**CY2011 Part D Plan Ratings:**

**Methodology for Price Stability and Accuracy Measure**

CMS’ drug pricing performance measure evaluates both the stability in contracts’ prices charged at the point-of-sale (POS) and the accuracy of prices displayed on Medicare Plan Finder (PF) for beneficiaries’ comparison of plan options. A contract’s score is a composite derived from two price indices. The first price index utilizes final prescription drug event (PDE) data to assess changes in price over the contract year. The second price index compares PF prices to PDE prices and determines the magnitude of differences found. This document summarizes the methods currently used to construct each contract’s indices and the calculation of the composite score.

## Contract Selection

The Part D Plan ratings rely in part on the submission of pricing data to PF. Therefore, only contracts with at least one plan meeting all of the following criteria are included in the analysis:

* Not a PACE plan
* Not a demonstration plan
* Not an employer plan
* Part D plan
* Plan not terminated during the contract year

Only contracts with at least one drug with at least 10 claims each quarter are included in the stability measure. Only contracts with at least 30 claims throughout the year are included in the accuracy measure. This ensures that the sample size of PDEs is large enough to produce a reliable composite score. Only covered drugs for PDEs that are not compound claims are included.

## PDE Price Stability Index

The PDE Price Stability index (*Sj*) monitors price changes over the contract year. It is defined as the average change in price each quarter of a specified basket of drugs. The basket is composed of drugs (grouped by Generic Sequence Number brand/generic (GSN-BG)) having at least 10 claims in all four quarters. Though the drugs in the basket remain constant in all four quarters, different quantities are considered in each quarter to allow for changes in utilization.

The formula below describes the calculation of *Sj*:

where

*PDEqj* is the cost of the drug basket for contract *j* in quarter *q* and

*TE(q-1)j* is the total expenditure of the drug basket for contract *j*  in quarter *q-1*.

For each fall’s publication of plan ratings, CMS uses final PDE data from the most recently available contract year. For example, the 2011 plan rating released October 2010 uses final 2009 PDEs. Only claims filled at pharmacies designated as retail pharmacies by the sponsor in the Plan Finder pharmacy cost file are included in this analysis. Claims filled at long term care, mail, home infusion, and specialty pharmacies, as well as claims to which we could not assign GSN-BG are excluded. Because the pharmacy cost file is used to determine pharmacy characteristics, PDEs with a date of service during a plan suppression period from Plan Finder are excluded.

The quarterly stability index measures changes in drug prices across many distinct products from one quarter to the next. It weights the price of each drug by the relative consumption of that product in the previous quarter, so that price changes in heavily utilized drugs contribute more to the index. The following describes the calculation of the components of each quarter’s stability index (*Sqj*): the quarterly contract-level cost (*PDEqj*) and the total expenditure (*TE(q-1)j*) shown in equation (1). In this discussion, the term “price” refers to the sum of ingredient cost and dispensing fee divided by quantity dispensed.

Construction of the Quarterly Contract-level Cost (PDEqj)

*PDEqj* is the total cost of the basket of drugs defined by the previous quarter’s utilization. It is the sum of the total cost of each drug, *PDEqij*:



*PDEqij* is the drug-level total cost for quarter *q*, drug *i*, and contract *j*. It is equal to the total quantity of drug *i* sold in the previous quarter times the unit cost of drug *i* in quarter *q*. The formula used for calculating *PDEqij* takes the form:



where:

is the mean unit cost for drug *i* by beneficiaries in contract *j* in quarter *q*

 is the quantity of product *i* purchased by beneficiaries in contract *j* during the previous quarter.

Construction of the Quarterly Contract-level Total Expenditure (TEqj)

*TEqj* is the total cost of the basket of drugs in the current quarter. The calculation of the *TEqj* is identical to that of the *PDEqj* except that the current quarter quantities are used instead of the previous quarter. Equation (3) therefore becomes:



Example of Stability Index Calculation

Table 1 provides an example calculation of the stability index for a contract (contract *j*) with only two GSN-BGs for quarters 1 and 2. This is an abbreviated example for illustrative purposes only. The actual price stability index for each contract is based on a full year of PDE data, and is the average of the 3 quarterly indexes computed: quarter 1 to 2; quarter 2 to 3; and quarter 3 to 4.

