



AMERICAN ACADEMY *of* ACTUARIES

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Health Subcommittee  
Committee on Ways and Means  
U.S. House of Representatives

“Actuarial Review of HCFA’s Health Status  
Risk Adjustment Methodology”

Testimony Presented By  
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Good morning Chairman Thomas and members of the committee. My name is Bill Bluhm and I am a principal with the actuarial consulting firm of Milliman & Robertson in Minneapolis. I am appearing today in my capacity as the Chair of the Risk Adjustors Work Group of the American Academy of Actuaries. Our work group was formed at the request of the Health Care Financing Administration (HCFA) to complete an actuarial review of the health status risk adjustment methodology the agency will use starting on January 1, 2000 to pay Medicare+Choice health plans.

As you are aware, the use of a health status risk adjustment formula is required by the Balanced Budget Act of 1997 (BBA). That law directed HCFA to report to Congress on the proposed risk adjustment method and, further, provides for, “*an evaluation of such method by an outside, independent actuary of the actuarial soundness of the proposal.*” (BBA, Section 1853). Last fall, the Health Care Financing Administration asked the American Academy of Actuaries to perform this evaluation. As the Academy’s Vice President of Health at that time, I appointed a volunteer work group consisting of health actuaries who are either consultants to or staff members with health plans and health insurers to review HCFA’s proposal. A list of the members of the work group is attached to my testimony. Our analysis was included as part of the agency’s report to Congress which was issued earlier this month. The Academy’s work was provided pro bono, although HCFA did reimburse the members for travel expenses associated with the meetings of the work group.

### **HCFA’s Proposal**

Currently, HCFA’s payment rates for Medicare+Choice plans are adjusted to reflect the risk characteristics of the plans’ participants as defined by the demographic factors of age, gender

and the beneficiary's status (institutionalized or non-institutionalized; Medicaid recipient or non-Medicaid; employed or not; disabled or not). Beginning in the year 2000, HCFA is required by the BBA to supplement these demographic adjustments with a health status risk adjustor.

HCFA plans to assign a risk score to each Medicare beneficiary based on diagnosis information for that individual, taken from previous hospital inpatient stays. The risk scores were developed using a list of "principal inpatient diagnostic cost groups" (PIP-DCGs), which were developed for this purpose. The previous medical costs for inpatient hospital stays incurred by the individual are used to determine their expected future medical risk and, therefore, how much the Medicare+Choice health plan in which they are enrolled should be paid. New enrollees in Medicare will be assigned an estimated risk score based on HCFA's analysis of existing Medicare fee-for-service (FFS) data.

## **Conclusions**

The new risk adjustment system represents a significant change for health plans, contracting providers, and health plan members. While the Academy work group believes the conceptual basis of the risk adjustment method proposed by HCFA is "actuarially sound," as we have defined it for this purpose, we have serious concerns about the method's implementation, operation, and impact. These issues include:

- Exclusions of certain risk categories from the risk adjustment methodology, such as one-day hospital stays, which may penalize health plans that effectively manage the delivery of health care.
- Lack of adequate testing of the potential impact of the new methodology on health plans and Medicare+Choice beneficiaries, although the phase-in will significantly soften the impact of changes in reimbursement levels from what it might otherwise be.

- Administrative feasibility of the implementation of the new system because of timing and data collection issues.
- The processing of extraordinary amounts of newly collected data and completing a series of complex calculations introduces an element of uncertainty that cannot be anticipated until health plans and HCFA have full opportunity to understand the implications.
- Use of only fee-for-service data as the basis for the development of risk adjustment weights.

There is a substantial risk for the Medicare system if the risk adjustment methodology does not work as intended. The negative consequences could include withdrawal of Medicare+Choice health plans from the market, financial problems or insolvency for health plans and the potential for a reduction in benefits provided to beneficiaries. Because of these concerns, the work group believes HCFA's decision to implement the new methodology under a phased-in approach is a sound one and will limit changes from the current payment system while HCFA and the health plans assess the impact of the new methodology.

While HCFA has done much work in a short time period to develop the new methodology and design implementation strategies, additional work remains to fully define HCFA's risk adjustment method and test application of the method to make sure it achieves the intended results. The work group recommends that HCFA further modify the risk adjustment model with the knowledge gained during the first year of operation.

### **Definition of Actuarial Soundness**

The Academy was asked by HCFA to evaluate the actuarial soundness of its proposal. For this purpose, there is no widely recognized definition of "actuarial soundness." The work group therefore analyzed HCFA's proposal in terms of: (1) established actuarial criteria for risk

adjustment, (2) Actuarial Standards of Practice, and (3) the general principles and practices of actuarial science. Actuarial Standards of Practice are guidelines developed by the Actuarial Standards Board to help actuaries in their work. Specific actuarial goals and criteria for risk adjustment are described in the Academy's May 1993 monograph titled, "Health Risk Assessment and Health Risk Adjustment: Crucial Elements in Effective Health Care Reform." The criteria used to evaluate risk adjustment systems are:

***Accuracy:*** Because payments to health plans will be determined based on the risk adjustment mechanism, accuracy and avoidance of statistical bias is critical.

***Practicality and Reasonable Cost:*** The risk adjustment mechanism should not be so complex that implementation is extremely cumbersome, thereby adding significant cost to the system.

***Timeliness and Predictability:*** Carriers setting premium rates should be able to predict the impact of risk adjustment on their premiums with a fair degree of accuracy and in a timely manner, in order to avoid solvency concerns and disruption to members.

***Resistance to Manipulation:*** The risk adjustment mechanism should aim to make it impossible for specific carriers to benefit financially by "gaming" the mechanism.

The Academy's review took into account all aspects of the proposed methodologies that impact on its "actuarial soundness," including, but not limited to the proposed formulas, the availability, quality, and relevance of the data required, and the ability to be implemented as intended.

In addition, the Academy has evaluated the appropriateness of the proposed methods in relation to available alternatives (including non-administrative data models such as surveys,

enhanced age/gender/status, and the status quo) and in light of the modifications being made to the underlying base rates by county over the same time period.

### **Limitations of the Work Group's Analysis**

It is important to note that the work group's analysis and conclusions relied on the information supplied by HCFA. During the review process, HCFA provided the work group with preliminary results of the potential payment impact of the risk adjustment methodology on Medicare+Choice plans. However, the work group was not able to verify the accuracy of the data collected by HCFA or the calculations used by HCFA to determine the impact on health plans.

In addition, HCFA did not provide the work group with an assessment of the impact of the risk adjustment methodology on beneficiaries, and the scope of our opinion is similarly limited.

HCFA's risk adjusted payment system is still a "work in progress", and it should be understood that our opinion on the actuarial soundness of HCFA's proposals are based on the system as they were described to us at the time we performed our review.

The work group was not able to undertake a detailed analysis of the mathematical formulas used to develop the risk adjustment methodology, but rather focused its review on the conceptual and theoretical basis of the system. Because HCFA is still working on the proposed methodology and there are a number of unresolved implementation issues, our report is a qualified review of the actuarial soundness of the proposal.

### **Analysis and Recommendations**

The new methodology for making health status risk adjustments to Medicare payments appears to meet the requirements of the Balanced Budget Act of 1997, provided the system is implemented carefully. On balance, and with a phase-in, the proposed risk adjustment method

appears to be a reasonable first step in what should be a long-term evolutionary process. HCFA is to be commended for the progress to date and for recognizing the limitations of the proposal arising from the available data, timing requirements and areas for future improvements.

In general, the work group believes the PIP-DCG risk assessment methodology developed by HCFA meets the goals of risk assessment I outlined earlier in my testimony. However, there are a number of concerns about the health risk assessment formula that the work group raised in its report:

***Using Only Inpatient Data:*** A significant component of the PIP-DCG model is the restriction of the risk adjustment method to conditions identified by inpatient hospital claims. This feature has both advantages and disadvantages. As one positive factor, this requirement matches well with the information currently available to the Medicare program. Currently, hospital claim information is more accessible and easier to audit than ambulatory care data, and requires less additional work by health plans to report to HCFA.

However, there are several drawbacks to a system that uses only inpatient data. A major feature of managed care has been the measurable shifting of inpatient care to outpatient sites and the substitution of less invasive therapies to treat a given condition. When the risk assessment system is restricted to inpatient claims, the members subject to effective managed care can appear healthier than average, because of limits on what is measured.

If outpatient (ambulatory) data is added to the inpatient claims information, a better picture of the potential “risk” of each individual Medicare beneficiary is obtained. We have therefore recommended that outpatient data be included in HCFA’s methodology as soon as it is feasible to do so.

*Exclusion of One-Day Hospital Stays:* The risk adjustment methodology does not “give credit” for one-day hospitalizations, under the assumption that including them may result in “gaming” of the system by health plans. If included, plans could “game” the system by ordering unnecessary one-day stays for minor medical conditions, in order to include beneficiaries in the health status risk adjustment process, and thereby increase payments the next year.

The underlying concept of excluding one-day admissions does have merit. It can reduce gaming of the system by requiring each hospitalization to be of a certain severity (measured by a length of two days or more) and plans would not have an incentive to hospitalize a patient overnight just to receive “credit.”

However, the exclusion of one-day stays may unduly penalize plans which efficiently manage the delivery of health care. This is because effective care management tend to reduce stays to one day which might otherwise be two or more day stays. Since those stays would then be excluded from the risk adjustment process, this would penalizing plans for their efficiency.

According to the report from Health Economics Research (HER), which assisted HCFA in designing the PIP-DCGs, excluding one-day stays reduces the predictive power of the health status risk adjustment methodology. Also, it might be noted that excluding one-day hospitalizations shifts the issue of “gaming” from whether to hospitalize someone at all to a question of whether to keep the patient for a second hospital day.

The work group suspects that the disadvantages of excluding one-day hospitalizations may outweigh any possible gain. It would be appropriate to analyze the risk adjustment methodology based on whether it is easier to “game” admissions or to “game” length of stay and any resulting adverse incentives for health plans.

HCFA may want to consider either using one-day stays as part of the risk adjustment formula or giving a partial credit or other adjustments for those hospitalizations in structuring payments to health plans.

***Principal Diagnosis:*** The PIP-DCG model measures conditions by capturing the principal diagnosis recorded on each inpatient claim. The use of the principal diagnosis for the PIP-DCG model is based on existing coding practices for inpatient claims used by hospitals. Since only the principal diagnosis is generally used, it is possible that not all appropriate information is collected or used. A qualifying condition could be listed as the secondary (or other) diagnosis, which could be a contributing factor leading to the need for hospitalization.

Alternately, there is a common belief that many secondary conditions currently reported are not as reliable and should not be included in the measurement system. Since the initial stages of the risk assessment system will be using data that was recorded without the presence of direct coding incentives, it may be reasonable to use only principal diagnosis information. However, as the PIP-DCG system is implemented, the restriction to using only principal diagnostic groups should be re-evaluated.

***Number and Development of the PIP-DCG Groups:*** Health Economics Research developed the diagnostic groups using a HCFA survey of Medicare FFS data which sampled 5% of Medicare beneficiaries. The claims information for this sample fell in the two-year interval from January 1, 1995 through December 31, 1996. Beneficiaries who were not alive and enrolled in Medicare for the entire time period were excluded, as were individuals who would not have been eligible for the Medicare+Choice program for various reasons. Because of these limits, the actual sample represents roughly a 3.5% sample. We have included some technical recommendations in our report, which can be included as HCFA revises the methodology.

***Excluding Discretionary Conditions:*** The base cost group (those individuals who are not assigned health status risk scores) also includes Medicare beneficiaries with diagnoses that were determined by HER to be discretionary, vague, or only occasionally resulted in inpatient admissions. The exclusion of those “discretionary” conditions has the beneficial effect of reducing potential bias in the formula against Medicare+Choice health plans with well managed care delivery systems by not giving credit for discretionary admissions and by removing the incentives to hospitalize a patient for minor illness.

However, we suggest that the diagnoses included in the base cost group should be reviewed in the future as coding practices change under the PIP-DCG system. If hospitals become more aggressive in their coding in the future, the percentage of claims falling into a PIP-DCG may change and weights would need to be recalibrated, particularly if the PIP-DCG method is used beyond the currently planned three-year period.

***Chemotherapy:*** HCFA has indicated that beneficiaries who are undergoing chemotherapy will be placed in a diagnosis category based on the patient’s secondary diagnosis (most likely cancer). Since the medical conditions underlying the need for chemotherapy represent high-cost, ongoing conditions that are predictive of future medical expenses, it is appropriate that they be included in the risk assessment model. The work group believes including chemotherapy as part of the diagnosis groups will increase the ability of the methodology to predict future health care costs.

***Exclusion of Indirect Medical Education Costs:*** The model developed by HER excludes indirect medical education (IME) costs from the Medicare FFS data used to calculate the relative weights used in this system. The IME costs are approximately two-thirds of the total graduate medical education costs currently paid through Medicare (the FFS data does include direct

medical education expenses). While it is technically incorrect to include any graduate medical education costs (since medical education costs will be paid outside of the capitation rate in the future), any distortion is likely to be small. However, it is possible there will be some internal inconsistencies in the model since high-cost conditions captured in the PIP-DCGs may more likely be treated in a tertiary care or teaching hospital.

***Factors for Newly Enrolled Medicare Members:*** HCFA decided to develop a special set of risk scores for those individuals who are eligible for Medicare for the first time and do not have any previous encounter data in the Medicare system. HCFA used FFS data to construct average expenditures for categories of newly eligible members (beneficiaries who become eligible for Medicare because of age or disability, or members who were previously eligible for coverage but deferred entry into the Medicare system). Newly eligible members will be assigned an estimated risk score based on HCFA's estimate of their predicted medical expenditures. The validity of these risk scores is unclear. The work group suggested that HCFA review its risk scores for the newly eligible once current data is available.

***Additional Testing:*** Health Economics Research performed a number of tests on the PIP-DCG risk adjuster methodology to determine how accurately it predicts total expected medical costs. The recommendations made by HER regarding several key components of the model such as the use of inpatient data only, exclusion of one-day stays and the number of PIP-DCG groups to be used, appear to be reasonable based on the FFS data which was reviewed. While the HER report discusses potential bias against managed care organizations that deliver care more efficiently than fee for service providers, HER did not have managed care data to determine what, if any, bias exists.

HCFA has completed some preliminary testing of the potential impact of the new risk adjustment methodology on Medicare+Choice plans, including managed care organizations. In order to understand the impact of the new system on the marketplace, the work group suggests that HCFA update these tests as additional data is available, and as health plans gain more experience with the operation of the risk adjustment mechanism.

***Cost-Benefit Analysis:*** The proposed system is relatively new and it is likely that there will be difficulties in implementation. It would be very helpful to establish more accurate estimates of the cost of implementing the PIP-DCG methodology and any modifications (such as using ambulatory data) and to determine the benefits to be derived from these systems before final decisions as to implementation are made. We suggest that consideration be given to producing a cost-benefit analysis of the PIP-DCG methodology and any subsequent modifications. The analysis should specifically include the costs incurred by health plans due to changes to the system.

***Actuarial Oversight:*** HCFA apparently plans to conduct additional analysis of the impact of the PIP-DCG methodology on managed care plans. It is unclear what form that impact analysis will take. In addition, there is a need for continuing monitoring and testing of the system and future modifications. The work group suggests that additional actuarial review be included as the system and subsequent changes are implemented.

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