## *Executive Summary*

The Medicare Modernization Act (MMA) included three polices to limit the financial risks that Part D prescription drug plans (PDPs) must bear. These were:

- Risk adjustment of the payments to plans, based on the demographics and health status of each plan's enrollees, resulting in higher payments for more costly enrollees;
- Reinsurance for catastrophic costs, with the Federal government directly paying most of the cost when an enrollee's total drug spending exceeds $5,100; and
- Risk corridors that limit the bottom-line profits and losses for PDPs, regardless of the reason for the profit or loss.

The purpose of this component of the overall project was to test the effectiveness of these policies; in order to do so, we modeled the Medicare Part D benefit using Medicare Current Beneficiary Survey (MCBS) data. We then split the underlying beneficiary population into high-cost and low-cost groups in various ways, and calculated the losses for a plan that unexpectedly enrolled the high-cost groups.

These policies appear to do an excellent job of limiting plans' losses, even under extreme assumptions about risk selection. In most cases, the risk-limiting policies reduced losses by 80 to 90 percent, compared to the losses that plans would have faced without such policies. Even under the most extreme assumptions, where a plan enrolled nothing but high-cost beneficiaries, total losses after the risk-limiting policies never exceeded 5 percent of revenues.

These results suggest that plans face relatively modest financial risks in the first years of Medicare Part D. Fear of significant financial risk should not be a major deterrent to becoming a Medicare PDP.

## *Introduction*

When the Congress designed the Medicare Part D benefit, there was concern that financial risks might discourage prescription drug plan (PDP) participation. The sources of those risks were fairly obvious. First, this benefit is new, so there is little cost experience data to guide plans' initial bids. Second, the benefit differs from the typical private drug coverage familiar to most plans. Where private prescription drug coverage is usually part of a health insurance package and is purchased by a group (for example, by employees of a firm), the Medicare benefit is a stand-alone, individual-purchase drug plan. This exposes plans to more financial risk from patient self-selection than they are accustomed to facing in the private insurance market. Third, this is a complex benefit and a complex market. The benefit has multiple coinsurance ranges, different coinsurance amounts for poor and non-poor beneficiaries, and drug coverage provided through a combination of PDPs, employer-sponsored plans, and MA plans. It is not clear how these various components will interact in the Part D marketplace.

Accordingly, the Medicare Modernization Act (MMA) included three separate policies to limit PDPs' financial risks.

- A risk-adjusted payment formula, where bids and payments are adjusted to account for the demographics and reported diagnoses (diseases) for each plan's enrollees;
- Reinsurance of outlier or catastrophic costs, with the Federal government paying 80 percent of an individual's costs in excess of $5,100; and
- Risk corridors. If, for any reason, a PDP's actual drug costs differ significantly from what it expected to spend when it established its bid, the Federal government will share a substantial portion of the difference.

This paper examines the likely effectiveness of those policies in limiting PDP's financial risks, by modeling the Part D benefit and calculating profits and losses under various scenarios. The first section of the paper describes the risk-limiting policies in the Medicare Part D benefit. The second section outlines the methods and results from the actuarial model of risk selection and the Part D benefit.

## *Description of Part D Policies to Limit Plans' Financial Risks*

This section of the paper describes the three Medicare Part D pollicies that are designed to limit the financial risks of PDPs. It describes the rules that apply to a full-risk PDP (one that accepts the standard risk corridors) offering the basic Medicare Part D benefit (no additional benefits, and no substitution of an actuarially-equivalent benefit structure for the statutory Part D benefit).

**Reinsurance** is part of the basic MMA benefit structure. The MMA basic benefit has a $250 deductible, 25% coinsurance through $2250 total spending, and an out-of-pocket limit equivalent to $5,100 in total drug spending (for most beneficiaries). Above that limit, the beneficiary pays a 5% (or similar) share of costs, federal reinsurance covers 80 percent of costs, and the plan covers the remaining 15 percent of costs. With this reinsurance as part

of the benefit, plans are substantially protected from the impact of persons with catastrophic or outlier drug costs.

**Risk adjustment** affects the amount of money that CMS pays to each plan. Each plan is asked to bid based on an assumption of no risk selection, that is, based on the average risk characteristics of the Medicare population as a whole. Plan bids should reflect local price and volume norms (average price and prescription patterns in the plan's area) applied to the national average beneficiary mix. The plan does *not* expect to be paid the amount that it bids. Instead, roughly speaking, it expects to collect its bid times a risk adjustment factor reflecting average risk of its enrollees.

