

Affordable Care Act Risk Adjustment: Overview, Context, and Challenges

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Abstract: Beginning in 2014, individuals and small businesses will be able to purchase private health insurance through competitive marketplaces. The Affordable Care Act (ACA) provides for a program of risk adjustment in the individual and small group markets in 2014 as Marketplaces are implemented and new market reforms take effect. The purpose of risk adjustment is to lessen or eliminate the influence of risk selection on the premiums that plans charge and the incentive for plans to avoid sicker enrollees.

This article—the first of three in the *Medicare & Medicaid Research Review*—describes the key program goal and issues in the Department of Health and Human Services (HHS) developed risk adjustment methodology, and identifies key choices in how the methodology responds to these issues. The goal of the HHS risk adjustment methodology is to compensate health insurance plans for differences in enrollee health mix so that plan premiums reflect differences in scope of

coverage and other plan factors, but not differences in health status. The methodology includes a risk adjustment model and a risk transfer formula that together address this program goal as well as three issues specific to ACA risk adjustment: 1) new population; 2) cost and rating factors; and 3) balanced transfers within state/market. The risk adjustment model, described in the second article, estimates differences in health risks taking into account the new population and scope of coverage (actuarial value level). The transfer formula, described in the third article, calculates balanced transfers that are intended to account for health risk differences while preserving permissible premium differences.

Keywords: risk adjustment, affordable care act, ACA, risk transfers, risk selection, risk equalization, plan liability risk score, health insurance marketplaces

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Introduction

Beginning in 2014, individuals and small businesses are able to purchase private health insurance through competitive Marketplaces. Issuers must follow certain rules to participate in the markets, for example, in regard to the premiums they can charge enrollees, and also not being allowed to refuse insurance to anyone or vary enrollee premiums based on their health. Enrollees in individual market health plans through the Marketplaces may be eligible to receive premium tax credits to make health insurance more affordable, and financial assistance to cover cost sharing for health care services.

Section 1343 of the Affordable Care Act (ACA) of 2010 provides for a program of risk adjustment for all non-grandfathered plans in the individual and small group market both inside and outside of the Marketplaces. The ACA directs the Secretary, in consultation with the states, to establish criteria and methods to be used in determining the actuarial risk of plans within a state. States electing to operate a risk adjustment program, or the Department of Health and Human Services (HHS) on behalf of states not electing to operate a risk adjustment program, will assess charges to plans that experience lower than average actuarial risk and use them to make payments to plans that have higher than average actuarial risk. In 2014, the HHS risk adjustment methodology will be used in all states except one (Massachusetts).

Without risk adjustment, plans that enroll a higher proportion of high risk enrollees would have to charge a higher average premium (across all of their enrollees) to be financially viable. Enrollees in health insurance plans differ in their expected cost, or risk, because of differences in their health status.

Risk adjustment—if it functions as intended—allows a plan enrolling a higher proportion of high risks to charge the same average premium, other things being equal, as a plan enrolling a higher proportion of low risks. Because premiums vary less or not at all based on enrollee health status, the focus of plan competition shifts from risk selection to quality, efficiency, and value.

Risk adjustment (sometimes, especially in Europe, called “risk equalization”) is recognized domestically and internationally as a critical component of competitive health insurance markets. The Medicare Advantage program through which private plans provide health insurance to Medicare beneficiaries utilizes risk adjustment (Pope *et al.*, 2004), as does Medicare Part D, through which prescription drug insurance is provided by private plans to Medicare beneficiaries (Kautter *et al.*, 2012). Many state Medicaid programs engage in risk adjustment (Winkelman & Damler, 2008). Several countries have introduced risk adjustment as part of their regulated private health insurance markets, including the Netherlands, Switzerland, Germany, Ireland, Australia, and South Africa (Armstrong, Paolucci, McLeod, & van de Ven, 2010; Schokkaert *et al.*, 2006). Historically, risk adjustment has not been commonly used in United States private health insurance markets.

The HHS-developed risk adjustment methodology is based on the premise that premiums should reflect the differences in plan benefits, quality, and efficiency, not the health status of the enrolled population. The risk adjustment program also serves to level the playing field inside and outside of Marketplaces, reducing the potential for excessive premium growth or instability in markets inside or outside of Marketplaces.

