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CMS Bundled Payments for Care Improvement Advanced Model

Sixth Annual Evaluation Report

Prepared for: **Centers for Medicare & Medicaid Services**

Submitted by: **The Lewin Group, Inc., with our partners Abt Associates, GDIT, and Telligen**

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List of Appendices

Appendix A: Glossary of Terms and Acronyms List

The following tables display the various terms and abbreviations that will be used throughout this report. The tables also include a definition of each of these terms. For further information on these terms, please consult the BPCI Advanced page of the CMS website.

Exhibit A.1: Glossary of Terms

Name	Definition
90-Day Post-Discharge Period (PDP)	The 90 days following discharge from the anchor stay or procedure.
Accountable Care Organization (ACO)	A group of doctors, hospitals, and other health care providers who come together voluntarily to give coordinated high-quality care to Medicare patients they serve.
Acute Care Hospital (ACH)	A hospital that provides inpatient medical care and other related services for surgery, acute medical conditions, or injuries (usually for a short-term illness or condition).
Administrative Quality Measures Set	A set of six exclusively claims-based quality measures collected directly by CMS. Two measures included in the set, All-Cause Hospital Readmission and Advanced Care Plan, apply to all clinical episodes, and up to two additional measures could apply to each clinical episode. For Model Year 4 and later, participants can choose to be evaluated based on either the administrative quality measures set or the alternate quality measures set.
Advanced Alternative Payment Model (Advanced APM)	Approaches to paying for health care that incentivize quality and value. Advanced APMs are a subset of APMs that meet these three criteria: • Requires participants to use certified electronic health records technology • Provides payment for covered professional services based on quality measures comparable to those used in the Merit-based Incentive Payment System Quality performance category • Either (1) is a Medical Home Model expanded under the Center for Medicare and Medicaid Innovation (CMMI) authority OR (2) requires participants to bear significant financial risk A benefit of a model's designation as an Advanced APM is that, under the Quality Payment Program, eligible clinicians who participate in an Advanced APM and meet certain Medicare patient/payment thresholds may qualify as a Qualifying APM Participant. They are then exempt from Merit-based Incentive Payment System reporting requirements and payment adjustments and receive a bonus incentive (prior to 2024) or a higher physician fee schedule update (2024 and beyond).
Alternate Quality Measures Set	A set of quality measures introduced in Model Year 4 (2021) that includes a combination of up to five claims-based, hospital-based, and registry-based measures for each clinical episode. Two measures included in the set, All-Cause Hospital Readmission and Advanced Care Plan, apply to all clinical episodes, and up to three additional measures could apply to each clinical episode. Participants can choose to be evaluated based on either the administrative quality measures set or the alternate quality measures set.
Ambulatory Surgical Center (ASC)	A facility other than a hospital that provides outpatient surgery. ASCs also are known as outpatient surgery centers or same day surgery centers.
Anchor Procedure	The hospital outpatient procedure that triggers the start of an outpatient episode.
Anchor Stay	The hospital inpatient stay that triggers the start of an inpatient episode.
Beneficiary Assignment (Attribution Rules)	The methodology used to assign beneficiaries to a CMS payment model. Beneficiary assignment contributes to financial reconciliation, benchmark pricing, and program operations.

Name	Definition
Bundled Payments for Care Improvement Advanced (BPCI Advanced) Model	A voluntary value-based payment model from the CMS Innovation Center that tests whether linking payments for a clinical episode can reduce Medicare expenditures while maintaining or improving the quality of care.
BPCI Advanced Counterfactual	What payments would have been absent the BPCI Advanced Model. Calculated as the average BPCI Advanced baseline amount plus the average change for the comparison group from baseline to intervention. Used as the denominator to present results for net savings to Medicare as a percentage.
BPCI Advanced Database	A database where CMS stores secure, frequently updated data about BPCI Advanced participants and episodes, from which the evaluation team can process various reports at any time.
Clinical Episode	A type of episode of care (meaning an anchor stay or procedure and the 90-day post-discharge period), defined by certain Medicare Severity-Diagnosis Related Groups (MS-DRGs) or Healthcare Common Procedure Coding System (HCPCS) codes. See **Appendix B** for a complete list of MS-DRG and HCPCS codes corresponding to each clinical episode. For Model Years 1 and 2 (2018 and 2019), there were 32 clinical episodes, and for Model Years 3, 4, and 5 (2020, 2021, and 2022), there were 34 clinical episodes. During Model Years 1 through 3, participants chose to participate in one or more clinical episodes. In Model Year 4 and later, participants were required to choose one or more clinical episode service line groups (see below).
Clinical Episode Service Line Group (CESLG)	A collection of clinical episodes sorted into clinically related groups. For Model Year 4 and later, participants are required to select CESLGs instead of one or more clinical episodes. Participants are not required to participate in clinical episodes within a CESLG that do not meet the minimum volume threshold during the baseline period.
Clinically Integrated Network	A legal entity comprising a group of health care providers working together to deliver efficient and coordinated care to patients and decrease the cost of care.
CMS Discount	A discount applied to the benchmark price to calculate the target price for each clinical episode for each hospital or physician group practice (PGP). The CMS discount was 3% for all episodes in Model Years 1 through 5. In Model Year 6 and later, the CMS discount is 2% for medical episodes and 3% for surgical episodes.
Composite Quality Score (CQS)	An aggregate quality score determined by calculating a score for each quality measure at the clinical episode level. Scores are scaled across the clinical episodes attributed to a specific hospital or PGP and weighted based on clinical episode volume. The CQS is used to adjust positive or negative total reconciliation amounts.
Consultant	A non-participating organization that provides strategic guidance on participation and clinical episode selection, data analytic support, or other services to help episode initiators succeed in the model.
Convener Participant	A type of participant with at least one downstream episode initiator that facilitates coordination among downstream episode initiators and other providers and bears and apportions financial risk. A convener participant may or may not be a Medicare provider or initiate episodes.
Convener-Like Organization	Entities that are not formal participants in the BPCI Advanced Model but provide services to episode initiators that are similar to the services provided by conveners, including data analysis and care navigation services.
Difference-in-differences (DiD)	A statistical technique used in the BPCI Advanced evaluation to study the effect of an independent variable on an outcome, comparing the change over time in outcomes for the treatment group to the control group. Referred to as “Impact Estimates” within the appendices.

Name	Definition
DiD as a Percent	This estimate, reported with DiD exhibits and appendix tables, represents the effect of the model relative to the baseline value. It is calculated as the DiD estimate divided by the BPCI Advanced baseline mean then multiplied by 100.
Downstream Episode Initiator	A hospital or physician group practice that is associated with a convener participant and initiates episodes. Downstream episode initiators do not bear financial risk directly with CMS.
Eligible Clinician	A clinician who was the attending or operating physician for an eligible hospital discharge or an eligible outpatient discharge.
Eligible Medicare Fee-for-Service (FFS) Episodes Nationwide	The set of anchor stays and procedures, plus the 90-day post-discharge or post-procedure period, that meet model eligibility requirements and are initiated at any eligible hospital in the United States.
Eligible Hospital	An acute care hospital that meets the criteria for participation in BPCI Advanced.
Eligible Hospital Discharge	A Medicare fee-for-service (FFS) inpatient stay that met the model eligibility requirements, including having a BPCI Advanced MS-DRG, being at a hospital that is eligible to be in BPCI Advanced, and meeting other beneficiary inclusion criteria.
Eligible Outpatient Procedure	A Medicare FFS outpatient procedure that meets the model eligibility requirements, including being in a hospital outpatient setting, having a BPCI Advanced HCPCS code, and meeting other beneficiary inclusion criteria.
Episode Initiator	The Medicare-enrolled hospital or PGP participating in the model as a participant or a downstream episode initiator that can trigger episodes.
Episode	The anchor stay or procedure plus the 90-day post-discharge or post-procedure period.
Inactive PGP	A PGP that can bill FFS claims to Medicare under the BPCI Advanced Model but does not have any episode volume between 2013 and the model year.
Impact Analysis Baseline Period	The period of time prior to the BPCI Advanced intervention period used in the impact analyses. The baseline period for the analysis of Model Year 5 spans nearly 4 years, from January 1, 2015, to September 30, 2018.
Key Informant Interview (KII)	A focused qualitative interview with an individual or individuals with firsthand knowledge about the topic area of interest. KIIs are conducted by the evaluation team to better understand a localized topic area as it relates to the impact BPCI Advanced has on quality of care, utilization, or the reduction in expenditures.
Medical Episode	An episode with an MS-DRG or HCPCS code within one of the four medical clinical episode service line groups: *cardiac care*, *gastrointestinal care*, *medical and critical care*, and *neurological care*. See **Appendix B** for a complete list of MS-DRGs, HCPCS codes, and clinical episodes.
Net Payment Reconciliation Amount (NPRA)	A positive total reconciliation amount paid to a participant by CMS, which includes adjustments based on quality performance. NPRA is earned when the aggregate Medicare allowed amounts for a participant's clinical episodes are lower than the target price for the clinical episodes and remain positive after adjustments for quality performance.
Non-Convener Participant	An individual hospital or physician group practice that assumes financial risk for clinical episodes. Non-convener participants are also episode initiators.
Parallel Trends Test	A key assumption required for an unbiased DiD estimate is that BPCI Advanced and the comparison group have the same trend in outcomes prior to the intervention. In this report, we tested the null hypothesis that selected BPCI Advanced and comparison hospitals and physician group practices had parallel trends in outcomes during the baseline period. We noted with the dagger symbol ("‡") estimates where we reject the null hypothesis that there were parallel trends in the baseline, indicating a parallel trends failure for this result.
Patient Optimization	A practice in which providers identify and mitigate medical risk factors prior to surgical procedures to minimize complications and improve recovery.

Name	Definition
Performance Period	A defined period during which episodes may be initiated and all Medicare FFS payments aggregated for a specific clinical episode are attributed to a participant. The performance periods are used to determine reconciliation for episodes. Apart from the first performance period (October 1, 2018, through December 31, 2018), performance periods will run from January 1 through June 30 and July 1 through December 31. The BPCI Advanced Model includes 14 performance periods, running through December 31, 2025.
Post-Acute Care (PAC)	All care services received by a patient after discharge from a hospital stay or procedure. Includes care from the PAC provider (skilled nursing facility, inpatient rehabilitation facility, long-term care hospital, or home health agency) as well as any potential inpatient hospitalizations (readmissions), professional services, or outpatient care.
Reconciliation	The semi-annual process where CMS determines whether participants are eligible for a NPRA payment or are required to pay back money to CMS. To do this, CMS compares the aggregate Medicare FFS allowed amounts for all items and services included in episodes attributed to a participant against the target price for those episodes and adjusts for performance on quality. If the aggregate amounts are lower than the target price (after accounting for the composite quality score and stop-gain/stop-loss adjustments), the participant is eligible to receive a NPRA payment from CMS. If the aggregate amounts are higher than the target price (after accounting for the composite quality score and stop-gain/stop-loss adjustments), they are required to pay a repayment amount to CMS.
Repayment Amount	The amount participants must pay CMS when aggregate Medicare allowed amounts for clinical episodes that the participant has selected, including an adjustment for the CQS, are higher than the target price for such clinical episodes.
Retrospective Trend Adjustment	A retrospective adjustment, that is designed to help account for unanticipated systematic factors (such as payment system reforms) that are common to all hospitals (including non-participant hospitals) in the peer group during the performance period, is applied to the final target price. Adjustments are applied to each peer group and utilizes observed episode spending.
Risk Adjustment	Risk adjustment generally refers to the process of accounting for other factors that are often beyond the control of the provider, such as patient characteristics, that may affect the patient's total cost of care or the specific outcome of interest. CMS uses risk adjustment to calculate what to pay a health care provider based on a patient's health, their likely use of health care services, and the costs of those services. Risk adjustment is a way to help ensure doctors and other health care providers are paid fairly for the patients they treat. Without adequate risk adjustment, providers with a sicker or more service-intensive patient mix would likely have worse outcomes, and providers with healthier patients would likely have better outcomes, even if nothing else differed. In this evaluation report, we also use risk adjustment to analyze outcomes. All measures used to estimate the impact of the model in this evaluation report were risk-adjusted for demographic factors, prior health conditions based on hierarchical condition category indicators, measures of prior care use, and provider characteristics. See **Appendix C** for more details.
Rural	A hospital is considered rural based on the CBSA Urban Rural Indicator field from the Provider of Services (POS) file. This variable indicates whether the count in which the hospital is located is defined as urban or rural. See **Appendix C** for more details on the POS data source.
Safety-Net Hospital	A facility is considered a safety-net facility based on a list from CMS, as described in **Appendix C**. Facilities are identified when their patient mix of beneficiaries with dual eligibility or Part D LIS exceeds the 75th percentile threshold for all congruent facilities that bill Medicare.
Surgical Episode	An episode with an MS-DRG or HCPCS code within one of the four surgical clinical episode service line groups: *cardiac procedures*, *gastrointestinal surgery*, *orthopedics*, and *spinal procedures*. See **Appendix B** for a complete list of MS-DRGs, HCPCS codes, and clinical episodes.

Name	Definition
Target Price	The benchmark price with the CMS discount (in MY6-MY8, 2% for medical episodes or 3% for surgical episodes; in MY1 through MY5, the CMS discount was a flat 3% for all clinical episodes) applied for each combination of episode initiator and clinical episode. Used to determine whether participants are eligible for NPRA or are required to pay a repayment amount to CMS.
Target Price Baseline Period	The period of time referenced for calculation of historical payments used for target prices. For Model Years 1 through 5, the baseline period spans 4 years. The baseline period for Model Years 1 and 2 spanned from January 1, 2013 through December 31, 2016. The baseline period for Model Year 3 spanned from October 1, 2014 through September 30, 2018. The baseline period for Model Year 4 spanned from October 1, 2015 to September 30, 2019. The baseline period for Model Year 5 spanned from October 1, 2016, to September 30, 2020.
Unique Participant	A distinctive entity that entered into one or more participation agreements with CMS.

Note: See the first page of this appendix for data sources and more information.

Exhibit A.2: Acronym List

Acronym	Definition
ACH	Acute Care Hospital
ACO	Accountable Care Organization
ACO REACH	ACO Realizing Equity, Access, and Community Health Model
ADI	Area Deprivation Index
ADT	Admission, Discharge, and Transfer
AHRF	Area Health Resource File
AHRQ	Agency for Healthcare Research and Quality
APM	Alternative Payment Model
ASC	Ambulatory Surgical Center
BPCI	Bundled Payments for Care Improvement
BPCI-A	Bundled Payments for Care Improvement Advanced
BPID	Bundled Payment Identification
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CARE	Continuity Assessment Record and Evaluation
CBSA	Core-Based Statistical Area
CCN	CMS Certification Number
CCQM-PC	Care Coordination Quality Measure for Primary Care
CEC	Comprehensive End-Stage Renal Disease (ESRD) Care Model
CESLG	Clinical Episode Service Line Group
CI	Confidence Interval
CJR Model	Comprehensive Care for Joint Replacement Model
CMMI	Center for Medicare and Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease
COVID-19 PHE	Coronavirus Disease 2019 Public Health Emergency
CPT	Current Procedural Terminology

Acronym	Definition
CQS	Composite Quality Score
DiD	Difference-in-Differences
DiDiD	Difference-in-Difference-in-Differences
DSH	Disproportionate Share Hospital
ED	Emergency Department
ESRD	End-Stage Renal Disease
FFS	Fee-for-Service
GI	Gastrointestinal
GPDC	Global and Professional Direct Contracting Model
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HCC	Hierarchical Condition Category
HCPCS	Healthcare Common Procedure Coding System
HH	Home Health
HHA	Home Health Agency
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
ICD-9	International Classification of Diseases, Ninth Revision
ICD-10	International Classification of Diseases, Tenth Revision
IP	Inpatient
IPPS	Inpatient Prospective Payment System
IRF	Inpatient Rehabilitation Facility
ITT	Intention to Treat
KII	Key Informant Interview
LASSO	Least Absolute Shrinkage and Selection Operator
LCI	Lower Confidence Interval
LIS	Low-Income Subsidy
LTCH	Long-Term Care Hospital
M	Million
M&C	Medical and Critical
MBSF	Master Beneficiary Summary File
MDM	CMS Master Data Management
MD-PPAS	Medicare Data on Provider Practice and Specialty
MS-DRG	Medicare Severity-Diagnosis Related Group
MY	Model Year MY1 = October 1, 2018 – December 31, 2018 MY2 = January 1, 2019 – December 31, 2019 MY3 = January 1, 2020 – December 31, 2020 MY4 = January 1, 2021 – December 31, 2021 MY5 = January 1, 2022 – December 31, 2022
N/A	Not Applicable
n.d.	No Date

Acronym	Definition
NGACO	Next Generation Accountable Care Organization
NPI	National Provider Identifier
NPRA	Net Payment Reconciliation Amount
NQF	National Quality Forum
OIP	Other inpatient psychiatric care
OP	Outpatient
PAC	Post-Acute Care
PDP	Post-Discharge Period
PGP	Physician Group Practice
PHE	Public Health Emergency
POS	Provider of Service
pp	Percentage Point
Q	Quarter
RIF	Research Identifiable Files
RTI	Research Triangle Institute
SNF	Skilled Nursing Facility
SSP	Shared Savings Program
TEAM	Transforming Episode Accountability Model
TIN	Taxpayer Identification Number
UCI	Upper Confidence Interval
VTAPM	Vermont All-Payer ACO Model
ZIP	Zone Improvement Plan

Note: See the first page of this appendix for data sources and more information.

Exhibit A.3: Clinical Episode Abbreviation List

Abbreviation	Clinical Episode
AMI	Acute Myocardial Infarction
Back & Neck	Back and Neck Except Spinal Fusion
CABG	Coronary Artery Bypass Graft
CHF	Congestive Heart Failure
COPD, Bronchitis, & Asthma	Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma
Disorders of the Liver	Disorders of Liver Except Malignancy, Cirrhosis, or Alcoholic Hepatitis
DJRLE	Double Joint Replacement of the Lower Extremity
Femur & Hip/Pelvis Fractures	Fractures of the Femur and Hip or Pelvis
GI Hemorrhage	Gastrointestinal Hemorrhage
GI Obstruction	Gastrointestinal Obstruction
Hip & Femur	Hip and Femur Procedures Except Major Joint
IBD	Inflammatory Bowel Disease
Lower Extremity/Humerus	Lower Extremity and Humerus Procedures Except Hip, Foot, Femur
MJRLE	Major Joint Replacement of the Lower Extremity
MJRUE	Major Joint Replacement of the Upper Extremity
PCI	Percutaneous Coronary Intervention
SPRI	Simple Pneumonia and Respiratory Infections
TAVR	Transcatheter Aortic Valve Replacement
UTI	Urinary Tract Infection

Note: See the first page of this appendix for data sources and more information.

Appendix B: Clinical Episode Definitions

The following tables display the BPCI Advanced clinical episode types by clinical episode service line group (CESLG), as well as the Healthcare Common Procedure Coding System (HCPCS) and Medicare Severity-Diagnosis Related Group (MS-DRG) codes that trigger each clinical episode type.

Bariatric surgery, endovascular cardiac valve replacement, inflammatory bowel disease, seizures, and spinal fusion clinical episodes were new for Model Year 3. The spinal fusion clinical episode combines and replaces three clinical episodes that were separate in Model Years 1 and 2: cervical spinal fusion, combined anterior posterior spinal fusion, and spinal fusion (non-cervical). Beginning in Model Year 3, major joint replacement of the lower extremity is a multi-setting clinical episode that can be triggered with either an inpatient or outpatient procedure.

Additionally, endovascular cardiac valve replacement episodes are triggered by the corresponding MS-DRG codes and at least one procedure code from Exhibit B.4. MS-DRGs 521 and 522 became active October 1, 2020. For a list of trigger HCPCS codes, see Exhibit B.3.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix. All information, including clinical episodes, MS-DRG and HCPCS code can be found on the Technical Resources section of the Participant Resources page of the Centers for Medicare & Medicaid Services website. A full list of of MS-DRG and HCPCS codes can be found in the BPCI Advanced Clinical Episodes to Quality Measures Correlation Table for MY5.

Exhibit B.1: BPCI Advanced Clinical Episode Types

Clinical Episode Type	CESLG	Clinical Episode
Medical	Cardiac Care	• Acute Myocardial Infarction • Cardiac Arrhythmia • Congestive Heart Failure
	Gastrointestinal Care	• Disorders of Liver Except Malignancy, Cirrhosis, or Alcoholic Hepatitis • Gastrointestinal Hemorrhage • Gastrointestinal Obstruction • Inflammatory Bowel Disease
	Medical & Critical Care	• Cellulitis • Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma • Renal Failure • Sepsis • Simple Pneumonia and Respiratory Infections • Urinary Tract Infection
	Neurological Care	• Seizures • Stroke
Surgical	Cardiac Procedures	• Cardiac Defibrillator (Inpatient) • Cardiac Defibrillator (Outpatient) • Cardiac Valve • Coronary Artery Bypass Graft • Endovascular Cardiac Valve Replacement • Pacemaker • Percutaneous Coronary Intervention (Inpatient) • Percutaneous Coronary Intervention (Outpatient)
	Gastrointestinal Surgery	• Bariatric Surgery • Major Bowel Procedure
	Orthopedics	• Double Joint Replacement of the Lower Extremity • Fractures of the Femur and Hip or Pelvis • Hip and Femur Procedures Except Major Joint • Lower Extremity and Humerus Procedures Except Hip, Foot, Femur • Major Joint Replacement of the Lower Extremity • Major Joint Replacement of the Upper Extremity

Clinical Episode Type	CESLG	Clinical Episode

Surgical (Continued)	Spinal Procedures	• Back and Neck Except Spinal Fusion (Inpatient)
		• Back and Neck Except Spinal Fusion (Outpatient)
		• Spinal Fusion
		  ▪ Cervical Spinal Fusion
		  ▪ Combined Anterior Posterior Spinal Fusion
		  ▪ Spinal Fusion (Non-Cervical)

Note: See the first page of this appendix for data sources and more information.

Exhibit B.2: BPCI Advanced Inpatient Clinical Episodes and MS-DRGs, January 1, 2022 – December 31, 2022

Clinical Episode	MS-DRG Trigger Codes							
	1	2	3	4	5	6	7	8
Acute Myocardial Infarction	280	281	282					
Back and Neck Except Spinal Fusion	518	519	520					
Bariatric Surgery	619	620	621					
Cardiac Arrhythmia	308	309	310					
Cardiac Defibrillator (Inpatient)	222	223	224	225	226	227		
Cardiac Valve	216	217	218	219	220	221		
Cellulitis	602	603						
Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma	190	191	192	202	203			
Congestive Heart Failure	291	292	293					
Coronary Artery Bypass Graft	231	232	233	234	235	236		
Disorders of Liver Except Malignancy, Cirrhosis, or Alcoholic	441	442	443					
Double Joint Replacement of the Lower Extremity	461	462						
Endovascular Cardiac Valve Replacement	266	267						
Fractures of the Femur and Hip or Pelvis	533	534	535	536				
Gastrointestinal Hemorrhage	377	378	379					
Gastrointestinal Obstruction	388	389	390					
Hip and Femur Procedures Except Major Joint	480	481	482					
Inflammatory Bowel Disease	385	386	387					
Lower Extremity and Humerus Procedure Except Hip, Foot, Femur	492	493	494					
Major Bowel Procedure	329	330	331					
Major Joint Replacement of the Lower Extremity	469	470	521	522				
Major Joint Replacement of the Upper Extremity	483							
Pacemaker	242	243	244					
Percutaneous Coronary Intervention (Inpatient)	246	247	248	249	250	251		
Renal Failure	682	683	684					
Seizures	100	101						
Sepsis	870	871	872					
Simple Pneumonia and Respiratory Infections	177	178	179	193	194	195		
Spinal Fusion	453	454	455	459	460	471	472	473
Stroke	061	062	063	064	065	066		
Urinary Tract Infection	689	690						

Note: See the first page of this appendix for data sources and more information.

Exhibit B.3: BPCI Advanced Outpatient Clinical Episodes and HCPCS Codes, January 1, 2022 – December 31, 2022

Clinical Episode	HCPCS Trigger Code												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Back and Neck Except Spinal Fusion	62287	63005	63011	63012	63017	63030	63040	63042	63045	63046	63047	63056	63075
Cardiac Defibrillator (Outpatient)	33249	33262	33263	33264	33270								
Percutaneous Coronary Intervention (Outpatient)	92920	92924	92928	92933	92937	92943	C9600	C9602	C9604	C9607			
Major Joint Replacement of the Lower Extremity	27447	27130											

Note: See the first page of this appendix for data sources and more information.

Exhibit B.4: Procedure Codes for *Endovascular Cardiac Valve Replacement*, January 1, 2022 – December 31, 2022

Procedure Code	ICD-9/ICD-10
35.05	ICD-9
35.06	ICD-9
02RF37H	ICD-10
02RF37Z	ICD-10
02RF38H	ICD-10
02RF38Z	ICD-10
02RF3JH	ICD-10
02RF3JZ	ICD-10
02RF3KH	ICD-10
02RF3KZ	ICD-10
X2RF332	ICD-10

Note: See the first page of this appendix for data sources and more information.

Appendix C: Methods

This appendix includes details on data sources and methods used for analyses in the Sixth Evaluation Report. It has four main sections: Primary and Secondary Data Sources, Qualitative Methods, Survey Methods, and Quantitative Methods.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix.

A. Primary and Secondary Data Sources

This section describes primary and secondary data sources used for qualitative and quantitative analyses. Exhibit C.1 lists the data sources and their uses in the evaluation report. We used primary data sources to describe the BPCI Advanced patient and participant experiences in the model. We used provider-level data sources to identify and describe BPCI Advanced participating providers and the comparison group; the list of comparison providers selected in Model Year 4 (2021) was modified to create the comparison group for Model Year 5 (2022) analyses. We used Medicare claims and enrollment data to construct episodes of care for BPCI Advanced and matched comparison providers. We also used Medicare claims to create outcome measures and patient risk factors associated with the outcomes.

Exhibit C.1: Data Sources Used in the BPCI Advanced Evaluation

Data Source Type	Dataset Name	Date Range	Dataset Contents	Use
Primary Data Sources	Beneficiary Survey	Surveys collected October 2021–February 2022 (Wave 2), October 2022–February 2023 (Wave 3), July 2023–February 2024 (Wave 4)	Surveys completed by Medicare beneficiaries or their proxies. Patients received surveys about 90 days after leaving the hospital.	Used to create patient-reported outcome measures, such as patient-reported change in functional status, care experiences, and satisfaction with recovery and care received.
	Site Visits	2021–2023	Interview transcripts from virtual site visits that cover a wide range of subjects related to a hospital's, PGP's, or convener's experience in BPCI Advanced.	Virtual site visits included interviews with key individuals responsible for different aspects of BPCI Advanced implementation and management, including executive and financial leaders, care redesign leaders, care coordination staff, front-line nursing and physician staff who provide direct care for patients in BPCI Advanced, representatives from conveners (when applicable), and, in Model Year 5, patients treated by BPCI Advanced participants during Model Year 5. During site visits, model participants were asked about BPCI Advanced participation decisions, CESLG selection, the impact of Model Year 4 changes, the impact of the COVID-19 PHE, care transformation and care redesign activities, external provider partnerships, and general successes and challenges in the model. Site visits also provided an opportunity to learn about patient, participant, or market factors that may influence variation in the effect of the model.

Data Source Type	Dataset Name	Date Range	Dataset Contents	Use
Primary Data Sources, Continued	Key Informant Interviews (KIIs)	2021–2024	Transcripts from semi-structured telephone interviews conducted with a sample of PGPs, hospitals, and conveners on specific topics of interest.	Designed with input from CMS, the first round of KIIs during Model Year 4 elicited information on entry decisions and episode selection for co-located hospital and PGP episode initiators. The second round of Model Year 4 KIIs focused on a hospital's, PGP's, or convener's perspectives on changes to the model that CMS introduced in Model Year 4. The first round of KIIs during Model Year 5 focused on identifying care redesign strategies that participants use to care for patients with unmet nonmedical needs, including low-income Medicare beneficiaries, beneficiaries who identify as belonging to one or more minority groups, and patients who live in rural or underserved areas, among others. The second round of Model Year 5 KIIs focused on strategies that hospitals and PGPs use to reduce hospital readmissions. A set of KIIs during Model Years 6 (2023) and 7 (2024) focused on how Medicare ACO participation affected participant experience in BPCI Advanced. Additional Model Year 6 KIIs focused on participant strategies to coordinate with primary care providers.
Provider-Level Secondary Data Sources	Agency for Healthcare Research and Quality (AHRQ) Compendium of U.S. Health Systems, Hospital Linkage File	2018	Data linking hospitals to health systems.	Used to identify whether a hospital is part of a health system.
	AHRQ Compendium of U.S. Health Systems, Group Practice Linkage File	2018	Data linking PGPs to health systems.	Used to identify whether a PGP is part of a health system.

Data Source Type	Dataset Name	Date Range	Dataset Contents	Use
Provider-Level Secondary Data Sources, Continued	Area Health Resource File (AHRF)	2015–2019	County-level data on population, environment, geography, health care facilities, and health care professionals.	Used to create baseline hospital and PGP characteristics used in the construction of hospital comparison groups and PGP comparison groups.
	CMS BPCI Advanced Database	2018–2023	Information compiled by CMS on BPCI Advanced participants and their clinical episodes, including participant name, CCN, TIN, location, type (hospital, PGP, other), BPCI Advanced "role," clinical episode(s), BPCI Advanced participation start and end dates, and contact information.	Used to identify participants, hospital episode initiators, and PGP episode initiators participating in BPCI Advanced and the clinical episodes in which they are participating. Also used to identify participants that retroactively withdrew or applied but did not become a participant or an episode initiator.
	CMS BPCI Advanced Hospital Target Pricing Files	2015–2020	The clinical episode-specific Model Year 4 and Model Year 5 preliminary target prices, historical payments, and historical volume for all BPCI Advanced-eligible hospitals.	Used for the hospital efficiency measure, a component of the Model Year 4 preliminary target price, which is also used as a matching variable in hospital comparison group construction. Also used as an indicator of whether historical hospital volume meets the threshold for target price creation to determine which hospitals were eligible to participate in Model Year 5.
	CMS BPCI Advanced Reconciliation Result Files	2018–2022	NPRA and final target prices from the implementation contractor. Contains results for Model Year 1 (October 1, 2018 – December 31, 2018) –5 which encompasses Performance Periods 1–9. Second true-up amounts were used for all performance periods.	Used Model Year 5 NPRA to calculate net Medicare savings due to BPCI Advanced.
	CMS BPCI Database	2013–2018	Information compiled by CMS on BPCI awardees and their clinical episodes, including awardee name, CCN, TIN, location, type, clinical episode(s), BPCI participation start and end dates, and contact information.	Used to identify hospitals and PGPs that participated in the BPCI Initiative.
	CMS CJR Model Database	2016–2023	List of hospitals that have ever participated in the CJR Model, dates of participation for CJR hospitals no longer participating, and list of active participants in the CJR Model as of August 29, 2023.	Used to identify hospitals that participated in the CJR Model and to identify PGP episodes at CJR hospitals.

