



Bundled Payments  
for Care Improvement  
Advanced | *BPCI*  
*Advanced*

**Clinical Episode Reconciliation  
Specifications  
Model Year 4**

**Center for Medicare & Medicaid Services (CMS)  
Center for Medicare & Medicaid Innovation  
(Innovation Center)**

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# 1 INPUTS

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**Table 1: Clinical Episode Reconciliation Inputs**

#	Name	Description
1	BPCI Advanced National and Participant Performance Period Clinical Episodes	The national and Participant set of Clinical Episodes and associated spending amounts in the Performance Period.
2	Final Target Prices	Prices finalized at the time of Reconciliation by replacing the preliminary Patient Case Mix Adjustment (PCMA) with the realized value, the preliminary Relative Case Mix with the updated Relative Case Mix, <sup>1</sup> and updating the prices using the retrospective trends capped at 10% (a.k.a the capped PGT Factor Adjustment) in the Performance Period.
3	Quality Measures Data	Individual Quality Measure scores used to calculate Composite Quality Score (CQS) for each Episode Initiator.
4	Master Data Management (MDM)	These data are used as an input to identify beneficiaries aligned to Accountable Care Organizations (ACOs) to be excluded from BPCI Advanced.

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<sup>1</sup> Please note that only the numerator in the Relative Case Mix term is updated during the Performance Period.

## 2 OUTPUTS

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**Table 2: Clinical Episode Reconciliation Outputs**

#	Name	Description
1	Net Payment Reconciliation Amount (NPRA)	The amount paid to the Participant by CMS after the Reconciliation.
2	Repayment Amount	The amount paid by the Participant to CMS after the Reconciliation.
3	Excess Spending Amount	The amount paid by the Participant to CMS after Post-Episode Spending Calculations.

### 3 CLINICAL EPISODE RECONCILIATION OVERVIEW

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The following document describes the specifications used for semi-annual Reconciliation calculations and Post-Episode Spending Calculations for the Bundled Payments for Care Improvement Advanced (BPCI Advanced) model. This document is based on the methodology and outputs from the previous steps of the model that are discussed in the Clinical Episode construction<sup>2</sup> and Target Price construction<sup>3</sup> specifications documents. To refer to specific steps from the Clinical Episode construction and Target Price construction specifications, this document uses **CE-Step** and **TP-Step**, respectively.

As part of the Reconciliation process, for each Participant (both Convener Participants and Non-Convener Participants) CMS compares the Medicare Fee-For-Service (Medicare FFS) allowed amounts from the Episode Initiator's Clinical Episodes against final Target Prices and identifies payments above or below the final Target Price by the defined amount. After applying payment adjustments and capping amounts to limit risk exposure, defined amounts are represented by either the *Net Payment Reconciliation Amount (NPRA)* (the amount paid to the Participant by CMS) or the *Repayment Amount* (the amount paid by the Participant to CMS). In addition to calculating Reconciliation amounts, CMS performs true-up calculations to update initial Reconciliation amounts and prior true-ups using claims processed as of a later date, and quality adjustments, where applicable. Finally, for each Participant, CMS performs a Post-Episode Spending Calculation that determines whether aggregate Medicare FFS spending on items and services furnished to BPCI Advanced Beneficiaries during the Post-Episode Spending Monitoring Period exceeds a calculated threshold in order to prevent excess spending in the days following the Clinical Episode period.

Figure 1 contains the timeline for the sequential stages of the Reconciliation process for Performance Periods 5, 6, and 7.<sup>4</sup> For example, for Participants with Clinical Episodes ending between January 1, 2021 and June 30, 2021 (Performance Period 5), CMS will conduct the initial Reconciliation in Fall 2021, and first and second true-up calculations in Spring 2022 and Fall 2022, respectively. Additionally, Model Year 4 Clinical Episodes that end in CY2022 will be reconciled and “trued-up” on the same schedule as the first Reconciliation in Model Year 5 (Performance Period 7). Target Price assignment is determined using Anchor Stay discharge or Anchor Procedure completion date, and Performance Period is determined using Clinical Episode end date. Quality adjustments based on the Composite Quality Score (CQS) will be first applied during the second true-up calculations for Performance Period 5 and the first true-up calculations for Performance Period 6 (Fall 2022). Post-Episode Spending Calculations will

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<sup>2</sup> “Clinical Episode Construction Specifications Model Year 4”:

<https://innovation.cms.gov/media/document/bpciadvanced-my4-clinical-episode-construction-specs-v2>

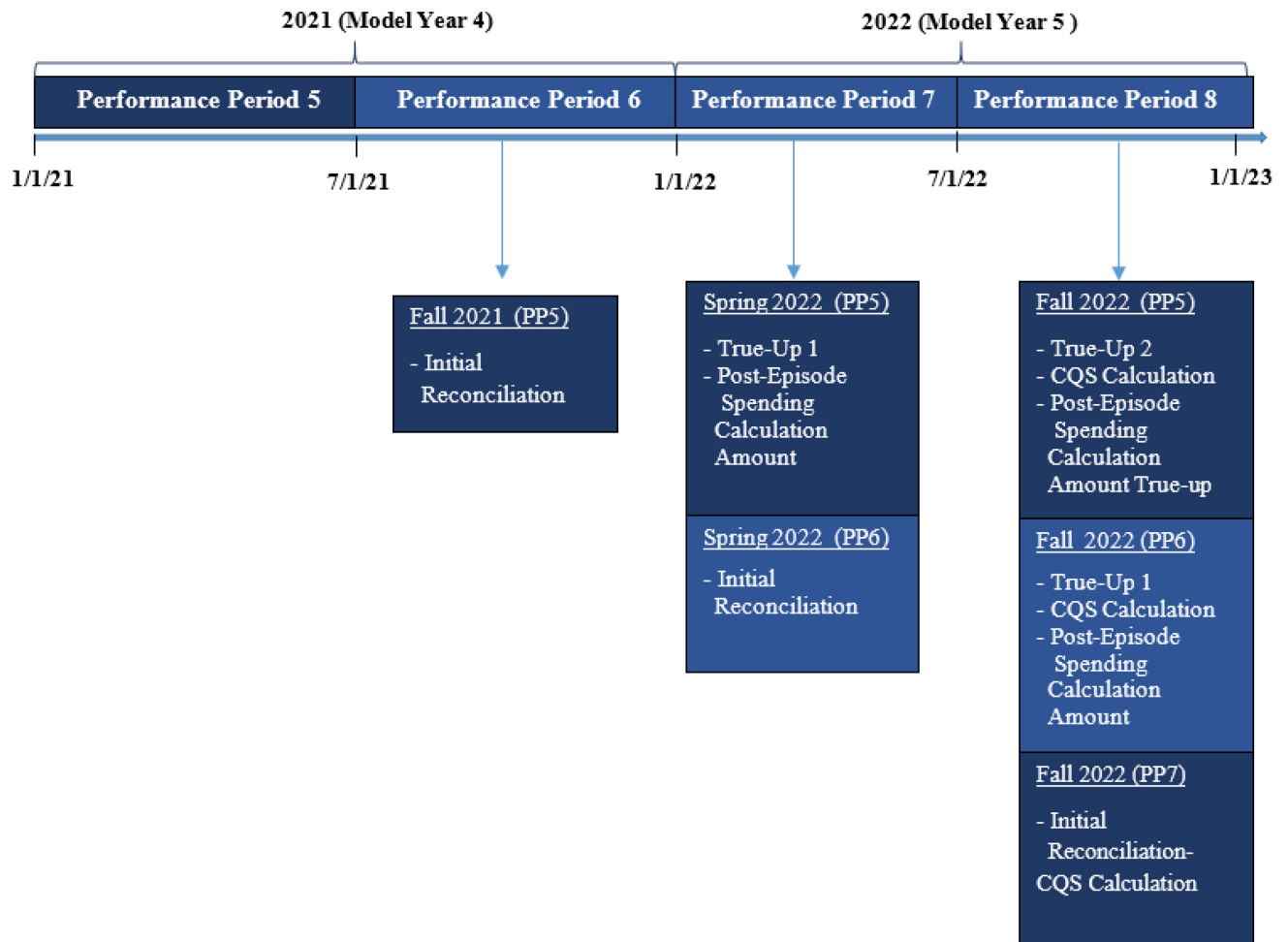
<sup>3</sup> “BPCI-Advanced-Target-Price-Specifications-Model-Year-4”:

<https://innovation.cms.gov/media/document/bpciadvanced-targetprice-specs-my4-v2>

<sup>4</sup> Refer to Table 3 for date ranges of each Performance Period in Model Year 4.

initially occur during the first true-up calculation of each Performance Period and will be recalculated during the second true-up.

**Figure 1. Reconciliation Timeline**



The next 7 sections contain detailed descriptions of the sequential stages of the Reconciliation process.

- **Section 4** provides the methodology for calculating Performance Period Clinical Episode payments in real dollars.
- **Section 5** discusses the methodology for calculating final Target Prices using the updated PCMA, the updated Relative Case Mix, and the capped PGT Factor Adjustment.

