 51-100 |                          | MinnesotaCare |                          |
|----------------------------|---------------|--------------------------|-------------------|--------------------------|--------------------|--------------------------|---------------|--------------------------|
|                            | Member Months | % of Total Member Months | Member Months     | % of Total Member Months | Member Months      | % of Total Member Months | Member Months | % of Total Member Months |
| Rating Region <sup>2</sup> |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 1              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 2              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 3              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 4              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 5              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 6              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 7              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 8              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 9              |               |                          |                   |                          |                    |                          |               |                          |
| Unknown                    |               |                          |                   |                          |                    |                          |               |                          |
| Missing                    |               |                          |                   |                          |                    |                          |               |                          |

| (Carrier Name)             | Individual    |                          | Small Group <= 50 |                          | Small Group 51-100 |                          | MinnesotaCare |                          |
|----------------------------|---------------|--------------------------|-------------------|--------------------------|--------------------|--------------------------|---------------|--------------------------|
|                            | Member Months | % of Total Member Months | Member Months     | % of Total Member Months | Member Months      | % of Total Member Months | Member Months | % of Total Member Months |
| Rating Region <sup>2</sup> |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 1              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 2              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 3              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 4              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 5              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 6              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 7              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 8              |               |                          |                   |                          |                    |                          |               |                          |
| Rating Area 9              |               |                          |                   |                          |                    |                          |               |                          |
| Unknown                    |               |                          |                   |                          |                    |                          |               |                          |
| Missing                    |               |                          |                   |                          |                    |                          |               |                          |

3. Distribution by Enrolled Month and by Risk Adjustment Plan Status<sup>1</sup>

| All Plans | Individual                   |                                | Small Group <= 50            |                                | Small Group 51-100           |                                | MinnesotaCare                |                                |
|-----------|------------------------------|--------------------------------|------------------------------|--------------------------------|------------------------------|--------------------------------|------------------------------|--------------------------------|
|           | Subject to Risk Adjustment** | Not Subject to Risk Adjustment | Subject to Risk Adjustment** | Not Subject to Risk Adjustment | Subject to Risk Adjustment** | Not Subject to Risk Adjustment | Subject to Risk Adjustment** | Not Subject to Risk Adjustment |
| YearMo    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201301    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201302    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201303    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201304    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201305    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201306    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201307    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201308    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201309    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201310    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201311    |                              |                                |                              |                                |                              |                                |                              |                                |
| 201312    |                              |                                |                              |                                |                              |                                |                              |                                |

| (Carrier Name) | Individual                              |                                | Small Group <= 50                       |                                | Small Group 51-100                      |                                | MinnesotaCare                           |                                |
|----------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|
|                | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment |
| YearMo         |   |                                |   |                                |   |                                |   |                                |
| 201301         |   |                                |   |                                |   |                                |   |                                |
| 201302         |   |                                |   |                                |   |                                |   |                                |
| 201303         |   |                                |   |                                |   |                                |   |                                |
| 201304         |   |                                |   |                                |   |                                |   |                                |
| 201305         |   |                                |   |                                |   |                                |   |                                |
| 201306         |   |                                |   |                                |   |                                |   |                                |
| 201307         |   |                                |   |                                |   |                                |   |                                |
| 201308         |   |                                |   |                                |   |                                |   |                                |
| 201309         |   |                                |   |                                |   |                                |   |                                |
| 201310         |   |                                |   |                                |   |                                |   |                                |
| 201311         |   |                                |   |                                |   |                                |   |                                |
| 201312         |   |                                |   |                                |   |                                |   |                                |

<sup>1</sup> Benefit Plan Contract ID in the Supplemental Data was used to determine whether or not a plan was subject to the 2014 risk adjustment program. Benefit Plan IDs that followed the federal HIOS plan ID format were categorized as subject to risk adjustment. Otherwise, they were categorized as not subject to risk adjustment. MinnesotaCare was not subject to risk adjustment.

<sup>2</sup> Rating Region was assigned using the carrier-submitted geographic rating area for Individual and Small Group plans and using the member zip code to map to rating area for MinnesotaCare plans.

<sup>3</sup> Plans subject to risk adjustment were 2014 non-grandfathered, individual and small group plans.

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## Appendix 2C - Data Quality Assessment Report by Market Segment

This workbook has been prepared solely to provide assistance to the Minnesota Department of Health. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends such recipients be aided by an actuary or other qualified professional when reviewing the Milliman work product. Data in this report may vary from previously published reports due to differences in timing, rounding or report logic.



**All Carriers\***  
**Market: MinnesotaCare**  
**Cross-File Linkage**

| Between Medical Member File and Rx Member File |  |   |  |  | Between Medical Member File and Medical Claims File |  |  |  |  | Between Pharmacy Member File and Pharmacy Claims File |   |   |   |  |
|--|--|---|--|--|---|--|--|--|--|---|---|---|---|--|
| Year Month                                     | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Members found in both Med & Rx Membership Files | % Medical Members with RX Coverage in Same Month | Year Month  | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Medical Claims File (after merging with Member File) | Total Incurred Plan Liability in Medical Claims File | % Incurred Plan Liability Submitted by TPA | Year Month  | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Number of Members in Rx Claims File (after merging with Member File) | Total Incurred Plan Liability in Rx Claims File | % Incurred Plan Liability Submitted by PBM |
| (A)  | (B)  | (C)   | (D)  | (E)  | (F)   | (G)  | (H)  | (I)  | (J)  | (K)   | (L)   | (M)   | (N)   | (O)  |
| 2013-01  | 114,752  | 114,752   | 114,752  | 100%   | 2013-01   | 114,752  | 49,521   | \$ 29,245,803  | 2%   | 2013-01   | 114,752   | 46,848  | \$ 9,176,184                                    | 63%  |
| 2013-02  | 117,202  | 117,202   | 117,202  | 100%   | 2013-02   | 117,202  | 45,066   | \$ 26,872,989  | 2%   | 2013-02   | 117,202   | 44,814  | \$ 8,392,677                                    | 63%  |
| 2013-03  | 118,280  | 118,280   | 118,280  | 100%   | 2013-03   | 118,280  | 46,699   | \$ 28,684,612  | 2%   | 2013-03   | 118,280   | 45,824  | \$ 8,811,815                                    | 65%  |
| 2013-04  | 117,466  | 117,466   | 117,466  | 100%   | 2013-04   | 117,466  | 46,335   | \$ 28,609,048  | 3%   | 2013-04   | 117,466   | 45,636  | \$ 8,780,339                                    | 65%  |
| 2013-05  | 120,834  | 120,834   | 120,834  | 100%   | 2013-05   | 120,834  | 47,034   | \$ 31,142,340  | 2%   | 2013-05   | 120,834   | 46,646  | \$ 9,240,152                                    | 64%  |
| 2013-06  | 120,767  | 120,767   | 120,767  | 100%   | 2013-06   | 120,767  | 44,381   | \$ 26,335,506  | 2%   | 2013-06   | 120,767   | 44,047  | \$ 8,268,868                                    | 64%  |
| 2013-07  | 126,018  | 126,018   | 126,018  | 100%   | 2013-07   | 126,018  | 48,012   | \$ 29,290,244  | 2%   | 2013-07   | 126,018   | 48,102  | \$ 9,761,185                                    | 66%  |
| 2013-08  | 129,769  | 129,769   | 129,769  | 100%   | 2013-08   | 129,769  | 50,640   | \$ 29,463,039  | 2%   | 2013-08   | 129,769   | 50,071  | \$ 10,259,741                                   | 66%  |
| 2013-09  | 128,375  | 128,375   | 128,375  | 100%   | 2013-09   | 128,375  | 48,375   | \$ 26,484,216  | 2%   | 2013-09   | 128,375   | 49,476  | \$ 9,985,014                                    | 67%  |
| 2013-10  | 129,231  | 129,231   | 129,231  | 100%   | 2013-10   | 129,231  | 52,717   | \$ 28,636,689  | 3%   | 2013-10   | 129,231   | 51,725  | \$ 10,666,104                                   | 68%  |
| 2013-11  | 132,855  | 132,855   | 132,855  | 100%   | 2013-11   | 132,855  | 50,515   | \$ 27,713,124  | 2%   | 2013-11   | 132,855   | 51,172  | \$ 10,087,141                                   | 67%  |
| 2013-12  | 136,891  | 136,891   | 136,891  | 100%   | 2013-12   | 136,891  | 45,578   | \$ 24,899,827  | 3%   | 2013-12   | 136,891   | 51,654  | \$ 10,785,058                                   | 66%  |
| <b>Total</b>                                   | <b>1,492,440</b>   | <b>1,492,440</b>  | <b>1,492,440</b>                                       | <b>100%</b>                                      | <b>Total</b>  | <b>1,492,440</b>   | <b>574,873</b>   | <b>\$ 337,377,436</b>                                | <b>2%</b>                                  | <b>Total</b>  | <b>1,492,440</b>  | <b>576,015</b>  | <b>\$ 114,214,278</b>                           | <b>65%</b>                                 |
| 2014-01  | 45,134   | 45,134  | 45,134   | 100%   | 2014-01   | 45,134   | 17,384   | \$ 10,933,112  | 3%   | 2014-01   | 45,134  | 20,584  | \$ 5,035,882                                    | 48%  |
| 2014-02  | 50,936   | 50,936  | 50,936   | 100%   | 2014-02   | 50,936   | 19,408   | \$ 12,253,801  | 4%   | 2014-02   | 50,936  | 22,398  | \$ 5,352,718                                    | 49%  |
| 2014-03  | 59,487   | 59,487  | 59,487   | 100%   | 2014-03   | 59,487   | 23,481   | \$ 15,746,593  | 4%   | 2014-03   | 59,487  | 26,418  | \$ 6,270,247                                    | 48%  |
| 2014-04  | 66,794   | 66,794  | 66,794   | 100%   | 2014-04   | 66,794   | 25,992   | \$ 16,345,987  | 4%   | 2014-04   | 66,794  | 28,674  | \$ 6,287,936                                    | 49%  |
| 2014-05  | 74,753   | 74,753  | 74,753   | 100%   | 2014-05   | 74,753   | 28,321   | \$ 17,577,739  | 4%   | 2014-05   | 74,753  | 31,303  | \$ 6,847,922                                    | 50%  |
| 2014-06  | 79,177   | 79,177  | 79,177   | 100%   | 2014-06   | 79,177   | 29,033   | \$ 17,464,229  | 4%   | 2014-06   | 79,177  | 32,365  | \$ 7,355,394                                    | 49%  |
| 2014-07  | 82,604   | 82,604  | 82,604   | 100%   | 2014-07   | 82,604   | 30,466   | \$ 19,615,713  | 4%   | 2014-07   | 82,604  | 33,971  | \$ 7,968,971                                    | 50%  |
| 2014-08  | 74,396   | 74,396  | 74,396   | 100%   | 2014-08   | 74,396   | 26,273   | \$ 16,078,985  | 4%   | 2014-08   | 74,396  | 28,985  | \$ 6,537,902                                    | 49%  |
| 2014-09  | 68,897   | 68,897  | 68,897   | 100%   | 2014-09   | 68,897   | 25,233   | \$ 15,807,278  | 4%   | 2014-09   | 68,897  | 27,383  | \$ 6,158,260                                    | 47%  |
| 2014-10  | 72,795   | 72,795  | 72,795   | 100%   | 2014-10   | 72,795   | 28,566   | \$ 18,272,144  | 4%   | 2014-10   | 72,795  | 29,410  | \$ 6,803,442                                    | 45%  |
| 2014-11  | 75,321   | 75,321  | 75,321   | 100%   | 2014-11   | 75,321   | 25,964   | \$ 16,708,083  | 4%   | 2014-11   | 75,321  | 28,732  | \$ 6,645,555                                    | 46%  |
| 2014-12  | 77,882   | 77,882  | 77,882   | 100%   | 2014-12   | 77,882   | 28,039   | \$ 17,776,845  | 5%   | 2014-12   | 77,882  | 30,218  | \$ 6,887,217                                    | 46%  |
| <b>Total</b>                                   | <b>828,176</b>   | <b>828,176</b>  | <b>828,176</b>   | <b>100%</b>                                      | <b>Total</b>  | <b>828,176</b>   | <b>308,160</b>   | <b>\$ 194,760,509</b>                                | <b>4%</b>                                  | <b>Total</b>  | <b>828,176</b>  | <b>340,441</b>  | <b>\$ 78,151,446</b>                            | <b>48%</b>                                 |

| Members without any Claims (Medical or Pharmacy) |                |                |
|--|----------------|----------------|
|  | 2013           | 2014           |
|  | Market Average | Market Average |
| Members with full year eligibility               | 64,230         | 14,653         |
| Members with full year eligibility and no claims | 4,404          | 1,459          |
| % of Members with no claims                      | 7%             | 10%            |

\*The carriers identified in this market segment and included in this exhibit are: Blue Cross and Blue Shield of Minnesota, HealthPartners, Inc., Itasca Medica Care, Medica Health Plans, PrimeWest Health, South Country Health Alliance, and UCare.

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**All Carriers\***  
**Market: INDIVIDUAL**  
**Cross-File Linkage**

| Between Medical Member File and Rx Member File |  |   |  |  | Between Medical Member File and Medical Claims File |  |  |  |  | Between Pharmacy Member File and Pharmacy Claims File |   |   |   |  |
|--|--|---|--|--|---|--|--|--|--|---|---|---|---|--|
| Year Month                                     | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Members found in both Med & Rx Membership Files | % Medical Members with RX Coverage in Same Month | Year Month  | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Medical Claims File (after merging with Member File) | Total Incurred Plan Liability in Medical Claims File | % Incurred Plan Liability Submitted by TPA | Year Month  | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Number of Members in Rx Claims File (after merging with Member File) | Total Incurred Plan Liability in Rx Claims File | % Incurred Plan Liability Submitted by PBM |
| (A)  | (B)  | (C)   | (D)  | (E)  | (F)   | (G)  | (H)  | (I)  | (J)  | (K)   | (L)   | (M)   | (N)   | (O)  |
| 2013-01  | 187,993  | 187,909   | 187,909  | 100%   | 2013-01   | 187,993  | 51,690   | \$ 34,791,639  | 0%   | 2013-01   | 187,909   | 36,788  | \$ 1,971,386                                    | 98%  |
| 2013-02  | 196,386  | 196,309   | 196,309  | 100%   | 2013-02   | 196,386  | 44,211   | \$ 34,302,866  | 0%   | 2013-02   | 196,309   | 35,842  | \$ 2,657,731                                    | 98%  |
| 2013-03  | 197,993  | 197,921   | 197,921  | 100%   | 2013-03   | 197,993  | 46,116   | \$ 36,928,871  | 0%   | 2013-03   | 197,921   | 37,759  | \$ 3,438,839                                    | 99%  |
| 2013-04  | 197,413  | 197,345   | 197,345  | 100%   | 2013-04   | 197,413  | 47,088   | \$ 38,132,897  | 0%   | 2013-04   | 197,345   | 39,274  | \$ 4,084,075                                    | 98%  |
| 2013-05  | 198,751  | 198,684   | 198,684  | 100%   | 2013-05   | 198,751  | 46,203   | \$ 36,636,632  | 0%   | 2013-05   | 198,684   | 38,925  | \$ 4,200,964                                    | 99%  |
| 2013-06  | 200,323  | 200,260   | 200,260  | 100%   | 2013-06   | 200,323  | 42,011   | \$ 33,441,747  | 0%   | 2013-06   | 200,260   | 36,816  | \$ 4,214,141                                    | 99%  |
| 2013-07  | 201,072  | 201,014   | 201,014  | 100%   | 2013-07   | 201,072  | 37,492   | \$ 30,100,542  | 0%   | 2013-07   | 201,014   | 38,776  | \$ 5,110,605                                    | 99%  |
| 2013-08  | 202,078  | 202,023   | 202,023  | 100%   | 2013-08   | 202,078  | 37,728   | \$ 26,573,755  | 0%   | 2013-08   | 202,023   | 38,461  | \$ 5,127,174                                    | 99%  |
| 2013-09  | 201,673  | 201,628   | 201,628  | 100%   | 2013-09   | 201,673  | 35,911   | \$ 24,926,786  | 0%   | 2013-09   | 201,628   | 37,925  | \$ 5,098,376                                    | 99%  |
| 2013-10  | 233,712  | 233,669   | 233,669  | 100%   | 2013-10   | 233,712  | 49,021   | \$ 32,872,703  | 0%   | 2013-10   | 233,669   | 44,065  | \$ 6,032,532                                    | 99%  |
| 2013-11  | 235,024  | 234,979   | 234,979  | 100%   | 2013-11   | 235,024  | 46,579   | \$ 37,612,701  | 0%   | 2013-11   | 234,979   | 42,628  | \$ 6,092,462                                    | 99%  |
| 2013-12  | 230,607  | 230,562   | 230,562  | 100%   | 2013-12   | 230,607  | 43,758   | \$ 42,514,241  | 0%   | 2013-12   | 230,562   | 44,815  | \$ 7,458,669                                    | 99%  |
| <b>Total</b>                                   | <b>2,483,025</b>   | <b>2,482,303</b>  | <b>2,482,303</b>                                       | <b>100%</b>                                      | <b>Total</b>  | <b>2,483,025</b>   | <b>527,808</b>   | <b>\$ 408,835,380</b>                                | <b>0%</b>                                  | <b>Total</b>  | <b>2,482,303</b>  | <b>472,074</b>  | <b>\$ 55,606,954</b>                            | <b>98%</b>                                 |
| 2014-01  | 255,307  | 255,264   | 255,264  | 100%   | 2014-01   | 255,307  | 61,072   | \$ 44,945,105  | 10%  | 2014-01   | 255,264   | 53,996  | \$ 4,272,828                                    | 95%  |
| 2014-02  | 255,822  | 255,787   | 255,787  | 100%   | 2014-02   | 255,822  | 60,317   | \$ 48,681,439  | 8%   | 2014-02   | 255,787   | 55,485  | \$ 6,087,717                                    | 97%  |
| 2014-03  | 263,814  | 263,777   | 263,777  | 100%   | 2014-03   | 263,814  | 66,183   | \$ 56,187,554  | 7%   | 2014-03   | 263,777   | 62,742  | \$ 8,783,451                                    | 97%  |
| 2014-04  | 271,536  | 271,512   | 271,512  | 100%   | 2014-04   | 271,536  | 69,381   | \$ 60,852,487  | 8%   | 2014-04   | 271,512   | 65,405  | \$ 10,057,660                                   | 97%  |
| 2014-05  | 289,079  | 289,047   | 289,047  | 100%   | 2014-05   | 289,079  | 70,997   | \$ 65,205,198  | 7%   | 2014-05   | 289,047   | 68,784  | \$ 11,451,865                                   | 97%  |
| 2014-06  | 287,963  | 287,946   | 287,946  | 100%   | 2014-06   | 287,963  | 71,422   | \$ 65,965,704  | 6%   | 2014-06   | 287,946   | 67,938  | \$ 12,367,133                                   | 97%  |
| 2014-07  | 284,061  | 284,044   | 284,044  | 100%   | 2014-07   | 284,061  | 71,249   | \$ 67,439,049  | 7%   | 2014-07   | 284,044   | 68,865  | \$ 13,361,835                                   | 97%  |
| 2014-08  | 289,412  | 289,392   | 289,392  | 100%   | 2014-08   | 289,412  | 74,040   | \$ 73,369,362  | 6%   | 2014-08   | 289,392   | 69,033  | \$ 13,238,936                                   | 98%  |
| 2014-09  | 284,981  | 284,961   | 284,961  | 100%   | 2014-09   | 284,981  | 78,364   | \$ 77,535,080  | 5%   | 2014-09   | 284,961   | 71,822  | \$ 14,513,338                                   | 97%  |
| 2014-10  | 283,575  | 283,555   | 283,555  | 100%   | 2014-10   | 283,575  | 88,132   | \$ 84,203,428  | 5%   | 2014-10   | 283,555   | 74,606  | \$ 15,219,429                                   | 96%  |
| 2014-11  | 282,015  | 281,996   | 281,996  | 100%   | 2014-11   | 282,015  | 77,790   | \$ 77,019,469  | 5%   | 2014-11   | 281,996   | 70,824  | \$ 14,934,612                                   | 96%  |
| 2014-12  | 277,078  | 277,063   | 277,063  | 100%   | 2014-12   | 277,078  | 84,496   | \$ 101,297,410                                       | 6%   | 2014-12   | 277,063   | 78,060  | \$ 19,226,142                                   | 97%  |
| <b>Total</b>                                   | <b>3,324,643</b>   | <b>3,324,344</b>  | <b>3,324,344</b>                                       | <b>100%</b>                                      | <b>Total</b>  | <b>3,324,643</b>   | <b>873,443</b>   | <b>\$ 822,701,284</b>                                | <b>7%</b>                                  | <b>Total</b>  | <b>3,324,344</b>  | <b>807,560</b>  | <b>\$ 143,514,945</b>                           | <b>97%</b>                                 |

| Members without any Claims (Medical or Pharmacy) |                |                |
|--|----------------|----------------|
|  | 2013           | 2014           |
|  | Market Average | Market Average |
| Members with full year eligibility               | 154,541        | 183,482        |
| Members with full year eligibility and no claims | 32,121         | 26,669         |
| % of Members with no claims                      | 21%            | 15%            |

\*The carriers identified in this market segment and included in this exhibit are: Blue Cross and Blue Shield of Minnesota, HealthPartners, Inc., John Alden Life Insurance Company, Medica Health Plans, PreferredOne Insurance Company, Time Insurance Company, and UCare Commercial.

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**All Carriers\***  
**Market: SMALL GROUP <= 50**  
**Cross-File Linkage**

| Between Medical Member File and Rx Member File |  |   |  |  | Between Medical Member File and Medical Claims File |  |  |  |  | Between Pharmacy Member File and Pharmacy Claims File |   |   |   |  |
|--|--|---|--|--|---|--|--|--|--|---|---|---|---|--|
| Year Month                                     | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Members found in both Med & Rx Membership Files | % Medical Members with RX Coverage in Same Month | Year Month  | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Medical Claims File (after merging with Member File) | Total Incurred Plan Liability in Medical Claims File | % Incurred Plan Liability Submitted by TPA | Year Month  | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Number of Members in Rx Claims File (after merging with Member File) | Total Incurred Plan Liability in Rx Claims File | % Incurred Plan Liability Submitted by PBM |
| (A)  | (B)  | (C)   | (D)  | (E)  | (F)   | (G)  | (H)  | (I)  | (J)  | (K)   | (L)   | (M)   | (N)   | (O)  |
| 2013-01  | 144,015  | 144,012   | 144,012  | 100%   | 2013-01   | 144,015  | 49,253   | \$ 35,933,138  | 0%   | 2013-01   | 144,012   | 45,123  | \$ 5,213,025                                    | 100%                                       |
| 2013-02  | 149,559  | 149,556   | 149,556  | 100%   | 2013-02   | 149,559  | 42,904   | \$ 34,327,050  | 0%   | 2013-02   | 149,556   | 42,643  | \$ 5,358,724                                    | 99%  |
| 2013-03  | 154,930  | 154,926   | 154,926  | 100%   | 2013-03   | 154,930  | 45,167   | \$ 40,064,964  | 0%   | 2013-03   | 154,926   | 45,145  | \$ 6,328,138                                    | 99%  |
| 2013-04  | 158,798  | 158,794   | 158,794  | 100%   | 2013-04   | 158,798  | 46,638   | \$ 43,934,786  | 0%   | 2013-04   | 158,794   | 46,813  | \$ 7,132,528                                    | 100%                                       |
| 2013-05  | 164,081  | 164,077   | 164,077  | 100%   | 2013-05   | 164,081  | 47,679   | \$ 44,803,876  | 0%   | 2013-05   | 164,077   | 48,161  | \$ 7,693,085                                    | 100%                                       |
| 2013-06  | 170,018  | 170,011   | 170,011  | 100%   | 2013-06   | 170,018  | 46,748   | \$ 44,537,541  | 0%   | 2013-06   | 170,011   | 46,943  | \$ 7,416,753                                    | 100%                                       |
| 2013-07  | 174,974  | 174,969   | 174,969  | 100%   | 2013-07   | 174,974  | 49,608   | \$ 44,942,047  | 0%   | 2013-07   | 174,969   | 50,314  | \$ 8,649,744                                    | 100%                                       |
| 2013-08  | 180,353  | 180,348   | 180,348  | 100%   | 2013-08   | 180,353  | 51,119   | \$ 45,169,946  | 0%   | 2013-08   | 180,348   | 51,828  | \$ 9,212,229                                    | 100%                                       |
| 2013-09  | 185,076  | 185,067   | 185,067  | 100%   | 2013-09   | 185,076  | 50,968   | \$ 43,482,931  | 0%   | 2013-09   | 185,067   | 52,404  | \$ 9,140,669                                    | 100%                                       |
| 2013-10  | 297,757  | 294,602   | 294,602  | 99%  | 2013-10   | 297,757  | 95,741   | \$ 79,304,682  | 0%   | 2013-10   | 294,602   | 84,384  | \$ 14,471,564                                   | 97%  |
| 2013-11  | 305,196  | 301,975   | 301,975  | 99%  | 2013-11   | 305,196  | 89,122   | \$ 78,552,425  | 0%   | 2013-11   | 301,975   | 82,431  | \$ 13,612,306                                   | 97%  |
| 2013-12  | 312,813  | 309,424   | 309,424  | 99%  | 2013-12   | 312,813  | 83,596   | \$ 78,854,331  | 0%   | 2013-12   | 309,424   | 84,002  | \$ 15,570,358                                   | 96%  |
| <b>Total</b>                                   | <b>2,397,570</b>   | <b>2,387,761</b>  | <b>2,387,761</b>                                       | <b>100%</b>                                      | <b>Total</b>  | <b>2,397,570</b>   | <b>698,543</b>   | <b>\$ 613,907,716</b>                                | <b>0%</b>                                  | <b>Total</b>  | <b>2,387,761</b>  | <b>680,191</b>  | <b>\$ 109,799,122</b>                           | <b>99%</b>                                 |
| 2014-01  | 216,280  | 215,915   | 215,915  | 100%   | 2014-01   | 216,280  | 57,510   | \$ 43,871,038  | 0%   | 2014-01   | 215,915   | 58,088  | \$ 7,610,195                                    | 96%  |
| 2014-02  | 217,004  | 216,675   | 216,675  | 100%   | 2014-02   | 217,004  | 56,014   | \$ 44,474,054  | 0%   | 2014-02   | 216,675   | 55,763  | \$ 7,952,462                                    | 95%  |
| 2014-03  | 217,220  | 216,889   | 216,889  | 100%   | 2014-03   | 217,220  | 58,357   | \$ 47,974,378  | 0%   | 2014-03   | 216,889   | 58,741  | \$ 9,270,074                                    | 95%  |
| 2014-04  | 216,843  | 216,468   | 216,468  | 100%   | 2014-04   | 216,843  | 58,371   | \$ 49,789,912  | 0%   | 2014-04   | 216,468   | 57,912  | \$ 9,981,075                                    | 95%  |
| 2014-05  | 217,318  | 216,921   | 216,921  | 100%   | 2014-05   | 217,318  | 58,307   | \$ 47,395,203  | 0%   | 2014-05   | 216,921   | 56,196  | \$ 9,918,922                                    | 97%  |
| 2014-06  | 219,289  | 212,545   | 212,545  | 97%  | 2014-06   | 219,289  | 57,176   | \$ 52,472,439  | 0%   | 2014-06   | 212,545   | 54,522  | \$ 10,474,729                                   | 97%  |
| 2014-07  | 215,578  | 208,780   | 208,780  | 97%  | 2014-07   | 215,578  | 56,497   | \$ 48,911,472  | 0%   | 2014-07   | 208,780   | 54,442  | \$ 10,827,645                                   | 97%  |
| 2014-08  | 218,214  | 211,144   | 211,144  | 97%  | 2014-08   | 218,214  | 59,427   | \$ 52,324,288  | 0%   | 2014-08   | 211,144   | 54,615  | \$ 10,597,168                                   | 96%  |
| 2014-09  | 220,489  | 213,387   | 213,387  | 97%  | 2014-09   | 220,489  | 63,904   | \$ 57,898,623  | 0%   | 2014-09   | 213,387   | 57,306  | \$ 11,104,702                                   | 96%  |
| 2014-10  | 222,650  | 215,500   | 215,500  | 97%  | 2014-10   | 222,650  | 72,235   | \$ 61,232,917  | 0%   | 2014-10   | 215,500   | 60,411  | \$ 12,067,599                                   | 96%  |
| 2014-11  | 225,094  | 217,941   | 217,941  | 97%  | 2014-11   | 225,094  | 62,654   | \$ 56,646,744  | 0%   | 2014-11   | 217,941   | 57,948  | \$ 11,445,614                                   | 96%  |
| 2014-12  | 255,741  | 249,225   | 249,225  | 97%  | 2014-12   | 255,741  | 74,858   | \$ 72,628,683  | 0%   | 2014-12   | 249,225   | 69,937  | \$ 14,451,343                                   | 96%  |
| <b>Total</b>                                   | <b>2,661,720</b>   | <b>2,611,390</b>  | <b>2,611,390</b>                                       | <b>98%</b>                                       | <b>Total</b>  | <b>2,661,720</b>   | <b>733,310</b>   | <b>\$ 635,619,752</b>                                | <b>0%</b>                                  | <b>Total</b>  | <b>2,611,390</b>  | <b>695,881</b>  | <b>\$ 125,701,528</b>                           | <b>96%</b>                                 |

| Members without any Claims (Medical or Pharmacy) |                |                |
|--|----------------|----------------|
|  | 2013           | 2014           |
|  | Market Average | Market Average |
| Members with full year eligibility               | 113,650        | 112,811        |
| Members with full year eligibility and no claims | 12,309         | 13,430         |
| % of Members with no claims                      | 11%            | 12%            |

\*The carriers identified in this market segment and included in this exhibit are: Blue Cross and Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., John Alden Life Insurance Company, Medica Health Plans, PreferredOne Community Health Plan, PreferredOne Insurance Company, and Time Insurance Company.

