Analysis of Cancer Care under the ACA Risk Adjustment Methodology

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EXECUTIVE SUMMARY

The Patient Protection and Affordable Care Act (ACA) requires that health plans in the individual and small group market vary the premiums they charge consumers based on four allowable rating factors: area, family size, age, and tobacco use. In fully community rated states such as New York, rating is further reduced to only two allowable rating factors: area and family tier.

Since health plans can no longer price based on a member's underlying health status, to protect health plans from adverse selection (when members choose a health plan for specific reasons that were not reflected in the premiums set by the health plan), the ACA implemented a permanent risk mitigation program – risk adjustment. Risk adjustment is intended to transfer funds from health plans with "healthier" members to health plans with "sicker" members, to ensure that plans are not unfairly impacted by differences in their populations. A plan's overall health status is largely driven by its risk score, which is calculated at the member level based on the diagnosis codes of each member plus additional adjustments for age and gender.

Even with the risk adjustment program, some health plans are dropping specialty providers from their network citing inadequate protection from adverse selection. For example, Memorial Sloan Kettering Cancer Center (MSKCC), a cancer specialty provider in New York City, has been told by more than one health plan that MSKCC can no longer be part of their network due to the increased costs associated with members who are adversely selecting them.

Is risk adjustment not fully protecting health plans against adverse selection?

To provide insight into the above question, we performed an analysis on actual claims data using stochastic simulations to model if the ACA risk adjustment is able to fully compensate carriers for adverse selection on cancer claims, i.e., do payments from risk adjustment cover the extra costs associated with those cancer patients the carrier did not reflect in its premiums? Said differently, the premiums should include an assumption which reflects the market average health status, and then to the extent that a particular carrier attracts a population which differs from that average, the risk adjustment program is intended to adjust for that difference. Adverse selection can happen at the plan level by cancer patients switching health plans or it can happen at the market level by cancer patients entering the market for the first time. When at the plan level, the risk adjustment program should compensate for this disproportionate share. When at the market level, all carriers need to anticipate this level of morbidity and include that level in their collective premium rates.

Given the location of MSKCC our analysis focuses exclusively on New York State but as New York uses the Federal risk adjustment methodology we expect similar results in other parts of the country.

Our analysis, based on the 2016 Federal risk adjustment methodology, shows the following:

- The Federal risk adjustment model over-predicts for cancer patients.
- A health plan that attracts a larger share of cancer patients than the rest of the market, all else being equal, *will receive* a positive transfer payment as a result of ACA risk adjustment. This is consistent with the findings of the Center for Consumer Information and Insurance Oversight (CCIIO) [1] when it calculated the 2014 risk adjustment transfer payments.
- Whether the transfer payment is large enough to cover the additional claims cost of the cancer patients depends on:
  - The health plan's ability to correctly estimate the market average claims cost in its premium development.
  - The difference in provider reimbursement between the health plan's specialty cancer providers and the average for all cancer providers in the market.
- The risk adjustment transfer payments will be slightly larger than the additional cost for cancer members assuming the market overall estimates the average claims cost correctly (some health plans may overestimate

[1] https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RI-RA-Report-Draft-6-30-15.pdf

and some may underestimate, but overall the expected claims cost equals the actual claims cost) and there is no difference in specialty provider reimbursement.

- However, if the overall market estimate of average claims cost is lower than the actual claims cost, the risk adjustment transfer payments will drop and may not fully compensate for the additional cost associated with the cancer members. This can happen, for example, if the presence of a specialty provider in one or more of the networks within the Exchange were to attract a higher number of cancer patients than anticipated into the overall market.
- Typically, some specialty cancer providers are able to command a higher provider reimbursement rate than other facilities. If the cancer care provided to the patients is paid at a reimbursement rate that is higher than the average paid by other plans in the market, i.e., the level implicit in the state market average premium, then the transfer payment may not fully compensate for the additional cost.
- A carrier that anticipates a higher than average prevalence of cancer members because of the presence of a high cost specialty provider in its network may have to increase its premiums to adequately cover its costs. The increased premiums may drive healthier members to lower cost options exacerbating the plan's adverse selection resulting in a cycle of payment transfer shortfalls.

