BPCI Advanced Quality Measures

Understanding the
Composite Quality Score (CQS)

November 2019

BPCI Advanced Quality Measures Evaluation

Quality Methodology

- Clinical Episodes' relation to Quality Measures
- Clinical Episode Precedence Rules
- Quality Measure data submission sources

Understanding Composite Quality Score (CQS)

- ✓ CQS for Acute Care Hospitals (ACH)
- ✓ CQS for Physician Group Practices (PGP)
- ✓ Quality Measures Aggregation for Model Years (MY) 1, 2, and 3
- ✓ Clinical Episode volume impact on CQS calculation
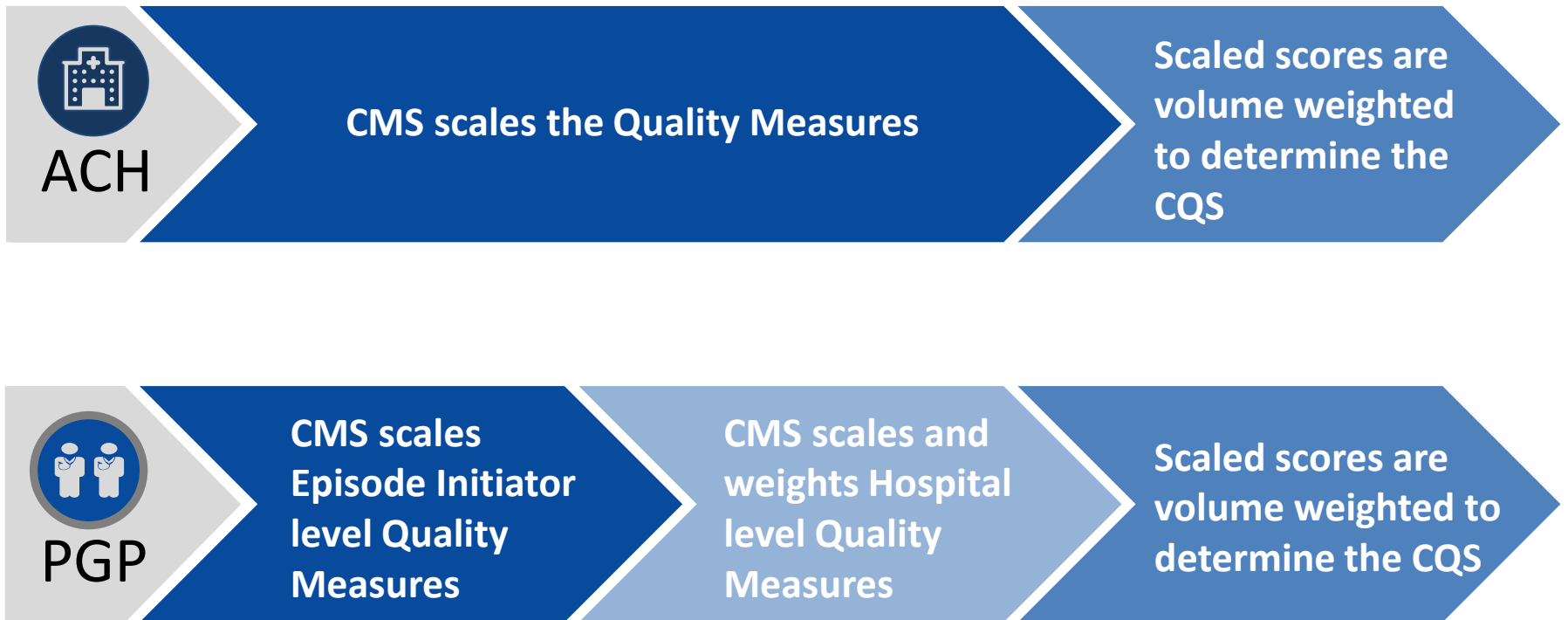
Reconciliation Process

- Quality Measures and the CQS impact Reconciliation in Fall 2020

- *Available in the BPCI Advanced Participant Portal – Announcement Section.*

Comparing Quality Measure Performance

- CMS developed the Composite Quality Score (CQS) for comparative assessment across Clinical Episodes and Episode Initiators.

- BPCI Advanced includes many conditions, and not all Quality Measures apply to all Clinical Episodes.

