



## ACTUARIAL STANDARDS BOARD

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• EXPOSURE DRAFT •

**Proposed  
Actuarial Standard  
of Practice**

**The Use of Health Status Based Risk Adjustment Methodologies**

**Comment Deadline:  
July 31, 2011**

**Developed by the  
Health Risk Adjustment Task Force of the  
Health Committee of the  
Actuarial Standards Board**

**Approved for Exposure by the  
Actuarial Standards Board  
April 2011**

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**TO:** Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in the Use of Health Status Based Risk Adjustment Methodologies

**FROM:** Actuarial Standards Board (ASB)

**SUBJ:** Proposed Actuarial Standard of Practice (ASOP)

This document is an exposure draft of proposed ASOP, *The Use of Health Status Based Risk Adjustment Methodologies*.

Please review this exposure draft and give the ASB the benefit of your comments and suggestions. Each written response and each response sent by e-mail to the address below will be acknowledged, and all responses will receive appropriate consideration by the drafting committee in preparing the final document for approval by the ASB.

The ASB accepts comments by either electronic or conventional mail. The preferred form is e-mail, as it eases the task of grouping comments by section. However, please feel free to use either form. If you wish to use e-mail, please send a message to **comments@actuary.org**. You may include your comments either in the body of the message or as an attachment prepared in any commonly used word processing format. **Please do not password protect any attachments.** Include the phrase “ASB COMMENTS” in the subject line of your message. Please note: Any message not containing this exact phrase in the subject line will be deleted by our system’s spam filter.

If you wish to use conventional mail, please send comments to the following address:

Health Risk Adjustment ASOP  
Actuarial Standards Board  
1850 M Street, NW, Suite 300  
Washington, DC 20036

The ASB posts all signed comments received to its website to encourage transparency and dialogue. Unsigned or anonymous comments will not be considered by the ASB nor posted to the website. The comments will not be edited, amended, or truncated in any way. Comments will be posted in the order that they are received. Comments will be removed when final action on a proposed standard is taken. The ASB website is a public website and all comments will be available to the general public. The ASB disclaims any responsibility for the content of the comments, which are solely the responsibility of those who submit them.

**Deadline** for receipt of responses in the ASB office: **July 31, 2011**

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### Background

Health status based risk adjustment methodologies have been an important tool in the health insurance marketplace since the 1980s. The use of risk adjustment has significant effects on health insurance companies, healthcare providers, consumers, employers and others. Its importance and influence are likely to increase as healthcare programs that currently use risk adjustment expand the populations they cover and other programs adopt the use of risk adjustment. ASOP No. 12, *Risk Classification (for All Practice Areas)*, provides guidance to “all actuaries when performing professional services with respect to designing, reviewing, or changing risk classification systems used in connection with financial or personal security systems.” It applies more broadly than this ASOP. This ASOP is intended to provide guidance regarding the appropriateness of the health status based risk adjustment models and methods that are used. This standard is necessary because it requires actuaries to explicitly consider important characteristics of the risk adjustment models and their use, rather than allowing actuaries to assume important issues are already addressed within any given risk adjustment software model.

### Request for Comments

The task force appreciates comments on all areas of this proposed ASOP and would like to draw the readers’ attention to the following areas in particular:

1. Health status based risk adjustment methodologies have been used for many years, and much has been written about their use. Does this ASOP provide sufficient guidance to actuaries? Does the ASOP restrict practice inappropriately?
2. The task force intentionally drafted this proposed ASOP to apply to the “use of” health status based risk adjustment methodologies, as opposed to the creation of these methodologies. Many of the existing software programs used to implement health status based risk adjustment were created by non-actuaries. Is the ASOP clear that it applies to the use of models only, and the issues that an actuary must consider when using a model that may be provided by others, including non-actuaries?
3. Timing issues, including the relationship of the experience period to the estimation period, claims run-out period and other issues, are critical to the use of health status based risk adjustment models and methods. Does this ASOP provide sufficient guidance to actuaries in these areas?
4. Consistency between the development of the model and its use, and what considerations an actuary should make where there are inconsistencies, are central to the need for this ASOP. Does this ASOP provide sufficient guidance to actuaries in identifying and addressing potential inconsistencies?