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**All Carriers\***  
**Market: SMALL GROUP > 50**  
**Cross-File Linkage**

| Between Medical Member File and Rx Member File |  |   |  |  | Between Medical Member File and Medical Claims File |  |  |  |  | Between Pharmacy Member File and Pharmacy Claims File |   |   |   |  |
|--|--|---|--|--|---|--|--|--|--|---|---|---|---|--|
| Year Month                                     | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Members found in both Med & Rx Membership Files | % Medical Members with RX Coverage in Same Month | Year Month  | Unique Number of Members in Medical Member File (after merging with Supplemental File) | Unique Number of Members in Medical Claims File (after merging with Member File) | Total Incurred Plan Liability in Medical Claims File | % Incurred Plan Liability Submitted by TPA | Year Month  | Unique Number of Members in Rx Member File (after merging with Supplemental File) | Unique Number of Members in Rx Claims File (after merging with Member File) | Total Incurred Plan Liability in Rx Claims File | % Incurred Plan Liability Submitted by PBM |
| (A)  | (B)  | (C)   | (D)  | (E)  | (F)   | (G)  | (H)  | (I)  | (J)  | (K)   | (L)   | (M)   | (N)   | (O)  |
| 2013-01  | 47,105   | 47,104  | 47,104   | 100%   | 2013-01   | 47,105   | 14,939   | \$ 10,799,907  | 0%   | 2013-01   | 47,104  | 13,468  | \$ 1,746,171                                    | 100%                                       |
| 2013-02  | 49,077   | 49,075  | 49,075   | 100%   | 2013-02   | 49,077   | 13,647   | \$ 11,147,388  | 0%   | 2013-02   | 49,075  | 12,909  | \$ 1,780,329                                    | 100%                                       |
| 2013-03  | 51,369   | 51,366  | 51,366   | 100%   | 2013-03   | 51,369   | 14,557   | \$ 12,210,594  | 0%   | 2013-03   | 51,366  | 14,086  | \$ 2,067,665                                    | 100%                                       |
| 2013-04  | 54,225   | 54,223  | 54,223   | 100%   | 2013-04   | 54,225   | 15,348   | \$ 13,726,381  | 1%   | 2013-04   | 54,223  | 15,125  | \$ 2,468,795                                    | 100%                                       |
| 2013-05  | 56,946   | 56,941  | 56,941   | 100%   | 2013-05   | 56,946   | 15,724   | \$ 14,699,060  | 0%   | 2013-05   | 56,941  | 15,713  | \$ 2,669,891                                    | 100%                                       |
| 2013-06  | 60,030   | 60,024  | 60,024   | 100%   | 2013-06   | 60,030   | 16,033   | \$ 14,346,525  | 0%   | 2013-06   | 60,024  | 16,035  | \$ 2,643,415                                    | 100%                                       |
| 2013-07  | 64,548   | 64,546  | 64,546   | 100%   | 2013-07   | 64,548   | 17,911   | \$ 17,470,664  | 0%   | 2013-07   | 64,546  | 17,671  | \$ 3,203,888                                    | 100%                                       |
| 2013-08  | 66,957   | 66,953  | 66,953   | 100%   | 2013-08   | 66,957   | 19,456   | \$ 17,352,623  | 0%   | 2013-08   | 66,953  | 18,375  | \$ 3,436,360                                    | 100%                                       |
| 2013-09  | 69,181   | 69,178  | 69,178   | 100%   | 2013-09   | 69,181   | 20,654   | \$ 15,480,375  | 0%   | 2013-09   | 69,178  | 18,997  | \$ 3,464,360                                    | 100%                                       |
| 2013-10  | 117,039  | 116,271   | 116,271  | 99%  | 2013-10   | 117,039  | 40,793   | \$ 33,051,273  | 0%   | 2013-10   | 116,271   | 31,883  | \$ 5,676,917                                    | 77%  |
| 2013-11  | 117,485  | 116,755   | 116,755  | 99%  | 2013-11   | 117,485  | 33,998   | \$ 30,637,938  | 0%   | 2013-11   | 116,755   | 30,711  | \$ 5,312,544                                    | 76%  |
| 2013-12  | 117,449  | 116,659   | 116,659  | 99%  | 2013-12   | 117,449  | 30,624   | \$ 30,605,137  | 0%   | 2013-12   | 116,659   | 29,573  | \$ 5,468,046                                    | 74%  |
| <b>Total</b>                                   | <b>871,411</b>   | <b>869,095</b>  | <b>869,095</b>   | <b>100%</b>                                      | <b>Total</b>  | <b>871,411</b>   | <b>253,684</b>   | <b>\$ 221,527,864</b>                                | <b>0%</b>                                  | <b>Total</b>  | <b>869,095</b>  | <b>234,546</b>  | <b>\$ 39,938,382</b>                            | <b>90%</b>                                 |
| 2014-01  | 114,876  | 114,763   | 114,763  | 100%   | 2014-01   | 114,876  | 31,727   | \$ 25,706,989  | 0%   | 2014-01   | 114,763   | 29,700  | \$ 3,947,432                                    | 79%  |
| 2014-02  | 115,033  | 114,947   | 114,947  | 100%   | 2014-02   | 115,033  | 29,711   | \$ 25,680,068  | 0%   | 2014-02   | 114,947   | 28,324  | \$ 4,218,253                                    | 78%  |
| 2014-03  | 116,711  | 116,619   | 116,619  | 100%   | 2014-03   | 116,711  | 31,823   | \$ 26,149,096  | 0%   | 2014-03   | 116,619   | 30,503  | \$ 4,857,095                                    | 78%  |
| 2014-04  | 118,834  | 118,741   | 118,741  | 100%   | 2014-04   | 118,834  | 32,818   | \$ 28,911,393  | 0%   | 2014-04   | 118,741   | 30,857  | \$ 5,033,665                                    | 78%  |
| 2014-05  | 120,892  | 120,718   | 120,718  | 100%   | 2014-05   | 120,892  | 32,634   | \$ 29,745,931  | 0%   | 2014-05   | 120,718   | 30,785  | \$ 5,302,166                                    | 75%  |
| 2014-06  | 122,757  | 121,387   | 121,387  | 99%  | 2014-06   | 122,757  | 32,609   | \$ 28,461,138  | 0%   | 2014-06   | 121,387   | 30,197  | \$ 5,389,144                                    | 75%  |
| 2014-07  | 128,616  | 127,207   | 127,207  | 99%  | 2014-07   | 128,616  | 35,159   | \$ 35,390,914  | 0%   | 2014-07   | 127,207   | 31,726  | \$ 5,873,788                                    | 74%  |
| 2014-08  | 132,209  | 130,821   | 130,821  | 99%  | 2014-08   | 132,209  | 36,351   | \$ 32,638,272  | 0%   | 2014-08   | 130,821   | 32,529  | \$ 5,793,929                                    | 73%  |
| 2014-09  | 135,434  | 134,024   | 134,024  | 99%  | 2014-09   | 135,434  | 41,288   | \$ 37,306,511  | 0%   | 2014-09   | 134,024   | 34,774  | \$ 6,321,546                                    | 71%  |
| 2014-10  | 137,192  | 135,740   | 135,740  | 99%  | 2014-10   | 137,192  | 47,550   | \$ 42,195,691  | 0%   | 2014-10   | 135,740   | 37,165  | \$ 6,797,489                                    | 71%  |
| 2014-11  | 138,570  | 137,134   | 137,134  | 99%  | 2014-11   | 138,570  | 38,690   | \$ 35,543,089  | 0%   | 2014-11   | 137,134   | 34,992  | \$ 6,494,476                                    | 71%  |
| 2014-12  | 144,631  | 143,022   | 143,022  | 99%  | 2014-12   | 144,631  | 42,498   | \$ 41,016,970  | 0%   | 2014-12   | 143,022   | 38,137  | \$ 7,544,077                                    | 66%  |
| <b>Total</b>                                   | <b>1,525,755</b>   | <b>1,515,123</b>  | <b>1,515,123</b>                                       | <b>99%</b>                                       | <b>Total</b>  | <b>1,525,755</b>   | <b>432,858</b>   | <b>\$ 388,746,060</b>                                | <b>0%</b>                                  | <b>Total</b>  | <b>1,515,123</b>  | <b>389,689</b>  | <b>\$ 67,573,059</b>                            | <b>73%</b>                                 |

| Members without any Claims (Medical or Pharmacy) |                |                |
|--|----------------|----------------|
|  | 2013           | 2014           |
|  | Market Average | Market Average |
| Members with full year eligibility               | 39,372         | 84,216         |
| Members with full year eligibility and no claims | 4,286          | 9,702          |
| % of Members with no claims                      | 11%            | 12%            |

\*The carriers identified in this market segment and included in this exhibit are: Blue Cross and Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., Medica Health Plans, PreferredOne Community Health Plan, and PreferredOne Insurance Company.

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Appendix 2C - Exhibit D

**All Carriers\***  
**All Market Segments\*\***  
**Data Quality Check - Risk Scoring Variables**

**Diagnosis Coding by Position and Year**

|      | 2013    |       |         | 2014    |       |         |
|------|---------|-------|---------|---------|-------|---------|
|      | Missing | Valid | Invalid | Missing | Valid | Invalid |
| DX1  | 1%      | 99%   | 0%      | 1%      | 99%   | 0%      |
| DX2  | 38%     | 62%   | 0%      | 37%     | 63%   | 0%      |
| DX3  | 59%     | 41%   | 0%      | 58%     | 42%   | 0%      |
| DX4  | 74%     | 26%   | 0%      | 73%     | 27%   | 0%      |
| DX5  | 89%     | 11%   | 0%      | 87%     | 13%   | 0%      |
| DX6  | 93%     | 7%    | 0%      | 92%     | 8%    | 0%      |
| DX7  | 95%     | 5%    | 0%      | 95%     | 5%    | 0%      |
| DX8  | 97%     | 3%    | 0%      | 96%     | 4%    | 0%      |
| DX9  | 98%     | 2%    | 0%      | 97%     | 3%    | 0%      |
| DX10 | 99%     | 1%    | 0%      | 98%     | 2%    | 0%      |
| DX11 | 99%     | 1%    | 0%      | 99%     | 1%    | 0%      |
| DX12 | 99%     | 1%    | 0%      | 99%     | 1%    | 0%      |
| DX13 | 99%     | 1%    | 0%      | 99%     | 1%    | 0%      |

**Other Data Elements Used in Risk Scoring**

|  | 2013    |       |         | 2014    |       |         |
|--|---------|-------|---------|---------|-------|---------|
|  | Missing | Valid | Invalid | Missing | Valid | Invalid |
| Type of Bill<br>(All Claims)                       | 77%     | 20%   | 3%      | 76%     | 21%   | 2%      |
| Revenue Codes<br>(Facility Claims <sup>1</sup> )   | 0%      | 100%  | 0%      | 0%      | 100%  | 0%      |
| HCPCS Codes<br>(Professional Claims <sup>1</sup> ) | 0%      | 100%  | 0%      | 0%      | 100%  | 0%      |

<sup>1</sup> As determined by Type of Bill code

\*The carriers included in this exhibit are: Blue Cross and Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., Itasca Medical Care, Medica Health Plans, John Aiden Life Insurance Company, PreferredOne Community Health Plan, PreferredOne Insurance Company, PrimeWest Health, South Country Health Alliance, Time Insurance Company, UCare, and UCare Commercial.

\*\* The market segments included in this exhibit are: MinnesotaCare, Individual, Small Group <= 50, and Small Group > 50.

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Appendix 2C - Exhibit E

**All Carriers\***  
**Market: MinnesotaCare**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2013 and December 2013 and Paid thru March 31st, 2014**

| Facility                                 | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|---|--|--|
| <b>Facility</b>                          |                                |                   |                                 |   |   |  |  |
| <b>Inpatient</b>                         |                                |                   |                                 |   |   |  |  |
| Medical                                  | 13.6 admits                    | 3.27              | 44.4 days                       | \$7,853.98                                  | \$8.89  | \$0.01                                   | \$8.88                                       |
| Surgical                                 | 9.4 admits                     | 3.61              | 34.1 days                       | \$18,065.90                                 | \$14.21                                       | \$0.02                                   | \$14.19                                      |
| Psychiatric                              | 4.5 admits                     | 6.62              | 29.8 days                       | \$7,530.59                                  | \$2.83  | \$0.00                                   | \$2.82                                       |
| Alcohol/Drug                             | 5.0 admits                     | 21.71             | 108.0 days                      | \$6,224.28                                  | \$2.58  | \$0.05                                   | \$2.54                                       |
| Maternity - Normal Delivery              | 7.5 admits                     | 2.06              | 15.5 days                       | \$3,694.87                                  | \$2.31  | \$0.00                                   | \$2.31                                       |
| Maternity - Csect Delivery               | 3.1 admits                     | 3.50              | 10.7 days                       | \$8,928.09                                  | \$2.27  | \$0.00                                   | \$2.27                                       |
| Well Newborn                             |                                |                   |                                 | \$1,273.50                                  | \$0.57  | \$0.00                                   | \$0.57                                       |
| Maternity Non-Delivery                   | 1.0 admits                     | 3.13              | 3.0 days                        | \$4,977.77                                  | \$0.40  | \$0.00                                   | \$0.40                                       |
| Other Newborn                            | 2.7 admits                     | 6.00              | 15.9 days                       | \$15,273.37                                 | \$3.38  | \$0.00                                   | \$3.38                                       |
| Inpatient Subtotal                       | 46.7 admits                    | 5.60              | 261.5 days                      |   | \$37.44                                       | \$0.07                                   | \$37.37                                      |
| SNF                                      | 0.5 admits                     | 79.17             | 40.7 days                       | \$10,784.73                                 | \$0.46  | \$0.00                                   | \$0.46                                       |
| <b>Outpatient</b>                        |                                |                   |                                 |   |   |  |  |
| Emergency Hospital                       |                                |                   | 361 cases                       | \$616.06                                    | \$18.53                                       | \$0.01                                   | \$18.52                                      |
| Outpatient Surgery                       |                                |                   | 129 cases                       | \$2,476.43                                  | \$26.68                                       | \$0.01                                   | \$26.67                                      |
| Radiology - General                      |                                |                   | 170 cases                       | \$273.07                                    | \$3.86  | \$0.00                                   | \$3.86                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 77 cases                        | \$943.77                                    | \$6.08  | \$0.00                                   | \$6.08                                       |
| Pathology/Lab                            |                                |                   | 468 cases                       | \$127.10                                    | \$4.95  | \$0.00                                   | \$4.95                                       |
| Pharmacy                                 |                                |                   | 118 cases                       | \$519.10                                    | \$5.10  | \$0.00                                   | \$5.10                                       |
| Cardiovascular                           |                                |                   | 43 cases                        | \$492.15                                    | \$1.77  | \$0.00                                   | \$1.77                                       |
| PT/OT/ST                                 |                                |                   | 222 cases                       | \$211.08                                    | \$3.90  | \$0.00                                   | \$3.89                                       |
| Alcohol/Drug                             |                                |                   | 148 cases                       | \$211.93                                    | \$2.61  | \$0.00                                   | \$2.61                                       |
| Psychiatric                              |                                |                   | 350 cases                       | \$148.59                                    | \$4.34  | \$0.00                                   | \$4.34                                       |
| Preventive                               |                                |                   | 216 cases                       | \$138.43                                    | \$2.49  | \$0.00                                   | \$2.49                                       |
| Other                                    |                                |                   | 653 cases                       | \$128.28                                    | \$6.98  | \$0.00                                   | \$6.97                                       |
| Outpatient Subtotal                      |                                |                   |                                 |   | \$87.30                                       | \$0.04                                   | \$87.26                                      |
| Facility Total                           |                                |                   |                                 |   | \$125.20                                      | \$0.11                                   | \$125.09                                     |
| <b>Professional</b>                      |                                |                   |                                 |   |   |  |  |
| Inpatient Surgery                        |                                |                   | 74 proced                       | \$323.52                                    | \$1.99  | \$0.00                                   | \$1.99                                       |
| Inpatient Anesthesia                     |                                |                   | 43 proced                       | \$344.16                                    | \$1.24  | \$0.00                                   | \$1.24                                       |
| Maternity                                |                                |                   | 45 proced                       | \$380.48                                    | \$1.42  | \$0.00                                   | \$1.42                                       |
| Outpatient Surgery                       |                                |                   | 260 proced                      | \$214.33                                    | \$4.65  | \$0.01                                   | \$4.64                                       |
| Office Surgery                           |                                |                   | 352 proced                      | \$90.23                                     | \$2.65  | \$0.03                                   | \$2.62                                       |
| Outpatient Anesthesia                    |                                |                   | 134 proced                      | \$218.87                                    | \$2.45  | \$0.00                                   | \$2.45                                       |
| Hospital Visits                          |                                |                   | 311 visits                      | \$90.74                                     | \$2.35  | \$0.00                                   | \$2.35                                       |
| Office/Home Visits                       |                                |                   | 3,360 visits                    | \$67.72                                     | \$18.96                                       | \$0.52                                   | \$18.45                                      |
| Office Administered Drugs                |                                |                   | 489 proced                      | \$144.61                                    | \$5.89  | \$0.02                                   | \$5.88                                       |
| Urgent Care Visits                       |                                |                   | 184 visits                      | \$61.49                                     | \$0.94  | \$0.03                                   | \$0.92                                       |
| Allergy Testing                          |                                |                   | 14 proced                       | \$109.14                                    | \$0.13  | \$0.00                                   | \$0.13                                       |
| Allergy Immunotherapy                    |                                |                   | 59 visits                       | \$34.41                                     | \$0.17  | \$0.01                                   | \$0.16                                       |
| Emergency Room & Observation Care Visits |                                |                   | 376 visits                      | \$69.55                                     | \$2.18  | \$0.00                                   | \$2.17                                       |
| Physical Therapy                         |                                |                   | 414 visits                      | \$71.05                                     | \$2.45  | \$0.00                                   | \$2.45                                       |
| Cardiovascular                           |                                |                   | 233 proced                      | \$23.69                                     | \$0.46  | \$0.00                                   | \$0.46                                       |
| Chiropractor                             |                                |                   | 739 visits                      | \$25.06                                     | \$1.54  | \$0.14                                   | \$1.40                                       |
| Radiology IP - General                   |                                |                   | 63 proced                       | \$12.06                                     | \$0.06  | \$0.00                                   | \$0.06                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 20 proced                       | \$50.33                                     | \$0.08  | \$0.00                                   | \$0.08                                       |
| Radiology Office - General               |                                |                   | 640 proced                      | \$40.45                                     | \$2.16  | \$0.00                                   | \$2.15                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 104 proced                      | \$208.63                                    | \$1.81  | \$0.00                                   | \$1.81                                       |
| Radiology OP - General                   |                                |                   | 395 proced                      | \$15.29                                     | \$0.50  | \$0.00                                   | \$0.50                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 139 proced                      | \$50.23                                     | \$0.58  | \$0.00                                   | \$0.58                                       |
| Pathology/Lab IP & OP                    |                                |                   | 116 proced                      | \$55.00                                     | \$0.53  | \$0.00                                   | \$0.53                                       |
| Pathology/Lab Office                     |                                |                   | 4,114 proced                    | \$17.13                                     | \$5.87  | \$0.00                                   | \$5.87                                       |
| Preventive Immunizations                 |                                |                   | 987 proced                      | \$14.74                                     | \$1.21  | \$0.00                                   | \$1.21                                       |
| Preventive Physical Exams                |                                |                   | 416 visits                      | \$97.07                                     | \$3.36  | \$0.00                                   | \$3.36                                       |
| Preventive Well Baby Exams               |                                |                   | 81 visits                       | \$75.33                                     | \$0.51  | \$0.00                                   | \$0.51                                       |
| Preventive Other                         |                                |                   | 1,102 proced                    | \$21.58                                     | \$1.98  | \$0.00                                   | \$1.98                                       |
| Vision Exams                             |                                |                   | 330 visits                      | \$91.18                                     | \$2.51  | \$0.00                                   | \$2.48                                       |
| Hearing/Speech Exams                     |                                |                   | 30 visits                       | \$41.53                                     | \$0.10  | \$0.00                                   | \$0.10                                       |
| Outpatient Psychiatric                   |                                |                   | 926 visits                      | \$100.28                                    | \$7.74  | \$0.00                                   | \$7.74                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 301 visits                      | \$32.10                                     | \$0.81  | \$0.00                                   | \$0.81                                       |
| Miscellaneous Medical                    |                                |                   | 373 proced                      | \$61.75                                     | \$1.92  | \$0.01                                   | \$1.91                                       |
| Professional Total                       |                                |                   |                                 |   | \$81.23                                       | \$0.80                                   | \$80.43                                      |
| <b>Other</b>                             |                                |                   |                                 |   |   |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 15,636 scripts                  | \$61.15                                     | \$79.68                                       | \$3.15                                   | \$76.53                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 66 visits                       | \$168.23                                    | \$0.92  | \$0.00                                   | \$0.92                                       |
| Ambulance                                |                                |                   | 41 visits                       | \$824.12                                    | \$2.81  | \$0.00                                   | \$2.81                                       |
| Durable Medical Equipment                |                                |                   | 618 proced                      | \$99.24                                     | \$5.11  | \$0.00                                   | \$5.11                                       |
| Prosthetics                              |                                |                   | 6 proced                        | \$799.52                                    | \$0.38  | \$0.00                                   | \$0.38                                       |
| Glasses/Contacts                         |                                |                   | 296 visits                      | \$62.19                                     | \$1.53  | \$0.23                                   | \$1.31                                       |
| Unknown                                  |                                |                   | 2,222 proced                    | \$54.12                                     | \$10.02                                       | \$0.01                                   | \$10.01                                      |
| Other Total                              |                                |                   |                                 |   | \$100.46                                      | \$3.39                                   | \$97.07                                      |
| <b>Total</b>                             |                                |                   |                                 |   | <b>\$306.89</b>                               | <b>\$4.30</b>                            | <b>\$302.59</b>                              |
| Member Months - Medical                  |                                |                   |                                 |   |   |  | 1,492,440                                    |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |   |  | 1,492,440                                    |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

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Appendix 2C - Exhibit E

**All Carriers\***  
**Market: INDIVIDUAL**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2013 and December 2013 and Paid thru March 31st, 2014**

|  | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|---|--|--|
| <b>Facility</b>                          |                                |                   |                                 |   |   |  |  |
| <b>Inpatient</b>                         |                                |                   |                                 |   |   |  |  |
| Medical                                  | 13.4 admits                    | 3.26              | 43.7 days                       | \$13,669.50                                 | \$15.27                                       | \$1.18                                   | \$14.09                                      |
| Surgical                                 | 9.3 admits                     | 3.98              | 36.9 days                       | \$32,422.24                                 | \$25.10                                       | \$0.68                                   | \$24.41                                      |
| Psychiatric                              | 1.7 admits                     | 13.52             | 22.7 days                       | \$14,769.17                                 | \$2.07  | \$0.13                                   | \$1.94                                       |
| Alcohol/Drug                             | 0.7 admits                     | 14.85             | 9.8 days                        | \$6,698.36                                  | \$0.37  | \$0.03                                   | \$0.34                                       |
| Maternity - Normal Delivery              | 4.0 admits                     | 1.89              | 7.6 days                        | \$6,431.73                                  | \$2.16  | \$0.75                                   | \$1.41                                       |
| Maternity - Csect Delivery               | 1.2 admits                     | 2.99              | 3.6 days                        | \$11,418.17                                 | \$1.16  | \$0.21                                   | \$0.95                                       |
| Well Newborn                             |                                |                   |                                 | \$1,794.98                                  | \$0.25  | \$0.17                                   | \$0.08                                       |
| Maternity Non-Delivery                   | 1.2 admits                     | 1.31              | 1.6 days                        | \$2,135.14                                  | \$0.22  | \$0.04                                   | \$0.18                                       |
| Other Newborn                            | 0.9 admits                     | 3.70              | 3.3 days                        | \$8,013.94                                  | \$0.59  | \$0.13                                   | \$0.46                                       |
| <b>Inpatient Subtotal</b>                | <b>32.4 admits</b>             | <b>3.99</b>       | <b>129.3 days</b>               |   | <b>\$47.18</b>                                | <b>\$3.31</b>                            | <b>\$43.86</b>                               |
| <b>SNF</b>                               | <b>0.8 admits</b>              | <b>21.64</b>      | <b>16.4 days</b>                | <b>\$11,910.13</b>                          | <b>\$0.75</b>                                 | <b>\$0.01</b>                            | <b>\$0.74</b>                                |
| <b>Outpatient</b>                        |                                |                   |                                 |   |   |  |  |
| Emergency Hospital                       |                                |                   | 82 cases                        | \$1,382.41                                  | \$9.48  | \$3.41                                   | \$6.07                                       |
| Outpatient Surgery                       |                                |                   | 58 cases                        | \$4,005.73                                  | \$19.27                                       | \$3.31                                   | \$15.95                                      |
| Radiology - General                      |                                |                   | 72 cases                        | \$712.24                                    | \$4.29  | \$1.44                                   | \$2.85                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 30 cases                        | \$1,572.91                                  | \$3.98  | \$1.48                                   | \$2.49                                       |
| Pathology/Lab                            |                                |                   | 155 cases                       | \$258.92                                    | \$3.34  | \$1.33                                   | \$2.01                                       |
| Pharmacy                                 |                                |                   | 53 cases                        | \$2,019.09                                  | \$8.98  | \$0.79                                   | \$8.20                                       |
| Cardiovascular                           |                                |                   | 20 cases                        | \$832.27                                    | \$1.41  | \$0.47                                   | \$0.93                                       |
| PT/OT/ST                                 |                                |                   | 55 cases                        | \$599.29                                    | \$2.74  | \$0.68                                   | \$2.05                                       |
| Alcohol/Drug                             |                                |                   | 6 cases                         | \$532.97                                    | \$0.25  | \$0.05                                   | \$0.20                                       |
| Psychiatric                              |                                |                   | 28 cases                        | \$418.48                                    | \$0.97  | \$0.05                                   | \$0.92                                       |
| Preventive                               |                                |                   | 89 cases                        | \$378.51                                    | \$2.80  | \$0.70                                   | \$2.10                                       |
| Other                                    |                                |                   | 111 cases                       | \$585.18                                    | \$5.41  | \$0.90                                   | \$4.51                                       |
| <b>Outpatient Subtotal</b>               |                                |                   |                                 |   | <b>\$62.91</b>                                | <b>\$14.62</b>                           | <b>\$48.30</b>                               |
| <b>Facility Total</b>                    |                                |                   |                                 |   | <b>\$110.85</b>                               | <b>\$17.95</b>                           | <b>\$92.90</b>                               |
| <b>Professional</b>                      |                                |                   |                                 |   |   |  |  |
| Inpatient Surgery                        |                                |                   | 35 proced                       | \$1,232.80                                  | \$3.64  | \$0.08                                   | \$3.56                                       |
| Inpatient Anesthesia                     |                                |                   | 19 proced                       | \$792.11                                    | \$1.26  | \$0.04                                   | \$1.22                                       |
| Maternity                                |                                |                   | 21 proced                       | \$899.17                                    | \$1.58  | \$0.07                                   | \$1.50                                       |
| Outpatient Surgery                       |                                |                   | 100 proced                      | \$801.27                                    | \$6.67  | \$0.42                                   | \$6.25                                       |
| Office Surgery                           |                                |                   | 164 proced                      | \$274.09                                    | \$3.74  | \$0.82                                   | \$2.92                                       |
| Outpatient Anesthesia                    |                                |                   | 59 proced                       | \$512.01                                    | \$2.53  | \$0.29                                   | \$2.25                                       |
| Hospital Visits                          |                                |                   | 115 visits                      | \$211.33                                    | \$2.03  | \$0.12                                   | \$1.91                                       |
| Office/Home Visits                       |                                |                   | 1,004 visits                    | \$152.31                                    | \$12.75                                       | \$2.57                                   | \$10.18                                      |
| Office Administered Drugs                |                                |                   | 188 proced                      | \$334.86                                    | \$5.24  | \$0.11                                   | \$5.13                                       |
| Urgent Care Visits                       |                                |                   | 6 visits                        | \$135.85                                    | \$0.07  | \$0.03                                   | \$0.05                                       |
| Allergy Testing                          |                                |                   | 6 proced                        | \$236.55                                    | \$0.12  | \$0.02                                   | \$0.10                                       |
| Allergy Immunotherapy                    |                                |                   | 24 visits                       | \$80.59                                     | \$0.16  | \$0.04                                   | \$0.12                                       |
| Emergency Room & Observation Care Visits |                                |                   | 57 visits                       | \$292.62                                    | \$1.39  | \$0.31                                   | \$1.09                                       |
| Physical Therapy                         |                                |                   | 289 visits                      | \$89.83                                     | \$2.16  | \$0.32                                   | \$1.85                                       |
| Cardiovascular                           |                                |                   | 81 proced                       | \$125.19                                    | \$0.84  | \$0.10                                   | \$0.74                                       |
| Chiropractor                             |                                |                   | 287 visits                      | \$31.97                                     | \$0.77  | \$0.21                                   | \$0.55                                       |
| Radiology IP - General                   |                                |                   | 23 proced                       | \$43.40                                     | \$0.08  | \$0.00                                   | \$0.08                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 7 proced                        | \$200.40                                    | \$0.12  | \$0.00                                   | \$0.11                                       |
| Radiology Office - General               |                                |                   | 287 proced                      | \$175.89                                    | \$4.21  | \$0.38                                   | \$3.83                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 48 proced                       | \$949.51                                    | \$3.79  | \$0.42                                   | \$3.36                                       |
| Radiology OP - General                   |                                |                   | 109 proced                      | \$58.66                                     | \$0.53  | \$0.05                                   | \$0.49                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 36 proced                       | \$198.66                                    | \$0.60  | \$0.07                                   | \$0.54                                       |
| Pathology/Lab IP & OP                    |                                |                   | 46 proced                       | \$146.67                                    | \$0.56  | \$0.03                                   | \$0.53                                       |
| Pathology/Lab Office                     |                                |                   | 1,639 proced                    | \$34.30                                     | \$4.69  | \$0.88                                   | \$3.80                                       |
| Preventive Immunizations                 |                                |                   | 816 proced                      | \$45.12                                     | \$3.07  | \$0.05                                   | \$3.02                                       |
| Preventive Physical Exams                |                                |                   | 227 visits                      | \$202.18                                    | \$3.83  | \$0.11                                   | \$3.72                                       |
| Preventive Well Baby Exams               |                                |                   | 55 visits                       | \$157.69                                    | \$0.72  | \$0.01                                   | \$0.71                                       |
| Preventive Other                         |                                |                   | 518 proced                      | \$69.98                                     | \$3.02  | \$0.14                                   | \$2.88                                       |
| Vision Exams                             |                                |                   | 135 visits                      | \$150.30                                    | \$1.69  | \$0.14                                   | \$1.55                                       |
| Hearing/Speech Exams                     |                                |                   | 8 visits                        | \$107.49                                    | \$0.08  | \$0.02                                   | \$0.06                                       |
| Outpatient Psychiatric                   |                                |                   | 178 visits                      | \$127.76                                    | \$1.90  | \$0.13                                   | \$1.77                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 2 visits                        | \$81.78                                     | \$0.02  | \$0.00                                   | \$0.02                                       |
| Miscellaneous Medical                    |                                |                   | 120 proced                      | \$138.01                                    | \$1.38  | \$0.15                                   | \$1.23                                       |
| <b>Professional Total</b>                |                                |                   |                                 |   | <b>\$75.25</b>                                | <b>\$8.12</b>                            | <b>\$67.12</b>                               |
| <b>Other</b>                             |                                |                   |                                 |   |   |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 4,639 scripts                   | \$82.72                                     | \$31.98                                       | \$9.58                                   | \$22.40                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 14 visits                       | \$476.49                                    | \$0.54  | \$0.02                                   | \$0.53                                       |
| Ambulance                                |                                |                   | 10 visits                       | \$2,212.86                                  | \$1.89  | \$0.30                                   | \$1.59                                       |
| Durable Medical Equipment                |                                |                   | 155 proced                      | \$134.67                                    | \$1.74  | \$0.15                                   | \$1.59                                       |
| Prosthetics                              |                                |                   | 3 proced                        | \$294.97                                    | \$0.09  | \$0.00                                   | \$0.08                                       |
| Glasses/Contacts                         |                                |                   | 0 visits                        | \$132.74                                    | \$0.00  | \$0.00                                   | \$0.00                                       |
| Unknown                                  |                                |                   | 55 proced                       | \$223.02                                    | \$1.02  | \$0.18                                   | \$0.84                                       |
| <b>Other Total</b>                       |                                |                   |                                 |   | <b>\$37.26</b>                                | <b>\$10.23</b>                           | <b>\$27.03</b>                               |
| <b>Total</b>                             |                                |                   |                                 |   | <b>\$223.35</b>                               | <b>\$36.30</b>                           | <b>\$187.05</b>                              |
| Member Months - Medical                  |                                |                   |                                 |   |   |  | 2,483,025                                    |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |   |  | 2,482,303                                    |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, HealthPartners, Inc., John Alden Life Insurance Company, Medica Health Plans, PreferredOne Insurance Company.