Data Source Type	Dataset Name	Date Range	Dataset Contents	Use
Provider-Level Secondary Data Sources, Continued	CMS Inpatient Prospective Payment System (IPPS) Files	2011–2023	Hospital-level file containing provider characteristics such as Medicare days percent, resident-bed ratio, and Disproportionate Share Hospital patient percent.	Used for hospital characteristics, risk adjustment, and hospital comparison group construction.
	CMS Safety-Net Hospital List	2017–2022	List of facilities identified as safety-net facilities from CMS. Facilities are identified when their patient mix of beneficiaries with dual eligibility or Part D LIS exceeds the 75th percentile threshold for all congruent facilities that bill Medicare.	Used for hospital characteristics.
	CMS Provider of Service (POS) File	2013–2022	Information on Medicare-approved institutional providers, including provider number, size, ownership, location, and staffing.	Used in hospital comparison group construction, for risk adjustment, and for provider locations.
	CMS Master Data Management (MDM) data beneficiary extract	2015–2022	Information on ACO attribution for BPCI Advanced patients and the matched comparison group during the baseline and intervention period.	Used for BPCI Advanced and ACO overlap descriptives and impact estimates.
	CMS Research Identifiable File (RIF)	2013–2023	Information on Shared Savings Program and NGACO provider-level participation data.	Used to compile Medicare ACO participation data among BPCI Advanced episode initiators.
	Medicare Data on Provider Practice and Specialty (MD-PPAS)	2017–2020	Mapping of physicians billing to practices.	Used to identify physician practice affiliation during the baseline period.

Data Source Type	Dataset Name	Date Range	Dataset Contents	Use
Transaction-Level Secondary Data Sources	The Master Beneficiary Summary File (MBSF)	2013–2023	Beneficiary and enrollment information, including beneficiary unique identifier, address, date of birth and death, sex, age, and Medicare enrollment status.	Used to identify eligibility for episodes of care, beneficiary demographic characteristics, and beneficiary eligibility for inclusion in the denominator for each of the outcome measures.
	Medicare FFS Claims	Jan 2013–Mar 2023	Medicare Part A and B claims.	Used to create all claims-based outcome measures, claims-based matching measures, and prior use covariates. We calculate the number of discharges and procedures by BPCI Advanced, BPCI and non-participating hospitals, BPCI Advanced and BPCI PGPs, and CBSAs. Also used to identify clinicians, clinician specialties, and hospitals where PGPs had discharges or procedures associated with BPCI Advanced and BPCI PGP episode initiators, as well as whether a PGP is considered active or inactive. Also used to identify confirmed cases of COVID-19.
	Medicare Standardized Payments	2013–2023	Medicare standardized payments for 100% Part A and B claims received via the Integrated Data Repository from the implementation contractor.	Used to create Medicare standardized payment amounts (Part A and B) and allowed standardized payment outcomes.

Note: See **Appendix A** for definitions and acronyms.

B. Qualitative Methods

This section describes the qualitative methods used in this report. We discuss the sampling approach and interview protocols for site visits, the sampling approach for key informant interviews (KIIs), qualitative analysis methods used across both site visits and KIIs for further insights on primary data, and study limitations.

1. Site Visits

To inform the evaluation, the BPCI Advanced evaluation team conducted virtual site visits with 10 episode initiators and 1 convener in Model Year 4, 12 episode initiators in Model Year 5, and 8 episode initiators in Model Year 6. We conducted site visits virtually due to the COVID-19 public health emergency (PHE) using Microsoft® Teams. Site visits consisted of approximately six separate 1-hour interviews with representatives from each hospital or physician group practice (PGP), including executive and financial leaders, care redesign leaders, care coordination staff, front-line nursing and physician staff who provide direct care for patients in BPCI Advanced, and representatives from conveners (when applicable). Model Year 5 site visits also included interviews with 11 patients treated by BPCI Advanced participants to learn about their care experience during their hospitalization or procedure, their discharge and transition to the next care setting, and their experience during the 90-day post-discharge period. During site visits, we asked model participants about BPCI Advanced participation decisions, clinical episode service line group (CESLG) selection, the impact of Model Year 4 changes, the impact of the COVID-19 PHE, care transformation and care redesign activities, external provider partnerships, and general successes and challenges in the model. Site visits also provided an opportunity to learn about patient, participant, or market factors that may influence variation in the effect of the model.

a. Sampling Approach

The site visit samples were purposive to ensure a diverse sample. All site visit samples included a mix of hospitals and PGPs that:

- Participated with or without a convener
- Had positive or negative financial performance in BPCI Advanced
- Participated in a variety of CESLGs
- Were located in a variety of geographic markets, including rural areas
- Were active in Model Year 1–2 (January 1, 2019 - December 31, 2019), as well as those that joined in Model Year 3 (January 1, 2020 – December 31, 2020)
- Did or did not have experience in previous Medicare initiatives

The characteristics of the final interviewee sample for Model Years 4, 5, and 6 are in Exhibit C.2.

Exhibit C.2: Virtual Site Visit Interviewee Characteristics, Model Years 4–6

Virtual Site Visit Interviewee Characteristics		MY4 Count	MY5 Count	MY6 Count
Episode Initiator Type	Hospital	6	6	7
	PGP	5	6	1
Participant Role	Convener	1	0	0
	Downstream Episode Initiator	7	7	2
	Non-convener Participant	3	5	6
Medical Clinical Episode Type	Cardiac Care	3	6	4
	GI Care	1	4	0
	M&C Care	6	8	3
	Neurological Care	5	6	1
Surgical Clinical Episode Type	Cardiac Procedures	0	3	2
	GI Surgery	0	2	0
	Orthopedics	6	5	2
	Spinal Procedures	2	4	3

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

b. Interview Protocols

The site visit interview protocols were designed to capture information about a variety of topics, including entry decisions, CESLG selection, patient and clinician awareness of the model, the patient populations served by the model, care coordination and care redesign strategies, the impact of the COVID-19 PHE and the Model Year 4 changes on participant experience in the model, and overlap of BPCI Advanced with other models. We tailored interview protocols to each type of respondent. For example, we asked care redesign leaders targeted questions about care redesign activities, while we asked financial and executive leaders about entry decisions, financial performance, and partner selection. Topics covered in each interview are shown in Exhibit C.3.

Exhibit C.3: Virtual Site Visit Interview Topics by Interviewee Type

Topics	Executive and Financial Leadership	Care Redesign Leadership	Care Coordination Staff	Patient Care (Nursing)	Patient Care (Physician)	Convener
Patient Awareness of BPCI Advanced		MY4	MY4	MY4	MY4	
BPCI Advanced Patient Population	MY5 MY6	MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY5 MY6
BPCI Advanced Successes & Challenges	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6
Care Coordination		MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY5 MY6
Care Redesign	MY4 MY5 MY6	MY4 MY5 MY6	MY4	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6
CESLG Selection	MY4 MY5 MY6					MY4 MY5 MY6
Clinician Awareness of Model		MY4	MY4	MY4 MY5 MY6	MY4 MY5 MY6	
Entry Decisions	MY4 MY5 MY6	MY6				MY4 MY5 MY6
Financial Performance	MY4 MY5 MY6	MY5 MY6				MY4 MY5
Impact of BPCI Advanced	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6
Impact of COVID-19 PHE	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6	MY4 MY5 MY6
Impact of Model Year 4 Changes	MY4 MY5 MY6	MY4 MY5	MY4	MY4	MY4	MY4 MY5 MY6
Ongoing Convener Support of the Episode Initiator	MY4 MY5 MY6					MY4 MY5 MY6
Overlap With Other Models	MY5 MY6	MY5 MY6		MY6	MY5 MY6	
Role of Care Navigators/ Care Coordinators			MY4 MY5 MY6			

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

2. Key Informant Interviews

While site visits sought to gather information about how participants approached BPCI Advanced, KIIs provided the opportunity for more in-depth discussion about particular topics of interest to CMS and the evaluation team. KIIs were 30–45-minute virtual interviews conducted over Microsoft® Teams with episode initiator and convener staff who were most knowledgeable about the topic of interest. Topics of interest varied in Model Years 4, 5, 6, and 7. The BPCI Advanced evaluation team conducted 54 KIIs in Model Year 4 (25 in round one and 29 in round two), 38 KIIs in Model Year 5 (24 in round one and 14 in round two), 32 KIIs in Model Year 6 (19 in round one and 13 in round two), and 26 KIIs in Model Year 7 (all 26 in round one). All KIIs followed semi-structured protocols to keep the interview focused while allowing flexibility in topic exploration.

a. Model Year 4

Round One

We conducted the first round of KIIs in Model Year 4 to understand entry decisions and episode selection for co-located hospital and PGP episode initiators. When a BPCI Advanced PGP episode initiator has attributed episodes at a BPCI Advanced participating hospital during the intervention period, the PGP episode initiator and hospital episode initiator are considered "co-located." The topic of co-location was of interest to the BPCI Advanced Model evaluation team because co-location can have implications on episode initiators' entry decisions, clinical episode selection, and episode attribution. To explore the relationship between co-located episode initiators, we conducted 19 interviews with hospital and PGP episode initiators between March and April 2021.

We identified 25 episode initiators from a sample composed of co-located episode initiators that:

- Were participating in BPCI Advanced in Model Year 4; and
- Had at least 50 PGP episode initiator-attributed episodes during Model Years 1 and 2 at the co-located BPCI Advanced participating hospital based on Medicare Part A and B claims data

To achieve a diverse sample, we ensured that episode initiators had a mix of:

- Counts of overlapping clinical episodes; and
- Convener and non-convener participants (with a variety of conveners among the convener participants)

We achieved a 100% response rate during recruitment, with all 25 identified episode initiators agreeing to participate in the KIIs. The final sample included:

- **Seven pairs** of co-located hospital and PGP episode initiators (where both the hospital and PGP were asked to participate in KIIs); and
- **11 individual** co-located hospital and PGP episode initiators
    - The evaluation team did not arrange interviews with their co-located episode initiators. We used this approach to reduce provider and convener burden and ensure a diverse sample of episode initiators.

The characteristics of the final interviewee sample are shown in Exhibit C.4.

Exhibit C.4: Model Year 4, Round One KII Interviewee Characteristics

Episode Initiator Type	Number Interviewed	Number With a Convener	Number Without a Convener
Hospital	14	10	4
PGP	11	8	3

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Round Two

The BPCI Advanced evaluation team conducted a second round of KIIs in Model Year 4 to explore how convener participants, downstream episode initiators,[1] and non-convener participant episode initiators responded to changes in the BPCI Advanced Model that took effect in Model Year 4.

We identified a sample of 30 Model Year 4 participants for the KIIs. The selected participants included conveners, downstream episode initiators, and non-convener episode initiators (collectively referred to as *participants*) participating in Model Year 4, with a mix of:

- Hospital and PGP episode initiators
- Non-provider conveners and health system conveners
- Episode initiators in different geographic regions (Northeast, South, Midwest, West)[2] and conveners participating with episode initiators across multiple geographic regions
- Participants with 40 or more patients in at least one of the clinical episodes within their selected CESLGs, for the most recent performance period with complete data
- Episode initiators participating in different CESLGs, including orthopedic CESLGs for the Model Year 4 change specific to MJRLE
- Episode initiators participating in CESLGs that differ from their clinical episodes in Model Years 1–3
- Episode initiators reporting alternate quality measures for one or more of their CESLGs
- Participants that began participating in Model Year 1 and in Model Year 3

In April and May of 2021, the evaluation team conducted 29 KIIs with model participant representatives. We started outreach by sending an email to the designated point of contact for each BPCI Advanced participant asking for a 30–45-minute telephone interview with members of executive or financial leadership who we anticipated would be able to discuss responses to Model Year 4 changes. We tailored interview questions to organizational characteristics, survey responses, data on CESLG selection, and use of alternate quality measures. The characteristics and CESLG selections of the final interviewee sample are shown in Exhibit C.5 and Exhibit C.6.

[1] Downstream episode initiators are hospitals and PGPs that are participating in BPCI Advanced with a convener organization.

[2] Regions are defined are U.S. Census regions: Northeast, South, Midwest, and West.

Exhibit C.5: Model Year 4, Round Two KII Interviewee Characteristics

KII Interviewee Characteristics		Count
Episode Initiator Type	Hospital	17
	PGP	4
Participant Role	Convener	8
	Downstream Episode Initiator	12
	Non-convener Participant	9

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Exhibit C.6: Model Year 4, Round Two KII Interviewee CESLG Selection

Clinical Episode Type	CESLG Selection	Count
Medical	Cardiac Care	13
	GI Care	5
	M&C Care	12
	Neurological Care	9
Surgical	Cardiac Procedures	4
	GI Surgery	3
	Orthopedics	12
	Spinal Procedures	8

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Some interviewees participated in a combination of CESLGs.

b. Model Year 5

Round One

In Model Year 5, the BPCI Advanced evaluation team conducted the first round of KIIs with model participants to identify what care redesign strategies (if any) participants use to care for patients with unmet nonmedical needs, including low-income Medicare beneficiaries, beneficiaries who identify as belonging to one or more minority groups, and patients who live in rural or underserved areas, among others. To better understand how the BPCI Advanced Model is affecting care for patients with unmet nonmedical needs, we conducted 24 phone interviews with BPCI Advanced participants between April and May 2022.

To create a sample of participants to interview, we used the area deprivation index (ADI) to identify episode initiators and conveners that may have been more likely to serve disadvantaged patients. The ADI is based on a measure created by the Health Resources and Services Administration (HRSA) that allows for rankings of neighborhoods by socioeconomic disadvantage in a region of interest (such as the state or national level) using factors like income, education, employment, and housing quality. Neighborhoods are ranked from 1 to 100, with 100 being the most socioeconomically disadvantaged.

We assigned a mean ADI value to each hospital and PGP active in Model Year 3 based on the ZIP Codes of the patients with clinical episodes at each episode initiator during the first 3 years of the model. We prioritized interviewing organizations with a mean ADI of 70 or higher to speak with

participants that serve a large percentage of patients from underserved populations.[3] Participants with low ADI scores were included in the sample to try and understand whether all episode initiators were adopting similar care redesign strategies regardless of the socioeconomic distribution of their patients.

We identified 28 model participants, including 25 episode initiators and three conveners that work with episode initiators that had a mean ADI score of greater than 70. The sample included participants that varied by:

- Episode initiator type (hospitals and PGPs)
- Participant role (downstream episode initiators, non-convener participants, convener participants)
- Mean ADI (ADI > 70 and ADI < 70)
- Safety-net hospital status (safety-net hospital and non-safety-net hospital)
- Urban or rural classification
- Geographic location

We achieved an 86% response rate during recruitment, with 24 of 28 identified model participants agreeing to participate in the KIIs. The characteristics of the final interviewee sample are shown in Exhibit C.7.

Exhibit C.7: Model Year 5, Round One KII Interviewee Characteristics

KII Interviewee Characteristics		Count
Episode Initiator Type	Hospital	14
	PGP	8
Participant Role	Convener	2
	Downstream Episode Initiator	20
	Non-convener Participant	2
Mean ADI for Episode Initiators	ADI>70	14
	ADI<70	8
Safety-Net Hospital Status	Safety-Net Hospital Status[a]	2
	Non-safety-net Hospital Status	20
Urban or Rural Classification of Episode Initiators	Urban	13
	Rural	9

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[a] A limited number of safety-net hospitals participate in BPCI Advanced, which resulted in two safety-net hospitals included in the final sample.

Round Two

The claims analyses for October 1, 2018–December 31, 2019, included in the BPCI Advanced Third Evaluation Report, indicated a statistically significant reduction in hospital 90-day readmission rates

[3] Most researchers define a high ADI as a ranking of 80 or higher, but using this threshold severely limited the evaluation team's sample. Thus, the threshold was lowered to 70.

for surgical episodes among BPCI Advanced participants relative to the comparison group. The magnitude of the reductions was similar for PGPs and hospitals, although only the PGP estimate was statistically significant. The evaluation team found no statistically significant change in readmission rates for medical episodes relative to the comparison group. This finding suggests that PGPs and hospitals made changes to how they deliver care, particularly for surgical episodes, that may have resulted in lower readmissions and improved outcomes for patients.

To better understand these findings, in Model Year 5, the evaluation team conducted a second round of 14 KIIs with BPCI Advanced participants to explore the following:

- Care redesign strategies that episode initiators have implemented to reduce hospital readmissions in medical and surgical episodes
- Challenges to reducing hospital readmissions in medical episodes
- Differences in care redesign approaches to reduce hospital readmissions between hospital and PGP episode initiators
- Differences in care redesign approaches to reduce hospital readmissions between medical and surgical episodes
- The influence of patient demographics, market dynamics, and organizational factors on whether episode initiators are successfully able to reduce hospital readmissions

The evaluation team identified a sample of 16 participants (both episode initiators and conveners). Episode initiators in the sample met the following criteria:

- Were participating in BPCI Advanced in Model Year 5 as of early 2022
- Had at least one clinical episode in Model Year 4 with 40 or more episodes
- Had at least one clinical episode that both:
    - Had an estimated reduction in risk-adjusted 90-day hospital readmission rate between the baseline period and Model Year 3
    - Remained active for the episode initiator in Model Year 5 as of early 2022
- Had not participated in a prior site visit or KII with the evaluation team

The evaluation team included conveners in the sample that were working with hospitals and PGPs that met the criteria above. Among participants that met these criteria, the evaluation team prioritized conveners and downstream episode initiators that achieved reductions in 90-day hospital readmissions in surgical episodes over medical episodes to understand how these participants achieved reductions in readmissions.

To identify hospitals and PGPs that may have had some success in reducing hospital readmissions, the evaluation team calculated risk-adjusted 90-day hospital readmission rates for the baseline period (Q2 2013 through Q4 2017) and the intervention period (2020) for each episode initiator participating in the model during Model Year 3. The team used the difference between the two rates to identify episode initiators that have increased or decreased their 90-day hospital readmission rate between the baseline and intervention period. The evaluation team used these estimates for sampling purposes only, to identify episode initiators with varying success in

reducing readmissions. The team did not calculate confidence intervals to determine whether changes in readmission rates were statistically significant.

In July and August 2022, the evaluation team conducted 14 KIIs. The evaluation team tailored interview questions to each participant's organizational characteristics and the evaluation team's understanding of their success (or lack of success) in reducing hospital readmissions between the baseline period and Model Year 3. The characteristics of the final interviewee sample are shown in Exhibit C.8.

Exhibit C.8: Model Year 5, Round Two KII Interviewee Characteristics

KII Interviewee Characteristics		Count
Episode Initiator Type	Hospital	4
	PGP	5
Participant Role	Convener	5
	Downstream Episode Initiator	8
	Non-convener Participant	1

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

c. Model Year 6

Round One

In Model Year 6, the BPCI Advanced evaluation team conducted a first round of KIIs with current and former model participants that had concurrently participated in Medicare Accountable Care Organizations (ACOs). The purpose of this round of interviews was to understand how participation in Medicare ACOs affected participant experience in BPCI Advanced, including care redesign strategies and outcomes (patient outcomes as well as payment and utilization outcomes). The evaluation team conducted 19 phone interviews with current and former model participants between April and May 2023.

To build a sample of potential interviewees, the evaluation team used the Master Data Management (MDM) provider extract to identify Model Year 6 BPCI Advanced participants that participated in a Medicare ACO at any point between January 2020 and February 2023. Due to the small number of BPCI Advanced participants in Model Year 6 that also participated in a Medicare ACO, the team identified 19 former BPCI Advanced participants that were active in the model as of Model Year 5 and had concurrently participated in a Medicare ACO at any point since 2020. The addition of the Model Year 5 participants led to a total sample of 26 participants that had concurrent participation in BPCI Advanced and a Medicare ACO between January 2020 and February 2023.

One limitation of the sampling process is that the CMS MDM provider extract sometimes only identifies a broader health system as being part of a Medicare ACO, but not every hospital underneath the health system is flagged. As a result of this limitation, the sample consisted mainly of PGPs and included only three hospitals.

The types of Medicare ACOs in which active and former BPCI Advanced participants participated included the Shared Savings Program (SSP), and the ACO Realizing Equity, Access, and Community

Health (ACO REACH) Model.[4] All interviewees in the priority sample had at least 10 preliminarily reconciled episodes in Performance Period 5 (for Model Year 5 participants) or Performance Period 7 (for Model Year 6 participants). This minimum threshold was established to remove participants with little to no episode volume that may not be able to speak to BPCI Advanced strategies, while still attempting to interview as many active Model Year 6 participants as possible.

The evaluation team achieved a 73% response rate during recruitment, with 19 of 26 model participants agreeing to participate in the KIIs. The characteristics and CESLG selections of the final interviewee sample are shown in Exhibit C.9 and Exhibit C.10.

Exhibit C.9: Model Year 6, Round One KII Interviewee Characteristics

KII Interviewee Characteristics		Count
Episode Initiator Type	Hospital	3
	PGP	16
Participant Role	Downstream Episode Initiator	18
	Non-convener Participant	1
Geographic Location	Midwest	2
	Northeast	1
	South	14
	West	2
Model Year Participation	Model Year 5 Participant	13
	Model Year 6 Participant	6
Medicare ACO Participation	Shared Savings Program BASIC Levels A-E	9
	Shared Savings Program ENHANCED	12
	GPDC Model or ACO REACH Model	4
ACO Leadership	Physician Led	6
	Jointly Led	4
	Hospital Led	2
	Not Asked or Unsure	7

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Although the team attempted to diversify the sample by state and geographic region, multiple episode initiators from Florida were included in the sample due to the team's objective to interview active Model Year 6 participants. Additionally, some interviewees participated in a combination of the ACO tracks or models since January 2020.

[4] Used to be known as the Global and Professional Direct Contracting (GPDC).

Exhibit C.10: Model Year 6, Round One KII Interviewee CESLG Selection

Clinical Episode Type	CESLG Selection	Count
Medical	Cardiac Care	9
	GI Care	7
	M&C Care	7
	Neurological Care	3
Surgical	Cardiac Procedures	4
	GI Surgery	0
	Orthopedics	10
	Spinal Procedures	5

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Some interviewees participated in a combination of CESLGs.

Round Two

The evaluation team interviewed BPCI Advanced participants to better understand whether and how they coordinate with primary care physicians, how participation in BPCI Advanced has influenced that coordination, and perceptions of how this coordination influences BPCI Advanced outcomes. The evaluation team identified a sample of 20 episode initiators (both downstream episode initiators and non-convener participants).[5] Episode initiators in the sample met the following criteria:

- Were actively participating in the model in Model Year 6
- Had at least one clinical episode type in Model Year 5 with 20 or more attributed episodes[6]
- Did not participate in a prior site visit or Model Year 5 KII
- Were not included in the Model Year 6 site visit sample[7]

Many participants exited BPCI Advanced prior to Model Year 6, reducing the number of available episode initiators from which to sample. To the extent possible, the sample included a mix of downstream episode initiators and non-convener participants, as well as a mix of hospitals and PGPs participating in varying CESLGs. Unlike in prior years, the team did not sample any conveners, because the evaluation team assumed that downstream episode initiators would be better able to speak to primary care coordination. When possible, the sample limited the number of episode initiators participating with the same convener.

In May and June of 2023, the evaluation team conducted 13 KIIs. The limited number of remaining PGPs in the model, and their concentration among a few conveners and consultants, limited the number of unique PGP perspectives that the evaluation team was able to include in interviews. Of the PGPs identified in the sample, two did not respond to requests for an interview. The remaining three PGPs in the priority sample were all affiliated with the same consultant group. The evaluation team had one meeting with this consultant rather than conducting separate

[5] A total of 337 episode initiators were active in Model Year 6, and 112 of those active episode initiators met the outlined sampling criteria: 72 hospital episode initiators and 40 PGP episode initiators.

[6] Wherever possible, the evaluation team selected episode initiators with at least one clinical episode type in Model Year 5 with 40 or more attributed episodes.

[7] Additionally, the evaluation team excluded downstream episode initiators that belonged to the same health system as a downstream episode initiator that was included in the site visit sample.

interviews with the three individual episode initiators, as the evaluation team did not expect responses to differ. This consultant specializes in forming PGPs specifically for BPCI Advanced and manages all the BPCI Advanced-related activities for its PGPs. The small number of PGPs resulted in 12 of 13 interviews being with hospital episode initiators. The characteristics and CESLG selections of the final interviewee sample are shown in Exhibit C.11 and Exhibit C.12.

Exhibit C.11: Model Year 6, Round Two KII Interviewee Characteristics

KII Interviewee Characteristics		Count
Episode Initiator Type	Hospital	12
	PGP	3
Participant Role	Downstream Episode Initiator	6
	Non-convener Participant	9
Clinical Episode Type	Medical Only	7
	Surgical Only	2
	Both Medical and Surgical	4

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. The three PGPs used the same consultant, so the evaluation team conducted a single interview with the consultant rather than conducting three separate interviews.

Exhibit C.12: Model Year 6, Round Two KII Interviewee CESLG Selection

Clinical Episode Type	CESLG Selection	Count
Medical	Cardiac Care	5
	GI Care	3
	M&C Care	9
	Neurological Care	5
Surgical	Cardiac Procedures	2
	GI Surgery	2
	Orthopedics	1
	Spinal Procedures	2

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Some interviewees participated in a combination of CESLGs.

d. Model Year 7

Round One

In Model Year 7, the BPCI Advanced evaluation team conducted a first round of KIIs with current and former model participants that had concurrently participated in Medicare ACOs. The purpose of this round of interviews was to understand how participation in Medicare ACOs affected participant experience in BPCI Advanced, including care redesign strategies and outcomes (patient outcomes as well as payment and utilization outcomes). Because Model Year 6 KIIs on this topic focused on PGPs, Model Year 7 KIIs aimed to understand the overlap experience for hospitals and convener participants that self-identified as Medicare ACOs. The evaluation team conducted phone interviews with 26 current and former model participants between March and April 2024.

To build a sample of potential interviewees, the evaluation team used the MDM provider extract and the Shared Savings Program Provider-Level and the Next Generation ACO (NGACO)

Provider-Level Program Research Identifiable Files (RIFs) to identify Model Year 7 BPCI Advanced participants (downstream episode initiators, convener participants, and non-convener participants) that participated in a Medicare ACO at any point between January 2020 and February 2024. To better understand the convener perspective on participating in both BPCI Advanced and a Medicare ACO, the evaluation team identified Medicare ACOs that participated in BPCI Advanced as convener participants between Model Year 3 and Model Year 6. The evaluation team also identified the downstream episode initiators under each convener participant that concurrently participated in a Medicare ACO at any point between January 2020 and February 2024. This led to a total sample of 33 participants that had concurrent participation in BPCI Advanced and a Medicare ACO between January 2020 and February 2024.

The types of Medicare ACOs in which Model Year 7 BPCI Advanced participants and former BPCI Advanced participants participated included the Shared Savings Program, the NGACO Model, and the ACO REACH Model. All interviewees in the sample had at least 10 preliminarily reconciled episodes in the most recent performance period in which they were active.[8] This minimum threshold was established to remove participants with little to no episode volume that may not be able to speak to BPCI Advanced strategies.

The evaluation team achieved a 79% response rate during recruitment, with 26 of 33 model participants agreeing to participate in the KIIs. The characteristics and CESLG selections of the final interviewee sample are shown in Exhibits C.13 and Exhibit C.14.

Exhibit C.13: Model Year 7, Round One KII Interviewee Characteristics

KII Interviewee Characteristics		Count
Episode Initiator Type	Hospital	16
	PGP	2
Participant Role	Convener	8
	Downstream Episode Initiator	11
	Non-convener Participant	7
Geographic Location	Midwest	10
	Northeast	2
	South	14
	West	0
Model Year Participation	Model Year 7 Participant	15
	Former Participant	11
Medicare ACO Participation	Shared Savings Program	21
	NGACO Model	3
	ACO REACH Model	2

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. One former BPCI Advanced participant terminated participation in 2020, four in 2021, and six in 2022. Additionally, some interviewees participated in a combination of the ACO tracks or models since January 2020.

[8] Performance Period 9 (January 1, 2023–June 30, 2023) for Model Year 7 or Model Year 6 participants, Performance Period 7 (January 1, 2022–June 30, 2022) for Model Year 5 participants, Performance Period 5 (January 1, 2021–June 30, 2021) for Model Year 4 participants, or Performance Period 3 (January 1, 2020–June 30, 2020) for Model Year 3 participants.

Exhibit C.14: Model Year 7, Round One KII Interviewee CESLG Selection

Clinical Episode Type	CESLG Selection	Count
Medical	Cardiac Care	10
	GI Care	4
	M&C Care	8
	Neurological Care	9
Surgical	Cardiac Procedures	2
	GI Surgery	6
	Orthopedics	5
	Spinal Procedures	7

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Some interviewees participated in multiple CESLGs.

3. Qualitative Analysis

We used the same qualitative analysis methods for site visits and KIIs. We recorded and transcribed site visits and KIIs and then analyzed transcriptions using ATLAS.ti (Scientific Software Development GmbH, Berlin, Germany), a qualitative data analysis software.

The evaluation team used qualitative research codebooks, which outline the codes or categories used to organize and analyze data in a qualitative study. Codebooks included a list of codes with the code's definition, an example of a response that belonged to that code, inclusion criteria, exclusion criteria, and code search expressions. We created unique codebooks for each round of KIIs. While we used the same general site visit codebook each year, we modified the site visit codebook each year to incorporate improvements identified as a result of our data collection activities and new topics explored. Additionally, we added new codes to the site visit codebook as needed to cover emergent themes from KII rounds. All staff involved in coding or analysis were familiar with BPCI Advanced and participated in data gathering as interviewers or note-takers. Staff involved in coding or analysis were trained on the final codebook to promote a consistent approach and ensure a clear understanding of codes, and coding was reviewed to ensure inter-rater reliability.

We ran queries on the most common codes and identified key themes within those topics. We used organizational characteristics, such as episode initiator type and participant type, to create subgroups and analyze differences in responses. Data were reviewed for commonalities and differences in responses by different convener and episode initiator types and summarized to capture congruence or dissimilarity. The evaluation team used characteristics such as participation in other Medicare payment initiatives, episode initiator type, and use of a convener and ran queries to explore differences in response by interviewee characteristics. During regular meetings, team members shared initial findings and synthesized results.

4. Limitations

Qualitative methods have some limitations. The primary limitation is the potential for inconsistencies or bias in interviewees' responses, which may occur due to interviewees' knowledge base or inability to recall certain topics. We minimized this potential as much as possible by checking the job titles and credentials of the interviewees in advance of the interviews to ensure that we spoke to people knowledgeable in BPCI Advanced and the specific research

topics. When we heard inconsistencies in the responses of interviewees from the same organization, we asked more questions to clarify those inconsistencies. We also ensured that the interviewees understood that we were not evaluating their organization; we were evaluating BPCI Advanced. This helped build rapport with the interviewees and put the interviewees at ease, which may have helped us obtain more honest answers. Another limitation with qualitative research is that all our qualitative sampling methods used purposive sampling, which resulted in smaller samples that may limit the generalizability of our findings. However, by using a purposive sampling strategy, we ensured that we spoke to organizations with a range of characteristics (for instance, CESLG participation, size, and geographic location) that could best discuss the topic areas we were researching, and we reduced interviewee burden by not interviewing the same organization multiple times a year. There is a potential for inconsistent qualitative coding. However, qualitative coders followed a detailed codebook that clearly defined each code, met on a weekly basis to discuss coding, and reviewed and revised coding to ensure inter-rater reliability. Lastly, we may have underrepresented BPCI Advanced hospitals in our KIIs because of limitations of the CMS MDM provider extract, which we used to identify BPCI Advanced hospitals and PGPs participating in a Medicare ACO. The evaluation team has found an additional data source for identifying participation in Medicare ACOs using Provider-Level RIFs, which we used in our ACO overlap descriptive statistics and impact estimates and will continue to use in future analyses. For details on overlap with ACO methods, refer to Section D.3.b.