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Health Risk Adjustment Task Force

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*The ASB establishes and improves standards of actuarial practice. These ASOPs identify what the actuary should consider, document, and disclose when performing an actuarial assignment. The ASB's goal is to set standards for appropriate practice for the U.S.*

**PROPOSED ACTUARIAL STANDARD OF PRACTICE**

**THE USE OF HEALTH STATUS BASED RISK ADJUSTMENT METHODOLOGIES**

**STANDARD OF PRACTICE**

**Section 1. Purpose, Scope, Cross References, and Effective Date**

1.1 **Purpose**—This actuarial standard of practice (ASOP) provides guidance to actuaries applying health status based risk adjustment methodologies to quantify differences in relative healthcare resource use due to differences in health status.

1.2 **Scope**—This standard applies to actuaries quantifying differences in morbidity across organizations, populations, programs and time periods using commercial or other available health status based risk adjustment models or software products. It does not apply to actuaries designing health status based risk adjustment models. Actuaries who perform professional services with respect to designing, reviewing, or changing risk classification systems should be guided by ASOP No. 12, *Risk Classification (for all Practice Areas)*.

If the actuary departs from the guidance set forth in this standard in order to comply with applicable law (statutes, regulations, and other legally binding authority) or for any other reason the actuary deems appropriate, the actuary should refer to section 4.

1.3 **Cross References**—When this standard refers to the provisions of other documents, the reference includes the referenced documents as they may be amended or restated in the future, and any successor to them, by whatever name called. If any amended or restated document differs materially from the originally referenced document, the actuary should consider the guidance in this standard to the extent it is applicable and appropriate.

1.4 **Effective Date**—This standard is effective for any professional services using health status based risk adjustment methodologies, performed on or after four months following adoption by the Actuarial Standards Board.

**Section 2. Definitions**

2.1 **Carve-out**—A medical service or condition not covered by the program under review or covered under a different reimbursement arrangement, such as a capitation. A common carve-out is mental health services.

2.2 **Condition Category**—A grouping of medical conditions that have similar expected healthcare resource use or clinical characteristics.

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- 2.3 Credibility—A measure of the predictive value in a given application that the actuary attaches to a particular body of data (predictive is used here in the statistical sense and not in the sense of predicting the future).
- 2.4 Diagnostic Services—Services (for example, lab or radiology) provided to determine whether a medical condition exists. Having these services performed does not by itself indicate a condition exists, although the result of the test may indicate it does.
- 2.5 Expert—One who is qualified by knowledge, skill, experience, training, or education to render an opinion concerning the matter at hand.
- 2.6 Health Status Based—Using healthcare claims, lab test results, health risk appraisal or other data based on underlying conditions or treatment as well as demographic information such as age and gender.
- 2.7 Morbidity—The incidence of or resource use associated with a medical condition or group of conditions.
- 2.8 Program—Health benefit programs including but not limited to commercial and employer sponsored health insurance, self-funded employer health insurance, and government sponsored health insurance, such as Medicaid and Medicare.
- 2.9 Recalibration—The process of modifying the risk adjustment model, usually the risk weights. Recalibration is often used to make the risk adjustment model more specific to the population, data, and other characteristics of the project for which it is being used.
- 2.10 Risk Adjustment—The process by which relative risk factors are assigned to individuals or groups based on expected resource use and by which those factors are taken into consideration and applied.
- 2.11 Risk Weight—The value assigned to each condition category that indicates the expected contribution of that condition category to an individual’s estimated resource use.

### **Section 3. Analysis of Issues and Recommended Practices**

- 3.1 Model Selection and Implementation—The actuary should select an appropriate risk adjustment model and implementation methodology, based on the actuary’s professional judgment, with consideration given to the items discussed below.
  - 3.1.1 Intended Use—The actuary should consider whether the model was designed to estimate what the actuary is trying to estimate. For example, the model may have been developed to estimate differences in total allowed costs, while the actuary may be trying to measure or predict differences in paid costs for a high deductible

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plan, or differences in allowed costs for a single service category such as pharmacy.