- **Section 6** provides the methodology for calculating Total Performance Period Target Amounts for each Episode Initiator.
- **Section 7** describes quality measures and provides detailed methodology for the calculation and implementation of CQS.
- **Section 8** describes the step-by-step calculation of Reconciliation amounts.
- **Section 9** walks through semi-annual true-up calculations.
- **Section 10** introduces BPCI Advanced Post-Episode Spending Calculations.



## 4 CALCULATE PERFORMANCE PERIOD CLINICAL EPISODE PAYMENTS

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This section describes steps to calculate Performance Period Clinical Episode payments for each Episode Initiator and Clinical Episode Category, using the Performance Period Clinical Episodes with the date ranges detailed in Table 3.

**Table 3: Model Year 4 Clinical Episode Date Ranges**

Performance Periods	Date Range
Performance Period 5	Clinical Episodes with a Clinical Episode end date between 1/1/2021 and 6/30/2021 and an Anchor Stay discharge date or Anchor Procedure completion date on or after 1/1/2021. <sup>5,6</sup>
Performance Period 6	Clinical Episodes with a Clinical Episode end date between 7/1/2021 and 12/31/2021. <sup>7</sup>
Performance Period 7	Clinical Episodes with a Clinical Episode end date on or after 1/1/2022, but an Anchor Stay discharge date or Anchor Procedure completion date on or before 12/31/2021 <sup>8</sup>

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<sup>5</sup> When a Participant terminates participation in the Model, the Participant will be accountable for Clinical Episodes if the Anchor Stay/Anchor Procedure discharge/completion date is prior to the effective date of the termination. Performance Period attribution will be based on Clinical Episode end date.

<sup>6</sup> Clinical Episodes with an Anchor Stay discharge date or Anchor Procedure completion date during Calendar Year (CY) 2020 and Clinical Episode end dates during CY2021 will be considered MY3 Clinical Episodes. If a Participant is active in the Clinical Episode Category for the first time in MY4 as a result of the Clinical Episode Service Line Group, then in the Performance Period, the Participant will not be attributed any MY4 Clinical Episodes that had Clinical Episode start dates prior to the start of MY4.

<sup>7</sup> Refer to footnote 5.

<sup>8</sup> For purposes of Target Price and Clinical Episode construction, Clinical Episodes with a Clinical Episode end date on or after 01/01/2022 and an Anchor Stay discharge date or Anchor Procedure completion date on or after 01/01/2022 are not identified as MY4 Clinical Episodes and are identified as MY5 Clinical Episodes.

- **Step 1. Aggregate Performance Period Clinical Episode payments at the Episode Initiator-Clinical Episode Category level:** Use the BPCI Advanced Participant Clinical Episodes ending in the applicable Performance Period to calculate each Episode Initiator’s total spending for a particular Clinical Episode Category. <sup>9</sup>Specifically, for each Episode Initiator, sum the standardized allowed amounts across all the Clinical Episodes in that Clinical Episode Category. If the Episode Initiator is an Acute Care Hospital (ACH), aggregate spending for all Clinical Episodes initiated and attributed to the ACH. If the Episode Initiator is a Physician Group Practice (PGP), aggregate spending for all attributed Clinical Episodes based upon initiating claims billed under the PGP’s TIN, as described in the Clinical Episode Construction Specifications.<sup>10</sup>
- **Step 2. Convert Performance Period Clinical Episode payments to real dollars to obtain final Performance Period Clinical Episode payments:** Convert the Performance Period Clinical Episode payments to real dollars using the following steps:
  - **Step 2a.** Create a ratio of real dollars to standardized dollars by dividing the sum of real Clinical Episode payments by the sum of standardized Clinical Episode payments in the Performance Period for each Episode Initiator and Clinical Episode Category.
  - **Step 2b.** Multiply the Performance Period Clinical Episode payments (**Step 1**) by the ratio of real dollars to standardized dollars calculated in **Step 2a**.

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<sup>9</sup> COVID-19 adjuvants will be excluded from Performance Period Clinical Episode payments that meet the following criteria: (i) drug HCPCS codes that correspond to COVID-19 adjuvants that are used to treat COVID-19 but were already on the market prior to COVID-19 and are clinically reviewed and (2) drug HCPCS codes that correspond to drugs and/or vaccines approved solely for COVID-19 and are clinically reviewed. CMS will publish the list of excluded COVID-19 HCPCS ahead of each Reconciliation cycle.

<sup>10</sup>  $Performance\ Period\ Clinical\ Episode\ Payments_{m,ce,t} = \sum_{h \in H} \sum_{i \in T(m,h,ce,t)} Y_{i,m,t}$

where:

$i$  is the specific Clinical Episode

$h$  is the ACH at which the Clinical Episode is initiated

$t$  is the applicable Performance Period

$m$  is the Episode Initiator which can be either an ACH or PGP

$ce$  is the specific Clinical Episode Category

$Y_{i,m,t}$  is the standardized Clinical Episode allowed amount

The value  $i \in T(m,h,ce,t)$  refers to a Clinical Episode  $i$  from the set of Clinical Episodes initiated by an Episode Initiator  $m$  at ACH  $h$  at time  $t$ .  $T(m,h,ce,t)$  will be empty for all  $h \in H$  at which the Episode Initiator is not assigned a Clinical Episode.

## 5 CALCULATE FINAL TARGET PRICE

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This section explains how to calculate the final Target Price. The final Target Price methodology updates the preliminary Target Price at the time of Reconciliation by using realized Performance Period data to calculate the updated PCMA and the updated Relative Case Mix. This practice ensures that final Target Prices accurately reflect the case mix of the patients treated during a given Performance Period. The Standardized Baseline Spending (SBS), Peer Group Historical Adjustment (PGHA), and Peer Group Trend (PGT) Factor remain constant from the preliminary Target Price calculation.<sup>11</sup> The final Target Price methodology also includes the capped PGT Factor Adjustment (PGT\_Adj) to ensure the maximum difference between prospective and realized peer group trend is 10%. Thus, for ACHs, the updated Hospital Benchmark Price (HBP) is calculated by updating the PCMA term, using the following equation:

$$HBP_h^u = SBS_h * PCMA_h^u * PGHA_h * PGT_h * PGT\_Adj_h$$

where  $h$  is the ACH to which the Clinical Episode is attributed, and  $u$  denotes that the term is the updated version.

For PGP Episode Initiators, the updated PGP-ACH Benchmark Price is calculated by updating the Relative Case Mix term so that it compares the Performance Period case mix of the PGP's Clinical Episodes at the ACH, to the baseline period case-mix of the ACH's episodes. The final PGP-ACH Benchmark Price is calculated using the following equation:

$$PGP\ ACH\ Benchmark\ Price_{p,h}^u = HBP_h^i * PGT\_Adj_h * Relative\ Case\ Mix_{p,h}^u$$

where  $p$  is the PGP to which the Clinical Episode is attributed;

$h$  is the ACH at which the Clinical Episode is initiated;

$i$  denotes that the term is the preliminary version;

$u$  denotes that the term has been updated to reflect realized Performance Period spending;

and  $PGT\_Adj$  is the capped PGT Factor Adjustment

The formulas above use components of preliminary Target Prices that are updated each Model Year to account for the most recently available Medicare payment rates. Specifically, the preliminary Target Prices for Model Year 4 will be updated two times to align with updates to Medicare FFS payment rates. The preliminary Target Prices distributed in October 2020 were based upon the FY2020 and CY2020 Final Rules. The preliminary Target Prices distributed in March 2021 reflect FY2021 and CY2021 payment rate updates. The goal of these updates is to

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<sup>11</sup> Though the Medicare payment rate updates will impact the SBS and PAT factor terms, any resulting changes to the Target Price will be delivered to Participants prospectively and therefore will be a part of the Preliminary Target Price.

maintain an accurate benchmark against which the Model compares Aggregate FFS Payments (AFP). While the group of baseline period Clinical Episodes remains the same, the revised payment rates are used to inflate the spending amounts of these baseline period Clinical Episodes to current Medicare payment rates. Risk adjustment is rerun under specifications identical to the initial preliminary Target Prices. This results in updated coefficients and, ultimately, updated preliminary Target Prices. The changes to pricing only reflect changes to the relevant prices finalized in the Final Rules. Since, on average, rates increase, it is anticipated that these updates will on average increase preliminary Target Prices. These new preliminary Target Prices are provided to Participants as soon as feasible following publication of the applicable Final Rules in the Federal Register. Preliminary Target Prices will be updated one additional time during Model Year 4 for the finalized FY2022 payment rates, which will be applied to Clinical Episodes with an Anchor Stay discharge or Anchor Procedure completion date in 2021Q4. Refer to Table 4 below for dates and payment rate periods pertaining to the updates.

**Table 4: Preliminary Target Price Updates**

Preliminary Target Price Estimated Release Date	Preliminary Target Price Effective Date	Applicable FFS Payment Rate Period <sup>12</sup>
October 2020	N/A	FY2020 and CY2020 <sup>13</sup>
March 2021	January 1, 2021	FY2021 and CY2021
December 2021	October 1, 2021	FY2022

These preliminary Target Prices, adjusted for the new Medicare payment rates, will be converted to final Target Prices using the steps described below.