To determine a plan's risk adjustment factor, the Centers for Medicare and Medicaid Services (CMS) will consider the demographics and diagnoses reported that plan's members. Diagnosis data gathered from the prior year's acute-care claims (for fee-for-service enrollees) or equivalent encounter data (for Medicare Advantage enrollees) will be used to flag beneficiaries who have conditions that systematically affect drug spending. For example, diabetics have above-average drug costs, so plans will be paid above-average rates for their diabetic enrollees. The exact amount associated with each risk factor was determined from spending patterns observed among elderly retirees covered by the Federal Employee Program of the Blue Cross Blue Shield Association.[1]

**Risk corridors** further limit profits and losses by comparing the actual costs of drugs for the plans' enrollees with the amount that the plan expected to spend. If the plan's actual costs for the drugs differ from the level predicted when the plan made its bid, there is some sharing of the difference between the plan and the Federal government.

The costs counting toward the risk corridor are gross plan drug outlays, less amounts already paid back to the plan by the Federal government (for example, net of the reinsurance payments the Federal government has already made to the plan). These costs are compared to a target amount, where the target is the plan's bid (the portion of the bid that was intended to cover these costs), multiplied by the plan's risk adjustment factor.

The degree of profit and loss sharing between the Federal government and the plan depends on the difference between the risk corridor costs and the risk corridor target. For 2006 and 2007, if the plan's costs are within 2.5 percent of the target amount, there is no sharing of the profits or losses. Between 2.5 percent and 5 percent difference, the Federal government makes up 75 percent of the difference between the plan's cost and the 2.5 percent threshold amount. Over a five percent difference, and the Federal government makes up 80 percent of the difference between the plan's actual cost and the 5 percent threshold amount (in addition to 75 percent of the difference for the costs falling from 2.5 percent to 5 percent of the risk corridor target). For 2007 and 2008, the thresholds widen (from 2.5 percent and 5 percent, to 5 percent and 10 percent), and the initial risk sharing percentage falls (from 75 percent to 50 percent). There is a further provision, not examined here, that federal risk sharing rises to 90 percent if all plans in a market have large discrepancies between their risk corridor target amounts and their actual risk corridor costs.

[1] The development of the risk adjustment model is described in more detail in (REFER TO TASK 1 WEB PAPER) and at http://www.cms.hhs.gov/pdps/PmntNtcNRskAdjMdl.asp

## *An Actuarial Model of Reinsurance, Risk Adjustment, and Risk Corridors*

The final section of this paper presents a simple actuarial model of the MMA benefit, including reinsurance, risk adjustment, and risk corridors. The point is to demonstrate empirically how reinsurance, risk adjustment, and risk corridors will work together to limit plan financial risk under the MMA drug benefit.

### *Actuarial Model: Methods*

The underlying data source is the Medicare Current Beneficiary Survey (MCBS) Cost and Use files. Files from 1997 to 2001 were pooled together to form the database. Persons had to be in successive years (e.g., in 1997 and 1998) to be included, so that the prospective risk adjustment model could be run for them. For example, 1997 diagnoses from claims data were use to predict 1998 drug spending. Certain categories of beneficiaries had to be excluded. Among these were MA enrollees (with no claims data available from which to draw diagnosis information), nursing home residents (with no drug cost data on the MCBS, only full-year community residents were used), hospice enrollees in the base year (all claims information is lost once a beneficiary enrolls in hospice), and MCBS "ghosts" (persons used to fill gaps in the sample for decedents, whose data cannot be matched across successive years of data.) Of persons remaining in the sample, total drug spending in each year was inflated to a mean of $3,000, to approximate projected total drug spending in 2006.

This was a simple analysis, and no adjustments were made to spending as reported on MCBS, despite large differences in mean spending by drug coverage. That is, there were no detailed adjustments to account for existing coverage differences, merely an across-the-board inflation factor so that mean spending matched $3,000 mean in each year. No amounts were added to account for plan overhead. This is an analysis of drug costs only and does not include an allowance for overhead in the plan premium.

The actuarial model begins with the inflated drug spending from the MCBS, and models the MMA standard benefit, from the perspective of plan (premium) spending. This includes no payment below the $250 deductible, 75 percent of drug costs up to $2250, no payment from there to $5100, then payment of 95 percent of costs above $5100, offset by the Federal government 80 percent reinsurance. There are no factors for moral hazard based on current or MMA coverage. The model just reshuffles the total fixed drug dollars present on the MCBS file. The net result of this step is, for each beneficiary, an estimated plan spending, reinsurance amount, and beneficiary out-of-pocket spending for drugs.

