

MILLIMAN REPORT

# Premise Health

## Independent review of ROI methodology

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## I. EXECUTIVE SUMMARY

Premise Health (Premise) engaged Milliman to review its methodology for measuring the return on investment (ROI) of Premise services relating to employer clients' total cost of care. Premise provided a detailed description of its methodology, additional details related to other methodologies that were tested and ultimately not selected, sample client annual reports, and detailed membership, medical claims, and prescription drug claims data for six case studies for Milliman's review. This report provides a brief description of the Premise services subject to the methodology we reviewed, the savings methodologies, and data sources. We discuss the merits and potential limitations of the savings approaches used by Premise, and outline important caveats and recommendations of this review.

This report is intended to provide a third-party assessment of the appropriateness of Premise's methodology for analyzing the impact of Premise services on total cost of care. This report may not be appropriate outside of this specific context and should not be used for any other purpose. Actual results for any specific employer or other type of client will be unique to the characteristics of that employer or client, random variation of medical and prescription drug claims, and other external factors not considered in this assessment. We are commenting only on the general approach provided to us by Premise for estimating the ROI to a client of Premise services. We are not commenting on the results of any particular Premise client. This information does not constitute an endorsement or recommendation of Premise's services, nor does it quantify the actual value of Premise's services in aggregate or for any specific group, historically or in the future.

Overall, we conclude the following:

- The standard methodology used by Premise is reasonable, actuarially sound, and appropriate for estimating the ROI of Premise's primary care on-site and near-site clinic offerings (which include virtual care visits), provided the treatment and control groups used to calculate savings are sufficiently large across the 12-month period analyzed. Below a 500 member per group level, the accuracy of risk adjustment, which is a key component in the calculation, decreases. Results from populations with low membership volume should be interpreted with caution.
- Generally, we find that Premise's choice of methodology is conservative (i.e., it will tend to understate ROI), although there are several aspects of the methodology in addition to risk adjustment that we discuss in the body of this report that could either overstate or understate results.
- We recommend using alternative methodologies to estimate ROI for Premise's Care Management program (one of the services within the Connected Care+ product suite) because the population engaged in the program is generally much smaller, higher-risk, higher-cost, and nonhomogeneous in terms of its health needs, which increases the prediction error of risk adjustment. Possible alternative methodologies that would be reasonable for this population include a matched cohort comparison, an aggregated study, or a longitudinal analysis, the details of which are outlined below.

Any reader of this report must possess a certain level of expertise in areas relevant to this analysis to appreciate the significance of the assumptions and the impact of these assumptions on results. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this report.

We are members of the American Academy of Actuaries, and we meet the qualification standards for performing the analyses in this report.

This analysis is subject to the terms and conditions of the Consulting Services Agreement between Premise and Milliman dated September 7, 2021, and the Statement of Work dated April 14, 2022. We understand that Premise intends to provide public access to this report through an internet link; therefore, it could be viewed by its prospective clients, competitors, or other interested parties. We consent to this distribution if the work is distributed in its entirety. Milliman does not intend to benefit and assumes no duty or liability to other parties who review this work or rely on it.

## II. BACKGROUND

This section provides an overview of the Premise healthcare delivery model as presented to Milliman by Premise.

Premise is a direct healthcare provider operating on-site and near-site clinics, as well as offering a variety of virtual services for participating employer groups and other organizations needing population health services (e.g., governments, labor unions, health plans). Clients contract directly with Premise, paying based on a designated fee schedule (cost-plus, fixed, and/or per member per month) for selected services (i.e., payment is not fee-for-service). Beyond the fixed and pass-through costs (e.g., prescription drug costs), employers are not charged for care received at Premise clinics. Generally, all employees and dependents of a participating employer are eligible to use Premise facilities and services, although some clients may elect to cover only specific populations. Premise clinics are staffed by a variety of health professionals, which could include primary care physicians, physician's assistants, nurse practitioners, pharmacists, nurses, care managers, care navigators, behavioral health specialists, medical assistants, dietitians, physical therapists, wellness coaches, and other provider types. Premise pays providers a salary rather than fee-for-service.

Premise believes the improved access to both digital and in-person care, value-based provider reimbursement models, and a personalized treatment approach lead to higher member engagement, better health outcomes, and ultimately lower healthcare costs.