This work product was prepared solely to provide assistance to the Minnesota Department of Health.  
 Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.  
 Milliman recommends such recipients be aided by an actuary or other qualified professional when reviewing the Milliman work product.

Appendix 2C - Exhibit E

**All Carriers\***  
**Market: SMALL GROUP <= 50**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2013 and December 2013 and Paid thru March 31st, 2014**

| Facility                                 | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|---|--|--|
| <b>Inpatient</b>                         |                                |                   |                                 |   |   |  |  |
| Medical                                  | 15.2 admits                    | 3.83              | 58.1 days                       | \$14,038.81                                 | \$17.74                                       | \$0.46                                   | \$17.28                                      |
| Surgical                                 | 13.9 admits                    | 3.60              | 49.9 days                       | \$27,490.95                                 | \$31.76                                       | \$0.38                                   | \$31.39                                      |
| Psychiatric                              | 3.2 admits                     | 14.88             | 48.2 days                       | \$12,050.86                                 | \$3.25  | \$0.11                                   | \$3.14                                       |
| Alcohol/Drug                             | 2.4 admits                     | 16.05             | 38.4 days                       | \$7,633.17                                  | \$1.52  | \$0.13                                   | \$1.40                                       |
| Maternity - Normal Delivery              | 8.7 admits                     | 2.10              | 18.2 days                       | \$5,301.00                                  | \$3.84  | \$0.72                                   | \$3.12                                       |
| Maternity - Csect Delivery               | 3.3 admits                     | 3.62              | 11.8 days                       | \$9,628.17                                  | \$2.61  | \$0.24                                   | \$2.37                                       |
| Well Newborn                             |                                |                   |                                 | \$1,756.12                                  | \$0.73  | \$0.29                                   | \$0.45                                       |
| Maternity Non-Delivery                   | 0.6 admits                     | 2.98              | 1.8 days                        | \$9,291.40                                  | \$0.47  | \$0.03                                   | \$0.44                                       |
| Other Newborn                            | 2.5 admits                     | 7.23              | 18.1 days                       | \$28,654.13                                 | \$5.99  | \$0.14                                   | \$5.85                                       |
| Inpatient Subtotal                       | 49.7 admits                    | 4.92              | 244.6 days                      |   | \$67.92                                       | \$2.49                                   | \$65.43                                      |
| SNF                                      | 0.9 admits                     | 18.78             | 17.2 days                       | \$10,644.39                                 | \$0.81  | \$0.01                                   | \$0.81                                       |
| <b>Outpatient</b>                        |                                |                   |                                 |   |   |  |  |
| Emergency Hospital                       |                                |                   | 136 cases                       | \$1,204.57                                  | \$13.66                                       | \$3.46                                   | \$10.20                                      |
| Outpatient Surgery                       |                                |                   | 89 cases                        | \$3,661.90                                  | \$27.05                                       | \$2.11                                   | \$24.94                                      |
| Radiology - General                      |                                |                   | 98 cases                        | \$594.38                                    | \$4.85  | \$0.94                                   | \$3.91                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 47 cases                        | \$1,436.47                                  | \$5.62  | \$1.30                                   | \$4.33                                       |
| Pathology/Lab                            |                                |                   | 207 cases                       | \$231.13                                    | \$3.98  | \$0.88                                   | \$3.11                                       |
| Pharmacy                                 |                                |                   | 75 cases                        | \$1,424.15                                  | \$8.92  | \$0.31                                   | \$8.62                                       |
| Cardiovascular                           |                                |                   | 31 cases                        | \$732.09                                    | \$1.87  | \$0.39                                   | \$1.48                                       |
| PT/OT/ST                                 |                                |                   | 92 cases                        | \$477.63                                    | \$3.66  | \$0.56                                   | \$3.11                                       |
| Alcohol/Drug                             |                                |                   | 32 cases                        | \$445.77                                    | \$1.18  | \$0.19                                   | \$0.99                                       |
| Psychiatric                              |                                |                   | 44 cases                        | \$385.57                                    | \$1.42  | \$0.08                                   | \$1.33                                       |
| Preventive                               |                                |                   | 113 cases                       | \$389.53                                    | \$3.68  | \$0.12                                   | \$3.57                                       |
| Other                                    |                                |                   | 186 cases                       | \$451.34                                    | \$7.01  | \$0.65                                   | \$6.35                                       |
| Outpatient Subtotal                      |                                |                   |                                 |   | \$82.91                                       | \$10.99                                  | \$71.93                                      |
| Facility Total                           |                                |                   |                                 |   | \$151.65                                      | \$13.49                                  | \$138.16                                     |
| <b>Professional</b>                      |                                |                   |                                 |   |   |  |  |
| Inpatient Surgery                        |                                |                   | 57 proced                       | \$1,204.66                                  | \$5.75  | \$0.13                                   | \$5.62                                       |
| Inpatient Anesthesia                     |                                |                   | 33 proced                       | \$730.78                                    | \$2.04  | \$0.08                                   | \$1.96                                       |
| Maternity                                |                                |                   | 52 proced                       | \$986.13                                    | \$4.31  | \$0.18                                   | \$4.12                                       |
| Outpatient Surgery                       |                                |                   | 169 proced                      | \$730.37                                    | \$10.30                                       | \$0.59                                   | \$9.71                                       |
| Office Surgery                           |                                |                   | 281 proced                      | \$212.50                                    | \$4.97  | \$0.91                                   | \$4.07                                       |
| Outpatient Anesthesia                    |                                |                   | 95 proced                       | \$453.08                                    | \$3.59  | \$0.23                                   | \$3.36                                       |
| Hospital Visits                          |                                |                   | 187 visits                      | \$237.96                                    | \$3.71  | \$0.20                                   | \$3.51                                       |
| Office/Home Visits                       |                                |                   | 1,951 visits                    | \$146.22                                    | \$23.77                                       | \$5.51                                   | \$18.26                                      |
| Office Administered Drugs                |                                |                   | 335 proced                      | \$318.20                                    | \$8.89  | \$0.17                                   | \$8.73                                       |
| Urgent Care Visits                       |                                |                   | 56 visits                       | \$146.82                                    | \$0.69  | \$0.27                                   | \$0.42                                       |
| Allergy Testing                          |                                |                   | 10 proced                       | \$222.40                                    | \$0.19  | \$0.03                                   | \$0.17                                       |
| Allergy Immunotherapy                    |                                |                   | 64 visits                       | \$65.20                                     | \$0.35  | \$0.03                                   | \$0.32                                       |
| Emergency Room & Observation Care Visits |                                |                   | 117 visits                      | \$244.12                                    | \$2.38  | \$0.43                                   | \$1.94                                       |
| Physical Therapy                         |                                |                   | 547 visits                      | \$75.73                                     | \$3.45  | \$0.48                                   | \$2.97                                       |
| Cardiovascular                           |                                |                   | 149 proced                      | \$105.96                                    | \$1.31  | \$0.16                                   | \$1.16                                       |
| Chiropractor                             |                                |                   | 580 visits                      | \$28.42                                     | \$1.37  | \$0.91                                   | \$0.47                                       |
| Radiology IP - General                   |                                |                   | 42 proced                       | \$39.96                                     | \$0.14  | \$0.01                                   | \$0.13                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 12 proced                       | \$192.07                                    | \$0.19  | \$0.01                                   | \$0.18                                       |
| Radiology Office - General               |                                |                   | 477 proced                      | \$146.48                                    | \$5.82  | \$0.53                                   | \$5.30                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 77 proced                       | \$868.95                                    | \$5.61  | \$0.62                                   | \$4.98                                       |
| Radiology OP - General                   |                                |                   | 207 proced                      | \$54.64                                     | \$0.94  | \$0.08                                   | \$0.86                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 72 proced                       | \$167.49                                    | \$1.00  | \$0.11                                   | \$0.89                                       |
| Pathology/Lab IP & OP                    |                                |                   | 73 proced                       | \$137.24                                    | \$0.83  | \$0.03                                   | \$0.80                                       |
| Pathology/Lab Office                     |                                |                   | 3,041 proced                    | \$28.77                                     | \$7.29  | \$0.70                                   | \$6.59                                       |
| Preventive Immunizations                 |                                |                   | 1,345 proced                    | \$43.47                                     | \$4.87  | \$0.01                                   | \$4.86                                       |
| Preventive Physical Exams                |                                |                   | 330 visits                      | \$208.92                                    | \$5.74  | \$0.02                                   | \$5.72                                       |
| Preventive Well Baby Exams               |                                |                   | 89 visits                       | \$160.15                                    | \$1.19  | \$0.02                                   | \$1.17                                       |
| Preventive Other                         |                                |                   | 814 proced                      | \$63.56                                     | \$4.31  | \$0.06                                   | \$4.25                                       |
| Vision Exams                             |                                |                   | 259 visits                      | \$143.44                                    | \$3.10  | \$0.12                                   | \$2.98                                       |
| Hearing/Speech Exams                     |                                |                   | 15 visits                       | \$101.42                                    | \$0.13  | \$0.02                                   | \$0.11                                       |
| Outpatient Psychiatric                   |                                |                   | 410 visits                      | \$125.63                                    | \$4.29  | \$1.01                                   | \$3.28                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 28 visits                       | \$44.21                                     | \$0.10  | \$0.02                                   | \$0.08                                       |
| Miscellaneous Medical                    |                                |                   | 217 proced                      | \$136.41                                    | \$2.46  | \$0.25                                   | \$2.21                                       |
| Professional Total                       |                                |                   |                                 |   | \$125.09                                      | \$13.92                                  | \$111.17                                     |
| <b>Other</b>                             |                                |                   |                                 |   |   |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 7,367 scripts                   | \$95.01                                     | \$58.33                                       | \$12.34                                  | \$45.98                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 19 visits                       | \$385.97                                    | \$0.62  | \$0.01                                   | \$0.61                                       |
| Ambulance                                |                                |                   | 16 visits                       | \$1,842.32                                  | \$2.49  | \$0.22                                   | \$2.27                                       |
| Durable Medical Equipment                |                                |                   | 291 proced                      | \$132.93                                    | \$3.22  | \$0.36                                   | \$2.86                                       |
| Prosthetics                              |                                |                   | 5 proced                        | \$576.71                                    | \$0.22  | \$0.00                                   | \$0.22                                       |
| Glasses/Contacts                         |                                |                   | 1 visits                        | \$114.18                                    | \$0.01  | \$0.00                                   | \$0.00                                       |
| Unknown                                  |                                |                   | 64 proced                       | \$171.45                                    | \$0.92  | \$0.15                                   | \$0.77                                       |
| Other Total                              |                                |                   |                                 |   | \$65.80                                       | \$13.10                                  | \$52.70                                      |
| <b>Total</b>                             |                                |                   |                                 |   | <b>\$342.54</b>                               | <b>\$40.50</b>                           | <b>\$302.04</b>                              |
| Member Months - Medical                  |                                |                   |                                 |   |   |  | 2,397,570                                    |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |   |  | 2,387,761                                    |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., John Alden Life Insurance Company, Medica Health Plans, PreferredOne Community Health Plan, PreferredOne Insurance Company, and Time Insurance Company.

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Appendix 2C - Exhibit E

**All Carriers\***  
**Market: SMALL GROUP > 50**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2013 and December 2013 and Paid thru March 31st, 2014**

|  | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|---|--|--|
| <b>Facility</b>                          |                                |                   |                                 |   |   |  |  |
| <b>Inpatient</b>                         |                                |                   |                                 |   |   |  |  |
| Medical                                  | 15.8 admits                    | 3.64              | 57.4 days                       | \$13,722.88                                 | \$18.03                                       | \$0.81                                   | \$17.23                                      |
| Surgical                                 | 15.6 admits                    | 3.96              | 61.8 days                       | \$31,522.88                                 | \$41.02                                       | \$0.70                                   | \$40.32                                      |
| Psychiatric                              | 3.5 admits                     | 9.07              | 31.4 days                       | \$10,703.58                                 | \$3.08  | \$0.14                                   | \$2.94                                       |
| Alcohol/Drug                             | 1.6 admits                     | 14.68             | 23.7 days                       | \$9,862.63                                  | \$1.32  | \$0.15                                   | \$1.17                                       |
| Maternity - Normal Delivery              | 8.3 admits                     | 2.19              | 18.2 days                       | \$5,678.27                                  | \$3.94  | \$1.19                                   | \$2.74                                       |
| Maternity - Csect Delivery               | 2.9 admits                     | 3.58              | 10.5 days                       | \$10,587.11                                 | \$2.59  | \$0.44                                   | \$2.15                                       |
| Well Newborn                             |                                |                   |                                 | \$1,792.92                                  | \$0.73  | \$0.40                                   | \$0.33                                       |
| Maternity Non-Delivery                   | 0.8 admits                     | 3.02              | 2.3 days                        | \$7,272.72                                  | \$0.46  | \$0.02                                   | \$0.44                                       |
| Other Newborn                            | 2.1 admits                     | 4.41              | 9.3 days                        | \$11,669.00                                 | \$2.05  | \$0.19                                   | \$1.85                                       |
| <b>Inpatient Subtotal</b>                | <b>50.6 admits</b>             | <b>4.24</b>       | <b>214.4 days</b>               |   | <b>\$73.23</b>                                | <b>\$4.05</b>                            | <b>\$69.17</b>                               |
| <b>SNF</b>                               | <b>1.4 admits</b>              | <b>19.97</b>      | <b>28.3 days</b>                | <b>\$10,385.71</b>                          | <b>\$1.23</b>                                 | <b>\$0.02</b>                            | <b>\$1.21</b>                                |
| <b>Outpatient</b>                        |                                |                   |                                 |   |   |  |  |
| Emergency Hospital                       |                                |                   | 134 cases                       | \$1,149.73                                  | \$12.83                                       | \$4.24                                   | \$8.59                                       |
| Outpatient Surgery                       |                                |                   | 94 cases                        | \$3,532.61                                  | \$27.58                                       | \$3.56                                   | \$24.02                                      |
| Radiology - General                      |                                |                   | 95 cases                        | \$602.61                                    | \$4.75  | \$1.07                                   | \$3.68                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 47 cases                        | \$1,383.86                                  | \$5.39  | \$1.45                                   | \$3.94                                       |
| Pathology/Lab                            |                                |                   | 196 cases                       | \$227.71                                    | \$3.71  | \$0.82                                   | \$2.89                                       |
| Pharmacy                                 |                                |                   | 76 cases                        | \$1,560.34                                  | \$9.83  | \$0.51                                   | \$9.32                                       |
| Cardiovascular                           |                                |                   | 30 cases                        | \$775.66                                    | \$1.95  | \$0.52                                   | \$1.44                                       |
| PT/OT/ST                                 |                                |                   | 93 cases                        | \$482.18                                    | \$3.75  | \$0.66                                   | \$3.09                                       |
| Alcohol/Drug                             |                                |                   | 32 cases                        | \$444.98                                    | \$1.19  | \$0.24                                   | \$0.95                                       |
| Psychiatric                              |                                |                   | 46 cases                        | \$421.68                                    | \$1.60  | \$0.12                                   | \$1.48                                       |
| Preventive                               |                                |                   | 113 cases                       | \$411.97                                    | \$3.90  | \$0.15                                   | \$3.75                                       |
| Other                                    |                                |                   | 200 cases                       | \$407.25                                    | \$6.80  | \$0.88                                   | \$5.92                                       |
| <b>Outpatient Subtotal</b>               |                                |                   |                                 |   | <b>\$83.27</b>                                | <b>\$14.20</b>                           | <b>\$69.08</b>                               |
| <b>Facility Total</b>                    |                                |                   |                                 |   | <b>\$157.73</b>                               | <b>\$18.27</b>                           | <b>\$139.46</b>                              |
| <b>Professional</b>                      |                                |                   |                                 |   |   |  |  |
| Inpatient Surgery                        |                                |                   | 60 proced                       | \$1,159.59                                  | \$5.75  | \$0.35                                   | \$5.40                                       |
| Inpatient Anesthesia                     |                                |                   | 36 proced                       | \$730.77                                    | \$2.17  | \$0.21                                   | \$1.96                                       |
| Maternity                                |                                |                   | 44 proced                       | \$1,188.15                                  | \$4.32  | \$0.38                                   | \$3.93                                       |
| Outpatient Surgery                       |                                |                   | 162 proced                      | \$716.44                                    | \$9.69  | \$1.41                                   | \$8.27                                       |
| Office Surgery                           |                                |                   | 294 proced                      | \$234.10                                    | \$5.73  | \$2.26                                   | \$3.47                                       |
| Outpatient Anesthesia                    |                                |                   | 97 proced                       | \$451.09                                    | \$3.66  | \$0.54                                   | \$3.12                                       |
| Hospital Visits                          |                                |                   | 185 visits                      | \$247.01                                    | \$3.80  | \$0.58                                   | \$3.22                                       |
| Office/Home Visits                       |                                |                   | 2,095 visits                    | \$146.72                                    | \$25.61                                       | \$8.97                                   | \$16.64                                      |
| Office Administered Drugs                |                                |                   | 338 proced                      | \$298.69                                    | \$8.41  | \$0.40                                   | \$8.02                                       |
| Urgent Care Visits                       |                                |                   | 128 visits                      | \$150.50                                    | \$1.61  | \$0.72                                   | \$0.89                                       |
| Allergy Testing                          |                                |                   | 12 proced                       | \$258.42                                    | \$0.25  | \$0.07                                   | \$0.18                                       |
| Allergy Immunotherapy                    |                                |                   | 83 visits                       | \$66.27                                     | \$0.46  | \$0.07                                   | \$0.38                                       |
| Emergency Room & Observation Care Visits |                                |                   | 140 visits                      | \$274.33                                    | \$3.20  | \$1.14                                   | \$2.07                                       |
| Physical Therapy                         |                                |                   | 607 visits                      | \$81.73                                     | \$4.13  | \$1.09                                   | \$3.04                                       |
| Cardiovascular                           |                                |                   | 175 proced                      | \$114.98                                    | \$1.68  | \$0.36                                   | \$1.32                                       |
| Chiropractor                             |                                |                   | 478 visits                      | \$31.73                                     | \$1.26  | \$0.80                                   | \$0.47                                       |
| Radiology IP - General                   |                                |                   | 46 proced                       | \$39.25                                     | \$0.15  | \$0.02                                   | \$0.13                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 14 proced                       | \$164.40                                    | \$0.19  | \$0.03                                   | \$0.16                                       |
| Radiology Office - General               |                                |                   | 518 proced                      | \$146.01                                    | \$6.30  | \$1.29                                   | \$5.01                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 86 proced                       | \$832.83                                    | \$6.00  | \$1.59                                   | \$4.41                                       |
| Radiology OP - General                   |                                |                   | 231 proced                      | \$51.81                                     | \$1.00  | \$0.20                                   | \$0.80                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 84 proced                       | \$157.28                                    | \$1.10  | \$0.29                                   | \$0.81                                       |
| Pathology/Lab IP & OP                    |                                |                   | 81 proced                       | \$132.74                                    | \$0.89  | \$0.07                                   | \$0.82                                       |
| Pathology/Lab Office                     |                                |                   | 3,518 proced                    | \$30.18                                     | \$8.85  | \$1.91                                   | \$6.94                                       |
| Preventive Immunizations                 |                                |                   | 1,490 proced                    | \$43.29                                     | \$5.38  | \$0.04                                   | \$5.34                                       |
| Preventive Physical Exams                |                                |                   | 365 visits                      | \$207.21                                    | \$6.29  | \$0.05                                   | \$6.25                                       |
| Preventive Well Baby Exams               |                                |                   | 87 visits                       | \$163.61                                    | \$1.18  | \$0.05                                   | \$1.13                                       |
| Preventive Other                         |                                |                   | 839 proced                      | \$64.37                                     | \$4.50  | \$0.17                                   | \$4.33                                       |
| Vision Exams                             |                                |                   | 279 visits                      | \$152.75                                    | \$3.55  | \$0.17                                   | \$3.37                                       |
| Hearing/Speech Exams                     |                                |                   | 19 visits                       | \$104.70                                    | \$0.17  | \$0.06                                   | \$0.11                                       |
| Outpatient Psychiatric                   |                                |                   | 428 visits                      | \$120.73                                    | \$4.31  | \$1.35                                   | \$2.95                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 19 visits                       | \$75.30                                     | \$0.12  | \$0.04                                   | \$0.08                                       |
| Miscellaneous Medical                    |                                |                   | 251 proced                      | \$142.35                                    | \$2.98  | \$0.65                                   | \$2.33                                       |
| <b>Professional Total</b>                |                                |                   |                                 |   | <b>\$134.68</b>                               | <b>\$27.33</b>                           | <b>\$107.35</b>                              |
| <b>Other</b>                             |                                |                   |                                 |   |   |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 7,081 scripts                   | \$97.08                                     | \$57.28                                       | \$11.33                                  | \$45.95                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 18 visits                       | \$423.16                                    | \$0.64  | \$0.02                                   | \$0.62                                       |
| Ambulance                                |                                |                   | 17 visits                       | \$1,834.51                                  | \$2.62  | \$0.43                                   | \$2.19                                       |
| Durable Medical Equipment                |                                |                   | 322 proced                      | \$159.97                                    | \$4.29  | \$0.83                                   | \$3.46                                       |
| Prosthetics                              |                                |                   | 4 proced                        | \$674.02                                    | \$0.23  | \$0.02                                   | \$0.21                                       |
| Glasses/Contacts                         |                                |                   | 1 visits                        | \$142.08                                    | \$0.01  | \$0.00                                   | \$0.01                                       |
| Unknown                                  |                                |                   | 56 proced                       | \$286.78                                    | \$1.33  | \$0.40                                   | \$0.93                                       |
| <b>Other Total</b>                       |                                |                   |                                 |   | <b>\$66.40</b>                                | <b>\$13.03</b>                           | <b>\$53.37</b>                               |
| <b>Total</b>                             |                                |                   |                                 |   | <b>\$358.81</b>                               | <b>\$58.64</b>                           | <b>\$300.17</b>                              |
| Member Months - Medical                  |                                |                   |                                 |   |   |  | 871,411                                      |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |   |  | 869,095                                      |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., Medica Health Plans, PreferredOne Community Health Plan, and PreferredOne Insurance Company.

This work product was prepared solely to provide assistance to the Minnesota Department of Health. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends such recipients be aided by an actuary or other qualified professional when reviewing the Milliman work product.

Appendix 2C - Exhibit E

**All Carriers\***  
**Market: MinnesotaCare**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2014 and December 2014 and Paid thru March 31st, 2015**