We note that our conclusions above assume high cost specialty providers provide the same level of quality and efficiency as other providers in the market. However, if a specialty provider commands higher reimbursement rates but is able to deliver better health outcomes resulting in fewer complications for patients, the reduction in utilization may offset the higher unit cost causing the risk transfer payment to fully compensate the plan for cancer members. In addition, better outcomes lead to higher member satisfaction and retention, and improve the health plan's ability to retain and build market share. We believe these are important considerations that cannot be adequately reflected in this study, which by its nature must assume the same utilization and quality for specialty and non-specialty providers of cancer care.

THE ACA RISK ADJUSTMENT PROGRAM

The ACA risk adjustment program uses the federal or an alternative federally certified risk adjustment methodology to determine transfer payments for each health plan issuer in a market in a state. Two key components of the ACA risk adjustment funds transfer calculations are:

- *Member-level risk scores*. A risk adjustment methodology assigns every member in the market a risk score, which is a numerical indication of that member's relative health status. These risk scores are relative, in the sense that a risk score of 2.0 represents a member who is predicted to cost twice as much as a member with a risk score of 1.0. To develop these risk scores, the ACA risk adjustment methodology assigns ICD-9 diagnosis codes to Hierarchical Condition Categories (HCCs), which are groupings of related conditions. Every HCC has an assigned weight and the weights vary by plan metal level. A member's risk score is the sum of all the weights for the HCCs assigned to the member based on his or her incurred ICD-9 diagnosis codes, plus an adjustment for age and gender.
- *Transfer payment formula*. Using the member-level risk scores, a risk adjustment methodology determines the amount of transfer payments a health plan receives or pays. The formula consists of not only risk scores, but other factors included in premium rates that are not captured in risk scores, such as induced demand, plan actuarial value factors (i.e., impact of plan designs), geographic cost factors, and allowable rating factors.

All states other than Massachusetts use the Department of Health and Human Services (HHS) risk adjustment methodology ("HHS-HCC"). The HHS-HCC methodology uses a different set of HCC weights for each metal level (platinum, gold, silver, bronze, and catastrophic.) For the 2014 and 2015 benefit years, HHS will use the risk adjustment model published in the 2014 Federal Notice of Benefit and Payment Parameters. Starting in the 2016 benefit year, HHS will use the risk adjustment model published in the 2016 Federal Notice of Benefit and Payment Parameters. The 2014 and 2016 models have identical clinical classifications and only differ by risk weights. The Massachusetts risk adjustment methodology ("Massachusetts HCC") is similar to the HHS-HCC, but has a greater number of HCCs, is calibrated to Massachusetts' market conditions, and HCC weights do not vary by metal level.

CLINICAL CLASSIFICATION OF CANCER DIAGNOSES

There are 1,050 cancer-related diagnosis codes in the ICD-9-CM (ICD-9) code set. Table 1 below shows the number of codes used in the HHS-HCC and Massachusetts HCC classifications by ICD-9 diagnosis category. The 2014 and 2016 HHS-HCC models use the same diagnosis classification.

TABLE 1: CANCER DIAGNOSIS CODES MAPPING SUMMARY

ICD-9 DIAGNOSIS CATEGORY	NUMBER OF ICD-9 CODES	NUMBER OF CODES MAPPED BY HHS-HCC	NUMBER OF CODES MAPPED BY MASSACHUSETTS HCC
Benign Neoplasms	131	11	110
Carcinoma in Situ	40	0	40
Malignant Neoplasm of Bone, Connective Tissue, Skin, and Breast	98	48	98
Malignant Neoplasm of Digestive Organs and Peritoneum	60	60	60
Malignant Neoplasm of Genitourinary Organs	52	52	52
Malignant Neoplasm of Lip, Oral Cavity, and Pharynx	65	57	65
Malignant Neoplasm of Lymphatic and Hematopoietic Tissue	327	327	327
Malignant Neoplasm of Other and Unspecified Sites	73	73	73
Malignant Neoplasm of Respiratory and Intrathoracic Organs	34	34	34
Neoplasms of Uncertain Behavior	51	20	48
Neoplasms of Unspecified Nature	12	1	12
Neuroendocrine Tumors	56	35	56
Personal History of Malignant Neoplasm	51	0	0
Total	**1,050**	**718**	**975**