- **Step 3. Determine updated HBP:** To ensure that Target Prices accurately reflect the case mix of the patients treated during a given Performance Period, update the preliminary HBP (**TP-Step 13**) to take into account the realized case mix of the Performance Period that has now ended for each ACH and Clinical Episode Category. This requires recalculating the Clinical Episode level patient case mix adjustment amount that comes from the predicted values of the first stage of the risk adjustment model and adjusting the PCMA term and the HBP to account for the updates. This step does not involve rerunning the risk adjustment models.
  - **Step 3a.** For an ACH, apply the beneficiary-level coefficient values from **TP-Step 2** to the Clinical Episodes in the Performance Period. Specifically, rerun **TP-Step 3** using the Performance Period Clinical Episodes to calculate the Clinical Episode-level patient case mix adjustment amount.

<sup>12</sup> Fiscal year payment rate updates will incorporate changes in the Inpatient Prospective Payment System (IPPS), Inpatient Rehabilitation Facility (IRF) and Skilled Nursing Facility (SNF) Final Rules. Calendar year update will incorporate changes in the Outpatient Prospective Payment System (OPPS), Physician Fee Schedule (PFS) and Home Health Agency (HHA) Final Rules. The calendar year updates will also incorporate Medicare Economic Index (MEI).

<sup>13</sup> Initial preliminary Target Prices are based on the 2020 payment rates due to availability at the time of workbook distribution.

- **Step 3b.** Rerun **TP-Step 10** to calculate the updated PCMA for the ACH and Clinical Episode Category by taking the average Clinical Episode-level patient case mix adjustment amount (**Step 3a**) and dividing by the Average Observed Clinical Episode Spending (**TP-Step 7**). The Average Observed Clinical Episode Spending is a normalizing factor that is used to interpret the SBS in dollars and the PCMA terms as ratios relative to national baseline case mix. It is calculated by taking the average predicted spending for all Clinical Episodes in the national set of Clinical Episodes for a Clinical Episode Category, and it remains unchanged from preliminary Target Price construction.
- **Step 3c.** Calculate the capped PGT Factor Adjustment (**TP-Step 19**) by creating a modified version of the updated PCMA term that accounts for the patient case mix among all final Performance Period Clinical Episodes initiated at the ACH, rather than among Performance Period Clinical Episodes attributed to the ACH. Multiply the modified updated PCMA with the ACH's PGHA, PGT, SBS, and count of Performance Period Clinical Episodes in the national set after overlap resolution, that were initiated at the ACH. Take the sum of this product over all ACHs in the peer group. Divide the total Performance Period Clinical Episode spending summed across all Clinical Episodes initiated at eligible ACHs within each peer group by the summed value above. This ratio is the PGT Factor Adjustment. Cap the PGT Factor Adjustment at 10% so that the maximum difference between the prospective peer group trend and realized peer group trend is 10%. This is the capped PGT Factor Adjustment.
- **Step 3d.** Rerun **TP-Step 13** by multiplying the five components that make up the updated HBP: the SBS (**TP-Step 9**), the updated PCMA (**Step 3b**), the PGHA (**TP-Step 11**), the PGT Factor (**TP-Step 12**), and the capped PGT Factor Adjustment (**Step 3c**) for each ACH and Clinical Episode Category.
- **Step 4. Determine updated PGP-ACH Benchmark Price:** Calculate the updated PGP-ACH Benchmark Price for each Clinical Episode Category by taking into account the PGP's realized case mix at the ACH during the Performance Period that has now ended.
  - **Step 4a.** Rerun **TP-Step 14** to calculate the updated Relative Case Mix using Performance Period Clinical Episodes. Calculate the updated PCMA at the PGP-ACH level by taking the average Clinical Episode-level patient case mix adjustment amount (**Step 3a**) for each PGP-ACH<sup>14</sup> combination and dividing by the Average Observed Clinical Episode Spending (**TP-Step 7**). Calculate updated Relative Case Mix as the ratio of the final PCMA for each PGP-ACH pair over the preliminary PCMA for the applicable ACH (**TP-Step 10**).

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<sup>14</sup> Limited to ACHs at which the PGP initiates Clinical Episodes that are assigned to it. Only those ACHs which have at least 41 Clinical Episodes for that Clinical Episode Category in the baseline period are considered.

- **Step 4b.** Calculate the updated PGP-ACH Benchmark Price as the product of the preliminary HBP (**TP-Step 13**) capped PGT Factor Adjustment (**Step 3c**), and the updated Relative Case Mix (**Step 4a**).
- **Step 5. Determine final Target Prices:** Calculate the final Target Prices by applying the CMS Discount Factor and converting the price from standardized to real dollars.
  - **Step 5a.** Apply a 3% CMS Discount Factor (**TP-Step 16**) to updated HBPs and updated PGP-ACH Benchmark Prices to calculate the updated Target Prices in standardized dollars for ACHs and PGPs, respectively.
  - **Step 5b.** Calculate final Target Prices by converting the updated Target Prices (**Step 5a**) into real dollars. Multiply the updated Target Prices by a ratio of real dollars to standardized dollars (**Step 2b**) for each Episode Initiator and Clinical Episode Category.

## 6 CALCULATE TOTAL PERFORMANCE PERIOD TARGET AMOUNT

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This section describes how to calculate the Total Performance Period Target Amount based upon the final Target Prices for each of the Episode Initiator's Clinical Episode Categories. For ACHs and PGPs practicing at a single ACH, the Total Performance Period Target Amount for each Clinical Episode Category is the category volume in the Performance Period multiplied by the Target Price. For PGPs that trigger Clinical Episodes at more than one ACH, the calculation accounts for the volume distribution of Clinical Episodes across ACHs at which they are initiated. To apply the PGP-ACH Target Prices to the overall Clinical Episode Category, the PGP's Target Prices are volume-weighted to account for the number of Performance Period Clinical Episodes occurring at each ACH for each Clinical Episode Category.

- **Step 6. Determine Total Performance Period Target Amount:** Multiply final Target Prices by Performance Period Clinical Episode volume for each Episode Initiator and Clinical Episode Category.<sup>15</sup>
  - **Step 6a.** Count the number of Clinical Episodes assigned to an Episode Initiator for a specific Clinical Episode Category in the Performance Period. For a PGP that practices across multiple ACHs, count the number of Clinical Episodes at each ACH separately.
  - **Step 6b.** For each Episode Initiator and Clinical Episode Category, multiply the final Target Prices (**Step 5**) by the number of Clinical Episodes in the Performance Period (**Step 6a**). For ACHs or PGPs that initiate Clinical Episodes at a single ACH for the applicable category, the result is the Total Performance Period Target Amount. For PGP Episode Initiators, calculate the Clinical Episode volume-weighted sum of the Target Prices of all the ACHs where the PGP Episode Initiator is attributed Clinical Episodes. The weights are the number of Performance Period Clinical Episodes in a given Clinical Episode Category initiated at each ACH during the Performance Period.

Table 5 provides a sample calculation with fabricated data of Total Performance Period Target Amounts for two ACH (H1000 and H2000) and one PGP (P000) Episode Initiators. The PGP, P000, is attributed Clinical Episodes at only one ACH (H1000) for Clinical Episode

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<sup>15</sup> The mathematical expression for the Total Performance Period Target Amount is:

$$\text{Total Performance Period Target Amount}_{m,ce,t} = \sum_{h \in H} \text{Final Target Price}_{m,h,ce,t} * \text{Number of Clinical Episodes}_{m,h,ce,t}$$

where:

Number of Clinical Episodes<sub>m,h,ce,t</sub> = the sum of all Clinical Episodes in time period T for the given m, h, ce, and t. T(m,h,ce,t) will be empty for all h ∈ H at which the Episode Initiator is not attributed a Clinical Episode.

Category CE1 while it is attributed Clinical Episodes across two ACHs (H1000 and H2000) for Clinical Episode Category CE2.

**Table 5: Total Performance Period Target Amount Sample Calculation**

Episode Initiator	PGP/ACH	ACH CCN Associated with Initiating Claim	Clinical Episode Category	Performance Period Clinical Episode Count	Step 2a	Step 5		Step 6
					Ratio of Real Dollars to Standardized Dollars	Target Price (Standardized Dollars)	Final Target Price (Real Dollars)	Total Performance Period Target Amount (Real Dollars)
H1000	ACH		CE1	34	1.01	\$24,290	\$24,533	\$834,122
H1000	ACH		CE2	15	1.04	\$18,112	\$18,836	\$282,540
H1000	ACH		CE3	28	0.99	\$53,248	\$52,716	\$1,476,048
H1000	ACH		CE4	45	0.89	\$33,039	\$29,405	\$1,323,225
H1000	ACH		CE5	52	1.11	\$24,722	\$27,441	\$1,426,932
H2000	ACH		CE1	12	1.02	\$20,099	\$20,501	\$246,012
H2000	ACH		CE2	1	1.01	\$37,190	\$37,562	\$37,562
H2000	ACH		CE3	14	0.86	\$17,574	\$15,114	\$211,596
H2000	ACH		CE4	150	0.93	\$21,157	\$19,676	\$2,951,400
P000	PGP	H1000	CE1	15	1.01	\$31,434	\$31,748	\$476,220
P000	PGP	H1000	CE2	7	1.05	\$31,898	\$33,493	\$545,231
P000	PGP	H2000	CE2	10	1.05	\$29,598	\$31,078	\$545,231

Note: Examples are not associated with the fabricated data used in other BPCI Advanced specifications documents. All dollar values are rounded to the nearest dollar and ratios are rounded to two decimal places. For PGPs that initiate Clinical Episodes in the same category across multiple ACHs, Total Performance Period Target Amounts are rolled up to the PGP level. Refer to PGP P000 CE2 for an example.