Core Premise lines of service include (but are not limited to):

- **Primary care:** A whole-person approach to digital and in-person primary care that covers both preventive and acute episodic needs. Primary care services include annual physicals, biometric screenings, chronic condition management, sick visit care, immunizations, lab work, pediatrics (ages 2 and up), women's health, and more.
- **Pharmacy:** A dedicated pharmacy team led by a board-certified pharmacist dispenses prescriptions (in-person, home delivery, and over-the-counter medications) and offers a combination of services that include behavior change coaching, disease-specific education, and one-on-one chronic condition management.
- **Connected Care+:** A family of products that uses data to identify healthcare opportunities, guide members to appropriate services, and provide comprehensive, high-value care. It is comprised of four components: care management, care navigation, second-opinion consultations, and centers of excellence (COE) referrals. Note that this analysis focuses on care management, which uses healthcare data to identify and deliver personalized, whole-person care to the highest-cost and/or highest-risk members in a population.

Premise has several other service offerings<sup>1</sup> as well. However, our evaluation focuses on the three services outlined above, given similarities in Premise's approach to calculating ROI among them.

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<sup>1</sup> Other services include behavioral health, occupational health, musculoskeletal (e.g., physical therapy, chiropractic), fitness, dental, and wellness.

### III. ROI METHODOLOGY

#### OVERVIEW

Premise uses a three-part methodology to estimate savings for a given client. These components of savings are A) total cost of care, B) direct cost avoidance, and C) productivity. The estimated savings used to derive ROI are calculated from each sub-methodology and added together to obtain total estimated savings attributable to Premise service offerings. The population segments where savings are possible are:

- 1) **Premise-attributed population:** Members who receive the majority of their primary care or pharmacy services (further defined later in this section) at a Premise clinic or are engaged in Premise’s Care Management program. Engagement implies active member participation in the Care Management program and not simply communication or interaction with a digital platform.
- 2) **Community-attributed population:** Members who receive the majority of their primary care or pharmacy services at community<sup>2</sup> clinics and/or pharmacies. The community-attributed population can be further subdivided into two groups, depending on their utilization of Premise services:
  - a. Community-attributed members are considered “Engaged with Premise” if they receive some of their primary care or pharmacy services at Premise.
  - b. Community-attributed members are considered “Not engaged with Premise” if they have not utilized any Premise services at all.
- 3) **Non-attributed population:** Employees or dependents who do not have any primary care or pharmacy utilization during the measurement period.

The population segments and corresponding savings methodologies applicable to each are summarized in Figure 1.

Figure 1 Premise Health				
Attribution	Premise Engagement	Savings Sub-Methodology		
		A) Total Cost of Care (TCOC)	B) Direct Cost Avoidance (DCA)	C) Productivity (employees only)
1) Premise	Engaged	X		X
2a) Community	Engaged		X	X
2b) Community	Not Engaged	[Recommended for use as control group]		
3) None	Not Engaged	[Recommended for exclusion from analysis]		

The following sections describe each of the three savings methodologies in more detail.

#### A) Total cost of care (TCOC)

This methodology is only applicable to the Premise-attributed population. It has the following five steps:

1. Attribute members either to the Premise-attributed group (treatment population) or to the community-attributed group (control population). The attribution methodology is described in more detail at the end of this section.
2. Remove members with outlier claims from treatment and control groups.

Premise excludes the highest-cost members from both the treatment and the control populations. All medical and prescription drug costs and membership counts for individual members who collectively account for up to 5% of total spend for an employer group may be excluded. The exact number of members or the claim dollar threshold selected for exclusion may vary across employer groups. Outlier exclusion methodologies are discussed in more detail in the next section.

<sup>2</sup> Non-Premise providers in a member’s geographic area that provide services overlapping with those available at a particular client’s Premise clinic.

3. Calculate average claims (medical and pharmacy) per member per month (PMPM) by cohort within a designated 12-month experience period.
4. Calculate average risk scores by cohort and normalize the average community claims PMPM to the average Premise claims PMPM using the difference in risk scores between the two cohorts.

Premise relies on Milliman Advanced Risk Adjusters™ (MARA™) concurrent risk scores, calculated at the member level based on 12 months of enrollment, medical claims, and pharmacy claims data for a particular experience period. The normalization factor is calculated as the relativity between the Premise-attributed average risk score (numerator) and the community-attributed average risk score (denominator). Community-attributed average claims PMPM are multiplied by this factor.