C. Patient Survey Methods

The BPCI Advanced patient survey explored differences in patient care experiences and functional outcomes between Medicare patients cared for by BPCI Advanced providers and similar patients whose providers did not participate in BPCI Advanced. The patient survey collected information on a set of patient outcomes related to functional status, health care experience, and satisfaction with care and recovery. This section describes the instrument, sampling, administration, outcomes, and analysis of the patient survey.

1. Patient Survey Instrument

The survey instrument (included in **Appendix D**) is a revised version of the survey instrument used in the original BPCI Classic evaluation,[9,10] which was based on items adapted from validated survey instruments, such as the Continuity Assessment Record and Evaluation (CARE) Tool,[11] National Health Interview Survey,[12] and Short Form 36 Health Survey.[13] Based on input from clinical experts at CMS and the evaluation team, four new questions were added to better measure care experience and satisfaction with care. New questions were adapted from the Consumer

[9] The Lewin Group. (2018). *CMS Bundled Payments for Care Improvement Initiative Models 2-4: Year 5 evaluation and monitoring annual report*. https://downloads.cms.gov/files/cmmi/bpci-models2-4-yr5evalrpt.pdf

[10] Trombley, M. J., McClellan, S. R., Kahvecioglu, D. C., Gu, Q., Hassol, A., Creel, A. H., Joy, S. M., Waldersen, B. W., & Ogbue, C. (2019). Association of Medicare's Bundled Payments for Care Improvement Initiative with patient-reported outcomes. *Health Services Research, 54*(4), 793–804. https://doi.org/10.1111/1475-6773.13159

[11] RTI International. (2012*). The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set*.

[12] Centers for Disease Control and Prevention. (2012). *National Health Interview Survey*.

[13] Brazier, J. E., Harper, R., Jones, N. M., O'Cathain, A., Thomas, K. J., Usherwood, T., & Westlake, L. (1992). Validating the SF-36 health survey questionnaire: New outcome measure for primary care. *BMJ (Clinical research ed.), 305*(6846), 160–164. https://doi.org/10.1136/bmj.305.6846.160

Assessment of Healthcare Providers and Systems (CAHPS) Hospital Survey,[14] Care Coordination Quality Measure for Primary Care survey,[15] and B-Prepared instrument[16] and replaced five original questions on discharge timing and level of post-acute care (PAC) received. The revised instrument underwent cognitive testing with a convenience sample of seven Medicare beneficiaries with recent inpatient and outpatient hospital experience.

The patient survey contained 29 multiple-choice, closed-ended questions and was designed to take an average of 25 minutes to complete. Survey questions covered a range of domains, including functional status, health care experience, and satisfaction with care and recovery (Exhibit C.15). For each of the seven functional areas, respondents were asked to recall their functional status before the anchor hospital discharge or outpatient procedure and to report their current functional status at the time they were completing the survey, which was at least 3 months after the anchor hospital discharge or outpatient procedure.

Exhibit C.15: Domain and Survey Items for Patient Survey

Domain	Description
Functional Status	1. Bathing/dressing/toileting/eating 2. Planning regular tasks 3. Use of a mobility device 4. Walking by self without resting 5. Walking up or down 12 stairs 6. Physical or emotional problems that interfere with social activities 7. Pain that interferes with normal activities
Health Care Experience	1. Respondent felt prepared to leave the hospital 2. Medical staff took patient preferences into account when arranging for health care services after leaving the hospital 3. Respondent had a good understanding of how to take care of herself or himself prior to leaving the hospital 4. Medical staff clearly explained how to take medications 5. Medical staff clearly explained needed follow-up appointments 6. Respondent and caregiver able to manage their health care needs 7. Medical staff discussed whether patient would have the help they needed when they got home 8. If help needed at home, medical staff arranged for services at home to help patient manage health
Satisfaction	1. Overall satisfaction with recovery 2. Rating of all post-hospital care from 0 to 10

[14] Agency for Healthcare Research and Quality. (2018). *CAHPS Hospital Survey*. https://www.ahrq.gov/cahps/surveys-guidance/hospital/index.html.

[15] Agency for Healthcare Research and Quality. (2016). *Care Coordination Quality Measure for Primary Care (CCQM-PC)*. https://www.ahrq.gov/ncepcr/care/coordination/quality/index.html.

[16] Graumlich, J. F., Novotny, N. L., & Aldag, J. C. (2008). Brief scale measuring patient preparedness for hospital discharge to home: Psychometric properties. *Journal of Hospital Medicine, 3*(6),446–454. https://doi.org/10.1002/jhm.316

Domain	Description
Personal Characteristics	1. Highest level of education 2. Permission to follow up with respondent

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. For each of the seven functional areas, respondents were asked to recall their functional status before the anchor hospital discharge or outpatient procedure and to report their current functional status at the time they were completing the survey, which was at least 3 months after the anchor hospital discharge or outpatient procedure.

2. Patient Survey Sample

a. Timing of Survey Wave

The results presented are from Waves 2, 3, and 4 of the BPCI Advanced patient survey, which covered episodes with discharges or outpatient procedures in July or August 2021, July or August 2022, and April, May, June, July, August, or September 2023 (during Model Years 4, 5, and 6, respectively). The survey was fielded from October 2021 until February 2022 for Wave 2, from October 2022 until February 2023 for Wave 3, and from July 2023 until February 2024 for Wave 4. We surveyed patients with episodes initiated by acute care hospitals and PGPs. Patients received surveys approximately 90 days after leaving the hospital.

b. Sample Frame

The patient survey used a stratified random sampling method to obtain a representative sample of the BPCI Advanced population and a matched comparison group. We created the sampling frame using Medicare fee-for-service (FFS) claims from "rolling" 1-month samples; the patients in the rolling 1-month samples received their surveys 1 month apart.[17] For the first month of Waves 2 and 3, respectively, we pulled claims for July 2021 or 2022 in early August 2021 or 2022 and mailed surveys in the first week of October 2021 or 2022. For the second month of Waves 2 and 3, respectively, we pulled claims for August 2021 or 2022 in early September 2021 and 2022 to create samples and mailed surveys the first week of November 2021 or 2022. In Wave 4, we expanded from two "rolling" monthly samples to six given that fewer practices were participating in BPCI Advanced, which resulted in lower episode volume. For Wave 4, we pulled claims at the beginning of May–October 2024 covering discharges and procedures from the preceding month (April–September 2024) and mailed the surveys to each monthly sample 2 months after drawing the sample (July–December 2024). We used this rapid sampling process to reduce recall bias. This process also had the effect of limiting the sample to patients whose claims were filed relatively quickly, within 1 month of discharge or outpatient procedure.[18] We stratified the sample by CESLG, separately for hospital and PGP episode initiators. This yielded 16 unique strata in Waves 2 and 3. In Wave 4, we sampled all CESLGs for hospital-initiated episodes but sampled only two CESLGs for PGP-initiated episodes: *orthopedics* and *spinal procedures*. The other CESLGs had either zero volume, or such low volume that only a handful of survey responses could be obtained. Thus, Wave 4 had only 10 strata instead of 16. Additionally, within our CESLG-based strata, we

[17] One month of claims was not adequate to reach the necessary sample size at the levels of clinical precision used to define the strata.

[18] Although claims submitted within 1 month may not represent the entire Medicare population within a stratum due to provider delays in submitting claims, this issue should affect BPCI Advanced and comparison samples equally and not bias our estimates.

also oversample certain groups of patients to ensure all corresponding analyses were adequately powered.

c. Sample Construction

The goals of sample construction were to select a representative sample of BPCI Advanced hospital discharges and outpatient procedures and to identify and select an appropriate comparison group of hospital discharges and procedures. We started with the universe of BPCI Advanced hospitals and nonparticipating comparison group hospitals. We then excluded hospitals if they were not eligible for BPCI Advanced and additionally excluded hospitals in various ways to limit exposure of the comparison group to the BPCI Advanced Model and the Comprehensive Joint Replacement (CJR) Model. We describe these exclusions in more detail below.

Our sampling universe comprised all hospital discharges or outpatient procedures that met BPCI Advanced program rules (for example, no patients assigned to ACOs participating in ACO REACH; no discharges or outpatient procedures from hospitals in the Maryland All-Payer Model). In addition, to help improve the ability to compare across past waves, we excluded hospital discharges and outpatient procedures with patients aligned to Shared Savings Program ACOs participating in the Enhanced Track which were previously excluded under BPCI Advanced in Model Years 1 and 2. We followed identical steps to construct the hospital and PGP samples from within the sampling universe, because the PGP comparison group was based on all eligible hospital discharges or outpatient procedures, not those only attributed to comparison PGPs (that is, we did not identify comparison PGPs from which to sample patients with episodes). We constructed the hospital and PGP survey samples in four steps.

Step 1 – Excluding hospitals: All BPCI Advanced episode initiators active through the end of a given sampling month were eligible for our sample (that is, if we were sampling episodes with a discharge or procedure in July of Model Year 4, and then all episode initiators active through July of Model Year 4 were eligible for our sample). We generated a comparison group pool specific to each clinical episode by applying five types of exclusions by clinical episode and CESLG. We excluded hospitals from the clinical episode comparison group pool if:

- They were BPCI Advanced participants for any clinical episode sharing the same CESLG.
- They were ineligible to participate in BPCI Advanced due to low baseline volume for a given clinical episode. For example, a comparison group hospital with low baseline volume of MJRLE surgeries was excluded from the MJRLE comparison group but would be eligible for inclusion in the sepsis comparison group if this hospital had sufficient sepsis discharges.
- More than 10% of their baseline episodes within the clinical episode or corresponding CESLG were touched by BPCI Advanced participants (hospital or PGP).
- They were located in a CBSA where more than 50% of baseline episodes in a given clinical episode were touched by BPCI Advanced participants (hospital or PGP).
- Finally, CJR hospitals were excluded from the comparison group pool for all clinical episodes in the *orthopedics* CESLG. This CESLG includes MJRLE, the clinical episode corresponding to the CJR Model.

Step 2 – Excluding individual hospital discharges and outpatient procedures: We excluded individual discharges and outpatient procedures from the comparison group to further reduce the risk of contamination from other bundled payment episodes. Specifically, we applied the following exclusions:

- Excluded discharges and procedures where the attending or operating physician listed on the claim belonged to a BPCI Advanced PGP, but which were not attributed to BPCI Advanced.
- Excluded discharges and procedures where the patient was in a BPCI Advanced or CJR episode at the time of the discharge or outpatient procedure (meaning the discharge or outpatient procedure occurred within 90 days after the start of a BPCI Advanced or CJR episode).
- Excluded hospital discharges and outpatient procedures where the patient was treated in any hospital by a physician belonging to a BPCI Advanced PGP in the prior 90 days.
- Excluded initial hospital discharge and outpatient procedure if a patient had more than one discharge or procedure in the month of our data. This exclusion ensured that a patient could only be selected into the sample one time, and that the survey we mailed to them referenced their most recent hospitalization. In that case only the most recent discharge or procedure was eligible for selection into our sample.

We applied the last two exclusions to the BPCI Advanced group as well to ensure that the characteristics of the patients would be similar between the two groups.

Step 3 – Selecting BPCI Advanced patients: We created sampling cells of unique combinations of clinical episodes based on age category (<65, 65–74, 75–84, 85+ years) and the presence of a major complication or comorbidity for each stratum. We selected a random sample of BPCI Advanced patients within each sampling cell.

Step 4 – Selecting matched comparison hospital discharges and outpatient procedures: Lastly, each selected BPCI Advanced patient was matched one-to-one with a comparison patient from the same sampling cell. Within sampling cells, comparison patients were matched to a given BPCI Advanced patient using a nearest-neighbor propensity score approach. Propensity scores of being in BPCI Advanced were estimated based on the patient-, hospital-, and market-level factors described in Exhibit C.16.

Exhibit C.16: Predictive Risk Factors Used to Match BPCI Advanced and Comparison Patients

Domain	Variables
Service Mix[a]	• Clinical episode • Lower body fracture (MJRLE, orthopedics and related procedures) • Knee procedure (MJRLE episode only) • Large vessel ischemic stroke (stroke episodes only) • Intracerebral hemorrhage (stroke episodes only) • Major complication or comorbidity

Domain	Variables
Patient Demographics and Enrollment	• Age (under 65, 65–74, 75–84, 85+ years) • Sex • Dual eligibility status • Originally qualified for Medicare due to disability • Additional patient characteristics
Prior Utilization Measures	• Any inpatient admission in the prior 90 days
Discharging Hospital Characteristics	• 2017 linear HCAHPS score[b] • Academic medical center • Bed size (≤250; 251–500; 500–850; >850) • Safety-net status • Census region (Northeast, Midwest, South, West) • Urban • Ownership (for profit, not for profit, government/other)
Neighborhood and Market Characteristics	• ADI[c] • Mean personal income (CBSA-level) • Percent of population older than 65 years (county level) • Rurality[d]

Note: We used predictive risk factors to estimate propensity scores of being in BPCI Advanced. See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[a] Additional variables for MJRLE, orthopedics and related procedures and stroke episodes control for clinical heterogeneity that is not accounted for by MS-DRGs and that is easily identifiable from ICD-10 codes.

[b] The linear HCAHPS score captures patient ratings of their overall experience with a hospital from 0 to 100, adjusted for patient mix and HCAHPS Survey mode. We use 2017 data to avoid possible contamination of HCAHPS responses attributable to BPCI Advanced.

[c] The ADI is a measure of socioeconomic status developed by researchers at the University of Wisconsin.[19]

[d] We added rurality as a matching variable beginning in Wave 3. Rurality indicates that a patient resided in a ZIP Code designated as rural by the Federal Office of Rural Health Policy. We obtained eligible ZIP Codes in July 2022: https://www.hrsa.gov/rural-health/about-us/what-is-rural/data-files.

3. Administration of the Patient Survey

We mailed each sampled patient a paper survey, a postcard reminder, and, for patients who did not respond to the initial mailings, a second paper survey using priority mail. We mailed the first survey to patients within about 90 days after leaving the hospital. In Wave 2, we contacted via telephone patients who did not respond to the paper survey between 148 and 173 days after leaving the hospital. We discontinued telephone follow-up in Wave 3 given low telephone response rates in Wave 2. We present sample sizes and response rates in Section C.5.

4. Outcome Measures

The BPCI Advanced patient survey instrument asked about seven measures of physical function, and for each, respondents were asked to recall their status before the anchor hospitalization (questions two through eight), and to report their current functional status at the time of the survey (questions 9 through question 15). The seven functional status measures include (1) bathing, dressing, toileting, and eating; (2) planning regular tasks; (3) moving using a mobility device;

[19] University of Wisconsin School of Medicine and Public Health. (n.d.). 2015 Area Deprivation Index Version 2.0. https://www.neighborhoodatlas.medicine.wisc.edu

(4) walking without resting; (5) going up or down stairs; (6) the frequency with which physical or emotional health interferes with regular social activities; and (7) the frequency with which pain interferes with normal activities.

For each functional status measure, we created trinary measures for improvement, maintenance, or decline in initial function. We mark the outcome as improved if a patient moved to a better functional status level after the episode (for example, from "complete help needed" before the episode to "no help needed" after the episode) or if the patient recalled having the highest functional status prior to hospitalization and remained in that high status at the time of survey response (for example, "no help needed" both before hospitalization and after the episode). We mark the outcome as maintained function if the patient did not recall the highest or lowest function prior to hospitalization and reported that their function was the same before the episode and at the time of the survey. We mark the outcome as declined if the patient moved to a worse functional status level after the episode or if the patient recalled having the lowest functional status prior to hospitalization and remained in that low status at the time of the survey.

The BPCI Advanced survey asked eight questions about care experience and two about satisfaction with recovery and care received. All these questions were binary except for a trinary rating of all post-hospital care. More detail on measure specifications for these two domains are shown in Exhibit C.17. All questions and possible responses to each question are available in **Appendix D.**

Exhibit C.17: Definitions for Measures of Care Experience and Satisfaction

Domain	Outcome Measure	Response (Positive response for binary outcomes)
Care Experience	Felt "very" or "somewhat" prepared to leave the hospital	Yes
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Agree/strongly agree
	Good understanding of how to take care of self before going home	Agree/strongly agree
	Medical staff clearly explained how to take medications before going home	Agree/strongly agree
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Agree/strongly agree
	Able to manage your health needs since returning home	Agree/strongly agree
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes
	Medical staff arranged services for you at home to help manage your health, if you needed it	Yes
Satisfaction With Care and Recovery	Overall satisfaction with recovery since leaving hospital	Extremely satisfied/ quite a bit satisfied
	Rating of all post-hospital care from 0–10[a]	High (Rating 9–10), middle (7-8), low (0-6)

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[a] The rating of post-hospital care was a trinary measure.

5. Analysis of the Patient Survey

a. Analytic Approach

We separately analyzed data from respondents whose episodes were initiated by hospitals and PGPs to obtain estimated differences between BPCI Advanced and comparison patients averaged across all 34 clinical episodes within each group. We used logistic regression to estimate risk-adjusted differences in binary survey outcomes between the BPCI Advanced and comparison respondents. We used multinomial logistic regression to estimate differences for the trinary survey outcomes and estimated the joint statistical significance of differences across all three categories. Standard errors were clustered at the hospital level.

b. Analytic Groups

Main Analysis

We analyzed CESLGs that had a minimum detectable difference of less than 10.0 percentage points of finding a result for which the BPCI Advanced respondents were statistically different from comparison respondents.[20] We report analytic sample sizes, response rates, and minimum detectable differences for the CESLGs analyzed in Exhibit C.18 through Exhibit C.21. We included all responses in the aggregate analyses, regardless of whether the corresponding CESLG was powered for individual analysis.

Exhibit C.18: Aggregate Wave 2–4, Combined Response Rates, Sample Size, and Minimum Detectable Difference

Level of Analysis	BPCI Advanced Response Rate (%)	Comparison Response Rate (%)	Difference (pp) [p-value]	BPCI Advanced Respondents	Minimum Detectable Difference
All Clinical Episodes	29.2	29.7	-0.5 [0.413]	16,494	1.4
Medical	24.0	24.2	-0.2 [0.666]	9,878	1.8
Surgical	43.3	44.6	-1.3 [0.076]	6,616	2.2
Hospital-Initiated Episodes	28.1	29.2	-1.1 [0.170]	11,798	1.6
Medical	23.7	24.4	-0.7 [0.257]	7,575	2.0
Surgical	42.0	44.2	-2.2 [0.024]	4,223	2.7
PGP-Initiated Episodes	32.3	31.3	1.0 [0.293]	4,696	2.6
Medical	24.8	23.4	1.4 [0.053]	2,303	3.7
Surgical	45.6	45.4	0.2 [0.825]	2,393	3.6

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[20] Power analyses indicated that a combined target sample size of 620 completed surveys (310 each for the BPCI Advanced and comparison groups, per stratum per wave) would enable us to reject the hypothesis of no difference in population percentages of our outcomes of interest with power of 0.8 when there is a true underlying difference of 10.0 percentage points in a binary variable with a baseline value of 50%.

Exhibit C.19: Wave 2–4, Combined Response Rates, Sample Size, and Minimum Detectable Difference by CESLG

CESLG Type	CESLG	BPCI Advanced Response Rate (%)	Comparison Response Rate (%)	Difference (pp) [p-value]	BPCI Advanced Respondents	Minimum Detectable Difference
Hospital	Cardiac Care	25.3	25.6	-0.3 [0.736]	2,159	3.8
	Cardiac Procedures	41.7	43.1	-1.3 [0.390]	1,130	5.2
	GI Care	28.5	31.2	-2.8 [0.022]	923	5.7
	M&C Care	21.4	22.2	-0.8 [0.323]	3,388	3.0
	Neurological Care	25.5	25.2	0.3 [0.814]	1,105	5.3
	Orthopedics	38.9	42.3	-3.4 [0.009]	1,790	4.1
	Spinal Procedures	49.1	51.3	-2.2 [0.155]	1,123	5.2
PGP	Cardiac Care	26.1	25.1	0.9 [0.466]	635	7.0
	M&C Care	23.5	21.4	1.8 [0.049]	1,272	5.0
	Orthopedics	44.3	44.2	0.1 [0.952]	1,709	4.3
	Spinal Procedures	50.4	50.1	0.4 [0.871]	561	7.4

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Exhibit C.20: Aggregate Wave 4 Response Rates, Sample Size, and Minimum Detectable Difference

Level of Analysis	BPCI Advanced Response Rate (%)	Comparison Response Rate (%)	Difference (pp) [p-value]	BPCI Advanced Respondents	Minimum Detectable Difference
All Clinical Episodes	31.1	31.9	-0.8 [0.502]	5,148	2.4
Medical	24.3	24.6	-0.3 [0.813]	2,726	3.4
Surgical	45.2	47.2	-2.0 [0.077]	2,422	3.5
Hospital-Initiated Episodes	28.9	29.7	-0.8 [0.582]	4,219	2.7
Medical	24.3	24.6	-0.3 [0.813]	2,726	3.4
Surgical	44.2	46.6	-2.4 [0.099]	1,493	4.5
PGP-Initiated Episodes	N/A	N/A	N/A	N/A	N/A
Medical	N/A	N/A	N/A	N/A	N/A
Surgical	47.0	48.3	-1.3 [0.472]	929	5.7

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Exhibit C.21: Wave 4 Response Rates, Sample Size, and Minimum Detectable Difference by CESLG

CESLG Type	CESLG	BPCI Advanced Response Rate (%)	Comparison Response Rate (%)	Difference (pp) [p-value]	BPCI Advanced Respondents	Minimum Detectable Difference
Hospital	Cardiac Care	26.7	26.6	0.1 [0.964]	740	6.5
	Cardiac Procedures	45.6	44.7	0.9 [0.678]	369	9.2
	M&C Care	22.0	22.5	-0.6 [0.665]	1,401	4.7
	Neurological Care	27.6	27.1	0.5 [0.832]	406	8.8
	Orthopedics	40.9	44.8	-3.9 [0.035]	690	6.5
	Spinal Procedures	50.5	54.3	-3.8 [0.183]	357	9.1
PGP	Orthopedics	46.4	47.4	-1.1 [0.547]	742	6.4

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Patients who are Dually Eligible for Medicare and Medicaid

We additionally analyzed patient survey data for patients who were dually eligible for Medicare and Medicaid. We report response rates, analytic sample sizes, and minimum detectible differences for the populations analyzed in Exhibit C.22 and Exhibit C.23.

Exhibit C.22: Wave 2–4 Pooled Response Rates, Sample Size, and Minimum Detectable Difference for Patients Who Are Dually Eligible

Population	Episodes Evaluated	BPCI Advanced Response Rate (%)	Comparison Response Rate (%)	Difference (pp) [p-value]	BPCI Advanced (N)	Minimum Detectable Difference
Patients Who Are Dually Eligible	All Episodes	13.2	13.9	-0.7 [0.097]	1,957	3.9
	Medical	11.9	12.9	-1.0 [0.024]	1,542	4.4
	Surgical	21.9	20.9	1.0 [0.444]	415	8.8

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Exhibit C.23: Wave 4 Response Rates, Sample Size, and Minimum Detectable Difference by for Patients Who Are Dually Eligible

Population	BPCI Advanced Response Rate (%)	Comparison Response Rate (%)	Difference (pp) [P-value]	BPCI Advanced (N)	Minimum Detectable Difference
Patients Who Are Dually Eligible – All Episodes	13.3	13.4	-0.1 [0.918]	557	7.5
Patients Who Are Dually Eligible – Medical	11.4	11.8	-0.3 [0.668]	403	8.7

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

c. Weighting

For each of the strata, we calculated entropy-balanced weights representative of the BPCI Advanced respondents to improve the generalizability of results. The weights account for the possibility that BPCI Advanced yields different outcomes for different types of patients. For example, if BPCI Advanced leads to improved functional status for patients who are dually eligible for Medicaid but not for those without dual eligibility, and dually eligible patients are underrepresented among respondents, then our estimates would understate the true impact of BPCI Advanced. Weighting the respondents to reflect the overall population mitigates the potential for this problem.

The purpose of weighting the comparison group to reflect the BPCI Advanced group is to obtain "doubly robust" estimates of the difference between BPCI Advanced and comparison respondents.[21] This means if either the regression or weights are correctly specified, our estimates should still be unbiased; they do not both need to be correctly specified.

Within each CESLG, we weighted the analytic data in two stages. First, we calculated entropy-balancing weights[22] that made the BPCI Advanced respondents representative of the BPCI Advanced population (that is, the sampling frame) based on the risk factors described in Exhibit C.24. Second, we calculated entropy-balancing weights that made the comparison respondents representative of the (weighted) BPCI Advanced respondents, such that both groups reflected the BPCI Advanced population after applying the survey weights.

We calculated separate entropy-balancing weights for our analysis of patients who are dually eligible for Medicare and Medicaid. For these analyses, we separately weighted respondents from the sample of interest (dually-eligible patients) to reflect the sampling universe and weighted respondents from the reference population (patients who are not eligible for Medicaid) to reflect the sampling universe of reference patients. We then separately weighted dually eligible respondents from the comparison group to be balanced against BPCI Advanced dually eligible respondents and reference group respondents in the comparison group to be balanced against reference BPCI Advanced respondents.

d. Controlling for Differences in Patient Mix, Discharging Hospital, and Neighborhood

We performed regression-based risk adjustment to ensure comparability between the BPCI Advanced and comparison groups, which included the factors listed in Exhibit C.24.

[21] Robins JM, Rotnitzky A, Zhao LF. (1994) Estimation of regression coefficients when some regressors are not always observed. *Journal of the American Statistical Association*; 89(427); 846-866.4.

[22] Hainmuller J. (2012). Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies. *Political Analysis*; 20;25−46.
Hainmueller J, Xu Y. (2013) ebalance: A Stata Package for Entropy Balancing. *Journal of Statistical Software*; 54(7),1-18.

Exhibit C.24: Predictive Risk Factors Used to Risk-Adjust Survey Outcomes

Domain	Variables
Service Mix[a]	• Clinical episode type • Major complication or comorbidity • Lower body fracture (MJRLE, orthopedics and related procedures) • Knee procedure (MJRLE episode only) • Large vessel ischemic stroke (stroke episodes only) • Intracerebral hemorrhage (stroke episodes only)
Patient Demographics and Enrollment	• Age (under 65, 65–74, 75–84, 85+ years) • Sex • Dual eligibility status • Respondent obtained 4-year degree or higher • Additional patient characteristics
Prior Health Conditions	• HCC score: index score based on the patient's diagnosis information during the 6 months prior to the episode start date, using v22 of CMS's 2019 Risk Score software and diagnosis to chronic condition mappings • Squared HCC score • Functional status using three summary measures[b]
Prior Utilization Measures	• Any inpatient admission in the prior 6 months • Any other institutional care (SNF, IRF, LTCH, or psychiatric hospital) in prior 6 months • Any nursing home care in the prior 6 months
Discharging Hospital Characteristics	• 2017 linear HCAHPS score[c]
Neighborhood Characteristics	• ADI[d]
Survey Dimensions	• Proxy status (patient had help from someone else in responding to the survey) • Survey mode (response obtained via mail vs. telephone) • Days elapsed between leaving the hospital and survey response • Survey wave fixed effects

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[a] Additional variables for MJRLE; orthopedics and related procedures; and stroke episodes control for clinical heterogeneity that is not accounted for by MS-DRGs and that is easily identifiable from ICD-10 codes.

[b] Three of the functional status questions have only three possible responses, two functional status questions have four possible responses, and two have five. For each of the outcomes with less than five possible responses, the best functional status was coded as 1, the middle status (or two statuses) was coded as 2, and the worst functional status was coded as 3. We created a variable summing the number of functional measures with 2, the number with 3, and also a binary indicator for "missing functional status." For the two measures with five possible responses, we created binary indicators for "all of the time/most of the time" and created a control variable summing the number of indicators equal to 1, as well as a binary indicator for "missing activity status." For functional status variables with four possible responses, we considered alternative cutoffs for coding responses as 1, 2, or 3; however, none of these alternative cutoffs altered the results in any meaningful way.

[c] HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems. The linear HCAHPS score captures patient ratings of their overall experience with a hospital from 0-100, adjusted for patient mix and HCAHPS survey mode. We use 2017 data to avoid possible contamination of HCAHPS responses attributable to BPCI Advanced.

[d] The ADI is a measure of socioeconomic status developed by researchers at the University of Wisconsin.

The risk-adjustment model accounts for certain factors that could not be incorporated into our matching algorithm applied at the time of sampling.[23] We also matched on six attributes of the discharging hospital, five of which were like those used by CMS to define target price peer groups but were not included in our final risk-adjustment model.[24]

For our aggregate and CESLG-level analyses, the regression model for each outcome can be expressed as:

$$Y_{ijk} = \delta BPCIAdvanced_{ij} + \beta_k X_{ij} + CE_i + \mathcal{E}_{ijk}$$

Y_{ijk} is the outcome of interest for individual i, treated at provider j, in clinical episode k. X refers to the risk-adjustment variables (listed above), CE indicates individual indicators for each clinical episode, and BPCIAdvanced is an indicator for a patient who was treated by a BPCI Advanced participating hospital or PGP. The relationship between Y and BPCIAdvanced (indicated by δ) represents the difference between BPCI Advanced and comparison respondents across all clinical episodes.

Our regression equation for our analysis of patient who are dually eligible can be expressed as:

$$Y_{ijk} = \delta_1 D_i + \delta_2 BPCIAdvanced_{ij} + \delta_3 (Di * BPCIAdvanced_{ij}) + \beta_k X_{ij} + CESLG_i + \mathcal{E}_{ijk}$$

Where D_i indicates individual i belongs to the given population of interest, and $CESLG_i$ reflects an individual indicator for each CESLG. δ_1 captures the difference in outcomes between respondents in the dually-eligible population and their reference group, δ_2 captures the difference in outcomes between BPCI Advanced and comparison respondents in the reference group, and δ_3 captures the difference between BPCI Advanced and comparison respondents who belong to population of interest relative to the difference between BPCI Advanced and comparison respondents in the reference group. The difference between BPCI Advanced and comparison respondents among members of the population of interest equals $\delta_2 + \delta_3$.

e. Domain-Level Joint Hypothesis Testing

To better understand survey outcomes at the domain level (that is, collectively across all functional status measures, and all care experience and satisfaction measures) we calculated p-values for each of these two domains. These p-values reflect the test of the hypothesis that all estimated differences between BPCI Advanced and comparison respondents within a domain are jointly equal to zero.

[23] For example, we did not have information about education and pre-hospital functional status at the time of sampling; those data come from the survey responses. Likewise, factors such as Hierarchal Condition Category (HCC) index score and recent institutional care could not be reliably identified at the time of survey sampling because additional claims runout time would be required, and waiting for the data could delay the survey and increase recall bias.

[24] Results from the original BPCI evaluation indicated that these hospital-level factors were not strongly correlated with survey outcomes. Matching on these factors allows us to ensure that the BPCI Advanced and comparison groups are reasonably similar with regard to these factors, without the loss of statistical precision (that is, larger standard errors) that would likely result from directly controlling for such measures that only weakly predict survey outcomes.

A standard test of joint statistical significance entails calculating the "Wald Statistic," which can be expressed as:

$$(\hat{\beta} - \beta_0)' \left[\mathrm{COV}(\hat{\beta})\right]^{-1} (\hat{\beta} - \beta_0)$$

where

$\hat{\beta}$ is the vector of true marginal effects of all measures within a domain,

β_0 is a vector of zeros (since our null hypothesis is that the estimates do not differ from zero), and

$\mathrm{COV}(\hat{\beta})$ is the covariance matrix of the marginal effects.