Calculating the CQS

Calculating the CQS is a two-step process for ACHs and a three-step process for PGPs

ACH

CMS scales the Quality Measures → Scaled scores are volume weighted to determine the CQS

PGP

CMS scales Episode Initiator level Quality Measures → CMS scales and weights Hospital level Quality Measures → Scaled scores are volume weighted to determine the CQS

Calculating the CQS: ACH Step 1

ACH → **CMS scales the Quality Measures** → Scaled scores are volume weighted to determine the CQS

Use this graphic for process and step reference throughout this webcast.

ACH Step 1: Profile Example

ACH: Smith Hospital

Clinical Episodes

Smith Hospital agreed to participate in two Clinical Episodes:

- AMI
  - 400 AMIs
- Pacemaker
  - 250 Pacemakers

Applicable Quality Measures

The following Quality Measures apply to the selected Clinical Episodes:

- Advance Care Plan
- All-Cause Readmissions[1]
- CMS PSI 90[2]
- Excess Days in Acute Care after an AMI[3]

1. Hospital-Wide All-Cause Unplanned Readmissions
2. CMS Patient Safety Indicators (PSI) 90
3. Excess Days in Acute Care after Hospitalization for Acute Myocardial Infarction (AMI)

6

ACH Step 1: Quality Measures Types (Part 1)

Example

For Smith Hospital, CMS calculates each Quality Measure at either the Episode Initiator level or at the Hospital level

Hospital level: Calculated using **all** Medicare beneficiaries at the hospital; does not limit them to BPCI Advanced Beneficiaries or to the Clinical Episode.

Episode Initiator level: Calculated using **only** BPCI Advanced Beneficiaries' relevant Clinical Episodes for which the Quality Measure applies.

Quality Measure	Quality Measure Level
Advance Care Plan (ACP)	Episode Initiator
All-Cause Readmissions	Hospital
CMS PSI 90	Hospital
Excess Acute Days (AMI)	Hospital

**!** The ACP Quality Measure applies to all Clinical Episodes.

ACH Step 1: Quality Measures Types (Part 2)

Example

CMS calculates the Hospital level Quality Measures more broadly than the Episode Initiator level Quality Measures
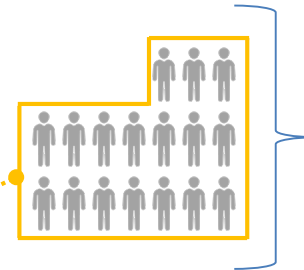
Hospital level:

All of these Medicare beneficiaries received care at Smith Hospital and are all included in the Hospital level calculation.
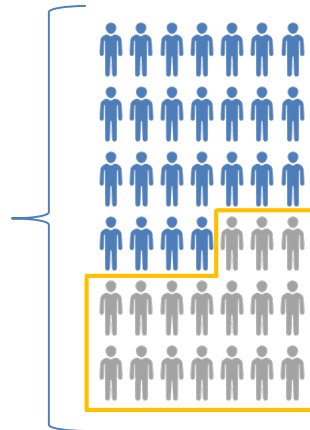
Episode Initiator level:

These Medicare beneficiaries were in BPCI Advanced Clinical Episodes at Smith Hospital and are included in the Episode level calculation.

! Each Quality Measure has a detailed Fact Sheet that is available on the BPCI Advanced website.

ACH Step 1: Raw Quality Measures Scores

Example

CMS calculates a raw score for each Quality Measure

Quality Measure	Quality Measure Level	Raw Score	
Advance Care Plan	Episode Initiator	77%	
All-Cause Readmissions	Hospital	15%	
CMS PSI 90	Hospital	0.08	
Excess Acute Days (AMI)	Hospital	28	

! Raw scores are in different units

ACH Step 1: Scaling Quality Measure Results (Part 1)

Example

In order to make the Quality Measures an apples-to-apples comparison, CMS determines the hospital's raw score percentile relative to their cohort in the baseline period for each quality measure. This percentile is called the **scaled score**.

Advance Care Plan
at Smith Hospital

Raw score of 77%: 77% of Smith's Hospital's Beneficiaries had an ACP

60th percentile: Smith Hospital was in the 60th percentile of the baseline cohort

Scaled Score is 60

ACH Step 1: Scaling Quality Measure Results (Part 2)

The cohort and the Quality Measure baseline period: For the percentile, a hospital's cohort for the Scaled Score will either be at the national level or at the Model level depending on the Quality Measure.

