Transforming Episode Accountability Model (TEAM)

Risk Adjustment and Preliminary Target Price Specifications

Centers for Medicare & Medicaid Services (CMS)
Center for Medicare and Medicaid Innovation
(Innovation Center)

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1 INPUTS

Table 1: Preliminary Target Price Inputs

#	Name	Source	Description
1	TEAM National and Participant Baseline Period Clinical Episodes	TEAM Clinical Episode Construction Specifications Document[1]	The TEAM national and participant set of clinical episodes, constructed using the methodology described in the clinical episode construction specifications document. Additional inputs to this file include: Integrated Data Repository (IDR) Part A&B Claims, Common Medicare Environment (CME), Official CMS Standardized Allowed Amounts, blood clotting factors HCPCS codes list constructed using the Part B Drug Average Sales Price (ASP) Files, OPPS Addenda B and J, IPPS base rates and MS-DRG weights, and Geometric Mean Length of Stay (GMLOS).
2	TEAM Participant List	CMS	This file records information such as CMS certification numbers (CCNs), participant type (mandatory or voluntary), and CBSA information for all TEAM participants.
3	Provider Specific Files (PSF)	https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ProspMedicareFeeSvcPmtGen/psf_SAS	The file contains information about bed size information for providers.
4	Community Deprivation Index (CDI)	TEAM CDI Calculation Specifications	This file includes information used to construct the beneficiary economic risk adjustment flag.
5	Census Divisions	https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf	This file includes information to determine the census division for the hospital.
6	Long Term Minimum Dataset (MDS)	CMS	This file includes information on beneficiaries that are residents of long term care nursing facilities.

[1] The specifications document is available on CMS TEAM website (https://www.cms.gov/priorities/innovation/innovation-models/team-model).

2 TARGET PRICE OVERVIEW

The following document describes the methodology used to calculate preliminary target prices for TEAM.[2] The TEAM target prices are constructed to satisfy the following:

- Blend the most successful elements of the Bundled Payments for Care Improvement Advanced (BPCI Advanced) and Comprehensive Care for Joint Replacement (CJR) target price methodologies;
- Strike a balance of predictability and accuracy;
- Adjust for patient case mix that is not under the control of providers;
- Allow for trends in clinical episode spending that are distinct according to certain provider characteristics; and
- Induce Medicare savings while maintaining high quality care.

The methodology produces two levels of target prices, represented in official CMS standardized allowed amounts: Medicare Severity Diagnosis Related Groups/Healthcare Common Procedure Coding System (MS-DRG/HCPCS) episode type and region level, as well as MS-DRG/HCPCS episode type and hospital level (hereinafter referred to as the hospital-specific target price).

The MS-DRG/HCPCS episode type and region level target price is comprised of the following components, each of which is described in detail later in this document:

- *Benchmark price*: This component is equal to the average scaled, winsorized, and standardized baseline period clinical episode spending in baseline year 3 dollars.
- *Prospective trend factor*: This component represents expected changes in average spending patterns between the final calendar year of the baseline and the performance year, calculated as the average of the regional and the national prospective trend factors.
- *Discount factor*: This component represents Medicare's portion of potential savings from the clinical episode.

The methodology then creates a hospital-specific target price, comprised of the aforementioned components, and the following components, each of which is described in detail later in this document:

[2] We intend for future iterations of this document to include the details for reconciliation (final) target price construction, which includes the application of the final normalization factor and retrospective trend factor.

- *Risk adjustment multiplier*: This component accounts for variation in spending due to patient and hospital characteristics.
- *Prospective normalization factor*: This component ensures the benchmark price after risk adjustment does not exceed the average benchmark price prior to risk adjustment.

The following sections describe the step-by-step implementation of the methodology used to construct (1) a preliminary target price for a given MS-DRG/HCPCS episode type and region combination, and (2) a preliminary hospital-specific target price.