The covariance matrix captures the variance of each marginal effect i (σ_{ii}), and the covariance between each marginal effect i and j (σ_{ij}):

$$\mathrm{COV}(\hat{\beta}) = \begin{pmatrix} \sigma_{11} & \sigma_{12} & \dots & \sigma_{1j} \\ \sigma_{12} & \sigma_{22} & \dots & \sigma_{2j} \\ \vdots & \vdots & \dots & \vdots \\ \sigma_{1j} & \sigma_{2j} & \dots & \sigma_{jj} \end{pmatrix}$$

While estimated marginal effects ($\hat{\beta}$) and estimated variances of the marginal effects (σ_{ii}) are standard output from regressions in most statistical software, estimating the covariance between marginal effects (σ_{ij}) requires joint estimation of outcomes. This can be infeasible when there are many outcomes and the regressions are non-linear, as is the case for our domain-level analysis with binary outcomes.

To overcome this limitation, we adapted a method proposed by John Mullahy.[25] Under this approach, we ran bivariate regressions on every combination of outcomes within a domain and used these to retrieve the covariance between all estimated marginal effects. We used these covariance terms to construct the covariance matrix for each domain, allowing us to compute the Wald Statistic, from which we can retrieve the corresponding p-value from the χ^2 distribution.

6. Limitations

Our analysis of the patient survey results identified favorable, unfavorable, and negligible differences in responses between BPCI Advanced and comparison respondents. Because the survey data were only collected during the performance periods, we cannot determine whether these differences existed during the baseline period. Additionally, given the patient survey's sample sizes, we may not be able to draw statistically significant conclusions for results that are small in magnitude. For analyses of individual CESLGs and dually-eligible patients, we are sufficiently powered to estimate minimum detectable differences between BPCI Advanced and the comparison group in the range of 5.0 to 10.0 percentage points, but consistent differences of lesser magnitude may be meaningful and important.

[25] Mullahy, J. (2016). Estimation of multivariate probit models via bivariate probit. *The Stata Journal*, *16*(1), 37-51.

We used the same patient survey instrument for all clinical episodes. Different clinical episodes have unique aspects of recovery and medical needs after discharge. Although a common instrument was important for understanding the model as a whole, we may not be able to observe nuanced changes in patient-reported outcomes associated with model participation because we did not tailor the survey instrument to each clinical episode.

Furthermore, due to the nature of primary data collection, the patient survey may not be representative of all BPCI Advanced patients. First, the patient survey was collected from episodes with discharges or outpatient procedures in July or August 2021, July or August 2022, and April, May, June, July, August, or September 2023, while the BPCI Advanced model years span the full calendar year (January through December). Second, response rates for the patient survey were approximately 28.1% for BPCI Advanced patients attributed to hospitals and 32.3% for BPCI Advanced patients attributed to PGPs and were generally lower among patients who are dually eligible for Medicare and Medicaid. Although we applied nonresponse and sampling weights to all observations to make our respondents reflect the overall BPCI Advanced population on key characteristics of patients, hospitals, and neighborhoods, we cannot guarantee that our results are generalizable to the remaining BPCI Advanced patients who did not respond to the survey.

D. Quantitative Methods

The evaluation of the model relies on a nonexperimental design, which uses a comparison group of non-BPCI Advanced hospitals or PGPs to infer counterfactual outcomes for hospitals or PGPs participating in BPCI Advanced. This section discusses the quantitative methods and analyses used in the report, along with limitations. First, we present descriptive analyses of participation in BPCI Advanced for providers and patients. Second, we cover the outcomes; study samples; analytic methods used for impact estimates, including the difference-in-differences (DiD) framework; and a brief overview of the methodology used to construct the Model Year 4 comparison group, which was used as a basis to create the comparison group for Model Year 5. Third, we discuss the construction of new measures for primary care, methods for BPCI Advanced and ACO overlap analyses, and calculation of Medicare program savings.

1. Descriptive Analysis

a. Participation

We assessed changes in participation in BPCI Advanced over time with a focus on changes from Model Year 4 to Model Year 5, as well as the implications of these changes on the reach and representativeness of the model. We conducted a variety of descriptive analyses using various data sources (refer to Section A for data sources).

For our analyses of participation, we identified PGPs (identified as Taxpayer Identification Numbers [TINs] in the data) as inactive by assessing whether they had any BPCI Advanced eligible discharges or procedures from 2013 through the model year of interest. All analyses throughout the rest of the chapter excluded inactive TINs. TINs could move from being inactive to active in later model years, depending on whether there were discharges and procedures billed from that TIN. We performed most of our calculations for both those that left the model prior to the following year (leavers) as well as those that stayed in the model for the following year (stayers) to assess whether there were any patterns related to the decision to exit the model. Statistics for leavers and stayers are

based on data from the year—that is, Model Year 4 leaver statistics are based on Model Year 4 data. Below we describe our analytic approaches related to the various analyses.

Size and Attachment to Model

- To assess the size and attachment to the model, we calculated multiple statistics. First, we calculated the average episode volume per hospital and PGP by model year using the reconciliation data. Second, we calculated the average number of CESLGs in which each model participant participated, per hospital and PGP. We also assessed the share of hospitals and PGPs participating in a single CESLG and which CESLG was selected, using the BPCI Advanced Database.

Financial Performance

- We used the average per-episode reconciliation payment as a measure of financial performance in the model. To do so, we summed up the number of episodes and the reconciliation amount earned by each hospital and PGP in the model year. We then calculated the per-episode reconciliation payment per hospital and PGP as the reconciliation amount divided by the number of episodes. We then took the average of the per-episode amounts to produce our results.

Other Key Characteristics

- Other key participant characteristics assessed include the share of hospitals and PGPs that were downstream episode initiators, which we calculated using fields related to participation role included in the BPCI Advanced Database, as well as the share of hospitals and PGPs that are also in a Shared Savings Program ACO. To identify the share in a Shared Savings Program ACO, we used the hospital CMS Certification Numbers (CCNs) and TINs from the BPCI Advanced Database and constructed indicators for whether the hospitals and PGPs participated in a Shared Savings Program ACO, using dates of participation in the Shared Savings Program RIF data. We then calculated the percentage of hospitals and PGPs with overlap.
- We also assessed how the facility and market characteristics of hospitals participating in the model changed as participation changed. We calculated the means and proportions of a variety of variables, including region, safety-net hospital status, hospital ownership status, whether the hospital was part of a health system in 2018, per-capita income in the market, skilled nursing facility (SNF) beds in the market, bed size, and market Medicare Advantage penetration, among others. We calculated these means and proportions among BPCI Advanced participating hospitals for Model Year 3 through Model Year 6. The sample for the hospital characteristics was limited to hospitals that had episodes during 2013 through 2017.

Reach

- We assessed the reach of the model to eligible hospitals, discharges, and clinicians. Eligible hospitals included Inpatient Prospective Payment System (IPPS) hospitals in 2021 and 2022 that met the minimum hospital baseline volume criterion (and thus were assigned a target price) for at least one clinical episode. The sample excluded hospitals that met any of the following criteria: IPPS-exempt cancer hospital, inpatient psychiatric hospital, critical

access hospital, hospital located in Maryland, hospital participating in the Pennsylvania Rural Health Model or in the Rural Community Health Demonstration.

- We defined eligible clinicians as attending and operating National Provider Identifiers (NPIs) for discharges and procedures eligible for inclusion in BPCI Advanced at a hospital that is eligible to participate in BPCI Advanced. (The minimum hospital baseline volume criterion was not applied). We defined clinicians who participated in BPCI Advanced as (1) any attending or operating NPI at a BPCI Advanced hospital for a clinical episode in which the hospital was participating or (2) any attending or operating NPI on the hospital claim when the patient had a corresponding Part B claim during the anchor stay or anchor procedure (including 1 day prior) where the BPCI Advanced PGP TIN was billing the provider and the PGP was participating in the given CESLG. In-depth information regarding the reach of BPCI Advanced can be found in **Chapter II, Participant Characteristics,** of the main report.
- We also assessed how the geographic reach of the model changed between Model Year 4 and Model Year 5 by mapping locations with BPCI Advanced activity among those that were in Model Year 4 but left prior to Model Year 5 (leavers) and those that continued into Model Year 5 (stayers). A location with BPCI Advanced activity was defined as a location with either a BPCI Advanced participating hospital or a hospital with at least 10 BPCI Advanced triggering discharges or procedures initiated by participating PGPs during the year.
- We assessed the representativeness of patients with BPCI Advanced reconciled episodes compared with the demographics of the overall Medicare FFS populations. Patient populations assessed included patients who are dually eligible for Medicare and Medicaid. To better understand whether changes between the years were due to changes in model rules, model participation, or larger shifts in the patient population, we also calculated the share of patients from each patient subpopulation among patients with BPCI Advanced triggering discharges and procedures and with BPCI Advanced eligible discharges and procedures.
- We also calculated the share of patients attributed to a Medicare ACO among patients with episodes initiated by BPCI Advanced Model Year 4 and Model Year 5 participating hospitals and PGPs to assess whether the overlap with ACOs shifted at the patient level. The methods for this analysis are described below in Section D.3.b.

b. Patient Characteristics

We calculated the unadjusted mean values for the patient characteristics in the baseline period (episodes with anchor stays or procedures beginning on January 1, 2015, or later and ending by September 30, 2018) and in Model Year 5 for BPCI Advanced episodes and comparison group episodes. We then calculated the relative change as the difference in the mean of the characteristic for BPCI Advanced episodes in Model Year 5 compared with the baseline period, relative to the change for the comparison group (**Appendix G**).

We used data from Medicare claims to create patient characteristics. Exhibit C.25 provides definitions of each patient characteristic variable used in the patient mix analyses.

Exhibit C.25: Definition of Characteristics and Patient Mix

Variable[a]	Definition
Age 80+ Years	Percentage of episodes where the patient was 80 years or older as reported in the MBSF.
Male	Percentage of episodes where the patient sex was male as reported in the MBSF.
Count of HCC Indicators	Average number of HCC comorbidity indicators per patient from diagnostic history during the 6 months prior to the episode start date.
Disabled, No ESRD	Percentage of episodes where the patient had a disability but did not have ESRD as reported in the MBSF.
HCC Score	The HCC score (or index) was constructed using patient demographics and diagnostic history. Each episode was assigned an HCC score based on the patient's diagnosis information during the 6 months prior to the episode start date, using v22 of CMS's 2019 Risk Score software, and 2016 (ICD-9) and 2019 (ICD-10) diagnosis to chronic condition mappings. For example, the HCC score for an episode that started on July 1, 2022, was constructed using diagnoses from January 1, 2022, to June 30, 2022, claims.
Dual Eligibility	Percentage of episodes where the patient was dually eligible for Medicare and Medicaid as reported in the MBSF.
Prior Home Health Use	Percentage of episodes where the patient accessed home health services in the 180 days prior to the beginning of the episode.
Prior Institutional PAC Use	Percentage of episodes where the patient accessed institutional PAC services in the 180 days prior to the beginning of the episode.

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[a] For all variables, the eligible sample was restricted to patients who (1) had a complete fee-for-service (FFS) enrollment history 6 months prior to the anchor stay or procedure and (2) had non-missing age and sex data.

c. Share of Episodes With a COVID-19 Diagnosis

We calculated the share of episodes in Model Year 5 where the patient had a confirmed COVID-19 diagnosis during the anchor hospitalization or 90-day post-discharge period (PDP) for BPCI Advanced episodes and comparison group episodes, where a confirmed COVID-19 diagnosis was indicated by the presence of diagnosis code U07.1 on a claim for the patient at any point in the episode (**Appendix G**). We calculated the shares by pooled grouping and by CESLG.

2. Impact of BPCI Advanced on Claim-Based Outcomes

a. Outcomes

We used data from Medicare claims to create payment, utilization of health care services, and quality outcomes. Exhibit C.26 provides details about each outcome measure used in our impact analyses and baseline differences analyses.

Exhibit C.26: Claims-Based Outcome Definitions, Impact Analyses, and Analyses of Patient Subgroups

Domain	Outcome Name	Description	Technical Definition	Eligible Sample
Payment	Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day	Average total Medicare Part A & B standardized allowed amount during the episode.	The sum of Medicare Part A & B payments, including patient out-of-pocket amounts for all health care services during the anchor stay or outpatient procedure + 90-day PDP. Standardized Medicare dollars.	Patients who (1) maintained FFS Parts A and B enrollment throughout the measurement period; (2) had a measurement period that ended on or before March 30, 2023; (3) had non-zero anchor hospitalization payments and total Part A and Part B payments. The eligible sample was restricted to patients who (1) had a complete FFS enrollment history 6 months prior to the anchor stay or procedure, (2) had non-missing age and sex data, (3) had a reported age of less than 115 years at the time of the episode.
	Total Medicare Part A & B Standardized Allowed Payment Amount during the anchor	Average total Medicare Part A & B standardized allowed amount during the anchor.	The sum of Medicare Part A & B payments, including patient out-of-pocket amounts for all health care services during the anchor stay or outpatient procedure. Standardized Medicare dollars.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.
	Total Medicare Part A & B Standardized Paid Amount 90-Day	Average total Part A & B amount paid by Medicare, during the episode.	The sum of Medicare payments for all health care services during the anchor stay or outpatient procedure + 90-day PDP, without patient cost sharing.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.
	Medicare Part A SNF Standardized Allowed Amount 90-Day	Average Medicare Part A standardized allowed amount, for SNF setting.	The sum of Medicare payment and patient out-of-pocket amounts for Part A health care services provided for SNF during the 90-day PDP.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.

Domain	Outcome Name	Description	Technical Definition	Eligible Sample
Payment, Continued	Medicare Part A IRF Standardized Allowed Amount 90-Day	Average Medicare Part A standardized allowed amount, for IRF setting.	The sum of Medicare payment and patient out-of-pocket amounts for Part A health care services provided for IRF during the 90-day PDP.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.
	Medicare Part A HHA Standardized Allowed Amount 90-Day	Average Medicare Part A standardized allowed amount, for HHA setting.	The sum of Medicare payment and patient out-of-pocket amounts for Part A health care services provided for HHA during the 90-day PDP.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.
	Medicare Part A Readmissions Standardized Allowed Amount 90-Day	Average Medicare Part A standardized allowed amount, for readmissions.	The sum of Medicare payment and patient out-of-pocket amounts for Part A health care services provided for readmissions during the 90-day PDP.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.
Utilization	Discharged to Institutional PAC Setting	The proportion of episodes discharged from the hospital to an institutional PAC setting.	Categorical outcome where the first PAC setting was SNF, LTCH, or IRF. Institutional PAC stays are only counted as a first PAC setting if the patient was admitted to SNF, LTCH, or IRF within five days of discharge from the hospital.	Same as Total Medicare Part A & B Standardized Allowed Payment Amount 90-Day.
	Number of Days in a SNF	Average number of SNF days.	The total number of days of SNF care (not necessarily consecutive) during the 90-day PDP.	Patients who (1) maintained FFS Parts A and B enrollment throughout the measurement period; (2) had a measurement period that ends on or before March 30, 2023; (3) had non-zero anchor hospitalization payments and total Part A and Part B payments; (4) had at least one SNF day during the 90-day PDP. The eligible sample was restricted to patients who (1) had a complete FFS enrollment history 6 months prior to the anchor stay or procedure, (2) had non-missing age and sex data, (3) had a reported age of less than 115 years at the time of the episode.

Domain	Outcome Name	Description	Technical Definition	Eligible Sample
Quality	Readmission Rate 90-Day	The proportion of episodes with one or more readmissions for any condition 90 days after the anchor stay or outpatient procedure.	Binary outcome (1 = at least one eligible readmission during measurement period; 0 = no eligible readmission during measurement period). Eligible readmissions are IPPS claims with any MS-DRG, excluding those with a diagnosis of COVID-19 (indicated with ICD-10 code U071).	Patients who (1) maintained FFS Parts A and B enrollment throughout the measurement period; (2) had a measurement period that ends on or before March 30, 2023; (3) were discharged from the anchor stay or outpatient procedure in accordance with medical advice. The eligible sample was restricted to patients who (1) had a complete FFS enrollment history 6 months prior to the anchor stay or procedure, (2) had non-missing age and sex data, (3) had a reported age of less than 115 years at the time of the episode.
	Unplanned Readmission Rate[a] 90-Day	The proportion of episodes with one or more unplanned, all-cause readmissions for any condition 90 days after the anchor stay or outpatient procedure.	Binary outcome (1 = at least one eligible readmission during measurement period; 0 = no eligible readmission during measurement period). Eligible readmissions are IPPS claims with an MS-DRG not on the list of excluded MS-DRGs for the given clinical episode and excluding those with a diagnosis of COVID-19 (indicated with ICD-10 code U071).	Same as Readmission Rate 90-Day.

Domain	Outcome Name	Description	Technical Definition	Eligible Sample
Quality, Continued	All-Cause Mortality During the Anchor or 90-Day PDP	The proportion of episodes with death from any cause during the anchor or 90-day PDP.	Binary outcome (1 = the patient date of death is within 90 days of the anchor end date or during the anchor; 0 if no date of death by the patient within 90 days of the anchor end date or the anchor).	Patients who (1) maintained FFS Parts A and B enrollment throughout the measurement period or until death; (2) had not received hospice care in the 6 months prior to admission; (3) had a measurement period that ends on or before March 30, 2023 The eligible sample was restricted to patients who (1) had a complete FFS enrollment history 6 months prior to the anchor stay or procedure, (2) had non-missing age and sex data, (3) had a reported age of less than 115 years at the time of the episode.
	ED Visit 90-Day PDP	The proportion of episodes with an ED visit during the post-discharge period, or within 90 days of the anchor end date.	Binary outcome (1 = the patient has any ED visit during the measurement period; 0 if no ED visit during the measurement period).	Patients who (1) maintained FFS Parts A and B enrollment throughout the measurement period; (2) had a measurement period that ends on or before March 30, 2023; (3) were discharged from the anchor stay or outpatient procedure in accordance with medical advice. The eligible sample was restricted to patients who (1) had a complete FFS enrollment history 6 months prior to the anchor stay or procedure, (2) had non-missing age and sex data, (3) had a reported age of less than 115 years at the time of the episode.

Domain	Outcome Name	Description	Technical Definition	Eligible Sample
Primary Care	Primary Care Use 90-Day PDP	The proportion of episodes with a primary care visit during the post-discharge period, or within 90 days of the anchor end date.	Binary outcome (1 = the patient has any eligible primary care visit during the measurement period; 0 if no primary care visit by the patient during the measurement period).	Patients who (1) maintained FFS Parts A and B enrollment throughout the measurement period; (2) had a measurement period that ends on or before March 30, 2023; (3) were discharged from the anchor stay or outpatient procedure in accordance with medical advice.
	Primary Care Use 7-Days PDP	The proportion of episodes with a primary care visit within a week of the anchor end date.	Binary outcome (1 = the patient has any eligible primary care visit during the measurement period; 0 if no primary care visit by the patient during the measurement period).	Same as Primary Care Use 90-Day PDP.

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Payment amounts adjust for Medicare payment policies to ensure that any differences across time and providers reflect real differences in resource use rather than Medicare payment policies (such as teaching payments or differential payment updates). Measurement period refers to the period of time relative to the anchor or triggering procedure for which the episode outcome is calculated (for example, the anchor plus 90-day PDP).

[a] The outcome is based on specifications for the National Quality Forum (NQF) all-cause unplanned readmission measure (NQF measure 1789). Planned admissions are excluded based on the AHRQ Clinical Classification System Procedure and Diagnoses codes.

[b] We define the mortality rate measure to include mortality during both the anchor stay or procedure and the PDP. This is a comprehensive measure of mortality since it includes those who do not survive the anchor stay or procedure. Patients who do not survive the anchor stay or procedure are not eligible to become part of the BPCI Advanced Model under the model's reconciliation rules. Other outcomes analyzed exclude episodes in which the patient did not survive the anchor stay or procedure.

b. Study Samples

In this section, we define the sample used in our evaluation of the BPCI Advanced Model. We made decisions to determine various aspects of our sample, including identifying the BPCI Advanced group and comparison group and defining the episode of care.

BPCI Advanced Study Population

We defined the BPCI Advanced hospital or PGP *treatment* group as hospital or PGP episode initiators that participated in at least one clinical episode in Model Year 5 and met other requirements to be included in our evaluation.[26, 27, 28] Exhibit C.27 provides an overview of clinical episodes, their associated service line groups, and designation of clinical episodes used for measuring acute care hospital (ACH) and PGP impacts.

Exhibit C.27: BPCI Advanced Clinical Episode Types and Inclusion for ACH and PGP Impact Analysis

Clinical Episode Type	CESLG	Clinical Episode	ACH	PGP
Medical	Cardiac Care	Acute Myocardial Infarction	X	X
		Cardiac Arrhythmia	X	X
		Congestive Heart Failure	X	X
	GI Care	Disorders of Liver Except Malignancy, Cirrhosis, or Alcoholic Hepatitis	X	
		Gastrointestinal Hemorrhage	X	X
		Gastrointestinal Obstruction	X	X
	M&C Care	Cellulitis	X	X
		Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma	X	X
		Renal Failure	X	X
		Sepsis	X	X
		Simple Pneumonia and Respiratory Infections	X	X
		Urinary Tract Infection	X	X
	Neurological Care	Seizures	X	X
		Stroke	X	X

[26] To participate in the model for a given clinical episode in Model Year 5, hospitals had to have initiated more than 40 episodes in the clinical episode during the Model Year 5 target price baseline (October 2016 to September 2020). The following entities were also excluded: IPPS-excluded hospitals, IPPS-exempt cancer hospitals, inpatient psychiatric hospitals, critical access hospitals, hospitals located in Maryland, and hospitals participating in the Pennsylvania Rural Health Model or the Rural Community Health Demonstration.

[27] To be included in our evaluation sample, hospitals had to have existed during the evaluation baseline period for at least 1 year and initiated more than 40 episodes in the clinical episode between January 1, 2015, and September 30, 2018. Hospitals that are based in a territory of the United States, were missing data for characteristics used in matching, and/or were not located in a CBSA were also excluded.

[28] We used the CMS BPCI Advanced database to identify BPCI Advanced PGP episode initiators. We imposed a minimum episode volume threshold of 10 episodes for the average annual volume within a clinical episode across the baseline period. Additionally, we excluded a small number of PGPs that operated in a territory of the United States (non-state exclusion), had more than 75% of their baseline episodes at a hospital that was ineligible to participate in the BPCI Advanced Model, were missing data for characteristics used in matching, and/or were not located in a CBSA.

Clinical Episode Type	CESLG	Clinical Episode	ACH	PGP
Surgical	Cardiac Procedures	Cardiac Defibrillator (Outpatient)	X	
		Coronary Artery Bypass Graft	X	
		Pacemaker	X	
		Percutaneous Coronary Intervention (Inpatient)	X	
		Percutaneous Coronary Intervention (Outpatient)	X	
	GI Surgery	Major Bowel Procedure	X	
	Orthopedics	Fractures of the Femur and Hip or Pelvis	X	
		Hip and Femur Procedures Except Major Joint	X	X
		Lower Extremity and Humerus Procedures Except Hip, Foot, Femur	X	
		Major Joint Replacement of the Lower Extremity	X	X
		Major Joint Replacement of the Upper Extremity		X
	Spinal Procedures	Back and Neck Except Spinal Fusion (Outpatient)	X	X
		Spinal Fusion	X	X

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. The following clinical episodes are omitted since they are not evaluated for ACH or PGP impact analyses: back and neck except spinal fusion (inpatient), bariatric surgery, cardiac valve, cardiac defibrillator (inpatient), endovascular cardiac valve replacement, double joint replacement of the lower extremity, and inflammatory bowel disease.

c. Analytic Methods

Comparison Group Selection

The DiD approach compares the change in outcomes for providers *treated* by BPCI Advanced with those of a group of comparable providers not treated by the model. This estimation strategy relies on the comparison group serving as a counterfactual of the change in outcomes in the absence of the model.

In Model Year 4, we created a comparison group for each clinical episode and separately for hospitals and PGPs, allowing us to infer outcomes for BPCI Advanced participants had the model not existed. Model Year 4 participants chose CESLGs in which to participate, where each CESLG is a set of clinical episodes. With Model Year 5 rules not permitting new participants to join or existing participants to change their Model Year 4 CESLG selection, we chose to reuse Model Year 4 comparison group matches for evaluation of Model Year 5 hospital and PGP impacts, after we determined balance and results from parallel trends testing were acceptable. We removed any provider that no longer participated in Model Year 5 or did not initiate any episodes in the intervention period, along with their matched comparator. For more information on Model Year 5 comparison group balance, please see **Appendices E** and **G**. For more information on parallel trends testing, please see our section on parallel trends below or **Appendices H, J, L, M, N**, and **P**.

For more information on methods and steps involving comparison group selection, please see the BPCI Advanced Evaluation Fifth Evaluation Report.[29]

We constructed our comparison groups at the clinical episode level for a variety of reasons. Matching by clinical episode allows us to best account for provider differences that may exist under each episode type, differences that may not be as apparent when aggregated to a higher level, such as the CESLG. Furthermore, the BPCI Advanced Model calculates target prices for each provider and clinical episode, signifying the importance of the clinical episode in predicting the average expenditure of an episode of care. This distinction is especially important for PGPs because some specialize in a small number of clinical episodes and, therefore, are not representative of all clinical episodes within a CESLG. Because the mechanism of participation remained the same in Model Year 5 (selection by CESLG), we preserved the selected comparison group in Model Year 4 for use in measuring Model Year 5 impacts.

Comparison group selection, including using calipers and not evaluating all 34 clinical episodes, resulted in including many but not all BPCI Advanced intervention episodes in our impact analyses. The clinical episodes we evaluated represent 98.1% of all BPCI Advanced episodes in Model Year 5. After matching, which excludes episodes from providers that do not find a match in our selected caliper, the sample remains at 81.8% of BPCI Advanced episodes within the clinical episodes we evaluated and at 80.2% of all BPCI Advanced episodes (Exhibit C.28).

[29] The BPCI Advanced Fifth Evaluation Report is available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

Exhibit C.28: Percentage of BPCI Advanced Intervention Episodes Included in Evaluation

Clinical Episode Type	Total BPCI Advanced Intervention Episodes (N)	Percentage of Total BPCI Advanced Intervention Episodes in Evaluated Clinical Episodes	Percentage Evaluated of BPCI Advanced Intervention Episodes in Evaluated Clinical Episodes (After Matching)	Percentage Evaluated of Total BPCI Advanced Intervention Episodes in All Clinical Episodes (After Matching)
All Clinical Episodes	320,822	98.1	81.8	80.2
Medical	234,851	99.8	84.5	84.4
Hospitals	194,642	99.9	85.0	85.0
PGPs	40,209	99.2	82.2	81.5
Surgical	85,971	93.3	73.7	68.8
Hospitals	39,510	93.8	96.4	90.4
PGPs	46,461	92.8	54.3	50.4

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms. Episode counts were not restricted based on the availability of variables used in risk adjustment. To avoid double-counting episodes, episodes were assigned to BPCI Advanced PGPs if a given episode was included in both the samples for hospitals and PGPs.

Difference-in-Differences Approach

The DiD approach is a statistical technique that quantifies the impact of an intervention or policy by comparing changes in a *treatment* group (BPCI Advanced) with changes in a comparison group across baseline (pre-intervention) and intervention periods. We use this analytic technique at the episode level to estimate the impact of BPCI Advanced on the key claims-based outcomes while controlling for differences between the BPCI Advanced and comparison episodes in patient, market, and provider characteristics. This approach eliminates biases from time invariant differences between the BPCI Advanced and comparison episodes and controls for trends that are common between the BPCI Advanced and comparison populations.[30] Further, using episodes rather than hospitals and PGPs as observations allows us to directly control for potential changes in the composition of the patient mix, which may be a response to the model.

We applied the DiD technique at the episode level, including anchor hospitalizations or procedures that occurred during the baseline period (from January 1, 2015, through September 30, 2018) and the Model Year 5 intervention period (from January 1, 2022, through December 31, 2022). We excluded episodes from our DiD sample that occurred on or after the BPCI Advanced hospital or PGP's withdrawal date. In the same fashion, we excluded any episodes from a matched comparison provider that occurred on or after the withdrawal date of its matched BPCI Advanced provider. Note that the evaluation baseline period differs from the model target pricing baseline because the target pricing baseline includes some of the first model years, while the evaluation baseline omits these to fully capture the causal effect of the model and includes earlier years instead.

[30] While the DiD model controls for unobserved heterogeneity that is fixed over time, there is no guarantee that this unobserved heterogeneity is, in fact, fixed. It could be the case, for example, that providers with improving outcomes are relatively more likely to sign up for the model, introducing correlation between BPCI Advanced participation and outcomes, which could bias the results.

To illustrate our estimation strategy, consider the stylized equation,

$$(1) \qquad Y_{ikt} = \beta_0 + \beta_1 BPCIA_k + \beta_2 Post_t + \theta(BPCIA_k \cdot Post_t) + \boldsymbol{X}_{ikt}' \boldsymbol{\beta} + e_{ikt}$$

where Y_{ikt} is the outcome of interest for episode i from provider k during time t. The variable $BPCIA_k$ is an indicator that takes on the value 1 if provider k participated in BPCI Advanced for the given clinical episode. $Post_t$ is an indicator that takes the value of 1 for every episode in the intervention period, and $\boldsymbol{X}_{ikt}$ is the set of covariates at the patient, provider, market, and temporal level for episode i with an anchor end in period t receiving care from provider k. In this linear example, the DiD estimate is the coefficient θ, which determines the differential in outcome Y experienced by patients receiving services from BPCI Advanced episode initiators during the intervention period relative to patients receiving services from providers in the comparison group. Lastly, the error term is e_{ikt}.

We used multivariate regression models to control for differences in patient demographics, clinical characteristics, and care use before hospitalization, along with provider characteristics that might be correlated with the outcome. We selected regression models depending on the type and characteristics of the outcome measure. We selected ordinary least squares models for continuous and count outcomes (payments, SNF days) and estimated logistic models for the binary outcomes (institutional PAC use, mortality rate, readmission rate, primary care use, emergency department [ED] use). To calculate the impact of BPCI Advanced on our binary outcomes using logistic regression models, we took the difference between the average marginal effect of the intervention indicator for BPCI Advanced providers and the average marginal effect of the intervention indicator for comparison providers.[31] In all specifications, we allow standard errors to be clustered at the provider level.

To calculate a single impact on outcomes for groups of clinical episodes that are of interest (that is, all clinical episodes; medical, hospital medical, PGP medical, surgical, hospital surgical, and PGP surgical episodes; and episodes by CESLG), we *pooled*, or combined, our clinical episode samples and estimated a single regression per outcome per group of clinical episodes.

Section D.3.c of this appendix discusses how we used the pooled DiD methodology in the calculation of Medicare program savings.

[31] Note that this approach implicitly assumes parallel trends on a *probability* scale in the absence of the model. This is why we perform parallel trends tests using a linear probability model (see section Parallel Trends Tests).