| Facility                                 | Annual Admissions per 1,000 | Length of Stay | Annual Utilization per 1,000 | Average Cost per Service (Allowed \$) | Monthly per Member Claim Cost (Allowed) | Monthly per Member Cost Share (\$) | Net Monthly per Member Claim Cost (\$) |
|--|-----------------------------|----------------|------------------------------|---------------------------------------|---|------------------------------------|--|
| <b>Facility</b>                          |                             |                |                              |                                       |   |                                    |  |
| <b>Inpatient</b>                         |                             |                |                              |                                       |   |                                    |  |
| Medical                                  | 11.1 admits                 | 3.56           | 39.5 days                    | \$7,084.76                            | \$6.55                                  | \$0.01                             | \$6.54                                 |
| Surgical                                 | 8.6 admits                  | 3.87           | 33.2 days                    | \$14,366.89                           | \$10.29                                 | \$0.01                             | \$10.28                                |
| Psychiatric                              | 2.6 admits                  | 6.92           | 17.8 days                    | \$7,764.73                            | \$1.67                                  | \$0.00                             | \$1.67                                 |
| Alcohol/Drug                             | 5.2 admits                  | 22.95          | 119.7 days                   | \$5,629.71                            | \$2.45                                  | \$0.00                             | \$2.45                                 |
| Maternity - Normal Delivery              | 3.2 admits                  | 1.96           | 6.3 days                     | \$3,507.20                            | \$0.95                                  | \$0.00                             | \$0.94                                 |
| Maternity - Csect Delivery               | 1.2 admits                  | 3.28           | 4.0 days                     | \$5,646.63                            | \$0.58                                  | \$0.01                             | \$0.57                                 |
| Well Newborn                             |                             |                |                              | \$1,421.02                            | \$0.08                                  | \$0.00                             | \$0.08                                 |
| Maternity Non-Delivery                   | 0.7 admits                  | 2.20           | 1.6 days                     | \$4,761.28                            | \$0.29                                  | \$0.00                             | \$0.29                                 |
| Other Newborn                            | 0.7 admits                  | 6.96           | 4.7 days                     | \$14,409.35                           | \$0.82                                  | \$0.00                             | \$0.82                                 |
| <b>Inpatient Subtotal</b>                | <b>33.4 admits</b>          | <b>6.80</b>    | <b>227.1 days</b>            |                                       | <b>\$23.68</b>                          | <b>\$0.03</b>                      | <b>\$23.64</b>                         |
| <b>SNF</b>                               | <b>1.0 admits</b>           | <b>50.88</b>   | <b>49.4 days</b>             | <b>\$9,796.70</b>                     | <b>\$0.79</b>                           | <b>\$0.00</b>                      | <b>\$0.79</b>                          |
| <b>Outpatient</b>                        |                             |                |                              |                                       |   |                                    |  |
| Emergency Hospital                       |                             |                | 336 cases                    | \$666.53                              | \$18.68                                 | \$0.07                             | \$18.61                                |
| Outpatient Surgery                       |                             |                | 164 cases                    | \$2,260.52                            | \$30.83                                 | \$0.04                             | \$30.79                                |
| Radiology - General                      |                             |                | 204 cases                    | \$297.47                              | \$5.05                                  | \$0.01                             | \$5.04                                 |
| Radiology - CT/MRI/PET                   |                             |                | 99 cases                     | \$743.42                              | \$6.16                                  | \$0.02                             | \$6.14                                 |
| Pathology/Lab                            |                             |                | 603 cases                    | \$108.57                              | \$5.45                                  | \$0.01                             | \$5.44                                 |
| Pharmacy                                 |                             |                | 176 cases                    | \$593.63                              | \$8.68                                  | \$0.01                             | \$8.68                                 |
| Cardiovascular                           |                             |                | 61 cases                     | \$468.25                              | \$2.40                                  | \$0.01                             | \$2.39                                 |
| PT/OT/ST                                 |                             |                | 285 cases                    | \$172.61                              | \$4.10                                  | \$0.01                             | \$4.09                                 |
| Alcohol/Drug                             |                             |                | 208 cases                    | \$209.97                              | \$3.63                                  | \$0.00                             | \$3.63                                 |
| Psychiatric                              |                             |                | 196 cases                    | \$173.72                              | \$2.83                                  | \$0.00                             | \$2.83                                 |
| Preventive                               |                             |                | 265 cases                    | \$170.77                              | \$3.77                                  | \$0.00                             | \$3.77                                 |
| Other                                    |                             |                | 795 cases                    | \$138.07                              | \$9.15                                  | \$0.02                             | \$9.13                                 |
| <b>Outpatient Subtotal</b>               |                             |                |                              |                                       | <b>\$100.73</b>                         | <b>\$0.20</b>                      | <b>\$100.53</b>                        |
| <b>Facility Total</b>                    |                             |                |                              |                                       | <b>\$125.20</b>                         | <b>\$0.23</b>                      | <b>\$124.97</b>                        |
| <b>Professional</b>                      |                             |                |                              |                                       |   |                                    |  |
| Inpatient Surgery                        |                             |                | 96 proced                    | \$320.40                              | \$2.57                                  | \$0.00                             | \$2.57                                 |
| Inpatient Anesthesia                     |                             |                | 57 proced                    | \$287.20                              | \$1.36                                  | \$0.00                             | \$1.36                                 |
| Maternity                                |                             |                | 32 proced                    | \$320.79                              | \$0.86                                  | \$0.01                             | \$0.85                                 |
| Outpatient Surgery                       |                             |                | 304 proced                   | \$192.11                              | \$4.86                                  | \$0.04                             | \$4.83                                 |
| Office Surgery                           |                             |                | 394 proced                   | \$92.65                               | \$3.04                                  | \$0.04                             | \$3.00                                 |
| Outpatient Anesthesia                    |                             |                | 157 proced                   | \$179.18                              | \$2.34                                  | \$0.01                             | \$2.33                                 |
| Hospital Visits                          |                             |                | 399 visits                   | \$87.77                               | \$2.92                                  | \$0.01                             | \$2.91                                 |
| Office/Home Visits                       |                             |                | 3,414 visits                 | \$70.57                               | \$20.08                                 | \$0.75                             | \$19.33                                |
| Office Administered Drugs                |                             |                | 587 proced                   | \$146.57                              | \$7.17                                  | \$0.03                             | \$7.14                                 |
| Urgent Care Visits                       |                             |                | 189 visits                   | \$64.80                               | \$1.02                                  | \$0.05                             | \$0.97                                 |
| Allergy Testing                          |                             |                | 13 proced                    | \$109.58                              | \$0.11                                  | \$0.00                             | \$0.11                                 |
| Allergy Immunotherapy                    |                             |                | 47 visits                    | \$28.33                               | \$0.11                                  | \$0.01                             | \$0.10                                 |
| Emergency Room & Observation Care Visits |                             |                | 371 visits                   | \$76.74                               | \$2.38                                  | \$0.02                             | \$2.36                                 |
| Physical Therapy                         |                             |                | 393 visits                   | \$70.31                               | \$2.30                                  | \$0.01                             | \$2.29                                 |
| Cardiovascular                           |                             |                | 315 proced                   | \$22.17                               | \$0.58                                  | \$0.01                             | \$0.58                                 |
| Chiropractor                             |                             |                | 740 visits                   | \$25.53                               | \$1.57                                  | \$0.18                             | \$1.39                                 |
| Radiology IP - General                   |                             |                | 78 proced                    | \$14.73                               | \$0.10                                  | \$0.00                             | \$0.10                                 |
| Radiology IP - CT/MRI/PET                |                             |                | 26 proced                    | \$50.21                               | \$0.11                                  | \$0.00                             | \$0.11                                 |
| Radiology Office - General               |                             |                | 754 proced                   | \$45.66                               | \$2.87                                  | \$0.01                             | \$2.86                                 |
| Radiology Office - CT/MRI/PET            |                             |                | 131 proced                   | \$181.21                              | \$1.98                                  | \$0.00                             | \$1.98                                 |
| Radiology OP - General                   |                             |                | 472 proced                   | \$17.28                               | \$0.68                                  | \$0.00                             | \$0.68                                 |
| Radiology OP- CT/MRI/PET                 |                             |                | 187 proced                   | \$50.20                               | \$0.78                                  | \$0.00                             | \$0.78                                 |
| Pathology/Lab IP & OP                    |                             |                | 156 proced                   | \$55.95                               | \$0.73                                  | \$0.00                             | \$0.72                                 |
| Pathology/Lab Office                     |                             |                | 5,094 proced                 | \$18.00                               | \$7.64                                  | \$0.02                             | \$7.62                                 |
| Preventive Immunizations                 |                             |                | 690 proced                   | \$26.32                               | \$1.51                                  | \$0.00                             | \$1.51                                 |
| Preventive Physical Exams                |                             |                | 315 visits                   | \$97.53                               | \$2.56                                  | \$0.00                             | \$2.56                                 |
| Preventive Well Baby Exams               |                             |                | 9 visits                     | \$77.24                               | \$0.06                                  | \$0.00                             | \$0.06                                 |
| Preventive Other                         |                             |                | 923 proced                   | \$32.46                               | \$2.50                                  | \$0.00                             | \$2.49                                 |
| Vision Exams                             |                             |                | 350 visits                   | \$90.98                               | \$2.65                                  | \$0.06                             | \$2.60                                 |
| Hearing/Speech Exams                     |                             |                | 27 visits                    | \$37.63                               | \$0.08                                  | \$0.00                             | \$0.08                                 |
| Outpatient Psychiatric                   |                             |                | 861 visits                   | \$107.83                              | \$7.73                                  | \$0.02                             | \$7.72                                 |
| Outpatient Alcohol/Drug                  |                             |                | 263 visits                   | \$34.38                               | \$0.75                                  | \$0.00                             | \$0.75                                 |
| Miscellaneous Medical                    |                             |                | 437 proced                   | \$57.39                               | \$2.09                                  | \$0.02                             | \$2.07                                 |
| <b>Professional Total</b>                |                             |                |                              |                                       | <b>\$88.10</b>                          | <b>\$1.29</b>                      | <b>\$86.81</b>                         |
| <b>Other</b>                             |                             |                |                              |                                       |   |                                    |  |
| Prescription Drugs <sup>1</sup>          |                             |                | 17,768 scripts               | \$66.50                               | \$98.47                                 | \$4.10                             | \$94.37                                |
| Home Health Care/Private Duty Nursing    |                             |                | 114 visits                   | \$164.88                              | \$1.57                                  | \$0.00                             | \$1.57                                 |
| Ambulance                                |                             |                | 51 visits                    | \$800.84                              | \$3.39                                  | \$0.01                             | \$3.38                                 |
| Durable Medical Equipment                |                             |                | 670 proced                   | \$106.72                              | \$5.96                                  | \$0.01                             | \$5.95                                 |
| Prosthetics                              |                             |                | 8 proced                     | \$758.41                              | \$0.50                                  | \$0.00                             | \$0.50                                 |
| Glasses/Contacts                         |                             |                | 328 visits                   | \$54.96                               | \$1.50                                  | \$0.33                             | \$1.17                                 |
| Unknown                                  |                             |                | 2,569 proced                 | \$50.77                               | \$10.87                                 | \$0.01                             | \$10.86                                |
| <b>Other Total</b>                       |                             |                |                              |                                       | <b>\$122.25</b>                         | <b>\$4.46</b>                      | <b>\$117.79</b>                        |
| <b>Total</b>                             |                             |                |                              |                                       | <b>\$335.55</b>                         | <b>\$5.98</b>                      | <b>\$329.57</b>                        |
| Member Months - Medical                  |                             |                |                              |                                       |   |                                    | 828,176                                |
| Member Months - RX <sup>1</sup>          |                             |                |                              |                                       |   |                                    | 828,176                                |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, HealthPartners, Inc., Itasca Medical Care, Medica Health Plans, PrimeWest Health, South Country Health Alliance, and UCare.

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Appendix 2C - Exhibit E

**All Carriers\***  
**Market: INDIVIDUAL**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2014 and December 2014 and Paid thru March 31st, 2015**

|  | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|---|--|--|
| <b>Facility</b>                          |                                |                   |                                 |   |   |  |  |
| <b>Inpatient</b>                         |                                |                   |                                 |   |   |  |  |
| Medical                                  | 15.8 admits                    | 4.35              | 68.9 days                       | \$16,168.95                                 | \$21.34                                       | \$1.39                                   | \$19.94                                      |
| Surgical                                 | 13.6 admits                    | 4.22              | 57.4 days                       | \$35,836.27                                 | \$40.66                                       | \$0.86                                   | \$39.80                                      |
| Psychiatric                              | 2.6 admits                     | 12.97             | 34.2 days                       | \$13,108.22                                 | \$2.88  | \$0.25                                   | \$2.63                                       |
| Alcohol/Drug                             | 2.2 admits                     | 15.45             | 34.4 days                       | \$9,388.41                                  | \$1.74  | \$0.26                                   | \$1.48                                       |
| Maternity - Normal Delivery              | 6.3 admits                     | 2.09              | 13.1 days                       | \$6,200.65                                  | \$3.24  | \$0.91                                   | \$2.33                                       |
| Maternity - Csect Delivery               | 2.3 admits                     | 3.86              | 9.0 days                        | \$11,042.16                                 | \$2.15  | \$0.27                                   | \$1.88                                       |
| Well Newborn                             |                                |                   |                                 | \$2,119.50                                  | \$0.44  | \$0.19                                   | \$0.25                                       |
| Maternity Non-Delivery                   | 0.4 admits                     | 2.38              | 1.0 days                        | \$7,521.60                                  | \$0.26  | \$0.06                                   | \$0.20                                       |
| Other Newborn                            | 1.4 admits                     | 6.43              | 8.8 days                        | \$21,614.90                                 | \$2.48  | \$0.14                                   | \$2.34                                       |
| <b>Inpatient Subtotal</b>                | <b>44.7 admits</b>             | <b>5.07</b>       | <b>226.8 days</b>               |   | <b>\$75.18</b>                                | <b>\$4.34</b>                            | <b>\$70.84</b>                               |
| <b>SNF</b>                               | <b>1.2 admits</b>              | <b>18.46</b>      | <b>22.9 days</b>                | <b>\$10,832.37</b>                          | <b>\$1.12</b>                                 | <b>\$0.03</b>                            | <b>\$1.09</b>                                |
| <b>Outpatient</b>                        |                                |                   |                                 |   |   |  |  |
| Emergency Hospital                       |                                |                   | 114 cases                       | \$1,389.28                                  | \$13.24                                       | \$4.76                                   | \$8.48                                       |
| Outpatient Surgery                       |                                |                   | 86 cases                        | \$4,186.14                                  | \$29.98                                       | \$4.29                                   | \$25.69                                      |
| Radiology - General                      |                                |                   | 99 cases                        | \$651.20                                    | \$5.35  | \$1.37                                   | \$3.98                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 47 cases                        | \$1,460.01                                  | \$5.71  | \$1.94                                   | \$3.77                                       |
| Pathology/Lab                            |                                |                   | 204 cases                       | \$232.65                                    | \$3.95  | \$1.40                                   | \$2.55                                       |
| Pharmacy                                 |                                |                   | 83 cases                        | \$1,597.61                                  | \$11.02                                       | \$0.70                                   | \$10.32                                      |
| Cardiovascular                           |                                |                   | 31 cases                        | \$950.37                                    | \$2.48  | \$0.74                                   | \$1.75                                       |
| PT/OT/ST                                 |                                |                   | 114 cases                       | \$421.59                                    | \$4.01  | \$0.94                                   | \$3.06                                       |
| Alcohol/Drug                             |                                |                   | 31 cases                        | \$362.54                                    | \$0.95  | \$0.21                                   | \$0.74                                       |
| Psychiatric                              |                                |                   | 45 cases                        | \$394.30                                    | \$1.48  | \$0.16                                   | \$1.32                                       |
| Preventive                               |                                |                   | 118 cases                       | \$432.23                                    | \$4.23  | \$0.35                                   | \$3.88                                       |
| Other                                    |                                |                   | 192 cases                       | \$427.43                                    | \$6.82  | \$1.10                                   | \$5.72                                       |
| <b>Outpatient Subtotal</b>               |                                |                   |                                 | <b>\$89.23</b>                              | <b>\$17.97</b>                                | <b>\$17.97</b>                           | <b>\$71.26</b>                               |
| <b>Facility Total</b>                    |                                |                   |                                 |   | <b>\$165.53</b>                               | <b>\$22.34</b>                           | <b>\$143.19</b>                              |
| <b>Professional</b>                      |                                |                   |                                 |   |   |  |  |
| Inpatient Surgery                        |                                |                   | 54 proced                       | \$1,235.80                                  | \$5.51  | \$0.34                                   | \$5.17                                       |
| Inpatient Anesthesia                     |                                |                   | 29 proced                       | \$798.44                                    | \$1.96  | \$0.14                                   | \$1.82                                       |
| Maternity                                |                                |                   | 35 proced                       | \$1,164.50                                  | \$3.35  | \$0.58                                   | \$2.78                                       |
| Outpatient Surgery                       |                                |                   | 150 proced                      | \$772.84                                    | \$9.64  | \$1.24                                   | \$8.41                                       |
| Office Surgery                           |                                |                   | 252 proced                      | \$264.22                                    | \$5.55  | \$1.84                                   | \$3.71                                       |
| Outpatient Anesthesia                    |                                |                   | 88 proced                       | \$508.91                                    | \$3.71  | \$0.51                                   | \$3.21                                       |
| Hospital Visits                          |                                |                   | 199 visits                      | \$227.66                                    | \$3.78  | \$0.47                                   | \$3.31                                       |
| Office/Home Visits                       |                                |                   | 1,589 visits                    | \$153.42                                    | \$20.32                                       | \$5.04                                   | \$15.28                                      |
| Office Administered Drugs                |                                |                   | 310 proced                      | \$379.71                                    | \$9.82  | \$0.37                                   | \$9.45                                       |
| Urgent Care Visits                       |                                |                   | 55 visits                       | \$165.65                                    | \$0.76  | \$0.39                                   | \$0.36                                       |
| Allergy Testing                          |                                |                   | 10 proced                       | \$250.69                                    | \$0.21  | \$0.07                                   | \$0.14                                       |
| Allergy Immunotherapy                    |                                |                   | 42 visits                       | \$72.57                                     | \$0.25  | \$0.09                                   | \$0.17                                       |
| Emergency Room & Observation Care Visits |                                |                   | 102 visits                      | \$280.05                                    | \$2.39  | \$0.77                                   | \$1.62                                       |
| Physical Therapy                         |                                |                   | 477 visits                      | \$88.28                                     | \$3.51  | \$0.72                                   | \$2.79                                       |
| Cardiovascular                           |                                |                   | 142 proced                      | \$112.29                                    | \$1.33  | \$0.30                                   | \$1.03                                       |
| Chiropractor                             |                                |                   | 415 visits                      | \$32.89                                     | \$1.14  | \$0.50                                   | \$0.63                                       |
| Radiology IP - General                   |                                |                   | 40 proced                       | \$42.39                                     | \$0.14  | \$0.02                                   | \$0.12                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 12 proced                       | \$197.08                                    | \$0.19  | \$0.02                                   | \$0.17                                       |
| Radiology Office - General               |                                |                   | 426 proced                      | \$159.61                                    | \$5.67  | \$0.99                                   | \$4.68                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 71 proced                       | \$835.86                                    | \$4.98  | \$1.03                                   | \$3.94                                       |
| Radiology OP - General                   |                                |                   | 185 proced                      | \$56.24                                     | \$0.87  | \$0.14                                   | \$0.72                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 65 proced                       | \$178.57                                    | \$0.97  | \$0.20                                   | \$0.77                                       |
| Pathology/Lab IP & OP                    |                                |                   | 78 proced                       | \$120.31                                    | \$0.78  | \$0.10                                   | \$0.68                                       |
| Pathology/Lab Office                     |                                |                   | 2,721 proced                    | \$33.24                                     | \$7.54  | \$2.38                                   | \$5.16                                       |
| Preventive Immunizations                 |                                |                   | 1,031 proced                    | \$48.34                                     | \$4.15  | \$0.07                                   | \$4.08                                       |
| Preventive Physical Exams                |                                |                   | 300 visits                      | \$214.95                                    | \$5.38  | \$0.17                                   | \$5.22                                       |
| Preventive Well Baby Exams               |                                |                   | 69 visits                       | \$168.29                                    | \$0.97  | \$0.02                                   | \$0.96                                       |
| Preventive Other                         |                                |                   | 723 proced                      | \$71.17                                     | \$4.29  | \$0.25                                   | \$4.04                                       |
| Vision Exams                             |                                |                   | 152 visits                      | \$148.91                                    | \$1.88  | \$0.27                                   | \$1.61                                       |
| Hearing/Speech Exams                     |                                |                   | 13 visits                       | \$105.13                                    | \$0.11  | \$0.04                                   | \$0.07                                       |
| Outpatient Psychiatric                   |                                |                   | 360 visits                      | \$126.31                                    | \$3.79  | \$0.82                                   | \$2.97                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 17 visits                       | \$56.04                                     | \$0.08  | \$0.02                                   | \$0.06                                       |
| Miscellaneous Medical                    |                                |                   | 188 proced                      | \$157.67                                    | \$2.47  | \$0.53                                   | \$1.93                                       |
| <b>Professional Total</b>                |                                |                   |                                 | <b>\$117.51</b>                             | <b>\$20.45</b>                                | <b>\$20.45</b>                           | <b>\$97.05</b>                               |
| <b>Other</b>                             |                                |                   |                                 |   |   |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 6,825 scripts                   | \$95.96                                     | \$54.58                                       | \$11.41                                  | \$43.17                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 25 visits                       | \$430.84                                    | \$0.88  | \$0.02                                   | \$0.86                                       |
| Ambulance                                |                                |                   | 15 visits                       | \$2,234.75                                  | \$2.85  | \$0.47                                   | \$2.38                                       |
| Durable Medical Equipment                |                                |                   | 272 proced                      | \$141.97                                    | \$3.22  | \$0.40                                   | \$2.82                                       |
| Prosthetics                              |                                |                   | 5 proced                        | \$547.19                                    | \$0.23  | \$0.01                                   | \$0.22                                       |
| Glasses/Contacts                         |                                |                   | 3 visits                        | \$187.72                                    | \$0.04  | \$0.01                                   | \$0.03                                       |
| Unknown                                  |                                |                   | 70 proced                       | \$167.37                                    | \$0.97  | \$0.08                                   | \$0.90                                       |
| <b>Other Total</b>                       |                                |                   |                                 |   | <b>\$62.78</b>                                | <b>\$12.40</b>                           | <b>\$50.38</b>                               |
| <b>Total</b>                             |                                |                   |                                 |   | <b>\$345.81</b>                               | <b>\$55.19</b>                           | <b>\$290.63</b>                              |
| Member Months - Medical                  |                                |                   |                                 |   |   |  | 3,324,643                                    |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |   |  | 3,324,344                                    |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, HealthPartners, Inc., John Alden Life Insurance Company, Medica Health Plans, PreferredOne Insurance Company, Time Insurance Company, and UCare Commercial.

This work product was prepared solely to provide assistance to the Minnesota Department of Health. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends such recipients be aided by an actuary or other qualified professional when reviewing the Milliman work product.

Appendix 2C - Exhibit E

**All Carriers\***  
**Market: SMALL GROUP <= 50**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2014 and December 2014 and Paid thru March 31st, 2015**

| Facility                                 | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|---|--|--|
| <b>Inpatient</b>                         |                                |                   |                                 |   |   |  |  |
| Medical                                  | 13.5 admits                    | 3.65              | 49.5 days                       | \$13,652.90                                 | \$15.41                                       | \$0.59                                   | \$14.83                                      |
| Surgical                                 | 12.3 admits                    | 4.03              | 49.7 days                       | \$33,867.55                                 | \$34.76                                       | \$0.38                                   | \$34.38                                      |
| Psychiatric                              | 2.9 admits                     | 12.74             | 36.7 days                       | \$12,819.07                                 | \$3.07  | \$0.12                                   | \$2.95                                       |
| Alcohol/Drug                             | 2.4 admits                     | 14.21             | 34.0 days                       | \$8,288.07                                  | \$1.65  | \$0.12                                   | \$1.53                                       |
| Maternity - Normal Delivery              | 8.1 admits                     | 2.09              | 16.9 days                       | \$5,727.63                                  | \$3.85  | \$0.81                                   | \$3.04                                       |
| Maternity - Csect Delivery               | 2.9 admits                     | 3.42              | 9.8 days                        | \$9,920.44                                  | \$2.37  | \$0.24                                   | \$2.13                                       |
| Well Newborn                             |                                |                   |                                 | \$1,862.20                                  | \$0.52  | \$0.22                                   | \$0.30                                       |
| Maternity Non-Delivery                   | 0.6 admits                     | 2.70              | 1.5 days                        | \$6,884.79                                  | \$0.32  | \$0.03                                   | \$0.29                                       |
| Other Newborn                            | 2.1 admits                     | 3.66              | 7.5 days                        | \$9,751.02                                  | \$1.67  | \$0.12                                   | \$1.55                                       |
| Inpatient Subtotal                       | 44.7 admits                    | 4.60              | 205.5 days                      |   | \$63.62                                       | \$2.63                                   | \$61.00                                      |
| SNF                                      | 0.7 admits                     | 16.86             | 12.6 days                       | \$10,522.66                                 | \$0.66  | \$0.01                                   | \$0.65                                       |
| <b>Outpatient</b>                        |                                |                   |                                 |   |   |  |  |
| Emergency Hospital                       |                                |                   | 134 cases                       | \$1,182.18                                  | \$13.20                                       | \$3.91                                   | \$9.28                                       |
| Outpatient Surgery                       |                                |                   | 83 cases                        | \$3,964.02                                  | \$27.57                                       | \$2.54                                   | \$25.03                                      |
| Radiology - General                      |                                |                   | 85 cases                        | \$533.11                                    | \$3.79  | \$0.95                                   | \$2.84                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 42 cases                        | \$1,364.88                                  | \$4.81  | \$1.31                                   | \$3.50                                       |
| Pathology/Lab                            |                                |                   | 182 cases                       | \$220.38                                    | \$3.33  | \$0.86                                   | \$2.47                                       |
| Pharmacy                                 |                                |                   | 75 cases                        | \$1,395.15                                  | \$8.68  | \$0.33                                   | \$8.35                                       |
| Cardiovascular                           |                                |                   | 28 cases                        | \$847.75                                    | \$1.99  | \$0.46                                   | \$1.54                                       |
| PT/OT/ST                                 |                                |                   | 107 cases                       | \$406.75                                    | \$3.64  | \$0.67                                   | \$2.97                                       |
| Alcohol/Drug                             |                                |                   | 37 cases                        | \$392.19                                    | \$1.23  | \$0.21                                   | \$1.01                                       |
| Psychiatric                              |                                |                   | 52 cases                        | \$370.75                                    | \$1.59  | \$0.14                                   | \$1.45                                       |
| Preventive                               |                                |                   | 97 cases                        | \$417.35                                    | \$3.39  | \$0.10                                   | \$3.29                                       |
| Other                                    |                                |                   | 189 cases                       | \$458.40                                    | \$7.21  | \$0.77                                   | \$6.44                                       |
| Outpatient Subtotal                      |                                |                   |                                 | \$80.43                                     | \$12.27                                       | \$12.27                                  | \$68.16                                      |
| Facility Total                           |                                |                   |                                 |   | \$144.71                                      | \$14.90                                  | \$129.81                                     |
| <b>Professional</b>                      |                                |                   |                                 |   |   |  |  |
| Inpatient Surgery                        |                                |                   | 50 proced                       | \$1,215.60                                  | \$5.04  | \$0.24                                   | \$4.80                                       |
| Inpatient Anesthesia                     |                                |                   | 29 proced                       | \$772.34                                    | \$1.86  | \$0.11                                   | \$1.75                                       |
| Maternity                                |                                |                   | 45 proced                       | \$1,100.74                                  | \$4.15  | \$0.35                                   | \$3.80                                       |
| Outpatient Surgery                       |                                |                   | 154 proced                      | \$741.31                                    | \$9.49  | \$1.01                                   | \$8.49                                       |
| Office Surgery                           |                                |                   | 263 proced                      | \$225.48                                    | \$4.95  | \$1.34                                   | \$3.61                                       |
| Outpatient Anesthesia                    |                                |                   | 88 proced                       | \$467.95                                    | \$3.41  | \$0.35                                   | \$3.07                                       |
| Hospital Visits                          |                                |                   | 165 visits                      | \$262.34                                    | \$3.60  | \$0.35                                   | \$3.25                                       |
| Office/Home Visits                       |                                |                   | 1,892 visits                    | \$152.52                                    | \$24.04                                       | \$7.11                                   | \$16.93                                      |
| Office Administered Drugs                |                                |                   | 325 proced                      | \$354.08                                    | \$9.58  | \$0.32                                   | \$9.26                                       |
| Urgent Care Visits                       |                                |                   | 85 visits                       | \$159.64                                    | \$1.14  | \$0.47                                   | \$0.66                                       |
| Allergy Testing                          |                                |                   | 11 proced                       | \$223.48                                    | \$0.21  | \$0.04                                   | \$0.17                                       |
| Allergy Immunotherapy                    |                                |                   | 60 visits                       | \$64.09                                     | \$0.32  | \$0.05                                   | \$0.27                                       |
| Emergency Room & Observation Care Visits |                                |                   | 123 visits                      | \$266.52                                    | \$2.72  | \$0.78                                   | \$1.94                                       |
| Physical Therapy                         |                                |                   | 544 visits                      | \$78.63                                     | \$3.56  | \$0.77                                   | \$2.79                                       |
| Cardiovascular                           |                                |                   | 148 proced                      | \$105.65                                    | \$1.30  | \$0.27                                   | \$1.03                                       |
| Chiropractor                             |                                |                   | 523 visits                      | \$31.99                                     | \$1.39  | \$0.94                                   | \$0.46                                       |
| Radiology IP - General                   |                                |                   | 38 proced                       | \$43.61                                     | \$0.14  | \$0.01                                   | \$0.13                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 11 proced                       | \$187.13                                    | \$0.17  | \$0.02                                   | \$0.15                                       |
| Radiology Office - General               |                                |                   | 455 proced                      | \$140.33                                    | \$5.32  | \$0.88                                   | \$4.44                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 75 proced                       | \$817.44                                    | \$5.11  | \$0.98                                   | \$4.12                                       |
| Radiology OP - General                   |                                |                   | 191 proced                      | \$53.30                                     | \$0.85  | \$0.14                                   | \$0.71                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 70 proced                       | \$170.68                                    | \$1.00  | \$0.21                                   | \$0.79                                       |
| Pathology/Lab IP & OP                    |                                |                   | 75 proced                       | \$125.81                                    | \$0.78  | \$0.06                                   | \$0.73                                       |
| Pathology/Lab Office                     |                                |                   | 3,002 proced                    | \$29.92                                     | \$7.48  | \$1.39                                   | \$6.09                                       |
| Preventive Immunizations                 |                                |                   | 1,092 proced                    | \$49.47                                     | \$4.50  | \$0.01                                   | \$4.49                                       |
| Preventive Physical Exams                |                                |                   | 307 visits                      | \$215.85                                    | \$5.53  | \$0.02                                   | \$5.51                                       |
| Preventive Well Baby Exams               |                                |                   | 82 visits                       | \$170.75                                    | \$1.17  | \$0.02                                   | \$1.15                                       |
| Preventive Other                         |                                |                   | 752 proced                      | \$62.51                                     | \$3.92  | \$0.10                                   | \$3.81                                       |
| Vision Exams                             |                                |                   | 233 visits                      | \$144.41                                    | \$2.80  | \$0.14                                   | \$2.66                                       |
| Hearing/Speech Exams                     |                                |                   | 15 visits                       | \$99.85                                     | \$0.13  | \$0.03                                   | \$0.09                                       |
| Outpatient Psychiatric                   |                                |                   | 410 visits                      | \$125.53                                    | \$4.29  | \$1.27                                   | \$3.02                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 30 visits                       | \$50.55                                     | \$0.13  | \$0.03                                   | \$0.09                                       |
| Miscellaneous Medical                    |                                |                   | 199 proced                      | \$155.20                                    | \$2.57  | \$0.41                                   | \$2.16                                       |
| Professional Total                       |                                |                   |                                 | \$122.66                                    | \$122.66                                      | \$20.25                                  | \$102.41                                     |
| <b>Other</b>                             |                                |                   |                                 |   |   |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 6,816 scripts                   | \$106.45                                    | \$60.46                                       | \$12.33                                  | \$48.14                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 20 visits                       | \$425.46                                    | \$0.71  | \$0.02                                   | \$0.69                                       |
| Ambulance                                |                                |                   | 15 visits                       | \$1,970.48                                  | \$2.54  | \$0.30                                   | \$2.24                                       |
| Durable Medical Equipment                |                                |                   | 291 proced                      | \$137.23                                    | \$3.33  | \$0.58                                   | \$2.75                                       |
| Prosthetics                              |                                |                   | 4 proced                        | \$419.41                                    | \$0.13  | \$0.01                                   | \$0.12                                       |
| Glasses/Contacts                         |                                |                   | 1 visits                        | \$149.68                                    | \$0.02  | \$0.00                                   | \$0.01                                       |
| Unknown                                  |                                |                   |                                 | \$0.99                                      | \$0.22  | \$0.77                                   | \$0.77                                       |
| Other Total                              |                                |                   |                                 | \$210.37                                    | \$68.18                                       | \$13.46                                  | \$54.71                                      |
| <b>Total</b>                             |                                |                   |                                 |   | \$335.55                                      | \$48.61                                  | \$286.94                                     |
| Member Months - Medical                  |                                |                   |                                 |   |   |  | 2,661,720                                    |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |   |  | 2,611,390                                    |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., John Alden Life Insurance Company, Medica Health Plans, PreferredOne Community Health Plan, PreferredOne Insurance Company, and Time Insurance Company.