We observe:

- Neither the HHS-HCC nor the Massachusetts HCC models use diagnoses for personal history of cancers.
- In each category the Massachusetts HCC model uses more codes than the HHS-HCC model, except for the 5 categories where both models map all codes.
- The HHS-HCC model does not use any of the 40 ICD-9-CM diagnosis codes for carcinoma in situ.

The 718 cancer diagnosis codes used in the HHS-HCC model are classified into six HCCs:

- Metastatic cancer
- Lung, brain, and other severe cancers, including pediatric acute lymphoid leukemia
- Non-Hodgkin's lymphomas and other cancers and tumors
- Colorectal, breast (age <50), kidney, and other cancers
- Breast (age 50+) and prostate cancer, benign/uncertain brain tumors, and other cancers and tumors

- Thyroid cancer, melanoma, neurofibromatosis, and other cancers and tumors

The 975 cancer diagnosis codes used in the Massachusetts HCC model are classified into ten HCCs:

- Lung, Upper Digestive Tract, and Other Severe Cancers
- Lymphatic, Head and Neck, Brain, and Other Major Cancers
- Breast, Prostate, Colorectal and Other Cancers and Tumors
- Other Respiratory and Heart Neoplasms
- Other Digestive and Urinary Neoplasms
- Secondary Cancer Except Lymph Node
- Secondary Cancer of Lymph Node
- Cancer of the Brain/Nervous System/Pituitary, Pineal Glands
- Acute Leukemia
- Other Neoplasms

As observed above, the Massachusetts HCC model uses more cancer diagnosis codes (975 vs. 718) classified into more HCCs (10 vs. 6). Given this we might expect the Massachusetts HCC model to have greater predictive accuracy with respect to cancer patients than the HHS-HCC model.

RISK SCORES AND PREDICTIVE ACCURACY FOR MEMBERS WITH CANCER

Risk adjustment models produce member-level risk scores, which are numeric values representing the expected cost relative to a reference population. A member with a 2.0 risk score is expected to have health care costs twice as high as a member with a 1.0 risk score. The risk scores can be converted into dollar predictions by multiplying by the market average cost (after normalizing the risk scores such that a 1.0 represents the market average risk). For instance, if the market average annual cost is $4,000, a 2.0 risk score member would be estimated to cost $8,000 annually.

We used the New York State portion of the 2013 Truven Health Analytic MarketScan Commercial Claims Database (NY MarketScan) to calculate risk scores from the 2014 HHS-HCC model, the 2016 HHS-HCC model, and the Massachusetts HCC model. We included only members with pharmacy benefits. Table 2 provides the descriptive summary statistics of NY MarketScan:

TABLE 2: NY MARKETSCAN DESCRIPTIVE STATISTICS

	ALL MEMBERS	MEMBERS WITH AT LEAST 1 CANCER HHS-HCC
Unique Members	3,920,355	78,996
Member Months	38,130,937	868,106
Medical Paid PMPM	$326	$2,521
Medical Allowed PMPM	$368	$2,676
Rx Paid PMPM	$62	$256
Rx Allowed PMPM	$70	$276
Total Paid PMPM	$387	$2,777
Total Allowed PMPM	$437	$2,953