Estimating impacts by patient subgroups. We estimate the impact of the model on key outcomes by patient subgroup. We also estimate the difference in the impacts and test whether there is statistical evidence that the impacts differ between subgroups. That is, for each subgroup of interest, we compare the change in the outcome across the baseline and intervention time periods for BPCI Advanced and comparison episodes where the patients are in the subgroup, resulting in the impact of the model for the patient subgroup. The *difference in impacts* is then the difference between the impacts for the two, mutually exclusive subgroups considered.[32]

To illustrate our estimation strategy, consider the stylized equation,

$$(2) \quad Y_{ikt} = \alpha_0 + \alpha_1 BPCIA_k + \alpha_2 Post_t + \delta(BPCIA_k \cdot Post_t) + \alpha_3 Population_i + \alpha_4(Population_i \cdot BPCIA_k) + \alpha_5(Population_i \cdot Post_t) + \gamma(Population_i \cdot BPCIA_k \cdot Post_t) + \boldsymbol{X}_{ikt}' \boldsymbol{\alpha} + e_{ikt}$$

where Y_{ikt} is the outcome of interest for episode i from provider k during time t. The variable $BPCIA_k$ is an indicator that takes on the value 1 if provider k participated in BPCI Advanced for the given clinical episode. $Post_t$ is an indicator that takes the value of 1 for every episode in the intervention period. $Population_i$ is an indicator of the patient subgroup (for example, in an analysis of dually eligible and non-dually eligible patients, $Population_i$ would be equal to 1 if the patient was part of the dually eligible subgroup and 0 if the patient was part of the non-dually eligible subgroup), and $\boldsymbol{X}_{ikt}$ is the set of covariates at the patient, provider, market, and temporal level for episode i with an anchor end in period t receiving care from provider k. Covariates in the models mirror those in the main pooled analyses.

From this linear example, we can uncover the estimates of the impact for both subgroups considered as well as the difference in impacts. The estimate of the impact of BPCI Advanced for patients in the subgroup with $Population_i$ equal to 1 is the sum of the coefficients δ and γ. The coefficient δ is the estimate of the impact of BPCI Advanced for patients in the corresponding mutually exclusive subgroup where $Population_i$ is equal to 0. Therefore, the estimate of the difference in impacts is the coefficient γ. Lastly, the error term is e_{ikt}

For the subgroup analyses, we defined the samples in the same manner as we did for the episode-level pooled impact analyses, described above. That is, the time periods follow the same definitions, and we use the same set of providers for our BPCI Advanced treatment and comparison groups.

We use this framework in our subgroup impact estimates based on dual eligibility and for those with overlapping alignment with ACOs (for details on overlap with ACO methods, refer to Section D.3.b). In the subgroup analyses, we report the impacts and the difference in impacts by dual eligibility (patients who are dually eligible and patients who are non-dually eligible). We consider a patient to be dually eligible if they have continuous full or partial dual-enrollment 6 months prior to the anchor through the end of the episode.

[32] Mathematically, this difference in impacts is the equivalent to a difference-in-differences-in-differences (DiDiD) estimate. Conceptually, however, our analysis does not involve having one group being affected by the intervention or policy. Our "third difference" simply compares two different impacts from different populations to study whether there are differential effects across populations.

Covariate selection for risk adjustment. The DiD model adjusts for patient, hospital, market, and seasonal covariates to control for differences that are exogenous to the BPCI Advanced Model. While we require a core set of covariates in all models, we selected additional outcome-specific covariates at the CESLG level for each model using a Least Absolute Shrinkage and Selection Operator (LASSO) approach.

We required all DiD models to include a set of risk-adjustment covariates that was based on clinical knowledge and prior research (Exhibit C.29). For each CESLG, we performed a LASSO regression to select additional covariates for given outcomes.[33] Specifically, we estimated a 10-fold cross-validated linear LASSO procedure on baseline episodes from all eligible providers and then used the optimized lambda value to select the set of optional covariates. Each LASSO regression included the core set of required covariates and considered the full list of optional covariates for selection. This data-driven approach to select optional covariates helps maximize model fit while constraining the complexity of the model.

Exhibit C.29: Required and Optional Predictive Risk Factors Used to Risk Adjust Claims Outcomes

Domain	Variable Type	Variables
Service Mix	Required	• Anchor MS-DRG or HCPCS code • Knee-replacement anchor (regressions with *MJRLE* episodes only) • CJR Episode (regressions with PGP MJRLE episodes only)
	Optional	• [none]
Patient Demographics and Enrollment	Required	• Age • Sex • Dual eligibility • Original reason for eligibility in Medicare: disability (non-ESRD) • Alignment to Medicare ACO[a] • Alignment to BPCI Initiative for the episode (binary indicator interacted with calendar year) • Additional patient characteristics
	Optional	• Age squared
Prior Health Conditions	Required	• HCC score • Dementia diagnosis
	Optional	• Individual HCC flags • Hypertension diagnosis
COVID-19 Diagnoses	Required	• Confirmed COVID-19 diagnosis during anchor stay or procedure • Confirmed COVID-19 diagnosis during 90 days prior to anchor stay or procedure

[33] For consistency, we used the same selected covariates for total allowed payments, total Medicare paid amounts, SNF payments, institutional rehabilitation facility (IRF) payments, home health (HH) payments, readmissions payments, and hospice payments. We ran the LASSO procedure for each CESLG and episode-initiator type using the total allowed payments outcome to optimize the selected covariate list for payment outcomes. Covariates for all other (non-payment) outcome models were selected from separate outcome- and CESLG-specific LASSO procedures.

Domain	Variable Type	Variables
Utilization Measures Preceding the Start of the Anchor Stay or Qualifying Inpatient Stay	Required	• Binary indicators for care in SNF, HHA, and IPPS in the 6 months preceding the start of the episode • Binary indicator for ED visit in the 6 months preceding the start of the episode • Binary indicator for no stay or admission in the 6 months preceding the start of the episode
	Optional	• Binary indicators for care in IRF, LTCH, hospice, or OIP in the 6 months preceding the start of the episode • Binary indicators for inpatient psychiatric care in the 6 months preceding the start of the episode
Geography/Market	Required	• Census region indicators
	Optional	• Urban indicator
Seasonality	Required	• Quarter indicators
	Optional	• [none]
Provider Characteristics	Required	• Hospital size (trinary indicators for number of beds)
	Optional	• Hospital ownership indicators • Resident-to-bed ratio • Safety-net hospital

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

[a] Medicare ACOs referred to under Alignment to Medicare ACO include the ACO Investment Model, the Advanced Payment ACO Model, the CEC Model, the Comprehensive Primary Care Initiative Model, the Comprehensive Primary Care Initiative Plus Model, the ACO REACH Model,[34] the Independence at Home Demonstration, the Medicare and Medicaid Financial Alignment Initiative, the Shared Savings Program, the NGACO Model, the Pioneer ACO Model, the Primary Care First Model, the Vermont All-Payer Accountable Care Organization Model (VTAPM).

Covariates in our pooled and CESLG models included a set of indicators for the anchor stay or procedure MS-DRG or HCPCS code for the episode, a non-interacted set of required covariates, and a clinical-episode-specific set of required covariates (that is, a required set of covariates interacted with an indicator for the clinical episode). When determining the final list of optional covariates for each pooled grouping by clinical episode and episode initiator type for a given outcome, we only included the covariates selected by LASSO for all CESLGs included. For example, if the HCC indicator number 8 was selected for all surgical CESLGs for total allowed payments that were evaluated for hospitals, only then would we include it in the DiD covariates list for hospital surgical clinical episodes.[35] For pooled models that include episodes for both episode initiator types, the optional covariate list was constructed as the union of the covariates from corresponding episode initiator-type models. That is, if HCC 8 appeared in either the surgical hospital list or the surgical PGP list, then it would be included in the list of covariates in the surgical model.

Parallel trends tests. A fundamental assumption for the validity of our DiD design is that the BPCI Advanced group would have followed a similar trend in outcomes as the comparison group if the model had never existed (often referred to as the *parallel trends assumption*). Although this fundamental assumption is always untestable, we can compare the BPCI Advanced and

[34] Previously known as the GPDC Model.

[35] In cases where there were three or more CESLGs in the grouping and one CESLG did not have any optional covariates selected, the CESLG without selected covariates was not considered in the construction of the covariate list.

comparison group trends during the baseline period. Evidence of non-parallel trends during the baseline indicates that any estimated impacts (or lack thereof) could be explained by the pre-existing differences in the trends and not an actual impact of the model. We tested the null hypothesis that BPCI Advanced participants and comparison providers had parallel trends during the baseline at the 10% statistical significance level. To do so, we ran a regression of the outcome on a time and BPCI Advanced indicator interaction term in addition to the full set of risk-adjusters that are included in the DiD specification on baseline data for each DiD model. If there was no differential between the trends of the BPCI Advanced and comparison groups prior to intervention, the interaction coefficient would be near zero and not statistically significant. For nonlinear outcomes (for example, measuring impacts on utilization), we tested parallel trends using a linear probability model framework. Using a linear specification allows us to perform inference on the parallel trend parameter the same way we perform parallel trends inference on continuous outcomes that also leverage a linear specification (for example, total episode payments).

We note outcomes for which we rejected the null hypothesis that there were parallel trends in the baseline. Results of the parallel trends tests are reported with results of the relevant DiD and difference in impacts analyses in **Appendices H**, **J**, **L**, **M**, **N**, and **P**.

Sensitivity analyses. To test the robustness of our impact estimates, we conducted sensitivity analyses on key outcomes that tested the inclusion and exclusion of specific episodes in our sample. These include an analysis excluding episodes in the BPCI Initiative, an intention-to-treat (ITT) analysis, and an analysis where we estimated the results using a nationally sampled comparison group defined as all eligible Medicare FFS episodes occurring at non-participating hospitals. The results of these analyses are presented in **Appendices H** and **J**.

d. Limitations

We estimated the impact of the model using a DiD design with a comparison group constructed via propensity-score matching. A DiD design is dependent on the validity of the comparison group reflecting what would have occurred absent the model (the *counterfactual*). We selected a matched comparison group that was similar to BPCI Advanced providers on key factors expected to influence payment, utilization, and quality outcomes during the baseline period; however, important factors may exist for which we did not account. We extensively assessed the quality of our matched comparison group, including testing our results against a national comparison sample (see **Appendix H**) and believe our methodology appropriately addressed voluntary selection into participating in the model; however, without a randomized control trial or natural experiment setting, we cannot be certain our comparison group represents the true counterfactual absent the model.

Our estimates may be influenced by the imbalance of certain characteristics resulting from difficulty finding similar providers from a limited, eligible pool of comparison providers, although the effects from these imbalances are partially mitigated through risk adjustment. See **Appendix E** for the standardized mean differences of variables before and after matching. See **Appendix H** for a sensitivity analysis that used a comparison group of all eligible Medicare FFS episodes nationwide in place of our selected comparison group.

We did not evaluate all BPCI Advanced Model Year 5 episodes for various reasons. First, in our comparison group construction, we had to exclude a small subset of BPCI Advanced episode

initiators to achieve balance across important baseline characteristics. Second, we excluded participating PGPs without episodes in the baseline period from our evaluation because having baseline data is required for our DiD design.[36] Third, we did not evaluate some clinical episodes due to their limited sample size and challenges in identifying a suitable matched comparison group. We could assess the impact of BPCI Advanced for a large subset of the 34 clinical episodes: 26 for hospital episode initiators and 18 for PGP episode initiators. The sample of Model Year 5 episodes we included in our impact estimates represents 98.1% of the total BPCI Advanced Model Year 5 episodes.

For the subgroup claims analysis of dually eligible patients, we used the matched comparison groups selected for the main DiD analyses. This methodology relies on the assumption that the subpopulation in our comparison group is a valid counterfactual for the subpopulation in our BPCI Advanced group. However, because we constructed the comparison groups such that the BPCI Advanced and comparison groups would be balanced across the full sample of patients, we cannot guarantee that the subpopulations are also balanced. To assess the validity of using our comparison groups for our subpopulations, we empirically tested whether the BPCI Advanced and comparison group subpopulations had parallel trends for outcomes during the baseline period. For most outcomes and subpopulations, we concluded that BPCI Advanced and the comparison group were on parallel trends prior to the start of the BPCI Advanced Model, but some outcomes failed our parallel trends test for certain subpopulations (see **Appendix N**). For outcomes in subpopulations that failed our parallel trends test, BPCI Advanced participants may have been moving in a favorable direction during the baseline period, prior to joining the model; if this trend continued, the estimated DiD impact for the subpopulation would lead us to overstate any favorable changes under the model.

3. Additional Measures and Analyses

This section describes construction of primary care use measures and analyses, the analyses of overlap between BPCI Advanced and Medicare ACOs, and the calculation of Medicare program savings.

a. Primary Care Use

Construction of Primary Care Use Measures

As there is no standard definition of *primary care*, we created our measure of primary care use. Our definition is based on the types of procedure codes (Current Procedural Terminology [CPT®]and Healthcare Common Procedure Coding System [HCPCS]) and provider specialty codes (provider taxonomies) associated with the claim. We identified claims that had both a procedure code and provider specialty code included in our definition of primary care as a primary care visit.

[36] PGP episode initiators were able to form new TINs specifically to participate in BPCI Advanced. As a result, there were no baseline claims data to use for matching purposes for some PGP episode initiators. To preserve as many PGPs as we could in our sample, we linked new PGP episode initiators to baseline data when possible using data from Medicare Part B claims, Medicare Data on Provider Practice and Specialty (MD-PPAS), and the BPCI Advanced Database. We performed these linkages where there was sufficient overlap of NPIs and other practice characteristics (74 PGPs across Model Years 1–5). For cases where we could not identify related TINs in the baseline, we removed the PGP episode initiator from the sample (120 TINs across Model Years 1–5).

We developed our definition of primary care procedure codes based on the procedure codes used by seven primary care-focused CMS or Innovation Center models or programs (ACO REACH, Making Care Primary, Maryland Primary Care Program, Shared Savings Program, NGACO, Primary Care First, and Primary Care Incentive Payment Program) in their definitions of primary care. Our definition of primary care procedure codes includes procedure codes that at least four of the seven models included. Those procedure codes include evaluation and management services (including office-based, home-based, and telehealth services), care management services, care planning, and wellness visits.

We use the same definition of primary care providers as the Shared Savings Program rules, which includes 8 of the 69 provider specialty codes (general practice, family practice, internal medicine, pediatric medicine, geriatric medicine, nurse practitioner, certified clinical nurse specialist, and physician assistant).[37]

Based on our constructed list of procedure codes and specialty codes, we identified primary care services from the Medicare Part B Carrier claims in the 2013 through 2023 CMS RIF. Using the anchor start and end date, we constructed variables indicating any primary care visit during specified intervals prior to or after the episode. For instance, the flag for primary care use 7 days after discharge is equal to 1 if the patient had any primary care visit in the 7 days after the anchor end date, where day 1 is the anchor end date, and equal to 0 if there is no primary care visit attributed to the patient within 7 days of the anchor end date. Exhibit C.26 includes details on the other primary care outcomes measures, including those for the 7-day and 90-day flags. For measures considering the time period prior to the anchor, we required the patient maintain continuous Medicare enrollment for the length of the window prior to the anchor through the end of the episode.

[37] Three of the provider types are more general (nurse practitioner, certified clinical nurse specialist, and physician assistant), so we considered further restrictions based on taxonomy codes for these provider types. We found that restricting further on taxonomy codes, including those used in the Maryland Primary Care Program, did not result in a meaningful difference in the counts of services. Thus, we did not implement any restriction beyond the specialty code, and we ultimately decided to align with the Shared Savings Program.

Primary Care Use Analyses

Descriptive statistics. We analyzed the cumulative share of hospital and PGP BPCI Advanced episodes with a primary care visit after the anchor, including within 7 days, within 14 days, within 30 days, and within 90 days. We assessed the cumulative share for all clinical episodes, and separately by medical and surgical episodes. We also assessed rates of primary care use prior to anchor hospitalizations or procedures of BPCI Advanced episodes.

Impact estimates. We conducted DiD analyses to assess the impact of participation in the BPCI Advanced Model on primary care use. The two outcome variables of interest were the proportion of episodes with a primary care visit within 7 days and the proportion of episodes with a primary care visit within 90 days. As an additional analysis, we restricted to the cohort of episodes with no prior primary care use (episodes where the patient is continuously enrolled and has zero visits in the two years prior to the anchor) to assess the impact of participation in the BPCI Advanced Model on any primary care utilization 7 and 90 days after the anchor end date.

Limitations

There are a couple of limitations to the construction and analyses of primary care measures. First, to create our definition of primary care, we compared and adapted the definitions used by primary care-focused CMS innovation models and programs and identified primary care visits based on claims that had both a procedure code and provider specialty code included in our definition of primary care. In some cases, for patients with surgical episodes, we may have classified patients as having prior primary care use when a primary care provider was conducting their preoperative appointment. Therefore, our results are specific to this curated definition of primary care use. Second, since most patients had at least one primary care visit in the two years prior to the episode, the no prior primary care analyses are limited to a very small sample and may be subject to noise. Third, there are competing events that add complexity to our interpretation of results. For example, if the model affected mortality, then more patients would be alive and could see a primary care provider. Similarly, if the model reduces discharges to institutional PAC settings, then it increases the ability of patients to see a primary care provider the week following a discharge.

b. BPCI Advanced and Medicare Accountable Care Organization Overlap Analyses

BPCI Advanced and Medicare Accountable Care Organization Overlap Descriptives

For the descriptive statistics, we analyzed the overlap between BPCI Advanced and ACOs at two levels: the provider level and the patient or episode level.

For the provider-level overlap, we used CMS provider-level RIFs to identify hospitals and PGPs in both the BPCI Advanced Model and Shared Savings Program ACOs. We limited the sample of BPCI Advanced hospitals and PGPs to those with at least one Model Year 5 episode.[38] We excluded other ACO initiatives, such as the Comprehensive End-Stage Renal Disease Care (CEC) Model and the Vermont All-Payer Accountable Care Organization Model (VTAPM), from this

[38] Episodes whose anchor stays or procedures began on or after January 1, 2022, and ended on or before December 31, 2022.

analysis because they had low participation levels among hospitals and PGPs or because of a lack of overlap with BPCI Advanced.

For the patient- or episode-level overlap, we used Medicare FFS claims and enrollment data to define episodes with anchor stays or procedures beginning on or after January 1, 2022, and ending on or before December 31, 2022, and the CMS MDM to identify patients aligned to an ACO. We analyzed a selected group of ACOs: the Shared Savings Program, the ACO REACH Model,[39] the CEC Model, and VTAPM.

To determine ACO alignment of patients, we used the following data fields in the MDM: Program ID (ACO type), Beneficiary Participation Start Date, and Beneficiary Participation End Date. A patient is considered aligned to an ACO if their Program ID matches an ACO of interest and their episode was between alignment dates (except when a model ended, and the episode continues into the following calendar year). For example, a patient is aligned to a Shared Savings Program ACO if their Program ID is 8 and they were in the program during the period January 1, 2022, through December 31, 2022. If a patient was aligned to multiple ACOs at the same time, we used the following set of criteria sequentially to break the tie. First, we looked at the number of overlap days (number of days during the episode where the patient is aligned to the ACO) and picked the ACO the patient is aligned to the longest. Second, we selected the ACO with the start date that is closest to the anchor begin date. Third, if there was still a tie after using the maximum number of overlap days, and the closest date to the anchor, we used random assignment.

We report descriptive statistics for both the provider- and patient-level overlap between BPCI Advanced and ACOs. In addition, we report patient characteristics such as dual eligibility distribution by ACO alignment.

Differential Impact Estimates

We estimated the impact and difference in impact of BPCI Advanced on patients aligned to a Shared Savings Program ACO compared with those not aligned to any ACO using a subgroup impact estimate framework discussed in detail above (Section D.2.c, Estimating Impacts by Patient Subgroup).

For our main analysis, we defined overlap at the patient or episode level. We used the CMS MDM data beneficiary extract to identify Shared Savings Program alignment for BPCI Advanced patients and the matched comparison group during the baseline (episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018) and intervention period (episodes with anchor stays or procedures beginning on or after January 1, 2022, and ending on or before December 31, 2022), using the same alignment rules described above. We used our matched comparison group constructed for the overall model in Model Year 4 and checked for pre-trend balance between the BPCI Advanced and comparison groups by Shared Savings Program ACO alignment during the baseline years. We report parallel trend tests with the subgroup impacts and the difference in impacts. We included both hospital and PGP episodes in our analysis and estimated impacts for medical and surgical episodes separately. We removed

[39] Used to be known as the GPDC Model.

episodes that were attributed to non-Shared Savings Program ACOs so that our impact estimate of non-ACO group had no episodes with patients attributed to other ACO programs.[40]

Sensitivity Analysis

In our main analysis, since the overlap is defined at the episode or patient level regardless of the ACO status of the hospital, some Shared Savings Program ACO patients were treated at non-ACO hospitals and some of the non-ACO patients were treated at ACO hospitals. We hypothesized that we may not be able to detect differences in impacts because our samples of ACO and non-ACO patients were not strictly defined.

To test this hypothesis, we conducted a sensitivity analysis by strictly defining the ACO sample to include only Shared Savings Program ACO patients whose anchor stay or procedure was at a hospital that is part of the same Shared Savings Program ACO and the non-ACO sample to include only non-ACO patients whose anchor stay or procedure was at a hospital that was not participating in the Shared Savings Program. We excluded episodes that were not part of the strictly defined Shared Savings Program ACO and non-ACO sample from this analysis. We used a subgroup analysis framework (same as the main analysis) to estimate the impact and difference in impact.

Limitations

There are some limitations to our analyses of BPCI Advanced overlap with ACOs. First, for impact estimates, we focused on Shared Savings Program ACOs due to the program's large footprint during the BPCI Advanced Model baseline and intervention periods. We could not evaluate overlap with other ACOs due to a lack of overlapping volume or a lack of baseline data. As such, our results may not be generalizable to all ACOs. Second, we may have undercounted the number of BPCI Advanced PGPs in the Shared Savings Program because of PGPs' flexibility to use different TINs to bill Medicare claims. Third, BPCI Advanced patients can sometimes be aligned to multiple ACOs concurrently. To avoid double-counting, we implemented tie-breaker rules for determining alignment, which can lead to undercounting of patients within each ACO. Fourth, for the subgroup impact estimates, we used the comparison group constructed for the overall sample and did not have ACO alignment as a matching covariate, which might lead to imbalance in ACO alignment between the BPCI Advanced and comparison group. To mitigate this issue, we evaluated the baseline balance between the BPCI Advanced and comparison groups by Shared Savings Program ACO alignment and included parallel trend tests with our impact estimates (**Appendix L**). Fifth, the sensitivity analysis excluded episodes that are not part of the strictly defined Shared Savings Program ACO and non-ACO sample. As a result, it used less than half of the number of episodes in the main analysis. This sample restriction might make it hard to generalize the results to the full evaluation sample.

c. Medicare Program Savings

In this section, we define the outcomes and outline the method used to calculate Medicare program savings. We defined savings to Medicare as the difference between nonstandardized paid amounts

[40] Excluded non-Shared Savings Program ACOs are NGACO Model, CEC Model, VTAPM, GPDC Model, ACO REACH Model, Pioneer ACO Model, Independence at Home Demonstration, and the Medicare-Medicaid Coordination Office Financial Alignment Demonstration.

and reconciliation payments made to or received from BPCI Advanced participants following the general formula,[41, 42]

Medicare savings = reduction in nonstandardized payments – reconciliation payments

The reduction in nonstandardized payments is approximated by multiplying the estimates from the DiD model on total paid amounts, which estimates the change in per-episode standardized Medicare paid amounts during the inpatient stay and 90-day PDP, by a standardized-to-nonstandardized conversion factor.[43] After converting to nonstandardized dollars, we multiply each DiD estimate by the corresponding total number of BPCI Advanced episodes with anchor stays or procedures ending in Model Year 5. This approach effectively extrapolates the DiD impact estimates to all BPCI Advanced hospitals and PGPs participating in the clinical episodes we evaluated, including hospitals and PGPs that may have been excluded from our impact analyses because there was not a comparison hospital or PGP inside the selected caliper of our propensity-score matching model, or for other reasons. Notably, we do not extrapolate reductions in payments or Medicare savings to clinical episodes we do not evaluate.

The number of Model Year 5 BPCI Advanced episodes we use to calculate Medicare program savings is the count of BPCI Advanced episodes in Model Year 5 that were evaluated ("evaluation count").[44] The evaluation count is greater than the count of BPCI Advanced episodes included by the model ("model count") in Model Year 5 reconciliation for several reasons. The model excludes most episodes from reconciliation where the patient is diagnosed with COVID-19, whereas the evaluation includes episodes with COVID-19 diagnoses.[45] Other differences between the evaluation and model counts are due to other model exclusions. For example, the model excludes episodes where the patient is aligned to certain types of ACOs, while the evaluation includes these episodes because it is unlikely that hospitals and PGPs know an episode will be excluded from the model in time to substantially change care redesign activities for that patient.

Reconciliation payments (or net payment reconciliation amount [NPRA]) are payments made to BPCI Advanced participants from Medicare. Participants with intervention episode payments below their target prices received the difference as a reconciliation payment from CMS. Participants with episode payments above their target prices paid the difference to CMS. We used Model Year 5 reconciliation data, regardless of the *performance period* in which episodes were reconciled, and aggregated payments across participants to the clinical episode level within each participant type. The reconciliation data used for all Model Year 5 Performance Periods

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41 Nonstandardized paid amounts vary from the standardized allowed amounts that we use in the main DiD analyses. We use nonstandardized paid amounts for this analysis, which approximate the actual payments made from Medicare to providers (without patient cost sharing and incorporating geographic and other payment adjustments).

42 Savings estimates are reported such that a positive value indicates savings to Medicare and a negative value indicates losses to Medicare.

43 Nonstandardized payments were calculated by applying a ratio of nonstandardized to standardized Medicare paid amounts to our DiD impact estimates on standardized Medicare paid amounts.

44 This includes episodes from hospitals and PGPs that may have been excluded from our impact analyses due to not finding a match within the defined caliper of the matching model or for other reasons, such as a lack of baseline episodes.

45 Beginning in Model Year 5, model participants were able to sign an amendment to be held accountable for episodes where the patient was diagnosed with COVID-19 at any time during the clinical episode, and such clinical episodes were included in reconciliation.

(Periods 7-9) are finalized, second true-up amounts. We used reconciliation data calculated for each clinical episode in which each hospital or PGP participated. These reconciliation data do not account for various adjustments that occur across clinical episodes (for example, composite quality score and stop-gain or stop-loss). To account for these adjustments, we calculated an adjusted reconciliation amount that approximates these adjustments at the clinical episode level for each hospital and PGP.[46] We then aggregated adjusted reconciliation amounts for each clinical episode to create total adjusted reconciliation amounts for each pooled grouping.

To calculate savings for different groups of pooled clinical episodes (hospital medical clinical episodes, PGP medical clinical episodes, hospital surgical clinical episodes, PGP surgical clinical episodes, all medical clinical episodes, all surgical clinical episodes, and all clinical episodes or total model), we pooled our clinical episode samples and estimated a single DiD regression on total standardized paid amounts per group of clinical episodes. This allowed us to create ranges (based on the confidence intervals [CIs]) for the corresponding total reduction in nonstandardized spending and Medicare savings that accurately reflected the corresponding sample.

For each Medicare savings estimate, we calculated savings per episode by dividing total savings by the corresponding number of BPCI Advanced episodes. We also represent savings as a percentage of what payments would have been absent the BPCI Advanced Model. To do this, we first calculated a counterfactual of the BPCI Advanced mean standardized payments by taking the BPCI Advanced risk-adjusted baseline mean and adding the change in the comparison group (comparison group risk-adjusted intervention mean minus comparison group risk-adjusted baseline mean). This gives us an estimate of what standardized payments would have been absent BPCI Advanced. We then converted this counterfactual mean into nonstandardized paid amounts by multiplying the counterfactual mean with the corresponding standardized-to-nonstandardized conversion factor. We then used this value as a denominator to express per-episode savings as a percentage.

More details about these measures and the Medicare savings calculations are in Exhibit C.30.

Exhibit C.30: Definition of Measures Used in the Analysis of Medicare Program Savings

Measure	Definition
Per-Episode Change (or Reduction) in Standardized Payments	A per-episode estimate of the change in Medicare payments attributable to BPCI Advanced using the total payments DiD regression model(s) for a given clinical episode and episode initiator type or pooled group of clinical episodes. The payment outcome, total Medicare Part A & B standardized paid amounts, includes all Medicare paid amounts for services during the anchor stay and 90 days after discharge, and excludes patient cost sharing. We used the 90% (or 95%) CI from this DiD estimate to create upper and lower bound estimates. The DiD estimate and the bounds were multiplied by (–1) so that a positive estimate indicates a reduction in payments.
Standardized-to-Nonstandardized Conversion Factor	A ratio of nonstandardized-to-standardized Medicare paid amounts based on BPCI Advanced intervention episodes; specific to the given sample.

[46] We calculated adjusted reconciliation amounts by applying a ratio of final reconciliation amounts to intermediate reconciliation amounts calculated at the parent Bundled Payment Identification (BPID) (convener) level to the hospital- and PGP-level reconciliation amounts for the clinical episodes evaluated.

Measure	Definition
Per-Episode Change (or Reduction) in Nonstandardized Payments	The DiD estimate of per-episode change in standardized payments multiplied by the standardized-to-nonstandardized conversion factor. Nonstandardized Medicare paid amounts reflect actual payments made from Medicare to providers because they include adjustments for wages, practice expenses, and other initiatives (such as medical education).
Number of BPCI Advanced Episodes	The number of episodes in BPCI Advanced with anchor stays or procedures ending between January 1, 2022, and December 31, 2022.
Aggregate Change (or Reduction) in Nonstandardized Payments	The per-episode change in nonstandardized payments multiplied by the number of episodes for a given pooled grouping of clinical episodes.
Unadjusted Reconciliation Payments	Reconciliation payments are defined as total amounts paid to BPCI Advanced participants by Medicare net of repayments from participants to Medicare. Negative values indicate that Medicare has received more funds than it has paid. For a given sample (clinical episode or CESLG and episode initiator type or pooled group of clinical episodes), we included episodes from all BPCI Advanced episode initiators in Model Year 5.
Adjusted Reconciliation Payments	Approximated final reconciliation payments paid to BPCI Advanced participants by Medicare net of repayments from participants to Medicare. For a given sample, we included episodes from all BPCI Advanced episode initiators in Model Year 5. We multiplied the unadjusted reconciliation payments for the clinical episodes evaluated by the adjusted-to-unadjusted reconciliation payment conversion factor of the episode initiator's convener participant or the non-convener participant. These clinical episode reconciliation amounts account for several model adjustments that are applied at the episode initiator and convener level.
Adjusted-to-Unadjusted Reconciliation Payment Conversion Factor	A ratio of adjusted-to-unadjusted reconciliation payments calculated at the episode initiator's convener participant or the non-convener participant level.
Savings to Medicare; Net Medicare Savings; Medicare Program Savings	The reduction in nonstandardized payments less reconciliation payments. A positive value indicates savings; a negative value indicates losses. The terms "net savings," "[net] Medicare savings," and "[net] Medicare program savings" are used interchangeably.
Per-Episode Savings to Medicare	For a given clinical episode and episode initiator type or pooled group of clinical episodes, the savings to Medicare divided by the corresponding number of BPCI Advanced episodes.
Savings as a Percent of BPCI Advanced Counterfactual	Savings as a percentage of what payments would have been absent the BPCI Advanced Model. This is net savings divided by the counterfactual. We calculate the counterfactual as the BPCI Advanced baseline mean payment plus the change in the comparison group mean payment (comparison group intervention mean payment minus comparison group baseline mean payment).

Note: See Exhibit C.1 for data sources and **Appendix A** for definitions and acronyms.