National Level (for Hospital level Quality Measures):

All ACH's nationwide where this Quality Measure applies

Model Level (for Episode Initiator level Quality Measures):

All Participating Episode Initiators in BPCI Advanced
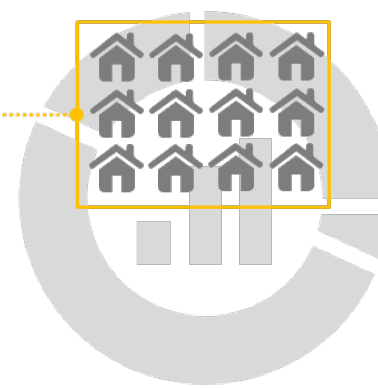
Note that for the national level, the baseline period is always the Calendar Year 2018. For the Model level, the baseline period currently includes episodes with anchor end dates in Quarter 3 2019 approximately. The Model level baseline period will be rolled forward for Model Year 3.

ACH Step 1: Scaling Quality Measure Results (Part 3)

Example

This table shows both the raw and scaled scores for each Quality Measure in Smith Hospital

Quality Measure	Quality Measure Level	Raw Score	Scaled Score
Advance Care Plan	Episode Initiator	77%	60
All-Cause Readmissions	Hospital	15%	50
CMS PSI 90	Hospital	0.08	40
Excess Acute Days (AMI)	Hospital	28	60

! Scaled score units are consistent

Calculating the CQS: ACH Step 2

ACH → **CMS scales the Quality Measures** → **Scaled scores are volume weighted to determine the CQS**
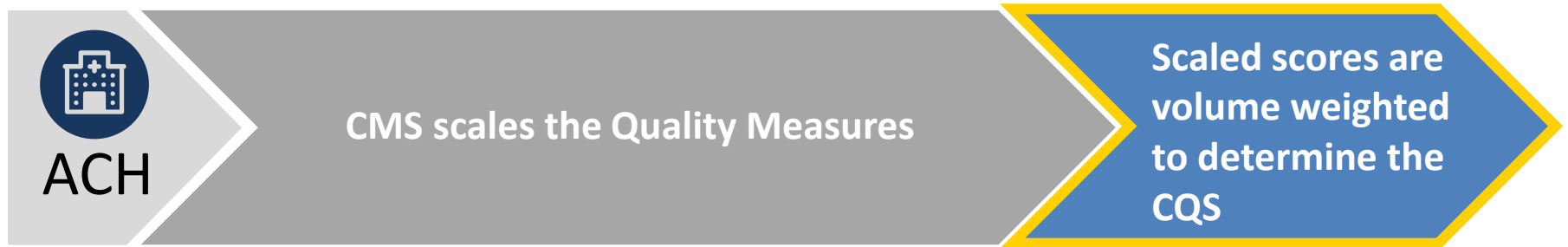
ACH Step 2: Clinical Episode Volumes

Let's bring in the Clinical Episode volumes. CMS calculates the number of attributed Clinical Episodes for Smith Hospital

Quality Measure	No. of AMI Episodes	No. of Pacemaker Episodes	Total Applicable Clinical Episodes
Advance Care Plan	400	250	650
All-Cause Readmissions	400	250	650
CMS PSI 90	400	250	650
Excess Acute Days (AMI)	400	N/A	400

! "N/A" because the Excess Acute Days (AMI) Quality Measure does not apply to the Pacemaker Clinical Episode.

ACH Step 2: Weighting Clinical Episode Volumes

Next, CMS calculates a normalized weight for each Quality Measure, based upon the volume of triggered Clinical Episodes

Quality Measure	Clinical Episodes	Normalized Weight
Advance Care Plan	650	~0.28
All-Cause Readmissions	650	~0.28
CMS PSI 90	650	~0.28
Excess Acute Days (AMI)	400	~0.16
Total:	**2,350**	**1.00**

$$Advance\ Care\ Plan: \frac{650}{2,350} = {\sim}0.28$$

ACH Step 2: Volume Weighting to Get the CQS

CMS then does a weighted average calculation: CMS multiplies each scaled score by its normalized weight and then adds these weighted scores together to get the CQS

Quality Measure	Scaled Score		Normalized Weight		Weighted Scores
Advance Care Plan	60	×	~0.28	=	16.8
All-Cause Readmissions	50	×	~0.28	=	14
CMS PSI 90	40	×	~0.28	=	11.2
Excess Acute Days (AMI)	60	×	~0.16	=	9.6