The quantities from the previous quarter (in this case, quarter 1) define the basket of drugs studied; there are 100 units of drug 999999.B and 50 units of 999999.G sold in that quarter. In total, this basket costs $1,005 in quarter 1 and this is the value of *TEqj* when *q* = 1. A different number of units are sold in quarter 2. The quantity dispensed in quarter 2 and the total drug level expenditure are used to determine , the quarter 2 per-unit cost ($10.25 and $0.08, respectively for each drug). The quarter 2 contract-level cost (*PDEqj*, *q*=2) is calculated as the sum of each drug cost (equation (2)). The drug cost (*PDEqij*, *q*=2) is the quantity from quarter 1 () times the per-unit cost from quarter 2 () for each drug (equation (3)). The stability index is computed as $1,029/$1,005 or 1.02388. If quarters 3 and 4 were included, the stability index would be the average of 1.02388 and the other two values computed for quarters 2 to 3 and quarters 3 to 4.

Table 1. Example of Stability Index Calculation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **GSN\_BG** | **Quarter 1** | | | **Quarter 2** | | | |
| **Total Expenditure (*TEqij*, *q* = 1)** | **Total Quantity** | **$/Unit** | **Total Expenditure** | **Total Quantity** | **$/Unit** | **Contract Level Price Index (*PDEqij*, *q* = 2)** |
| 999999.B | $1,000.00 | 100 | $10.00 | $1,025.00 | 100 | $10.25 | $1,025.00 |
| 999999.G | $5.00 | 50 | $0.10 | $8.00 | 100 | $0.08 | $4.00 |
|  |  |  |  |  |  |  |  |
| Total Basket (*TEqj*, *q*=1): | $1,005.00 |  |  |  | Total Basket (*PDEqj*, *q*=2): | | $1,029.00 |
|  |  |  |  |  | **Stability Index (*Sj*):** | | 1.02388 |

## PF Price Accuracy Index

To calculate the PF Price Accuracy index, the point of sale reported on each PDE claim is compared to the total cost resulting from using the unit price reported on Plan Finder[[1]](#footnote-1). This comparison includes only PDEs for which a PF cost can be assigned. In particular, a PDE must meet five conditions to be included in the analysis:

1. The NCPDP number for the pharmacy on the PDE claim must appear in the pharmacy cost file.
2. The corresponding reference NDC must appear under the relevant price ID for the pharmacy in the pricing file.
3. Because the retail unit cost reported on Plan Finder is intended to apply to a 30 day supply of a drug, only retail claims with a 30-day supply are included. Claims reporting a different day supply value and claims for different types of pharmacies (long term care, mail, specialty, or home infusion) are excluded.
4. PDEs for dates of service during which the plan was suppressed from Plan Finder or where the relevant pharmacy or drug was not reported in Plan Finder are not included since no Plan Finder cost can be assigned.
5. PDEs for compound claims and non-covered drugs are not included.

Once PF unit costs are assigned, the total PF ingredient cost is calculated by multiplying the unit costs reported on PF by the quantity listed on the PDE. The PDE total cost (TC) is the sum of the PDE ingredient cost paid and the PDE dispensing fee. Likewise, the PF TC is the sum of the PF ingredient cost and the PF dispensing fee. Each claim is then given a score equal to the difference between the PDE TC and the PF TC[[2]](#footnote-2). The best possible PF Price Accuracy Index is 1. The contract level PF Price Accuracy Index is calculated as follows:

where

*TC*i*PDE* is the total ingredient cost plus dispensing fee from PDE data

*TCiPF* is the total ingredient cost plus dispensing fee from PF data

Example of Accuracy Index Calculation

Table 2 shows an example of the Accuracy Index calculation. This contract has 4 claims, for 4 different NDCs and 4 different pharmacies. This is an abbreviated example for illustrative purposes only; in the actual accuracy index, a contract must have 30 claims to be evaluated.

From each of the 4 claims, the PDE ingredient cost, dispensing fee, and quantity dispensed are obtained. Additionally, the plan ID, date of service and pharmacy number are collected from each PDE to identify the PF data that had been submitted by the contract and posted on medicare.gov on the PDE dates of service. The NDC on the claim is first assigned the appropriate reference NDC, based on the brand name, generic name, strength and dosage form. Using the reference NDC, the following PF data are obtained: brand/generic dispensing fee (as assigned by the pharmacy cost file) and 30 day unit cost (as assigned by the Price File corresponding to that pharmacy on the date of service). The PDE total cost is the sum of the PDE ingredient cost and dispensing fee. The PF total cost is computed as the quantity dispensed from PDE multiplied by the PF unit cost plus the PF brand/generic dispensing fee (brand or generic status is assigned based on the NDC).