Limitations

Our calculations of BPCI Advanced Medicare savings have a few limitations. First, we extrapolated our estimated reductions in episode payments (from the DiD impact) to hospitals and PGPs not included in our evaluation sample due to limitations identifying suitable matched comparison providers. This assumes that the BPCI Advanced hospitals and PGPs in the evaluation sample had a similar reduction in episode payments as those in the extrapolated sample. The evaluation sample represents the majority of all BPCI Advanced episodes in the extrapolated sample (81.8%), and we have no evidence that payment reductions differ between the evaluation

sample and the extrapolated sample. Second, we estimated net savings to Medicare for 26 hospital clinical episodes and 18 PGP clinical episodes and omitted clinical episodes we were unable to evaluate. Although these clinical episodes we included represent 98.1% of BPCI Advanced volume, they do not represent all reconciled episodes under the BPCI Advanced Model. Lastly, we calculated aggregate savings using adjusted reconciliation amounts, which approximate adjustments for stop-gain or stop-loss and quality score adjustments. Savings estimates using unadjusted and adjusted reconciliation amounts can be found in **Appendix I**.

Appendix D: Patient Survey Instrument

Health Care Experience Survey

We are interested in the quality of care you received at the hospital listed in the cover letter, and how your recovery has been going. We understand that this was probably a difficult time for you and your family. We appreciate you taking the time to tell us about your health care experiences. Please be assured that all responses are confidential.

There are four sections of this survey. The first section asks about *how you were feeling* ***just before*** you went to the hospital listed in the cover letter. The second section asks about *how you are currently feeling*. The third section asks about *your experience and satisfaction* with the hospital and any other places where you received care after you left the hospital. The last questions in the survey are about you.

Instructions:

- Please read each question carefully and respond by marking the box next to the response that most closely represents your opinion.
- Please mark only one box for each question, unless it tells you to "Choose all that apply."
- Many people use a PENCIL in case they want to change their answers. Please erase cleanly or white out any marks you wish to change. Please do NOT use a felt tip pen.
- Please do not make any stray marks on the form.

1. **First, please indicate who is completing this survey.**

   ☒ Person named in the cover letter

   ☒ Person named in the cover letter, with help from a family member, friend or caregiver

   ☒ A family member, friend, or caregiver of the person named in the cover letter

   ☒ Someone else who is not a family member, friend, or caregiver of the person named in the cover letter

   ☒ **If the person to whom this was mailed cannot complete the survey, and there is no one else who can do it for him or her**, please mark this response and return the blank survey to Abt Associates, P.O. Box 5720, Hopkins, MN 55343 using the postage-paid envelope provided.

Section 1. Before the Hospital

We would like to know how you were doing before you went to the hospital listed in the cover letter. Please think about your overall health and all of your medical needs at that time, and not just the reason you went to the hospital listed in your cover letter.

2. Thinking about the week before you went to the hospital, how much help did you need from another person with *bathing, dressing, using the toilet, or eating*?

   ☒ No help needed from another person
   ☒ Some help needed from another person
   ☒ Complete help needed from another person
   ☒ Don't know/Don't remember

3. Thinking about the week before you went to the hospital, how much help did you need from another person with *planning regular tasks*, such as making a grocery list or remembering to take medication?

   ☒ No help needed from another person
   ☒ Some help needed from another person
   ☒ Complete help needed from another person
   ☒ Don't know/Don't remember

4. Thinking about the week before you went to the hospital, what best describes your *use of a mobility device* such as a wheelchair, scooter, walker, or cane?

   ☒ I never used a mobility device
   ☒ I sometimes used a mobility device
   ☒ I always used a mobility device
   ☒ Don't know/Don't remember

5. Thinking about the week before you went to the hospital, what best describes your ability to *walk by yourself* without resting? That is, without the help of another person or the help of a mobility device.

   ☒ I could walk several blocks by myself without resting or using a mobility device
   ☒ I could walk one block by myself without resting or using a mobility device
   ☒ I could walk from one room to another by myself without resting or using a mobility device
   ☒ I was not able to walk by myself without resting or using a mobility device
   ☒ Don't know/Don't remember

6. Thinking about the week before you went to the hospital, how much difficulty did you have *walking up or down 12 stairs*?

   ☒ I had no difficulty walking up or down 12 stairs
   ☒ I had some difficulty walking up or down 12 stairs
   ☒ I had a lot of difficulty walking up or down 12 stairs
   ☒ I was not able to walk up or down 12 stairs
   ☒ Don't know/Don't remember

7. Thinking about the week before you went to the hospital, how often did your *physical health or emotional problems* interfere with your social activities (like visiting friends, relatives, etc.)?

   ☒ All of the time
   ☒ Most of the time
   ☒ Some of the time
   ☒ A little of the time
   ☒ None of the time
   ☒ Don't know/Don't remember

8. Thinking about the week before you went to the hospital, how much did *pain* interfere with your normal activities?

   ☒ All of the time
   ☒ Most of the time
   ☒ Some of the time
   ☒ A little of the time
   ☒ None of the time
   ☒ Don't know/Don't remember

Section 2. After the Hospital

It has been a few months since your hospital care and we would like to know how you are doing *today*. Please think about your overall health and all of your medical needs, and not just the reason you went to the hospital listed in your cover letter.

9. How much help do you currently need from another person with *bathing, dressing, using the toilet, or eating*?

   ☒ No help needed from another person
   ☒ Some help needed from another person
   ☒ Complete help needed from another person
   ☒ Don't know/Don't remember

10. How much help do you currently need from another person with *planning regular tasks*, such as making a grocery list or remembering to take medication?

    ☒ No help needed from another person
    ☒ Some help needed from another person
    ☒ Complete help needed from another person
    ☒ Don't know/Don't remember

11. What currently best describes your *use of a mobility device* such as a wheelchair, scooter, walker, or cane?

    ☒ I never use a mobility device
    ☒ I sometimes use a mobility device
    ☒ I always use a mobility device
    ☒ Don't know/Don't remember

12. What best describes your current ability to *walk by yourself* without resting? That is, without the help of another person or the help of a mobility device.

    ☒ I can walk several blocks by myself without resting or using a mobility device
    ☒ I can walk one block by myself without resting or using a mobility device
    ☒ I can walk from one room to another by myself without resting or using a mobility device
    ☒ I am not able to walk by myself without resting or using a mobility device
    ☒ Don't know/Don't remember

13. Do you currently have difficulty *walking up or down 12 stairs*?

    ☒ I have no difficulty walking up or down 12 stairs
    ☒ I have some difficulty walking up or down 12 stairs
    ☒ I have a lot of difficulty walking up or down 12 stairs
    ☒ I am not able to walk up or down 12 stairs
    ☒ Don't know/Don't remember

14. How often does your *physical health or emotional problems* currently interfere with your social activities (like visiting friends, relatives, etc.)?

    ☒ All of the time
    ☒ Most of the time
    ☒ Some of the time
    ☒ A little of the time
    ☒ None of the time
    ☒ Don't know/Don't remember

15. How much does *pain* currently interfere with your normal activities?

    ☒ All of the time
    ☒ Most of the time
    ☒ Some of the time
    ☒ A little of the time
    ☒ None of the time
    ☒ Don't know/Don't remember

16. Overall, since you left the hospital, how satisfied are you *with your recovery*?

    ☒ Not at all satisfied
    ☒ Slightly satisfied
    ☒ Moderately satisfied
    ☒ Quite a bit satisfied
    ☒ Extremely satisfied
    ☒ Don't know/Don't remember

Section 3. Health Care Experiences

Now, we would like to hear about your experiences while you were at the hospital listed in the cover letter and any other place where you received care after the hospital.

In the following questions, the term "medical staff" means doctors, nurses, physical or occupational therapists and any other medical professionals who helped take care of you at the hospital and afterwards, in other facilities or at home. For example, after leaving the hospital you may have received care from medical staff in a nursing home, rehabilitation facility, assisted living facility, a doctor's office, or at home.

We'd like to learn about your experience as you were leaving the hospital in the cover letter.

17. Looking back to the time you left the hospital, overall, *how prepared did you feel to leave?*

    ☒ Unprepared
    ☒ Moderately prepared
    ☒ Very prepared
    ☒ Don't know/Don't remember

Thinking about when you left the hospital listed in the cover letter, *how much do you agree or disagree with the following statement?*

18. The medical staff took your preferences and those of your family or your caregiver into account in deciding what health care services you should have after you left the hospital.

    ☒ Strongly Disagree
    ☒ Disagree
    ☒ Agree
    ☒ Strongly Agree
    ☒ Don't Know/Don't Remember
    ☒ Not Applicable

19. Where do you reside now?

    ☒ At my own home, in someone else's home, or in an assisted living facility (**Continue with the next section by following the arrow)**
    ☒ In a rehabilitation center, nursing home, or other health care facility **(Skip to Question 26 located on Page 6)**

Thinking about when you left the hospital listed in the cover letter, *how much do you agree or disagree with the following statements?*

20. Before you prepared to go home (or to someone else's home, or to an assisted living facility), you and your family or caregiver had a *good understanding of how to take care of yourself*.

    ☒ Strongly Disagree
    ☒ Disagree
    ☒ Agree
    ☒ Strongly Agree
    ☒ Don't Know/Don't Remember
    ☒ Not Applicable

21. Before you prepared to go home (or to someone else's home, or to an assisted living facility), *medical staff clearly explained how to take your medications*.

    ☒ Strongly Disagree
    ☒ Disagree
    ☒ Agree
    ☒ Strongly Agree
    ☒ Don't Know/Don't Remember
    ☒ Not Applicable, did not receive new medications

22. Before you prepared to go home (or to someone else's home, or to an assisted living facility), *medical staff clearly explained what follow-up appointments or treatments would be needed*.

    ☒ Strongly Disagree
    ☒ Disagree
    ☒ Agree
    ☒ Strongly Agree
    ☒ Don't Know/Don't Remember
    ☒ Not Applicable

23. Overall, since you returned home (or to someone else's home, or to an assisted living facility), *you and your caregivers have been able to manage your health needs*.

    ☒ Strongly Disagree
    ☒ Disagree
    ☒ Agree
    ☒ Strongly Agree
    ☒ Don't Know/Don't Remember
    ☒ Not applicable

24. Before you prepared to go home (or to someone else's home, or to an assisted living facility), did *doctors, nurses, or other staff talk with you about whether you would have the help you needed when you got home*?

    ☒ Yes
    ☒ No
    ☒ Don't Know/Don't Remember
    ☒ Not applicable

25. Since leaving the hospital, if you needed help at home to manage your health, did *medical staff arrange services for you at home to help manage your health*?

    ☒ Yes
    ☒ No
    ☒ Don't Know/Don't Remember
    ☒ Not Applicable, did not require help at home

26. Now we would like you to think about all of the healthcare you received *after* leaving the hospital. Using any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible, what number would you use to rate *all* of your health care *after* leaving the hospital?

☒ 0 (Worst possible)	☒ 4	☒ 8
☒ 1	☒ 5	☒ 9
☒ 2	☒ 6	☒ 10 (Best possible)
☒ 3	☒ 7	

Section 4. Personal Characteristics

27. What is the highest grade or level of school that you completed?

- ☒ 8th grade or less
- ☒ Some high school, but did not graduate
- ☒ High school graduate or GED
- ☒ Some college or 2-year (associate's) degree
- ☒ 4-year (bachelor's) college degree or equivalent
- ☒ More than 4-year college degree (such as a master's or doctoral degree)

28. We may like to call you in the future for a 5 to 10 minute follow-up regarding your care experience. Participation is completely voluntary. May we have your permission to call you for a brief survey in the future?

- ☒ Yes, you may contact me for another brief survey in the future
- ☒ No, you may not contact me for another brief survey in the future

IF YOU'D LIKE TO BE CONTACTED IN THE FUTURE

29. So that we have the most up to date contact information for you in the future, please provide the best telephone number to reach you:

Telephone number with area code:

_____-_____-_____

Thank you for completing the survey!

Please mail it back in the enclosed postage-paid envelope

Abt Associates, P.O. Box 5720, Hopkins, MN 55343

Appendix E: Standardized Differences Tables

New providers were not permitted to join the model and participating providers were not permitted to change their clinical episode service line group (CESLG) selections between Model Years 4 and 5, so we used the comparison group developed for Model Year 4 (2021) analyses as a basis for Model Year 5 (2022). We then made two adjustments: we removed BPCI Advanced providers that exited the model before Model Year 5 and their matched providers, and we removed providers (whether in the treatment or comparison group) that had no episode volume in Model Year 5 and their matched providers from the full analysis period.

This appendix provides supplemental statistics about the comparison group that resulted. Section A displays the total number of BPCI Advanced hospitals and PGPs that met Model Year 5 inclusion criteria (meaning that they met Model Year 4 inclusion criteria, participated in the model in Model Year 5, and had Model Year 5 volume) and the total number that were included in the treatment group, by clinical episode. Section B provides descriptions of the variables used for matching. Section C displays the standardized mean differences before and after matching for each variable used for matching, for each clinical episode, for hospitals, and Section D displays the same information for PGPs.

The standardized mean difference before matching refers to the standardized mean difference between matched participant providers and all non-participant providers in the comparison pool, while the standardized mean difference after matching refers to the standardized mean difference between matched participant providers and the non-participant providers to which they were matched. The standardized differences were based on values of variables during the baseline period (January 1, 2015, to September 30, 2018).

For further details of the matching procedures originally used to construct these comparison groups, see the BPCI Advanced Fifth Evaluation Report.[1]

See **Appendix C** for additional information on the methods used to determine the sample, the patient mix measures evaluated, and data sources. Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix.

[1] The BPCI Advanced Fifth Evaluation Report is available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

A. Number of BPCI Advanced Participants Before and After Matching

Exhibit E.1: Matched BPCI Advanced Hospital Participants Included in the BPCI Advanced Impact Estimates, by Clinical Episode, January 1, 2022 – December 31, 2022

Clinical Episode Type	Clinical Episode	BPCI Advanced Participating Hospitals Eligible for Matching	Matched BPCI Advanced Hospitals
Medical	AMI	225	208
	Cardiac Arrhythmia	247	238
	Cellulitis	298	252
	CHF	263	247
	COPD, Bronchitis, & Asthma	324	296
	Disorders of the Liver	47	45
	GI Hemorrhage	182	175
	GI Obstruction	165	160
	Renal Failure	321	274
	Seizures	158	143
	Sepsis	331	301
	SPRI	332	309
	Stroke	223	164
	UTI	321	221
Surgical	Back & Neck	60	57
	CABG	34	34
	Cardiac Defibrillator	37	37
	Femur & Hip/Pelvis Fractures	53	50
	Hip & Femur	111	101
	Lower Extremity/Humerus	50	50
	Major Bowel Procedure	52	51
	MJRLE	100	98
	Pacemaker	55	54
	PCI (IP)	65	65
	PCI (OP)	49	47
	Spinal Fusion	92	88

Note: See the first page of this appendix for data sources and more information.

Exhibit E.2: Matched BPCI Advanced PGP Participants Included in the BPCI Advanced Impact Estimates, by Clinical Episode, January 1, 2022 – December 31, 2022

Clinical Episode Type	Clinical Episode	BPCI Advanced Participating PGPs Eligible for Matching	Matched BPCI Advanced PGPs
Medical	AMI	45	42
	Cardiac Arrhythmia	53	51
	Cellulitis	48	46
	CHF	62	60
	COPD, Bronchitis, & Asthma	57	56
	GI Hemorrhage	45	44
	GI Obstruction	35	32
	Renal Failure	59	55
	Seizures	22	21
	Sepsis	65	57
	SPRI	63	59
	Stroke	51	51
	UTI	58	54
Surgical	Back & Neck	20	19
	Hip & Femur	25	25
	MJRLE	58	53
	MJRUE	41	36
	Spinal Fusion	20	17

Note: See the first page of this appendix for data sources and more information.

B. Descriptions of Matching Variables

Exhibit E.3: Descriptions of Variables Used for Hospital Matching Models

Domain		Description
Hospital Characteristics	Average Case Weight of Discharges	Average MS-DRG weight of a discharge at the hospital during the baseline period. MS-DRG weights represent the amount of resources required to care for a typical patient in a given MS-DRG.
	DSH Patient Percentage	Percentage of Medicare IP days during the baseline attributable to patients eligible for Supplemental Security Income and Medicare Part A plus percentage of total inpatient days attributable to patients eligible for Medicaid but not Medicare Part A.
	Efficiency Measure	Average ratio of observed to predicted spending for the hospital within a given clinical episode based on preliminary Model Year 4 target prices.
	Episode Volume	Number of discharges for the hospital in a given clinical episode during the baseline.
	Hospital Market Share	Proportion of total BPCI Advanced eligible discharges in a hospital's CBSA which occur at that hospital, averaged over the baseline period.
	OP Surgery Department	Binary indicator for whether the hospital has an outpatient surgery department.
	Ownership – Government	Binary indicator for whether the hospital is government owned.
	Part of Health System	Binary indicator for whether the hospital is part of a health system.
	Resident-Bed Ratio	Average number of residents assigned per bed.
	Urban	Binary indicator for whether the hospital is in an urban area.
Hospital Baseline Outcomes	Institutional PAC – Average	Average percentage of patients discharged to institutional PAC settings over the baseline period.
	Institutional PAC – Change	Slope of percentage of patients discharged to institutional PAC settings over the baseline period.
	Standardized Part A&B Payment – Average	Average winsorized Medicare Part A & B payments over the baseline period.
	Standardized Part A&B Payment – Change	Slope of winsorized Medicare Part A & B payments over the baseline period.
Market Characteristics	IRF in Market	Binary indicator for whether there is a short- or long-term rehab hospital in the hospital's CBSA in 2018.
	SNF Beds per 10,000 in Market	SNF beds per 10,000 inhabitants in the hospital's CBSA.

Note: See the first page of this appendix for data sources and more information.

Exhibit E.4: Descriptions of Variables Used for PGP Matching Models

Domain	Variable	Description
PGP Characteristics	Episode Volume	Average volume of discharges in the clinical episode during the baseline.
	HCC Score	Average HCC score during baseline.
	Number of Hospitals – 3+	Binary indicator for whether the PGP operates, on average, in more than 2.5 hospitals during the baseline period.
	Number of NPIs – Large	Binary indicator for whether the PGP is at or above the 75th percentile within the clinical episode for number of associated NPIs.
	Number of NPIs – Small	Binary indicator for whether the PGP is at or below the 25th percentile within the clinical episode for number of associated NPIs.
	Part of Health System	Binary indicator for whether the PGP is part of a health system.
	Percent Disabled, No ESRD	Average percentage of patients per year during the baseline period who were disabled but didn't have ESRD.
	Percent Dual Eligible	Average percentage of patients per year during the baseline period who were dually eligible.
	Percent Episodes with IP Stay in 180 Days Prior	Average percentage of patients per year during the baseline period who had any inpatient stay in the 180 days before the episode.
	Percent Female	Average percentage of patients per year during the baseline period who were female.
	Percent Over 80 Years Old	Average percentage of patients per year during the baseline period who were over 80 years old.
	PGP in Multiple CBSAs	Binary indicator for whether the PGP operates, on average, in more than 1.5 CBSAs.
	Select Patient Demographics	Includes averages of patient demographics.
	Share in MS-DRG 453	Episodes with MS-DRG 453 (denoting combined anterior/posterior spinal fusion with major complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Share in MS-DRG 454	Episodes with MS-DRG 454 (denoting combined anterior/posterior spinal fusion with non-major complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Share in MS-DRG 455	Episodes with MS-DRG 455 (denoting combined anterior/posterior spinal fusion without complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Share in MS-DRG 459	Episodes with MS-DRG 459 (denoting spinal fusion, except cervical, with major complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Share in MS-DRG 460	Episodes with MS-DRG 460 (denoting spinal fusion, except cervical, without major complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.

Domain	Variable	Description
PGP Characteristics (Continued)	Share in MS-DRG 471	Episodes with MS-DRG 471 (denoting cervical spinal fusion with major complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Share in MS-DRG 472	Episodes with MS-DRG 472 (denoting cervical spinal fusion with non-major complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Share in MS-DRG 473	Episodes with MS-DRG 473 (denoting cervical spinal fusion without complications or comorbidities), as a share of spinal fusion episodes with operating or attending physician part of the PGP.
	Urban	Binary indicator for whether the hospital where the PGP provided the plurality of its care is based in an urban area.
PGP Baseline Outcomes	Institutional PAC – Average	Percentage of discharges to institutional PAC settings during baseline.
	Institutional PAC – Change	Quarterly linear slope of percentage of discharges to institutional PAC settings during baseline.
	Mortality Rate 90-Day – Average	Mortality rate during the 90-day post-discharge period (PDP) during baseline.
	Mortality Rate 90-Day – Change	Quarterly slope of mortality rate during the 90-day PDP during baseline.
	Readmission Rate 90-Day – Average	90-day unplanned readmission rate during baseline.
	Readmission Rate 90-Day – Change	Quarterly slope of 90-day unplanned readmission rate during baseline.
	Standardized Part A&B Payment – Average	Average winsorized Medicare Part A & B payments over the baseline period.
	Standardized Part A&B Payment – Change	Quarterly slope of winsorized Medicare Part A & B payments over the baseline period.
Market Characteristics	Population – Continuous	Population of the CBSA where the PGP provided a plurality of its care.

Note: See the first page of this appendix for data sources and more information.

C. Standardized Mean Differences - Hospitals

Exhibit E.5: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Acute Myocardial Infarction

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.05	-0.04
DSH Patient %	0.03	0.01
Efficiency Measure	0.22	-0.04
Episode Volume	0.05	-0.04
Hospital Market Share	-0.31	-0.12
Institutional PAC – Average	0.21	0.03
Institutional PAC – Change	-0.03	0.04
IRF in Market	0.48	0.08
Ownership – Government	-0.12	-0.05
Part of Health System	0.40	0.04
Resident-Bed Ratio	0.10	0.08
SNF Beds per 10,000 in Market	-0.29	-0.02
Standardized Part A&B Payment – Average	0.43	0.01
Standardized Part A&B Payment – Change	-0.03	0.04
Urban	0.36	-0.02

Note: See the first page of this appendix for data sources and more information.

Exhibit E.6: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Back and Neck Except Spinal Fusion (OP)

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.15	0.11
DSH Patient %	0.09	-0.19
Efficiency Measure	0.42	0.14
Episode Volume	0.10	0.03
Hospital Market Share	-0.41	-0.12
IRF in Market	0.54	-0.05
Ownership – Government	-0.27	0.09
Part of Health System	0.24	-0.27
Resident-Bed Ratio	0.40	-0.13
SNF Beds per 10,000 in Market	-0.40	-0.35
Standardized Part A&B Payment – Average	0.46	0.14
Standardized Part A&B Payment – Change	-0.13	0.19
Urban	0.31	0.00

Note: See the first page of this appendix for data sources and more information.

Exhibit E.7: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Cardiac Arrhythmia

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.19	-0.08
DSH Patient %	0.04	0.06
Efficiency Measure	0.21	0.03
Episode Volume	0.24	-0.03
Hospital Market Share	-0.19	-0.08
Institutional PAC – Average	0.21	0.06
Institutional PAC – Change	-0.04	0.05
IRF in Market	0.49	-0.02
Ownership – Government	-0.21	0.08
Part of Health System	0.50	0.03
Resident-Bed Ratio	0.13	0.15
SNF Beds per 10,000 in Market	-0.45	-0.10
Standardized Part A&B Payment – Average	0.41	0.06
Standardized Part A&B Payment – Change	-0.01	0.01
Urban	0.47	0.01

Note: See the first page of this appendix for data sources and more information.

Exhibit E.8: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Cardiac Defibrillator

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.18	-0.09
DSH Patient %	-0.01	-0.06
Efficiency Measure	0.34	-0.01
Episode Volume	-0.06	0.15
Hospital Market Share	-0.50	0.03
IRF in Market	0.48	0.06
Ownership – Government	0.04	-0.08
Part of Health System	0.18	0.33
Resident-Bed Ratio	-0.04	0.00
SNF Beds per 10,000 in Market	-0.46	0.17
Standardized Part A&B Payment – Average	0.29	0.05
Standardized Part A&B Payment – Change	-0.03	0.10
Urban	0.27	0.00

Note: See the first page of this appendix for data sources and more information.

Exhibit E.9: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Cellulitis

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.36	0.03
DSH Patient %	-0.07	-0.03
Efficiency Measure	0.23	-0.07
Episode Volume	0.36	0.04
Hospital Market Share	-0.14	-0.10
Institutional PAC – Average	0.11	-0.01
Institutional PAC – Change	-0.04	-0.11
IRF in Market	0.46	-0.04
Ownership – Government	-0.20	0.09
Part of Health System	0.48	0.00
Resident-Bed Ratio	0.13	-0.02
SNF Beds per 10,000 in Market	-0.33	-0.05
Standardized Part A&B Payment – Average	0.36	-0.01
Standardized Part A&B Payment – Change	-0.01	-0.04
Urban	0.47	-0.03

Note: See the first page of this appendix for data sources and more information.

Exhibit E.10: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.53	-0.05
DSH Patient %	-0.02	0.12
Efficiency Measure	0.24	0.01
Episode Volume	0.39	-0.04
Hospital Market Share	-0.03	-0.13
Institutional PAC – Average	0.14	0.04
Institutional PAC – Change	0.00	-0.01
IRF in Market	0.53	-0.03
Ownership – Government	-0.36	0.04
Part of Health System	0.64	0.05
Resident-Bed Ratio	0.20	0.02
SNF Beds per 10,000 in Market	-0.43	-0.05
Standardized Part A&B Payment – Average	0.51	0.06
Standardized Part A&B Payment – Change	0.00	-0.01
Urban	0.57	-0.06

Note: See the first page of this appendix for data sources and more information.

Exhibit E.11: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Congestive Heart Failure

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.39	-0.05
DSH Patient %	0.06	0.06
Efficiency Measure	0.42	0.17
Episode Volume	0.39	-0.06
Hospital Market Share	-0.08	-0.01
Institutional PAC – Average	0.16	0.07
Institutional PAC – Change	0.01	-0.06
IRF in Market	0.54	-0.03
Ownership – Government	-0.25	0.03
Part of Health System	0.60	-0.07
Resident-Bed Ratio	0.15	-0.04
SNF Beds per 10,000 in Market	-0.50	-0.08
Standardized Part A&B Payment – Average	0.77	0.12
Standardized Part A&B Payment – Change	-0.06	0.02
Urban	0.56	0.04

Note: See the first page of this appendix for data sources and more information.

Exhibit E.12: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Coronary Artery Bypass Graft

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.20	0.18
DSH Patient %	0.07	0.46
Efficiency Measure	0.24	-0.10
Episode Volume	-0.03	-0.01
Hospital Market Share	-0.52	-0.07
Institutional PAC – Average	0.33	-0.16
Institutional PAC – Change	-0.16	-0.08
IRF in Market	0.41	-0.07
Ownership – Government	0.12	0.18
Part of Health System	0.11	0.00
Resident-Bed Ratio	0.01	-0.05
SNF Beds per 10,000 in Market	-0.46	-0.45
Standardized Part A&B Payment – Average	0.48	0.00
Standardized Part A&B Payment – Change	-0.34	-0.04
Urban	0.18	0.00

Note: See the first page of this appendix for data sources and more information.

Exhibit E.13: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Disorders of Liver Except Malignancy, Cirrhosis, or Alcoholic Hepatitis

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.13	0.12
DSH Patient %	0.10	-0.01
Efficiency Measure	0.19	-0.15
Episode Volume	-0.04	0.04
Hospital Market Share	-0.49	-0.31
Institutional PAC – Average	0.18	0.08
Institutional PAC – Change	-0.29	0.09
IRF in Market	0.44	-0.17
Ownership – Government	-0.16	-0.34
Part of Health System	0.00	0.00
Resident-Bed Ratio	-0.05	0.17
SNF Beds per 10,000 in Market	0.07	0.03
Standardized Part A&B Payment – Average	0.19	0.03
Standardized Part A&B Payment – Change	-0.34	0.01
Urban	-0.08	-0.10

Note: See the first page of this appendix for data sources and more information.

Exhibit E.14: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Fractures of the Femur and Hip or Pelvis

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.06	-0.12
DSH Patient %	-0.03	-0.05
Efficiency Measure	0.38	0.30
Episode Volume	0.13	0.15
Hospital Market Share	-0.44	0.05
Institutional PAC – Average	0.14	0.12
Institutional PAC – Change	-0.04	-0.09
IRF in Market	0.33	-0.05
Ownership – Government	-0.12	-0.08
Part of Health System	0.00	0.00
Resident-Bed Ratio	0.20	-0.03
SNF Beds per 10,000 in Market	-0.16	0.00
Standardized Part A&B Payment – Average	0.48	0.15
Standardized Part A&B Payment – Change	-0.10	0.22
Urban	0.25	0.12

Note: See the first page of this appendix for data sources and more information.

Exhibit E.15: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Gastrointestinal Hemorrhage

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.13	0.06
DSH Patient %	0.12	0.10
Efficiency Measure	0.41	0.02
Episode Volume	0.27	0.02
Hospital Market Share	-0.27	-0.03
Institutional PAC – Average	0.43	0.08
Institutional PAC – Change	-0.09	-0.07
IRF in Market	0.49	0.08
Ownership – Government	-0.32	-0.03
Part of Health System	0.39	-0.09
Resident-Bed Ratio	0.12	0.08
SNF Beds per 10,000 in Market	-0.30	0.05
Standardized Part A&B Payment – Average	0.60	0.08
Standardized Part A&B Payment – Change	-0.13	-0.01
Urban	0.41	0.06

Note: See the first page of this appendix for data sources and more information.

Exhibit E.16: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Gastrointestinal Obstruction

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.06	-0.06
DSH Patient %	0.12	-0.03
Efficiency Measure	0.30	0.05
Episode Volume	0.19	-0.04
Hospital Market Share	-0.30	-0.02
Institutional PAC – Average	0.31	0.11
Institutional PAC – Change	-0.03	0.00
IRF in Market	0.45	0.01
Ownership – Government	-0.26	-0.10
Part of Health System	0.30	-0.04
Resident-Bed Ratio	0.14	0.02
SNF Beds per 10,000 in Market	-0.28	0.03
Standardized Part A&B Payment – Average	0.46	0.02
Standardized Part A&B Payment – Change	-0.04	0.09
Urban	0.31	0.12

Note: See the first page of this appendix for data sources and more information.

Exhibit E.17: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Hip and Femur Procedures Except Major Joint

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.27	0.04
DSH Patient %	0.02	0.06
Efficiency Measure	0.34	-0.02
Episode Volume	0.25	0.08
Hospital Market Share	-0.20	-0.09
Institutional PAC – Average	0.31	-0.04
Institutional PAC – Change	-0.01	0.25
IRF in Market	0.61	0.08
Ownership – Government	-0.20	-0.10
Part of Health System	0.39	0.14
Resident-Bed Ratio	0.28	0.13
SNF Beds per 10,000 in Market	-0.32	-0.07
Standardized Part A&B Payment – Average	0.49	-0.11
Standardized Part A&B Payment – Change	-0.17	0.04
Urban	0.46	-0.06

Note: See the first page of this appendix for data sources and more information.

Exhibit E.18: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Lower Extremity and Humerus Procedure Except Hip, Foot, Femur

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.29	0.10
DSH Patient %	-0.09	0.04
Efficiency Measure	0.12	-0.27
Episode Volume	0.22	0.00
Hospital Market Share	-0.45	-0.24
Institutional PAC – Average	0.28	-0.22
Institutional PAC – Change	-0.13	-0.24
IRF in Market	0.53	0.09
Ownership – Government	-0.12	0.00
Part of Health System	0.04	-0.29
Resident-Bed Ratio	0.22	0.14
SNF Beds per 10,000 in Market	-0.11	-0.12
Standardized Part A&B Payment – Average	0.41	-0.07
Standardized Part A&B Payment – Change	-0.20	-0.17
Urban	0.26	-0.21

Note: See the first page of this appendix for data sources and more information.