- 3.1.2 **Impact on Program**—The actuary should consider whether the risk adjustment system may cause changes in behavior because of underlying incentives. For example, it may not be appropriate to include a health plan’s cost or provider’s prior charges as a risk adjustment variable when risk adjustment is used in determining health plan or provider payment.
- 3.1.3 **Model Version**—Since models are often updated, the actuary should consider the specific version of the model being utilized. If the actuary is using a new version of a previously utilized model, the actuary should consider how the model versions differ.
- 3.1.4 **Population and Program**—The actuary should consider whether the population and program to which the model is being applied is reasonably consistent with those used to develop the model. For example, some models are intended for a commercial population and program while others are intended for Medicaid. In addition, some Medicaid programs exclude carve-outs such as pharmacy and mental health services from the list of health plan at-risk services.
- 3.1.5 **Timing of Data Collection, Measurement, and Estimation**—Typically, at least small differences in timing between the development of the model and the application of the model will exist. The actuary should consider the impact of differences between the application of the model and its development with respect to timing issues such as the data collection period, estimation period, and claims run-out period.
- 3.1.6 **Transparency**—The actuary should consider the level of transparency that is appropriate for the intended use, and whether the model affords that level of transparency. For example, some commercially available models do not allow risk weights to be published.
- 3.1.7 **Predictive Ability**—The actuary should consider the predictive ability of the model and the characteristics of the various predictive performance measures commonly used and published.
- 3.1.8 **Reliance on Experts**—Risk adjustment models may incorporate specialized knowledge which may be outside of an actuary’s area of expertise. The actuary should consider whether the individual or individuals upon whom the actuary is relying are experts in risk adjustment and should understand the extent to which the model has been reviewed or opined on by experts in risk adjustment models.

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- 3.1.9 Practical Considerations—The actuary should consider practical limitations and issues with any given model and methodology including the cost of the model, the actuary’s and other stakeholders’ familiarity with the model, and its availability.
- 3.2 Input Data—The input data that is used in the application of risk adjustment should be reasonably consistent with the data used to develop the model, unless circumstances dictate that a model be modified to utilize other than originally intended data sources. In those instances, the actuary should document why the combination of that data and the selected model was used. In addition, the input data used for different organizations should be reasonably consistent. When evaluating consistency of input data, the actuary should consider the following:
- 3.2.1 Provider Contracts—The actuary should consider the differences in provider contracts and the potential impact of these differences on the risk adjustment results. For example, one organization may pay fee for service and another may pay capitation. This can cause significant differences in risk adjustment results based on data quality rather than morbidity.
- 3.2.2 Diagnostic Services—The actuary should determine how the model handles diagnostic services and whether data for those services should be included in the data input into the model.
- 3.2.3 Coding and Other Data Issues—Because risk adjustment model results are affected by the level of diagnosis codes or services coded, the actuary should consider the impact of differences in levels of coding across organizations and time periods. This standard does not require the actuary to quantify the portion of measured morbidity differences due to coding or other data issues and the portion due to true morbidity differences. However, the actuary should consider how coding, incomplete data, and other data issues may be affecting the results and consider whether adjustments to the risk adjustment process are appropriate. Adjustments may include phase-in, the use of alternate models, and adjustment for changes in coding over time or across organizations.
- 3.3 Program Specifics—The specifics of the program for which risk adjustment is being used should be considered. For example, the presence of reinsurance may affect the impact of high cost individuals or the program may carve out some services from costs that are at risk to health plans or providers.
- 3.4 Assigning Risk Scores to Individuals with Limited Data—The actuary should consider the minimum criteria required for an individual to be included in the risk adjustment analysis. Where these minimum criteria are not met, the actuary should identify an appropriate measure of morbidity to be used. Approaches to handling these individuals include, but are not limited to, assigning an age/gender factor, assigning an average risk score for the scored individuals or excluding them from the analysis and effectively dampening the results.

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- 3.5 Addressing Model and Methodology Limitations—When implementing risk adjustment results, the actuary should consider any limitations with the data, model or underlying program fundamentals. The actuary may determine that risk adjustment results should be modified before application due to such limitations.

If using a risk adjustment model on a population for which it was not originally designed, the actuary should consider appropriate adjustments, such as recalibration and condition or demographic category groupings.

- 3.6 Recalibration—The actuary should consider the necessity and advantages of recalibration in the context of available resources, materiality of expected changes in results, appropriateness of the unadjusted model risk weights, and limitations in the data available for recalibration.

The actuary should consider the credibility of data and observations for specific condition categories before changes to the model are made. The actuary should consider the reasonability and implications of any changes to the relative weights for condition or other groupings.