The next step was to calibrate and apply the CMS drug risk adjuster. Diagnosis information was stripped from claims data using the methods that CMS uses for the risk adjustment (selected physician specialties, selected outpatient and inpatient provider number ranges). The CMS HCC model, as modified for drug risk adjustment, was calibrated on the MCBS sample. Overall goodness of fit (R-squared) was 22 percent. The model was calibrated

using the estimated plan liabilities net of reinsurance, and the results were used to generate a risk factor for each person in the sample.

Now that spending and risk factors were determined, the next step was to model plan bid and payments. The PDP was assumed to bid at cost *assuming no risk selection*. That is, the plan was assumed to bid the actuarial value of drug cost for the entire MCBS population. The point of the remainder of the exercise is to see what happens to plan profits *when there is risk selection*. That is, how much financial risk do plans face from unexpectedly high or low drug spending.

At this point, the MMA payment rules were applied, including reinsurance above $5,100 in total spending, risk adjustment of federal contribution, and risk corridors around a risk adjusted plan bid, using both the 2006-7 corridor rules and the 2008-9 corridor rules. This exercise assumes that the plan offers the basic drug coverage, and ignores the low-income subsidy. That is, this is basic drug coverage for non-poor enrollees.

The endpoint of the analysis was to tabulate plan profit and loss in several ways, starting with none of the risk-limiting policies, and ending with all of them. So, the results show the impact of having no risk limitations in place, then having reinsurance, reinsurance plus risk adjustment, and finally reinsurance, risk adjustment, and the 2006-2007 risk corridors.

Finally, this analytical model was run on several biased populations. These populations model an extreme level of risk selection, as if a plan attracted nothing but the worst possible risks. The results show how these risk-limiting policies perform under extreme circumstances and should not be interpreted as providing a reasonable guess about average selection. The biased populations were selected based on:

- Level of drug spending over $2000
- Health status (general health, obesity)
- Diagnoses present in the current (drug spending year) claims.

These populations represent very severe assumptions about risk selection. They should not be interpreted as providing likely estimates of actual risk selection and profit and loss. Instead, this analysis shows how strongly the combined effect of reinsurance, risk adjustment, and risk corridors will limit MMA drug plan profits and losses.

### *Actuarial Model: Results*

In general, the results in Table 1 can be summarized as follows: Reinsurance appears to cut the raw profits or losses roughly in half, on average, for most of the populations. Risk adjustment then appears to remove about a third of the remaining profit/loss. The risk corridors then cut the remaining profits or losses by roughly two-thirds. The net result is that very large original (raw) profits and losses – those that would obtain with no adjustments – are reduced to roughly 10 to 20 percent of their original level after all three risk-limiting rules have been applied. These results were roughly the same whether a mean spending of $2500 or $3000 or $3500 was assumed (not shown). In no case did any loss

exceed 5 percent after all factors were used, despite original (unadjusted) losses ranging up to 100 percent of revenue (costs were twice as high as payments).

The only exceptions to the general observation about profits are the cases of extreme risk selection where all the low-cost cases appear in one plan. In that case, the risk protections serve to reduce revenues drastically, but profits remain high because costs are such a small fraction of revenues. Most of the revenue dollars are removed by the risk limiting mechanisms, but profit as a percent of revenue remains high because costs are so low. In practice, even in these cases, the risk limiting mechanisms substantially reduce payments to the plan, relative to a system with no risk adjustments.