Exhibit E.19: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Major Bowel Procedure

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.05	0.18
DSH Patient %	0.15	0.01
Efficiency Measure	0.78	0.01
Episode Volume	-0.25	-0.03
Hospital Market Share	-0.34	-0.14
Institutional PAC – Average	0.85	-0.10
Institutional PAC – Change	-0.18	0.03
IRF in Market	0.47	0.00
Ownership – Government	-0.19	0.09
Part of Health System	0.29	0.20
Resident-Bed Ratio	0.05	0.00
SNF Beds per 10,000 in Market	-0.31	-0.26
Standardized Part A&B Payment – Average	0.78	-0.06
Standardized Part A&B Payment – Change	-0.07	0.16
Urban	0.44	0.09

Note: See the first page of this appendix for data sources and more information.

Exhibit E.20: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Major Joint Replacement of the Lower Extremity

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.34	0.01
DSH Patient %	0.06	0.08
Efficiency Measure	0.52	0.08
Episode Volume	0.20	-0.13
Hospital Market Share	-0.08	-0.10
Institutional PAC – Average	0.41	0.12
Institutional PAC – Change	-0.17	-0.08
IRF in Market	0.69	-0.13
OP Surgery Department	-0.01	0.00
Ownership – Government	-0.25	-0.07
Part of Health System	0.53	0.06
Resident-Bed Ratio	0.32	0.04
SNF Beds per 10,000 in Market	-0.36	-0.01
Standardized Part A&B Payment – Average	0.52	0.06
Standardized Part A&B Payment – Change	-0.06	0.06
Urban	0.53	-0.12

Note: See the first page of this appendix for data sources and more information.

Exhibit E.21: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Pacemaker

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.26	0.17
DSH Patient %	0.02	0.08
Efficiency Measure	0.57	-0.06
Episode Volume	0.14	0.10
Hospital Market Share	-0.61	0.03
Institutional PAC – Average	0.63	0.11
Institutional PAC – Change	-0.07	0.27
IRF in Market	0.64	-0.22
Ownership – Government	0.06	0.00
Part of Health System	0.22	0.00
Resident-Bed Ratio	-0.04	0.18
SNF Beds per 10,000 in Market	-0.43	-0.18
Standardized Part A&B Payment – Average	0.85	0.04
Standardized Part A&B Payment – Change	-0.06	0.02
Urban	0.40	0.00

Note: See the first page of this appendix for data sources and more information.

Exhibit E.22: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Percutaneous Coronary Intervention (IP)

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.13	-0.01
DSH Patient %	0.02	-0.09
Efficiency Measure	0.65	0.20
Episode Volume	0.01	-0.12
Hospital Market Share	-0.49	0.03
Institutional PAC – Average	0.42	0.07
Institutional PAC – Change	0.03	0.02
IRF in Market	0.60	-0.13
Ownership – Government	0.01	-0.09
Part of Health System	0.20	0.00
Resident-Bed Ratio	0.02	-0.01
SNF Beds per 10,000 in Market	-0.48	-0.07
Standardized Part A&B Payment – Average	0.68	0.12
Standardized Part A&B Payment – Change	-0.03	0.11
Urban	0.41	0.08

Note: See the first page of this appendix for data sources and more information.

Exhibit E.23: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Percutaneous Coronary Intervention (OP)

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	-0.12	-0.20
DSH Patient %	-0.04	0.07
Efficiency Measure	0.34	0.40
Episode Volume	0.04	-0.13
Hospital Market Share	-0.48	0.02
IRF in Market	0.57	-0.11
Ownership – Government	0.10	0.00
Part of Health System	0.29	0.00
Resident-Bed Ratio	0.07	0.01
SNF Beds per 10,000 in Market	-0.51	-0.04
Standardized Part A&B Payment – Average	0.49	0.15
Standardized Part A&B Payment – Change	-0.08	-0.14
Urban	0.35	0.00

Note: See the first page of this appendix for data sources and more information.

Exhibit E.24: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Renal Failure

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.32	-0.04
DSH Patient %	-0.02	0.08
Efficiency Measure	0.12	-0.04
Episode Volume	0.35	0.01
Hospital Market Share	-0.10	-0.05
Institutional PAC – Average	0.16	0.05
Institutional PAC – Change	-0.03	0.01
IRF in Market	0.43	0.00
Ownership – Government	-0.22	0.04
Part of Health System	0.46	0.07
Resident-Bed Ratio	0.16	0.19
SNF Beds per 10,000 in Market	-0.32	-0.02
Standardized Part A&B Payment – Average	0.39	0.05
Standardized Part A&B Payment – Change	-0.03	0.04
Urban	0.44	0.04

Note: See the first page of this appendix for data sources and more information.

Exhibit E.25: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Seizures

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.03	0.16
DSH Patient %	-0.10	-0.08
Efficiency Measure	0.18	0.05
Episode Volume	0.04	-0.01
Hospital Market Share	-0.40	0.18
Institutional PAC – Average	0.26	0.09
Institutional PAC – Change	-0.21	-0.14
IRF in Market	0.36	-0.13
Ownership – Government	-0.24	0.03
Part of Health System	0.26	0.16
Resident-Bed Ratio	0.00	0.16
SNF Beds per 10,000 in Market	-0.34	-0.06
Standardized Part A&B Payment – Average	0.28	0.10
Standardized Part A&B Payment – Change	-0.14	-0.06
Urban	0.32	0.00

Note: See the first page of this appendix for data sources and more information.

Exhibit E.26: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Sepsis

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.45	-0.02
DSH Patient %	-0.06	0.10
Efficiency Measure	0.30	0.06
Episode Volume	0.44	-0.02
Hospital Market Share	-0.01	-0.02
Institutional PAC – Average	0.26	0.07
Institutional PAC – Change	0.00	0.00
IRF in Market	0.53	-0.02
Ownership – Government	-0.31	0.09
Part of Health System	0.58	0.04
Resident-Bed Ratio	0.17	0.13
SNF Beds per 10,000 in Market	-0.41	-0.06
Standardized Part A&B Payment – Average	0.52	0.11
Standardized Part A&B Payment – Change	-0.06	-0.01
Urban	0.55	0.03

Note: See the first page of this appendix for data sources and more information.

Exhibit E.27: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Simple Pneumonia and Respiratory Infections

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.54	-0.06
DSH Patient %	-0.04	0.14
Efficiency Measure	0.20	0.00
Episode Volume	0.39	-0.07
Hospital Market Share	-0.02	-0.19
Institutional PAC – Average	0.12	0.03
Institutional PAC – Change	0.02	0.10
IRF in Market	0.55	-0.02
Ownership – Government	-0.33	0.04
Part of Health System	0.66	0.04
Resident-Bed Ratio	0.23	0.01
SNF Beds per 10,000 in Market	-0.45	-0.04
Standardized Part A&B Payment – Average	0.54	0.02
Standardized Part A&B Payment – Change	-0.14	-0.03
Urban	0.58	-0.05

Note: See the first page of this appendix for data sources and more information.

Exhibit E.28: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Spinal Fusion

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.01	0.14
DSH Patient %	0.02	0.00
Efficiency Measure	0.37	0.10
Episode Volume	0.23	0.09
Hospital Market Share	-0.35	-0.16
Institutional PAC – Average	0.48	0.02
Institutional PAC – Change	-0.08	-0.02
IRF in Market	0.60	-0.07
Ownership – Government	-0.24	-0.05
Part of Health System	0.26	-0.07
Resident-Bed Ratio	0.24	0.03
SNF Beds per 10,000 in Market	-0.24	0.00
Standardized Part A&B Payment – Average	0.47	0.04
Standardized Part A&B Payment – Change	0.07	0.15
Urban	0.24	-0.09

Note: See the first page of this appendix for data sources and more information.

Exhibit E.29: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Stroke

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.14	-0.09
DSH Patient %	0.02	0.06
Efficiency Measure	0.16	0.10
Episode Volume	0.14	-0.03
Hospital Market Share	-0.22	-0.06
Institutional PAC – Average	0.15	0.05
Institutional PAC – Change	0.06	-0.02
IRF in Market	0.51	0.12
Ownership – Government	-0.22	-0.11
Part of Health System	0.36	0.00
Resident-Bed Ratio	0.14	0.12
SNF Beds per 10,000 in Market	-0.35	0.11
Standardized Part A&B Payment – Average	0.38	0.10
Standardized Part A&B Payment – Change	0.00	0.04
Urban	0.47	0.02

Note: See the first page of this appendix for data sources and more information.

Exhibit E.30: Standardized Differences of Matching Variables Before and After Matching, Hospitals, Urinary Tract Infection

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Average Case Weight of Discharges	0.43	0.07
DSH Patient %	0.01	0.17
Efficiency Measure	0.26	0.06
Episode Volume	0.27	-0.01
Hospital Market Share	-0.06	-0.04
Institutional PAC – Average	0.17	-0.03
Institutional PAC – Change	-0.04	0.04
IRF in Market	0.37	-0.07
Ownership – Government	-0.26	0.19
Part of Health System	0.60	0.08
Resident-Bed Ratio	0.18	0.19
SNF Beds per 10,000 in Market	-0.38	-0.02
Standardized Part A&B Payment – Average	0.48	0.09
Standardized Part A&B Payment – Change	-0.01	-0.01
Urban	0.46	-0.03

Note: See the first page of this appendix for data sources and more information.

D. Standardized Mean Differences – Physician Group Practices

Exhibit E.31: Standardized Differences of Matching Variables Before and After Matching, PGPs, Acute Myocardial Infarction

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.49	0.13
HCC Score	-0.08	0.45
Institutional PAC – Average	0.13	0.14
Institutional PAC – Change	0.04	-0.13
Number of Hospitals – 3+	0.90	0.00
Percent Disabled, No ESRD	-0.07	0.02
Percent Dual Eligible	-0.12	0.04
Percent Female	0.10	0.13
Percent Over 80 Years Old	0.06	0.14
PGP in Multiple CBSAs	0.88	0.00
Standardized Part A&B Payment – Average	0.26	0.18
Standardized Part A&B Payment – Change	-0.14	-0.19

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.32: Standardized Differences of Matching Variables Before and After Matching, PGPs, Back and Neck Except Spinal Fusion

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.58	0.20
HCC Score	-0.06	0.03
Number of Hospitals – 3+	0.51	-0.11
Percent Disabled, No ESRD	-0.76	0.01
Percent Dual Eligible	-0.84	0.13
Percent Female	-0.26	0.05
Percent Over 80 Years Old	0.08	0.15
PGP in Multiple CBSAs	0.39	0.00
Standardized Part A&B Payment – Average	0.14	-0.14
Standardized Part A&B Payment – Change	0.00	0.16

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.33: Standardized Differences of Matching Variables Before and After Matching, PGPs, Cardiac Arrhythmia

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.48	0.00
HCC Score	-0.12	0.15
Institutional PAC – Average	0.37	0.07
Institutional PAC – Change	0.01	0.06
Number of Hospitals – 3+	0.71	0.12
Percent Disabled, No ESRD	0.03	-0.24
Percent Dual Eligible	0.06	-0.21
Percent Female	0.06	-0.20
Percent Over 80 Years Old	0.22	0.19
PGP in Multiple CBSAs	0.79	0.04
Standardized Part A&B Payment – Average	0.46	0.17
Standardized Part A&B Payment – Change	-0.04	-0.17

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.34: Standardized Differences of Matching Variables Before and After Matching, PGPs, Cellulitis

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.49	0.05
HCC Score	-0.28	0.02
Institutional PAC – Average	0.12	-0.10
Institutional PAC – Change	0.07	0.27
Mortality Rate 90-Day – Average	0.17	0.03
Mortality Rate 90-Day – Change	-0.03	0.12
Number of Hospitals – 3+	0.82	-0.05
Number of NPIs – Large	0.32	-0.13
Number of NPIs – Small	-0.37	0.18
Part of Health System	0.00	0.00
Percent Disabled, No ESRD	-0.25	0.01
Percent Dual Eligible	-0.14	-0.22
Percent Episodes with IP Stay in 180 Days Prior	-0.35	-0.31
Percent Female	0.01	0.05
Percent Over 80 Years Old	0.24	0.07
PGP in Multiple CBSAs	0.91	0.00
Population – Continuous	0.16	-0.15
Readmission Rate 90-Day – Average	-0.12	-0.03
Readmission Rate 90-Day – Change	-0.20	-0.15

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Standardized Part A&B Payment – Average	0.27	-0.04
Standardized Part A&B Payment – Change	-0.01	0.08
Urban	0.21	-0.15

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.35: Standardized Differences of Matching Variables Before and After Matching, PGPs, Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.62	-0.04
HCC Score	-0.03	-0.16
Institutional PAC – Average	-0.06	0.00
Institutional PAC – Change	0.14	-0.13
Number of Hospitals – 3+	0.85	-0.11
Percent Disabled, No ESRD	-0.13	-0.08
Percent Dual Eligible	-0.23	-0.25
Percent Female	-0.23	-0.15
Percent Over 80 Years Old	-0.11	-0.12
PGP in Multiple CBSAs	0.96	-0.04
Standardized Part A&B Payment – Average	0.19	0.01
Standardized Part A&B Payment – Change	0.16	0.03

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.36: Standardized Differences of Matching Variables Before and After Matching, PGPs, Congestive Heart Failure

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.58	-0.07
HCC Score	-0.20	0.02
Institutional PAC – Average	-0.17	-0.22
Institutional PAC – Change	-0.09	-0.11
Number of Hospitals – 3+	0.73	0.13
Percent Disabled, No ESRD	0.04	0.08
Percent Dual Eligible	-0.06	0.18
Percent Female	-0.10	0.00
Percent Over 80 Years Old	-0.12	-0.20
PGP in Multiple CBSAs	0.71	-0.03
Standardized Part A&B Payment – Average	0.03	0.18
Standardized Part A&B Payment – Change	-0.18	-0.08

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.37: Standardized Differences of Matching Variables Before and After Matching, PGPs, Gastrointestinal Hemorrhage

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.48	0.31
HCC Score	-0.13	-0.10
Institutional PAC – Average	0.05	-0.03
Institutional PAC – Change	-0.15	-0.01
Mortality Rate 90-Day – Average	0.20	-0.03
Mortality Rate 90-Day – Change	0.11	-0.08
Number of Hospitals – 3+	0.86	0.09
Number of NPIs – Large	0.54	0.18
Number of NPIs – Small	-0.18	0.13
Part of Health System	0.00	0.00
Percent Disabled, No ESRD	-0.03	0.11
Percent Dual Eligible	-0.08	-0.13
Percent Episodes with IP Stay in 180 Days Prior	-0.15	-0.01
Percent Female	0.06	0.06
Percent Over 80 Years Old	-0.28	-0.15
PGP in Multiple CBSAs	0.85	0.00
Population – Continuous	-0.05	0.04
Readmission Rate 90-Day – Average	0.05	-0.13
Readmission Rate 90-Day – Change	0.03	-0.23
Standardized Part A&B Payment – Average	0.37	-0.07
Standardized Part A&B Payment – Change	-0.23	-0.16
Urban	-0.17	0.05

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.38: Standardized Differences of Matching Variables Before and After Matching, PGPs, Gastrointestinal Obstruction

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.46	0.04
HCC Score	-0.21	-0.31
Institutional PAC – Average	0.13	0.02
Institutional PAC – Change	-0.01	-0.69
Number of Hospitals – 3+	0.88	0.00
Percent Disabled, No ESRD	-0.12	0.10
Percent Dual Eligible	-0.04	0.23
Percent Female	0.05	-0.04

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Percent Over 80 Years Old	0.17	0.08
PGP in Multiple CBSAs	0.83	0.00
Standardized Part A&B Payment – Average	0.09	-0.21
Standardized Part A&B Payment – Change	-0.16	-0.49

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.39: Standardized Differences of Matching Variables Before and After Matching, PGPs, Hip & Femur Procedures Except Major Joint

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.29	-0.01
HCC Score	-0.08	-0.22
Institutional PAC – Average	0.06	-0.26
Institutional PAC – Change	-0.11	0.02
Mortality Rate 90-Day – Average	-0.11	-0.19
Mortality Rate 90-Day – Change	0.05	-0.21
Number of Hospitals – 3+	0.87	0.08
Number of NPIs – Large	-0.20	-0.20
Number of NPIs – Small	0.24	-0.08
Part of Health System	0.00	0.00
Percent Disabled, No ESRD	-0.04	-0.23
Percent Dual Eligible	-0.35	-0.07
Percent Episodes with IP Stay in 180 Days Prior	0.06	-0.36
Percent Female	0.47	-0.11
Percent Over 80 Years Old	-0.52	-0.07
PGP in Multiple CBSAs	0.43	-0.08
Population – Continuous	-0.15	0.00
Readmission Rate 90-Day – Average	0.16	0.01
Readmission Rate 90-Day – Change	-0.07	-0.16
Standardized Part A&B Payment – Average	-0.34	-0.35
Standardized Part A&B Payment – Change	-0.02	-0.24
Urban	0.11	0.00

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.40: Standardized Differences of Matching Variables Before and After Matching, PGPs, Major Joint Replacement of the Lower Extremity

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.76	0.10
HCC Score	-0.23	0.00
Institutional PAC – Average	-0.08	0.03
Institutional PAC – Change	-0.57	-0.13
Number of Hospitals – 3+	0.62	0.04
Percent Disabled, No ESRD	-0.15	0.05
Percent Dual Eligible	-0.18	0.00
Percent Female	-0.15	0.01
Percent Over 80 Years Old	-0.25	-0.08
PGP in Multiple CBSAs	0.32	0.04
Standardized Part A&B Payment – Average	-0.19	0.00
Standardized Part A&B Payment – Change	-0.42	-0.20

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.41: Standardized Differences of Matching Variables Before and After Matching, PGPs, Major Joint Replacement of the Upper Extremity

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.54	-0.12
HCC Score	-0.43	-0.06
Institutional PAC – Average	-0.01	0.13
Institutional PAC – Change	-0.03	-0.06
Number of Hospitals – 3+	0.28	-0.06
Percent Disabled, No ESRD	-0.40	0.02
Percent Dual Eligible	-0.29	0.02
Percent Female	0.02	0.23
Percent Over 80 Years Old	0.16	0.23
PGP in Multiple CBSAs	0.07	-0.06
Standardized Part A&B Payment – Average	-0.07	0.12
Standardized Part A&B Payment – Change	-0.11	-0.10

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.42: Standardized Differences of Matching Variables Before and After Matching, PGPs, Renal Failure

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.51	-0.01
HCC Score	-0.50	-0.02
Institutional PAC – Average	0.17	0.06
Institutional PAC – Change	0.03	-0.30
Number of Hospitals – 3+	0.82	0.00
Percent Disabled, No ESRD	-0.14	0.05
Percent Dual Eligible	-0.13	0.02
Percent Female	0.04	-0.12
Percent Over 80 Years Old	0.14	-0.03
PGP in Multiple CBSAs	0.90	0.04
Standardized Part A&B Payment – Average	0.02	-0.01
Standardized Part A&B Payment – Change	-0.19	-0.30

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.43: Standardized Differences of Matching Variables Before and After Matching, PGPs, Seizures

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.36	0.11
HCC Score	0.08	-0.17
Institutional PAC – Average	0.49	-0.04
Institutional PAC – Change	0.07	-0.18
Number of Hospitals – 3+	0.89	0.10
Percent Disabled, No ESRD	-0.53	-0.12
Percent Dual Eligible	-0.41	0.10
Percent Female	0.23	0.35
Percent Over 80 Years Old	0.56	0.07
PGP in Multiple CBSAs	1.11	0.10
Standardized Part A&B Payment – Average	0.26	0.28
Standardized Part A&B Payment – Change	-0.06	-0.18

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.44: Standardized Differences of Matching Variables Before and After Matching, PGPs, Sepsis

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.64	0.12
HCC Score	-0.34	-0.01
Institutional PAC – Average	-0.21	-0.03
Institutional PAC – Change	-0.12	0.07
Mortality Rate 90-Day – Average	-0.14	0.17
Mortality Rate 90-Day – Change	0.22	0.15
Number of Hospitals – 3+	0.81	-0.07
Number of NPIs – Large	0.82	-0.08
Number of NPIs – Small	-0.52	0.00
Part of Health System	0.00	0.00
Percent Disabled, No ESRD	0.03	-0.24
Percent Dual Eligible	-0.28	-0.20
Percent Episodes with IP Stay in 180 Days Prior	-0.32	-0.07
Percent Female	0.17	0.13
Percent Over 80 Years Old	-0.13	0.20
PGP in Multiple CBSAs	0.80	-0.14
Population – Continuous	-0.17	0.10
Readmission Rate 90-Day – Average	-0.44	-0.16
Readmission Rate 90-Day – Change	-0.13	0.05
Standardized Part A&B Payment – Average	-0.21	0.13
Standardized Part A&B Payment – Change	-0.15	0.02
Urban	-0.07	0.08

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.45: Standardized Differences of Matching Variables Before and After Matching, PGPs, Simple Pneumonia and Respiratory Infections

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.62	0.07
HCC Score	-0.29	0.08
Institutional PAC – Average	-0.22	-0.16
Institutional PAC – Change	0.11	-0.02
Mortality Rate 90-Day – Average	0.01	-0.12
Mortality Rate 90-Day – Change	0.08	0.14
Number of Hospitals – 3+	0.76	-0.10
Number of NPIs – Large	0.59	0.07
Number of NPIs – Small	-0.63	0.00

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Part of Health System	0.00	0.00
Percent Disabled, No ESRD	-0.14	0.13
Percent Dual Eligible	-0.30	0.01
Percent Episodes with IP Stay in 180 Days Prior	-0.53	-0.01
Percent Female	-0.19	-0.03
Percent Over 80 Years Old	0.06	-0.13
PGP in Multiple CBSAs	0.83	-0.21
Population – Continuous	-0.11	0.06
Readmission Rate 90-Day – Average	-0.19	0.12
Readmission Rate 90-Day – Change	0.05	0.04
Standardized Part A&B Payment – Average	-0.05	0.09
Standardized Part A&B Payment – Change	-0.03	-0.19
Urban	0.06	-0.09

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.46: Standardized Differences of Matching Variables Before and After Matching, PGPs, Spinal Fusion

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.93	-0.21
HCC Score	-0.29	0.56
Institutional PAC – Average	-0.13	0.39
Institutional PAC – Change	-0.37	0.04
Number of Hospitals – 3+	0.65	-0.24
Percent Disabled, No ESRD	-0.72	-0.16
Percent Dual Eligible	-0.87	-0.12
Percent Female	-0.05	-0.22
Percent Over 80 Years Old	0.27	-0.12
PGP in Multiple CBSAs	0.43	0.45
Share in MS-DRG 453	-0.03	0.22
Share in MS-DRG 454	0.05	0.29
Share in MS-DRG 455	0.34	0.21
Share in MS-DRG 459	-0.18	0.32
Share in MS-DRG 460	0.30	-0.32
Share in MS-DRG 471	-0.71	-0.12
Share in MS-DRG 472	-0.80	0.13
Share in MS-DRG 473	-0.37	-0.04
Standardized Part A&B Payment – Average	-0.12	0.40
Standardized Part A&B Payment – Change	-0.14	0.09

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.47: Standardized Differences of Matching Variables Before and After Matching, PGPs, Stroke

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.38	0.12
HCC Score	-0.21	0.01
Institutional PAC – Average	0.14	0.03
Institutional PAC – Change	-0.03	-0.02
Number of Hospitals – 3+	0.69	0.08
Percent Disabled, No ESRD	0.14	-0.17
Percent Dual Eligible	-0.09	-0.24
Percent Female	-0.04	0.09
Percent Over 80 Years Old	-0.18	0.17
PGP in Multiple CBSAs	0.84	0.00
Standardized Part A&B Payment – Average	0.09	0.02
Standardized Part A&B Payment – Change	-0.01	-0.05

Note: See the first page of this appendix for data sources and more information. The SMDs for some beneficiary demographics variables are not reported.

Exhibit E.48: Standardized Differences of Matching Variables Before and After Matching, PGPs, Urinary Tract Infection

Variable	Standardized Difference Before Matching	Standardized Difference After Matching
Episode Volume	0.58	0.07
HCC Score	-0.23	0.16
Institutional PAC – Average	0.10	-0.15
Institutional PAC – Change	-0.29	-0.15
Number of Hospitals – 3+	0.81	0.11
Percent Disabled, No ESRD	-0.31	0.04
Percent Dual Eligible	-0.28	-0.05
Percent Female	0.23	0.20
Percent Over 80 Years Old	0.17	-0.15
PGP in Multiple CBSAs	0.87	0.00
Standardized Part A&B Payment – Average	0.15	-0.07
Standardized Part A&B Payment – Change	-0.33	0.10

Note: See the first page of this appendix for data sources and more information. The SMD for some beneficiary demographics variables are not reported.

Appendix F: Participant Characteristics

The following exhibits display participant characteristics and reach results assessed in this report. Our analyses include a variety of data sources to provide information on the characteristics of BPCI Advanced hospitals and physician group practices (PGPs), and the reach of the model.

Data sources include:

- The BPCI Advanced Database, for number of participating hospitals and PGPs, convener status, and clinical episode service line group (CESLG) statistics, as well as to create indicators for participation in other data sources.
- Shared Savings Program Provider-Level Research Identifiable Files (RIFs) in combination with the BPCI Advanced Database to identify BPCI Advanced hospitals and PGPs also participating in the shared savings program using Tax Identification Numbers (TINs) and CMS Certification Numbers (CCNs).
- Provider of Service (POS) and Inpatient Prospective Payment System (IPPS) files for hospital facility and market characteristics. Some characteristics (indicated by an asterisk) are calculated as the average over 2013 through 2017, while others are for specific years.
- Medicare claims and enrollment data to identify PGPs that are considered active or inactive in the model (please see below), to assess reach to discharges and clinicians, to assess representativeness outside of the reconciliation sample, and to identify hospitals with episodes initiated by BPCI Advanced participating PGPs to assess areas with BPCI Advanced activity.
- The BPCI Advanced Model Year 5 Preliminary Target Pricing File, to identify eligible hospitals.
- BPCI Advanced Reconciliation Result Second True-Up Files for Performance Periods 1–9 to calculate the average per-episode reconciliation payment and annualized volume counts; episode-level reconciliation data to define the sample of patients with at least one reconciled episode in Model Years 4 (2021) and 5 (2022).

Using the sources above, we conducted descriptive analyses by calculating the means, counts, and percentages related to a variety of hospital characteristics, PGP characteristics, and patient characteristics. Asterisk (*) indicates that averages were calculated over the baseline period. As shown in Section A, we conduct many of our calculations for "leavers" compared to "stayers" in which "leavers" left prior to the following year and "stayers" were in the model at the start of the following year. Data for hospitals and PGPs that participated in Model Year 6 (2023) but left prior to Model Year 7 (2024) were not yet available at the time the report was written and are omitted from the exhibits below. We also removed "inactive" PGPs from our analyses, in which an "inactive PGP" indicates a PGP where we did not observe any discharges or procedures associated with the PGP's TIN within our claims database from 2013 through the model year. For example, an inactive TIN in Model Year 4 is a TIN with no volume from 2013 – 2021. PGPs may move into the active category if we observe discharges or procedures in later years (for example, an inactive PGP in Model Year 4 may become active in Model Year 5, and thus would be included in Model Year 5 statistics). In our count of total participation agreements and episode initiators, it should be

noted that multiple episode initiators can participate under the agreement of a single convener so there can be fewer participation agreements than episode initiators.

In our assessment of reach, displayed in Section B, eligible hospitals were limited to those that were eligible for BPCI Advanced in Model Year 5 and met the baseline volume criterion for at least one clinical episode. For example, this analysis excludes IPPS-exempt cancer hospitals and hospitals located in Maryland. The number of clinicians is a unique count of clinicians who treated Medicare beneficiaries who met the BPCI Advanced beneficiary inclusion criteria at a BPCI Advanced eligible hospital. Clinicians with BPCI Advanced discharges or procedures were identified as either attending or operating National Provider Identifiers (NPIs) at a BPCI Advanced hospital or the attending or operating NPI on the hospital claim when the episode was attributed to a BPCI Advanced PGP. Eligible discharges and procedures include hospital discharges and outpatient procedures that met the model eligibility requirements, including having a BPCI Advanced Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code, being at a hospital that was eligible to be in BPCI Advanced, and meeting other beneficiary inclusion criteria. The minimum hospital baseline volume criterion was not applied to eligible discharges and procedures.

In our representativeness analyses, included in Section C, we present exhibits with results for BPCI Advanced episodes, as well as for eligible Medicare fee-for-service (FFS) episodes nationwide. We assess the share of patients who are dually eligible for Medicare and Medicaid in four samples: Medicare FFS enrollees, patients with a discharge or procedure with a BPCI Advanced triggering MS-DRG or HSPCS code, patients with BPCI Advanced eligible discharges and procedures, and patients included in the BPCI Advanced reconciliation sample.

To calculate the average per-episode reconciliation payment and the average per-episode-initiator volume, we used the CMS BPCI Advanced Reconciliation Result Second True-Up Files for Performance Periods 1–9 to retrieve the reconciliation payments. Analyses using reconciliation data (reconciliation payment calculations and volume counts) were restricted to the sample of hospitals and PGPs that had at least one reconciled episode in the model year. The volume counts were annualized to account for hospitals and PGPs leaving prior to the end of the model year, by multiplying the number of episodes by 365 divided by the number of days when the hospital or PGP was a participant.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix. For more detail on the methods and data sources, see **Appendix C**.

A. BPCI Advanced Participation

Exhibit F.1: Total Participation Agreements and Episode Initiators, October 1, 2018 – December 31, 2023

Participation Counts	MY1&2	MY3	MY4	MY5	MY6
Total Number of Participation Agreements	1,086	1,707	986	749	237
Total Number of Episode Initiators	1,295	2,041	1,205	831	280
Total Number of Hospitals	715	1,010	682	435	106
Total Number of PGPs	580	1,031	523	396	174
Total Number of Active PGPs	513	690	386	307	87

Note: See the first page of this appendix for data sources and more information.

Exhibit F.2 Average Per-Episode-Initiator Reconciliation Volume by Participants That Left During the Model Year Versus Participants That Remained in the Model for the Following Model Year, BPCI Advanced, January 1, 2021 – December 31, 2022

Model Year	Participation Status	Average Per-Episode-Initiator Reconciliation Volume	
		Hospitals	PGPs
MY4	All Participants	377	266
	Stayed for MY5	454	292
	Left before MY5	242	165
MY5	All Participants	418	263
	Stayed for MY6	372	262
	Left before MY6	433	263

Note: See the first page of this appendix for data sources and more information.

Exhibit F.3: Average Number of CESLGs per Episode Initiator, January 1, 2021 – December 31, 2023

Model Year	Hospitals		PGPs	
	All Participants	Left the Model During the Model Year	All Participants	Left the Model During the Model Year
MY4	2.7	1.9	2.9	1.9
MY5	3.1	3.3	3.1	2.3
MY6	2.6	Data not yet available	5.4	Data not yet available

Note: See the first page of this appendix for data sources and more information.

Exhibit F.4: Count of Hospitals and PGPs by Participation Status, January 1, 2021 – December 31, 2022

Model Year	Participation Status	Hospitals	PGPs
MY4	All Participants	682	386
	Stayed for MY5	435	304
	Left before MY5	247	82
MY5	All Participants	435	307
	Stayed for MY6	106	87
	Left before MY6	329	220

Note: See the first page of this appendix for data sources and more information.