We converted the risk scores produced by each of the three models to a dollar prediction by first normalizing the risk scores to 1.0 within the sample and then multiplying the normalized risk scores by the sample average annual paid amount (the ACA risk adjustment models are intended to risk adjust plan liability, or paid claims). We find that both the 2014 and 2016 HHS-HCC models over-predict for members with cancers across all cancer types. In comparison, the Massachusetts HCC model over-predicts for some cancer types while under predicts for others. For all members with at least 1 type of cancer, the Massachusetts HCC model over-predicts by 0.1%, while the Federal HHS-HCC model over-predicts by 8%. It is important to keep in mind that the predictions from risk adjustment models include spending for all health conditions for a member, not just cancer. Table 3 summarizes the predictive paid per member per month (PMPM) and actual paid PMPM by HHS-HCC cancer type for the Platinum and Gold metal level models. Results from the other metal level models have a similar pattern, i.e., the predicted amounts are higher than the actual paid amount at the member level for members with cancers.

TABLE 3: PREDICTED COST BY CANCER TYPE IN THE HHS-HCC MODEL							
				PREDICTED PMPM FROM HHS-HCC 2014 MODEL		PREDICTED PMPM FROM MASS HCC MODEL	
HHS-HCC CANCER TYPE	UNIQUE MEMBERS	MEMBER MONTHS	ACTUAL PAID PMPM	PLATINUM	GOLD	PLATINUM	GOLD
Metastatic Cancer	8,906	92,600	$9,721	$9,942	$10,763	$9,424	$9,390
Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia	6,376	68,002	$5,068	$5,749	$6,161	$5,261	$5,119
Non-Hodgkin's Lymphomas and Other Cancers and Tumors	6,447	70,748	$2,872	$3,202	$3,394	$2,823	$2,870
Colorectal, Breast (Age < 50), Kidney, and Other Cancers	12,203	135,116	$2,158	$2,442	$2,557	$2,087	$2,121
Breast (Age 50+) and Prostate Cancer, Benign/Uncertain Brain Tumors, and Other Cancers and Tumors	34,778	386,599	$1,475	$1,650	$1,698	$1,494	$1,528
Thyroid Cancer, Melanoma, Neurofibromatosis, and Other Cancers and Tumors	10,286	115,041	$877	$1,013	$1,018	$1,086	$1,113

FINANCIAL IMPACT OF RISK ADJUSTMENT WITH ADVERSE SELECTION DUE TO CANCER

We created stochastic simulations to determine if a health plan that experiences adverse selection due to cancer patients is sufficiently compensated through the 2016 HHS-HCC risk adjustment payment transfer formula.

It is important to note that just because the HHS-HCC model over-predicts on a member-level basis for cancer members this does not necessarily translate into over-compensation through the payment transfer formula. ACA risk adjustment is a “zero-sum game” across each market within a state and a health plan’s final transfer payment is calculated relative to the market average. Therefore, a health plan only receives “credit” for the amount that its risk score is above the market average. This is different from Medicare Advantage risk adjustment where health plans receive payments from CMS on an absolute risk score basis, not a relative one.

Specifically, the ACA risk adjustment transfer formula is:

> *PMPM Payment Transfer = Premium with Risk Selection – Premium without Risk Selection,*
>
> where
>
> *Premium with Risk Selection = Average Risk Score × Cost-Sharing Reduction Factor × Induced Demand Factor × Geographic Cost Factor, normalized to the market*, and
>
> *Premium without Risk Selection = Allowable Rating Factors × Actuarial Value Factor × Induced Demand Factor × Geographic Cost Factor, normalized to the market*

Normalization of the Premium with Risk Selection and Premium without Risk Selection factors ensures that the funds transfer sums to zero at the market level. The detailed definitions of each factor are explained in the 2014 Notice of Benefit and Payment Parameters[2].

We performed bootstrap simulations on the same NY MarketScan data described in the previous section to better understand the impact of each of the payment transfer factors on payments to and from health plans adversely selected against by cancer members.