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Appendix 2C - Exhibit E

**All Carriers\***  
**Market: SMALL GROUP > 50**  
**Cost and Utilization by Service Category - Milliman Health Cost Guidelines**  
**Claims Incurred Between January 2014 and December 2014 and Paid thru March 31st, 2015**

|  | Annual Admissions per<br>1,000 | Length of<br>Stay | Annual Utilization per<br>1,000 | Average Cost per<br>Service (Allowed<br>\$) | Monthly per<br>Member Claim<br>Cost (Allowed \$) | Monthly per<br>Member Cost<br>Share (\$) | Net Monthly per<br>Member Claim<br>Cost (\$) |
|--|--------------------------------|-------------------|---------------------------------|---|--|--|--|
| <b>Facility</b>                          |                                |                   |                                 |   |  |  |  |
| <b>Inpatient</b>                         |                                |                   |                                 |   |  |  |  |
| Medical                                  | 15.6 admits                    | 3.87              | 60.5 days                       | \$15,114.54                                 | \$19.67  | \$0.96                                   | \$18.71                                      |
| Surgical                                 | 13.4 admits                    | 3.86              | 51.8 days                       | \$33,132.05                                 | \$37.02  | \$0.59                                   | \$36.44                                      |
| Psychiatric                              | 3.4 admits                     | 9.48              | 32.0 days                       | \$11,036.91                                 | \$3.11   | \$0.18                                   | \$2.93                                       |
| Alcohol/Drug                             | 1.7 admits                     | 15.01             | 25.0 days                       | \$10,730.51                                 | \$1.49   | \$0.16                                   | \$1.33                                       |
| Maternity - Normal Delivery              | 8.4 admits                     | 2.11              | 17.7 days                       | \$5,811.09                                  | \$4.06   | \$1.15                                   | \$2.91                                       |
| Maternity - Csect Delivery               | 2.9 admits                     | 3.63              | 10.6 days                       | \$10,305.48                                 | \$2.51   | \$0.33                                   | \$2.17                                       |
| Well Newborn                             |                                |                   |                                 | \$1,843.84                                  | \$0.58   | \$0.30                                   | \$0.28                                       |
| Maternity Non-Delivery                   | 0.6 admits                     | 2.58              | 1.5 days                        | \$7,957.59                                  | \$0.39   | \$0.03                                   | \$0.36                                       |
| Other Newborn                            | 2.5 admits                     | 7.08              | 18.0 days                       | \$36,211.45                                 | \$7.69   | \$0.22                                   | \$7.47                                       |
| <b>Inpatient Subtotal</b>                | <b>48.5 admits</b>             | <b>4.48</b>       | <b>217.3 days</b>               |   | <b>\$76.53</b>                                   | <b>\$3.92</b>                            | <b>\$72.61</b>                               |
| <b>SNF</b>                               | <b>1.1 admits</b>              | <b>20.17</b>      | <b>21.9 days</b>                | <b>\$11,057.11</b>                          | <b>\$1.00</b>                                    | <b>\$0.02</b>                            | <b>\$0.98</b>                                |
| <b>Outpatient</b>                        |                                |                   |                                 |   |  |  |  |
| Emergency Hospital                       |                                |                   | 139 cases                       | \$1,181.19                                  | \$13.66  | \$4.79                                   | \$8.88                                       |
| Outpatient Surgery                       |                                |                   | 92 cases                        | \$3,768.69                                  | \$28.94  | \$3.43                                   | \$25.51                                      |
| Radiology - General                      |                                |                   | 93 cases                        | \$575.84                                    | \$4.48   | \$1.07                                   | \$3.40                                       |
| Radiology - CT/MRI/PET                   |                                |                   | 45 cases                        | \$1,359.88                                  | \$5.13   | \$1.48                                   | \$3.64                                       |
| Pathology/Lab                            |                                |                   | 195 cases                       | \$223.54                                    | \$3.63   | \$0.87                                   | \$2.76                                       |
| Pharmacy                                 |                                |                   | 80 cases                        | \$1,413.84                                  | \$9.41   | \$0.43                                   | \$8.98                                       |
| Cardiovascular                           |                                |                   | 30 cases                        | \$802.27                                    | \$1.98   | \$0.53                                   | \$1.44                                       |
| PT/OT/ST                                 |                                |                   | 119 cases                       | \$389.80                                    | \$3.87   | \$0.76                                   | \$3.11                                       |
| Alcohol/Drug                             |                                |                   | 45 cases                        | \$336.01                                    | \$1.26   | \$0.22                                   | \$1.04                                       |
| Psychiatric                              |                                |                   | 62 cases                        | \$365.45                                    | \$1.88   | \$0.19                                   | \$1.69                                       |
| Preventive                               |                                |                   | 106 cases                       | \$422.44                                    | \$3.72   | \$0.11                                   | \$3.61                                       |
| Other                                    |                                |                   | 192 cases                       | \$382.39                                    | \$6.11   | \$0.90                                   | \$5.21                                       |
| <b>Outpatient Subtotal</b>               |                                |                   |                                 |   | <b>\$84.07</b>                                   | <b>\$14.79</b>                           | <b>\$69.28</b>                               |
| <b>Facility Total</b>                    |                                |                   |                                 |   | <b>\$161.60</b>                                  | <b>\$18.73</b>                           | <b>\$142.87</b>                              |
| <b>Professional</b>                      |                                |                   |                                 |   |  |  |  |
| Inpatient Surgery                        |                                |                   | 55 proced                       | \$1,207.58                                  | \$5.49   | \$0.38                                   | \$5.11                                       |
| Inpatient Anesthesia                     |                                |                   | 33 proced                       | \$746.75                                    | \$2.06   | \$0.19                                   | \$1.87                                       |
| Maternity                                |                                |                   | 45 proced                       | \$1,204.39                                  | \$4.50   | \$0.52                                   | \$3.98                                       |
| Outpatient Surgery                       |                                |                   | 159 proced                      | \$739.03                                    | \$9.77   | \$1.72                                   | \$8.05                                       |
| Office Surgery                           |                                |                   | 286 proced                      | \$235.33                                    | \$5.60   | \$2.31                                   | \$3.29                                       |
| Outpatient Anesthesia                    |                                |                   | 96 proced                       | \$469.99                                    | \$3.75   | \$0.60                                   | \$3.15                                       |
| Hospital Visits                          |                                |                   | 198 visits                      | \$273.94                                    | \$4.51   | \$0.70                                   | \$3.81                                       |
| Office/Home Visits                       |                                |                   | 2,107 visits                    | \$152.08                                    | \$26.70  | \$10.38                                  | \$16.33                                      |
| Office Administered Drugs                |                                |                   | 349 proced                      | \$313.13                                    | \$9.11   | \$0.49                                   | \$8.62                                       |
| Urgent Care Visits                       |                                |                   | 142 visits                      | \$162.41                                    | \$1.92   | \$0.93                                   | \$0.99                                       |
| Allergy Testing                          |                                |                   | 11 proced                       | \$251.18                                    | \$0.23   | \$0.08                                   | \$0.15                                       |
| Allergy Immunotherapy                    |                                |                   | 71 visits                       | \$66.30                                     | \$0.39   | \$0.11                                   | \$0.29                                       |
| Emergency Room & Observation Care Visits |                                |                   | 148 visits                      | \$278.96                                    | \$3.43   | \$1.45                                   | \$1.99                                       |
| Physical Therapy                         |                                |                   | 584 visits                      | \$79.33                                     | \$3.86   | \$1.20                                   | \$2.66                                       |
| Cardiovascular                           |                                |                   | 170 proced                      | \$109.04                                    | \$1.54   | \$0.44                                   | \$1.10                                       |
| Chiropractor                             |                                |                   | 491 visits                      | \$33.81                                     | \$1.38   | \$0.91                                   | \$0.48                                       |
| Radiology IP - General                   |                                |                   | 45 proced                       | \$42.19                                     | \$0.16   | \$0.02                                   | \$0.14                                       |
| Radiology IP - CT/MRI/PET                |                                |                   | 13 proced                       | \$177.67                                    | \$0.19   | \$0.03                                   | \$0.16                                       |
| Radiology Office - General               |                                |                   | 519 proced                      | \$151.71                                    | \$6.56   | \$1.47                                   | \$5.09                                       |
| Radiology Office - CT/MRI/PET            |                                |                   | 81 proced                       | \$810.22                                    | \$5.45   | \$1.63                                   | \$3.82                                       |
| Radiology OP - General                   |                                |                   | 223 proced                      | \$51.19                                     | \$0.95   | \$0.23                                   | \$0.72                                       |
| Radiology OP- CT/MRI/PET                 |                                |                   | 81 proced                       | \$164.61                                    | \$1.11   | \$0.34                                   | \$0.77                                       |
| Pathology/Lab IP & OP                    |                                |                   | 76 proced                       | \$143.15                                    | \$0.90   | \$0.10                                   | \$0.81                                       |
| Pathology/Lab Office                     |                                |                   | 3,527 proced                    | \$30.11                                     | \$8.85   | \$2.36                                   | \$6.49                                       |
| Preventive Immunizations                 |                                |                   | 1,255 proced                    | \$47.89                                     | \$5.01   | \$0.04                                   | \$4.97                                       |
| Preventive Physical Exams                |                                |                   | 352 visits                      | \$213.47                                    | \$6.27   | \$0.05                                   | \$6.22                                       |
| Preventive Well Baby Exams               |                                |                   | 85 visits                       | \$172.21                                    | \$1.21   | \$0.05                                   | \$1.16                                       |
| Preventive Other                         |                                |                   | 837 proced                      | \$62.17                                     | \$4.34   | \$0.19                                   | \$4.15                                       |
| Vision Exams                             |                                |                   | 270 visits                      | \$143.63                                    | \$3.23   | \$0.19                                   | \$3.04                                       |
| Hearing/Speech Exams                     |                                |                   | 18 visits                       | \$101.60                                    | \$0.15   | \$0.06                                   | \$0.09                                       |
| Outpatient Psychiatric                   |                                |                   | 435 visits                      | \$122.92                                    | \$4.45   | \$1.69                                   | \$2.77                                       |
| Outpatient Alcohol/Drug                  |                                |                   | 35 visits                       | \$43.46                                     | \$0.13   | \$0.05                                   | \$0.08                                       |
| Miscellaneous Medical                    |                                |                   | 217 proced                      | \$164.29                                    | \$2.96   | \$0.78                                   | \$2.18                                       |
| <b>Professional Total</b>                |                                |                   |                                 |   | <b>\$136.20</b>                                  | <b>\$31.67</b>                           | <b>\$104.52</b>                              |
| <b>Other</b>                             |                                |                   |                                 |   |  |  |  |
| Prescription Drugs <sup>1</sup>          |                                |                   | 6,623 scripts                   | \$101.33                                    | \$55.92  | \$11.33                                  | \$44.60                                      |
| Home Health Care/Private Duty Nursing    |                                |                   | 19 visits                       | \$410.36                                    | \$0.66   | \$0.02                                   | \$0.64                                       |
| Ambulance                                |                                |                   | 18 visits                       | \$2,005.00                                  | \$3.05   | \$0.52                                   | \$2.53                                       |
| Durable Medical Equipment                |                                |                   | 327 proced                      | \$147.06                                    | \$4.01   | \$0.86                                   | \$3.15                                       |
| Prosthetics                              |                                |                   | 4 proced                        | \$724.14                                    | \$0.22   | \$0.03                                   | \$0.18                                       |
| Glasses/Contacts                         |                                |                   | 1 visits                        | \$116.33                                    | \$0.01   | \$0.00                                   | \$0.01                                       |
| Unknown                                  |                                |                   | 53 proced                       | \$272.57                                    | \$1.21   | \$0.32                                   | \$0.90                                       |
| <b>Other Total</b>                       |                                |                   |                                 |   | <b>\$65.08</b>                                   | <b>\$13.08</b>                           | <b>\$52.00</b>                               |
| <b>Total</b>                             |                                |                   |                                 |   | <b>\$362.88</b>                                  | <b>\$63.49</b>                           | <b>\$299.39</b>                              |
| Member Months - Medical                  |                                |                   |                                 |   |  |  | 1,525,755                                    |
| Member Months - RX <sup>1</sup>          |                                |                   |                                 |   |  |  | 1,515,123                                    |

<sup>1</sup> Pharmacy drug service line uses pharmacy member months. All other service lines use medical member months.

\* The carriers identified in this market segment and included in this exhibit are: Blue Cross Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., Medica Health Plans, PreferredOne Community Health Plan, and PreferredOne Insurance Company.

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All Carriers\*  
All Markets  
2013 Member Months by Risk Adjustment Data Elements

1. Distribution by Metal Level for Risk Adjustment Covered Plans Only<sup>1</sup>

| Plans Subject to Risk Adjustment | Individual    |            | Small Group <= 50 |            | Small Group 51-100 |            | MinnesotaCare |            |
|----------------------------------|---------------|------------|-------------------|------------|--------------------|------------|---------------|------------|
|                                  | Member Months | % of Total | Member Months     | % of Total | Member Months      | % of Total | Member Months | % of Total |
| Metal Level                      |               |            |                   |            |                    |            |               |            |
| Bronze                           | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%         |
| Silver                           | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%         |
| Gold                             | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%         |
| Platinum                         | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%         |
| Catastrophic                     | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%         |
| Unknown                          | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%         |

2. Distribution by Rating Region

| All Plans                  | Individual    |            | Small Group <= 50 |            | Small Group 51-100 |            | MinnesotaCare |            |
|----------------------------|---------------|------------|-------------------|------------|--------------------|------------|---------------|------------|
|                            | Member Months | % of Total | Member Months     | % of Total | Member Months      | % of Total | Member Months | % of Total |
| Rating Region <sup>2</sup> |               |            |                   |            |                    |            |               |            |
| Rating Area 1              | 193,524       | 8%         | 126,163           | 5%         | 35,292             | 4%         | 102,653       | 7%         |
| Rating Area 2              | 95,438        | 4%         | 131,055           | 5%         | 36,029             | 4%         | 104,673       | 7%         |
| Rating Area 3              | 146,906       | 6%         | 120,201           | 5%         | 22,318             | 3%         | 59,222        | 4%         |
| Rating Area 4              | 118,980       | 5%         | 124,801           | 5%         | 19,253             | 2%         | 34,643        | 2%         |
| Rating Area 5              | 165,817       | 7%         | 121,943           | 5%         | 22,643             | 3%         | 62,284        | 4%         |
| Rating Area 6              | 145,422       | 6%         | 103,819           | 4%         | 30,251             | 3%         | 71,749        | 5%         |
| Rating Area 7              | 198,699       | 8%         | 169,429           | 7%         | 44,166             | 5%         | 202,825       | 14%        |
| Rating Area 8              | 1,364,041     | 55%        | 1,446,973         | 60%        | 644,471            | 74%        | 821,834       | 55%        |
| Rating Area 9              | 53,674        | 2%         | 51,613            | 2%         | 10,232             | 1%         | 32,557        | 2%         |
| Unknown                    | 524           | 0%         | 1,573             | 0%         | 241                | 0%         | 0             | 0%         |
| Missing                    | 0             | 0%         | 0                 | 0%         | 6,515              | 1%         | 0             | 0%         |

3. Distribution by Enrolled Month and by Risk Adjustment Plan Status<sup>3</sup>

| All Plans | Individual                              |                                | Small Group <= 50                       |                                | Small Group 51-100                      |                                | MinnesotaCare                           |                                |
|-----------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|
|           | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment |
| YearMo    |   |                                |   |                                |   |                                |   |                                |
| 201301    | 0                                       | 187,993                        | 0                                       | 144,015                        | 0                                       | 47,105                         | 0                                       | 114,752                        |
| 201302    | 0                                       | 196,386                        | 0                                       | 149,559                        | 0                                       | 49,077                         | 0                                       | 117,202                        |
| 201303    | 0                                       | 197,993                        | 0                                       | 154,930                        | 0                                       | 51,369                         | 0                                       | 118,280                        |
| 201304    | 0                                       | 197,413                        | 0                                       | 158,798                        | 0                                       | 54,225                         | 0                                       | 117,466                        |
| 201305    | 0                                       | 198,751                        | 0                                       | 164,081                        | 0                                       | 56,946                         | 0                                       | 120,834                        |
| 201306    | 0                                       | 200,323                        | 0                                       | 170,018                        | 0                                       | 60,030                         | 0                                       | 120,767                        |
| 201307    | 0                                       | 201,072                        | 0                                       | 174,974                        | 0                                       | 64,548                         | 0                                       | 126,018                        |
| 201308    | 0                                       | 202,078                        | 0                                       | 180,353                        | 0                                       | 66,957                         | 0                                       | 129,769                        |
| 201309    | 0                                       | 201,673                        | 0                                       | 185,076                        | 0                                       | 69,181                         | 0                                       | 128,375                        |
| 201310    | 0                                       | 233,712                        | 0                                       | 297,757                        | 0                                       | 117,039                        | 0                                       | 129,231                        |
| 201311    | 0                                       | 235,024                        | 0                                       | 305,196                        | 0                                       | 117,485                        | 0                                       | 132,855                        |
| 201312    | 0                                       | 230,607                        | 0                                       | 312,813                        | 0                                       | 117,449                        | 0                                       | 136,891                        |

<sup>1</sup> Benefit Plan Contract ID in the Supplemental Data was used to determine whether or not a plan was subject to the 2014 risk adjustment program. Benefit Plan IDs that followed the federal HIOS plan ID format were categorized as subject to risk adjustment. Otherwise, they were categorized as not subject to risk adjustment. MinnesotaCare was not subject to risk adjustment.

<sup>2</sup> Rating Region was assigned using the carrier-submitted geographic rating area for Individual and Small Group plans and using the member zip code to map to rating area for MinnesotaCare plans.

<sup>3</sup> Plans subject to risk adjustment were 2014 non-grandfathered, individual and small group plans.

\* The carriers included in this exhibit are: Blue Cross Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., Itasca Medical Care, Medica Health Plans, John Alde Company, PreferredOne Community Health Plan, PreferredOne Insurance Company, PrimeWest Health, South Country Health Alliance, Time Insurance Company, and UCare.

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**All Carriers\***  
**All Markets**  
**2014 Member Months by Risk Adjustment Data Elements**

**1. Distribution by Metal Level for Risk Adjustment Covered Plans Only<sup>1</sup>**

| Plans Subject to Risk Adjustment | Individual    |            | Small Group <= 50 |            | Small Group 51-100 |            | MinnesotaCare |                          |
|----------------------------------|---------------|------------|-------------------|------------|--------------------|------------|---------------|--------------------------|
|                                  | Member Months | % of Total | Member Months     | % of Total | Member Months      | % of Total | Member Months | % of Total Member Months |
| Metal Level                      |               |            |                   |            |                    |            |               |                          |
| Bronze                           | 741,410       | 27%        | 97,278            | 8%         | 0                  | 0%         | 0             | 0%                       |
| Silver                           | 826,854       | 30%        | 426,682           | 36%        | 0                  | 0%         | 0             | 0%                       |
| Gold                             | 735,830       | 27%        | 555,684           | 47%        | 0                  | 0%         | 0             | 0%                       |
| Platinum                         | 389,247       | 14%        | 107,607           | 9%         | 0                  | 0%         | 0             | 0%                       |
| Catastrophic                     | 45,142        | 2%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%                       |
| Unknown                          | 0             | 0%         | 0                 | 0%         | 0                  | 0%         | 0             | 0%                       |

**2. Distribution by Rating Region**

| All Plans                  | Individual    |            | Small Group <= 50 |            | Small Group 51-100 |            | MinnesotaCare |                          |
|----------------------------|---------------|------------|-------------------|------------|--------------------|------------|---------------|--------------------------|
|                            | Member Months | % of Total | Member Months     | % of Total | Member Months      | % of Total | Member Months | % of Total Member Months |
| Rating Region <sup>2</sup> |               |            |                   |            |                    |            |               |                          |
| Rating Area 1              | 207,118       | 6%         | 136,230           | 5%         | 66,750             | 4%         | 60,928        | 7%                       |
| Rating Area 2              | 99,142        | 3%         | 122,333           | 5%         | 56,904             | 4%         | 54,300        | 7%                       |
| Rating Area 3              | 153,970       | 5%         | 117,095           | 4%         | 44,446             | 3%         | 33,337        | 4%                       |
| Rating Area 4              | 121,754       | 4%         | 65,360            | 2%         | 39,850             | 3%         | 17,090        | 2%                       |
| Rating Area 5              | 144,752       | 4%         | 117,703           | 4%         | 54,449             | 4%         | 30,033        | 4%                       |
| Rating Area 6              | 146,293       | 4%         | 104,396           | 4%         | 57,424             | 4%         | 33,108        | 4%                       |
| Rating Area 7              | 156,508       | 5%         | 174,133           | 7%         | 68,378             | 4%         | 86,684        | 10%                      |
| Rating Area 8              | 2,223,266     | 67%        | 1,780,462         | 67%        | 1,101,085          | 72%        | 500,293       | 60%                      |
| Rating Area 9              | 65,752        | 2%         | 37,800            | 1%         | 18,666             | 1%         | 12,403        | 1%                       |
| Unknown                    | 565           | 0%         | 6,208             | 0%         | 1,436              | 0%         | 0             | 0%                       |
| Missing                    | 5,523         | 0%         | 0                 | 0%         | 16,367             | 1%         | 0             | 0%                       |

**3. Distribution by Enrolled Month and by Risk Adjustment Plan Status<sup>1</sup>**

| All Plans | Individual                              |                                | Small Group <= 50                       |                                | Small Group 51-100                      |                                | MinnesotaCare                           |                                |
|-----------|---|--------------------------------|---|--------------------------------|---|--------------------------------|---|--------------------------------|
|           | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment | Subject to Risk Adjustment <sup>3</sup> | Not Subject to Risk Adjustment |
| YearMo    |   |                                |   |                                |   |                                |   |                                |
| 201401    | 191,774                                 | 63,533                         | 40,872                                  | 175,408                        | 0                                       | 114,876                        | 0                                       | 45,134                         |
| 201402    | 197,468                                 | 58,354                         | 50,145                                  | 166,859                        | 0                                       | 115,033                        | 0                                       | 50,936                         |
| 201403    | 209,249                                 | 54,565                         | 60,459                                  | 156,761                        | 0                                       | 116,711                        | 0                                       | 59,487                         |
| 201404    | 220,786                                 | 50,750                         | 68,972                                  | 147,871                        | 0                                       | 118,834                        | 0                                       | 66,794                         |
| 201405    | 242,177                                 | 46,902                         | 77,436                                  | 139,882                        | 0                                       | 120,892                        | 0                                       | 74,753                         |
| 201406    | 241,819                                 | 46,144                         | 88,104                                  | 131,185                        | 0                                       | 122,757                        | 0                                       | 79,177                         |
| 201407    | 239,106                                 | 44,955                         | 97,240                                  | 118,338                        | 0                                       | 128,616                        | 0                                       | 82,604                         |
| 201408    | 244,360                                 | 45,052                         | 106,244                                 | 111,970                        | 0                                       | 132,209                        | 0                                       | 74,396                         |
| 201409    | 240,444                                 | 44,537                         | 117,682                                 | 102,807                        | 0                                       | 135,434                        | 0                                       | 68,897                         |
| 201410    | 239,727                                 | 43,848                         | 127,277                                 | 95,373                         | 0                                       | 137,192                        | 0                                       | 72,795                         |
| 201411    | 238,263                                 | 43,752                         | 137,300                                 | 87,794                         | 0                                       | 138,570                        | 0                                       | 75,321                         |
| 201412    | 233,310                                 | 43,768                         | 215,520                                 | 40,221                         | 0                                       | 144,631                        | 0                                       | 77,882                         |

<sup>1</sup> Benefit Plan Contract ID in the Supplemental Data was used to determine whether or not a plan was subject to the 2014 risk adjustment program. Benefit Plan IDs that followed the federal HIOS plan ID format were categorized as subject to risk adjustment. Otherwise, they were categorized as not subject to risk adjustment. MinnesotaCare was not subject to risk adjustment.

<sup>2</sup> Rating Region was assigned using the carrier-submitted geographic rating area for Individual and Small Group plans and using the member zip code to map to rating area for MinnesotaCare plans.

<sup>3</sup> Plans subject to risk adjustment were 2014 non-grandfathered, individual and small group plans.

\* The carriers included in this exhibit are: Blue Cross Blue Shield of Minnesota, Federated Mutual Insurance Company, HealthPartners, Inc., Itasca Medical Care, Medica Health Plans, John Alden Company, PreferredOne Community Health Plan, PreferredOne Insurance Company, PrimeWest Health, South Country Health Alliance, Time Insurance Company, UCare, and UCare Commercial.

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## Appendix 2D – Description of Insurer-Specific Data Quality Reports

The insurer-specific data quality report templates consist of nine data quality assessment exhibits. We have run these reports by carrier and by market segment (MinnesotaCare, individual, small group <= 50, small group 51-100). These reports will be shared with the individual carriers.<sup>1</sup> The template is included in this report without data. Below is a detailed description of each exhibit.

**Summary of Findings** summarizes a number of metrics with the intention of highlighting potential data quality issues. Those rows marked with a “No” may require additional research to understand why the value fell outside of threshold ranges of acceptability. Where data limitations existed they were minor and would not adversely affect the conclusion of the study.

**Exhibit A** summarizes the number of members and the paid claim totals by carrier by product by month for medical and pharmacy claims during 2013 and 2014. We describe in more detail each column:

The table ‘Between Medical Member File and Rx Member File’ summarizes the unique members found in the medical and pharmacy membership files (after merging the supplemental file into the MN APCD) and the percent of members who have medical eligibility who also have pharmacy eligibility.

- Columns A, F and K: Year Month
  - Incurred year and month
- Column B: Unique Number of Members in Medical Member File (after merging with Supplemental File)
  - Number of unique **MemberIDN** in the medical enrollment file after merging with the supplemental file
- Column C: Unique Number of Members in Rx Member File (after merging with Supplemental File)
  - Number of unique **MemberIDN** in the pharmacy enrollment file after merging with the supplemental file
- Column D: Unique Members found in both Med & Rx Membership Files
  - Number of unique **MemberIDN** with both medical and pharmacy benefit coverages – overlapping between (B) and (C).
- Column E: % Medical Members with Rx Coverage in Same Month
  - Percent of medical insurance enrollees with pharmacy benefit coverage; calculated as (D) divided by (B)

The table ‘Between Medical Member File and Medical Claims File’ summarizes the unique member counts and the paid claim totals in the medical enrollment and medical claims data.

- Column G: Unique Number of Members in Medical Member File (after merging with Supplemental File)
  - Number of unique **MemberIDN** in the medical enrollment file after merging with the supplemental file
- Column H: Unique Number of Members in Medical Claims File (after merging with Member File)
  - Number of unique **MemberIDN** in Medical Claims File after merging with the Member File in Column G

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<sup>1</sup> For purposes of this Appendix, the term carrier is used interchangeably with insurer.



- Column I: Total Incurred Plan Liability in Medical Claims File
  - Sum of **Paid** amounts for those members found in Column H.
- Column J: % Incurred Plan Liability Submitted by TPA
  - Percent of the paid amount in the claims file submitted by any entity other than the primary carrier; calculated as a function of Column I.

Table 'Between Pharmacy Member File and Pharmacy Claims File' summarizes the unique member counts and paid claim totals in pharmacy enrollment and pharmacy claims data.

- Column L: Unique Number of Members in Rx Member File (after merging with Supplemental File)
  - Number of unique **MemberIDN** in the pharmacy enrollment file after merging with the Supplemental File
- Column M: Unique Number of Members in Rx Claims File (after merging with Member File)
  - Number of unique **MemberIDN** in pharmacy claims file after merging with the Member File in Column L
- Column N: Total Incurred Plan Liability in Rx Claims File
  - Sum of **Paid** amounts for those members found in Column M.
- Column O: % Incurred Plan Liability Submitted by PBM
  - Percent of the paid amount in the claims file submitted by any entity other than the primary carrier; calculated as a function of Column N.

The bottom of the exhibit is a table labeled 'Members without any Claims (Medical or Pharmacy).' In this table we present the number of members who were eligible for the full year and incurred no claims. The carrier-specific numbers are compared to the market as a whole for an indication of a possible outlier.

**Exhibit B** summarizes the total member counts, allowed dollars, paid dollars and per member per month (PMPM) paid amount for both medical and pharmacy claims for only claims incurred by eligible members (as defined in Columns H and N in Exhibit A). Allowed dollars were calculated as the sum of paid amount, member's copay, and deductible.

We describe in more detail each column of Exhibit B:

- Columns A and L: Incurred year and month
- Columns B and M: Medical Member Months
  - Same as Column B in Exhibit A.
- Columns C and N: Medical Total Allowed
  - Total medical allowed cost for eligible claims incurred in the month – summing up **Paid** (Columns D and O), **Copay**, and **Deductible** for eligible claims in medical claims file.
- Columns D and O: Medical Total Paid
  - Same as Column I in Exhibit A.
- Columns E and P: Medical PMPM Paid
  - Paid PMPM cost incurred in the month; calculated as (D) divided by (B) and (O) divided by (M).
- Columns F and Q: Medical Percent of Payer Cost Share
  - Payer cost share as a percent of allowed; calculated as (D) divided by (C) and (O) divided by (N).
- Columns G and R: Pharmacy Member Months

- Same as Column C in Exhibit A.
- Columns H and S: Pharmacy Total Allowed
  - Total pharmacy allowed cost incurred in the month – summing up Paid (Columns I and T), **Copay** and **Deductible** amounts for eligible claims in pharmacy claims file.
- Columns I and T: Pharmacy Total Paid
  - Same as Column N in Exhibit A.
- Columns J and U: Pharmacy PMPM Paid
  - Paid per member per month cost incurred in the month; calculated as (I) divided by (G) and (T) divided by (R).
- Columns K and V: Pharmacy Percent of Payer Cost Sharing
  - Payer cost share as a percent of allowed; calculated as (I) divided by (H) and (T) divided by (S)

**Exhibit C** shows a paid claims triangle for both medical and pharmacy claims. **Paid** by paid month (**Last\_Paid\_Date**) is summed up for every incurred month (**First\_SVC\_Date** and **Fill\_Date**).

**Exhibit D** summarizes how well key risk scoring variables are populated. Each variable is found in the medical claims file and the types of each are classified as missing, valid, and invalid. ICD-9 diagnosis fields (**Dx1-Dx13**) valid diagnosis codes as determined by their existence in the **Ref\_Dx** SAS file that is part of the MN APCD. Type of Bill (**BILL\_TYPE**) values are considered valid if they report an expected value as documented in the MN APCD User Guide. Revenue Code (**REV**) is considered valid if value matches list of accepted codes in the 2014 HHS-HCC risk score methodology. This metric is only summarized on facility claims (as defined by **BILL\_TYPE**). Procedure code (**CPT**) is also considered valid if value matches list of accepted codes in the 2014 HHS-HCC risk methodology. This metric is only summarized on professional claims (as defined by **BILL\_TYPE**).

**Exhibit E** summarizes claims and membership experience by the Milliman Health Cost Guideline (HCG) categories for 2013 and 2014. For this study, the HCG categories are used to assess the reasonability of the MN APCD data in terms of PMPM costs and utilization rates by service category.

**Exhibit F** summarizes membership experience by metal tier, rating region, and percent subject to risk adjustment for 2013 and 2014. These reports are used to assess the completeness and validity of the metal tier and rating region fields as well as checks the assignment of “Subject to Risk Adjustment” flag based on the format of the **Benefit Contract ID**.

### Appendix 4A - Model R-Squared Comparison

**R-Squared Calculated on Minnesota Data**

|   | Platinum   | Gold       | Silver     | Bronze     | Catastrophic |
|---|------------|------------|------------|------------|--------------|
| Federal Model, National Data (MarketScan) | 28.3-39.4% | 27.3-38.9% | 27.5-38.7% | 26.5-38.4% | 27.1-38.4%   |
| Federal Model, MN Data                    | 42.3%      | 38.6%      | 37.0%      | 38.3%      | 43.0%        |
| State Model, MN Data                      | 54.0%      | 52.9%      | 49.2%      | 50.1%      | 55.1%        |

- Note: 1. The Federal Model R-Squared calculated by HHS was split by age (adult, children and infants) and by calendar year (2010, 2011 and 2012).
2. The R-Squared were based on the combined 2013 and 2014 MN APCD data, including commercial individual, small group up to 50 members, groups of 51-100 members, and MinnesotaCare. MinnesotaCare members are assigned to the Silver tier.