3 CLINICAL EPISODE CONSTRUCTION BACKGROUND

While the purpose of this document is to describe how TEAM preliminary target prices are calculated, this section provides some initial background on the preceding process of constructing clinical episodes. The clinical episode construction specifications describe how to apply inpatient (IP) and outpatient (OP) scaling factors, construct clinical episode level spending, apply service-level exclusions, map HCPCS to specific MS-DRGs for calculating target prices (i.e., MS-DRG/HCPCS episode type), and cap outlier clinical episodes at the 99th percentile within each MS-DRG/HCPCS episode type and region pooled for each baseline or trend year.[3]

The three inpatient and two multi-setting TEAM episode types are "triggered" or "initiated" by an admission to the inpatient setting with specific MS-DRGs or a procedure performed in an outpatient setting with specific HCPCS. Clinical episodes are constructed to include all services that overlap the clinical episode window, with some exceptions for services and supplies provided for certain readmissions, which are defined by MS-DRG, and for some Medicare Part B drugs, which are defined by HCPCS.[4] Clinical episode level payments are created by summing official CMS standardized payments for all non-excluded services.[5] These standardized payments reflect the cost of services after removing variation in spending arising from geographical adjustment of reimbursement in CMS payment systems (e.g., hospital wage index and GPCI) and from policy-driven adjustments (e.g., indirect medical education (IME) adjustments). This process produces spending for each clinical episode in the baseline period, and henceforth all references to spending are assumed to be in standardized dollars.

[3] IPPS and OPPS Final Rules as well as OPPS addenda are used for MS-DRG and APC mapping and scaling. The IPPS Final Rule can be found on the CMS Medicare Acute Inpatient PPS website. The OPPS final rules and addenda can be found on the CMS Medicare Hospital Outpatient PPS website.
[4] A complete list of clinical episode service exclusions can be found in the "TEAM Exclusions List" xlsx file.
[5] "CMS Standardization Methodology for Allowed Amount, Version 14." Centers for Medicare & Medicaid Services (CMS), October 2024. Available at the ResDAC CMS Payment Standardization website.

4 STEPS IN TARGET PRICE CONSTRUCTION

The following section presents the step-by-step methodology used to construct target prices. **Section 4.1** describes the construction of patient and hospital-specific risk adjusters. **Section 4.2** details benchmark price construction. **Section 4.3** describes the prospective trend factor construction. **Section 4.4** describes the prospective normalization factor and risk adjustment model. Finally, **Section 4.5** describes how to create preliminary target prices.

4.1 Construct Patient and Hospital Risk Adjusters

For all clinical episodes in the baseline period, build a relevant set of patient and hospital characteristics to merge with the clinical episode level file.[6]

4.1.1 Patient-Specific Risk Adjusters

Build the patient characteristics shown in Table 2 to merge with the clinical episode level file. The MS-DRG/HCPCS episode type and region level preliminary target price and spending summary workbooks will contain coefficients for each risk adjuster included in the model.

[6] The clinical episode level file is produced at the end of clinical episode construction and includes data on each clinical episode in TEAM. Each episode in the baseline period is then assigned specific risk adjuster variables, as described in Section 4.1. Note that risk adjuster variables are not assigned to episodes in the trend years.

Table 2: Patient-Specific Risk Adjusters

Patient Risk Adjuster	Data Source/Input	Risk Adjuster Specifications
Hierarchical Condition Category (HCC)	Inpatient, Outpatient, and Part B Carrier Claims	HCC flags are constructed using Version 28 of the CMS Medicare Advantage Risk Adjustment software.[7] Below are the lists of HCCs used for each episode type in the risk adjustment model: • IP-CABG: HCC 37, HCC 48, HCC 125, HCC 126, HCC 127, HCC 155, HCC 199, HCC 213, HCC 224, HCC 226, HCC 228, HCC 229, HCC 238, HCC 249, HCC 253, HCC 263, HCC 280, HCC 298, HCC 326, HCC 327, HCC 383, HCC 409 • IP-Major Bowel Procedures: HCC 17, HCC 22, HCC 37, HCC 48, HCC 78, HCC 125, HCC 126, HCC 127, HCC 151, HCC 155, HCC 199, HCC 201, HCC 211, HCC 213, HCC 224, HCC 226, HCC 238, HCC 253, HCC 267, HCC 280, HCC 326, HCC 327, HCC 383, HCC 463 • IP-SHFFT: HCC 36, HCC 37, HCC 38, HCC 48, HCC 63, HCC 93, HCC 109, HCC 125, HCC 126, HCC 127, HCC 180, HCC 181, HCC 191, HCC 198, HCC 199, HCC 211, HCC 213, HCC 226, HCC 238, HCC 249, HCC 253, HCC 280, HCC 326, HCC 383, HCC 402 • MS-LEJR: HCC 17, HCC 36, HCC 37, HCC 48, HCC 125, HCC 126, HCC 127, HCC 151, HCC 155, HCC 199, HCC 224, HCC 225, HCC 226, HCC 238, HCC 253, HCC 267, HCC 280, HCC 326, HCC 327, HCC 383, HCC 402 • MS-Spinal Fusion: HCC 17, HCC 18, HCC 37, HCC 48, HCC 93, HCC 125, HCC 126, HCC 127, HCC 155, HCC 180, HCC 181, HCC 182, HCC 192, HCC 193, HCC 199, HCC 224, HCC 226, HCC 238, HCC 249, HCC 253, HCC 254, HCC 267, HCC 326, HCC 383, HCC 401
HCC Count	Inpatient, Outpatient, and Part B Carrier Claims	Count of HCCs for a given beneficiary, categorized into five risk adjuster variables: 0, 1, 2, 3, 4+