The HHS risk adjustment methodology includes the risk adjustment model and the

risk transfer formula (Patient Protection and Affordable Care Act, 2013).¹ The risk adjustment model, called the HHS Hierarchical Condition Categories (HHS-HCC) model, uses an individual’s demographics and diagnoses to determine a risk score, which is a relative² measure of how costly that individual is anticipated to be to the plan (i.e., a relative measure of the individual’s actuarial risk to the plan). The risk transfer formula averages all individual risk scores in risk adjustment covered plans and uses the plan average risk scores combined with other factors³ to calculate the funds transferred between plans. The risk transfer formula is based on the difference between two plan premium estimates: 1) premium with risk selection,⁴ and 2) premium without risk selection.⁵ Transfers are intended to bridge the gap between these two premium estimates. Conceptually, the goal of risk transfers is to calculate balanced transfers that account for health risk differences while preserving permissible premium differences.

This article is the first of three in this issue of the *Medicare & Medicaid Research Review* that describe the HHS risk adjustment methodology. This article gives an overview of the issues, context, and challenges faced in developing the HHS risk adjustment methodology and identifies key methodological choices in response to those issues. The second article describes the development of the empirical risk adjustment model that is used to

¹ The risk adjustment methodology also includes the *data collection approach* and the *schedule for the risk adjustment program*. Please note this is the methodology used by HHS when operating risk adjustment on behalf of a state. In 2014, HHS will operate risk adjustment in all states except Massachusetts (Patient Protection and Affordable Care Act, 2013).

² “Relative” in this context means relative to the market as a whole.

³ These other factors include plan allowable premium rating, actuarial value, induced demand, geographic costs, market share, and the statewide average premium.

⁴ By “premium with risk selection,” we mean premiums that reflect the actual risk of each plan’s enrollees.

⁵ By “premium without risk selection” we mean premiums that reflect enrollees of average risk given a plan’s allowable rating factors (age profile of its enrollees).

measure plan risk scores (Kautter *et al.*, 2014). The third article discusses the risk transfer formula that uses the risk score and other factors to calculate the payment and charges for plans participating in a state risk pool (Pope *et al.*, 2014).

Affordable Care Act Risk Adjustment Development: Goal and Issues

The key program goal of the ACA risk adjustment methodology developed by HHS is to compensate health insurance plans for differences in enrollee health mix so that plan premiums reflect differences in scope of coverage and other plan factors, but not differences in health status. The methodology addresses three issues specific to ACA risk adjustment for state individual and small group markets, discussed further below: 1) new population; 2) cost and rating factors; 3) balanced transfers within state/market.

New Population

The ACA risk adjustment population is a newly-constituted population that will be defined by who enrolls in the ACA-defined state individual and small group markets inside and outside the Marketplaces beginning in 2014. The new population will include not only those who previously had private (or public) coverage, but also individuals who were previously uninsured. As a new population, medical claims data for the risk adjustment population are not available for use in calibrating a risk adjustment model. A proxy source of data must be identified to calibrate the risk adjustment model. Medicare data are clearly not appropriate because the ACA risk adjustment population will be largely under age 65 and have a large proportion of employed enrollees. Instead, data from employer-sponsored insurance or Medicaid are the most likely sources of calibration data. Another consideration is that some enrollees subject to ACA risk adjustment

will have limited enrollment periods even in the current year if they transition to/from Medicaid or large employer-based insurance.

Cost and Rating Factors—Actuarial Value and Permissible Rating

Different Plan Actuarial Value Levels versus a Standard Benefit Level

The ACA establishes four tiers of plan actuarial value, or “metal levels,” plus a catastrophic plan in a separate risk pool. The metal levels are platinum, gold, silver, and bronze, which correspond, respectively, to plans that are expected to pay 90, 80, 70, and 60 percent of the medical expenditures of a standard population. Although all plans must cover “essential health benefits,”⁶ the metal levels are defined by the cost sharing (deductibles, copayments, and coinsurance) the enrollee pays (not by the medical services the plan covers). The varying metal levels are in contrast to Medicare Advantage and Medicare Part D, where plans provide, at minimum, a standard coverage level.