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**Appendix 4B - Predictive Ratio\* by Enrollment Duration**

| Enrollment Duration (Months) | Platinum      |               |             | Gold          |               |             | Silver        |               |             | Bronze        |               |             | Catastrophic  |               |             |
|------------------------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|
|                              | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model |
| 1                            | 19,096        | 57%           | 91%         | 67,166        | 61%           | 101%        | 88,021        | 46%           | 85%         | 19,960        | 60%           | 93%         | 1,518         | 60%           | 99%         |
| 2                            | 30,674        | 71%           | 107%        | 73,672        | 73%           | 99%         | 97,548        | 58%           | 91%         | 17,290        | 85%           | 105%        | 2,340         | 39%           | 49%         |
| 3                            | 95,178        | 75%           | 108%        | 311,913       | 72%           | 107%        | 269,037       | 66%           | 107%        | 46,920        | 77%           | 74%         | 8,700         | 100%          | 96%         |
| 4                            | 38,176        | 80%           | 104%        | 88,228        | 84%           | 97%         | 138,996       | 68%           | 93%         | 24,260        | 128%          | 84%         | 3,920         | 135%          | 90%         |
| 5                            | 46,305        | 89%           | 87%         | 98,785        | 90%           | 101%        | 172,470       | 72%           | 93%         | 29,780        | 109%          | 84%         | 4,825         | 104%          | 82%         |
| 6                            | 50,040        | 93%           | 95%         | 115,182       | 98%           | 97%         | 234,030       | 78%           | 92%         | 36,528        | 109%          | 83%         | 5,250         | 118%          | 113%        |
| 7                            | 43,883        | 96%           | 109%        | 123,109       | 100%          | 96%         | 261,065       | 80%           | 90%         | 33,215        | 121%          | 102%        | 5,712         | 104%          | 90%         |
| 8                            | 74,688        | 95%           | 110%        | 144,072       | 104%          | 103%        | 329,032       | 83%           | 97%         | 70,816        | 142%          | 116%        | 13,008        | 127%          | 124%        |
| 9                            | 64,872        | 98%           | 96%         | 157,230       | 105%          | 99%         | 297,252       | 90%           | 95%         | 61,263        | 140%          | 114%        | 12,501        | 155%          | 125%        |
| 10                           | 69,390        | 101%          | 98%         | 166,430       | 105%          | 101%        | 333,740       | 91%           | 99%         | 67,040        | 129%          | 95%         | 10,980        | 180%          | 153%        |
| 11                           | 94,974        | 110%          | 106%        | 260,755       | 115%          | 101%        | 530,332       | 94%           | 93%         | 79,871        | 139%          | 85%         | 21,010        | 180%          | 98%         |
| 12                           | 797,712       | 104%          | 104%        | 2,217,216     | 113%          | 101%        | 3,430,476     | 107%          | 104%        | 798,588       | 142%          | 91%         | 204,984       | 171%          | 104%        |

\*Note - The predictive ratio is calculated as the model predicted cost divided by the actual cost.

The ratios were based on the combined 2013 and 2014 MN APCD data, including commercial individual, small group up to 50 members, groups of 51-100 members, and MinnesotaCare. MinnesotaCare members are assigned to the Silver tier.

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Appendix 4C - Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data

| Condition Category (from the federal HHS-HCC Model)   | Condition Category ID | Predictive Ratio |
|---|-----------------------|------------------|
| HIV/AIDS  | CC001                 | 62%              |
| Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock                                 | CC002                 | 116%             |
| Central Nervous System Infections, Except Viral Meningitis  | CC003                 | 126%             |
| Viral or Unspecified Meningitis   | CC004                 | 97%              |
| Opportunistic Infections  | CC006                 | 115%             |
| Metastatic Cancer   | CC008                 | 112%             |
| Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia                | CC009                 | 101%             |
| Non-Hodgkin's Lymphomas and Other Cancers and Tumors  | CC010                 | 86%              |
| Colorectal, Breast (Age < 50), Kidney, and Other Cancers  | CC011                 | 105%             |
| Breast (Age 50+) and Prostate Cancer, Benign/Uncertain Brain Tumors, and Other Cancers and Tumors | CC012                 | 109%             |
| Thyroid Cancer, Melanoma, Neurofibromatosis, and Other Cancers and Tumors                         | CC013                 | 104%             |
| Diabetes with Acute Complications   | CC019                 | 68%              |
| Diabetes with Chronic Complications   | CC020                 | 85%              |
| Diabetes without Complication   | CC021                 | 94%              |
| Protein-Calorie Malnutrition  | CC023                 | 112%             |
| Congenital Metabolic Disorders, Not Elsewhere Classified  | CC028                 | 81%              |
| Amyloidosis, Porphyria, and Other Metabolic Disorders   | CC029                 | 80%              |
| Adrenal, Pituitary, and Other Significant Endocrine Disorders                                     | CC030                 | 108%             |
| Liver Transplant Status/Complications   | CC034                 | 214%             |
| End-Stage Liver Disease   | CC035                 | 117%             |
| Cirrhosis of Liver  | CC036                 | 117%             |
| Chronic Hepatitis   | CC037                 | 105%             |
| Acute Liver Failure/Disease, Including Neonatal Hepatitis   | CC038                 | 110%             |
| Peritonitis/Gastrointestinal Perforation/Necrotizing Enterocolitis                                | CC042                 | 131%             |
| Intestinal Obstruction  | CC045                 | 115%             |
| Chronic Pancreatitis  | CC046                 | 116%             |
| Acute Pancreatitis/Other Pancreatic Disorders and Intestinal Malabsorption                        | CC047                 | 118%             |
| Inflammatory Bowel Disease  | CC048                 | 87%              |
| Bone/Joint/Muscle Infections/Necrosis   | CC055                 | 108%             |
| Rheumatoid Arthritis and Specified Autoimmune Disorders   | CC056                 | 84%              |
| Systemic Lupus Erythematosus and Other Autoimmune Disorders                                       | CC057                 | 92%              |
| Osteogenesis Imperfecta and Other Osteodystrophies  | CC061                 | 135%             |
| Congenital/Developmental Skeletal and Connective Tissue Disorders                                 | CC062                 | 91%              |
| Cleft Lip/Cleft Palate  | CC063                 | 83%              |

Appendix 4C - Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data

| Condition Category (from the federal HHS-HCC Model)   | Condition Category ID | Predictive Ratio |
|---|-----------------------|------------------|
| Acquired Hemolytic Anemia, Including Hemolytic Disease of Newborn Disorders of the Immune Mechanism | CC069                 | 105%             |
| Coagulation Defects and Other Specified Hematological Disorders                                     | CC074                 | 121%             |
| Drug Psychosis  | CC075                 | 118%             |
| Drug Dependence   | CC081                 | 83%              |
| Schizophrenia   | CC082                 | 92%              |
| Major Depressive and Bipolar Disorders  | CC087                 | 83%              |
| Reactive and Unspecified Psychosis, Delusional Disorders  | CC088                 | 97%              |
| Personality Disorders   | CC089                 | 84%              |
| Anorexia/Bulimia Nervosa  | CC090                 | 58%              |
| Prader-Willi, Patau, Edwards, and Autosomal Deletion Syndromes                                      | CC094                 | 93%              |
| Down Syndrome, Fragile X, Other Chromosomal Anomalies, and Congenital Malformation Syndromes        | CC096                 | 86%              |
| Autistic Disorder   | CC097                 | 104%             |
| Pervasive Developmental Disorders, Except Autistic Disorder   | CC102                 | 62%              |
| Quadriplegia  | CC103                 | 49%              |
| Paraplegia  | CC107                 | 131%             |
| Spinal Cord Disorders/Injuries  | CC109                 | 123%             |
| Quadriplegic Cerebral Palsy   | CC110                 | 106%             |
| Cerebral Palsy, Except Quadriplegic   | CC112                 | 130%             |
| Spina Bifida and Other Brain/Spinal/Nervous System Congenital Anomalies                             | CC113                 | 111%             |
| Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy | CC114                 | 127%             |
| Muscular Dystrophy  | CC115                 | 95%              |
| Multiple Sclerosis  | CC117                 | 137%             |
| Parkinson's, Huntington's, and Spinocerebellar Disease, and Other Neurodegenerative Disorders       | CC118                 | 68%              |
| Seizure Disorders and Convulsions   | CC119                 | 120%             |
| Hydrocephalus   | CC120                 | 109%             |
| Non-Traumatic Coma, and Brain Compression/Anoxic Damage   | CC121                 | 114%             |
| Respirator Dependence/Tracheostomy Status   | CC122                 | 103%             |
| Cardio-Respiratory Failure and Shock, Including Respiratory Distress Syndromes                      | CC125                 | 115%             |
| Congestive Heart Failure  | CC127                 | 112%             |
| Acute Myocardial Infarction   | CC130                 | 120%             |
| Unstable Angina and Other Acute Ischemic Heart Disease  | CC131                 | 107%             |
| Heart Infection/Inflammation, Except Rheumatic  | CC132                 | 110%             |
|   | CC135                 | 102%             |

Appendix 4C - Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data

| Condition Category (from the federal HHS-HCC Model)   | Condition Category ID | Predictive Ratio |
|---|-----------------------|------------------|
| Major Congenital Heart/Circulatory Disorders  | CC138                 | 95%              |
| Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders | CC139                 | 95%              |
| Specified Heart Arrhythmias   | CC142                 | 120%             |
| Intracranial Hemorrhage   | CC145                 | 120%             |
| Ischemic or Unspecified Stroke  | CC146                 | 115%             |
| Cerebral Aneurysm and Arteriovenous Malformation  | CC149                 | 98%              |
| Hemiplegia/Hemiparesis  | CC150                 | 110%             |
| Monoplegia, Other Paralytic Syndromes   | CC151                 | 104%             |
| Atherosclerosis of the Extremities with Ulceration or Gangrene  | CC153                 | 101%             |
| Vascular Disease with Complications   | CC154                 | 110%             |
| Pulmonary Embolism and Deep Vein Thrombosis   | CC156                 | 117%             |
| Cystic Fibrosis   | CC159                 | 86%              |
| Chronic Obstructive Pulmonary Disease, Including Bronchiectasis   | CC160                 | 100%             |
| Asthma  | CC161                 | 89%              |
| Fibrosis of Lung and Other Lung Disorders   | CC162                 | 110%             |
| Aspiration and Specified Bacterial Pneumonias and Other Severe Lung Infections                                    | CC163                 | 121%             |
| Kidney Transplant Status  | CC183                 | 131%             |
| End Stage Renal Disease   | CC184                 | 115%             |
| Chronic Kidney Disease, Stage 5   | CC187                 | 114%             |
| Chronic Kidney Disease, Severe (Stage 4)  | CC188                 | 146%             |
| Ectopic and Molar Pregnancy, Except with Renal Failure, Shock, or Embolism  | CC203                 | 59%              |
| Miscarriage with No or Minor Complications  | CC205                 | 103%             |
| Completed Pregnancy With Major Complications  | CC207                 | 75%              |
| Completed Pregnancy With Complications  | CC208                 | 70%              |
| Completed Pregnancy with No or Minor Complications  | CC209                 | 81%              |
| Chronic Ulcer of Skin, Except Pressure  | CC217                 | 111%             |
| Hip Fractures and Pathological Vertebral or Humerus Fractures   | CC226                 | 121%             |
| Pathological Fractures, Except of Vertebrae, Hip, or Humerus  | CC227                 | 101%             |
| Premature Newborns, Including Birthweight 1500-1999 Grams   | CC246                 | 127%             |
| Premature Newborns, Including Birthweight 2000-2499 Grams   | CC247                 | 100%             |
| Other Premature, Low Birthweight, Malnourished, or Multiple Birth Newborns  | CC248                 | 100%             |
| Term or Post-Term Singleton Newborn, Normal or High Birthweight   | CC249                 | 80%              |
| Stem Cell, Including Bone Marrow, Transplant Status/Complications   | CC251                 | 125%             |

**Appendix 4C - Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data**

| <b>Condition Category (from the federal HHS-HCC Model)</b> | <b>Condition Category ID</b> | <b>Predictive Ratio</b> |
|--|------------------------------|-------------------------|
| Artificial Openings for Feeding or Elimination             | CC253                        | 116%                    |
| Amputation Status, Lower Limb/Amputation Complications     | CC254                        | 109%                    |

\*Note - Predictive ratio is defined as the model predicted cost divided by the actual cost. Conditions with less than 50 members are not reported.

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## Appendix 4D - Parameters of the State Model and the State Model with Reinsurance

This appendix shows the calculation of member-level risk scores from the State Model and the State Model with Reinsurance. Both models involve calculations in two steps. In the first step, a member's "Step 1 Risk" is calculated as the sum of the risk factors that the member has. In the second step, the final risk score is calculated as the "Step 1 Risk" multiplied by the enrollment duration factor. Below is an illustrative example.

A hypothetical member, enrolled in a platinum plan for 10 months, has a 1.5 risk score as calculated by the 2016 Federal Model. In addition to the conditions identified under the Federal Model, he was also recognized by the State Model as having major depression (SHCC055, "Major Depressive, Bipolar, and Paranoid Disorders") and rheumatoid arthritis (SHCC038, "Rheumatoid arthritis and other inflammatory polyarthropathy"). Major depression is considered a disabling health condition which is recognized in the State Model.

The risk score under the State Model would be calculated as:

$$\begin{aligned}\text{Step 1 Risk} &= 1.5 \times 0.2816 + 0.1790 + 0.7590 + 1.0317 \\ &= 2.3921\end{aligned}$$

Knowing that the member was enrolled only for part of the year, the State Model will make an additional adjustment in the second step to address prediction biases relating to partial year experience:

$$\begin{aligned}\text{Final Risk} &= 2.3921 \times 1.028 \\ &= 2.4591\end{aligned}$$

The State Model with Reinsurance follows the same construct except that the risk weights or model coefficients are different than the State Model.

## Appendix 4D - Parameters of the State Model

Note - Members with no HCCs will receive the HHS Risk Score multiplied by 0.2816, and further multiplied by the duration adjustment in Step 2.

### Step 1 - Calculating "Step 1 Risk" Based on the Federal Model Risk Scores

| Variable Description*  | Step 1 Risk =             |
|--|---------------------------|
| Risk Score from the 2016 Federal Model   | HHS Risk Score x 0.2816 + |
| Platinum Tier, disabling condition flag  | DIS_Platinum x 0.1790 +   |
| Gold Tier, disabling condition flag  | DIS_GOLD x 0.0249 +       |
| Silver Tier, disabling condition flag  | DIS_SILVER x 0.0249 +     |
| HIV/AIDS   | SHCC001 x 4.6203 +        |
| Secondary cancer of respiratory and digestive systems                            | SHCC007 x 4.2460 +        |
| Lung, Upper Digestive Tract, and Other Severe Cancers                            | SHCC008 x 8.4243 +        |
| Lymphatic, Head and Neck, Brain, and Other Major Cancers                         | SHCC009 x 1.1457 +        |
| Type I diabetes without complications  | SHCC019 x 1.1553 +        |
| Other Significant Endocrine and Metabolic Disorders                              | SHCC022 x 2.2361 +        |
| Disorders of fluid/electrolyte/acid-base balance, e.g., dehydration              | SHCC023 x 1.1901 +        |
| Obesity/localized adiposity  | SHCC024 x 0.2766 +        |
| Regional enteritis (Crohn's disease), age 18+                                    | SHCC033 x 2.1312 +        |
| Bacterial enteritis (intestinal infections)                                      | SHCC034 x 3.6054 +        |
| Appendicitis, including with perforation and peritonitis                         | SHCC035 x 1.4819 +        |
| Stomach/intestinal disorders/symptoms, except obstruction, ulcer, and hemorrhage | SHCC036 x 0.3874 +        |
| Osteomyelitis  | SHCC037 x 2.1554 +        |
| Rheumatoid arthritis and other inflammatory polyarthropathy                      | SHCC038 x 1.0317 +        |
| Disorders of the Vertebrae and Spinal Discs                                      | SHCC039 x 0.7690 +        |
| Osteoarthritis of pelvic region and thigh (hip)                                  | SHCC040 x 1.3645 +        |
| Other Musculoskeletal and Connective Tissue Disorders                            | SHCC043 x 0.1966 +        |
| Hemophilia (congenital factors VIII and IX coagulation defects)                  | SHCC044 x 13.1058 +       |
| Disorders of Immunity  | SHCC045 x 2.2425 +        |
| Purpura/thrombocytopeny/hemorrhagic conditions                                   | SHCC046 x 1.7412 +        |
| Iron deficiency and other/unspecified anemias                                    | SHCC047 x 1.3902 +        |
| Toxic/unspecified encephalopathy   | SHCC048 x 2.3148 +        |
| Other/unspecified brain/central nervous system conditions                        | SHCC050 x 2.0095 +        |
| Drug/Alcohol Abuse, Without Dependence   | SHCC053 x 0.2982 +        |

## Appendix 4D - Parameters of the State Model

Note - Members with no HCCs will receive the HHS Risk Score multiplied by 0.2816, and further multiplied by the duration adjustment in Step 2.

### Step 1 - Calculating "Step 1 Risk" Based on the Federal Model Risk Scores

| Variable Description*   | Step 1 Risk = |   |         |   |
|---|---------------|---|---------|---|
| Major Depressive, Bipolar, and Paranoid Disorders               | SHCC055       | x | 0.7590  | + |
| Depression, excluding major depressive and bipolar disorders    | SHCC058       | x | 0.3888  | + |
| Prolonged posttraumatic stress disorder                         | SHCC059       | x | 1.0594  | + |
| Emotional disorders of childhood/adolescence                    | SHCC065       | x | 1.1585  | + |
| Attention deficit disorder, other hyperkinetic syndrome         | SHCC066       | x | 0.3036  | + |
| Traumatic complete lesion cervical (C1-C7) spinal cord          | SHCC067       | x | 21.9651 | + |
| Peripheral neuropathy/myopathy                                  | SHCC071       | x | 1.2165  | + |
| Multiple sclerosis, other central nervous system dysmyelination | SHCC072       | x | 5.3728  | + |
| Brain anoxic damage, edema, and compression (nontraumatic)      | SHCC075       | x | 3.4760  | + |
| Tracheostomy status/complications                               | SHCC077       | x | 21.7365 | + |
| Cardio-Respiratory Failure and Shock                            | SHCC079       | x | 2.1824  | + |
| Acute myocardial infarction, initial episode of care            | SHCC081       | x | 2.1321  | + |
| Unstable angina and other acute ischemic heart disease          | SHCC082       | x | 1.5366  | + |
| Other Congenital Heart/Circulatory Disease                      | SHCC088       | x | 1.7457  | + |
| Hypertension encephalopathy                                     | SHCC089       | x | 7.6013  | + |
| Secondary hypertension  | SHCC091       | x | 8.8760  | + |
| Other conduction disorders/cardiac dysrhythmias                 | SHCC093       | x | 0.6235  | + |
| Aphasia (loss of language skills/comprehension)                 | SHCC102       | x | 3.5367  | + |
| Dysphagia following stroke                                      | SHCC103       | x | 8.0899  | + |
| Other Circulatory Disease                                       | SHCC106       | x | 1.9433  | + |
| Cystic Fibrosis   | SHCC107       | x | 6.6526  | + |
| Pleural Effusion/Pneumothorax                                   | SHCC114       | x | 3.5183  | + |
| Atelectasis/pulmonary collapse                                  | SHCC115       | x | 4.7574  | + |
| Dialysis status/complications                                   | SHCC130       | x | 10.1968 | + |
| Retention of urine  | SHCC133       | x | 1.2280  | + |
| Normal delivery   | SHCC145       | x | 1.5521  | + |
| Third degree burns, 10%+ of body surface                        | SHCC150       | x | 10.8215 | + |
| Psoriasis and parapsoriasis without arthropathy                 | SHCC153       | x | 0.9835  | + |

## Appendix 4D - Parameters of the State Model

Note - Members with no HCCs will receive the HHS Risk Score multiplied by 0.2816, and further multiplied by the duration adjustment in Step 2.

### Step 1 - Calculating "Step 1 Risk" Based on the Federal Model Risk Scores

| Variable Description*  | Step 1 Risk = |   |         |   |
|--|---------------|---|---------|---|
| Fracture of skull/face with coma < 1 hour or unspecified       | SHCC155       | x | 2.3433  | + |
| Pelvic fracture  | SHCC158       | x | 4.0633  | + |
| Adverse effects of correctly prescribed and administered drugs | SHCC163       | x | 1.7363  | + |
| Major Complications of Medical Care and Trauma                 | SHCC164       | x | 2.1033  | + |
| Other Complications of Medical Care                            | SHCC165       | x | 2.5299  | + |
| Anorexia   | SHCC166       | x | 1.7224  | + |
| Minor Symptoms, Signs, Findings                                | SHCC167       | x | 0.1971  | + |
| Extremely low birthweight neonates, < 1000 grams               | SHCC168       | x | 17.1348 | + |
| Serious Perinatal Problem Affecting Newborn                    | SHCC170       | x | 9.1108  | + |
| Endocrine disorder of newborn                                  | SHCC171       | x | 7.4483  | + |
| Single birth   | SHCC172       | x | 1.5431  | + |
| Major Organ Transplant Status                                  | SHCC174       | x | 2.8689  | + |
| Post-Surgical States/Aftercare/Elective                        | SHCC179       | x | 0.5688  | + |
| Radiation therapy  | SHCC180       | x | 3.5526  | + |
| Chemotherapy   | SHCC181       | x | 8.9303  | + |
| Rehabilitation procedures                                      | SHCC182       | x | 0.5763  |   |

\*Note - Refer to Appendix 4M for the definition of disabling medical conditions

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**Appendix 4D - Parameters of State Model**

**Step 2 - Enrollment Duration Adjustment**

State Model Risk Score = Step 1 Risk x Enrollment Duration Adjustment

| <b>Enrollment Duration (Months)</b> | <b>Platinum</b> | <b>Gold</b> | <b>Silver</b> | <b>Bronze</b> | <b>Catastrophic</b> |
|-------------------------------------|-----------------|-------------|---------------|---------------|---------------------|
| <b>1</b>                            | 3.120           | 3.120       | 3.120         | 2.655         | 2.655               |
| <b>2</b>                            | 2.624           | 2.253       | 2.253         | 1.966         | 1.966               |
| <b>3</b>                            | 2.126           | 2.126       | 2.126         | 1.233         | 1.233               |
| <b>4</b>                            | 1.871           | 1.594       | 1.594         | 0.917         | 0.917               |
| <b>5</b>                            | 1.249           | 1.405       | 1.405         | 0.917         | 0.917               |
| <b>6</b>                            | 1.249           | 1.228       | 1.228         | 0.883         | 0.883               |
| <b>7</b>                            | 1.295           | 1.128       | 1.128         | 0.883         | 0.883               |
| <b>8</b>                            | 1.295           | 1.128       | 1.128         | 0.883         | 0.883               |
| <b>9</b>                            | 1.034           | 1.008       | 1.008         | 0.883         | 0.883               |
| <b>10</b>                           | 1.028           | 1.008       | 1.008         | 0.714         | 0.714               |
| <b>11</b>                           | 1.028           | 0.903       | 0.903         | 0.594         | 0.594               |
| <b>12</b>                           | 1.028           | 0.903       | 0.903         | 0.594         | 0.594               |

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**Appendix 4D - Parameters of the State Model with Reinsurance**

Note - Members with no HCCs will receive the HHS Risk Score multiplied by 0.2614, and further multiplied by the duration adjustment in Step 2. The impact of reinsurance on claims is assumed in the model dependent variable and reflected in the risk weights.

**Step 1 - Calculating "Step 1 Risk" Based on the Federal Model Risk Scores**

| <b>Label*</b>  | <b>Step 1 Risk =</b> |   |         |   |
|--|----------------------|---|---------|---|
| Risk Score from the 2016 Federal Model   | HHS Risk Score       | x | 0.2614  | + |
| Platinum Tier, disabling condition flag  | DIS_Platinum         | x | 0.2458  | + |
| Gold Tier, disabling condition flag  | DIS_GOLD             | x | 0.0925  | + |
| Silver Tier, disabling condition flag  | DIS_SILVER           | x | 0.0925  | + |
| HIV/AIDS   | SHCC001              | x | 4.9235  | + |
| Secondary cancer of respiratory and digestive systems                            | SHCC007              | x | 3.6979  | + |
| Lung, Upper Digestive Tract, and Other Severe Cancers                            | SHCC008              | x | 8.4550  | + |
| Lymphatic, Head and Neck, Brain, and Other Major Cancers                         | SHCC009              | x | 1.0380  | + |
| Type I diabetes without complications  | SHCC019              | x | 1.2511  | + |
| Other Significant Endocrine and Metabolic Disorders                              | SHCC022              | x | 2.0113  | + |
| Disorders of fluid/electrolyte/acid-base balance, e.g., dehydration              | SHCC023              | x | 1.2161  | + |
| Obesity/localized adiposity  | SHCC024              | x | 0.3204  | + |
| Regional enteritis (Crohn's disease), age 18+                                    | SHCC033              | x | 2.3791  | + |
| Bacterial enteritis (intestinal infections)                                      | SHCC034              | x | 2.9295  | + |
| Appendicitis, including with perforation and peritonitis                         | SHCC035              | x | 1.5873  | + |
| Stomach/intestinal disorders/symptoms, except obstruction, ulcer, and hemorrhage | SHCC036              | x | 0.4261  | + |
| Osteomyelitis  | SHCC037              | x | 1.9128  | + |
| Rheumatoid arthritis and other inflammatory polyarthropathy                      | SHCC038              | x | 1.1973  | + |
| Disorders of the Vertebrae and Spinal Discs                                      | SHCC039              | x | 0.8252  | + |
| Osteoarthritis of pelvic region and thigh (hip)                                  | SHCC040              | x | 1.4439  | + |
| Other Musculoskeletal and Connective Tissue Disorders                            | SHCC043              | x | 0.2192  | + |
| Hemophilia (congenital factors VIII and IX coagulation defects)                  | SHCC044              | x | 11.0108 | + |
| Disorders of Immunity  | SHCC045              | x | 2.0001  | + |
| Purpura/thrombocytopeny/hemorrhagic conditions                                   | SHCC046              | x | 1.5261  | + |
| Iron deficiency and other/unspecified anemias                                    | SHCC047              | x | 1.4216  | + |
| Toxic/unspecified encephalopathy   | SHCC048              | x | 1.9424  | + |
| Other/unspecified brain/central nervous system conditions                        | SHCC050              | x | 1.9482  | + |
| Drug/Alcohol Abuse, Without Dependence   | SHCC053              | x | 0.3545  | + |
| Major Depressive, Bipolar, and Paranoid Disorders                                | SHCC055              | x | 0.8315  | + |
| Depression, excluding major depressive and bipolar disorders                     | SHCC058              | x | 0.4176  | + |
| Prolonged posttraumatic stress disorder  | SHCC059              | x | 1.1239  | + |
| Emotional disorders of childhood/adolescence                                     | SHCC065              | x | 1.1360  | + |
| Attention deficit disorder, other hyperkinetic syndrome                          | SHCC066              | x | 0.3198  | + |
| Traumatic complete lesion cervical (C1-C7) spinal cord                           | SHCC067              | x | 16.6764 | + |
| Peripheral neuropathy/myopathy   | SHCC071              | x | 1.1208  | + |
| Multiple sclerosis, other central nervous system dysmyelination                  | SHCC072              | x | 5.8563  | + |
| Brain anoxic damage, edema, and compression (nontraumatic)                       | SHCC075              | x | 3.1038  | + |
| Tracheostomy status/complications  | SHCC077              | x | 13.7976 | + |
| Cardio-Respiratory Failure and Shock   | SHCC079              | x | 2.0510  | + |

**Appendix 4D - Parameters of the State Model with Reinsurance**

Note - Members with no HCCs will receive the HHS Risk Score multiplied by 0.2614, and further multiplied by the duration adjustment in Step 2. The impact of reinsurance on claims is assumed in the model dependent variable and reflected in the risk weights.