Member Metal Level Assignment

Since the HHS-HCC model has different risk weights by metal level and the NY MarketScan data mainly consists of large groups and self-insured employers prior to ACA implementation, the first step was to empirically estimate the metal level of each member:

1. Within NY MarketScan we identified members who are likely members of the same group and therefore likely to share the same benefit plan.
2. To avoid any credibility issues, we removed all members assigned to groups with less than 5,000 members. This removed approximately 700,000 of the 3.9 million lives within NY MarketScan.
3. We then empirically calculated each group’s actuarial value by dividing the total paid dollars for the group by the total allowed dollars for the group.

[2] http://www.gpo.gov/fdsys/pkg/FR-2013-03-11/pdf/2013-04902.pdf

4. We assigned each group to a metal level based on its empirically calculated actuarial value using the table below. Actuarial value under the ACA market rule is required to fall within certain de minimus ranges. For instance, a Platinum plan is required to have an actuarial value range between 0.88 and 0.92, and a Gold plan is required to have an actuarial value range between 0.78 and 0.82, etc. However, the MarketScan data we used was from a pre-ACA time period. We expanded metal level definition to maximize useable data for the study.

Actuarial Value (AV)	Metal Level
AV >= .85	Platinum
.75 <= AV < .85	Gold
.65 <= AV < .75	Silver
.55 <= AV < .65	Bronze
AV < .55	Catastrophic

Because MarketScan data contributors are mostly large group and self-insured employers with relatively rich benefit designs, we did not assign any members in Bronze or Catastrophic tiers. The lowest average actuarial value for any group identified in MarketScan is 0.66.

Creation of Fictitious Health Plans and Markets through Simulations

We then generated two types of fictitious "biased health plans" through simulations (random sampling with replacement) using the 3.2 million member sample:

- 500 "5% biased health plans" with 20,000 unique members each.
    - These health plans contain 5% more cancer members for each type of cancer than the average shown in Table 3. They represent health plans that unexpectedly attracted 5% higher cancer patients than the state average.
- 500 "10% biased health plans" with 20,000 unique members each.
    - These health plans contain 10% more cancer members for each type of cancer than the average shown in Table 3. They represent health plans that unexpectedly attracted 10% higher cancer patients than the state average.

For each biased health plan, we then generated a corresponding fictitious "unbiased health plan" of 20,000 unique members through simulations such that:

- In a market of 40,000 unique members (biased and unbiased combined), the overall market prevalence rate is the same as shown in Table 3. A biased health plan attracts 5% or 10% more cancer patients than the market prevalence rate, and the corresponding unbiased health plan receives the remaining number of cancer patients.

In total we generated 1,000 fictitious markets:

- 500 markets with a 5% biased health plan and an unbiased health plan each
- 500 markets with a 10% biased health plan and an unbiased health plan each

Calculating Values for the Factors Used in the Payment Transfer Formula

We then calculated the remaining factors used in the transfer formula for each simulated health plan:

- Induced demand factor. We used the factors defined in the 2014 Notice of Benefits and Payment Parameters which varies by actuarial value.
- Geographic cost factor. We used the geographic area factors released by the New York State Department of Financial Services through its April 2015 statewide risk adjustment simulation.
- Allowable rating factors. New York premium rates are fully community rated therefore the only allowable rating factor is family tier[3]. Please see the tier factors below. These factors are mandated by New York State.

Family Tier	Allowable Rating Factor
Single	1.00
Couple	2.00
Adult + Child(ren)	1.70
Family	2.85

- Cost-sharing reduction factor. For purposes of the simulation, we assigned this factor a 1.0 effectively removing it from the calculation. This factor is not material to our analysis.

For each market, we compared the transfer payment factors between the two health plans to assess which are the significant drivers of the transfer payments. By using the pairwise t-test, we concluded that only risk score was significantly different between the two health plans at 5% significance level:

TABLE 4: PAIRED TWO SAMPLE T-TEST: SIGNFICANCE OF RISK TRANSFER FORMULA FACTORS

	5% BIASED HEALTH PLAN	10% BIASED HEALTH PLAN
T Critical Value at 5% Significance (two-tail distribution)	1.965	1.965
T Statistics:		
Risk Score	15.228	28.273
Allowable Rating Factor	0.224	1.741
Geographic Cost Factor	1.107	0.869
Actuarial Value Factor	0.083	0.488
Induced Demand Factor	0.067	0.462

A factor is only considered significant if its t Statistic is greater than the t critical value. Consequently, the majority of the health plan's risk transfer payment can be attributed only to the health plan's risk score relative to the market, while the other factors only attribute a minor part of the overall payment.