[7] The software is available on the CMS Medicare Advantage Risk Adjustment website.

Patient Risk Adjuster	Data Source/Input	Risk Adjuster Specifications
Post-Acute Care	Inpatient, Outpatient, and Part B Carrier Claims	The post-acute care risk adjuster indicates whether the beneficiary had any post-acute care (LTCH, SNF, HH, or IRF) stay in the 180-day period prior to the clinical episode. Applicable to IP-CABG, MS-LEJR, and MS-Spinal Fusion episode types only.
Age Group	Common Medicare Environment (CME)	Age of a given beneficiary, categorized into four risk adjuster variables: under 65, 65-74 years old, 75-84, and 85+
Disability	Common Medicare Environment (CME)	The disability risk adjuster indicates whether disability was the original reason for Medicare entitlement. Applicable to MS-LEJR episode type only.
Long-Term Institutional (LTI) Care	Long-Term Minimum Data Set (MDS)	The LTI risk adjuster indicates whether the beneficiary was institutionalized in a long-term care facility in the 180 days prior to the clinical episode start date. Applicable to IP-Major Bowel Procedure episode type only.
MS-LEJR Procedure Specific Adjustments	Inpatient and Outpatient Claims	The MS-LEJR episode type uses the following procedure specific risk adjusters, which are based on the presence of a given procedure during the anchor hospitalization or procedure: • ankle procedure or reattachment • partial hip procedure • total hip arthroplasty or hip resurfacing procedure • partial knee arthroplasty • total knee arthroplasty

Patient Risk Adjuster	Data Source/Input	Risk Adjuster Specifications
Beneficiary Economic	National CDI, CME	The beneficiary economic risk adjustment variable will take a value of 1 if the beneficiary meets at least one of the following criteria: *National Community Deprivation Index (CDI) is > 80.* Beneficiaries' census block group and zip code are identified in the CME database and merged with the national CDI data to obtain the national CDI ranks. For each beneficiary, check if the national CDI rank of the beneficiary's census block group is above the 80th percentile. *Low-Income Subsidy Copayment (LIS):* LIS status is obtained for each beneficiary by mapping the beneficiary's unique identifier from IP stays and OP claims to the CME database file that includes the deemed LIS status. For each beneficiary, check if their claim discharge date falls between or on the LIS status start and/or end dates. *Dual Status:* Beneficiary is fully eligible for Medicare and Medicaid (identified by dual status codes 02, 04, and 08 in the CME database).[8] For each beneficiary, check if their claim discharge date falls between or on the dual enrollment status start and/or end dates.

4.1.2 Hospital-Level Risk Adjusters

Create hospital-level risk adjusters using the methodology outlined in Table 3.

[8] https://resdac.org/cms-data/variables/medicare-dual-code-annual

Table 3: Hospital-Specific Risk Adjusters

Hospital Risk Adjuster	Data Source/Input	Construction Methodology
Safety-Net Hospitals	CME dataset; IP and OP claims	For the purposes of TEAM, a safety net hospital is defined as an Inpatient Prospective Payment System (IPPS) hospital that meets at least one of the following criteria:[9] 1. Exceeds the 75th percentile of the proportion of Medicare beneficiaries considered dually eligible for Medicare and Medicaid across all PPS acute care hospitals (ACHs) in the baseline period. The numerator and denominator are as follows: **Numerator:** Number of Medicare beneficiaries considered fully eligible for Medicare and Medicaid. **Denominator:** Total number of Medicare beneficiaries across all IPPS ACHs who bill Medicare in the baseline period. 2. Exceeds the 75th percentile of the proportion of Medicare beneficiaries partially or fully eligible to receive Part D LIS across all PPS ACHs in the baseline period. **Numerator:** Number of Medicare beneficiaries partially or fully eligible to receive Medicare Part D LIS. **Denominator:** Total number of Medicare beneficiaries across IPPS ACHs who bill Medicare in the baseline period.
Bed Size	Provider Specific Files (PSF)	Group hospitals by bed size into one of the following four categories: • Small: 0-250 beds • Medium: 251-500 beds • Large: 501-850 beds • Extra-Large: 851+ beds If a provider's bed size information was not found in PSF, assign that provider's bed size as missing. These missing bed size values are not included in the risk adjustment regression.