## 7 CALCULATE COMPOSITE QUALITY SCORE

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An important feature of BPCI Advanced is the use of quality performance data to adjust Reconciliation amounts for Participants. By tying payment to performance on quality measures, CMS aims to incentivize providers to improve quality of care while improving efficiency. In MY4, Participants can select either the Administrative Quality Measure Set or the Alternate Quality Measure Set for each Clinical Episode Category they are participating in. For each Clinical Episode Category and Episode Initiator, quality measures based on Participant selections are weighted to calculate the Composite Quality Score (CQS) and CQS Adjustment Amount, which is then applied to the Negative/Positive Total Reconciliation Amounts during true-up calculations to calculate the Adjusted Negative/Positive Total Reconciliation Amount for each Episode Initiator. Using the quality measurement data that are calculated once per year, the CQS Adjustment Amount for Model Year 4 will be applied in Fall 2022 true-up and continue to be incorporated in any subsequent true-ups for a given Performance Period. The following subsections introduce the BPCI Advanced quality measures and provide the step-by-step methodology for calculating the CQS and CQS Adjustment Amount. Data shown throughout this section are fabricated to illustrate CQS calculations.<sup>16</sup>

### 7.1 Quality Measures

CMS selected Administrative and Alternate Quality Measure sets to ensure quality performance can be assessed across the full range of Clinical Episode Categories offered under the BPCI Advanced model. The Administrative Quality Measure set for MY4 contains the same claims-based measures as those used in MY1&2 and MY3. The Alternate Quality Measure set introduces claims-based and registry-based quality measures tailored to align with each of the specialty-specific Clinical Episodes in the model. Table 6 lists quality measures that have been selected to calculate Episode Initiator level CQS for Model Year 4. CMS may update the list of quality measures for future Model Years.

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<sup>16</sup> Fabricated data used in this section are not associated with other fabricated data used throughout the rest of this document or in other BPCI Advanced specifications documents.

**Table 6: BPCI Advanced Quality Measures**

Quality Measure	Quality Measure Category Abbreviation	Guiding NQF / PSI/QPP # <sup>17</sup>	Hospital/ Episode Initiator Based <sup>18</sup>	MIPS (Y/N)	Applicable Clinical Episode Categories	Applicable Quality Measure
All-cause Hospital Readmission Measure	All-Cause Readmissions	NQF #1789	Hospital Based	Y	<ul style="list-style-type: none"> <li>All Inpatient and Outpatient Clinical Episode Categories</li> </ul>	Administrative and Alternate
Advance Care Plan	ACP	NQF #0326	Episode Initiator Based	Y	<ul style="list-style-type: none"> <li>All Inpatient and Outpatient Clinical Episode Categories</li> </ul>	Administrative and Alternate
Perioperative Care: Selection of Prophylactic Antibiotic: First or Second Generation Cephalosporin	Perioperative Care	NQF #0268	Episode Initiator Based	Y	<ul style="list-style-type: none"> <li>Back and Neck Except Spinal Fusion (Inpatient and Outpatient)</li> <li>Bariatric Surgery</li> <li>Cardiac Valve</li> <li>Coronary Artery Bypass Graft (CABG)</li> <li>Double Joint Replacement of the Lower Extremity (DJRLE)</li> <li>Hip and Femur Procedures Except Major Joint</li> <li>Lower Extremity and Humerus Procedure Except Hip, Foot, Femur</li> <li>Major Bowel Procedure</li> <li>Major Joint Replacement of the Lower Extremity (MJRLE) (Multi-setting)</li> <li>Major Joint Replacement of the Upper Extremity</li> <li>Spinal Fusion</li> </ul>	Administrative
Hospital-Level Risk-Standardized Complication Rate Following Elective Primary Total Hip Arthroplasty and/or Total Knee Arthroplasty	RSCR Following THA/TKA	NQF #1550	Hospital Based	N	<ul style="list-style-type: none"> <li>Double Joint Replacement of the Lower Extremity (DJRLE)</li> <li>Major Joint Replacement of the Lower Extremity (MJRLE) (Multi-setting)</li> </ul>	Administrative and Alternate

<sup>17</sup> Please note that several measures were adapted from NQF-endorsed measures; some of the measure specifications were changed for use in the BPCI Advanced model. NQF has not reviewed or approved the revised measure specifications. Any deviations from these measure specifications will be noted.

<sup>18</sup> This column refers to the level at which the NQF/ PSI measure is calculated. All measures will be applied to all participating Episode Initiators. Where the endorsed measure is hospital-based, the measure is adjusted to apply to the PGP. The NQF-endorsed Perioperative Care measure is physician-based, but it will be adjusted to apply to the hospital. Note that these represent deviations from NQF/PSI specifications.

Quality Measure	Quality Measure Category Abbreviation	Guiding NQF / PSI/QPP # <sup>17</sup>	Hospital/ Episode Initiator Based <sup>18</sup>	MIPS (Y/N)	Applicable Clinical Episode Categories	Applicable Quality Measure
Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate Following Coronary Artery Bypass Graft Surgery	RSMR Following CABG	NQF #2558	Hospital Based	N	<ul style="list-style-type: none"> <li>CABG</li> </ul>	Administrative
Excess Days in Acute Care after Hospitalization for Acute Myocardial Infarction	EDAC After AMI	NQF #2881	Hospital Based	N	<ul style="list-style-type: none"> <li>AMI</li> </ul>	Administrative
CMS Patient Safety Indicators – 90 v.10.0	CMS PSI - 90	NQF #0531/PSI #90	Hospital Based	N	<ul style="list-style-type: none"> <li>All Inpatient Clinical Episodes Categories</li> </ul>	Administrative
In-Person Evaluation Following Implantation of a Cardiovascular Implantable Electronic Device	In-Person Eval Following CIED Implantation	NQF #2461	Episode Initiator Based	N	<ul style="list-style-type: none"> <li>Pacemaker</li> </ul>	Alternate
Patient-Centered Surgical Risk Assessment and Communication	Patient-Centered SRAC	QPP #358	Episode Initiator Based	Y	<ul style="list-style-type: none"> <li>Back and Neck Except Spinal Fusion (Inpatient and Outpatient)</li> <li>Spinal Fusion</li> </ul>	Alternate
			Hospital Based		<ul style="list-style-type: none"> <li>Bariatric Surgery</li> <li>Double Joint Replacement of the Lower Extremity</li> <li>Fractures of the Femur and Hip or Pelvis</li> <li>Hip and Femur Procedures Except</li> <li>Major Joint</li> <li>Lower Extremity and Humerus Procedure Except Hip, Foot, Femur</li> <li>Major Joint Replacement of the Lower Extremity (Multi-setting)</li> <li>Major Joint Replacement of the Upper Extremity</li> </ul>	

Quality Measure	Quality Measure Category Abbreviation	Guiding NQF / PSI/QPP # <sup>17</sup>	Hospital/ Episode Initiator Based <sup>18</sup>	MIPS (Y/N)	Applicable Clinical Episode Categories	Applicable Quality Measure
Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention	Tobacco Screening	NQF #0028	Episode Initiator Based	Y	<ul style="list-style-type: none"> <li>Chronic Obstructive Pulmonary Disease</li> </ul>	Alternate
			Hospital Based		<ul style="list-style-type: none"> <li>Stroke</li> </ul>	
3-Item Care Transition Measure	CTM-3	NQF #0228	Hospital Based	N	<ul style="list-style-type: none"> <li>Acute Myocardial Infarction</li> <li>Back and Neck Except Spinal Fusion (Inpatient)</li> <li>Cardiac Arrhythmia</li> <li>Cardiac Defibrillator (Inpatient)</li> <li>Cellulitis</li> <li>COPD, bronchitis, asthma</li> <li>Disorders of the liver excluding malignancy, cirrhosis, alcoholic hepatitis</li> <li>Fractures of the Femur and Hip or Pelvis</li> <li>Gastrointestinal hemorrhage</li> <li>Gastrointestinal obstruction</li> <li>Hip and Femur Procedures Except Major Joint</li> <li>Inflammatory Bowel Disease</li> <li>Lower Extremity and Humerus Procedure Except Hip, Foot, Femur</li> <li>Major Bowel Procedure</li> <li>Major Joint Replacement of the Upper Extremity</li> <li>Pacemaker</li> <li>Renal failure</li> <li>Sepsis</li> <li>Seizures</li> <li>Simple pneumonia and respiratory infections</li> <li>Spinal Fusion</li> <li>Transcatheter Aortic Valve Replacement (TAVR)</li> <li>Urinary Tract Infection</li> </ul>	Alternate
Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy	Chronic Anticoagulation for AF	NQF #1525	Hospital Based	Y	<ul style="list-style-type: none"> <li>Cardiac Arrhythmia</li> </ul>	Alternate