The sum of the weighted scores is the CQS:

$$16.8 + 14 + 11.2 + 9.6 = \boxed{51.6}$$

Calculating the CQS

Calculating the CQS is a two-step process for ACHs and a three-step process for PGPs

ACH
- CMS scales the Quality Measures
- Scaled scores are volume weighted to determine the CQS

PGP
- CMS scales Episode Initiator level Quality Measures
- CMS scales and weights Hospital level Quality Measures
- Scaled scores are volume weighted to determine the CQS
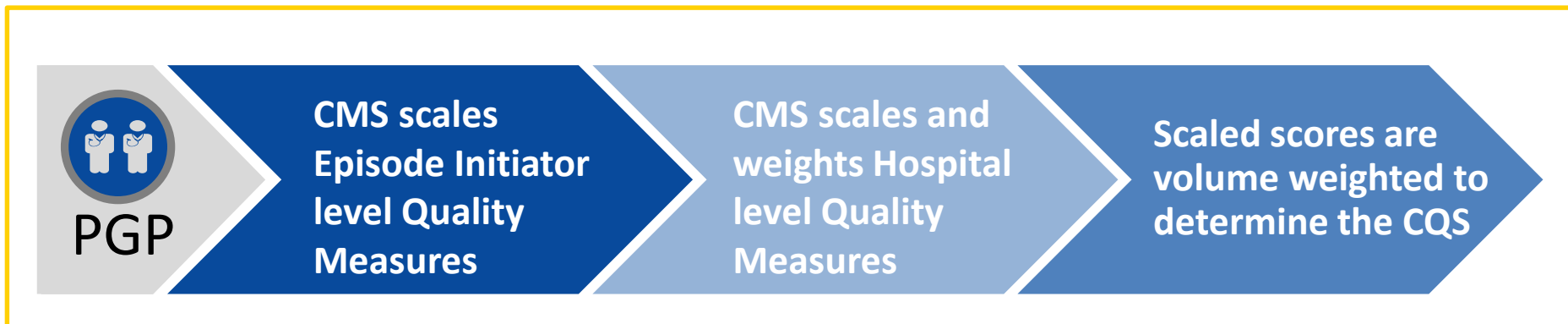
Calculating the CQS: PGPs Step 1

PGP → **CMS scales Episode Initiator level Quality Measures** → **CMS scales and weights Hospital level Quality Measures** → **Scaled scores are volume weighted to determine the CQS**

PGP Step 1: Example Profile

Example

ACH 1: Smith Hospital
600 Clinical Episodes

Lakeside PGP

ACH 2: Johnson Hospital
200 Clinical Episodes

Clinical Episodes

Lakeside PGP participating in two Clinical Episodes:
- Major Joint Replacement of the Lower Extremity (MJRLE)
  - **300 MJRLEs**
- Chronic Obstructive Pulmonary Disease (COPD), bronchitis, asthma
  - **500 COPDs**

Applicable Quality Measures

The following Quality Measures apply to the selected Clinical Episodes:
- Advance Care Plan
- All-Cause Readmissions[1]
- Perioperative Care[2]
- RSCR following THA/TKA[3]
- CMS PSI 90[4]

[1] Hospital-Wide All-Cause Unplanned Readmissions; [2] Perioperative Care: Selection of Prophylactic Antibiotic 1st or 2nd Generation Cephalosporin; [3] Hospital-Level Risk-Standardized Complication Rate (RSCR) Following Elective Primary Total Hip Arthroplasty (THA) and/or Total Knee Arthroplasty (TKA); [4] CMS Patient Safety Indicators PSI 90

PGP Step 1: Scaling Episode Initiator Level Quality Measures

For Lakeside PGP, CMS calculates the raw and scaled scores for the Episode Initiator level Quality Measures, pooling together Clinical Episodes from ACH #1 and ACH #2

ACH 1:
Smith
Hospital

ACH 2:
Johnson
Hospital

Quality Measure	Quality Measure Level	Raw Score	Scaled Score
Advance Care Plan	Episode Initiator	80%	85
Perioperative Care	Episode Initiator	70%	78

Calculating the CQS: PGP Step 2

PGP → CMS scales Episode Initiator level Quality Measures → **CMS scales and weights Hospital level Quality Measures** → Scaled scores are volume weighted to determine the CQS

Example

Next, CMS calculates a scaled score for the Hospital level Quality Measures for each ACH, Smith and Johnson Hospitals