[9] Note that children's hospitals, cancer-PPS hospitals, emergency hospitals, veteran hospitals, Indian Health Services (IHS) hospitals, Maryland hospitals, and hospitals actively participating in the Rural Community Hospital Demonstration (RCHD) are excluded from the distributions for each criterion.

4.2 Calculate Benchmark Price

- **Step 1. Obtain average clinical episode spending for baseline years.** Clinical episodes are assigned to a corresponding baseline year based on the anchor end date of the clinical episode. Take the average scaled, winsorized clinical episode spending in standardized dollars for each baseline year, MS-DRG/HCPCS episode type, and region combination. Table 4 below provides an example for one MS-DRG/HCPCS episode type and region combination.

Table 4: Average Clinical Episode Spending Example

Baseline Year	MS-DRG/HCPCS Episode Type[10]	Region	Average Scaled, Winsorized Clinical Episode Spending
2022	469	Census Division 1	$20,000
2023	469	Census Division 1	$23,000
2024	469	Census Division 1	$25,000

- **Step 2. Calculate the adjustment factor.** For each MS-DRG/HCPCS episode type and region combination, using the values from **Step 1,** calculate the adjustment factor by dividing the average scaled, winsorized clinical episode spending in baseline year 3 by the average scaled, winsorized clinical episode spending in each baseline year. Table 5 below provides an example of creating the adjustment factor:

$$Adjustment\ factor_{by,drg,reg} = \frac{Avg\ sc\ wins\ episode\ spending_{by\,3,drg,reg}}{Avg\ sc\ wins\ episode\ spending_{by,drg,reg}}$$

Table 5: Adjustment Factor Calculation Example

Baseline Year	MS-DRG/HCPCS Episode Type	Region	Average Scaled, Winsorized Clinical Episode Spending	Adjustment Factor
2022	469	Census Division 1	$20,000	1.25

[10] HCPCS are mapped to applicable MS-DRGs prior to this step. Thus, only MS-DRGs are reported in this step and all the steps after, in target price calculations.

Baseline Year	MS-DRG/HCPCS Episode Type	Region	Average Scaled, Winsorized Clinical Episode Spending	Adjustment Factor
2023	469	Census Division 1	$23,000	1.09
2024	469	Census Division 1	$25,000	1[11]

- **Step 3. Adjust clinical episode spending to baseline year 3 dollars.** For each clinical episode, multiply the scaled, winsorized clinical episode spending in standardized dollars by the corresponding adjustment factor from **Step 2**. This will bring all clinical episode spending in the baseline period forward to the most recent baseline year, thus baseline year 1 and 2 spending would be expressed in baseline year 3 dollars. Table 6 below provides an example of applying the adjustment factor to clinical episode spending.

Table 6: Update Clinical Episode Spending to BY3 Dollars Example

Baseline Year	Episode ID	Scaled, Winsorized Clinical Episode Spending	Adjustment Factor	Scaled, Winsorized Clinical Episode Spending in BY3 Dollars
2022	1	$18,000	1.25	$22,500
2023	4	$22,000	1.09	$23,913
2024	7	$30,000	1	$30,000

- **Step 4. Calculate the benchmark price.** For each MS-DRG/HCPCS episode type and region combination, calculate the average scaled, winsorized clinical episode spending in baseline year 3 dollars for the baseline years. This is equivalent to the benchmark price.[12]

[11] The adjustment factor for baseline year 3 will always be equal to one.

[12] Please note that the FY2025/FY2026 IPPS Final Rule has an extra step in the benchmark price calculation. It states that benchmark prices will be calculated as a weighted average of episode spending in the three baseline years, with episode spending from baseline year 1 weighted at 17 percent, episode spending from baseline year 2 weighted at 33 percent, and episode spending in baseline year 3 weighted at 50 percent. For conciseness and simplicity, this step is omitted from this specifications document because weighting the baseline years equally or differentially results in the same benchmark price. Prior to calculating the weighted average, the baseline episode spending in the first two baseline years is trended to BY3 dollars (Step 3), so all components of the weighted average will be equal to the average clinical episode spending in the third baseline year.