The last column shows the amount by which the PDE total cost is higher than the PF total cost. When PDE total cost is less than PF total cost, this value is zero. The accuracy index is the sum of the last column plus the sum of PDE total costs divided by the sum of PDE total costs.

**Table 2.** Example of Price Accuracy Index Calculation

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PDE Data** | | | | | **Plan Finder Data** | | | **Calculated Values** | | | |
| **NDC** | **Pharmacy Number** | **Ingredient Cost** | **Dispensing Fee** | **Quantity Dispensed** | **Unit Cost for 30 Day Supply** | **Dispensing Fee** | | **Brand or Generic Status** | **Total Cost** | | **Amount that PDE is higher than PF** |
| **Brand** | **Generic** | **PDE** | **PF** |
| A | 111 | 3.82 | 2 | 60 | 0.014 | 2.25 | 2.75 | B | 5.82 | 3.09 | 2.73 |
| B | 222 | 0.98 | 2 | 30 | 0.83 | 1.75 | 2.5 | G | 2.98 | 27.4 | 0 |
| C | 333 | 10.48 | 1.5 | 24 | 0.483 | 2.5 | 2.5 | B | 11.98 | 14.09 | 0 |
| D | 444 | 47 | 1.5 | 90 | 0.48 | 1.5 | 2.25 | G | 48.5 | 45.45 | 3.05 |
|  |  |  |  |  |  |  |  | **Totals** | 69.28 |  | 5.78 |
|  |  |  |  |  |  |  |  | **Accuracy Index** | |  | 1.08343 |

## Composite Score

The PDE Stability and the PF Accuracy Indices are summarized in one composite score. The first step to determine the composite score is to sum the stability and accuracy indices, and subtract two. This number is then multiplied by 100. This value measures price changes (the PDE Stability index) and excess drug costs due to point of sale prices being higher than those reported on Plan Finder (the PF Accuracy index). To create a measure where a high value represents good performance, the composite score is calculated as 100 minus this value. The best scores are achieved when point of sale drug prices for a given contract have a lower inflation rate than other contracts and when point of sale prices do not exceed the amount reported on the PF website.

Table 3 shows example calculations of 4 contracts’ composite scores, and illustrates projections of potential excess gross drug costs (GDC). The New York PDP region was selected for this example. The average used in this table is the 2008 average gross drug cost (GDC) cost for beneficiaries in the New York PDP region, which was $3,603.

The conversion starts by multiplying each index by the average beneficiary GDC cost. The average GDC cost is then subtracted from this value, leaving the excess beneficiary cost due to inflation (poor price stability) or misreported Plan Finder prices (poor price accuracy).

**Table 3:** Example Calculations of Composite Scores and Conversion to Potential Excess GDC Costs

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Contract** | **Average GDC Cost** | **PDE Stability Index** | **Excess GDC Cost due to Inflation** | **PF Accuracy Index** | **Excess GDC Cost due to Prices Higher than Displayed on PF** | **Composite Score** | **Total Excess GDC Cost** |
| T0001 | $3,603.31 | 1.02 | $72.07 | 1.02 | $72.07 | 96 | $144.13 |
| T0002 | $3,603.31 | 1.01 | $36.03 | 1.01 | $36.03 | 98 | $72.07 |
| T0003 | $3,603.31 | 1.12 | $432.40 | 1.02 | $72.07 | 86 | $504.46 |
| T0004 | $3,603.31 | 1.09 | $324.30 | 1.12 | $432.40 | 79 | $756.70 |

1. Plan Finder unit costs are reported by plan, drug, and pharmacy. The plan, drug, and pharmacy from the PDE are used to assign the corresponding Plan Finder unit cost posted on medicare.gov on the date of the PDE. [↑](#footnote-ref-1)
2. To compare values in PF and PDE with the same degree of precision, the PDE unit cost is rounded to the nearest 1/10,000th of a dollar and the total PDE ingredient cost is calculated. [↑](#footnote-ref-2)