**Step 1 - Calculating "Step 1 Risk" Based on the Federal Model Risk Scores**

| Label*   | Step 1 Risk =      |
|--|--------------------|
| Acute myocardial infarction, initial episode of care           | SHCC081 x 2.4947 + |
| Unstable angina and other acute ischemic heart disease         | SHCC082 x 1.7872 + |
| Other Congenital Heart/Circulatory Disease                     | SHCC088 x 1.7001 + |
| Hypertension encephalopathy                                    | SHCC089 x 6.5189 + |
| Secondary hypertension   | SHCC091 x 7.3025 + |
| Other conduction disorders/cardiac dysrhythmias                | SHCC093 x 0.6967 + |
| Aphasia (loss of language skills/comprehension)                | SHCC102 x 3.0757 + |
| Dysphagia following stroke                                     | SHCC103 x 6.4362 + |
| Other Circulatory Disease                                      | SHCC106 x 1.8019 + |
| Cystic Fibrosis  | SHCC107 x 6.7554 + |
| Pleural Effusion/Pneumothorax                                  | SHCC114 x 3.0913 + |
| Atelectasis/pulmonary collapse                                 | SHCC115 x 4.1085 + |
| Dialysis status/complications                                  | SHCC130 x 8.0474 + |
| Retention of urine   | SHCC133 x 1.2255 + |
| Normal delivery  | SHCC145 x 1.7463 + |
| Third degree burns, 10%+ of body surface                       | SHCC150 x 8.9479 + |
| Psoriasis and parapsoriasis without arthropathy                | SHCC153 x 1.0459 + |
| Fracture of skull/face with coma < 1 hour or unspecified       | SHCC155 x 2.1907 + |
| Pelvic fracture  | SHCC158 x 3.8445 + |
| Adverse effects of correctly prescribed and administered drugs | SHCC163 x 1.5301 + |
| Major Complications of Medical Care and Trauma                 | SHCC164 x 1.9828 + |
| Other Complications of Medical Care                            | SHCC165 x 2.5643 + |
| Anorexia   | SHCC166 x 1.4272 + |
| Minor Symptoms, Signs, Findings                                | SHCC167 x 0.2410 + |
| Extremely low birthweight neonates, < 1000 grams               | SHCC168 x 5.3659 + |
| Serious Perinatal Problem Affecting Newborn                    | SHCC170 x 7.9924 + |
| Endocrine disorder of newborn                                  | SHCC171 x 6.9916 + |
| Single birth   | SHCC172 x 1.6582 + |
| Major Organ Transplant Status                                  | SHCC174 x - +      |
| Post-Surgical States/Aftercare/Elective                        | SHCC179 x 0.6617 + |
| Radiation therapy  | SHCC180 x 3.5831 + |
| Chemotherapy   | SHCC181 x 8.5315 + |
| Rehabilitation procedures                                      | SHCC182 x 0.5974 + |

\*Note - Refer to Appendix 4M for the definition of disabling medical conditions,

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## Appendix 4D - Parameters of State Model with Reinsurance

### Step 2 - Enrollment Duration Adjustment

State Model with Reinsurance Risk Score = Step 1 Risk x Enrollment Duration Adjustment Factor.

| <b>Enrollment Duration<br/>(Months)</b> | <b>Platinum</b> | <b>Gold</b> | <b>Silver</b> | <b>Bronze</b> | <b>Catastrophic</b> |
|---|-----------------|-------------|---------------|---------------|---------------------|
| <b>1</b>                                | 3.139           | 3.139       | 3.139         | 2.665         | 2.665               |
| <b>2</b>                                | 2.240           | 2.123       | 2.123         | 1.759         | 1.759               |
| <b>3</b>                                | 1.902           | 1.902       | 1.902         | 1.570         | 1.282               |
| <b>4</b>                                | 1.625           | 1.572       | 1.572         | 1.051         | 1.014               |
| <b>5</b>                                | 1.403           | 1.393       | 1.393         | 1.051         | 1.014               |
| <b>6</b>                                | 1.282           | 1.282       | 1.282         | 1.021         | 0.756               |
| <b>7</b>                                | 1.119           | 1.119       | 1.119         | 0.836         | 0.836               |
| <b>8</b>                                | 1.172           | 1.044       | 1.044         | 0.734         | 0.700               |
| <b>9</b>                                | 1.045           | 0.969       | 0.969         | 0.735         | 0.653               |
| <b>10</b>                               | 1.011           | 0.955       | 0.955         | 0.714         | 0.553               |
| <b>11</b>                               | 0.926           | 0.862       | 0.862         | 0.670         | 0.553               |
| <b>12</b>                               | 0.948           | 0.862       | 0.862         | 0.628         | 0.553               |

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### Appendix 4E - State Model vs. Federal Model R-Squared\*

|                                       | R-Squared |       |        |        |              |
|---------------------------------------|-----------|-------|--------|--------|--------------|
|                                       | Platinum  | Gold  | Silver | Bronze | Catastrophic |
| Federal Model, MN Data                | 42.3%     | 38.6% | 37.0%  | 38.3%  | 43.0%        |
| State Model, MN Data                  | 54.0%     | 52.9% | 49.2%  | 50.1%  | 55.1%        |
| State Model with Reinsurance, MN Data | 57.1%     | 55.0% | 52.0%  | 55.3%  | 59.9%        |

\*Note - R-Squared measures the proportion of the variance in claims cost that is predicted by a model.

The State Model with Reinsurance has a higher R-Squared due to truncation of high costs in the modeling data set, which lowered the impact of high-cost outliers in the model (due to reinsurance). This model better fits the cost distribution that is below the truncation point than the State Model without reinsurance.

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**Appendix 4F - State Model vs. Federal Model Predictive Ratio by Enrollment Duration**

| Enrollment Duration (Months) | Platinum      |               |             | Gold          |               |             | Silver        |               |             | Bronze        |               |             | Catastrophic  |               |             |
|------------------------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|-------------|
|                              | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model | Member Months | Federal Model | State Model |
| 1                            | 19,096        | 57%           | 91%         | 67,166        | 61%           | 101%        | 88,021        | 46%           | 85%         | 19,960        | 60%           | 93%         | 1,518         | 60%           | 99%         |
| 2                            | 30,674        | 71%           | 107%        | 73,672        | 73%           | 99%         | 97,548        | 58%           | 91%         | 17,290        | 85%           | 105%        | 2,340         | 39%           | 49%         |
| 3                            | 95,178        | 75%           | 108%        | 311,913       | 72%           | 107%        | 269,037       | 66%           | 107%        | 46,920        | 77%           | 74%         | 8,700         | 100%          | 96%         |
| 4                            | 38,176        | 80%           | 104%        | 88,228        | 84%           | 97%         | 138,996       | 68%           | 93%         | 24,260        | 128%          | 84%         | 3,920         | 135%          | 90%         |
| 5                            | 46,305        | 89%           | 87%         | 98,785        | 90%           | 101%        | 172,470       | 72%           | 93%         | 29,780        | 109%          | 84%         | 4,825         | 104%          | 82%         |
| 6                            | 50,040        | 93%           | 95%         | 115,182       | 98%           | 97%         | 234,030       | 78%           | 92%         | 36,528        | 109%          | 83%         | 5,250         | 118%          | 113%        |
| 7                            | 43,883        | 96%           | 109%        | 123,109       | 100%          | 96%         | 261,065       | 80%           | 90%         | 33,215        | 121%          | 102%        | 5,712         | 104%          | 90%         |
| 8                            | 74,688        | 95%           | 110%        | 144,072       | 104%          | 103%        | 329,032       | 83%           | 97%         | 70,816        | 142%          | 116%        | 13,008        | 127%          | 124%        |
| 9                            | 64,872        | 98%           | 96%         | 157,230       | 105%          | 99%         | 297,252       | 90%           | 95%         | 61,263        | 140%          | 114%        | 12,501        | 155%          | 125%        |
| 10                           | 69,390        | 101%          | 98%         | 166,430       | 105%          | 101%        | 333,740       | 91%           | 99%         | 67,040        | 129%          | 95%         | 10,980        | 180%          | 153%        |
| 11                           | 94,974        | 110%          | 106%        | 260,755       | 115%          | 101%        | 530,332       | 94%           | 93%         | 79,871        | 139%          | 85%         | 21,010        | 180%          | 98%         |
| 12                           | 797,712       | 104%          | 104%        | 2,217,216     | 113%          | 101%        | 3,430,476     | 107%          | 104%        | 798,588       | 142%          | 91%         | 204,984       | 171%          | 104%        |

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Appendix 4G - State Model vs. Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data

| Condition Category (from the federal HHS-HCC Model)   | Condition Category ID | Distinct Member Counts | Federal Model | State Model | State Model with Reinsurance |
|---|-----------------------|------------------------|---------------|-------------|------------------------------|
| HIV/AIDS  | CC001                 | 490                    | 62%           | 87%         | 87%                          |
| Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock                                 | CC002                 | 802                    | 116%          | 88%         | 94%                          |
| Central Nervous System Infections, Except Viral Meningitis  | CC003                 | 150                    | 126%          | 90%         | 91%                          |
| Viral or Unspecified Meningitis   | CC004                 | 105                    | 97%           | 79%         | 81%                          |
| Opportunistic Infections  | CC006                 | 195                    | 115%          | 83%         | 85%                          |
| Metastatic Cancer   | CC008                 | 1,279                  | 112%          | 99%         | 99%                          |
| Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia                | CC009                 | 1,097                  | 101%          | 96%         | 96%                          |
| Non-Hodgkin's Lymphomas and Other Cancers and Tumors  | CC010                 | 846                    | 86%           | 87%         | 81%                          |
| Colorectal, Breast (Age < 50), Kidney, and Other Cancers  | CC011                 | 1,742                  | 105%          | 99%         | 96%                          |
| Breast (Age 50+) and Prostate Cancer, Benign/Uncertain Brain Tumors, and Other Cancers and Tumors | CC012                 | 4,225                  | 109%          | 97%         | 96%                          |
| Thyroid Cancer, Melanoma, Neurofibromatosis, and Other Cancers and Tumors                         | CC013                 | 1,502                  | 104%          | 91%         | 91%                          |
| Diabetes with Acute Complications   | CC019                 | 237                    | 68%           | 79%         | 81%                          |
| Diabetes with Chronic Complications   | CC020                 | 3,455                  | 85%           | 81%         | 81%                          |
| Diabetes without Complication   | CC021                 | 19,239                 | 94%           | 89%         | 88%                          |
| Protein-Calorie Malnutrition  | CC023                 | 510                    | 112%          | 91%         | 93%                          |
| Congenital Metabolic Disorders, Not Elsewhere Classified  | CC028                 | 250                    | 81%           | 68%         | 67%                          |
| Amyloidosis, Porphyria, and Other Metabolic Disorders   | CC029                 | 156                    | 80%           | 66%         | 66%                          |
| Adrenal, Pituitary, and Other Significant Endocrine Disorders                                     | CC030                 | 1,762                  | 108%          | 91%         | 93%                          |
| Liver Transplant Status/Complications   | CC034                 | 64                     | 214%          | 134%        | 140%                         |
| End-Stage Liver Disease   | CC035                 | 329                    | 117%          | 99%         | 102%                         |
| Cirrhosis of Liver  | CC036                 | 628                    | 117%          | 103%        | 105%                         |
| Chronic Hepatitis   | CC037                 | 760                    | 105%          | 89%         | 139%                         |
| Acute Liver Failure/Disease, Including Neonatal Hepatitis   | CC038                 | 247                    | 110%          | 89%         | 90%                          |
| Peritonitis/Gastrointestinal Perforation/Necrotizing Enterocolitis                                | CC042                 | 296                    | 131%          | 96%         | 103%                         |
| Intestinal Obstruction  | CC045                 | 928                    | 115%          | 95%         | 97%                          |
| Chronic Pancreatitis  | CC046                 | 196                    | 116%          | 93%         | 95%                          |
| Acute Pancreatitis/Other Pancreatic Disorders and Intestinal Malabsorption                        | CC047                 | 1,983                  | 118%          | 99%         | 100%                         |
| Inflammatory Bowel Disease  | CC048                 | 2,078                  | 87%           | 89%         | 89%                          |
| Bone/Joint/Muscle Infections/Necrosis   | CC055                 | 525                    | 108%          | 92%         | 86%                          |
| Rheumatoid Arthritis and Specified Autoimmune Disorders   | CC056                 | 3,212                  | 84%           | 85%         | 84%                          |
| Systemic Lupus Erythematosus and Other Autoimmune Disorders                                       | CC057                 | 1,752                  | 92%           | 101%        | 100%                         |
| Osteogenesis Imperfecta and Other Osteodystrophies  | CC061                 | 57                     | 135%          | 124%        | 102%                         |
| Congenital/Developmental Skeletal and Connective Tissue Disorders                                 | CC062                 | 580                    | 91%           | 80%         | 80%                          |
| Cleft Lip/Cleft Palate  | CC063                 | 131                    | 83%           | 78%         | 74%                          |
| Acquired Hemolytic Anemia, Including Hemolytic Disease of Newborn                                 | CC069                 | 106                    | 105%          | 88%         | 92%                          |
| Disorders of the Immune Mechanism   | CC074                 | 515                    | 121%          | 105%        | 101%                         |
| Coagulation Defects and Other Specified Hematological Disorders                                   | CC075                 | 1,630                  | 118%          | 100%        | 103%                         |
| Drug Psychosis  | CC081                 | 535                    | 83%           | 76%         | 83%                          |
| Drug Dependence   | CC082                 | 2,180                  | 92%           | 82%         | 85%                          |
| Schizophrenia   | CC087                 | 549                    | 83%           | 73%         | 74%                          |
| Major Depressive and Bipolar Disorders  | CC088                 | 24,633                 | 97%           | 97%         | 99%                          |

Appendix 4G - State Model vs. Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data

| Condition Category (from the federal HHS-HCC Model)   | Condition Category ID | Distinct Member Counts | Federal Model | State Model | State Model with Reinsurance |
|---|-----------------------|------------------------|---------------|-------------|------------------------------|
| Reactive and Unspecified Psychosis, Delusional Disorders  | CC089                 | 831                    | 84%           | 82%         | 83%                          |
| Personality Disorders   | CC090                 | 1,148                  | 58%           | 72%         | 72%                          |
| Anorexia/Bulimia Nervosa  | CC094                 | 350                    | 93%           | 81%         | 78%                          |
| Prader-Willi, Patau, Edwards, and Autosomal Deletion Syndromes  | CC096                 | 95                     | 86%           | 71%         | 73%                          |
| Down Syndrome, Fragile X, Other Chromosomal Anomalies, and Con-genital Malformation Syndromes                     | CC097                 | 499                    | 104%          | 82%         | 83%                          |
| Autistic Disorder   | CC102                 | 685                    | 62%           | 56%         | 56%                          |
| Pervasive Developmental Disorders, Except Autistic Disorder   | CC103                 | 770                    | 49%           | 62%         | 60%                          |
| Quadriplegia  | CC107                 | 81                     | 131%          | 94%         | 88%                          |
| Paraplegia  | CC109                 | 98                     | 123%          | 92%         | 90%                          |
| Spinal Cord Disorders/Injuries  | CC110                 | 313                    | 106%          | 87%         | 86%                          |
| Quadriplegic Cerebral Palsy   | CC112                 | 51                     | 130%          | 80%         | 83%                          |
| Cerebral Palsy, Except Quadriplegic   | CC113                 | 210                    | 111%          | 83%         | 81%                          |
| Spina Bifida and Other Brain/Spinal/Nervous System Congenital Anomalies   | CC114                 | 290                    | 127%          | 96%         | 93%                          |
| Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy               | CC115                 | 374                    | 95%           | 83%         | 85%                          |
| Muscular Dystrophy  | CC117                 | 80                     | 137%          | 113%        | 113%                         |
| Multiple Sclerosis  | CC118                 | 806                    | 68%           | 98%         | 99%                          |
| Parkinson's, Huntington's, and Spinocerebellar Disease, and Other Neurodegenerative Disorders                     | CC119                 | 351                    | 120%          | 98%         | 95%                          |
| Seizure Disorders and Convulsions   | CC120                 | 3,311                  | 109%          | 89%         | 89%                          |
| Hydrocephalus   | CC121                 | 207                    | 114%          | 85%         | 83%                          |
| Non-Traumatic Coma, and Brain Compression/Anoxic Damage   | CC122                 | 302                    | 103%          | 88%         | 89%                          |
| Respirator Dependence/Tracheostomy Status   | CC125                 | 162                    | 115%          | 93%         | 84%                          |
| Cardio-Respiratory Failure and Shock, Including Respiratory Distress Syndromes                                    | CC127                 | 1,316                  | 112%          | 89%         | 95%                          |
| Congestive Heart Failure  | CC130                 | 2,491                  | 120%          | 94%         | 96%                          |
| Acute Myocardial Infarction   | CC131                 | 459                    | 107%          | 90%         | 93%                          |
| Unstable Angina and Other Acute Ischemic Heart Disease  | CC132                 | 968                    | 110%          | 94%         | 89%                          |
| Heart Infection/Inflammation, Except Rheumatic  | CC135                 | 390                    | 102%          | 82%         | 83%                          |
| Major Congenital Heart/Circulatory Disorders  | CC138                 | 918                    | 95%           | 80%         | 89%                          |
| Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders | CC139                 | 1,001                  | 95%           | 84%         | 91%                          |
| Specified Heart Arrhythmias   | CC142                 | 3,609                  | 120%          | 96%         | 97%                          |
| Intracranial Hemorrhage   | CC145                 | 294                    | 120%          | 85%         | 96%                          |
| Ischemic or Unspecified Stroke  | CC146                 | 778                    | 115%          | 96%         | 92%                          |
| Cerebral Aneurysm and Arteriovenous Malformation  | CC149                 | 197                    | 98%           | 74%         | 77%                          |
| Hemiplegia/Hemiparesis  | CC150                 | 382                    | 110%          | 89%         | 87%                          |
| Monoplegia, Other Paralytic Syndromes   | CC151                 | 117                    | 104%          | 84%         | 86%                          |
| Atherosclerosis of the Extremities with Ulceration or Gangrene  | CC153                 | 64                     | 101%          | 78%         | 80%                          |
| Vascular Disease with Complications   | CC154                 | 359                    | 110%          | 83%         | 90%                          |
| Pulmonary Embolism and Deep Vein Thrombosis   | CC156                 | 1,687                  | 117%          | 96%         | 97%                          |
| Cystic Fibrosis   | CC159                 | 79                     | 86%           | 91%         | 76%                          |
| Chronic Obstructive Pulmonary Disease, Including Bronchiectasis   | CC160                 | 3,665                  | 100%          | 91%         | 89%                          |
| Asthma  | CC161                 | 23,026                 | 89%           | 88%         | 87%                          |
| Fibrosis of Lung and Other Lung Disorders   | CC162                 | 607                    | 110%          | 88%         | 88%                          |

Appendix 4G - State Model vs. Federal Model Predictive Ratio\* by HHS-HCCs, Using MN APCD Data

| Condition Category (from the federal HHS-HCC Model)                            | Condition Category ID | Distinct Member Counts | Federal Model | State Model | State Model with Reinsurance |
|--|-----------------------|------------------------|---------------|-------------|------------------------------|
| Aspiration and Specified Bacterial Pneumonias and Other Severe Lung Infections | CC163                 | 353                    | 121%          | 92%         | 96%                          |
| Kidney Transplant Status   | CC183                 | 225                    | 131%          | 101%        | 100%                         |
| End Stage Renal Disease  | CC184                 | 229                    | 115%          | 96%         | 98%                          |
| Chronic Kidney Disease, Stage 5  | CC187                 | 176                    | 114%          | 98%         | 99%                          |
| Chronic Kidney Disease, Severe (Stage 4)                                       | CC188                 | 276                    | 146%          | 121%        | 120%                         |
| Ectopic and Molar Pregnancy, Except with Renal Failure, Shock, or Embolism     | CC203                 | 128                    | 59%           | 63%         | 67%                          |
| Miscarriage with No or Minor Complications                                     | CC205                 | 897                    | 103%          | 89%         | 88%                          |
| Completed Pregnancy With Major Complications                                   | CC207                 | 167                    | 75%           | 80%         | 78%                          |
| Completed Pregnancy With Complications   | CC208                 | 2,653                  | 70%           | 83%         | 83%                          |
| Completed Pregnancy with No or Minor Complications                             | CC209                 | 5,452                  | 81%           | 91%         | 91%                          |
| Chronic Ulcer of Skin, Except Pressure   | CC217                 | 962                    | 111%          | 93%         | 91%                          |
| Hip Fractures and Pathological Vertebral or Humerus Fractures                  | CC226                 | 294                    | 121%          | 92%         | 95%                          |
| Pathological Fractures, Except of Vertebrae, Hip, or Humerus                   | CC227                 | 72                     | 101%          | 103%        | 100%                         |
| Premature Newborns, Including Birthweight 1500-1999 Grams                      | CC246                 | 81                     | 127%          | 76%         | 106%                         |
| Premature Newborns, Including Birthweight 2000-2499 Grams                      | CC247                 | 170                    | 100%          | 74%         | 91%                          |
| Other Premature, Low Birthweight, Malnourished, or Multiple Birth Newborns     | CC248                 | 421                    | 100%          | 74%         | 97%                          |
| Term or Post-Term Singleton Newborn, Normal or High Birthweight                | CC249                 | 2,810                  | 80%           | 92%         | 122%                         |
| Stem Cell, Including Bone Marrow, Transplant Status/Complications              | CC251                 | 135                    | 125%          | 92%         | 91%                          |
| Artificial Openings for Feeding or Elimination                                 | CC253                 | 583                    | 116%          | 91%         | 92%                          |
| Amputation Status, Lower Limb/Amputation Complications                         | CC254                 | 179                    | 109%          | 85%         | 85%                          |

\*Note - Predictive ratio is defined as the model predicted cost divided by the actual cost. Conditions with less than 50 members are not reported.

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## Appendix 4H - Derivation of the Induced Demand Curve Using Minnesota Data

| (A)             | (B)                | (C)         | (D)              | (E)                | (F)  | (G)                              | (H)                    |
|-----------------|--------------------|-------------|------------------|--------------------|--|----------------------------------|------------------------|
| Actuarial Value | 2014 Member Months | Raw Allowed | Repriced Allowed | HHS-HCC Risk Score | Repriced Allowed Accounting for Risk Score | Repriced Allowed After Smoothing | Induced Demand Factors |
| All             | 13,011,024         | \$311.82    | \$282.83         | 1.000              | \$282.83                                   |                                  |                        |
| 0.55-0.6        | 352,431            | \$149.14    | \$110.44         | 0.462              | \$239.29                                   | \$233.49                         | 0.887                  |
| 0.6-0.65        | 1,222,980          | \$213.56    | \$164.14         | 0.625              | \$262.41                                   | \$243.36                         | 0.925                  |
| 0.65-0.7        | 1,025,543          | \$227.87    | \$184.20         | 0.758              | \$242.86                                   | \$253.22                         | 0.962                  |
| 0.7-0.75        | 2,846,428          | \$289.85    | \$236.16         | 0.868              | \$272.14                                   | \$263.09                         | 1.000                  |
| 0.75-0.8        | 1,295,412          | \$277.76    | \$226.72         | 0.915              | \$247.86                                   | \$272.95                         | 1.038                  |
| 0.8-0.85        | 2,529,384          | \$376.64    | \$324.39         | 1.159              | \$279.79                                   | \$282.82                         | 1.075                  |
| 0.85-0.9        | 577,837            | \$371.90    | \$331.09         | 1.247              | \$265.40                                   | \$292.69                         | 1.113                  |
| 0.9-0.95        | 1,629,554          | \$451.52    | \$462.58         | 1.523              | \$303.69                                   | \$302.55                         | 1.150                  |
| 0.95+           | 1,531,455          | \$275.24    | \$339.45         | 0.989              | \$343.14                                   | \$312.42                         | 1.188                  |

Below is a description of each column in the table:

- Column A: The actuarial value range
- Column B: The number of 2014 member months found in the MN APCD data
- Column C: The unadjusted PMPM allowed amounts found in the MN APCD claim file
- Column D: The PMPM allowed amounts after repricing each claim line to the market average which includes both MinnesotaCare and commercial plans. Since the reimbursement rates between MinnesotaCare and commercial carriers offering private insurance are different the repriced allowed can vary significantly by actuarial value. The actuarial value range above 0.95 only includes MinnesotaCare plans. Note that the total unadjusted PMPM does not equal the repriced PMPM due to the removal of claims (outliers or minor data quality issues).
- Column E: Risk scores from the Federal Model. The risk scores are normalized to the market average.

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- Column F: Column D divided by Column E. This results in a PMPM normalized for both differences in provider contracts and risk score and is on the same basis between different actuarial value groupings.
- Column G: The result of running a linear regression model on Column F in order to smooth the results. We note that different regression models can significantly change the shape of the curve and the resulting induced demand factors
- Column H: Induced demand factors. We set the induced demand factor for an actuarial value of 0.70-0.75 as 1.0. This column is calculated by dividing each row in Column G by the value in the .70-.75 row.

## Appendix 4I – Reinsurance and Risk Adjustment

Under the illustrative state-based reinsurance program, carriers are 50% liable for claims between \$90,000 (reinsurance attachment point) and \$250,000, and are 100% liable for claims above \$250,000 (the reinsurance cap).

The Federal Model, which does not incorporate reinsurance, predicts \$6,719 per member per month (PMPM) for claims incurred between \$90,000 and \$250,000. While risk adjustment does not translate into direct payments to high cost members in this cost range, it does suggest that carriers would receive both a reinsurance payment at a 50% coinsurance rate, and a transfer payment back from the risk adjustment program, which further reduces plan liability. In other words, there may be “double payments” to high-cost members from both programs.

Were the State to establish a reinsurance program, there needs to be a wholistic consideration with respect to the two programs, such that the double payment issue may be mitigated. To this end, we developed a risk adjustment model that incorporates the illustrative reinsurance program design. The model predicts plan liability after reinsurance. The table below shows that the model can be tailored to predict a lower PMPM (\$6,056) than the Federal Model.

| Annual Claims Cost   | Member Months | Plan Liability Before Reinsurance (PMPM) | Plan Liability After Reinsurance (PMPM) | (a)                            | (b)   | Reduction of "Double Payment for Claims Eligible for Reinsurance: (b)-(a) (PMPM) |
|----------------------|---------------|--|---|--------------------------------|---|--|
|                      |               |  |   | Federal Model Predicted (PMPM) | State Model with Reinsurance Predicted (PMPM) |  |
| \$90,000 and Under   | 3,064,376     | \$215                                    | \$215                                   | \$254                          | \$246   | n/a  |
| \$90,000 - \$250,000 | 10,946        | \$13,130                                 | \$10,824                                | \$6,719                        | \$6,056                                       | -\$663   |
| \$250,000 and Higher | 1,978         | \$43,569                                 | \$35,925                                | \$18,229                       | \$13,386                                      | n/a  |
| All                  | 3,077,300     | \$288                                    | \$275                                   | \$288                          | \$275   | -\$13  |



**Appendix 4J - Average Actuarial Factors by Model, Catastrophic Plans**

|                  |                           |
|------------------|---------------------------|
| <b>Acronyms:</b> |                           |
| PLRS             | Plan Liability Risk Score |
| IDF              | Induced Demand Factor     |
| GCF              | Geographic Cost Factor    |
| ARF              | Allowable Rating Factor   |
| AVAF             | Actuarial Value Factor    |

| Insurer <sup>1</sup> | Federal Model |       |       |       |       | State Model |       |       |       |       |
|----------------------|---------------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|
|                      | PLRS          | IDF   | GCF   | ARF   | AVAF  | PLRS        | IDF   | GCF   | ARF   | AVAF  |
| C1                   | 0.269         | 1.000 | 1.091 | 1.039 | 0.570 | 0.199       | 1.000 | 1.091 | 1.039 | 0.570 |
| C2                   | 0.222         | 1.000 | 1.064 | 1.514 | 0.570 | 0.209       | 1.000 | 1.064 | 1.514 | 0.570 |
| C3                   | 0.089         | 1.000 | 0.957 | 1.050 | 0.570 | 0.088       | 1.000 | 0.957 | 1.050 | 0.570 |
| C4                   | 0.351         | 1.000 | 1.076 | 1.498 | 0.570 | 0.190       | 1.000 | 1.076 | 1.498 | 0.570 |
| C5                   | 0.263         | 1.000 | 0.998 | 1.011 | 0.570 | 0.227       | 1.000 | 0.998 | 1.011 | 0.570 |
| C6                   | 0.214         | 1.000 | 0.957 | 0.990 | 0.570 | 0.184       | 1.000 | 0.957 | 0.990 | 0.570 |
| C7                   | 0.255         | 1.000 | 0.957 | 1.026 | 0.570 | 0.239       | 1.000 | 0.957 | 1.026 | 0.570 |

Note

<sup>1</sup>For all health plans, we used the metal tier information as reported in the supplemental file. For records with missing metal tier information, we estimated their metal tier based on the plan benefit design information as reported in the supplemental file. The reported and inferred metal tier assignments were used in calculating the actuarial factors here, which is different from Section 2 where the reported metal tier data was used for data quality assessment reporting. Insurer names are deidentified and randomly ordered.

<sup>2</sup>For one of the health plans, only 1 member month was reported in the catastrophic tier in the supplemental file for 2014.

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## Appendix 4J - Average Actuarial Factors by Model, Individual Non-Catastrophic Plans

| <b>Acronyms:</b> |                           |
|------------------|---------------------------|
| PLRS             | Plan Liability Risk Score |
| IDF              | Induced Demand Factor     |
| GCF              | Geographic Cost Factor    |
| ARF              | Allowable Rating Factor   |
| AVAF             | Actuarial Value Factor    |

| Insurer <sup>1</sup> | Federal Model |       |       |       |       | State Model |       |       |       |       |
|----------------------|---------------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|
|                      | PLRS          | IDF   | GCF   | ARF   | AVAF  | PLRS        | IDF   | GCF   | ARF   | AVAF  |
| I1                   | 1.207         | 1.042 | 0.915 | 1.609 | 0.705 | 1.036       | 1.042 | 0.915 | 1.609 | 0.705 |
| I2                   | 1.263         | 1.052 | 1.013 | 1.667 | 0.730 | 1.060       | 1.052 | 1.013 | 1.667 | 0.730 |
| I3                   | 0.855         | 1.044 | 0.997 | 1.393 | 0.718 | 0.717       | 1.044 | 0.997 | 1.393 | 0.718 |
| I4                   | 0.733         | 1.042 | 1.055 | 1.373 | 0.716 | 0.526       | 1.042 | 1.055 | 1.373 | 0.716 |
| I5                   | 0.760         | 1.029 | 1.050 | 1.453 | 0.680 | 0.552       | 1.029 | 1.050 | 1.453 | 0.680 |
| I6                   | 1.106         | 1.068 | 0.915 | 1.459 | 0.753 | 0.992       | 1.068 | 0.915 | 1.459 | 0.753 |
| I7                   | 1.659         | 1.072 | 0.915 | 1.753 | 0.762 | 1.508       | 1.072 | 0.915 | 1.753 | 0.762 |

Note

<sup>1</sup>For all health plans, we used the metal tier information as reported in the supplemental file. For records with missing metal tier information, we estimated their metal tier based on the plan benefit design information as reported in the supplemental file. The reported and inferred metal tier assignments were used in calculating the actuarial factors here, which is different from Section 2 where the reported metal tier data was used for data quality assessment reporting. Insurer names are deidentified and randomly ordered. Insurers that do not submit data to the MN APCD are not included in the data. Insurers with more than one issuer entity but report to the MN APCD under one parent company are reported at the level of the parent company.