4.3 Calculate Prospective Trend Factor

The prospective trend factor is calculated as the average of the regional and the national trend factor. The regional and national trends are calculated using five years of clinical episodes data and a log-linear regression model.[13, 14]

- **Step 5. Apply natural logarithmic transformation to clinical episode spending.** For each episode in the five years, take the natural log of the scaled, winsorized clinical episode spending in standardized dollars.

4.3.1 Calculate Regional Trend Factor

- **Step 6. Define and calculate the dependent variable for the regional trend regression.** In the log-linear regression model for the regional trend factor, define the dependent variable, $ln(S[t])_{drg,region}$ as the average of the natural logarithm of the scaled, winsorized clinical episode spending (S) in year t at the MS-DRG/HCPCS episode type and region level. For each of the five years, calculate the average of the natural log of the scaled, winsorized episode spending from **Step 5** at the MS-DRG/HCPCS episode type and region level.
- **Step 7. Run the log-linear regression for the regional trend factor.** With the dependent variable as defined in **Step 6**, and the calendar year based on the anchor end date as the independent variable, run the following regression model to obtain the regression coefficient of the calendar year variable $(\widehat{\beta_1})$.

$$ln(S[t])_{drg,region} = \propto_1 + \beta_1 \cdot t + \epsilon_{t1}$$

- **Step 8. Calculate the 2-year regional trend factor.** Exponentiate and square the regression coefficient of the calendar year variable from **Step 7**.

$$TF_{drg,region} = \left(e^{\widehat{\beta_1}}\right)^2$$

4.3.2 Calculate National Trend Factor

- **Step 9. Define and calculate the dependent variable for the national trend regression.** In the log-linear regression model for the national trend factor, define the dependent variable, $ln(S[t])_{drg,}$ as the average of the natural logarithm of the scaled,

[13] The prospective trend factor is the only component of the target price construction where five years of episodes data (i.e., the three baseline years and two trend years immediately prior to the baseline) is used. Other target price components only use the three baseline years' data.

[14] The clinical episodes included in the first trend year are defined as those with anchor start dates and anchor end dates in the calendar year corresponding to the first trend year, and for the rest of the calendar years, they include clinical episodes with anchor end dates in the calendar years regardless their anchor start dates. For more details on the trend year clinical episode construction, refer to the TEAM Clinical Episode Construction Specifications available on CMS TEAM website (https://www.cms.gov/priorities/innovation/innovation-models/team-model).

winsorized clinical episode spending (S) in year t at the MS-DRG/HCPCS episode type level. For each of the five years, calculate the average of the natural log of the scaled, winsorized episode spending from **Step 5** at the MS-DRG/HCPCS episode type level.

- **Step 10. Run the log-linear regression for the national trend factor.** With the dependent variable as defined in **Step 9**, and the calendar year based on the anchor end date as the independent variable, run the following regression model to obtain the regression coefficient of the calendar year variable ($\widehat{\beta_2}$).

$$ln(S[t])_{drg} = \propto_2 + \beta_2 \cdot t + \epsilon_{t2}$$

- **Step 11. Calculate the 2-year national trend factor.** Exponentiate and square the regression coefficient of the calendar year variable from **Step 10**.

$$TF_{drg} = \left(e^{\widehat{\beta_2}}\right)^2$$

4.3.3 Calculate Prospective Trend Factor

- **Step 12. Calculate the prospective trend factor.** Take the arithmetic mean of the 2-year regional and national trend factors:

$$Prospective\ Trend\ Factor_{drg,region} = \frac{TF_{drg,region} + TF_{drg}}{2}$$

4.4 Calculate Prospective Normalization Factor

The following section describes the steps to create the prospective normalization factor, which includes running the risk adjustment model and creating the risk adjustment multiplier.

4.4.1 Risk Adjustment

Merge the national set of clinical episodes file constructed with risk adjusters per **Section 4.1** and run a one-stage, weighted linear regression model to calculate the risk adjustment coefficients. The following section describes the steps to run the regression at the MS-DRG/HCPCS episode type level.[15]

- **Step 13. Define the dependent variable.** In the risk adjustment model, the dependent variable is the natural log difference between scaled, winsorized, clinical episode spending in baseline year 3 dollars and the corresponding benchmark price.
    - For each clinical episode, obtain the corresponding MS-DRG/HCPCS episode type and region level benchmark price.

[15] Note that the list of risk adjusters is specific to each episode type.