Quality Measure	Quality Measure Category Abbreviation	Guiding NQF / PSI/QPP # <sup>17</sup>	Hospital/ Episode Initiator Based <sup>18</sup>	MIPS (Y/N)	Applicable Clinical Episode Categories	Applicable Quality Measure
Bariatric Surgery Standards for Successful Programs Measure	Bariatric Surgery Standards	N/A	Hospital Based	N	<ul style="list-style-type: none"> <li>Bariatric Surgery</li> </ul>	Alternate
Cardiac Rehabilitation Patient Referral from an Inpatient Setting	CR Referral from IP	NQF #0642	Hospital Based	N	<ul style="list-style-type: none"> <li>CABG</li> <li>Percutaneous Coronary Intervention (PCI) (Inpatient and Outpatient)</li> </ul>	Alternate
Defect Free Care for Myocardial Infarction (AMI)	Defect Free Care – AMI	NQF #2377	Hospital Based	N	<ul style="list-style-type: none"> <li>AMI</li> </ul>	Alternate
Discharge Medications (Angiotensin-Converting Enzyme / Angiotensin Receptor Blocker and Beta Blockers) in Eligible Implantable Cardiac Defibrillator/Cardiac Resynchronization Therapy Defibrillators Implant Patients	Discharge Medications in eligible ICD/CRT-D Implant Patients	NQF #0965	Hospital Based	N	<ul style="list-style-type: none"> <li>Cardiac Defibrillator (Inpatient and Outpatient)</li> </ul>	Alternate
Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) or Angiotensin receptor-neprilysin inhibitor (ARNI) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD	NQF #0081	Hospital Based	Y	<ul style="list-style-type: none"> <li>Congestive Heart Failure</li> </ul>	Alternate
Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	HF: Beta Blocker Therapy for LVSD	NQF #0083	Hospital Based	Y	<ul style="list-style-type: none"> <li>Congestive Heart Failure</li> </ul>	Alternate
Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Pneumonia Hospitalization	RSMR Following Pneumonia	NQF #0468	Hospital Based	N	<ul style="list-style-type: none"> <li>Simple pneumonia and respiratory infections</li> </ul>	Alternate

Quality Measure	Quality Measure Category Abbreviation	Guiding NQF / PSI/QPP # <sup>17</sup>	Hospital/ Episode Initiator Based <sup>18</sup>	MIPS (Y/N)	Applicable Clinical Episode Categories	Applicable Quality Measure
Hospital Risk-Standardized Complication Rate following Implantation of Implantable Cardioverter-Defibrillator (ICD)	Risk-Standardized Complication Rate: ICD	N/A	Hospital Based	N	<ul style="list-style-type: none"> <li>• Cardiac Defibrillator (Inpatient and Outpatient)</li> </ul>	Alternate
Risk Standardized Bleeding for Patients Undergoing Percutaneous Coronary Intervention (PCI)	Risk Standardized Bleeding for Patients Undergoing PCI	NQF #2459	Hospital Based	N	<ul style="list-style-type: none"> <li>• PCI (Inpatient and Outpatient)</li> </ul>	Alternate
Severe Sepsis and Septic Shock: Management Bundle Measure	Septic Shock Management	NQF #0500	Hospital Based	N	<ul style="list-style-type: none"> <li>• Sepsis</li> </ul>	Alternate
STK-06: Discharged on Statin Medication	Stroke – Discharged on Statin	NQF #0439	Hospital Based	N	<ul style="list-style-type: none"> <li>• Stroke</li> </ul>	Alternate
STS Coronary Artery Bypass Graft Composite Score	CABG Composite Score	NQF #0696	Hospital Based	N	<ul style="list-style-type: none"> <li>• CABG</li> </ul>	Alternate
Substance Use Screening and Intervention Composite	SU Screening and Intervention	NQF #2597	Hospital Based	N	<ul style="list-style-type: none"> <li>• Bariatric Surgery</li> <li>• Cardiac Valve</li> <li>• CABG</li> <li>• Double Joint Replacement of the Lower Extremity</li> <li>• Fractures of the Femur and Hip or Pelvis</li> <li>• Hip and Femur Procedures Except Major Joint</li> <li>• Lower Extremity and Humerus Procedure Except Hip, Foot, Femur</li> <li>• Major Joint Replacement of the Lower Extremity (Multi-setting)</li> <li>• Major Joint Replacement of the Upper Extremity</li> </ul>	Alternate
Therapy with Aspirin, P2Y <sub>12</sub> Inhibitor, and Statin at Discharge Following Percutaneous Coronary Intervention in Eligible Patients	Therapy following PCI	NQF #0964	Hospital Based	N	<ul style="list-style-type: none"> <li>• PCI (Inpatient and Outpatient)</li> </ul>	Alternate

Quality Measure	Quality Measure Category Abbreviation	Guiding NQF / PSI/QPP # <sup>17</sup>	Hospital/ Episode Initiator Based <sup>18</sup>	MIPS (Y/N)	Applicable Clinical Episode Categories	Applicable Quality Measure
Time to Intravenous Thrombolytic Therapy	Time To ITT	NQF #1952	Hospital Based	N	• Stroke	Alternate
Volume Weighted Aortic Valve Replacement and Aortic Valve Replacement + Coronary Artery Bypass Graft Composite Measures	AVR and AVR + CABG Composite	NQF #2561 & #2563	Hospital Based	N	• Cardiac Valve	Alternate
Volume Weighted Mitral Valve Repair and Replacement and Mitral Valve Repair and Replacement + Coronary Artery Bypass Graft Composite Measures	MVRR and MVRR + CABG	NQF #3031 & #3032	Hospital Based	N	• Cardiac Valve	Alternate

## 7.2 CQS Calculation<sup>19</sup>

For each Episode Initiator, performance on multiple quality measures is combined to calculate the CQS and CQS Adjustment Amount that is applied during true-up calculations to the Negative and Positive Total Reconciliation Amounts. Below is a step-by-step methodology for calculating the CQS.

- Step 7. Convert Raw Quality Measures into Scaled Scores:** For each quality measure category and Episode Initiator, scale the raw score by comparing it to the distribution of raw scores among the cohort in the baseline period for that measure. For the quality measure categories that are hospital-based, the cohort is the national set of ACHs and the baseline period is CY2018 for Participants that joined the Model in MY1&2, and CY2019 for Participants that joined the Model in MY3.<sup>20</sup> All ACHs will be referred to as Episode Initiators in the text below, regardless of whether or not they are participating in the BPCI Advanced model. For the quality measures that are Episode Initiator-based, the cohort is the set of Episode Initiators (ACHs and PGPs) that are participating in BPCI Advanced. The baseline period for Participants that joined the Model in MY1&2 includes all Clinical Episodes that have Anchor Stay discharge dates or Anchor Procedure

<sup>19</sup> Please note: The methodology for MY4 CQS calculation is still being finalized. Updates to the MY4 CQS Calculation methodology will be incorporated in future versions of this document.

<sup>20</sup> For information on how the national set of Clinical Episodes are constructed, refer to “Section 6: Assign Services and Associated Payments to Clinical Episodes” in the Clinical Episode Construction Specifications found here: <https://innovation.cms.gov/media/document/bpciadvanced-my4-clinical-episode-construction-specs-v2>

completion dates in the second half of CY2019. The baseline period for Participants that joined the Model in MY3 includes Clinical Episodes triggered by Participants that joined the Model in MY3 that have Anchor Stay discharge dates or Anchor Procedure completion dates in CY2020. For the quality measure categories that are registry-based, the cohort is the set of ACHs within the registry that are reporting the quality measure, and the baseline period is CY2020<sup>21</sup>. Assign the Episode Initiator a scaled score equal to the percentile to which the Episode Initiator’s raw score would have belonged in the baseline period. If the raw score could have belonged to either of two percentiles, assign the higher one. If an Episode Initiator has a raw score greater than the maximum of the raw scores for the cohort in the baseline period, assign it a scaled score of 100, if an Episode Initiator has a raw score less than the minimum of the raw scores for the baseline period, assign it a scaled score of 0. If an Episode Initiator has no raw quality score, do not assign them a scaled quality score.<sup>22</sup> Please refer to Tables 7a and 7b for an example of scaled quality score determination. If a quality measure has fewer than 100 Episode Initiators within the baseline cohort, assign the Episode Initiator a scaled score equal to the higher of the raw score or the scaled score. Please refer to Table 7c for an example of scaled quality score determination.

**Table 7a. Example of Scaling Raw Quality Scores, Distribution of Raw Quality Scores of the Cohort in the Baseline**

Percentile	Raw scores (Score is Higher for Better Performance)	
	Lower bound	Upper bound
1	28	32
...	...	...
71	49	49
72	50	53
73	53	58
...	...	...
100	87	90

<sup>21</sup> Exceptions are the quality measures: Patient-Centered Surgical Risk Assessment and Communications, Substance Use Screening and Intervention Composite, and Bariatric Surgery Standards for Successful Programs Measure. These quality measures have a baseline period of CY2021.

<sup>22</sup> Episode Initiators that do not meet the minimum observation threshold for the quality measure category will be treated as having a missing raw quality score.