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## Appendix 4J - Average Actuarial Factors by Model, Small Group <=50 Members

| <b>Acronyms:</b> |                           |
|------------------|---------------------------|
| PLRS             | Plan Liability Risk Score |
| IDF              | Induced Demand Factor     |
| GCF              | Geographic Cost Factor    |
| ARF              | Allowable Rating Factor   |
| AVAF             | Actuarial Value Factor    |

| Insurer <sup>1</sup> | Federal Model |       |       |       |       | State Model |       |       |       |       |
|----------------------|---------------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|
|                      | PLRS          | IDF   | GCF   | ARF   | AVAF  | PLRS        | IDF   | GCF   | ARF   | AVAF  |
| S1                   | 0.479         | 1.043 | 1.137 | 1.194 | 0.725 | 0.384       | 1.043 | 1.137 | 1.194 | 0.725 |
| S2                   | 0.781         | 1.060 | 1.068 | 1.456 | 0.752 | 0.758       | 1.060 | 1.068 | 1.456 | 0.752 |
| S3                   | 0.586         | 1.040 | 1.061 | 1.731 | 0.714 | 0.590       | 1.040 | 1.061 | 1.731 | 0.714 |
| S4                   | 1.184         | 1.078 | 0.982 | 1.392 | 0.789 | 1.018       | 1.078 | 0.982 | 1.392 | 0.789 |
| S5                   | 1.070         | 1.060 | 0.966 | 1.428 | 0.755 | 1.037       | 1.060 | 0.966 | 1.428 | 0.755 |
| S6                   | 1.120         | 1.069 | 1.013 | 1.450 | 0.767 | 0.976       | 1.069 | 1.013 | 1.450 | 0.767 |
| S7                   | 0.993         | 1.054 | 0.994 | 1.413 | 0.742 | 0.898       | 1.054 | 0.994 | 1.413 | 0.742 |

**Note**

<sup>1</sup>For all health plans, we used the metal tier information as reported in the supplemental file. For records with missing metal tier information, we estimated their metal tier based on the plan benefit design information as reported in the supplemental file. The reported and inferred metal tier assignments were used in calculating the actuarial factors here, which is different from Section 2 where the reported metal tier data was used for data quality assessment reporting. Insurers that do not submit data to the MN APCD are not included in the data. Insurers with more than one issuer entity but report to the MN APCD under one parent company are reported at the level of the parent company. Data from one insurer was ultimately omitted from the analysis of the small group market, because membership of the insurer was not accurately identified in various rounds of data submissions. The impact of this omission was not material to change the high-level conclusions of the

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## Appendix 4J - Average Actuarial Factors by Model, Groups of 51 to 100 Employees

| <b>Acronyms:</b> |                           |
|------------------|---------------------------|
| PLRS             | Plan Liability Risk Score |
| IDF              | Induced Demand Factor     |
| GCF              | Geographic Cost Factor    |
| ARF              | Allowable Rating Factor   |
| AVAF             | Actuarial Value Factor    |

| Insurer <sup>1</sup> | Federal Model |       |       |       |       | State Model |       |       |       |       |
|----------------------|---------------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|
|                      | PLRS          | IDF   | GCF   | ARF   | AVAF  | PLRS        | IDF   | GCF   | ARF   | AVAF  |
| G1                   | 1.077         | 1.056 | 0.970 | 1.429 | 0.743 | 0.904       | 1.056 | 0.970 | 1.429 | 0.743 |
| G2                   | 0.702         | 1.036 | 1.083 | 1.439 | 0.694 | 0.687       | 1.036 | 1.083 | 1.439 | 0.694 |
| G3                   | 1.078         | 1.083 | 0.976 | 1.391 | 0.797 | 0.965       | 1.083 | 0.976 | 1.391 | 0.797 |
| G4                   | 1.298         | 1.086 | 1.067 | 1.534 | 0.797 | 1.140       | 1.086 | 1.067 | 1.534 | 0.797 |
| G5                   | 1.110         | 1.073 | 0.970 | 1.400 | 0.776 | 1.021       | 1.073 | 0.970 | 1.400 | 0.776 |

Note

<sup>1</sup>For all health plans, we used the metal tier information as reported in the supplemental file. For records with missing metal tier information, we estimated their metal tier based on the plan benefit design information as reported in the supplemental file. The reported and inferred metal tier assignments were used in calculating the actuarial factors here, which is different from Section 2 where the reported metal tier data was used for data quality assessment reporting. Insurers that do not submit data to the MN APCD are not included in the data. Insurers with more than one issuer entity but report to the MN APCD under one parent company are reported at the level of the parent company. Data from one insurer was ultimately omitted from the analysis of the small group market, because membership of the insurer was not accurately identified in various rounds of data submissions. The impact of this omission was not material to change the high-level conclusions of the study.

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## Appendix 4K - Factors Used in Risk Adjustment Study

### Geographic Cost Factors (GCF)\*

| Rating Region | Individual Market, Non-Catastrophic Plans |                        | Small Group Market |                        | Catastrophic Plans |                        |
|---------------|---|------------------------|--------------------|------------------------|--------------------|------------------------|
|               | GCF                                       | Billable Member Months | GCF                | Billable Member Months | GCF                | Billable Member Months |
| 1             | 1.468                                     | 134,711                | 1.317              | 57,070                 | 1.455              | 880                    |
| 2             | 1.107                                     | 105,477                | 1.120              | 56,752                 | 1.160              | 1,324                  |
| 3             | 1.128                                     | 150,639                | 1.181              | 47,731                 | 1.146              | 1,662                  |
| 4             | 1.129                                     | 110,934                | 1.194              | 25,485                 | 1.139              | 812                    |
| 5             | 1.063                                     | 148,067                | 1.052              | 56,164                 | 1.080              | 2,268                  |
| 6             | 0.994                                     | 152,547                | 1.023              | 39,871                 | 1.023              | 2,903                  |
| 7             | 1.004                                     | 200,048                | 1.040              | 59,851                 | 1.075              | 3,572                  |
| 8             | 0.915                                     | 1,708,799              | 0.936              | 968,065                | 0.957              | 33,798                 |
| 9             | 0.949                                     | 61,702                 | 1.074              | 15,239                 | 0.953              | 537                    |

\*Source:

["Geographic Cost Factor Tables for 2014 – Addendum to Summary Report on Transitional Reinsurance Payments and Permanent Risk Adjustment Transfers for the 2014 Benefit Year", CMS, March 17, 2016 \(https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RA\\_2014GCF\\_Tables\\_5CR\\_031716.pdf\)](https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RA_2014GCF_Tables_5CR_031716.pdf)

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Appendix 4K - Factors Used in Risk Adjustment Study

| Minnesota Age Factors* |            |
|------------------------|------------|
| Age                    | Age Factor |
| 0-20                   | 0.890      |
| 21                     | 1.000      |
| 22                     | 1.000      |
| 23                     | 1.000      |
| 24                     | 1.000      |
| 25                     | 1.004      |
| 26                     | 1.024      |
| 27                     | 1.048      |
| 28                     | 1.087      |
| 29                     | 1.119      |
| 30                     | 1.135      |
| 31                     | 1.159      |
| 32                     | 1.183      |
| 33                     | 1.198      |
| 34                     | 1.214      |
| 35                     | 1.222      |
| 36                     | 1.230      |
| 37                     | 1.238      |
| 38                     | 1.246      |
| 39                     | 1.262      |
| 40                     | 1.278      |
| 41                     | 1.302      |
| 42                     | 1.325      |
| 43                     | 1.357      |
| 44                     | 1.397      |
| 45                     | 1.444      |
| 46                     | 1.500      |
| 47                     | 1.563      |
| 48                     | 1.635      |
| 49                     | 1.706      |
| 50                     | 1.786      |
| 51                     | 1.865      |
| 52                     | 1.952      |
| 53                     | 2.040      |
| 54                     | 2.135      |
| 55                     | 2.230      |
| 56                     | 2.333      |
| 57                     | 2.437      |
| 58                     | 2.548      |
| 59                     | 2.603      |
| 60                     | 2.714      |
| 61                     | 2.810      |
| 62                     | 2.873      |
| 63                     | 2.952      |
| 64 and older           | 3.000      |

\*Source:

"State Specific Age Curve Variations", CMS, 5/14/2013  
<https://www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Market-Reforms/Downloads/state-specific-age-curve-variations-5-14-2013.pdf>

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## Appendix 4L – Modeling Data Set Creation and Adjustments

### Creation of the Risk Adjustment Modeling Data Set

- To develop a risk adjustment model using Minnesota data in which an adequate sample size would be required, we combined the 2013 and 2014 membership and claims experience from the commercial individual, small group, groups of 51 to 100 members, and MinnesotaCare. We repriced claims to remove provider reimbursement differences and estimated plan metal tiers for pre-ACA compliant plans based on the benefit design information submitted by Minnesota insurers through the supplemental files. We had a number of iterations with several insurers to ensure that their applicable members were properly represented in the supplemental files. The modeling data set included 1,754,566 members, or 13,011,024 member months.

Notice that while risk adjustment funds settlement is conducted by market segment, the development of a risk adjustment model to assign member relative risk scores does not require modeling by market segment. This is because the risk scores are intended to recognize health status differences between members, and structural differences between market segments are normalized out by settling funds by market segment.

- To simulate potential market outcomes under alternative risk adjustment scenarios, we used the 2014 portion of the data set. Given the forward-looking simulation nature of the analysis, we included member experience for the entire 2014 calendar year, regardless of when the member transitioned to ACA-compliant coverage. In particular, small group members that did early renewals (also see discussions in Section 1.1) are included in the simulations for their entire 2014 experience, not just the months they rolled over to an ACA-compliant plan. Individual members were treated in a similar fashion. The data set used in simulation included 914,028 members, or 6,856,217 member months.

### Adjustments to Reflect Market Changes Since 2015

To represent a more current view of the market, we made adjustments to the modeling data set to account for market changes since 2015. These include:

- There were four distinct eligibility and plan designs in 2014 for MinnesotaCare. With the expansion of Medicaid, a significant portion of the MinnesotaCare members, especially pregnant women and children under 21, were enrolled under the Minnesota Medical Assistance program instead. The remainder of the members remained in the Basic Plus, Basic Plus One and Basic Plus Two plans. The plan designs for these three plans are different, and the estimated plan actuarial values range from 94% to 98%. The MN APCD data does not have a plan identifier for us to identify the members into the appropriate MinnesotaCare benefit levels. For purpose of modeling, we assume that the 2014 MinnesotaCare members had an average actuarial value of 96%.
- In 2014, PreferredOne enrolled more than 70,000 members on the individual exchange. They withdrew plan offerings on the individual exchange in 2015 but still offered individual plans off the exchange. Based on the 2015 MNsure enrollment information from MDH, we randomly redistributed PreferredOne members who purchased plans on the exchange

to three other major carriers in the market – 60% with Blue Cross and Blue Shield of Minnesota, 30% with HealthPartners, and 10% with UCare Commercial.

- Time Insurance and John Alden Health Plans left the Minnesota health insurance market in 2016. As we do not have 2016 enrollment data for these members we randomly assigned Time Insurance and John Alden's members to other carriers in the market proportionately to their 2014 market share by market segment.
- Records with missing metal tier and lacking plan benefit design information were excluded for purpose of risk adjustment modeling.

We note that random assignment of PreferredOne, Time Insurance and John Alden Health Plans' members may not align with the actual market outcome because carrier and plan selection by an individual is not a random process.



## Appendix 4M - List of Disabling Medical Conditions Used in Modeling

Schizophrenic disorders  
Major depressive disorders  
Profound mental retardation  
Edwards/Patau/deletion/autosomal anomaly syndromes  
Severe mental retardation  
Moderate mental retardation  
Autism/pervasive developmental disorders, other childhood psychoses  
Mild/unspecified mental retardation  
Down's syndrome  
Prader-Willi/Fragile X syndromes  
Emotional disorders of childhood/adolescence  
Learning/development disorders  
Unspecified chromosomal anomalies and congenital malformation syndromes, nec  
Sex chromosome abnormalities (e.g., Klinefelter's/Turner syndromes)  
Congenital/infantile quadriplegia (cerebral palsy)  
Quadriplegia, incomplete or unspecified  
Quadriplegia (C1-C7), complete  
Congenital/infantile diplegia/paraplegia (cerebral palsy)  
Paraplegia  
Hemiplegia and hemiparesis  
Congenital/infantile hemiplegia (cerebral palsy)  
Hemiplegia/hemiparesis following stroke  
Monoplegic, other, and unspecified cerebral palsy  
Diplegia (upper), monoplegia, other, and unspecified paralytic syndromes  
Monoplegia and other paralysis following stroke, except hemiplegia  
Blind, WHO or USA legal definition  
Traumatic amputation of leg/arm/hand/foot/toe, compl reattached body part  
Amputation status (lower limb), amputation complications  
Amputation status, upper limb

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## Appendix 5A – HHS’s Discussion on the Risk Adjustment User Fee Estimates

To help fund the operation of the risk adjustment program, the U.S. Department of Health and Human Services (HHS) collects a risk adjustment user fee. The collection and payment details of the risk adjustment user fee are published in the Federal Notice of Benefit and Payment Parameters.

In the 2014 Federal Notice of Benefit and Payment Parameters<sup>1</sup>, HHS estimated that the total cost for HHS to operate the risk adjustment program on behalf of States for 2014 would be less than \$20 million, and that the per capita risk adjustment user fee would be \$0.96. HHS did not provide a detailed breakdown of the operational costs but stated that the estimates were determined “...by examining the contract costs of operating the program, including development of the model and methodology, collections, payments, account management, data collection, program integrity and audit functions, operational and fraud analytics, stakeholder training, and operational support (not including Federal personnel costs).”

Regarding the administrative costs of state-based risk adjustment, HHS stated “States may vary the amount and type of data collected, provided that States meet specified data collection standards. Administrative costs will vary across States and health insurance issuers depending on the type of data collection approach used in the State. In States opting to operate risk adjustment using a distributed model of data collection, the costs associated with mapping and storing the required data and, in some cases, the costs associated with running the risk adjustment software will likely be borne by the issuer. States and issuers that already have systems in place for data collection and reporting will have reduced administrative costs. For example, issuers that already report data for Medicare Advantage (MA) or Medicaid Managed Care may see minimal additional administrative burden for risk adjustment. Additionally, some States risk-adjust their Medicaid Managed Care programs. States with allpayer or multi-payer claims databases may need to modify their systems to meet the requirements of risk adjustment. However, these costs of modification will be less than the costs of establishing these systems. States and issuers that do not have existing technical capabilities will have larger administrative costs related to developing necessary infrastructure. Issuer characteristics, such as size and payment methodology, will also affect administrative costs. In general, national issuers will likely be better prepared for the requirements of risk adjustment than small issuers. Additionally, administrative costs may be greater for issuers whose providers are paid by capitation and who do not receive claims or encounter data, as they will have to modify their systems to account for the information required for risk adjustment methodology.”

In the 2015 Federal Notice of Benefit and Payment Parameters<sup>2</sup>, HHS stated that “For the 2015 benefit year, we proposed to use the same methodology that we used in the 2014 Payment Notice to estimate our administrative expenses to operate the risk adjustment program. That proposed methodology was based upon our contract costs in operating risk adjustment on behalf of States. The contract costs we considered cover development of the model and methodology, collections, payments, account management, data collection, data validation, program integrity and audit

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<sup>1</sup> [Patient Protection and Affordable Care Act: HHS Notice of Benefit and Payment Parameters for 2014](https://www.federalregister.gov/articles/2013/03/11/2013-04902/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2014) (<https://www.federalregister.gov/articles/2013/03/11/2013-04902/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2014>)

<sup>2</sup> [Patient Protection and Affordable Care Act: HHS Notice of Benefit and Payment Parameters for 2015](https://www.federalregister.gov/articles/2014/03/11/2014-05052/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2015) (<https://www.federalregister.gov/articles/2014/03/11/2014-05052/patient-protection-and-affordable-care-act-hhs-notice-of-benefit-and-payment-parameters-for-2015>)

*functions, operational and fraud analytics, stakeholder training, and operational support. We proposed not to set the user fee to cover costs associated with Federal personnel.”*

The total expected cost for HHS to operate risk adjustment for 2015 was \$27 million, although HHS did not provide any category-by-category breakdown.



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September 9, 2016

Ms. Diane Rydrych  
Minnesota Department of Health  
625 Robert Street North  
St. Paul, MN 55164

Dear Diane:

We are writing today in response to the report released by the Minnesota Department of Health (“MDH”) entitled “State-Based Risk Adjustment Feasibility Analysis” (“Report”). The Council has significant concerns about the Report, and we ask MDH to revise the Report before its final release to correct the inaccuracies we identified. Our letter is divided into two of our most immediate concerns with MDH’s process, as well as our response to the assertions posited in the Executive Summary.

Minnesota’s most successful health care initiatives, such as the Minnesota Comprehensive Health Association and MinnesotaCare, were the result of committed and meaningful collaboration between the public and private sectors. The Council objects to the implied characterization that the health plans support or are neutral on the implementation of a state-based risk adjustment program as the solution to the challenges in the individual health insurance market. In stakeholder interviews and RFI responses, most health plans clearly indicated their preference for remaining with the continuously improving federal risk adjustment program. We acknowledge the difficulties Minnesotans are facing with premium increases, and we are actively working on proposals to strengthen the individual health insurance market in Minnesota. Implementing a state-based risk adjustment program, will not address the underlying problems we are experiencing in Minnesota’s individual market and is not keeping with the tradition of the most successful health care reforms in Minnesota.

The Report was commissioned under Minnesota 2013 Session Law, chapter 108, article 1, section 65, and MDH was tasked with contracting with an organization to study whether a state-based risk adjustment of the individual and small group market could be (1) more cost-effective, and (2) perform better than the federal risk adjustment. The Report does not abide by its legislative directive because it failed to answer these two fundamental questions.

MDH did not provide any cost estimate in the Report, citing the difficulty of such a calculation.<sup>1</sup> Nor did MDH demonstrate that a state-based risk adjustment model would perform better than the

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<sup>1</sup> “It is difficult to say with certainty whether a state-based risk adjustment program will be more or less expensive to insurers and consumers in Minnesota than the existing federal system.” MILLIMAN, STATE-BASED RISK ADJUSTMENT FEASIBILITY ANALYSIS, 6 (Aug. 2016). “From a cost perspective, it is difficult to say with certainty if a state-based risk

federal risk adjustment. Rather, the Report recommends making adjustments that HHS will be making to the federal risk adjustment model, thus indicating that the proposal proffered by MDH would, at most, perform equally with the federal risk adjustment method.

In addition to failing to answer the legislatively-mandated questions, the Report presents policy options that exceed the scope of the study's legislative direction, such as modeling theoretical market mergers without the actuarial analysis to support its conclusory policy outcomes. The failure to answer the two fundamental questions presented by the Legislature and the inclusion of extraneous information is disappointing and we ask MDH to correct these deficiencies.

The Minnesota Legislature directed the commissioner of MDH to submit the Report to the Legislature by October 1, 2015.<sup>2</sup> Nearly eleven months after its due date, MDH sent the Report to the Council on Tuesday August 30<sup>th</sup> with response due by Friday, September 9<sup>th</sup> - an incredibly short time for review. While attempting to honor MDH's timeline, the truncated review period is inappropriate for the scope of the Report and we ask for more time to formulate a more detailed response.

We provide our response to each of the Report's overall findings and recommendations. As a fundamental issue, we find the Report's findings to be conclusory, unsupported, and contradicted by the remainder of the Report.

### **Overall Findings Lack Support**

*A state-based risk adjustment program developed using Minnesota data and making a number of select refinements on the federal risk adjustment model would significantly improve the predictive accuracy of the Federal model.*

We are concerned about this finding for several reasons. This finding reflects a misunderstanding of the fluidity of risk adjustment. The cost of a condition is a moving target. Therefore, no risk adjustment system will ever perfectly predict or adjust for the cost of a condition.

This finding completely disregards the refinements to the federal risk adjustment model and misleads readers about the impact of a state-based risk adjustment program. In March of 2016, CMS announced its intent to incorporate two changes to federal risk adjustment model,<sup>3</sup> one of which MDH recommends as a refinement in the Report: partial year enrollment. The federal model,

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adjustment program will be more or less expensive than the current Minnesota contributions to the federally-operated risk adjustment program." *Id.* at 69. Massachusetts, the only state that implemented a state-based risk adjustment program, found that their program cost twice the amount of the federal method to administer. Edward DeAngelo and Michael Norton, Risk Adjustment Update at Massachusetts Health Connector Board of Directors Meeting, slide 6 (Dec. 10, 2015), available at [https://betterhealthconnector.com/wp-content/uploads/board\\_meetings/2015/2015-12-10/Risk-Adjustment-Update-121015.pdf](https://betterhealthconnector.com/wp-content/uploads/board_meetings/2015/2015-12-10/Risk-Adjustment-Update-121015.pdf).

<sup>2</sup> 2013 Minn. Laws Chapter 108, art. 1, sec. 65, subp. f.

<sup>3</sup> CTRS. FOR MEDICAID & MEDICARE SVCS., MARCH 31, 2016 HHS-OPERATED RISK ADJUSTMENT METHODOLOGY MEETING DISCUSSION PAPER, 35-40 (Mar. 24, 2016), available at <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>.

however, will be further refined beyond the changes modeled by MDH and the capabilities of the APCD. For the 2018 benefit year risk adjustment model, HHS will continue to incorporate previously announced improvements, including the incorporation of preventive services and using more granular trend rates that better reflect the growth in specialty drug expenditures.<sup>4</sup> Also, HHS proposes three changes to the federal risk adjustment model: (1) to implement enrollment duration factors to account for enrollees who enroll for only part of the year in the 2017 model; (2) to incorporate prescription drugs into the risk adjustment model as way to trigger a HCC when no diagnoses code is available and to indicate the condition's severity in the 2018 model; and, (3) to include a high-risk pooling mechanism in the 2018 risk adjustment model.<sup>5</sup> We believe these refinements to the Federal Model, which the report does not acknowledge, will be more effective than the refinements proposed by the Report.

Additionally, we find fault with the Report's reliance on the R-squared, as a signal for the model's predictive value. The Report asserts that the state-based risk adjustment program yields a higher R-squared than the federal model. A model's predictive value will always be higher if the model's tested on the same data that was used to develop and calibrate it.<sup>6</sup> Thus, because the APCD data was from the 2014 benefit year, but also used 2014 data to assign weights to the HCC, the R-square will naturally be higher than the federal model, which used 2010 MarketScan® Commercial Claims and Encounter data.<sup>7</sup> The Report also acknowledges, which this overall finding does not reflect, that refining the HCC risk weight using Minnesota-specific data from the APCD did not yield a more accurate model than the current federal model.<sup>8</sup> It is inconsistent to say that the refinements proposed in the Report will yield more accurate results when the Report fails to acknowledge the coming changes to the federal model and indicates that using state specific data would not produce better results than the federal model. Although MDH argues that using state-specific data will result in a more accurate model, we have concerns that too small of a population for each HCC will not be as accurate, and believe that Minnesota should use the broader, national data, used by the federal model. Any substitute for that is not acceptable.

The Report also identifies "prediction biases," particularly around certain high cost cases. Again, this is an area that HHS is already addressing in its impending improvements to the federal risk adjustment model. Analysis of recent updates to the federal model indicates that these over/under predictions have largely been corrected. Therefore, the state model would not provide additional value.

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<sup>4</sup> Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2018, 81 Fed. Reg. 61,456, 61,466 (proposed Sep. 6, 2016).

<sup>5</sup> *Id.*

<sup>6</sup> They developed the state model on 2014 APCD data, then tested it in 2014 APCD data (*see* MILLIMAN, *supra* note 1 at Appendix 4a, third row), whereas the federal model was developed on 2010 data and tested on 2014 APCD data (*see* MILLIMAN, *supra* note 1 at Appendix 4A, second row) or 2010-2012 MarketScan® data (*see* MILLIMAN, *supra* note 1 at Appendix 4a, first row).

<sup>7</sup> John Kautter, Gregory Pope, Melvin Ingber, Sara Freeman, Lindsey Patterson, Michael Cohen, & Patricia Keenan, *The HHS-HCC Risk Adjustment Model of Individual and Small Group Markets under the Affordable Care Act*, 4 MEDICARE & MEDICAID RESEARCH REV. 3, E4 (2014), available at

[https://www.cms.gov/mmrr/Downloads/MMRR2014\\_004\\_03\\_a03.pdf](https://www.cms.gov/mmrr/Downloads/MMRR2014_004_03_a03.pdf).

<sup>8</sup> MILLIMAN, *supra* note 1 at 42.

The Report's refinements are not revolutionary; they have been discussed and proposed by HHS since early 2016, and HHS will be making those very changes in the very near future. HHS has previously made changes to the federal risk adjustment model, and we anticipate that HHS will make further refinements as the program progresses.

*There is an opportunity to align state-based risk adjustment with other state-based policy initiatives as a means of enhancing these other initiatives and to ensure that the interaction of risk adjustment with these policies does not create unintended consequences.*

No federal or state law binds the State to implement a state-based risk adjustment program in order to effectuate other policy initiatives. A state-based risk adjustment program will not fix the deficiency in the individual health insurance market and we find it inappropriate to offer policy solutions that have not been actuarially modeled as an impetus to implement state-based risk adjustment.

*A Minnesota-based reinsurance strategy that is aligned with risk adjustment necessitates implementation of a state-based risk adjustment mechanism.*

As noted in response to the previous finding, there is no federal or state law requiring a State to implement state-based risk adjustment in tandem with a state-based reinsurance program. Use of the word "necessities" is inaccurate. For example, Alaska will be implementing a state-based reinsurance program and it does not operate a state-based risk adjustment program, nor is it eligible to operate one because it does not operate a state-based marketplace. This recommendation is patently false and must be removed so as not to mislead readers about the legal requirements to operate a state-based risk adjustment program or a state-based reinsurance program.

*The MN APCD represents a strong data platform for state-based risk adjustment in the individual and small group market.*

Throughout the development of the Report, the Council and individual health plan members have raised concerns about the quality of the data within the APCD. We echo those concerns now. The Council objects to the classification of the APCD as a robust data platform because MDH required an additional supplemental data file, in excess of the normal APCD data submissions, to conduct the study. Despite the "presumptive compliance" approach which the state has taken on the applicability of the *Gobeille* decision, we believe that this is an ongoing and important challenge to the potential completeness and utility of the APCD.

*Implementing and operationalizing a state-based risk adjustment program requires substantial lead time of at least 18 months.*

We have great concerns about any proposed conversion to a state-based risk adjustment program for many reasons, and do not believe the timeline is at all realistic. State-based data programs have had significant challenges in managing expectations and timelines.

Although MDH acknowledges that the lead time for implementing a state-based risk adjustment program could require at least 18 months, we believe the timeline would be considerably longer. First, health plans were engaged with CMS for two years in building and testing EDGE servers and data submissions after the federal model was developed.<sup>9</sup> Second, HHS must approve the state-based risk adjustment prior to the publication of the annual Notice of Benefit and Payment Parameters. HHS has already released the propose Notice of Benefit and Payment Parameter for 2018, and all indications point to HHS finalizing the rule before the end of 2016 and also before the 2017 Minnesota legislature convenes. Because implementing a state-based risk adjustment program would require enacted legislation, we do not believe a state-based risk adjustment program could be implemented for plan year 2018. We request that MDH revise this recommendation and the supporting information in section 5.1.2.

*From a cost perspective, it is difficult to say with certainty if a state-based risk adjustment program will be more or less expensive than the current Minnesota contributions to the federally-operated risk adjustment program.*

Assessing the cost of implementing a state-based risk adjustment program was an explicit directive from the legislature to MDH.<sup>10</sup> MDH repeatedly posits throughout the Report the difficulty of such a calculation.<sup>11</sup> The Report, however, failed to consider the experience of the only state that implemented, and is now abandoning, a state-based risk adjustment program: Massachusetts. In its recommendation to the Board of the Health Connector, Massachusetts' state-based marketplace, Connector staff found that operating a state-based risk adjustment program in 2017 would cost, on a per-member-per-month basis, twice as much as the federal risk adjustment program.<sup>12</sup> We are unconvinced that it was difficult to determine how much a state-based risk adjustment program would cost, and recommend MDH correct this oversight in the Report.

Another data point that could have been used to evaluate the cost of implementing a state-based risk adjustment program is the federal program fund available for 2018. The risk adjustment user fee of \$1.32 per billable member per year would yield approximately \$750,000 in Minnesota. The state would need to be able to deliver a state-based program for that amount or less. That does not account for any costs the health plans would incur during a transition period or duplicative work for maintaining EDGE servers where health plans offer coverage in other states.

### **Additional Recommendation**

The Report included two overall findings and recommendations that were identical, i.e., the APCD is a strong data source for state-based risk adjustment, and the state could implement other policy initiatives. Because we already outlined our responses to those opinions in the above section, we

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<sup>9</sup>Developing the model in Massachusetts took about a year, and it took three years (2011 to 2014) to implement.

DeAngelo and Norton, *supra* note 1, at slide 4.

<sup>10</sup> 2013 Minn. Law, chapter 108, art. 1, sec. 65, subp. d.

<sup>11</sup> MILLIMAN, *supra* note 1 at 6 and 69 .

<sup>12</sup> DeAngelo and Norton, *supra* note 1, at slide 6..



Ms. Diane Rydrych  
September 9, 2016  
Page 6

will focus on the remaining additional recommendation presented in the Executive Summary of the Report.

*(1) A state-based risk adjustment system would create greater transparency in trends of health insurance risk in Minnesota, which would enhance predictability in the insurance market and premium development.*

A state-based risk adjustment system would not enhance predictability in the insurance market and premium development. This recommendation reflects a misunderstanding of the work health insurers already do to assess trends in health insurance risk. The members of the Council all contract with a third-party actuarial firm to provide this very information to the health plans six times a year. A state-based risk adjustment system would not meaningfully increase predictability of the trends of the health insurance risk in Minnesota.

Moreover, the establishment of a new state-based risk adjustment program could delay the availability of the information necessary for premium development. The establishment of any entirely new program takes time and resources, which could result in information available later than it is under the current federal program, thereby producing the opposite result: a reduction in the predictability in the insurance market.

In conclusion, the Council strongly urges the state to permit the federal risk adjustment model to continue and not further disrupt an already unstable market with an unnecessary and drastic change. Such a change at this juncture has the potential to do real harm without adding measurable value. The federal risk adjustment program is well established, working well, continually improving and effectively leverages plan investments in data collection and submission.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Schowalter". The signature is stylized with a large, sweeping initial "J" and a long horizontal stroke extending to the right.

James Schowalter, President  
Minnesota Council of Health Plans

CC: Dan Pollock, MN Department of Health  
Anne O'Connor, MN Department of Commerce  
Lauren Gilchrist, Office of Governor Mark Dayton



Minnesota  
Department  
*of* Health

PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS