January 15, 1999

NOTE TO: Medicare+Choice Organizations and Other Interested Parties

SUBJECT: Advance Notice of Methodological Changes for the CY 2000 Medicare+Choice Payment Rates

In accordance with Section 1853(b)(2) of the Social Security Act, we are required to notify you of the proposed changes to be made in the Medicare+Choice capitation rate book methodology for 2000. Please find enclosed the methodology changes for 2000 and a preliminary estimate of the increase in the national per capita Medicare+Choice growth percentage for aged Medicare beneficiaries. This advance notice includes a detailed description of the new risk adjustment methodology which will be in effect for 2000, and information on how risk adjustment will be implemented, including an explanation of the transition method that will be employed. Briefly, the approach HCFA will use to meet the year 2000 mandate for risk adjusted payments will:

1. Be based on inpatient data;
2. Apply individual enrollee risk scores in determining fully capitated payments;
3. Utilize a prospective PIP-DCG risk adjuster to estimate relative beneficiary risk scores;
4. Apply separate demographic-only factors to new Medicare enrollees for whom no diagnostic history is available;
5. Apply a rescaling factor to address inconsistencies between demographic factors in the rate book and the new risk adjusters;
6. Use 6 month old diagnostic data to assign PIP-DCG categories (the “time shift” model, as opposed to using the most recent data and making retroactive adjustments of payment rates part way through the year);
7. Allow for a reconciliation after the payment year to account for late submissions of encounter data;
8. Phase-in the effects on risk adjustment, beginning with a blend of 90 percent of the demographically adjusted payment rate, and 10 percent of the risk-adjusted payment rate in the first year (CY 2000); and
9. Implement processes to collect encounter data on additional services, and move to a full risk adjustment model as soon as is feasible.

   Comments or questions may be addressed to:

   Mr. James Hart
   Health Care Financing Administration
   C4-25-02
   7500 Security Boulevard
   Baltimore, Maryland 21244

In order to receive consideration prior to the March 1, 1999 announcement of Medicare+Choice capitation rates, comments must be received by February 15, 1999.

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Enclosures

Preliminary Estimate of the Increase in the National Per Capita Growth Percentage for 2000

The Balanced Budget Act of 1997 changed the payment methodology for determining payments to managed care plans. The new payment methodology is based on increases in the national per capita Medicare+Choice growth percentage as defined in Section 1853(c)(6). The current estimate of the increase in the national per capita Medicare+Choice growth percentage for aged enrollees in 2000 is 5.2 percent under present law. This estimate reflects an underlying trend increase in per capita costs of 5.8 percent, an adjustment of -0.5 percent (as required by section 1853(c)(6)(B)), and an adjustment for the fact that the current estimate of prior years aged Medicare+Choice growth percentage is 0.1 percent lower than the estimate actually used in calculating the 1999 rate book (as required by section 1853(c)(6)(C)). The preliminary estimate of the floor for aged beneficiaries in 2000 is $399.59, which represents a 5.2 percent increase over the 1999 floor of $379.84. This rate of increase for the floor includes for the first time an adjustment for the fact that the current estimate of prior years aged Medicare+Choice growth percentage is 0.1 percent lower than the estimate actually used in calculating the 1999 rate book (as required by section 1853(c)(6)(C)).

These estimates are preliminary and could change before the final rates are announced on March 1, 1999. Further details on the derivation of the national per capita Medicare+Choice growth percentage will also be presented in the March 1 announcement.

Changes in Methodology Since 1999 Rates: Risk Adjustment

A. Background

Since 1985, Medicare payments to risk contracting Health Maintenance Organizations (HMOs) for aged and disabled beneficiaries have been based on actuarial estimates of the per capita cost Medicare incurs paying claims on a fee-for-service (FFS) basis in a beneficiary's county of residence. (Medicare's costs in paying claims for beneficiaries with end-stage renal disease are not considered in these county estimates, but are treated separately on a statewide basis.) These county estimates have been adjusted for the demographic composition of that county (age, gender, Medicaid eligibility status, working aged status, and institutional status) in order to produce a figure representing the costs that would be incurred by Medicare on behalf of an average Medicare beneficiary living in that county. These county per capita payment rates, adjusted for the average beneficiary, have been published annually as the county rate book. Prior to January 1998, monthly payments to HMOs for each enrollee were based on this county rate book amount, adjusted for the enrollee's demographic factors. This methodology is known as the "Adjusted Average Per Capita Cost" (AAPCC) methodology, and HMOs with Medicare contracts under section 1876 of the Social Security Act (the Act) were paid on this basis between 1985 and 1997.

In enacting the new Part C of Title XVIII to create the Medicare+Choice program, the Congress provided, in a new section 1853 of the Act, for a new methodology for paying organizations that enter into Medicare+Choice (M+C) contracts. Under this new methodology, the equivalent of the above-described county rate book (that is, the county-wide amount that is adjusted by an individual enrollee's demographic status to determine the final payment amount) is based on the greatest of three amounts. The first amount is a new blended payment rate methodology that would combine local and national rates in setting county rates. The second amount is a new minimum specified rate amount (for example, $367 per month per enrollee in 1998). The third amount is based on a 2 percent increase over the prior year's rates, with the rate book for 1997 serving as the baseline. As in the case of the AAPCC methodology described above, monthly payments are the county rates under section 1853 of the Act, adjusted for the demographic status of each enrollee. Under section 1876(k)(3) of the Act, the new Medicare+Choice payment methodology under section 1853 of the Act applies to existing HMO contracts under section 1876 for 1998. This methodology continues to apply to these same organizations in 1999 to the extent that they have entered into Medicare+Choice contracts.

Section 1853(a)(3) of the Act requires the Secretary to develop and implement a new risk adjustment methodology to be used to adjust the county-wide rates under section 1853 of the Act to reflect the expected relative health status of each enrollee. This new methodology, which must be implemented by January 1, 2000, will replace the current method of adjusting county-wide rates based only demographic factors of age, gender, Medicaid eligibility, working aged status, and institutional status. The goal is to pay Medicare+Choice organizations based on better estimates of their enrollees' health care utilization relative to the fee-for-service (FFS) population.

While the Medicare+Choice legislation mandates the implementation of risk adjustment in general, the legislation provides the Secretary with broad discretion to develop a risk adjustment methodology that would "account for variations in per capita costs based on health status and other demographic factors." The Medicare+Choice legislation (section 1853(a)(3)(B) of the Balanced Budget Act) allowed for the collection of data other than inpatient hospital data only on or after July 1, 1998. This provision envisioned that a hospital-only system would be implemented initially, both because it seemed more feasible for plans to produce inpatient data only in the short term, and because the effect of a hospital-only system on payments would be smaller than a system based on comprehensive encounter data. (The Medicare+Choice regulations further provided that we would collect physician, outpatient hospital, SNF, or HHA data no earlier than October 1, 1999. See 42 CFR 422.257(b)(2)(i).) In previous public meetings on encounter data requirements, organizations have been briefed on the Principal Inpatient Diagnostic Cost Group (PIP-DCG) risk assessment model, created by HHS-sponsored researchers at Health Economics Research, Inc., Boston and Brandeis Universities, and the Harvard School of Medicine. The model has been updated using 1995 and 1996 Medicare data, and refined to exclude selected diagnoses and one day hospital stays. A preliminary risk adjustment methodology was published in the September 8, 1998 *Federal Register*. We received 34 letters commenting on the preliminary methodology. The remainder of this advance notice outlines our approach for implementation of risk adjusted payments on January 1, 2000, discussing both the risk adjustment methodology and the proposed risk adjustment payment model. This notice reflects several changes to the methodology in response to comments on the preliminary methodology.

In the development of all risk adjustment payment models, there are two tasks that must be performed: (1) the estimation of the risk adjustment model, and (2) application of the risk adjustment model to a payment system. The estimation of the PIP-DCG model is described first.

B. The Principal Inpatient Diagnostic Cost Group (PIP-DCG) Model

In constructing a risk adjustment model, it is important to determine which set of conditions should be used to adjust payments. Under the current AAPCC payment system, all enrollees are placed in a base group paid according to demographic characteristics. In the PIP-DCG risk adjustment system, hospitalizations are used as markers for a particularly ill and high cost subset of beneficiaries for whom higher payments will be made in the next year. However, the costs associated with beneficiaries who have been hospitalized for conditions used in the PIP-DCG system are no longer in the base payment category. Payments for people in the base payment category decrease as payments are increased for beneficiaries identified as high cost.

Because an inpatient hospital-based system depends on data from just one site of service, only a subset of conditions should be recognized for increased payments. That is, the system should recognize admissions for which inpatient care is most frequently appropriate and which are predictive of higher future costs. For example, admissions for diseases most commonly treated on an outpatient basis should remain in the base group and should not be used for upwards adjustment, since inclusion of these admissions would provide an inappropriate incentive for hospitalization.

The PIP-DCG model was estimated using diagnostic information for Medicare FFS enrollees from inpatient hospital stays during calendar year 1995, and Medicare costs in the following year. The sample used in the estimation analyses consisted of individuals included in the 5-percent sample of Medicare beneficiaries who were alive and enrolled in Medicare during all of 1995, and on January 1, 1996. Beneficiaries with certain characteristics (for example, HMO enrollees, end-stage renal disease enrollees, and new Medicare eligibles in 1996) were excluded from the analyses. In general, these exclusions were made to increase confidence that a complete set of Medicare claims for each beneficiary in the sample data set was included in the model development. The final estimation data set included approximately 1.4 million Medicare beneficiaries.

While the PIP-DCG model uses only inpatient diagnoses in creating the risk adjustment classification system, the model *predicts total expected costs* for the following year across multiple sites of services. Consequently, all Medicare expenditures, other than those for hospice care, were included in the calculation. Medicare expenditures for hospice care were not included because Medicare+Choice organizations are not responsible for hospice care. The model was estimated assuming no time lag between the base year (diagnostic information) and the predicted expenditures; that is, calendar year 1995 beneficiary diagnoses were used to predict calendar year 1996 expenditures.

1. From Diagnosis Groups (DxGroups) to PIP-DCGs

Diagnostic classification: The risk adjustment model estimation process begins with a classification system, forming the inherent logic of the model. For the PIP-DCG model, principal inpatient diagnoses are classified into diagnosis groups (DxGroups). The DxGroups comprise an exhaustive classification of all valid International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnostic codes. The primary criteria in forming the DxGroups were clinical coherence and an adequate sample size to estimate average expenditures. Beneficiaries with multiple different inpatient diagnoses could have multiple hospital stays, and would potentially be assigned multiple DxGroups.

Creation of PIP-DCG groups: Next, DxGroups were aggregated into payment groups, or PIP-DCGs, using a sorting algorithm that ranked DxGroups based on 1996 actual expenditures. Highest expenditure DxGroups were grouped into the "highest" PIP-DCG. Once beneficiaries with the highest costs were placed into a DxGroup, those beneficiaries and all their associated expenditures were removed from the data for other DxGroups and then the DxGroups were re-ranked. The DxGroups with the next most costly diagnoses were grouped into the next highest numbered PIP-DCG, and those beneficiaries were removed from the remaining DxGroups. The process was repeated until each beneficiary and his or her expenditures were assigned to a single PIP-DCG group. Beneficiaries with multiple inpatient diagnoses were placed in their highest expenditure PIP-DCG group.

In this way, each PIP-DCG group was defined according to average total expenditures for beneficiaries with inpatient diagnoses, which were first categorized, grouped, and sorted using the DxGroups. Based upon this sorting algorithm, more than 20 initial PIP-DCGs were defined. Lower average expenditure PIP-DCG groups had lower cost ranges (or intervals), while the highest average expenditure PIP-DCG groups had wider ranges.[1]

2. Modifications to the PIP-DCG Model

Admissions not selected for higher payment: After the initial sorting of DxGroups into PIP-DCG groups was complete, a clinical panel reviewed the placement of the DxGroups and their resulting predicted expenditures, to determine the appropriateness of their application in a payment model. Through this process, 75 DxGroups (covering about 1/3 of the admissions) were identified as: (1) representing only a minor or transitory disease or disorder, not clinically likely to result in significant future medical costs, (2) rarely the main cause of an inpatient stay, or (3) vague or ambiguous. These groups, as recommended by the clinical panel, were identified as those most likely to result in inconsistent or inappropriate reimbursements and were placed (with their associated expenditures) in the base payment category (for which the payment is a function of demographic factors). Examples of these groups include the DxGroup for fluid/electrolyte disorders and malnutrition. Though the treatment for individuals with this diagnoses is often quite costly in the following year, the diagnosis is clinically vague and, therefore, represented a likely target for coding "creep." The clinical panel concluded that many of the sickest individuals with this diagnosis were likely to have another more specific hospitalization that would trigger appropriate increased reimbursements. Then, the remaining DxGroups were resorted and placed into revised DCGs for the payment model. A total of 15 PIP-DCGs (above the base payment category) are included in the final payment model. Costs for persons with excluded admissions, as well as no admissions, are included in the demographically-based payment amounts, as they are under the current Average Adjusted Per Capita Cost (AAPCC) system.

Short stays: As a second strategy to ensure consistent and appropriate payment levels, beneficiary diagnoses reported as a result of a short hospital stay (1 day or less) were left in the base payment category. Since the majority of 1-day stays are for diagnoses already assigned to the base group, the effect on payment is small. Also, short stays are often indicative of less serious, and, hence, less costly cases. It is important to note that these modifications do not mean that these expenditures have been excluded from the model. Rather, the payments associated with these diseases are captured in increased payments for the base payment category.

Industry concerns: We received a number of comments (based on the September 8, 1998 *Federal Register* notice) regarding this decision to "exclude" 1 day stays from the final PIP-DCG groups. Related comments expressed managed care industry concern that a risk adjustment model based only on inpatient diagnoses, particularly one which further excludes short stays, would disadvantage some plans and not provide "credit" for management on an outpatient basis. In response, we must stress that the purpose of the PIP-DCG model is to serve as an interim step towards implementation of a comprehensive risk adjustment model (i.e., one which uses diagnoses from all sites of service). The current AAPCC model makes no adjustments for level of illness, chronic or otherwise. The goal of the PIP-DCG model is to offer a significant improvement over the current system by identifying a relatively small group of high cost, serious illnesses, and provide a marginal additional payment appropriate for these seriously ill beneficiaries.

Another rationale for the exclusion of one day stays was to limit possible "gaming" of the new payment system. Plans that might convert treatment of some diseases from outpatient to one day admissions, increase the frequency of short "observational" stays, and otherwise increase the use of short hospital admissions for marginal diagnoses, would trigger potentially large increases in payments for relatively low cost (the costs associated with a one day hospital stay). To further refine the model as a method of identifying the sickest individuals, and to discourage the

[1] The PIP-DCG groupings were further refined using a number of criteria. First, each original PIP-DCG group retained its identity in the final payment model only if it contained at least 1,000 beneficiaries in the original sample; this minimum sample size was defined to assure stability of estimated payments in the model. If sample sizes were smaller than 1,000, the potential PIP-DCG was expanded to include DxGroups with average expenditures in the next lower range until the sample size was satisfied. If at any time during the sorting algorithm a DxGroup had fewer than 50 beneficiaries assigned to it, it was assigned to the base payment category. This base payment category also included all beneficiaries (and expenditures) for whom there was no Inpatient diagnosis during 1995.

potential payoff for gaming, we excluded one day stays of any diagnoses for the purpose of triggering increase PIP-DCG payments.

We placed in the base payment category all vague, non-predictive, and/or marginal diagnoses, as well as diagnoses resulting from 1 day stays. As a result, only a subgroup of seriously ill beneficiaries is identified for increased payments. In restricting the adjustment to a small proportion of beneficiaries, the system makes a smaller change to the current demographic-only system than would be made by a system that takes into account all patient encounters. This attribute of the PIP-DCG system, however, makes it an ideal starting point for implementation of risk adjustment. It is important to recognize that, on average, payments for all beneficiaries remaining in the base category (88 percent of all beneficiaries) are based on demographics, as in the current system. To the extent that Medicare+Choice organizations have had favorable selection when payment is based on demographics, we will continue to overpay for this group. However, this overpayment would be reduced.

In regard to plans' concern about the bias in the PIP-DCG system against outpatient management of chronic illnesses and higher incidence of short stays, we agree that a comprehensive model is preferable, and we plan to move toward implementing such a model as expeditiously as possible. However, implementation of the comprehensive risk adjustment model is not operationally feasible for 3 to 4 years, because of data constraints on both plans and HCFA. In the interim, the PIP-DCG model offers a substantial improvement over the current system.

Diagnostic exceptions: Under the final payment PIP-DCG model, beneficiaries who are hospitalized for chemotherapy (ICD-9 codes V58.1 and V66.2) are treated as exceptions. These codes are indicators of a treatment method, rather than a particular disease. Recognizing, however, that Medicare's current inpatient coding rules require that the diagnoses for beneficiaries who are hospitalized for chemotherapy must be coded using these V-codes as the principal diagnoses, the most appropriate PIP-DCG group for these beneficiaries would be assigned based on the type of cancer, using a secondary diagnosis. In addition, the final payment model also treats individuals diagnosed with AIDS as an exception. In this case, individuals with a secondary diagnosis of AIDS will be placed in the same PIP-DCG group as individuals with a reported principal diagnosis of AIDS. The rationale for this decision is HCFA's analysis showed that individuals with a secondary diagnosis of AIDS tended to have expenditures close to those admitted explicitly for the treatment of AIDS.

The final mapping of the DxGroups to the PIP-DCG groups is shown in Table 1.

3. Addition of Demographic and Other Factors

Age and Sex: Twenty-four age/sex cells were included that mirror the splits currently used in Medicare's current demographic adjustment methodology. For the purposes of calibrating the model, beneficiaries are assigned to more than one age cell if they aged into a new cell during 1996. For example, a beneficiary aged 69 on January 1, 1996 but who turned 70 years old later in 1996, is assigned to both the 65-69 and the 70-74 age cells as a fraction of eligible months in each cell. The value of the age/sex variable is the fraction of 12 months the person is in that cell. Payments for all months are thus set to the weighted average of the two payments and no change is necessary in the birthday month.

In the development of the final payment model, we also considered the inclusion of other demographic variables. The purpose of including other demographic independent variables was to take into consideration the unique cost implications of characteristics not related to admissions, and to increase the accuracy of the payment estimates for subgroups of the Medicare population. The additional independent variables considered for inclusion were:

- Originally disabled;
- Medicaid status;
- Institutional status; and
- Working aged.

Originally disabled: A beneficiary is defined as originally disabled if he is currently entitled to Medicare as an aged beneficiary, but was originally entitled by reason of disability. The other variables are currently used in Medicare's demographic adjustment methodology, although not necessarily in the way proposed here.

Preliminary analyses showed that Medicare expenditures for beneficiaries who were originally disabled or Medicaid enrolled were substantially higher than predicted by age, sex, and principal hospital diagnoses. Data on these characteristics for beneficiaries are available in HCFA administrative files. Analyses showed that if these factors were not taken into consideration in the calibration, the model would not predict the average expenditures of several important, and higher-cost, Medicare subgroups.

In the demographic model currently used by Medicare, originally disabled is not a risk factor. Rather, a separate rate book has applied to the currently disabled population. However, we reasoned that the originally disabled may have higher Medicare expenditures than those who were not "originally disabled" (i.e., the elderly who were never entitled by reason of disability). Versions of the PIP-DCG model which did not include factors accounting for original reason for entitlement exhibited a predicted payment reduction when a disabled 64 year-old became classified as aged at age 65.

In the payment model, the originally-disabled variable is added interactively with the age/sex cell variable. This means that for a given age/sex cell, predicted costs vary between those who were originally disabled and those who were not originally disabled. Alternatively, it allows for the possibility that the trajectory of expected costs as beneficiaries age could differ between the originally disabled and those not originally disabled.

Medicaid eligibility: Currently, Medicaid status is a concurrent adjustment factor for Medicare capitation payments. That is, a Medicare beneficiary is placed into an AAPCC "rate cell" payment category each month based on his or her current Medicaid enrollment status. For the purposes of risk adjustment, we defined Medicaid status as enrollment in Medicaid in any single month during the diagnosis year (e.g., all or part of 1995). Thus, in the risk adjustment system, beneficiaries who are Medicaid-eligible at any time during the data collection year will be eligible for the Medicaid payment increment for the entire payment year; payments will no longer vary according to month-to-month Medicaid eligibility in the payment year. This variable is also included interactively with the age/sex cell variable.

Institutional status: Another independent variable considered for inclusion was institutional status. We received a number of comments regarding the inclusion of an institutional adjustment; because of this level of interest, our analysis of the issue will be presented in some detail. Institutional status is currently used in the AAPCC methodology as a concurrent risk adjuster. For each prior month in a certified institution, a beneficiary is paid at the higher institution rate cell amount the following month. It is included as a marker for higher expected concurrent cost. The concern expressed by the commenters is that we will be underpaying for these beneficiaries if we do not make a similar concurrent adjustment in the new system.

In analyzing this issue for the purpose of risk adjustment, we also defined institutional status concurrently, as the fraction of the prediction year institutionalized, i.e., the number of institutional months in the prediction year divided by the number of Medicare eligible months. Because it is very difficult to identify long-term institutional care in claims data, the effect of institutional status was estimated using three concatenated years of the Medicare Current Beneficiary Survey (MCBS), from 1992 to 1994.

There is great variation in Medicare costs for institutionalized beneficiaries across types of institutions. Certified institutions under HCFA's definition include both post-acute and long-term care facilities. Post-acute care facilities include Skilled Nursing Facilities (SNFs). Long-term care facilities include nursing homes, mental health facilities, and Intermediate Care Facilities for the Mentally Retarded (ICF/MRs). Three quarters of the institutionalized are in nursing homes. Half of the remainder are in SNFs or the SNF/nursing home combination. About 7 percent are in ICF/MRs, and 3 percent are in mental health facilities.

Our analysis using MCBS data showed that the PIP-DCG model accurately predicts the average costs of the entire group of institutionalized beneficiaries. This suggests that there is no need for an institutional factor. However, our analysis also showed that mean actual Medicare payments for those in post-acute care facilities are far greater than those for long-term care facilities. In Medicare, a SNF stay requires a preceding hospital stay. The payment system is designed to pay premiums that are correct on the average for groups of enrollees. It does not pay based on actual events in the payment year. If we did so, we would also recoup payments for those who incur very low costs in the payment year. Thus we do not pay more for the particular group that spend some time in a SNF. While those in long

term care facilities incur more costs than average Medicare beneficiaries, they incur less costs than predicted by the PIP-DCG model. An institutional factor for this population would actually be negative if implemented. The incentives for identifying the long term institutionalized and reporting on this group are low when the result is a payment reduction. We have therefore decided not to pay based on this site of service. There are relatively few enrollees in this group and the overpayments will be small.

Given these considerations, we have decided not to include an institutional status factor in the payment model.

4. The Current PIP-DCG Model

To estimate the final coefficients of the PIP-DCG calibration model, HCFA regressed annualized 1996 expenditures on the 15 PIP-DCGs, age/sex groups, originally disabled status, and Medicaid status. The model is specified so that there is a separate variable for each age/sex group. To this there is an additional vector of age/sex variables for those who were originally disabled, and a vector of age/sex variables for those who were Medicaid enrollees. The final PIP-DCG payment model is shown in Table 2.

The regression yields payment estimates based upon fee for service data. It is important to note that these payments are not the payments that will be made to the M+C plans. Payment under the Medicare system will be based upon county rates (as published in the Medicare+Choice rate book) as mandated by BBA. These payment amounts estimated here will be converted into relative risk factors, which in turn modify the appropriate county rate according to the characteristics of the individual Medicare+Choice enrollee. The following discussion pertaining to predicted payments is, therefore, for purposes of illustration.

Increased payments for PIP-DCG categories: The coefficients for PIP-DCGS 5 through 29 show the *marginal* expenditure/payment for a person with a 1995 principal in-patient diagnosis placing them in that PIP-DCG (see Table 2). For example, a 73 year old woman with a single 1995 admission for `Precerebral Arterial Occlusion' is in PIP-DCG8, implying an annualized 1996 payment of $2,998 (age/sex coefficient) + $4,192 (PIP-DCG 8 coefficient) = $7,190.

Higher numbered PIP-DCG yield higher payments. Altogether, persons in PIP-DCGS 5 through 29 comprise approximately 12 percent of the sample, and 68 percent of sample persons hospitalized in 1995. In other words, the payment PIP-DCG model uses principal hospital diagnoses to risk adjust payments for about 12 percent of all Medicare beneficiaries; the other 88 percent are risk adjusted only by age, sex, and other demographics, much as they are under the current system. Of those hospitalized, 68 percent receive increases in payments in the following year.

Medical education: For the purposes of estimating the final payment factors, it would have been ideal to exclude all Graduate Medical Education (GME) payments (i.e., both indirect and direct medical payments) to hospitals from the 1996 expenditure amounts, but it was not possible to do so. The BBA specifies that GME amounts are to be "carved out" of capitation payments to M+C plans (over a period of 5 years, with full carve out achieved in 2002), and paid directly to teaching hospitals. Through a relatively simple algorithm, it was possible to remove the indirect medical payments, which reflect approximately two thirds of total GME payments. Though a portion on GME therefore remained in the costs used for model calibration, there is little effect on payments. It is important to note that the PIP-DCG model is used to compute relative factors only. GME payments will be removed from the rate book amounts in accordance with the requirements of the BBA.

Decedents: To correctly estimate monthly payments for all beneficiaries, including people who died or entered a hospice during 1996, we used a process of weighting by Medicare eligible months in the prediction year. First, annualized 1996 payments were calculated as actual total 1996 payments divided by the fraction of the year each beneficiary is alive or not enrolled in a hospice. This yielded an average monthly cost. Annualized payments were then defined as 12 times the average monthly cost. These annualized payments were then weighted by the fraction of the year the beneficiary was eligible for Medicare. This process avoids the dilution of costs typically associated with decedents in their last months of life. The process of annualizing and weighting observations resulted in unbiased estimates of the average and total payments for a group in which individuals are eligible for different fractions of the year.

Data collection and time lags: The final payment model was calibrated assuming no time lag between the data collection period (using diagnoses collected between January 1, 1995 through December 31, 1995) and the predicted payment year (beginning January 1, 1996). While this approach results in model coefficients with the maximum predictive accuracy, it also introduced difficult operational issues; under this approach, retroactive payment adjustments would be necessary because encounter records would still be flowing in for some months of the payment year.

An alternative approach proposed in the September 8, 1998 *Federal Register* notice, called the "time shifted" model, uses data from an earlier period (for example, July 1, 1998 through June 30, 1999) to determine the risk factor for enrollees and payments to Medicare+Choice organizations for calendar year 2000. However, calibration of the model continues to assume no data lag. Using data from an earlier time period introduces some error into the estimates, but we do not believe it introduces any systematic bias. Assuming a relatively large and stable population for a plan, aggregate payments under this approach are not likely to differ from aggregate payments using a method requiring retroactive payment adjustment. On an individual basis, using data from an earlier time period lengthens the time between a hospital stay for an enrollee and compensation to the organization based on the stay, but also continues the higher payment beyond the time it would be paid in a non-shifted system.

In the September 8, 1998 *Federal Register* notice, HCFA asked existing risk contractors for comments on: (1) problems Medicare+Choice organizations might encounter with retroactive payment adjustments, and (2) problems organizations might encounter, if data from an earlier time period were used. Comments received on the *Federal Register* notice almost unanimously favored the time shifted model**.** The commenters specifically mentioned the following reasons for preferring this model:

- Both plans and their providers would find it easier to understand and administer financial interactions if individual risk scores were known before the start of the contract year.
- Retroactive adjustments would increase payment uncertainty for M+C organizations. In particular, M+C organizations would not know their final per enrollee payments for a year until several months after the ACR for the following year was filed. In addition, providers with percentage-of-premium contracts could experience mid- year adjustments that could require changes to reimbursements for individual providers.
- Implementation of retroactive adjustments would also require additional changes to HCFA's payment systems which would not be required under the alternative. Such changes would not be easy to accomplish in the current implementation schedule.

We agree with the commenters who recommended that we not adopt the retroactive model at this time. We are persuaded that the increased administrative burdens and greater uncertainty about payment levels render this option unacceptable for the present. Moreover, we do not believe that implementation of this option, using the current PIP-DCG model, would create any systematic bias at the level of the aggregate payment to a plan.

5. Technical refinements to the calibrated model

Before we turned this estimated model into a payment system, a number of technical refinements were incorporated, including the development of factors for two sub-populations not addressed in the calibration of the model: the working aged and the newly entitled.

Working Aged Adjustment: The PIP-DCG model was calibrated using Medicare beneficiaries not covered by employer or other group policies. For beneficiaries with employer insurance, Medicare is the secondary payer and its liability is much smaller than for those who are not working. Using administrative data, it is estimated that, on the average, Medicare's liability for the working-aged is 21 percent of the liability for those for whom Medicare is the primary payer. Therefore, payments made to beneficiaries in this status were reduced to 21 percent of what they would have been.

Demographic-only factors for new enrollees: As described earlier, the model was calibrated using only beneficiaries for whom Medicare data existed in 1995 and 1996. One implication of this model is that it requires diagnoses in the year before payment is made. Therefore, the model cannot predict expenditures for beneficiaries for whom Medicare does not have diagnosis data. The Medicare program cannot compile diagnosis data on beneficiaries for the year

before they enter the program. Thus, no prior diagnosis information exists for the new disabled beneficiaries and age-in beneficiaries. Predicted expected cost estimates were derived for these beneficiaries using only demographic factors.

Two similar, but different methods were used to predict expenditure estimates for the age-ins in the 65-69 age groups and other new eligibles. Those age 70 and above, and those under 65, were assigned the mean predicted expenditure for beneficiaries in the same age/sex/Medicaid status cell. For the age-ins between age 65 and 69, a different procedure was used because the mean predicted value for the age bracket was based mainly on persons 67-69 years old in 1996. Actual expenditures in 1996 for persons 67-74 years old were computed and used in a regression to predict the missing age groups. For all new enrollees, payments based on Medicaid eligibility will be made retroactively, once enrollment can be established and verified.

Actuarial graduation of the final payment model factors: HCFA's Office of the Actuary revised the age/sex demographic coefficients. Upon review, the age/sex coefficients for the originally disabled, and Medicaid recipients were found to be somewhat irregular in pattern. This pattern, if uncorrected, would have led to irregular changes in payments as beneficiaries in these groups aged. Therefore, these coefficients were refined by HCFA actuaries so that the predicted payment patterns across age groups within each of those categories was smoothed. Several generally accepted actuarial techniques were used to smooth each set of factors. The actuarial techniques used were graduation, regression, interpolation, and judgment. The type of graduation used was Whittaker-Henderson which smoothed the raw payment amounts using a minimization formula based on a linear combination of fit versus smoothness. The fit part of the expression is the summation of the squared differences between the raw data and the smoothed data. The smoothness part of the expression is the summation of squared third differences which approximates a quadratic function. Each of the fit and smoothness component of the formula is minimized simultaneously. Also, the graduation uses weights for each age group and the weights represent the number of Medicare beneficiaries in each cell.

Further detail on the PIP-DCG payment model: Two additional sources of information are available on the final PIP-DCG payment model. Located on HCFA's external Web site (http://www.cms.hhs.gov/healthplans/rates/) are: (1) basic SAS software for the PIP-DCG grouper, and (2) a detailed text file of the mapping of ICD-9-CM codes to DxGroups, and finally to PIP-DCGs. These files are made available for information purposes, but are subject to minor modifications prior to the annual announcement of payment rates to be issued on March 1, 1999. Also, no technical support is available from HCFA for organizations who decide to utilize the SAS version of the PIP-DCG grouper.

C. Proposed Payment System Application of the PIP-DCG Model

In its basic form, the PIP-DCG model is an algorithm that uses base year inpatient diagnoses, along with demographic factors, to predict total health spending in the following year. In applying the PIP-DCG model to risk adjust payments for the Medicare+Choice program, however, the model will be used to determine relative risk factors. To derive the relative risk factors, predicted expenditure estimates from the model are divided by the mean predicted expenditures for FFS beneficiaries. Currently, we estimate this mean to be $5,100, though final refinements to this figure are possible prior to the annual announcement of payment rates on March 1, 1999. Because the predicted expenditures are used in the form of relative ratios, applied to the rate book, payments are not sensitive to the year of the expenditure data used in the calibration. These relative risk factors will be used, in place of the current demographic factors, to adjust county rate book amounts for the relative health status of the individual enrollee.

1. Estimating Beneficiary Relative Risk Factors

The PIP-DCG model was developed to be "additive", meaning that incremental dollars are added based on beneficiary characteristics. Referring to Table 2, the following examples illustrate how the PIP-DCG model will be used for estimating relative risk factors.

Examples: In this example, Beneficiary A was hospitalized twice during the base year. The diagnoses reported were Asthma (PIP-DCG 8) and Staphylococcus Pneumonia (PIP-DCG 18). The highest PIP-DCG category then for this beneficiary is PIP-DCG 18, which carries with it an estimated future year expenditure of $13,547. The beneficiary is

also placed in the appropriate demographic group. In this case, Beneficiary A is male, aged 82. This age group carries an estimated expenditure of $5,495. In addition, Beneficiary A had originally been Medicare eligible because of a disability (which carries an incremental expenditure of $1,462), but is not eligible for Medicaid (no expenditure increment). Adding together these increments based on the PIP-DCG model, the predicted expenditures for this beneficiary are $20,504.

Beneficiary B had no inpatient admissions during the base year. Therefore, no specific PIP-DCG increment is added; expenditures for non-hospitalized beneficiaries are included in the demographic factors. Beneficiary B is placed in the appropriate age and sex grouping; in this case, female, aged 69, which carries a predicted expenditure of $2,310. Beneficiary B is also placed in the Aged with Medicaid eligibility group, which adds $2,207 to her annual predicted expenditures. Since she has never been disabled, no additional expenditures are added. Therefore, total annual predicted expenditures for Beneficiary B are $4,517.

Because Medicare+Choice program payments are based on the county-wide rates determined under section 1853(c) of the Act, the predicted annual expenditures described above will be converted to relative risk factors. This is accomplished by dividing the predicted expenditures for each beneficiary by the national average predicted expenditure (currently estimated at $5,100). Individuals whose risk factors are equal to 1.00 are "average." In the examples described above, Beneficiary A's relative risk factor is 4.02 (indicating a high expected cost individual), while Beneficiary B's relative risk factor is 0.89 (indicating a slightly lower than average risk individual). The risk factors for new enrollees would be determined in the same manner, though separate age/sex and Medicaid factors derived for these beneficiaries are used. (See the section on *Demographic-only factors for new enrollees* above.)

Assignment of risk factors: After Medicare+Choice organizations submit inpatient hospital encounter data for the payment year, we will use the demographic information and diagnostic information from all Medicare+Choice organizations a beneficiary may have joined and from FFS to determine the appropriate risk factor for each beneficiary. It is at this point that information regarding beneficiary Medicaid eligibility (in any single month during the diagnosis data collection year), original reason for Medicare entitlement (originally disabled) for any one month, identification as a new enrollee, beneficiary age, sex and working-aged status (beneficiary covered under a employer insurance) are determined using Medicare administrative data files, and are used along with inpatient diagnostic data to assign the appropriate risk factor.

When a Medicare+Choice organization forwards beneficiary enrollment information to HCFA, we, in turn, will send the organization the appropriate risk factor for the beneficiary, as well as the resultant payment. Because the risk factor is *computed for each individual beneficiary for a given year*, the factor follows that beneficiary. In addition, since all beneficiaries will have risk factors, information will be immediately available for payment purposes as beneficiaries move among Medicare+Choice organizations.

2. Risk Adjusted Payment Model

To determine risk adjusted monthly payment amounts for each Medicare+Choice enrollee, individual risk factors (described above) will be multiplied by the appropriate payment rate for the county determined under section 1853 of the Act. To make this calculation appropriately, an adjustment to these rate book amounts will be required before applying the risk adjustment factors discussed above. This adjustment, or rescaling factor, is necessary in order to account for the fact that the existing county rate book is already scaled to the set of demographic factors used under the current system, but not to the risk factors we will be using under the new system. If the PIP-DCG model risk adjustment factors were applied to unadjusted county rate book amounts, this would create inaccurate payments inconsistent with Congress' mandate in section 1853 of the Act.

The application of the rescaling factor in effect translates the rate book amounts into the same language used under the risk adjustment methodology. As a result of rescaling, payment using the risk-based rate book for a person with the average risk factor in a county would be the same as payment for a person with the average demographic factor in that county using the original demographic-based rate book. (However, a person with the average demographic factor does not necessarily have the average risk factor.) To the extent that an organization enrolls sicker people, the organization will receive higher payments. By itself, the rescaling process is payment neutral (which is <u>not</u> the same as budget neutrality). That is, the apparent effects of the rescaling factor on the resulting county rates is exactly

offset by the estimated effects of moving from demographic to risk factor standardization in assignment of individual enrollee factors. By itself, rescaling does not raise or lower payments. Whether aggregate payments to a plan increase or decrease depends upon the risk profile of the beneficiaries enrolled in the plan.

3. Calculation of the Rescaling Factor

The essential purpose of the implementation of risk adjustment is the *substitution* of individual enrollee demographic factors with a new individual enrollee risk adjustment methodology. But this substitution should take place in *two* places: in the standardization of county rates, and in the method of estimating relative risk of individual enrollees. BBA modifications to the rate book make a direct rate book standardization substitution difficult because the 1997 demographic AAPCC rates are the basis for future rate books.

Demographic standardization: The old (demographically-based) AAPCC rate book represented the cost to Medicare in a given county for the national average beneficiary measured demographically. County rates were calculated by dividing county per capita costs by county average demographic factors. Prior to BBA, these rates were updated annually. However, because of BBA modifications, all Medicare+Choice county rates have their basis in the 1997 AAPCC Rate Book. Thus, the factors used in calculating this 1997 Rate Book are "locked in" - including the average county demographic factors. Also, the 2 percent minimum increase must be based on the prior year's rates.

Risk factor standardization: Despite these policy complications, it is important to apply the new enrollee risk adjustment methods to an appropriately standardized rate book. This is the case because, if we were to shift from an enrollee *demographic* factor to *risk-based* adjustments, while maintaining the factors underlying the current rate book, a critical inconsistency would be created in the overall payment methodology. The risk adjustment methodology adds disease information to purely demographic information. Though attempting to measure the same thing -- relative health status -- the range of factors for the demographic-only and risk factors differs. This is in part simply because the measurement range (or "ruler") of risk factors exceeds that of the old demographic-only factors, and because the new risk factors are able to distinguish differences in health status more accurately. However, because the "rulers" differ between demographic and risk factors, a technical modification is necessary for payments to remain methodologically correct. Without some adjustment, this inconsistency between the standardization factors used in the county rates and the enrollee risk factors will result haphazardly in either significant underpayments or overpayments, depending on the county.

Example: The best way to illustrate the problem is through the following hypothetical example. Assume that, under the old AAPCC methodology, the average county demographic factor for county A was 1.0, indicating that, based on demographic factors, Medicare beneficiaries in "A" were at the national average. However, under the new risk adjustment methodology to be implemented under BBA, the average risk factor for county "A" is 1.3, indicating under this new measurement system that "A" county Medicare beneficiaries are "sicker" than the national average. In both cases, the same population is being measured during the same year - it's just that the "rulers" are different.

This difference in rulers -- left uncorrected -- would result in erroneous payments in the following way. Consider a Medicare beneficiary living in county "A" who has a number of health problems, but whose risk factor is the same as the county average (1.3). Without any correction, the risk adjusted payment system will pay 1.3 times the rate book amount. Assuming monthly per capita costs in county A were $600, the demographic rate book amount would be $600 divided by 1.0 (the average demographic factor in county A), or $600. In other words, under the current system, beneficiaries with demographic factors equal to the county average would be paid $600. Payments under risk adjustment, however, would be 1.3 times $600, or $780.

If the rate book were recomputed according to the average risk factor in the county (1.3), the rate would be $600 divided by 1.3, or $462. Payment for this average individual would then be $462 times 1.3, or $600. This is the correct amount for the average person in county A.

Potential underpayment for some beneficiaries would also occur in the absence of rescaling. For example, assume that the average county demographic factor in hypothetical county "B" is 1.1, or just slightly above the national average. Assume as well that the average county risk factor is estimated at 0.9, indicating a slightly healthier than average beneficiary population compared to the national average. For a Medicare beneficiary residing in county "B,"

who is equal to the county average of 0.9, a significant underpayment would result. Assuming per capita costs of $500, the demographic rate book would be $500 divided by 1.1, or $455. Risk adjusted payment for the average person would be .9 times $455, or $410. This is significantly less than the $500 that would be appropriate for the average person in county "B." If the rate book were appropriately rescaled, the rate book amount would be $500 divided by .9, or $556. A beneficiary with the average county risk factor of .9 would therefore receive a risk adjusted payment of .9 times $556, or $500.

Use of a rescaling factor: The most direct and accurate way to fix this problem would be to calculate both the average county and individual enrollee factors on the same scale - as originally done when both were calculated using demographic factors. Unfortunately, this is not possible since the rate book (including the demographic basis for the average county factor) is set by law. However, a "county rescaling factor," which is part of the risk adjustment methodology, places both the county and enrollee factors back on a comparable scale. The rescaling factor for each county will be defined as the ratio of the following:

County Rescaling Factor = (Risk County Rate) / (Demographic County Rate)

The denominator of this ratio (the demographic county rate) is simply the county rate calculated under the current system. The numerator (risk county rate) is the county rate properly standardized to the new risk adjustment factors. The calculation of these restandardized rates, resulting in risk-based county rates, require a number of steps. The process described here is somewhat simplified, though it provide sufficient understanding for the purpose of explaining the county rescaling factor.

Method for calculating county rescaling factors: First, average county risk factors (using the payment PIP-DCG model, and computed for each county for years 1994, 1995 and 1996, based on 100 percent Medicare FFS data) were developed. The average county risk factors replace the average county demographic factors found in the AAPCC rate book. The average county risk scores were calculated from the 1994, 1995, and 1996 data, except for counties with small numbers of Medicare beneficiaries where adjustments were made. HCFA's Office of the Actuary (OACT) calculated combined Aged, Disabled, Parts A and B per capita costs for 1997. These combined county costs were standardized by the average county risk factors, making new local restandardized rates. From these new local rates, OACT applied the mandated calculations (e.g. blends/floors,/2 percent increase, budget neutrality, medical education carve outs, etc), consistent with BBA requirements. This process will be used to create a risk rate book, which could be used (in the numerator in the rescaling factor) to determine payments beginning in 2000.[2]

There will technically be two rescaling factors for each county: one to rescale payments for aged enrollees, and the other for disabled enrollees. For example, in a given county, the rescaling factor used in payments for an aged beneficiary is defined as:

(Risk County Rate) / (Aged Demographic County Rate)

For disabled beneficiaries, the ratio is:

(Risk County Rate) / (Disabled Demographic County Rate)

What differs in each case is only the denominator. Additional information on average county risk factors is available at HCFA's Web site (http://www.cms.hhs.gov/healthplans/rates/). A file containing estimated county risk factors for the purpose of creating a 1997 risk rate book is posted on the Web site. However, minor revisions to the average county risk factors are possible prior to the annual announcement of payment rates on March 1, 1999.

Payment system application: Risk adjusted payment amounts for enrollees will thus be calculated as follows:

[2] It is important to note that, because of the blend transition policy, payments in 2000 will be based in part on the risk rate book and in part on the demographic rate book.

Payment = Demographic County Rate * [(Risk County Rate)/(Demographic County Rate)] * Enrollee Risk Factor

Although it is cumbersome, this approach preserves BBA requirements while assuring that payments are a function of the enrollee risk factor and the appropriately scaled risk rate book. Preserving the demographic rate book also facilitates implementation of a transition payment system that phases in the new system in stages.

4. Transition Policy

Many commenters on the *Federal Register* notice recommended that HCFA either delay implementation of risk adjustment, or provide for a transition period as part of our risk adjustment methodology. The commenters requesting delay were especially concerned about basing initial risk adjustment on inpatient hospital data only (the PIP-DCG model), which would not reflect conditions normally treated in ambulatory settings and which could encourage unnecessary hospitalizations. Those advocating a transition expressed concern about the potential for large fluctuations in payments to organizations as a result of implementing risk adjustment. These commenters mentioned either risk corridors or a blend methodology as possible transition strategies.

We do not believe that it would be desirable to delay implementation of risk adjustment. Even if we believed that delaying risk adjustment were desirable, however, the agency does not have the authority to do so. The Balanced Budget Act specifically requires "implementation of a risk adjustment methodology... no later than January 1, 2000." In order to meet that deadline, we are constrained to employ a model based on hospital encounter data alone in the interim until the data to implement a comprehensive risk adjustment methodology can be provided by all plans and processed by HCFA. However, the statute grants us broad authority to develop a risk adjustment methodology, and does not prohibit us from including a transition or "phase-in" period as a component of the methodology we develop. In cases in which Congress has specified a change in methodology by statute, rather than granting HCFA the authority to develop the methodology, Congress has included a transition period as a component of the methodology spelled out in the statute (e.g., the physician fee schedule). In other cases, we have built a transition period into regulations providing for payment changes where Congress did not specify a methodology in detail (e.g., the prospective payment system for hospital capital-related costs). In this case, a transition period would not only insure against abrupt swings in payment rates, but could permit HCFA to incorporate non-inpatient encounter data before the maximum impact of risk adjustment takes effect.

We have decided to include a transition period as a component of our risk adjustment methodology, initially using a blend of payment amounts under the current demographic system and the PIP-DCG risk adjustment methodology. Under a blend, payment amounts for each enrollee would be separately determined using the demographic and risk methodologies (i.e., taking the separate demographic and risk rate books and applying the demographic and risk adjustments, respectively). Those payments amounts would then be blended according to the percentages for the transition year.

We have decided to adopt the blend methodology without risk corridors for a number of reasons. One reason is that a blend methodology is both familiar from several previous transitions (e.g., both operating and capital PPS) and easily comprehensible. It also provides the most straightforward manner of proceeding from payment based fully on demographic adjustments to full risk-adjusted payment.

We believe that a blend methodology alone more effectively promotes the goals of risk adjustment during the transition period. To varying degrees, any transition method would weaken the goal of paying more appropriately for the health status of beneficiaries and encouraging plans to engage in less risk selection. Under the blend transition method, there is no full risk adjustment for any enrollee until the end of the transition period. Thus, a blend provides lower payment for enrolling sicker beneficiaries than there would be under full risk adjustment. However, organizations would still receive additional payment proportionate to the blend percentage for enrolling sicker beneficiaries. We believe that the blend method can provide adequate safeguards against abrupt changes, in particular by providing initially for a low blend percentage of the risk-adjusted payment rate. We have therefore decided that the first year blend percentages will be 90 percent of the demographically adjusted rates, and 10 percent of the risk-adjusted payment rate. We have also decided to implement a five-year transition, which will culminate in

full implementation of comprehensive risk adjustment, using all encounter data, in the fifth year. Specifically, we have decided upon the following transition schedule:

CY 2000	90 percent demographic method	10 percent PIP-DCG method
CY 2001	70 percent demographic method	30 percent PIP-DCG method
CY 2002	45 percent demographic method	55 percent PIP-DCG method
CY 2003	20 percent demographic method	80 percent PIP-DCG method
CY 2004	100 percent comprehensive risk adjustment (using full encounter data)	

In order to implement comprehensive risk adjustment in CY 2004, we will soon be providing plans with guidance concerning requirements for submission of outpatient, physician, and other non-inpatient encounter data.

Our preliminary analyses of the first year's impact of risk adjustment indicate that these blend percentages should significantly reduce the initial impact to organizations of risk adjustment. Specifically, these analyses suggest that the decrease in aggregate payments to M+C organizations under this transition from risk adjustment alone will be less than 1 percent in the first transition year. While the impact on specific organizations will vary, this preliminary analysis also suggests that the maximum decrease in payment to any organization from risk adjustment alone will be less than 2 percent. (These analyses were based on incomplete encounter data available prior to December 1998. Updated analyses, using complete encounter data, will be conducted in early 1999, and these analyses will be provided to organizations on March 1, 1999, for use in determining their Adjusted Community Rate proposals for CY 2000.) We will continue to monitor the impacts on organizations throughout the transition period.

5. Other implementation issues

Treatment of demonstrations: Several commenters on the *Federal Register* notice asked how the new risk adjustment methodology would apply to current demonstration projects. In particular, these commenters asked about the application of risk adjustment to several important demonstrations that provide services to special populations. These projects are the Social Health Maintenance Organization (SHMO) Demonstration, the Program of All-Inclusive Care for the Elderly (PACE), EverCare, and the Minnesota Senior Care Project.

The Social HMO Demonstration began in 1985 and is scheduled to continue through December 31, 2000. Congress established the Social HMO Demonstration and authorized an enhanced payment methodology that exceeds traditional Medicare payment in recognition of the additional health services mandated for the project's special population. In addition, the Balanced Budget Act of 1997 (BBA) requires the Secretary to develop a plan to transition the Social HMOs to the M+C program with a recommendation for a payment approach that takes into account the risk factors appropriate to the population served.

Like the Social HMO demonstration, PACE also has an enhanced payment methodology that was mandated by Congress to reflect its special population. PACE began in 1987 and will be converted to a permanent benefit under Medicare within the next 3 years.

Although EverCare does not have the longevity of the other projects, it is a well established 5-year demonstration that is scheduled to end December 31, 2000. Under the Minnesota Senior Health Options (MSHO) Project, HCFA and the State have integrated the financing, service delivery, and administrative systems of Medicare and Medicaid to create a unique care system for dually eligible beneficiaries in Twin Cities metropolitan area.

Because of the unique features of these demonstration projects, we are assessing possible refinements to the risk adjustment methodology. This analysis cannot be completed in time to apply any recommended refinements in the year 2000. Therefore, we have decided to delay implementation of a risk-adjusted payment system for organizations participating in these demonstrations until we have additional information. For these demonstrations, we will temporarily maintain the present payment approaches and not use the M+C risk adjustment model in year 2000.

We are working with the organizations participating in these demonstrations to acquire encounter data that are both claims and survey-based and include inpatient, outpatient, and physician data, as well as functional status information. Our objective is to evaluate risk adjustment payment options for the special populations they serve. We

plan to collect data in 1998, 1999, and 2000. We are examining the possibility of using a hybrid system after the year 2000.

Reconciliation for late encounter data: Plans have approximately 3 months after the end of a data collection year to submit the encounter data that will be used to develop beneficiary risk scores to their fiscal intermediary. For example, plans must submit encounter data for the period July 1, 1998 through June 30, 1999 to their fiscal intermediary by September 17, 1999. If plans submit encounters after this date, they will not be incorporated into payments for CY 2000. However, in response to concerns expressed by plans over this short time frame, we expect to institute a reconciliation process that will take into account late data submissions. Plans should attempt to have all data in by the deadline of September 17, 1999. However, if plans receive UB-92s from hospitals after this date, they may submit the encounter to their fiscal intermediary and the data will be processed. Plans should note that the deadline for submission of all data from a payment year will be established (probably June 30, 2000 for the period of July 1, 1998 to June 30, 1999). After that date, the fiscal intermediary will no longer accept these data. After the payment year is completed, HCFA will recalculate risk factors for individuals who have late encounters submitted. Then, we will determine any payment adjustments that are required. This reconciliation will be undertaken after the close of a payment year and will be a one-time only reconciliation for each payment year.

Additional information on the reconciliation approach will be provided to plans over the next several months.

Implementation schedule: Following are the key dates in the implementation of risk adjustment:

- *March, 1999*

  The annual announcement of payment rates will be released on March 1, 1999. This announcement must include the final county rates for CY 2000, the rescaling factor for each county, the PIP-DCG model, and other information necessary to ensure that readers are able to recalculate the final county rates.

  In addition, each organization will be sent a letter indicating the percentage difference between the organization's payment under risk adjustment and payment under the current system. The letter will also include the distribution of enrollees for an average month by PIP-DCG category and for other demographic factors (e.g., age, gender, Medicaid status, previously disabled, and working aged), and the distribution of PIP-DCG scores for that organization.

- *September, 1999*

  The deadline for receipt of encounter data from the period July 1, 1998 through June 30, 1999 is September 17, 1999. Encounter data received by that date will be used to calculate each enrollee's risk factor to be used in payments to organizations for CY 2000. Data received after that time will be used in a reconciliation process that will be undertaken after the close of the payment year.

- *January, 2000*

  Beginning January, 2000, on a monthly basis, the organization will be provided with information on each enrollee, including the county of residence, age, gender, Medicaid status and previously disabled status, PIP-DCG score, and payment amount.

D. Summary of HCFA's Proposed Approach for 2000

The approach HCFA will use to meet the year 2000 mandate for risk adjusted payments will:

1. Be based on inpatient data;
2. Apply individual enrollee risk scores in determining fully capitated payments;
3. Utilize a prospective PIP-DCG risk adjuster to estimate relative beneficiary risk scores;
4. Apply separate demographic-only factors to new Medicare enrollees for whom no diagnostic history is available;
5. Apply a rescaling factor to address inconsistencies between demographic factors in the rate book and new risk adjusters;
6. Use 6 month old diagnostic data to assign PIP-DCG categories (the "time shift" model, as opposed to using the most recent data and making retroactive adjustments of payment rates part way through the year);
7. Allow for a reconciliation after the payment year to account for late submissions of encounter data;
8. Phase-in the effects on risk adjustment, beginning with a blend of 90 percent of the demographically adjusted payment rate, and 10 percent of the risk-adjusted payment rate in the first year (CY 2000); and
9. Implement processes to collect encounter data on additional services, and move to a full risk adjustment model as soon as is feasible.