- For each clinical episode *i*, calculate the natural log difference between the scaled, winsorized clinical episode spending in baseline year 3 dollars and the benchmark price as:

$$epi\_tp\_diff_i = \ln(episode\_spending_i) - \ln(Benchmark\_Price_{i \in drg, reg})$$

- **Step 14. Run the weighted linear regression.** For each MS-DRG/HCPCS episode type, fit a linear, weighted Ordinary Least Squares (OLS) regression, applying the weights shown in Table 7 to each baseline year.

Table 7: Baseline Year Weight for Risk Adjustment Regression

Baseline Year	Weight
BY1	0.17
BY2	0.33
BY3	0.50

  - To obtain the risk adjustment coefficients, use the clinical episode level file and run the following regression by setting the dependent variable to $epi\_tp\_diff_i$ with the applicable risk adjusters, where X refers to the beneficiary-level covariates, Z refers to the hospital-level covariates, and ϵ_i refers to the error term:

$$epi\_tp\_diff_i = \beta X_i + \gamma Z_i + \epsilon_i$$

  - Note: Covariates are only included if the variable is present in at least 21 clinical episodes in a given MS-DRG/HCPCS episode type during the baseline period.

4.4.2 Create Prospective Normalization Factor

- **Step 15. Create the risk adjustment multiplier.** Restricting to baseline year 3 clinical episodes only, use the risk adjustment coefficients from **Step 14**, and calculate the risk adjustment multiplier for each clinical episode as:

$$Risk\ adj\ multiplier_i = e^{\widehat{epi\_tp\_diff_i}}$$

where $\widehat{epi\_tp\_diff_i}$ is the predicted value using the estimated coefficients from the risk adjustment regression and the applicable baseline year 3 clinical episodes. The intercept is not included in the prediction.

  - Note: The coefficient for the beneficiary economic risk adjuster will only be used in the risk adjustment multiplier if its sign is positive.

- **Step 16. Calculate the prospective normalization factor:** For each MS-DRG/HCPCS episode type and region combination, calculate the prospective normalization factor as the sum of the benchmark prices in the clinical episode level file divided by the sum of the risk adjusted benchmark prices (i.e., benchmark price multiplied by the risk adjustment multiplier from **Step 15)** in the clinical episode level file.

$$Prospective\ normalization\ factor_{drg,reg} = \frac{\sum_{i \in drg,reg} benchmark\ price}{\sum_{i \in drg,reg} benchmark\ price\ \times risk\ adj\ multiplier_i}$$

4.5 Create Preliminary Target Prices

There are two levels of preliminary target prices: (1) MS-DRG/HCPCS episode type and region level target price, and (2) hospital-specific target price. The hospital-specific target prices are calculated by multiplying the MS-DRG/HCPCS episode type and region level target price with the prospective normalization factor and the average hospital-level risk adjustment multiplier.

- **Step 17. Create MS-DRG/HCPCS episode type and region level target price.** This level of target price is calculated by multiplying the components created in **Step 4** and **Step 12** by the CMS discount factor shown in Table 8.

$$Preliminary\ target\ price_{drg,reg} = benchmark\ price_{drg,reg} \times prospective\ trend\ factor_{drg,reg} \times (1 - discount\ factor_{epi\ type})$$

Table 8: CMS Discount Factor by Episode Type

Episode Type(s)	CMS Discount Factor
IP-CABG IP-Major Bowel Procedure	1.5%
IP-SHFFT MS-LEJR MS-Spinal Fusion	2%

- **Step 18. Calculate hospital-specific risk adjustment multiplier.** At a given hospital, calculate the average risk adjustment multiplier using all clinical episodes from all three baseline years for a given MS-DRG/HCPCS episode type.[16]

[16] Please note each hospital can only be located in one region.

$$Avg\ risk\ adjustment\ multiplier_{drg,ach} = \frac{\sum_{i \in drg,ach} risk\ adjustment\ multiplier_i}{\sum_{i \in drg,ach} episode\ count_i}$$

- **Step 19. Create hospital-specific target prices.** Multiply the components created in **Steps 4, 12, 16,** and **18** by the CMS discount factor shown in Table 8.

$$Preliminary\ target\ price_{drg,ach} = benchmark\ price_{drg,reg} \times prospective\ trend\ factor_{drg,reg} \times \times prospective\ normalization\ factor_{drg,reg} \times avg\ risk\ adj\ multiplier_{drg,ach} \times (1 - discount\ factor_{epi\ type})$$