5. Subtract Premise-attributed claims PMPM from *normalized* community-attributed claims PMPM to determine gross PMPM savings for Premise-attributed members.

Please note that, for the Premise-attributed population, the TCOC methodology inherently includes savings from direct cost avoidance. It is not calculated separately to avoid double-counting when estimating ROI for Premise-attributed members.

### B) Direct cost avoidance (DCA)

The “community-attributed, Premise-engaged” population members generate savings when they utilize Premise services that, in the absence of a Premise facility or virtual visit, would otherwise generate a fee-for-service (FFS) claims expense for the employer. This is referred to as direct cost avoidance (DCA) and is calculated for this population by comparing the average cost of similar encounters on a FFS basis to the member encounters for medical and/or pharmacy services provided by Premise providers.

DCA is also inherently captured for the “Premise-attributed” population in the TCOC methodology described above. Therefore, as previously mentioned, there is no need for a separate calculation of this component of potential savings for Premise-attributed members.

### C) Productivity gain

A “productivity gained” measure is calculated for both Premise-engaged populations shown in Figure 1. Productivity is defined as work time that would have been lost if services received at a Premise clinic had instead been received by a community provider. This calculation uses assumptions for average hourly wages for the employer and time saved by utilizing Premise services. Time saved includes time spent researching providers, traveling to other facilities, waiting in traffic, office or facility wait time, etc. Standard assumptions are \$30 per hour and 2.5 hours per visit, but they can be modified upon request to reflect any client’s particular situation. This measure is added only for employees as it is not considered to be relevant for spouses or child dependents.

## ROI

Total estimated savings and ROI is calculated based on the components below:

**Client savings** = TCOC + DCA + Productivity (see above for details)

**Client expenses** = Annual fees incurred by client to offer Premise services to population

**ROI** = Client savings / Client expenses

## ADDITIONAL DESCRIPTION OF ATTRIBUTION STATUS

For the TCOC methodology, Premise attributes members to one of three cohorts based on their claims experience within the selected experience period for an ROI analysis: Premise-attributed (which serves as the treatment group), community-attributed (which serves as the control group), and non-attributed. Members could be attributed to either the treatment or control groups based on three different lines of service and corresponding criteria:

- **Primary care:**

- Premise-attributed: Members who receive a majority of their primary care services—defined by Current Procedural Terminology (CPT) codes denoting office visits and provider specialty codes denoting internal medicine, family practice, and the like—at a Premise clinic or through Premise virtual care.
  - Community-attributed: Members who receive a majority of primary care services at providers within the community (i.e., non-Premise providers).
  - Non-attributed: Members without any primary care claims.
- **Pharmacy:**
    - Premise-attributed: Members who fill a majority of standardized prescriptions at a Premise pharmacy.
    - Community-attributed: Members who fill a majority of prescriptions at pharmacies within the community.
    - Non-attributed: Members without any pharmacy claims.
- **Care management (one of the four components of the Connected Care+ product suite):**
    - Premise-attributed: Members who Premise’s provider team has identified as high-risk and/or high-cost and who have agreed to have their healthcare managed by Premise.
    - Community-attributed: Members who have been identified as high-risk and/or high-cost and are attributed to community providers.

Members are attributed by month on a rolling 12-month basis. For ROI calculation purposes, members are attributed based on their attribution status in the last month of the selected experience period, based on 12 months of incurred claims with three months of runout allowed for claims adjudication.

It should be noted, that while Premise uses the same general methodology to calculate TCOC ROI for all attributed members, estimates are calculated separately for primary care attributed members, pharmacy attributed members, and care management attributed members.

Figure 2 Premise Health Example ROI Calculation*			
Savings Components	Year 1	Year 2	Cumulative
A) Total Cost of Care (TCOC)	\$4,300,000	\$5,150,000	\$9,450,000
B) Direct Cost Avoidance (DCA)	\$150,000	\$100,000	\$250,000
C) Productivity	\$500,000	\$500,000	\$1,000,000
<b>Total Savings</b>	<b>\$4,950,000</b>	<b>\$5,750,000</b>	<b>\$10,700,000</b>
<b>Expenses</b>	<b>\$4,500,000</b>	<b>\$5,000,000</b>	<b>\$9,500,000</b>
<b>ROI</b>	<b>1.10</b>	<b>1.15</b>	<b>1.13</b>

\* Note: These are hypothetical values to illustrate the ROI calculation process. These values are not based on any particular Premise client.