The presence in the market of plans with different actuarial values poses two key considerations for the risk adjustment methodology. The first consideration is how to preserve premium differences that reflect differences in generosity of plan coverage. The risk transfers should counteract the effects of risk selection, but should not adjust away actuarial value differences among plans. A related issue that the ACA’s metal level actuarial value tiers create is differences in induced demand across

⁶ Essential health benefits must include items and services within at least the following 10 categories: ambulatory patient services; emergency services; hospitalization; maternity and newborn care; mental health and substance use disorder services, including behavioral health treatment; prescription drugs; rehabilitative and habilitative services and devices; laboratory services; preventive and wellness services and chronic disease management; and pediatric services, including oral and vision care. (<https://www.healthcare.gov/glossary/essential-health-benefits/>).

plans, meaning that enrollees in plans with higher actuarial values are expected to use more services because of lower cost sharing. The policy goal is for the premiums that plans charge enrollees to reflect the different actuarial values of plans (and associated induced demand), but not to reflect the health status of enrollees. Other things equal, an individual should pay a higher premium for a platinum plan than a bronze plan to reflect the reduced cost sharing the individual pays when enrolled in the platinum plan. But, other things equal, an individual should not pay more to enroll in a platinum plan because it has sicker enrollees on average than the bronze plan. The second consideration raised by the presence of plans with different actuarial values is how to develop risk scores that appropriately reflect a given enrollee's actuarial risk to a plan in light of the fact that plans pay a different portion of an enrollee's total expenditures, depending on the plan metal level.

Allowed Rating Factors versus Uniform Premiums

The ACA allows individual and small group plans to rate premiums on four factors: age, tobacco use, family size, and geographic rating area. The age variation in premiums is constrained to 3:1 for 21 year olds and older, and the variation based on tobacco use is constrained to 1.5:1. In contrast, Medicare Advantage and Part D plans are required to charge all enrollees uniform premiums.⁷ In the presence of age rating variation, if a plan obtains higher revenues by charging its older enrollees more, it should not also be fully compensated for age variations through risk transfers. Age predicts medical expenditures and is typically included in risk adjustment models. How should the allowed premium rating for age be netted out of risk transfers?

Geographic rating area is the fourth source of allowed rating variation. ACA individual and

small group markets are established within states. But states may elect to define multiple intra-state rating areas across which plans can vary premiums.⁸ Given that risk pools are defined within states, how should risk transfers differ when the “base” level of premiums and costs differs across rating areas? More generally, how can a methodology be established that is flexible enough to potentially be applied to all 50 states, with their different cost levels?

Balanced Risk Transfers Among Plans versus Risk-Adjusted Payment to Plans

Determining how to calculate balanced risk transfers among plans while preserving permissible premium differences was a central task we faced in developing the HHS risk adjustment methodology. In the ACA-defined individual and small group markets, risk adjustment determines risk transfers among health insurance plans. Lower risk plans are charged to fund payments to higher risk plans. The payments and charges are balanced (i.e., the transfers sum to zero). ACA risk adjustment reallocates aggregate premium revenue among plans, whether premiums are paid by individual enrollees or the government through income-based premium subsidies.

In contrast, there are no explicit risk transfers among Medicare plans, and risk adjustment is not inherently budget neutral. In Medicare Advantage and Part D, enrollee risk scores directly determine government payments to health plans. In Medicare Advantage, a county “base rate” linked to Medicare county fee-for-service costs is multiplied by an enrollee's risk score to largely determine the Medicare plan payment (Medicare Payment Advisory Commission, 2012a). In Part D, a plan's bid to provide standard Part D benefits to an

⁷ The Medicare Part B premium, which Medicare Advantage enrollees must pay, is increased for the highest-income beneficiaries.

⁸ State rating areas are subject to approval by the United States Department of Health and Human Services.

enrollee of average risk, multiplied by an enrollee's risk score, determines a large portion of Medicare plan payments (Medicare Payment Advisory Commission, 2012b).