ACH 1: Smith Hospital

Quality Measure	Measure Level	Raw Score	Scaled Score
All-Cause Readmissions	Hospital	12%	85
CMS PSI 90	Hospital	0.94	75
RSCR following THA/TKA	Hospital	2.1%	50

ACH 2: Johnson Hospital

Quality Measure	Measure Level	Raw Score	Scaled Score
All-Cause Readmissions	Hospital	18%	75
CMS PSI 90	Hospital	0.8	95
RSCR following THA/TKA	Hospital	2.5%	40

PGP Step 2: Scaling Hospital Level Quality Measures (Part 2)

Example

Now, let's bring in the volume of Clinical Episodes to account for Lakeside PGP practicing at different locations

600

ACH 1: Smith Hospital

200

ACH 2: Johnson Hospital

Smith Hospital should be weighted more heavily because Lakeside PGP performed more Clinical Episodes here.

Lakeside PGP works at both Smith and Johnson Hospitals and triggered a total of **800 Clinical Episodes**
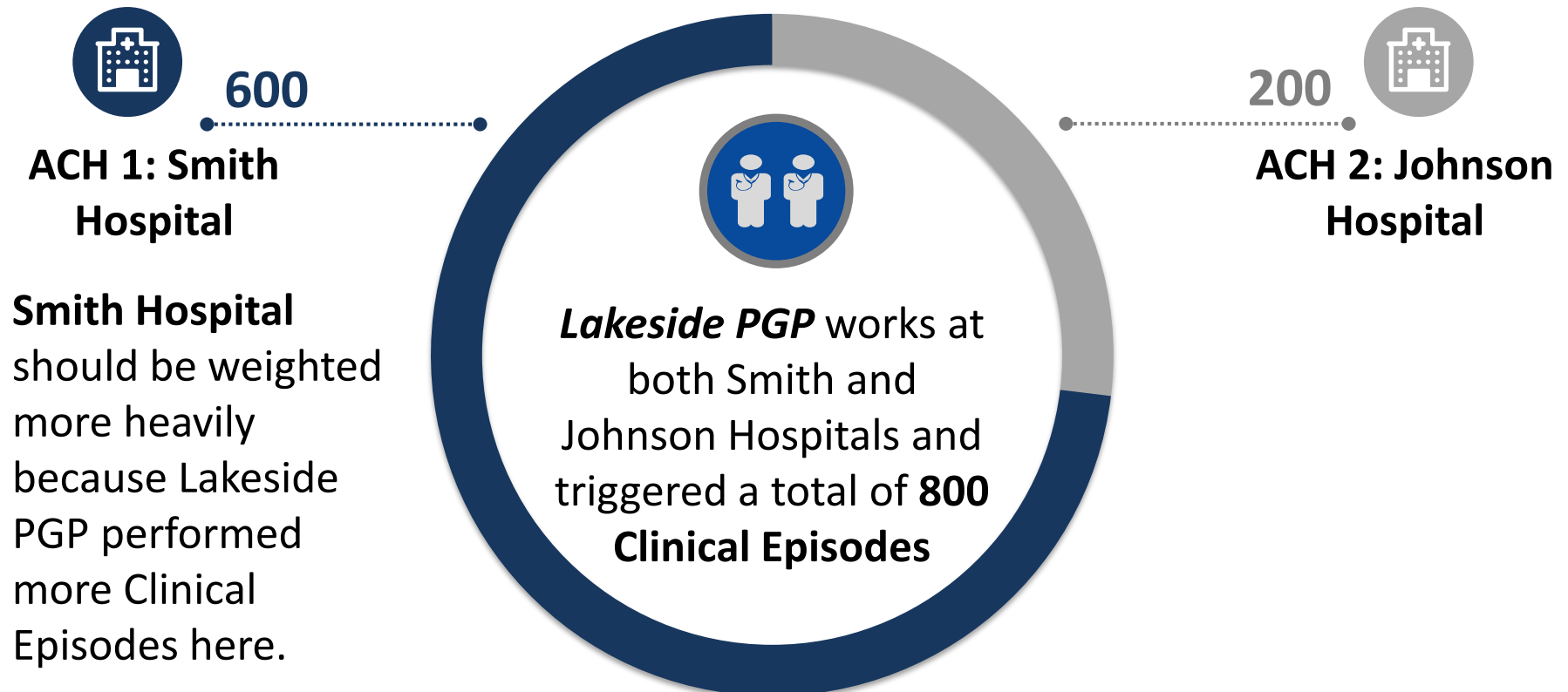
PGP Step 2: Scaling Hospital Level Quality Measures (Part 3)