- 3.7 Use in Combination with Other Rating Variables—When risk adjustment is used in combination with other rating variables such as age or gender, industry or area, the actuary should consider whether those variables capture differences in morbidity already captured by the risk adjustment model, and make the appropriate modifications.

- 3.8 Budget or Cost Neutrality—One of the goals of the risk adjustment application may be to shift funds without increasing or decreasing the overall budget or cost. In this situation, the actuary should consider changes in the composition of the group being risk-adjusted between the historic and projected time periods, changes in data coding and quality, program changes, and any other changes that have the potential to materially affect overall results.

### Section 4. Communications and Disclosures:

- 4.1 Actuarial Communications—When issuing actuarial communications under this standard, the actuary should refer to ASOP No. 41, *Actuarial Communications*.

- 4.2 Disclosures—The actuary should include the following, as applicable, in an actuarial communication:

- a. the disclosure in ASOP No. 41, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);

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- b. the disclosure in ASOP No. 41, section 4.3., if the actuary states reliance on other sources and thereby disclaims responsibility for any material assumption or method selected by a party other than the actuary; and
- c. the disclosure in ASOP No. 41, section 4.4, if, in the actuary's professional judgment, the actuary has otherwise deviated materially from the guidance of this ASOP.

## **Appendix**

### **Background and Current Practices**

Health status based risk adjustment methodologies have been an important tool in the health insurance marketplace since the 1970's. The use of risk adjustment has significant effects on health insurance companies, healthcare providers, consumers, employers and others. Its importance and influence is likely to increase as healthcare programs that currently use risk adjustment expand the populations they cover and other programs adopt the use of risk adjustment.

Risk-adjustment is a powerful tool in the health insurance marketplace. Risk adjusters allow health insurance programs to measure the morbidity of the members within different groups and pay participating health plans fairly. In turn, health plans can better protect themselves against adverse selection and are arguably more likely to remain in the marketplace. This in turn increases competition and choice for consumers.

Risk adjusters also provide a useful tool for health plan underwriting and rating. They allow health plans to predict more accurately future costs for the members and groups they currently insure.

Finally, risk adjusters provide a ready, uniform tool for grouping people within clinically meaningful categories. This categorization allows for better trend measurement, care management and outcomes measurement. The risk adjustment structure, like benchmarks for service category utilization, creates consistency in reporting and communication across different departments within an insurance company. For example, medical management, actuarial and finance professionals can measure the impacts of their care management programs.

Risk adjustment is widely used in government programs including Medicare Advantage, state Medicaid, and healthcare reform programs. In addition, it is used in provider payment, medical management, employer multi-option contribution setting and in many other applications that require objective estimation of morbidity.

Actuaries typically use models developed by commercial vendors or publicly available models such as CDPS, MedicaidRx or CMS' HCC models. Concurrent models are usually used to measure morbidity when the data collection and measurement periods are the same, while prospective models are usually used if the estimation period is after the data collection period. The following example is taken from the American Academy of Actuaries May 2010 Issue Brief, titled "Risk Assessment and Risk Adjustment". It shows how the risk score for two different 32 year old males is developed based on their health claims history (this is illustrative, not all risk adjustment models use this type of additive convention):

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Example 1: John Smith, age 32, has diabetes, asthma/COPD and dermatology diagnoses in his claims history.

<b>Risk Marker</b>	<b>Risk Weight</b>
Male, Age 32	0.22
Diabetes with significant co-morbidities	1.32
Asthma/COPD	0.96
Low cost dermatology	0.30
<b>Total Risk Score</b>	<b>2.80</b>

The “Total Risk Score” in the table above is equal to the sum of the demographic and condition risk weights shown in the table. Usually, risk scores are stated relative to a 1.0, with the 1.0 being equal to the average expected risk score across the entire population. In this example, John Smith would be expected to cost 2.8 times an average member.

Example 2: Mark Johnson, age 32, has eligibility history but no claims history.

<b>Risk Marker</b>	<b>Risk Weight</b>
Male, Age 32	0.22
<b>Total Risk Score</b>	<b>0.22</b>

In this example, the total risk score is equal to only the demographic risk weight and is much lower than the total risk score for John Smith. The estimated cost ratio using risk adjustment factors would be  $0.22 / 2.80$  or 0.079. Therefore, Mark Johnson would be expected to cost 92% less than John Smith, and 78% less than an average member.