Affordable Care Act Risk Adjustment Development: Approach

The risk adjustment methodology includes a risk adjustment model and a transfer formula that together address the key goal and issues discussed above. The risk adjustment model estimates differences in health risks taking into account the new population and generosity of coverage (actuarial value level). The transfer formula calculates balanced transfers that are intended to account for health risk differences while preserving permissible premium differences.

Risk Adjustment Model

The HHS-HCC risk adjustment model uses an individual's demographics and diagnoses to determine a risk score, which is a relative measure of how costly that individual is anticipated to be to the plan (i.e., a relative measure of the individual's actuarial risk to the plan). The model was developed by estimating how demographics (age, sex) and health diagnoses relate to health expenditures. Below, we describe several features of the model that address the new population and plan actuarial value differences described above.

Employer-Sponsored versus Medicaid Data to Calibrate a Risk Adjustment Model.

Projections of the characteristics of the long-run (2019) ACA individual market population (both inside and outside the Marketplaces) have been made in comparison to the characteristics of employer-sponsored insurance enrollees and Medicaid enrollees (Trish, Damico, Claxton, Levitt, & Garfield, 2011). Although many projected characteristics of the ACA individual

market enrollees lay between the characteristics of enrollees in employer-sponsored insurance and Medicaid enrollees, on average they tend to be closer to enrollees in employer-sponsored insurance. For this reason, we focused on claims data from employer-sponsored insurance to calibrate the HHS-HCC risk adjustment model. The specific employer-sponsored insurance claims dataset we chose is discussed in the companion article on the empirical risk adjustment model.

Prospective versus Concurrent Model

Risk adjustment models can only utilize available information to predict expenditures. Most risk adjustment models used for payment are "prospective," meaning they use prior year information to predict current year medical expenditures. For example, the Medicare Advantage and Medicare Part D models are prospective. Prospective models tend to be favored because they emphasize the impact of ongoing chronic conditions on costs (as opposed to random current year costs that can be pooled as "insurance risk").

However, for the first year of the ACA-established individual and small group markets in 2014, no previous year information on health status exists. A prospective model is, therefore, infeasible for the first year of the ACA state markets, and given the time required to accumulate and analyze data and pre-announce the model, it is realistically infeasible for at least the first several years of the Marketplaces. Even after the first few years of operation of the Marketplaces, assembling the data for a prospective risk adjustment model would be very challenging. For example, there are likely to be substantial flows of individual/small group participants among insurance statuses, including to/from Medicaid, to/from large-employer-based insurance, and even to/from uninsured status.

For these reasons, the 2014 HHS-HCC risk adjustment model is “concurrent,” meaning current year information is used to predict current year costs. Concurrent models tend to emphasize the prediction of costs associated with current year acute health events. However, a considerable amount of the costs of chronic conditions are associated with acute exacerbations. Concurrent models can also capture the very high costs of conditions, such as organ transplants, metastatic cancer, and low-birthweight babies, that reduce or eliminate the disincentive for plans to contract with providers who treat these conditions. In developing the concurrent model, we attempted to focus on conditions associated with systematic selection risk of enrollees or providers and to de-emphasize conditions such as injuries that are probably not a focus of plan selection behavior. We also adopted approaches intended to lessen the influence of differences in diagnostic coding patterns on risk scores, as described in more detail in the second companion paper. Further, because concurrent risk adjustment explains more of the variation in current (acute) costs, it reduces unsystematic risk, which may benefit small health plans that do not have enough enrollees to diversify away unsystematic risk. Finally, we include partial year enrollees in the sample to calibrate the risk adjustment model because, with a concurrent risk adjustment model, enrollees’ diagnoses will match their utilization for any period of enrollment. All enrollees (with at least one month of enrollment), including newborns and decedents—some of whom are typically among the highest-cost enrollees—are reflected in risk adjustment.

Revised Clinical Classification and Subpopulation Models

The HHS risk adjustment approach predicts expenditures using only enrollees’ age, sex, and diagnoses. Diagnosis is a key clinical factor that

drives medical treatment decisions and costs, and is widely used in risk adjustment models (Lodh, Raleigh, Uccello, & Winkelman, 2010). Conceptually, diagnosis is distinct from treatment or utilization, and basing risk adjustment on diagnosis is neutral with respect to treatment modality and utilization. The heart of the empirical risk adjustment model is the clinical classification system that organizes the thousands of International Classification of Diseases (ICD) diagnosis codes into a coherent system of diagnostic categories.