Results of the Transfer Payments from the Simulations

We calculated funds transfer for each market using the Federal risk adjustment funds transfer formula. The results, expressed as percentages of the state average premium, are provided in Table 5. We find that the biased health

[3] See https://www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Market-Reforms/state-rating.html#family

plan will receive a positive funds transfer from risk adjustment. For example, if the market premium is $500 PMPM, the 5% biased health plan would receive a transfer payment of $4 PMPM, and the 10% biased health plan would receive a transfer payment of $8 PMPM.

TABLE 5: BIASED HEALTH PLAN FUNDS TRANSFER ESTIMATES AS A PERCENT OF STATE AVERAGE PREMIUM	
5% Biased Health Plan	0.8%
10% Biased Health Plan	1.6%

On June 30, 2015, CMS completed the risk adjustment funds settlement calculations for the 2014 Benefit Year. In the Summary Report on Transitional Reinsurance Payments and Permanent Risk Adjustment Transfers for the 2014 Benefit Year[4], CMS stated,

> *"Our preliminary analysis of the risk adjustment transfers for the 2014 benefit year shows that the risk adjustment methodology is working as intended – by compensating issuers that enrolled higher risk individuals and protecting against adverse selection within a market within a state. For example, we have found that: …*
>
> *Issuers that attracted more high-risk patients due to networks that include key specialty hospitals received risk adjustment payments;"*

The results from Table 5 support CMS's settlement observation that the biased health plan always receives a positive transfer.

Do the Transfer Payments Fully Compensate for Adverse Selection?

Next, we compare the additional cost of the extra cancer members to the funds transfer the biased health plan receives to understand under what circumstances risk adjustment fully compensates the health plan. We define the difference between the transfer payment and the extra cancer cost as Net Financial Outcome:

Net Financial Outcome (PMPM) = Transfer Payment PMPM Amount – ((Actual PMPM Claims Cost – Pricing PMPM Claims Cost) / Medical Loss Ratio),

where

Transfer Payment PMPM Amount = %Transfer Payment × State Average PMPM Premium,

Medical Loss Ratio = The Biased Health Plan's percent of premium assigned to claims cost (excluding administrative expenses and profit)

A positive Net Financial Outcome means the risk transfer payment was adequate and the health plan is made financially whole. A negative Net Financial Outcome means the risk transfer payment is deficient and the health plan will lose money due to the extra cancer patients.

In practice, each health plan estimates the market average claims cost and relative risk score in its premium development. These premiums are used in the transfer payments from risk adjustment. If the overall market misestimated the market average claims cost, risk adjustment may over or under compensate health plans. For example, if the presence of a specialty cancer provider in the market unexpectedly caused an influx of new cancer patients into the market, the market average claims cost and risk score assumed by all health plans at premium development will be too low resulting in underpayments to health plans with greater than the actual market average cancer prevalence.

[4] https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RI-RA-Report-Draft-6-30-15.pdf

Table 6 below shows the Net Financial Outcome for the Biased Health Plan under a number of different scenarios. We show the impact of the overall market misestimating the market average claims cost and the impact of the Biased Health Plan having a specialty cancer provider commanding higher reimbursement rates than the average:

TABLE 6 - NET FINANCIAL OUTCOME AS A PERCENT OF STATE AVERAGE PREMIUM INACCURATE MARKET PRICING AND HIGHER REIMBURSEMENT RATE FOR CANCER PROVIDERS			
ASSUMED-TO-ACTUAL MARKET PMPM	**Biased Plan Reimbursement Rate (% of Market Average)**		
	100%	**110%**	**120%**
5% BIASED HEALTH PLAN			
102%	2.66%	1.57%	0.48%
101%	1.35%	0.25%	-0.85%
100%	0.04%	-1.07%	-2.18%
99%	-1.27%	-2.39%	-3.52%
98%	-2.58%	-3.71%	-4.85%
	Biased Plan Reimbursement Rate (% of Market Average)		
	100%	**110%**	**120%**
10% BIASED HEALTH PLAN			
102%	2.69%	1.56%	0.42%
101%	1.37%	0.22%	-0.92%
100%	0.05%	-1.11%	-2.27%
99%	-1.27%	-2.44%	-3.61%
98%	-2.59%	-3.78%	-4.96%

Table 6 illustrates that:

- When the market accurately estimates the average claims cost at the market level (assumed-to-actual PMPM at 100%), the Biased Health Plan will likely have a financial gain if it enrolled a larger share of cancer members, because the risk adjuster model slightly over compensates for cancer. For instance, assuming no differential reimbursement rate (reimbursement rate at 100% of the rest of the market), and the market overall was able to price accurately (assumed-to-actual PMPM at 100%), the 5% biased health plan will have a net gain of 0.04%. If the market overall underestimated claims cost by 1% (assumed-to-actual PMPM at 99%), which leads to a misalignment between premiums and actual claims, the biased health plan would end up with a net loss of 1.27%. Conversely, if the market as a whole overestimated claims cost, the biased health plan's net gain increases, due to increases in the state average premium.
- Controlling for pricing, the biased health plan's net financial outcome is negatively impacted by higher reimbursement rates in cancer care. Any gain is lessened by a reimbursement rate for cancer care that is higher than the average and any loss is exacerbated. For instance, when the market as a whole correctly estimated the state average claims cost, if the biased health plan has the same reimbursement rate for cancer care as the rest of the market, it will have a net gain of 0.04%. If cancer care reimbursement rate is 110% of the rest of the market, this net gain becomes a net loss of 1.07%. At 120% reimbursement rate, the net loss further increases to 2.18%.
- On a percentage basis the net financial outcome is quite similar for the 5% and 10% biased health plan.

A carrier that anticipates a higher than average prevalence of cancer members (such that the overall market average proportion of cancer members increases, over what was included in the market's average pricing) because of the presence of a high cost specialty provider in its network may have to increase its premiums to adequately cover its costs. However, the increased premiums may drive healthier members to lower cost options exacerbating the plan's adverse selection resulting in a cycle of payment transfer shortfalls.

We note that the conclusions outlined in this paper assume high cost specialty providers provide the same level of quality and efficiency as other providers in the market. However, if a specialty provider commands higher reimbursement rates but is able to deliver better health outcomes resulting in fewer complications for patients, the reduction in utilization may offset the higher unit cost causing the risk transfer payment to fully compensate the plan for cancer members. In addition, better outcomes lead to higher member satisfaction and retention, and improve the health plan's ability to retain and build market share. We believe these are important considerations that cannot be adequately reflected in this study, which by its nature must assume the same utilization and quality for specialty and non-specialty providers of cancer care.

CAVEATS AND LIMITATIONS

This report was commissioned by Memorial Sloan Kettering Cancer Center. The authors are employed by Milliman. Milliman does not intend to endorse any product or benefit any third party through this report; the report reflects the findings of the authors. Milliman does not create any third party liability through development of this report.

As with any claims analysis, our work and conclusions are based on the underlying data and many assumptions and cannot capture all influences or all real-world conditions. Our analysis assumes cancer coding adheres to medical guidelines and, therefore, we did not adjust our results to account for the possibility that some physicians may inaccurately code a patient with an active cancer diagnosis rather than a “history of” diagnosis. Actual experience will vary from that presented in the report for these and other reasons, including random fluctuation.

We suggest that this report be distributed in its entirety, as material taken out of context can be misleading.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. Catherine Murphy-Barron and Howard Kahn are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained herein.