## IV. ASSESSMENT OF THE ROI METHODOLOGY

As part of our evaluation, we reviewed internal Premise presentations outlining a variety of alternative ROI calculation methodologies. We met with the Premise data analytics and management teams to discuss the rationale behind each methodology that was tested and subsequent decisions to select or eliminate various options.

Our analysis focused on Premise's methodology for calculating potential savings related to its on-site/near-site primary care and pharmacy service offerings, and its Care Management program (one of the four components of the Connected Care+ product suite). We did not evaluate the ROI methodology for any of the other service offerings. No part of the methodology presented to us directly attempts to measure other possible program benefits, such as improved access to care, improved clinical outcomes (except insofar as outcomes are captured in the TCOC methodology as lower total cost of care for Premise-engaged employees and dependents), or increased employee satisfaction.

*Based on our detailed review of Premise's methodology to estimate ROI, we find the approach to be reasonable and appropriate for its intended use, considering the limitations outlined in this paper. The components of Premise's total savings calculations (the sum of TCOC savings, DCA, and productivity gained) reasonably capture the impact of Premise services on each of the applicable populations of an employer without incorporating aggressive assumptions. The assumptions and methodologies used by Premise tend to produce conservative estimates of ROI; however, the results for any given client will vary.*

Additionally, there are aspects of the methodology that may result in potential understatement or overstatement of ROI that the readers of this report should consider.

Of the three sub-methodologies for calculating total estimated employer savings, the TCOC methodology is the most consequential. Therefore, the commentary and considerations that follow are applicable to this TCOC method, unless otherwise noted.

### CREDIBILITY

The approach used by Premise has a higher probability of either overstating or understating savings when membership volume is low in either the control group (community-attributed members), the treatment group (Premise-attributed members), or both.

This is because smaller membership volumes have higher medical and prescription drug claims cost volatility. This volatility decreases the statistical credibility and increases the prediction error of risk adjustment.<sup>3</sup> Thus, the population size is an important consideration as the standard Premise methodology relies heavily on risk adjustment to normalize health status differences between treatment and control populations.

To manage prediction error and its effects on Premise's ROI methodology, we recommend:

- Target sample sizes in both control and treatment groups of at least 500 average annual lives for ROI calculations. Using 500 lives or more improves risk adjustment accuracy materially compared to using smaller sizes. With greater than 500 lives, there is additional accuracy improvement, but this improvement is marginally less when compared to the gains going from, for example, 100 lives to 500 lives.
- For calculations that involve fewer than 500 lives in either the treatment or the control populations, results calculated using risk adjustment should be interpreted with caution. Below this level of membership, risk adjustment accuracy decreases marginally faster and, as a result, savings calculations are more likely to be understated or overstated. We recommend one (or a combination) of the following approaches for calculations with fewer than 500 lives in a particular cohort:
  1. Perform a matched cohort study. The use of matching techniques, such as propensity matching, or other types of matching, may provide a methodology alternative when membership and statistical credibility are lower. Such a study, which includes matching criteria that capture differences in risk or health conditions, allows for the construction of a control group from the outset of the study that has similar attributes to the treatment group. This should place less reliance on risk adjustment and reduces exposure to wider prediction error inherent in smaller population sizes. Note that matching is more complicated and labor-intensive and is not without its own drawbacks, outside the scope of this report.

<sup>3</sup> Source: Milliman Advanced Risk Adjusters research. Prediction error is the difference between the actual costs and the predicted costs from the risk adjustment model for a population.

2. Perform an aggregated study. Premise could combine all employer groups with fewer than 500 lives in either the control or the treatment groups and perform the standard methodology with the resulting larger population. By aggregating smaller employers into a single study, the issues of lower credibility, claims volatility, and risk adjustment error can be mitigated to varying degrees. The resulting PMPM savings estimate of this aggregated study could then be attributed to a specific employer group by multiplying the PMPM savings estimate by the specific employer group's Premise-attributed membership, with some possible adjustments for various employer-specific factors, including, but not limited to, geographic area, product offering, and demographics. Adjustment could potentially be avoided by performing aggregated studies only across employers that have these specific factors in common.