The starting point for the HHS risk adjustment diagnostic clinical classification was the Centers for Medicare & Medicaid Services’ Hierarchical Condition Categories (CMS-HCC) clinical classification (Pope *et al.*, 2004). The CMS-HCCs had to be adapted for three main reasons, which are elaborated on in the second companion paper: 1) prediction year—the CMS-HCC risk adjustment model is prospective rather than concurrent; 2) population—the CMS-HCCs were developed using data from the aged (age ≥ 65) and disabled (age < 65) Medicare populations, as compared to the private individual and small group, primarily under age 65, population; and 3) type of spending—the CMS-HCCs are configured to predict medical spending excluding outpatient prescription drug spending as compared to medical and prescription drug spending. We call the revised clinical classification that is the basis of HHS risk adjustment the HHS-HCC clinical classification.

Separate Adult, Child, and Infant Models

In addition to revising the Medicare CMS-HCC clinical classification to be applicable to the individual and small group markets that are largely under the age of 65, we considered subpopulation differences *within* the ACA risk adjustment population. Clinical reasoning and empirical investigation led us to conclude that separate adult (age 21+), child (age 2–20), and

infant (age 0–1) models are desirable for the risk adjustment population.

Plan Liability Versus Total Expenditures

To account for differences in plan actuarial risk across actuarial value levels, we considered plan liability and total expenditure risk scores. A person's total expenditure risk score predicts total medical expenditures. In contrast, a plan liability risk score predicts the medical expenditures that a plan is actually liable for, given its actuarial value and cost sharing structure. It incorporates the predicted effect of both health status and plan cost sharing on expected plan liability. An individual has a different plan liability risk score depending on what metal tier of plan he/she enrolls in.

The plan liability risk score cannot be obtained by simply multiplying a person's total expenditure risk score by his/her plan's actuarial value because the amount plans pay is not constant as expenditures increase (i.e., it is non-linear, primarily because of the presence of deductibles). We instead estimate separate plan liability models on the same population to determine each enrollee's plan liability risk score.

Induced Demand Due to Cost Sharing Reductions

We also considered how to address the potential higher utilization among individuals who are enrolled in cost sharing reduction plans. A direct adjustment in the risk adjustment model for induced demand due to cost sharing reductions was not possible due to a lack of the required data in the risk adjustment model calibration sample. As an alternative, a multiplicative adjustment to the risk score was developed. We chose to account for induced demand associated with a more generous actuarial value of cost sharing reduction plans in the risk adjustment model, because premiums for cost sharing reduction plans are required to be the same for all actuarial value levels of cost sharing reduction plans (in

contrast to differing metal levels where premiums can vary). For the Medicare Advantage program, induced demand due to lower cost sharing for Medicare-Medicaid dual eligible beneficiaries is adjusted for directly in the risk adjustment model by including a risk factor for dual eligible status. Similarly, for the Part D program, induced demand due to lower cost sharing for low-income beneficiaries is adjusted for directly in the risk adjustment model by calibrating separate models for low-income beneficiaries.

Risk Transfer Formula

The risk transfer formula uses the output of the risk adjustment model—individual risk scores—as an input. Conceptually, the goal of risk transfers is to account for health risk differences while preserving permissible premium differences. Transfers are not intended to eliminate premium variations due to differences in scope of coverage or costs that can be reflected in permissible rating differences. The transfer formula averages all individual risk scores by the risk adjustment covered plan and uses the plan average risk scores, combined with other factors,⁹ to calculate the funds transferred between plans. The risk transfer formula is based on the difference between two plan premium estimates: 1) premium with risk selection and 2) premium without risk selection.¹⁰ Transfers are intended to bridge the gap between these two premium estimates; that is, they are intended to change plans' costs net of transfers to reflect premiums without risk selection. If the difference between the two premium estimates (premium with risk selection minus premium without risk selection) is positive, a plan receives a transfer payment, lowering its

⁹ These other factors include a plan allowable premium rating, actuarial value, induced demand, geographic costs, and the statewide average premium.