**Table 7b: Example of Scaling Raw Quality Scores, Performance Period Scores**

Episode Initiator	Raw Quality Score	Scaled Quality Score
0012	52	72
1139	53	73
5212	56	73
4132	49	71
1528	23	0
3412	95	100
2336	-	-

**Table 7c: Example of Scaling Raw Quality Scores, Performance Period Scores, for quality measures with <100 Episode Initiators in the Baseline**

Episode Initiator	Raw Quality Score	Initial Scaled Quality Score	Final Scaled Quality Score
0012	52	72	72
1139	53	73	73
5212	56	73	73
4132	49	71	71
1528	23	0	23
3412	95	100	100
2336	-	-	-

- Step 8. For Hospital-Based Quality Measure Categories, Calculate Scaled Quality Scores for the PGPs.** For each combination of PGP and hospital-based quality measure category, calculate the scaled quality measure score as the average of the non-missing scaled quality measure scores of the ACHs at which the PGP initiates Clinical Episodes, weighted by the number of Clinical Episodes across all Clinical Episode Categories that were attributed to the PGP and initiated at the ACH during the Performance Period.

**Table 8: Example of Calculating PGP Scores in Hospital-Based Quality Measure Categories**

Quality Measure Category	ACH A		ACH B		PGP Scaled Quality Score
	Count of Performance Period Clinical Episodes Attributed to the PGP and Initiated at ACH A	ACH Scaled Quality Measure	Count of Performance Period Clinical Episodes Attributed to the PGP and Initiated at ACH B	ACH Scaled Quality Measure	
All-cause readmissions	400	68	100	92	72.8
RSCR Following THA/TKA		38		-	38.0
RSMR Following CABG		-		-	-
EDAC After AMI		22		78	33.2
CMS PSI-90		71		87	74.2
Time to ITT		86		67	82.2
CTM-3		93		58	86.0

- **Step 9. Compute the Composite Quality Score.**

- **Step 9a.** For each Episode Initiator-quality measure category combination, calculate the total number of Clinical Episodes that the Episode Initiator was attributed across all Clinical Episode Categories that are applicable to the quality measure category.

The example shown in Table 9 is for an Episode Initiator that was attributed Clinical Episodes in IP-AMI, IP-CABG, IP-PCI, and OP-PCI. Of these Clinical Episode Categories, only IP-CABG is applicable to the Perioperative Care quality measure category. Note that many Clinical Episodes are included in the total number of applicable Clinical Episodes for multiple quality measure categories.

**Table 9: Example of Calculating the Total Number of Applicable Clinical Episodes for Each Quality Measure Category**

	Quality Measure Category Applicable to Clinical Episode Category?				Number of Clinical Episodes Attributed to the Episode Initiator				
	IP-AMI	IP-CABG	IP-PCI	OP-PCI	IP-AMI	IP-CABG	IP-PCI	OP-PCI	Total Applicable CEs
<b>Attributed Clinical Episodes</b>					200	300	200	1000	
<b>Applicable Clinical Episodes</b>									
All-Cause Readmission	Y	Y	Y	Y	200	300	200	1000	1700
ACP	Y	Y	Y	Y	200	300	200	1000	1700
Perioperative Care	N	Y	N	N	0	300	0	0	300
RSCR Following THA/TKA	N	N	N	N	0	0	0	0	0
RSMR following CABG	N	Y	N	N	0	300	0	0	300
EDAC After AMI	Y	N	N	N	200	0	0	0	200
CMS PSI-90	Y	Y	Y	N	200	300	200	0	700
Defect Free Care – AMI	Y	N	N	N	200	0	0	0	200
STS CABG Composite Score	N	Y	N	N	0	200	0	0	200

- **Step 9b:** Calculate each Episode Initiator’s CQS and CQS Adjustment Amount as the average of their non-missing scaled quality scores, weighted by the number Clinical Episodes attributed to the Episode Initiator that are applicable for each quality measure category.

Table 10 continues the example for the Episode Initiator described for Table 9. In this example, the Episode Initiator had enough THA or TKA procedures to receive a quality score for RSCR Following THA/TKA but the Episode Initiator was not attributed any Clinical Episodes that were applicable to this measure (MJRLE or DJRLE Clinical Episodes). Consequently, the RSCR Following THA/TKA quality measure does not contribute to the CQS. Meanwhile, the Episode Initiator had Clinical Episodes for which RSMR following CABG was relevant but a missing quality score for this measure. Due to the missing quality score, RSMR following CABG will not be included in the CQS for this Episode Initiator.

**Table 10: Calculating the CQS**

Quality Measure	Scaled Quality Score	Total Applicable CEs	Normalized Weight
All-Cause Readmission	56.23	1700	0.340
ACP	47.17	1700	0.340
Perioperative Care	54.21	300	0.060
RSCR Following THA/TKA	76.10	0	0.000
RSMR following CABG	-	300	0.000
EDAC After AMI	72.24	200	0.040
CMS PSI-90	21.56	700	0.140
Defect Free Care – AMI	68.23	200	0.040
STS CABG Composite Score	89.57	200	0.040
<b>CQS</b>	<b>50.63</b>		

## 8 CALCULATE RECONCILIATION AMOUNTS

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This section describes how to calculate unadjusted Reconciliation amounts that will be disseminated to Participants during the initial Reconciliation. The initial Reconciliation amount does not adjust for the Episode Initiator's performance on quality measures.<sup>23</sup> This step includes applying the stop-loss/stop-gain provision and calculating NPRA/Repayment Amount. To illustrate how to calculate Reconciliation amounts, this section uses fabricated data, presented in Tables 11 through 13. Table 11 shows how to calculate Reconciliation amounts at the Episode Initiator-Clinical Episode category level. Tables 12 and 13 show how to aggregate these Reconciliation amounts to the Episode Initiator and Convener Participant levels respectively.

To calculate Reconciliation amounts for Model Year 4 , take the following steps:

- **Step 10 Calculate Positive Reconciliation Amount and Negative Reconciliation Amount at the Clinical Episode category level:** For each Episode Initiator and Clinical Episode category, calculate Reconciliation amount as the difference between the Total Performance Period Target Amount (**Step 6**) and final Performance Period Clinical Episode payments (**Step 2**).<sup>24</sup> If the Total Performance Period Target Amount for an Episode Initiator exceeds final Performance Period Clinical Episode payments during the Performance Period, it results in a Positive Reconciliation Amount. If the Total Performance Period Target Amount is less than the final Performance Period Clinical Episode payments, the result is a Negative Reconciliation Amount.

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<sup>23</sup> Note that quality adjustments will be applied to Reconciliation amounts in the true-up calculations through the CQS. For all initial Reconciliations and initial true-ups occurring in Spring, when the CQS is not yet available, the temporary CQS will be a 0 out of 100 for all Episode Initiators, pending replacement.

<sup>24</sup> Represented mathematically as *Positive/Negative Reconciliation Amount*<sub>m,ce,t</sub> = *Total Performance Period Target Amount*<sub>m,ce,t</sub> – *Final Performance Period Clinical Episode Payment*<sub>m,ce,t</sub>

**Table 11: Calculate Positive/Negative Reconciliation Amount in Real Dollars**

Episode Initiator	PGP/ACH	Clinical Episode Category	Number of Performance Period Clinical Episodes	Step 2a	Final Performance Period Clinical Episode Payments		Total Performance Period Target Amount	Step 10
				Ratio of Real Dollars to Standardized Dollars	Step 1	Step 2b	Step 6	Positive/Negative Reconciliation Amount in Real Dollars
					Standardized Dollars	Real Dollars	Real Dollars	
H1000	ACH	CE1	34	1.01	\$945,744	\$955,201	\$834,122	-\$121,079
H1000	ACH	CE2	15	1.04	\$378,315	\$393,448	\$282,540	-\$110,908
H1000	ACH	CE3	28	0.99	\$1,452,500	\$1,437,975	\$1,476,048	\$38,073
H1000	ACH	CE4	45	0.89	\$2,422,260	\$2,155,811	\$1,323,225	-\$832,586
H1000	ACH	CE5	52	1.11	\$1,540,812	\$1,710,301	\$1,426,932	-\$283,369
H2000	ACH	CE1	12	1.02	\$215,328	\$219,635	\$246,012	\$26,377
H2000	ACH	CE2	1	1.01	\$20,798	\$21,006	\$37,562	\$16,556
H2000	ACH	CE3	14	0.86	\$215,166	\$185,043	\$211,596	\$26,553
H2000	ACH	CE4	150	0.93	\$3,198,300	\$2,974,419	\$2,951,400	-\$23,019
P000	PGP	CE1	15	1.01	\$238,218	\$240,600	\$476,220	\$235,620
P000	PGP	CE2	17	1.05	\$231,963	\$243,561	\$545,231	\$301,670

Note: Examples are not associated with the fabricated data used in other BPCI Advanced specifications documents. All dollar values are rounded to the nearest dollar and ratios are rounded to two decimal places.