## CARE MANAGEMENT

The Care Management program cohort is a higher-risk population with complex health needs. It is generally smaller: always fewer than 500 lives in the cases we reviewed. As such, previous comments related to population size and risk adjustment accuracy apply. Additionally, in the cases we reviewed the average risk scores of the Care Management populations were materially higher than those of the control group, which further reduces risk adjustment accuracy.<sup>4</sup>

*Given these considerations, we recommend that the alternative methods outlined above, namely the matched cohort study and/or aggregated study, should be used as the standard method for the Care Management population. To the extent that matching Care Management members with corresponding members in the community population is challenging due to the unique nature of care management populations, an additional alternative could be a longitudinal study that calculates ROI over a single high-risk population engaged with Premise over several years, aggregated from multiple employers. The results of that study could be imputed to a specific employer's care management population.*

Additionally, we expect it could take a minimum of three to six months to affect any change to a member's health, risk score, or average claims cost under the Care Management program. As a result, we recommend that Premise exclude members from the Care Management treatment groups who have participated in Care Management services for fewer than three months. These members tend to have significantly higher-than-average risk scores, which, as mentioned previously, increases the prediction error associated with risk adjustment. Including members that participated for just a few months could understate ROI results.

## RISK ADJUSTMENT

The Premise methodology described to us uses a concurrent risk adjustment model that is based on diagnosis codes obtained from medical claims and utilized therapeutic classes from prescription drug claims. We agree that a concurrent model, as opposed to a prospective model, is the most appropriate model to use for estimating ROI.<sup>5</sup> However, in addition to the comments above about risk adjustment's level of prediction error when population sizes are small, we note that the use of risk adjustment may cause an ROI methodology to overstate or understate results based on two additional impacts: medical coding bias and selection bias.

## POSSIBLE MEDICAL CODING BIAS

The nature and quality of medical coding can vary among physicians, depending on the degree to which coding can influence a provider's overall reimbursement. We have noted in previous studies that providers such as direct primary care physicians or salaried physicians are not submitting FFS claims to third-party payers for reimbursement, and therefore their revenue is not necessarily as reliant on medical coding in a way that a traditional FFS physician's might be.<sup>6</sup> These motivations may cause differences among types of providers in the rigor of entering diagnosis codes, which are used as inputs to calculate risk adjustment.

We have noted to Premise management that, because Premise providers are not paid on a FFS basis, they may be prone to under-coding patients seen in clinics. Patients who are attributed to the Premise treatment group and receive the preponderance of their care at a Premise facility could appear lower-risk (i.e., have a lower risk score) than someone

<sup>4</sup> Source: MARA research indicating that prediction error increases as the average risk score of populations increases.

<sup>5</sup> A concurrent model uses diagnosis information from a particular period to estimate the resource utilization and health status of the population for the same period. A prospective model uses the same information but makes a prediction of the future resource utilization or health status of a population.

<sup>6</sup> Busch, F., Grzeskowiak, D., & Huth, E. (May 2020). Direct Primary Care: Evaluating a New Model of Delivery and Financing. Society of Actuaries. Retrieved May 22, 2023, from <https://www.soa.org/49c889/globalassets/assets/files/resources/research-report/2020/direct-primary-care-eval-model.pdf>.

similarly situated whose care is delivered by mostly non-Premise physicians. *This under-coding of Premise-attributed patients would have the effect of understating Premise's savings and ROI.*

One possible way to account for the differences in coding between Premise physicians and providers at large would be to use a risk adjuster that relies less (or not at all) on medical coding, but rather relies on prescription drug data. This would remove the element of bias (differences in physician coding patterns) from the process. However, a prescription drug-based risk adjuster could also be biased if prescription drug compliance is different between those using Premise clinics and filling prescriptions primarily through a Premise pharmacy versus those receiving care outside the Premise orbit. Premise has described to us that its pharmacists are actively engaged in the overall care plan for Premise members, which results in improved prescription drug compliance relative to the broader community. *If higher pharmacy compliance for Premise members is correct, using a drug-based risk adjuster would cause an overstatement of ROI.*

Premise should continue to review medical coding differences and pharmacy compliance between its own providers and the community providers to determine the optimal risk adjuster with the least degree of bias.

## SELECTION BIAS

It is generally the case that individuals who opt to participate in or otherwise utilize a program that is designed to manage care and improve clinical outcomes or overall health may have behaviors and clinical risk that differ materially from individuals who do not. This selection bias could result in higher or lower expected costs and utilization compared to average overall population costs and utilization. This potential bias exists in the context of many population health management programs.