Example

CMS weights the scaled score for each Hospital level Quality Measure to account for the volume of Clinical Episodes at each ACH

Quality Measure	ACH 1: Smith Hospital		ACH 2: Johnson Hospital		Scaled & Weighted Quality Score
	Clinical Episodes attributed to PGP	Scaled Quality Measures	Clinical Episodes attributed to PGP	Scaled Quality Measures	
All-Cause Readmissions	600	85	200	75	**82.5**

$$\textit{Sample Calculation: } \frac{(600 \times 85) + (200 \times 75)}{(600 + 200)} = 82.5$$

PGP Step 2: Scaling Hospital Level Quality Measures (Part 4)

Example

Here is the complete table for the remaining Hospital level Quality Measures for Lakeside PGP

Quality Measure	ACH 1: Smith Hospital		ACH 2: Johnson Hospital		Scaled & Weighted Quality Score
	Clinical Episodes attributed to PGP	Scaled Quality Measures	Clinical Episodes attributed to PGP	Scaled Quality Measures	
All-Cause Readmissions	600	85	200	75	**82.5**
CMS PSI 90	600	75	200	95	**80**
RSCR following THA/TKA	600	50	200	40	**47.5**

Calculating the CQS: PGP Step 3

PGP → CMS scales Episode Initiator level Quality Measures → CMS scales and weights Hospital level Quality Measures → **Scaled scores are volume weighted to determine the CQS**

PGP Step 3: Clinical Episode Volumes

Example

Now let's bring in the Clinical Episode volumes. CMS calculates the number of attributed Clinical Episodes that are relevant for each Quality Measure

Quality Measure	MJRLE Clinical Episodes		COPD Clinical Episodes		Total Applicable Clinical Episodes
Advance Care Plan	300	+	500	=	800
Perioperative Care	300	+	N/A	=	300
All-Cause Readmissions	300	+	500	=	800
CMS PSI 90	300	+	500	=	800
RSCR following THA/TKA	300	+	N/A		300
Total:					**3,000**

PGP Step 3: Weighting Clinical Episode Volumes

Example

CMS calculates a normalized weight for each Quality Measure, based upon the volume of triggered Clinical Episodes

Quality Measure	Clinical Episodes	Normalized Weight
Advance Care Plan	800	~0.27
Perioperative Care	300	~0.1
All-Cause Readmissions	800	~0.27
CMS PSI 90	800	~0.27
RSCR following THA/TKA	300	~0.1
Total:	**3,000**	**1.00**

$$\textbf{\textit{Advance Care Plan}}: \frac{\textbf{800}}{\textbf{3,000}} = \textbf{\textasciitilde0.27}$$

PGP Step 3: Volume Weighting to Get the CQS

CMS then does a weighted average calculation: CMS multiplies each scaled score by its normalized weight and then adds these weighted scores together to get the CQS.

Quality Measure	Scaled Score		Normalized Weight		Weighted Quality Score
Advance Care Plan	85	×	~0.27	=	23.0
Perioperative Care	75	×	~0.1	=	7.5
All-Cause Readmissions	82.5	×	~0.27	=	22.3
CMS PSI 90	80	×	~0.27	=	21.6
RSCR following THA/TKA	47.5	×	~0.1	=	4.8

The sum of the weighted scores is the CQS: $23 + 7.5 + 22.3 + 21.6 + 4.8 = $ 78.3

CQS Impact on Reconciliation

- The CQS will accrue during Calendar Year (CY) 2019.
- CMS will calculate the CQS for the first time in Fall 2020 using CY2019 quality data.
- That CQS score will be incorporated in the reconciliation results for:
  - ✓ **Performance Periods 1 during the 2nd true-up in Fall 2020**
  - ✓ **Performance Period 2 during the 1st true-up in Fall 2020.**
- The monetary impact of the CQS score on reconciliation will be described in more detail in the future.

Additional Information

- If you have questions about this presentation or the Model, please contact the BPCI Advanced Model Team at BPCIAdvanced@cms.hhs.gov

- Additional information regarding the Pricing Methodology of the Model can be found at the CMS Innovation Center website: https://innovation.cms.gov/initiatives/bpci-advanced

- BPCI Advanced Quality Measures: Understanding the Composite Quality Score (CQS) Webcast survey: https://deloittesurvey.deloitte.com/Community/se/3FC11B2648E5EC41