- Step 11. Calculate Positive Total Reconciliation Amount and Negative Total Reconciliation Amount at the Episode Initiator level:** For an Episode Initiator, aggregate Positive Reconciliation Amounts and Negative Reconciliation Amounts (**Step 10**) across all Clinical Episode categories to obtain either Positive Total Reconciliation Amount or Negative Total Reconciliation Amount.
- Step 12. Calculate Adjusted Positive Total Reconciliation Amount and Adjusted Negative Total Reconciliation Amount at the Episode Initiator Level:** For the initial Reconciliation, calculate the Adjusted Positive Total Reconciliation Amount and the Adjusted Negative Total Reconciliation Amount by temporarily withholding the potential CQS Adjustment Amount at risk (i.e.10% for Model Year 4) to the Positive Total Reconciliation Amount and the Negative Total Reconciliation Amount. Specifically, at the Episode Initiator level, the Adjusted Positive Total Reconciliation Amount will equal 90% of the Positive Total Reconciliation Amount, while the Adjusted Negative Total Reconciliation Amount will equal the Negative Total Reconciliation Amount.<sup>25</sup> This is the equivalent of CQS of zero and ensures that Participants will only receive increases (or

<sup>25</sup> If  $Total\ Reconciliation\ Amount_{m,t} > 0$  then  $Adjusted\ Total\ Reconciliation\ Amount_{m,t} = Total\ Reconciliation\ Amount_{m,t} * 0.9$ . If  $Total\ Reconciliation\ Amount_{m,t} < 0$  then  $Adjusted\ Total\ Reconciliation\ Amount_{m,t} = Total\ Reconciliation\ Amount_{m,t}$ . Where Total Reconciliation Amount is represented mathematically as  $Total\ Reconciliation\ Amount_{m,t} = \sum_{ce \in CE} * Reconciliation\ Amount_{m,ce,t}$

no change) in their Adjusted Total Reconciliation Amount associated with their CQS during true-up calculations.<sup>26</sup> During the true-up Reconciliations occurring in Fall each year, as applicable, apply the CQS Adjustment Amount to the Positive Total Reconciliation Amount and Negative Total Reconciliation Amount to revise the Adjusted Positive Total Reconciliation Amount and Adjusted Negative Total Reconciliation Amount respectively from earlier Reconciliation calculations when the CQS was not available (Refer to **Step 18** for more details.)

- **Step 13. Apply the 20% stop-loss/stop-gain provision:** As shown in Table 13, if the Episode Initiator’s Adjusted Positive Total Reconciliation Amount (**Step 12**) is greater than 20% of the Total Performance Period Target Amount (**Step 6**) or if the absolute value of its Adjusted Negative Total Reconciliation Amount is greater than 20% of the Total Performance Period Target Amount, then apply the 20% stop-loss/stop-gain provision.<sup>27</sup> The Adjusted Positive/Negative Total Reconciliation Amount that incorporates 20% stop-loss/stop-gain where applicable is the capped Adjusted Positive/Negative Total Reconciliation Amount.

**Table 12: Calculate Adjusted Positive/ Negative Reconciliation Amount at the Episode Initiator Level**

Episode Initiator	Step 11	Step 12	Step 6	Step 13	Step 13
	Positive/Negative Total Reconciliation Amount	Adjusted Positive/Negative Total Reconciliation Amount	20% of Total Performance Period Target Amount	Apply Stop-Loss/Stop-Gain	Capped Adjusted Positive/ Negative Total Reconciliation Amount
H1000	-\$1,309,869	-\$1,309,869	\$1,068,573	Yes	-\$1,068,573
H2000	\$46,467	\$41,820	\$689,314	No	\$41,820
P000	\$537,290	\$483,561	\$204,290	Yes	\$204,290

Note: Examples are not associated with the fabricated data used in other BPCI Advanced specifications documents. All dollar values are rounded to the nearest dollar.

- **Step 14. Calculate NPRAs and Repayment Amounts:** As shown in Table 13, for each Participant, aggregate the capped Adjusted Positive/ Negative Total Reconciliation Amount (Step 13) across all applicable Episode Initiators to obtain either NPRA or

<sup>26</sup>In subsequent true-up calculations when an updated CQS is available, the application of a CQS adjustment will result in either no change to, in the case of a CQS of zero, or a positive adjustment to, either the Adjusted Positive Total Reconciliation Amount or Adjusted Negative Total Reconciliation Amount, in the case of a CQS which exceeds 0.

<sup>27</sup> Represented as:

*If Adj Positive Total Reconciliation Amount, then  $\min(\text{Adj Positive Total Reconciliation Amount}, 20\% \text{ of Total Performance Period Target Amount})$ ,*

*If Adj Negative Total Reconciliation Amount, then  $\min(\text{abs}(\text{Adj Negative Total Reconciliation Amount}), 20\% \text{ of Total Performance Period Target Amount})$*

Repayment Amount. Skip this step if the Episode Initiator is a Non-Convener Participant.<sup>28</sup>

**Table 13: Calculate NPRAs/ Repayment Amounts at the Convener Participant Level**

Episode Initiator	Step 13	Step 14
	Capped Adjusted Positive/ Negative Total Reconciliation Amount	Convener-Level NPRA/ Repayment Amount
H1000	-\$1,068,573	-\$822,463
H2000	\$41,820	
P000	\$204,290	

Note: This table assumes H1000, H2000, and P000 from Table 13 are now the complete list of Episode Initiators under the Convener Participant. Examples are not associated with the fabricated data used in other BPCI Advanced specifications documents. All dollar values are rounded to the nearest dollar.

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<sup>28</sup> For a Non-Convener Participant, the capped Adjusted Positive/Negative Total Reconciliation amount in Step 13 is the NPRA/ Repayment Amount, respectively.



## 9 CALCULATE TRUE-UP AMOUNTS

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This section describes how to perform true-up calculations to update initial Reconciliation amounts and prior true-ups using claims processed as of a later date as well as quality measure data. True-ups calculations are conducted approximately six months and one year after initial Reconciliation occurs. Both true-up calculations will factor in newly processed claims. Quality measurement data that is calculated once per year, will be first incorporated in the Fall true-up and continue to be incorporated in any subsequent true-ups for a given Performance Period.<sup>29</sup> To illustrate true-up calculations, this section uses fabricated data.<sup>30</sup>

- **Step 15. Recalculate Performance Period Clinical Episode Payments:** Using the set of newly processed claims data, follow **Steps 1-2** to calculate final Performance Period Clinical Episode payments.
- **Step 16. Recalculate Final Target Prices and Total Performance Period Target Amounts:** Using the new set of claims data, follow **Steps 3-6** to calculate final Target Prices and Total Performance Period Target Amounts. Note that the updated set of claims data will only reflect changes in Target Price components that use realized Performance Period data, i.e. updated PCMA, updated Relative Case Mix, and realized ratio of real to standardized dollars.
- **Step 17. Recalculate Reconciliation Amounts:** Follow **Steps 10-11** to recalculate Positive and Negative Total Reconciliation Amounts at the Episode Initiator level.
- **Step 18. Incorporate CQS into Positive/Negative Total Reconciliation Amount:** Apply the CQS Adjustment Amount to the Positive Total Reconciliation Amount and Negative Total Reconciliation Amount using the following steps. Table 14 below shows how this calculation is implemented using the example from Section 8.
  - **Step 18a.** Calculate the CQS Adjustment Amount, which reflects the amount by which the Total Reconciliation Amount will be adjusted as a result of the Episode Initiator's performance on the CQS. First, calculate the CQS Adjustment Percent. For Model Year 4, the maximum percent at risk is 10%; thus an Episode Initiator may have the magnitude of its Total Reconciliation Amount reduced by 0 to 10%. For Positive Total Reconciliation Amounts, the CQS Adjustment Percent is inversely proportional to the CQS and scaled to 10% (i.e. CQSs of 0 and 100 have CQS Adjustment Percentages of 10% and 0%, respectively). For Negative Total

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<sup>29</sup> For Performance Period 5 2021 , CQS will be applied for the first time to the second true-up; while for Performance Period 6 2022, CQS will be applied to for the first time to the first true-up and carried through to the second.

<sup>30</sup> Fabricated data used in this section are not associated with fabricated data used in other BPCI Advanced specifications documents.

Reconciliation Amounts, the CQS Adjustment Percent is proportional to the CQS and scaled to 10% (i.e. CQSs of 0 and 100 have CQS Adjustment Percentages of 0% and 10%, respectively). Please refer to the equation in the footnote for the exact calculation.<sup>31</sup> Next, multiply the CQS Adjustment Percent by the Episode Initiator-level Total Reconciliation Amount to get the CQS Adjustment Amount, which will be positive for Positive Total Reconciliation Amounts, and negative for Negative Total Reconciliation Amounts.

- **Step 18b.** Subtract the CQS Adjustment Amount from the Episode-Initiator level Total Reconciliation Amount (**Step 17**) to get the Adjusted Total Reconciliation Amount for each Episode Initiator. For Negative Total Reconciliation Amounts this corresponds to a reduction in the amount owed to CMS (provided the CQS Score was greater than 0), and for Positive Total Reconciliation Amounts this corresponds to a decrease in the amount CMS owes the Participant (provided the CQS Score was less than 100).
- **Step 18c.** Repeat **Step 13** to apply the 20% stop-loss/stop-gain provision to get the capped Adjusted Positive/Negative Total Reconciliation Amount for each Episode Initiator.
- **Step 18d** For Convener Participants, sum all their Episode Initiators' capped Adjusted Positive Total Reconciliation Amounts and Adjusted Negative Total Reconciliation Amounts to obtain NPRA/Repayment Amount.