For example, if individuals who opt to use Premise services, such that they are attributed to the treatment group, are more willing to engage in activities that will improve their healthcare outcomes and may have been taking steps to manage their own care in the absence of Premise, then this could drive a reduction in baseline healthcare costs that is difficult to control for in a financial return methodology. Alternatively, if individuals who opt to use Premise are drawn to participate due to their higher levels of clinical risk or difficulties managing their own care or costs due to its complicated nature, then this could drive an increase in baseline healthcare costs that is difficult to control for in a financial return methodology.

It is generally assumed that risk adjustment, while controlling for known medical conditions and related resource utilization, cannot entirely control for this selection bias, regardless of whether it overstates or understates costs of the treatment group. Given that there is no single or widely appropriate solution to adjust for selection bias, Premise's approach to calculating ROI is reasonable, despite not affecting the impact of selection bias on final results.

## ATTRIBUTION

Primary care providers that actively engage with their patients can exercise considerable control over a member's overall health and healthcare costs;<sup>7</sup> thus, it is reasonable to attribute a member to the Premise cohort for ROI calculation purposes if that member receives the majority of their primary care from Premise providers. Attribution based on pharmacy services is also appropriate when the pharmacy actively engages with members to improve prescription drug fill rates and medication adherence, or otherwise contributes to improving a member's health or enhancing efficient delivery of care. Premise's pharmacy program, as it was described to us, is consistent with this argument.

## CONSIDERATIONS

We evaluated the impact of increasing or decreasing the attribution threshold (e.g., using a 40% or 60% of services threshold instead of 50%), but ultimately determined that 50% is appropriate given Premise's suite of services. For example, an average individual under the age of 65 in the United States typically has 1.65 primary care visits per year.<sup>8</sup> Given the relatively low volume and discrete nature of office visits, changing the attribution threshold likely would not meaningfully impact final cohort mappings, costs by cohort, or the resulting ROI.

Premise uses a consistent threshold (50%) between primary care and prescription drug utilization, which we find reasonable. Note that, for prescription drug attribution, a higher threshold (i.e., greater than 50% of prescriptions) might be reasonable, as there may be more prescription drugs filled per person than office visits received annually. Increasing

<sup>7</sup> Primary care is associated with improved health outcomes. See <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690145/>.

<sup>8</sup> Source: Milliman Health Cost Guidelines™ (HCGs) using nationwide average assumptions.

the attribution threshold for prescription drugs would likely decrease the Premise-attributed (treatment) population, but it would improve the estimated ROI. As such, the current methodology as described to us could be understating ROI.

Additionally, Premise’s consideration of community-attributed, Premise-engaged members may result in understated ROI. These members receive some Premise services, which are recorded as zero-dollar claims in the control population used to calculate ROI. To address this, Premise could use the DCA approach to impute costs for these services. We recommend this adjustment to improve the accuracy of ROI estimations.

**TREATMENT OF OUTLIER CLAIMS**

Large or catastrophic claims can have a material distorting impact on ROI calculations. A particular program or intervention could, in theory, be beneficial and provide a positive ROI, but a single large claim in the treatment group that may not be reflective, or under the control of Premise providers, could cause an ROI calculation to indicate negative savings. A single large claim in the control group would have the opposite impact.

In addition, outlier claims affect the ability for risk adjustment to predict costs accurately for a population, especially for smaller populations.

For these reasons, we agree with Premise’s general methodology of removing members with large claims from both the treatment and control groups as this is standard actuarial practice. This mitigates the potential distorting effects of these claims, either toward overstating ROI or understating it. Premise uses consistent criteria to remove these members from both the treatment and the control groups.