| Table 1: Projected PDP Profit and Loss for MMA Drug Benefit with Unanticipated Risk Selection | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total Spending Per Enrollee | | Plan Revenue Under Various Risk Protection Scenarios | | | | Profit or Loss | |
| Population Separated by Risk | | % of Beneficiaries | Total Drug Spending | Paid by Plan (Plan Costs) | A: No Risk Protection | B: Reinsurance | C: B Plus Risk Adjustment | D: C Plus Risk Corridors | Under Scenario A | Under Scenario D |
| **Total** | | 100% | $3,000 | $1,574 | $1,574 | $1,574 | $1,574 | $1,574 | 0% | 0% |
| **Total drug spend > $2000** | | | | | | | | | | |
| | No | 50 | 745 | 418 | 1,574 | 1,055 | 886 | 530 | 73 | 21 |
| | Yes | 50 | 5,238 | 2,722 | 1,574 | 2,090 | 2,257 | 2,603 | -73 | -5 |
| **Medicaid beneficiary** | | | | | | | | | | |
| | No | 86 | 2,897 | 1,504 | 1,574 | 1,522 | 1,501 | 1,501 | 4 | 0 |
| | Yes | 14 | 3,632 | 2,005 | 1,574 | 1,897 | 2,025 | 2,025 | -27 | 1 |
| **Health status fair/poor** | | | | | | | | | | |
| | No | 72 | 2,513 | 1,276 | 1,574 | 1,385 | 1,326 | 1,307 | 19 | 2 |
| | Yes | 28 | 4,230 | 2,329 | 1,574 | 2,053 | 2,201 | 2,277 | -48 | -2 |
| **Body Mass Index** | | | | | | | | | | |
| | 1:Underweight | 4 | 2,499 | 1,326 | 1,574 | 1,496 | 1,396 | 1,360 | 16 | 3 |
| | 2:Normal | 40 | 2,651 | 1,366 | 1,574 | 1,451 | 1,414 | 1,397 | 13 | 2 |
| | 3:Overweight | 36 | 2,988 | 1,570 | 1,574 | 1,563 | 1,555 | 1,555 | 0 | -1 |
| | 4:Obese | 20 | 3,818 | 2,051 | 1,574 | 1,861 | 1,966 | 2,010 | -30 | -2 |
| **Rheumatoid arthritis** | | | | | | | | | | |
| | No | 95 | 2,925 | 1,534 | 1,574 | 1,551 | 1,540 | 1,540 | 3 | 0 |
| | Yes | 5 | 4,539 | 2,412 | 1,574 | 2,064 | 2,290 | 2,360 | -53 | -2 |
| **Asthma** | | | | | | | | | | |
| | No | 95 | 2,884 | 1,503 | 1,574 | 1,527 | 1,511 | 1,511 | 5 | 1 |
| | Yes | 5 | 5,234 | 2,961 | 1,574 | 2,490 | 2,795 | 2,899 | -88 | -2 |
| **Bipolar and similar mental illness** | | | | | | | | | | |
| | No | 97 | 2,913 | 1,519 | 1,574 | 1,537 | 1,523 | 1,523 | 3 | 0 |
| | Yes | 3 | 5,563 | 3,191 | 1,574 | 2,662 | 3,081 | 3,138 | -103 | -2 |
| **COPD** | | | | | | | | | | |
| | No | 85 | 2,806 | 1,462 | 1,574 | 1,507 | 1,477 | 1,477 | 7 | 1 |
| | Yes | 15 | 4,141 | 2,236 | 1,574 | 1,972 | 2,147 | 2,192 | -42 | -2 |
| **Congestive Heart Failure** | | | | | | | | | | |
| | No | 86 | 2,782 | 1,453 | 1,574 | 1,508 | 1,469 | 1,469 | 8 | 1 |
| | Yes | 14 | 4,324 | 2,310 | 1,574 | 1,977 | 2,216 | 2,264 | -47 | -2 |
| **Hypertension** | | | | | | | | | | |
| | No | 50 | 2,319 | 1,241 | 1,574 | 1,471 | 1,315 | 1,275 | 21 | 3 |
| | Yes | 50 | 3,671 | 1,902 | 1,574 | 1,676 | 1,829 | 1,862 | -21 | -2 |
| **Diabetes** | | | | | | | | | | |
| | No | 79 | 2,669 | 1,397 | 1,574 | 1,482 | 1,414 | 1,414 | 11 | 1 |
| | Yes | 21 | 4,271 | 2,256 | 1,574 | 1,929 | 2,190 | 2,215 | -43 | -2 |
| **Source: Analysis of pooled MCBS Cost and Use files, 1997-2001.** | | | | | | | | | | |
| Notes: Average total drug spending inflated to $3000, with no adjustments for prices, induced demand, or plan overhead. Population is persons in two successive MCBS samples, 1997 to 2001, excluding HMO enrollees, institutionalized, hospice enrollees, and MCBS "ghosts". Risk adjustment is most current CMS model, calibrated on MCBS sample. Profit and loss are defined as a percentage of revenue, (revenue - cost)/revenue. | | | | | | | | | | |