¹⁰ See footnotes 4 and 5 for more precise definitions of "premium with risk selection" and "premium without risk selection."

costs net of transfers and thereby lowering its premium. If the difference is negative, a plan is “charged” and owes transfer funds, raising its costs net of transfers and thereby raising its premium.¹¹

The two premium estimates are based on the product of a specified set of plan cost factors, expressed relative to the state average product of those cost factors, and multiplied by the state average premium. The premium with risk selection is fundamentally based on the plan’s risk score, reflecting the health status based costs of its enrollees. The premium without risk selection is fundamentally based on the plan’s enrollees’ allowable rating factors. Intuitively, each premium estimate (with and without risk selection) can be understood as scaling the state average premium up or down based on the ratio of the plan cost factors to the state average of those factors. This normalization adjustment, where the plan’s factors are divided by the state average of those factors, is a key feature of the transfer formula because each term averages to 1, resulting in balanced transfers that net to zero. Another important feature of this approach is that health risk is calculated relative to the average risk in each state market. This means that risk scores will be appropriately scaled to average risk of each state market, even though the risk adjustment model was developed using a national sample.

Other than the risk score, all of the cost factors included in the risk transfer formula—induced demand, geographic costs, allowable rating, and actuarial value—were included with the aim to preserve premium differences due to those factors. For example, if the transfer formula did not account for allowable rating, the methodology would over-adjust for plans with older enrollees (whom plans can charge higher premiums) and under-adjust

for plans with younger enrollees (whom plans can charge lower premiums). The risk adjustment model estimates health risk differences due to age, and some of those differences are already priced into premiums using the allowable 3:1 age rating, which must be netted out in determining transfer payments. In other words, the risk transfer formula in effect subtracts the allowed influence of age on premiums from the estimated effect of age on expenditure risk, so that only the remainder is incorporated into transfer payments. The risk transfer formula, including each of the factors and rationale for its inclusion, is discussed in detail in the third paper.

Conclusions

The goal of the ACA risk adjustment methodology developed by HHS is to compensate health insurance plans for differences in enrollee health mix so that plan premiums reflect differences in scope of coverage and other plan factors, but not differences in health status. The two key components of the risk adjustment methodology are the risk adjustment model and the risk transfer formula. This article is the first of three in this issue of the *Medicare & Medicaid Research Review* that describe the HHS risk adjustment methodology. A series of issues and challenges that were faced in developing the HHS risk adjustment methodology were described: 1) new population; 2) cost and rating factors, including plan actuarial value levels and permissible rating factors; and 3) balanced transfer payments among health plans.

In our second companion article in this issue of the *Medicare & Medicaid Research Review*, we present the risk adjustment model, which is named the HHS-HCC risk adjustment model. The risk adjustment model addresses issues related to the new population in ACA risk adjustment, as well as in estimating plan liability

¹¹ Assuming a competitive health insurance market in which premiums reflect plans’ (net of transfers) costs.

accounting for differences in actuarial value. We first summarize the HHS-HCC diagnostic classification, which is the key element of the risk adjustment model. Then the data and methods, results, and evaluation of the risk adjustment model are presented. Fifteen separate models are developed. For each age group (adult, child, and infant), a model is developed for each metal level (platinum, gold, silver, and bronze, as well as for the catastrophic plans). Evaluation of the risk adjustment models showed good predictive accuracy, both for individuals and for groups.

Finally, in our third companion article in this issue of the *Medicare & Medicaid Research Review*, we discuss the risk transfer formula. The transfer formula calculates balanced transfers that are intended to account for health risk differences, while preserving permissible premium differences. We describe how the plan's risk score is combined with factors for a plan's allowable premium rating, actuarial value, induced demand, geographic costs, and the statewide average premium in a formula that calculates transfers among plans. We then discuss how each plan factor is determined, as well as how the factors relate to each other in the transfer formula. Illustrative numerical simulations show the risk transfer formula operating as anticipated in hypothetical scenarios.

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