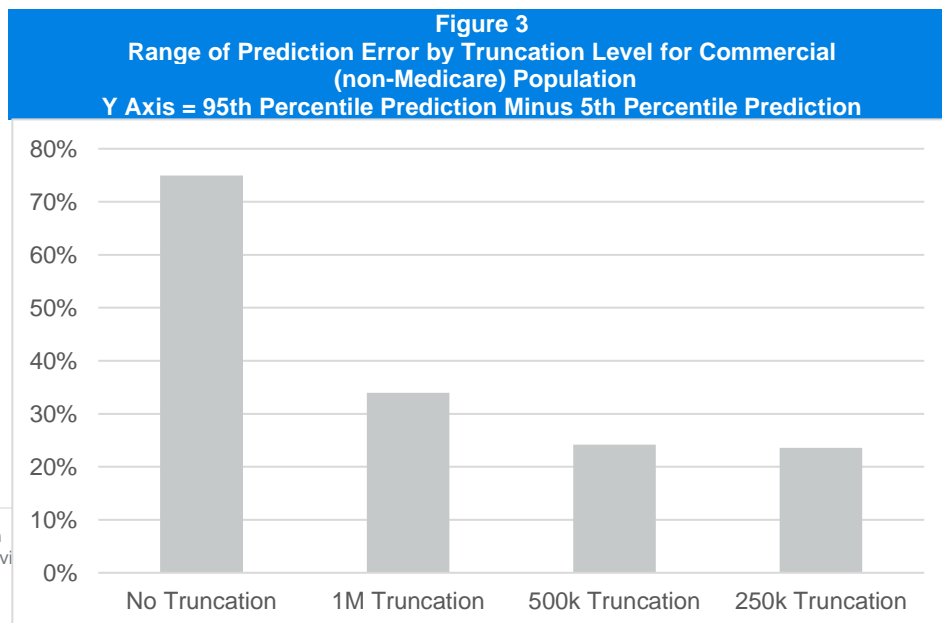
**CONSIDERATIONS**

Notwithstanding our overall agreement with Premise’s treatment of outlier claims, we offer the following considerations:

Adjustments for outlier claims can be done by either excluding members with large claims entirely (Premise’s current methodology) or by establishing a fixed dollar threshold, above which costs are excluded from the ROI calculation for that member (i.e., truncation). Premise could consider this methodology as it retains claims expense for members below the chosen threshold who could be under the control of a Premise provider or service offering. This would appropriately capture any savings attributable to Premise below the threshold.

The choice of a truncation threshold may depend on several considerations, including the type of population (commercial or Medicare), the size of the populations, and the interaction with risk adjustment. We recommend that, when choosing a truncation threshold, the primary objective should be to optimize the predictive power of risk adjustment.

Based on Milliman research regarding risk scores and prediction error, we recommend Premise truncate claims at the \$500,000 level or lower. As seen in Figure 3, truncating claims at this level provides improved risk adjustment accuracy relative to both higher truncation levels, such as \$1 million or no truncation at all. Truncating below \$500,000 may be desirable for other reasons, but it provides marginally less improvement in risk adjustment accuracy.



## V. DATA RELIANCE AND CAVEATS

In performing our analysis, we relied on data and other information provided to us by Premise. Specifically, we reviewed case studies of selected employer clients, data summaries, and methodology descriptions. We have not audited or verified the data and other information. However, we did evaluate the information for reasonableness and consistency. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

Milliman has developed certain models to estimate the values provided in this report. The intent of the models was to estimate member-level risk scores for select Premise employer group clients, used for risk adjustment in ROI calculations. We reviewed the models, including their inputs, calculations, and outputs, for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice (ASOP).

The models rely on data and information as input to the models. We relied upon certain data and information provided by Premise for this purpose and accepted it without audit. To the extent that the data and information provided is not accurate, or is not complete, our conclusions and the values provided in this workbook may likewise be inaccurate or incomplete.

We reviewed the case studies in slide (PowerPoint) format, along with the supporting raw data in spreadsheet (Excel) format used to develop some of the figures included in the slides. Our review consisted of evaluating the methodology presented in the slides, verifying proper calculations, and evaluating the actuarial appropriateness of the methodology overall. We are only commenting on the generalized ROI calculations provided to us. We are not commenting on the results of any particular employer. Those reviewing Premise's calculations should take full responsibility for interpreting any results coming from this ROI calculation methodology and results should be reviewed by someone knowledgeable in the areas of healthcare data and statistical methods. Milliman does not intend to benefit any third-party recipient of our work product.

While we find the methodology appropriate, all methodologies, algorithms, and formulas are by nature assumption-driven. We have no opinion on the assumptions chosen for any particular calculation of ROI for any employer group.

This review incorporates Milliman's experience in working with similar programs that rely on claims data. Actual experience will differ from the ROI calculations we reviewed in the various case studies. Actual ROI will differ from the sample results we have reviewed for many reasons, including, but not limited to, member characteristics, changes to Premise's offering, benefit designs that influence utilization, and physician practice patterns, as well as other random and nonrandom factors. It is important that actual experience be monitored and that appropriate adjustments be made to the methodologies.

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

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