**Table 14: Calculate NPRA/Repayment Amount with CQS Payment Adjustment at the Convener Participant Level**

Episode Initiator	Step 17	Step 9	Step 18a		Step 18b	Step 18c	Step 18c	Step 18c	Step 18d
	Positive/Negative Total Reconciliation Amount	CQS	CQS Adjustment Percent	CQS Adjustment Amount	Adjusted Positive/Negative Total Reconciliation Amount	20% of Volume Weighted Target Price	Stop-Loss/Stop-Gain	Capped Adjusted Positive/Negative Total Reconciliation Amount	Convener-Level NPRA/Repayment Amount
H1000	-\$1,309,869	50	5%	-\$65,493	-\$1,244,376	\$1,068,573	Yes	-\$1,068,573	-\$819,675
H2000	\$46,467	65	4%	\$1,859	\$44,608	\$689,314	No	\$44,608	
P000	\$537,290	77	2%	\$10,746	\$526,544	\$204,290	Yes	\$204,290	

Data shown are from the initial Reconciliation calculation examples. In practice, true-up calculations will use newly processed claims data. Examples are not associated with the fabricated data used in other BPCI Advanced specifications documents. All dollar values are rounded to the nearest dollar.

<sup>31</sup> Represented mathematically as  $CQS\ Adjustment\ Amount_{m,t} = CQS\ Adjustment\ Percent_{m,t} * Total\ Reconciliation\ Amount_{m,t}$  where:

$$CQS\ Adjustment\ Percent_{m,t} = \begin{cases} \text{if } Total\ Reconciliation\ Amount_{m,t} > 0 \text{ then, } \left(10\% - 10\% * \frac{CQS_{m,t}}{100}\right) \\ \text{if } Total\ Reconciliation\ Amount_{m,t} < 0 \text{ then, } 10\% * \frac{CQS_{m,t}}{100} \end{cases}$$

- **Step 19. Calculate True-Up amount:** Once the NPRA/Repayment Amounts are calculated for the true-up cycle, calculate true-up amount for each Participant by comparing the new amount with the previous amount. For a Participant, the true-up amount will be the difference between the NPRA/Repayment Amount in the current true-up period and NPRA/Repayment Amount in the previous period.<sup>32</sup>

**Table 15: Calculate True-Up Amount at the Convener Participant Level**

Step 18d	Step 14	Step 19
Recalculated NPRA/Repayment Amount	NPRA/Repayment Amount from Previous Calculation	True-Up Amount
-\$819,675	-\$822,463	\$2,788

Note: The True-Up amount is always calculated as the difference between the NPRA/Repayment Amount calculated for the current True-Up period and the most recent previous NPRA/Repayment Amount calculation.

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<sup>32</sup> Represented mathematically as  $True-Up Amount_{P,t} = NPRA Amount/Repayment Amount_{P,t} - NPRA Amount/Repayment Amount_{P,(t-1)}$ , where,  
*P* is the Participant  
*t* is the applicable Performance Period  
*(t-1)* is the previous Performance Period

## 10 CALCULATE EXCESS SPENDING AMOUNTS

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To reduce Participants' incentives to withhold or delay medically-necessary care until after a BPCI Advanced Clinical Episode ends, BPCI Advanced Participants are responsible for statistically implausible increases in post-episode spending between days 91 and 120 of the Post-Episode Spending Monitoring Period.<sup>33</sup> The Post-Episode Spending Calculations for a Performance Period will occur at the same time as the first true-up calculations and will be recalculated during the second true-up to account for newly processed claims. For example, Participants with Clinical Episodes ending between January 2021 and June 2021 will receive their first Post-Episode Spending Calculations in Spring 2022.

- **Step 20. Attribute services and payments to the Post-Episode Spending Monitoring Period:** Considering all baseline period and Performance Period Clinical Episodes, attribute Parts A and B claims with a standardized payment amount greater than zero that overlap with days 91-120 of the Post-Episode Spending Monitoring Period.
- **Step 21. Apply payment aggregation logic for the Post-Episode Spending Monitoring Period:** For baseline period and Performance Period Clinical Episodes, follow **CE-Steps 14-18** to:
  - Apply BPCI Advanced exclusions criteria,<sup>34</sup>
  - Prorate claims that extend before or after the Post-Episode Spending Monitoring Period, and
  - Calculate overall Post-Episode Spending payment amounts.
- **Step 22. Apply Setting-Specific Price Update Factor Associated with the Preceding Clinical Episode:** For constructing baseline period Post-Episode Spending, follow **CE-Steps 19-21** to update payments occurring in the Post-Episode Spending Monitoring Period to Performance Period dollars. Assign post-episode spending to baseline years using the Anchor Stay or Anchor Procedure end date of the preceding Clinical Episode.
- **Step 23. For each Clinical Episode Category and Model Year sub-period, estimate a Clinical Episode-level risk adjustment model for Post-Episode Spending using the final set of baseline Clinical Episodes at eligible ACHs:** Run a two-stage risk adjustment model to estimate baseline Post-Episode Spending similarly to **TP-Steps 1-4**. Run a separate risk-adjustment model for each sub-period of MY4 with Post-Episode Spending updated to the appropriate calendar and fiscal year (CY2021/FY2021, CY2021/FY2022), and for each Clinical Episode Category.

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<sup>33</sup> Please note: If a COVID-19 diagnosis first occurs in the Post-Episode Spending Monitoring Period, the Clinical Episode will be reconciled and Post-Episode Spending Calculations will occur, as usual.

<sup>34</sup> Please note: For MY4, COVID-19 exclusions are applied to the national set of episodes.

- **23a.** Drop episodes where the beneficiary died during the Clinical Episode window. (Note that Clinical Episodes where the beneficiary dies during the Post-Episode Spending Monitoring Period are retained.)
- **23b.** Estimate a compound log-normal risk adjustment model for the Post-Episode Spending. The Post-Episode Spending risk adjustment model differs from the compound log-normal risk adjustment model (**TP-Step 2**) in two main ways:
  - For Post-Episode Spending the compound-log normal model includes a zero node, to accommodate Clinical Episodes with no Post-Episode Spending.
  - For Post-Episode Spending, the peer group characteristics are not included in the model.<sup>35</sup>
- **23c.** Calculate the Clinical Episode level patient case-mix adjustment amount, as the predicted Clinical Episode level Post-Episode Spending conditional on the compound log-normal model and the patient characteristics.
- **23d.** Capture coefficients for national trends, and their variance-covariance matrix using the procedure outlined in **TP-Step 4**, but excluding the peer group interactions from the regression.
- **Step 24. For each ACH and PGP in each Clinical Episode Category, calculate the Post-Episode Spending penalty threshold as the upper bound of the 99.5% confidence interval for the Post-Episode Spending Target Amount:** The structure of the Post-Episode Spending Benchmark Prices and Target Amounts follow the same structure as the in-Episode Spending Target Amounts with a few exceptions:
  - Clinical Episodes where the beneficiary died during the episode window are not included in the Benchmark Prices or the Target Amounts.
  - Rather than a peer adjusted trend factor, there is a national trend factor<sup>36</sup>.

To determine the upper bounds of the 99.5% confidence intervals of the Post-Episode Target Amounts, conduct a Krinsky and Robb simulation with a sufficiently high number of iterations. For each EI and Clinical Episode Category take the 99.75<sup>th</sup> percentile of the Post-Episode Target Amounts across the iterations.
- **Step 25. Calculate Performance Period Post-Episode spending:** For all attributed Performance Period Clinical Episodes, aggregate Performance Period post-episode spending amounts to the Clinical Episode Category level following the methodology in **Step 1**.

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<sup>35</sup> This prevents EIs from being advantaged/ disadvantaged by the size of their peer group, since otherwise the volume of EIs in the peer group affects the size of the confidence intervals for the Post-Episode Spending Amounts.

<sup>36</sup> In MY4, the trend factor re-centers the benchmark prices around realized spending in the Performance Period. The trend factor will be capped at 10% so that the maximum difference between the prospective national trend and realized national trend is 10%.

- **Step 26. Convert Post-Episode Spending penalty threshold and Performance Period Post-Episode spending to real dollars:** Convert the post-episode spending penalty threshold and Performance Period post-episode spending to real dollars by multiplying each amount by a ratio of the sum of real post-episode spending to sum of standardized post-episode spending in the Performance Period for each Episode Initiator and Clinical Episode Category.
- **Step 27. Reconcile the Post-Episode Spending penalty threshold against realized Performance Period Post-Episode Spending:** If Performance Period Post-Episode spending minus the Post-Episode penalty threshold is greater than zero, this amount represents the Excess Spending Amount owed to Medicare. If Performance Period Post-Episode spending minus the Post-Episode penalty threshold is less than or equal to zero, the Episode Initiator is not liable for an Excess Spending Amount in the Clinical Episode Category.
- **Step 28. Calculate Excess Spending Amounts at the Convener Participant level:** For all Episode-Initiators under a Convener Participant, aggregate the Episode Initiator-Clinical Episode Category level Excess Spending Amounts to the Convener Participant level.
- **Step 29. Recalculate Excess Spending Amount:** During the second true-up calculation for each Performance Period, repeat **Steps 20-28** using newly processed claims.
- **Step 30. Calculate Excess Spending True-Up Amount:** Once the new amounts are calculated for the true-up cycle, calculate true-up amount for each Participant by comparing the new amount with the previous amount.