Table 1: Diagnoses (DxGroups) Included in Each PIP-DCG -- Payment Model

PIP-DCG 5	DxGroup 14	Breast Cancer[2]
	DxGroup 131	Ongoing Pregnancy with Complications
	DxGroup 132	Ongoing Pregnancy with No or Minor Complications
PIP-DCG 6	DxGroup 18	Cancer of Prostate/Testis/Male Genital Organs[2]
PIP-DCG 7	DxGroup 1	Central Nervous System Infections
	DxGroup 39	Abdominal Hernia, Complicated
	DxGroup 64	Alcohol/Drug Dependence
PIP-DCG 8	DxGroup 16	Cancer of Uterus/Cervix/Female Genital Organs[2]
	DxGroup 36	Peptic Ulcer
	DxGroup 77	Valvular and Rheumatic Heart Disease
	DxGroup 79	Hypertension, Complicated
	DxGroup 80	Coronary Atherosclerosis
	DxGroup 84	Angina Pectoris
	DxGroup 86	Atrial Arrhythmia
	DxGroup 92	Precerebral Arterial Occlusion
	DxGroup 96	Aortic and Other Arterial Aneurysm
	DxGroup 110	Asthma
	DxGroup 153	Brain Injury
	DxGroup 158	Artificial Opening of Gastrointestinal Tract Status
PIP-DCG 9	DxGroup 21	Other Cancers[2]
	DxGroup 32	Pancreatitis/Other Pancreatic Disorders
	DxGroup 82	Acute Myocardial Infarction
	DxGroup 94	Transient Cerebral Ischemia
	DxGroup 145	Fractures of Skull and Face
	DxGroup 146	Pelvic Fracture
	DxGroup 147	Hip Fracture
	DxGroup 150	Internal Injuries/Traumatic Amputations/Third Degree Burns
PIP-DCG 10	DxGroup 11	Colon Cancer[2]
	DxGroup 59	Schizophrenic Disorders
	DxGroup 81	Post-Myocardial Infarction
	DxGroup 83	Unstable Angina
	DxGroup 97	Thromboembolic Vascular Disease
	DxGroup 116	Kidney Infection
	DxGroup 143	Vertebral Fracture Without Spinal Cord Injury
PIP-DCG 11	DxGroup 42	Gastrointestinal Obstruction/Perforation
	DxGroup 45	Gastrointestinal Hemorrhage
	DxGroup 87	Paroxysmal Ventricular Tachycardia
	DxGroup 109	Bacterial Pneumonia
	DxGroup 133	Cellulitis and Bullous Skin Disorders

PIP-DCG 12	DxGroup 4	Tuberculosis
	DxGroup 10	Stomach, Small Bowel, Other Digestive Cancer
	DxGroup 12	Rectal Cancer
	DxGroup 19	Cancer of Bladder, Kidney, Urinary Organs
	DxGroup 22	Benign Brain/Nervous System Neoplasm
	DxGroup 26	Diabetes with Acute Complications/Hypoglycemic Coma
	DxGroup 41	Inflammatory Bowel Disease
	DxGroup 48	Rheumatoid Arthritis and Connective Tissue Disease
	DxGroup 49	Bone/Joint Infections/Necrosis
	DxGroup 56	Dementia
	DxGroup 57	Drug/Alcohol Psychoses
	DxGroup 60	Major Depression
	DxGroup 73	Epilepsy and Other Seizure Disorders
	DxGroup 91	Cerebral Hemorrhage
	DxGroup 93	Stroke
	DxGroup 98	Peripheral Vascular Disease
	DxGroup 111	Pulmonary Fibrosis and Bronchiectasis
	DxGroup 113	Pleural Effusion/Pneumothorax/Empyema
PIP-DCG 14	DxGroup 2	Septicemia/Shock
	DxGroup 29	Adrenal Gland, Metabolic Disorders
	DxGroup 58	Delirium/Hallucinations
	DxGroup 61	Paranoia and Other Psychoses
	DxGroup 63	Anxiety Disorders
	DxGroup 66	Personality Disorders
	DxGroup 70	Degenerative Neurologic Disorders
	DxGroup 144	Spinal Cord Injury
PIP-DCG 16	DxGroup 8	Mouth/Pharynx/Larynx/Other Respiratory Cancer
	DxGroup 13	Lung Cancer
	DxGroup 34	Cirrhosis, Other Liver Disorders
	DxGroup 89	Congestive Heart Failure
	DxGroup 95	Atherosclerosis of Major Vessel
	DxGroup 105	Chronic Obstructive Pulmonary Disease
PIP-DCG 18	DxGroup 17	Cancer of Placenta/Ovary/Uterine Adnexa
	DxGroup 55	Blood/Immune Disorders
	DxGroup 72	Paralytic and Other Neurologic Disorders
	DxGroup 75	Polyneuropathy
	DxGroup 108	Gram-Negative/Staphylococcus Pneumonia
PIP-DCG 20	DxGroup 27	Diabetes with Chronic Complications
	DxGroup 76	Coma and Encephalopathy
	DxGroup 112	Aspiration Pneumonia
	DxGroup 115	Renal Failure/Nephritis
PIP-DCG 23	DxGroup 9	Liver/Pancreas/Esophagus Cancer[2]
	DxGroup 33	End-stage Liver Disorders
	DxGroup 88	Cardio-Respiratory Failure and Shock
	DxGroup 134	Decubitus and Chronic Skin Ulcers
PIP-DCG 26	DxGroup 7	Metastatic Cancer[2]
	DxGroup 20	Brain/Nervous System Cancers[2]
PIP-DCG 29	DxGroup 3	HIV/AIDS[1]
	DxGroup 15	Blood, Lymphatic Cancers/Neoplasms[2]

Notes:

[1]Includes principal and secondary inpatient diagnoses of HIV/AIDs.

[2]Includes principal diagnoses and secondary diagnoses when the principal diagnosis is chemotherapy.

Payment Model -- Beneficiaries Medicare Eligible at Least One Year

Variable	Age/Sex Coefficient	Medicaid Add-on	Originally Disabled Add-on
Male:0-34	1,873	639	--
Male:35-44	1,939	1,442	--
Male:45-54	2,486	1,888	--
Male:55-59	3,134	2,025	--
Male:60-64	3,874	2,134	--
Male:65-69	2,759	2,244	2,115
Male:70-74	3,598	2,330	2,029
Male:75-79	4,625	2,353	1,705
Male:80-84	5,495	2,271	1,462
Male:85-89	6,414	2,060	1,207
Male:90-94	7,019	1,688	962
Male95+	6,923	1,235	717
Female:0-34	1,844	981	--
Female:35-44	2,055	1,590	--
Female:45-54	2,685	1,870	--
Female:55-59	3,280	2,025	--
Female:60-64	4,544	2,103	--
Female:65-69	2,310	2,207	3,083
Female:70-74	2,998	2,246	2,940
Female:75-79	3,810	2,314	2,645
Female80-84	4,683	2,156	2,119
Female85-89	5,589	1,669	1,594
Female:90-94	5,928	1,178	1,183
Female:95+	5,754	855	773

Payment Model -- Disease Add-on for Beneficiaries Medicare Eligible at Least One Year

	Disease Add-on
PIPDCG 5	1,910
PIPDCG 6	2,333
PIPDCG 7	3,556
PIPDCG 8	4,192
PIPDCG 9	4,666
PIPDCG 10	5,969
PIPDCG 11	6,480
PIPDCG 12	8,474
PIPDCG 14	10,200
PIPDCG 16	12,435
PIPDCG 18	13,547
PIPDCG 20	17,298
PIPDCG 23	19,496
PIPDCG 26	22,313
PIPDCG 29	26,464

Payment Model -- New Beneficiaries

Variable	Age/Sex Coefficient	Medicaid Add-on
Male, 0-34	2,610	1,139
Male, 35-44	2,849	1,969
Male, 45-54	3,312	2,369
Male, 55-59	4,130	2,546
Male, 60-64	4,889	2,578
Male, 65	2,679	3,328
Male, 66	2,921	3,297
Male, 67	3,162	3,266
Male, 68	3,403	3,235
Male, 69	3,644	3,204
Male, 70-74	4,321	3,028
Male, 75-79	5,537	3,140
Male, 80-84	6,667	3,124
Male, 85-89	7,742	3,108
Male, 90-94	8,494	1,971
Male, 95+	8,505	1,806
Female, 0-34	2,730	1,330
Female, 34-44	2,955	2,157
Female, 45-54	3,550	2,173
Female, 55-59	4,284	2,762
Female, 60-64	5,662	2,298
Female, 65	2,276	3,076
Female, 66	2,468	3,075
Female, 67	2,660	3,074
Female, 68	2,852	3,073
Female, 69	3,044	3,072
Female, 70-74	3,587	2,945
Female, 75-79	4,587	3,030
Female, 80-84	5,664	3,003
Female, 85-89	6,771	2,162
Female, 90-94	7,290	1,670
Female, 95+	7,041	918