Exhibit F.5: Number of CESLGs Selected in Model Year 4 by Participation Decision in Model Year 5, Hospitals, January 1, 2021 – December 31, 2021

Count of CESLGs Selected	Hospitals in MY4 That Left Prior to MY5		Hospitals in MY4 That Stayed for MY5	
	Number	Percent (%)	Number	Percent (%)
1	114	46.2	75	17.2
2	81	32.8	110	25.3
3	31	12.6	88	20.2
4	13	5.3	71	16.3
5	3	1.2	46	10.6
6	1	0.4	29	6.7
7	2	0.8	11	2.5
8	2	0.8	5	1.1

Note: See the first page of this appendix for data sources and more information.

Exhibit F.6: Number of CESLGs Selected in Model Year 4 by Participation Decision in Model Year 5, PGPs, January 1, 2021 – December 31, 2021

Count of CESLGs Selected	PGPs in MY4 That Left Prior to MY5		PGPs in MY4 That Stayed for MY5	
	Number	Percent (%)	Number	Percent (%)
1	57	69.5	106	34.9
2	11	13.4	59	19.4
3	1	1.2	39	12.8
4	5	6.1	39	12.8
5	3	3.7	7	2.3
6	0	0.0	3	1.0
7	0	0.0	1	0.3
8	5	6.1	50	16.4

Note: See the first page of this appendix for data sources and more information.

Exhibit F.7: CESLG Selected by Hospitals Participating in Single CESLG, January 1, 2021 – December 31, 2021

Clinical Episode Type	CESLG	Hospitals in MY4 That Left Prior to MY5		Hospitals in MY4 That Stayed for MY5	
		Number	Percent (%)	Number	Percent (%)
Medical	Cardiac Care	21	18.4	11	14.7
	GI Care	3	2.6	6	8.0
	M&C Care	60	52.6	37	49.3
	Neurological Care	15	13.2	10	13.3
Surgical	Cardiac Procedures	1	0.9	0	0.0
	GI Surgery	2	1.8	0	0.0
	Orthopedics	8	7.0	5	6.7
	Spinal Procedures	4	3.5	6	8.0

Note: See the first page of this appendix for data sources and more information.

Exhibit F.8: CESLG Selected by PGP Participating in Single CESLG, January 1, 2021 – December 31, 2021

Clinical Episode Type	CESLG	PGPs in MY4 That Left Prior to MY5		PGPs in MY4 That Stayed for MY5	
		Number	Percent (%)	Number	Percent (%)
Medical	Cardiac Care	1	1.8	9	8.5
	GI Care	0	0.0	3	2.8
	M&C Care	5	8.8	31	29.2
	Neurological Care	0	0.0	5	4.7
Surgical	Cardiac Procedures	2	3.5	1	0.9
	GI Surgery	12	21.1	1	0.9
	Orthopedics	22	38.6	48	45.3
	Spinal Procedures	15	26.3	8	7.5

Note: See the first page of this appendix for data sources and more information.

Exhibit F.9: Number and Share of Downstream Episode Initiators (Hospitals and PGPs), January 1, 2021 – December 31, 2023

Model Year	Downstream Hospital Counts	Share of Hospitals (%)	Downstream PGP Counts	Share of PGPs (%)
MY4	580	85.0	213	55.2
MY4 Stayer	369	84.8	138	45.4
MY4 Leaver	211	85.4	75	91.5
MY5	369	84.8	138	45.0
MY5 Stayer	75	70.8	25	28.7
MY5 Leaver	294	89.4	113	51.4
MY6	75	70.8	25	28.7

Note: Three PGPs that were inactive in Model Year 4 became active in Model Year 5. See the first page of this appendix for data sources and more information.

Exhibit F.10: Number of Model Years 4 and 5 BPCI Advanced Hospitals and PGPs in Shared Savings Program, January 1, 2021 – December 31, 2022

Episode Initiator Type	MY4		MY5	
	Number of Episode Initiators Participating in the Shared Savings Program	Percentage of Episode Initiators Participating in the Shared Savings Program (%)	Number of Episode Initiators Participating in the Shared Savings Program	Percentage of Episode Initiators Participating in the Shared Savings Program (%)
Hospitals	179	26.2	116	26.7
Leavers	53	21.5	91	27.7
Stayers	126	29.0	25	23.6
PGPs	33	8.5	19	6.2
Leavers	14	17.1	12	5.5
Stayers	19	6.3	7	8.0

Note: See the first page of this appendix for data sources and more information.

Exhibit F.11: Average Per-Episode Reconciliation Payment by Participants That Left During the Model Year Versus Participants That Remained in the Model for the Following Model Year, BPCI Advanced, October 1, 2018 – December 31, 2022

Model Year	Participation Status	Average Per-Episode Reconciliation Payment	
		Hospitals	PGPs
MY1&2	All Participants	$1,188	$981
	Stayed for MY3	$1,308	$1,221
	Left before MY3	$615	$357
MY3	All Participants	$1,557	$2,098
	Stayed for MY4	$1,851	$2,234
	Left before MY4	$902	$1,916
MY4	All Participants	-$0	$777
	Stayed for MY5	$328	$869
	Left before MY5	-$579	$415
MY5	All Participants	-$55	$151
	Stayed for MY6	$578	$1,313
	Left before MY6	-$259	-$357

Note: See the first page of this appendix for data sources and more information.

Exhibit F.12: Share of Hospitals and PGPs Participating in Each CESLG, January 1, 2022 – December 31, 2022

Clinical Episode Type	CESLG	Hospitals		PGPs	
		Number	Percent (%)	Number	Percent (%)
Medical	Cardiac Care	266	61.1	175	57.0
	GI Care	184	42.3	125	40.7
	M&C Care	336	77.2	201	65.5
	Neurological Care	225	51.7	148	48.2
Surgical	Cardiac Procedures	68	15.6	68	22.1
	GI Surgery	54	12.4	54	17.6
	Orthopedics	123	28.3	128	41.7
	Spinal Procedures	96	22.1	82	26.7

Note: See the first page of this appendix for data sources and more information.

B. BPCI Advanced Reach

Exhibit F.13: Characteristics of BPCI Advanced Hospitals, January 1, 2020 – December 31, 2023

Characteristic Type	Characteristic	Model Year			
		MY3	MY4	MY5	MY6
Sample Size	Number of Hospitals in Model	996	675	430	105
Ownership Status	Government Ownership	5.2%	5.6%	6.7%	12.4%
	Nonprofit Ownership	26.1%	29.0%	21.6%	34.3%
	For-Profit Ownership	68.7%	65.3%	71.6%	53.3%
Bed Count	Bed Count*	326.7	329.4	332.9	338.2
	Bed Count (2020)	270.3	276.4	279.9	283.8
	Bed Count (2023)	277.4	285.7	289.5	292.3
Census Region	Midwest	24.5%	23.1%	24.9%	12.4%
	Northeast	14.5%	14.1%	16.3%	16.2%
	South	40.7%	42.4%	39.1%	45.7%
	West	20.4%	20.4%	19.8%	25.7%
Rural or Urban	Urban	89.5%	90.4%	90.2%	92.4%
	Rural	10.5%	9.6%	9.8%	7.6%
Medicare Advantage Penetration	2013-2017 Average	34.5%	35.1%	33.9%	35.3%
	2020	40.0%	40.7%	40.0%	40.5%
	2022	46.1%	46.6%	46.1%	46.2%
Other Market Characteristics	Population*	3,736,602	4,023,103	4,253,180	4,735,398
	Per Capita Income*	$49,993	$50,486	$50,522	$49,522
	Staffed SNF Beds per 10,000*	52.1	50.8	50.9	47.1
Other Hospital Characteristics	Resident-to-Bed Ratio*	8.3%	8.7%	10.1%	10.9%
	Medicare Days*	38.3%	38.1%	38.3%	38.7%
	DSH Patient*	29.5%	29.8%	30.4%	34.7%
	Health System Indicator (2018)	96.9%	97.9%	97.9%	99.0%
	Case Mix Index*	1.7	1.7	1.7	1.7
	At Least 1 Year of BPCI Participation	20.1%	20.9%	23.5%	16.2%
	Safety-Net Hospital Status (2022)	18.2%	19.9%	21.6%	38.1%

Note: See the first page of this appendix for data sources and more information.

Exhibit F.14: Characteristics of BPCI Advanced Hospitals Continuing through Model Years 4 – 6, January 1, 2021 – December 31, 2023

Characteristic Type	Characteristic	Count in MY4	Percent of MY4 Continuing into MY5 (%)	Percent of MY4 Continuing into MY6 (%)
Ownership Status	Government Ownership	38	76.3	34.2
	Nonprofit Ownership	196	47.4	18.4
	For-Profit Ownership	441	69.8	12.7
Census Region	Midwest	156	68.6	8.3
	Northeast	95	73.7	17.9
	South	286	58.7	16.8
	West	138	61.6	19.6
Rural or Urban	Urban	610	63.6	15.9
	Rural	65	64.6	12.3
Other Hospital Characteristics	Health System Indicator (2018)	661	63.7	15.7
	At Least 1 Year of BPCI Participation	141	71.6	12.1
	Safety-Net Hospital Status (2022)	134	69.4	29.9

Note: See the first page of this appendix for data sources and more information.

Exhibit F.15: Number and Proportion of Eligible Hospitals That Participated in BPCI Advanced, January 1, 2021 – December 31, 2022

Model Year	Unique Number of Hospitals with Eligible Episodes	Unique Hospitals with BPCI Advanced Discharges	
		Number	Percent (%)
MY4	3,148	682	21.7
MY5	3,110	435	14.0

Note: See the first page of this appendix for data sources and more information.

Exhibit F.16: Number and Proportion of Eligible Discharges and Procedures in BPCI Advanced, by Clinical Episode Type, January 1, 2021 – December 31, 2022

Clinical Episode Type	MY4			MY5		
	Number of Eligible Discharges	BPCI Advanced Discharges		Number of Eligible Discharges	BPCI Advanced Discharges	
		Number	Percent (%)		Number	Percent (%)
Overall	3,257,463	615,381	18.9	3,244,520	383,630	11.8
Medical	2,174,404	507,675	23.3	2,091,900	293,316	14.0
Surgical	1,083,059	107,706	9.9	1,152,620	90,314	7.8

Note: See the first page of this appendix for data sources and more information.

Exhibit F.17: Number and Proportion of Clinicians with Eligible Discharges or Procedures Who Participated in BPCI Advanced, by Clinical Episode Type, January 1, 2021 – December 31, 2022

Clinical Episode Type	MY4			MY5		
	Unique Number of Clinicians with Eligible Episodes	Unique Clinicians with BPCI Advanced Discharges		Unique Number of Clinicians with Eligible Episodes	Unique Clinicians with BPCI Advanced Discharges	
		Number	Percent (%)		Number	Percent (%)
Overall	255,855	72,806	28.5	256,801	49,798	19.4
Medical	218,062	64,992	29.8	218,108	43,434	19.9
Surgical	127,118	16,554	13.0	126,548	12,463	9.8

Note: See the first page of this appendix for data sources and more information.

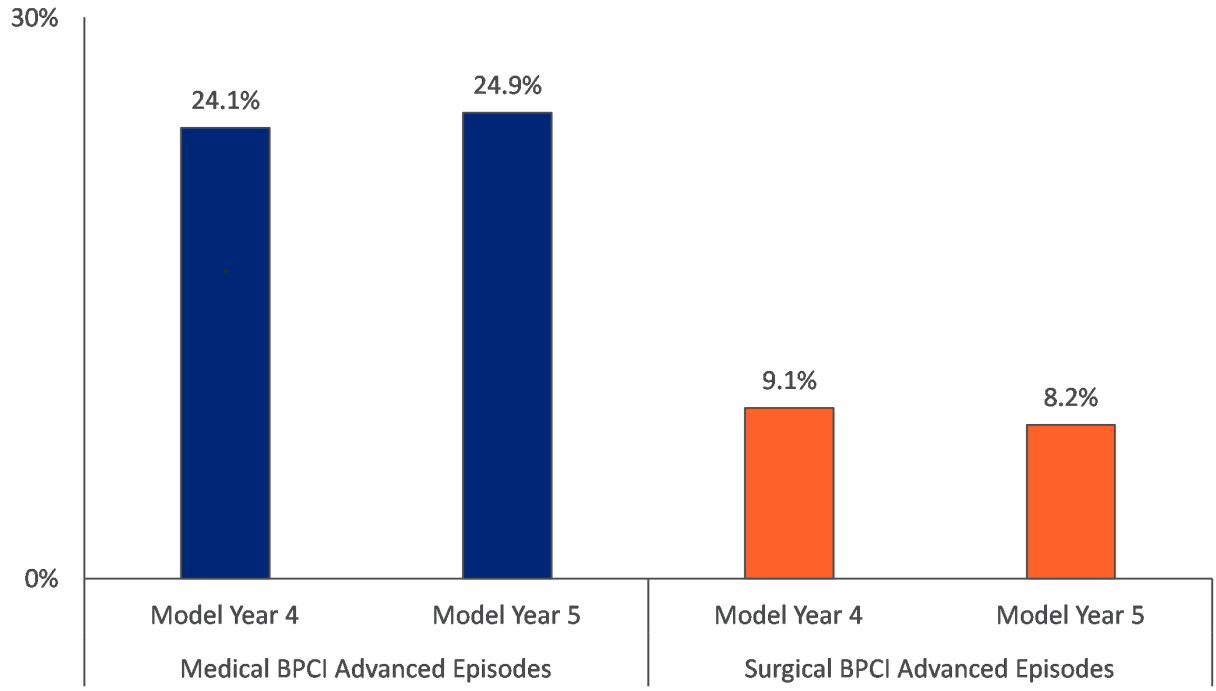
Exhibit F.18: Number of States with Hospitals or PGPs That Participated in BPCI Advanced, January 1, 2020 – December 31, 2022

Model Year	Number of States with Active BPCI Advanced Hospitals or PGPs
MY3	48
MY4	47
MY5	42

Note: See the first page of this appendix for data sources and more information.

C. BPCI Advanced Representativeness

Exhibit F.19: Share of Patients Who Are Dually Eligible for Medicare and Medicaid Among Patients with Medical and Surgical BPCI Advanced Episodes, January 1, 2021 – December 31, 2022



Note: See the first page of this appendix for data sources and more information.

Exhibit F.20: Share of Patients with a BPCI Advanced Discharge or Procedure Who Are Dually Eligible for Medicare and Medicaid, January 1, 2021 – December 31, 2022

Clinical Episode Type	Model Year	Patients Who Are Dually Eligible for Medicare and Medicaid						
		Among Patients with BPCI Advanced Triggering Discharges and Procedures		Among Patients with BPCI Advanced Eligible Discharges and Procedures		Among Patients with BPCI Advanced Reconciled Episodes		Among the FFS Population
		Percent (%)	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Medical	MY4	24.6	534,726	24.6	373,445	24.1	62,418	16.4
	MY5	26.2	542,944	25.2	356,427	24.9	35,361	17.4
Surgical	MY4	11.6	132,504	11.4	101,752	9.1	7,196	16.4
	MY5	11.5	141,798	10.7	99,975	8.2	5,127	17.4

Note: See the first page of this appendix for data sources and more information.

Appendix G: Supplemental Sample Characteristics

The following supplemental tables display additional characteristics of the evaluation sample. The sample count tables present the number of BPCI Advanced participants included in the evaluation sample after comparison group construction and the associated intervention episode counts. The counts of BPCI Advanced intervention episodes are based on the sample used to evaluate the impact of the model on total allowed standardized payments. Because BPCI Advanced participants can participate in multiple clinical episode service line group (CESLGs), the sum of the number of participants in each category may not equal the overall total count of participants. We also present the shares of episodes where the patient had a confirmed COVID-19 diagnosis during either the anchor hospitalization or procedure or the 90-day PDP for BPCI Advanced episodes and comparison group episodes.

The patient mix tables present the results by episode type for BPCI Advanced and comparison group episodes. The tables present the mean values in the baseline period and in Model Year 5 and are not risk adjusted. The relative change represents the difference in the mean of the characteristic for BPCI Advanced episodes in Model Year 5 compared to the baseline period, relative to the change for the comparison group. The N reported represent the Model Year 5 sample population before removing any missing patient characteristics for a given episode. Prior institutional post-acute care (PAC) setting and prior home health indicate the share of the sample with recent prior use of PAC services. The hierarchical condition category (HCC) count is the average number of HCC indicators per patient in the sample, and the HCC score is the average score (or index). Prior institutional PAC setting, prior home health, HCC count, and HCC score are based on the six months prior to the anchor hospitalization or procedure. Results are presented separately for hospitals and PGPs. An asterisk denotes statistically significant differences at the 10% level.

All results are based on the CMS BPCI Advanced Database, utilizing data from Model Year 5, and the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015 and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2022 and ending on or before December 31, 2022 (Model Year 5 intervention period) for BPCI Advanced participants and matched comparison hospitals or PGPs.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix. See **Appendix C** for additional information on the methods used to determine the sample, the patient mix measures evaluated, and data sources.

A. Sample Counts

Exhibit G.1: Count of Model Year 5 BPCI Advanced Hospitals and Episodes Included in the BPCI Advanced Evaluation Sample, by CESLG, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced Hospitals	BPCI Advanced Intervention Episodes
Medical	Cardiac Care	262	34,416
	GI Care	180	10,839
	M&C Care	330	113,943
	Neurological Care	202	11,180
Surgical	Cardiac Procedures	67	8,015
	GI Surgery	50	1,221
	Orthopedics	117	20,960
	Spinal Procedures	90	7,187

Note: See the first page of this appendix for data sources and more information.

Exhibit G.2: Count of Model Year 5 BPCI Advanced PGPs and Episodes Included in the BPCI Advanced Evaluation Sample, by CESLG, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced PGPs	BPCI Advanced Intervention Episodes
Medical	Cardiac Care	63	7,360
	GI Care	44	2,509
	M&C Care	67	20,388
	Neurological Care	50	2,526
Surgical	Orthopedics	63	20,655
	Spinal Procedures	21	2,761

Note: See the first page of this appendix for data sources and more information.

Exhibit G.3: Share of Episodes with Confirmed COVID-19 Diagnosis, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced Episodes (%)	Comparison Group Episodes (%)
All Clinical Episodes	21.9	21.8
Medical	26.2	25.2
Hospitals	26.6	26.1
PGPs	24.0	22.6
Surgical	7.4	7.5
Hospitals	7.9	8.0
PGPs	6.5	6.2

Note: See the first page of this appendix for data sources and more information.

Exhibit G.4: Share of Hospital Episodes with Confirmed COVID-19 Diagnosis, by CESLG, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced Hospital Episodes (%)	Comparison Group Episodes (%)
Medical	Cardiac Care	12.4	13.0
	GI Care	11.4	12.3
	M&C Care	33.6	32.7
	Neurological Care	13.0	13.2
Surgical	Cardiac Procedures	7.8	8.3
	GI Surgery	6.6	8.1
	Orthopedics	8.5	8.4
	Spinal Procedures	6.4	6.5

Note: See the first page of this appendix for data sources and more information.

Exhibit G.5: Share of PGP Episodes with Confirmed COVID-19 Diagnosis, by CESLG, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced PGP Episodes (%)	Comparison Group Episodes (%)
Medical	Cardiac Care	11.5	12.5
	GI Care	10.8	11.3
	M&C Care	31.6	30.5
	Neurological Care	11.8	11.9
Surgical	Orthopedics	6.6	6.4
	Spinal Procedures	5.5	4.8

Note: See the first page of this appendix for data sources and more information.

B. Patient Characteristics

Exhibit G.6: Patient Mix, Hospitals and PGPs, Baseline (January 1, 2015 – September 30, 2018) and Intervention (January 1, 2022 – December 31, 2022)

Clinical Episodes	Patient Characteristics	BPCI Advanced		Comparison Group		Relative Change	P-Value
		Baseline Mean	MY5 Mean	Baseline Mean	MY5 Mean		
Medical (N=198,244)	Prior Institutional PAC Use	31.8%	29.7%	31.6%	29.4%	0.03 pp	0.919
	Prior Home Health	26.9%	25.6%	24.8%	23.7%	-0.25 pp	0.432
	Age: 80+ Years	44.3%	45.5%	43.7%	45.1%	-0.15 pp	0.652
	Male	43.7%	45.1%	43.9%	45.3%	-0.06 pp	0.805
	Disabled, No ESRD	26.8%	22.6%	27.5%	22.9%	0.38 pp	0.246
	Dual Eligibility	26.3%	23.2%	26.5%	22.9%	0.42 pp	0.382
	HCC Count	3.0	3.1	2.9	3.0	0.00	0.861
	HCC Score	1.9	2.0	1.9	2.0	0.00	0.814
Surgical (N=59,161)	Prior Institutional PAC Use	13.2%	9.1%	12.9%	9.7%	-0.79 pp	0.020
	Prior Home Health	11.9%	9.6%	10.1%	9.3%	-1.49 pp	<0.001
	Age: 80+ Years	26.3%	26.1%	25.5%	25.8%	-0.56 pp	0.326
	Male	41.6%	41.7%	42.3%	42.7%	-0.42 pp	0.409
	Disabled, No ESRD	18.7%	12.9%	19.5%	14.7%	-1.03 pp	0.014
	Dual Eligibility	12.1%	8.2%	12.4%	9.1%	-0.63 pp	0.159
	HCC Count	1.6	1.6	1.5	1.6	-0.07	0.013
	HCC Score	1.1	1.1	1.0	1.1	-0.03	0.006

Note: See the first page of this appendix for data sources and more information.

Exhibit G.7: Patient Mix, Hospital Participants, Baseline (January 1, 2015 – September 30, 2018) and Intervention (January 1, 2022 – December 31, 2022)

Clinical Episodes	Patient Characteristics	BPCI Advanced		Comparison Group		Relative Change	P-Value
		Baseline Mean	MY5 Mean	Baseline Mean	MY5 Mean		
Medical (N=170,447)	Prior Institutional PAC Use	32.5%	30.1%	32.0%	29.8%	-0.23 pp	0.374
	Prior Home Health	27.6%	26.0%	25.2%	24.1%	-0.53 pp	0.078
	Age: 80+ Years	44.4%	45.7%	43.9%	45.2%	0.03 pp	0.920
	Male	43.6%	45.1%	43.9%	45.5%	-0.10 pp	0.673
	Disabled, No ESRD	26.8%	22.5%	27.3%	22.8%	0.16 pp	0.636
	Dual Eligibility	26.6%	23.4%	26.7%	23.4%	0.12 pp	0.793
	HCC Count	3.0	3.1	3.0	3.1	0.00	0.793
	HCC Score	2.0	2.0	1.9	2.0	-0.01	0.588
Surgical (N=37,397)	Prior Institutional PAC Use	14.1%	10.5%	13.6%	10.6%	-0.65 pp	0.130
	Prior Home Health	12.7%	10.9%	10.7%	9.7%	-0.74 pp	0.056
	Age: 80+ Years	27.4%	27.2%	26.5%	27.0%	-0.65 pp	0.315
	Male	44.0%	43.9%	44.1%	44.3%	-0.39 pp	0.538
	Disabled, No ESRD	20.0%	14.2%	19.9%	15.4%	-1.18 pp	0.021
	Dual Eligibility	13.1%	9.5%	13.1%	9.8%	-0.31 pp	0.539
	HCC Count	1.7	1.7	1.6	1.7	-0.06	0.102
	HCC Score	1.1	1.1	1.1	1.1	-0.03	0.077

Note: See the first page of this appendix for data sources and more information.

Exhibit G.8: Patient Mix, PGP Participants, Baseline (January 1, 2015 – September 30, 2018) and Intervention (January 1, 2022 – December 31, 2022)

Clinical Episodes	Patient Characteristics	BPCI Advanced		Comparison Group		Relative Change	P-Value
		Baseline Mean	MY5 Mean	Baseline Mean	MY5 Mean		
Medical (N=32,795)	Prior Institutional PAC Use	29.3%	27.5%	30.0%	27.8%	0.30 pp	0.599
	Prior Home Health	24.5%	23.8%	23.6%	22.5%	0.35 pp	0.712
	Age: 80+ Years	43.5%	44.6%	42.6%	44.5%	-0.77 pp	0.404
	Male	44.4%	45.7%	43.8%	44.6%	0.55 pp	0.374
	Disabled, No ESRD	26.8%	22.7%	28.1%	23.1%	0.93 pp	0.373
	Dual Eligibility	25.1%	20.8%	25.2%	20.5%	0.38 pp	0.781
	HCC Count	2.8	2.9	2.9	2.9	-0.01	0.855
	HCC Score	1.8	1.9	1.8	1.9	0.00	0.984
Surgical (N=23,427)	Prior Institutional PAC Use	11.4%	6.7%	11.1%	7.1%	-0.66 pp	0.211
	Prior Home Health	10.6%	7.6%	8.5%	8.3%	-2.76 pp	<0.001
	Age: 80+ Years	24.5%	24.0%	22.2%	22.4%	-0.72 pp	0.490
	Male	36.7%	37.9%	37.4%	38.4%	0.17 pp	0.804
	Disabled, No ESRD	15.8%	10.5%	17.3%	12.8%	-0.80 pp	0.305
	Dual Eligibility	9.8%	5.8%	9.9%	7.3%	-1.34 pp	0.195
	HCC Count	1.3	1.3	1.3	1.3	-0.06	0.159
	HCC Score	0.9	0.9	0.9	1.0	-0.03	0.135

Note: See the first page of this appendix for data sources and more information.

Appendix H: Exhibits of Impact Estimate Results for Expenditure Measures

The following exhibits in Sections A through C display the risk adjusted difference-in-differences (DiD) results for all claims-based payment and utilization outcomes assessed in the report, including skilled nursing facility (SNF) days and proportion of episodes first discharged to post-acute care (PAC) settings. Medicare payments were standardized to remove the effects of geographic differences in wages, extra amounts to account for teaching programs, and other policy factors. Total allowed payments are all Medicare Parts A and B payments and include beneficiary cost sharing, while total paid payments exclude beneficiary cost sharing. The "DiD as a Percent (%)" refers to the DiD estimate as a percentage of the BPCI Advanced baseline mean. In addition, for all analyses on SNF days and proportion of episodes first discharged to PAC settings, we only included inpatient and multi-setting clinical episodes. For this report, we excluded outpatient back and neck except spinal fusion and major joint replacement of the upper extremity from analyses for claims-based utilization outcomes due to the low occurrence of institutional PAC use.

The exhibits in Sections D through F display the risk-adjusted parallel trends tests results associated with all claims-based payment and utilization outcomes assessed in the report, including SNF days and proportion of episodes first discharged to PAC settings. As described in **Appendix C**, we tested the null hypothesis that BPCI Advanced participants and comparison hospitals had parallel trends during the baseline period at the 10% level of statistical significance. We noted with the dagger symbol ("‡") estimates where we reject the null hypothesis that there were parallel trends in the baseline, indicating a parallel trends failure for this result. A failure of the parallel trends test indicates that BPCI Advanced and matched comparison hospitals and physician group practices (PGPs) did not have the same trends for that outcome in the baseline period. This result may indicate that the impact estimate partially reflects a continuation of preexisting trends and does not solely reflect the impact of the BPCI Advanced Model.

The exhibits in Sections G through I display both the BPCI Advanced impact estimates for all claims-based payment and utilization outcomes, and the sensitivity tests to understand whether the reported impact estimates were robust with respect to the episode sample used. First, we tested if our results are robust while excluding episodes initiated by hospitals and PGPs participating in the BPCI Initiative (referred to as "No BPCI-C Episodes"). We also estimated the intent-to-treat (ITT) results including episodes for all matched BPCI Advanced hospitals and PGPs and their matched ITT comparisons, regardless of if the BPCI Advanced hospital or PGP withdrew from the model prior to the end of Model Year 5 (2022). Section G displays the additional results for a national comparison sample sensitivity test, which is calculated on the medical and surgical grouped level.

All Model Year 5 results are based on the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2022, and ending on or before December 31, 2022 for BPCI Advanced and matched comparison hospitals and PGPs providers.

Please refer to **Appendix A** for the definitions of all acronyms and symbols used within the following appendix. Please refer to **Appendix C** for additional information on outcome definitions and other methods.

A. Pooled Impact Estimate

Exhibit H.1: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	257,303	$26,453	$27,703	274,333	$26,098	$28,362	-$1,014	-3.8	<0.001	-$1,250	-$777	-$1,295	-$732
Medical	198,165	$25,456	$27,510	220,760	$25,153	$27,952	-$745	-2.9	<0.001	-$969	-$522	-$1,012	-$479
Hospital	170,378	$25,591	$27,635	181,726	$25,348	$28,163	-$771	-3.0	<0.001	-$1,024	-$518	-$1,072	-$470
PGP	32,783	$24,980	$27,135	53,275	$24,260	$27,012	-$596 ‡	-2.4	0.029	-$1,044	-$149	-$1,130	-$63
Surgical	59,138	$30,781	$29,570	53,573	$30,185	$30,668	-$1,694	-5.5	<0.001	-$2,154	-$1,235	-$2,242	-$1,147
Hospital	37,383	$32,258	$31,597	38,956	$31,532	$32,399	-$1,527	-4.7	<0.001	-$2,128	-$926	-$2,243	-$811
PGP	23,416	$27,351	$25,464	16,238	$27,097	$26,725	-$1,515	-5.5	<0.001	-$2,242	-$787	-$2,383	-$646

Note: See the first page of this appendix for data sources and more information.

Exhibit H.2: Impact of BPCI Advanced on Total Paid Payments During the Anchor Stay and 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	257,303	$23,204	$24,123	274,333	$22,882	$24,711	-$911	-3.9	<0.001	-$1,141	-$680	-$1,186	-$635
Medical	198,165	$22,215	$23,983	220,760	$21,941	$24,343	-$633	-2.9	<0.001	-$836	-$431	-$874	-$393
Hospital	170,378	$22,332	$24,096	181,726	$22,112	$24,528	-$652	-2.9	<0.001	-$881	-$423	-$924	-$379
PGP	32,783	$21,808	$23,638	53,275	$21,158	$23,535	-$547	-2.5	0.027	-$953	-$140	-$1,031	-$62
Surgical	59,138	$27,508	$25,814	53,573	$26,944	$26,853	-$1,603	-5.8	<0.001	-$2,075	-$1,130	-$2,166	-$1,040
Hospital	37,383	$28,826	$27,787	38,956	$28,162	$28,511	-$1,389	-4.8	<0.001	-$2,007	-$770	-$2,126	-$652
PGP	23,416	$24,441	$21,860	16,238	$24,159	$23,052	-$1,474	-6.0	<0.001	-$2,198	-$749	-$2,338	-$609

Note: See the first page of this appendix for data sources and more information.

Exhibit H.3: Impact of BPCI Advanced on SNF Payments Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	257,303	$4,835	$4,231	274,333	$4,691	$4,533	-$447 ‡	-9.2	<0.001	-$567	-$327	-$590	-$304
Medical	198,165	$4,784	$4,518	220,760	$4,639	$4,759	-$386 ‡	-8.1	<0.001	-$506	-$265	-$529	-$242
Hospital	170,378	$4,806	$4,512	181,726	$4,660	$4,800	-$434	-9.0	<0.001	-$567	-$301	-$593	-$276
PGP	32,783	$4,664	$4,633	53,275	$4,529	$4,506	-$8 ‡	-0.2	0.956	-$263	$246	-$312	$296
Surgical	59,138	$5,029	$3,349	53,573	$4,915	$3,747	-$512	-10.2	<0.001	-$750	-$273	-$796	-$228
Hospital	37,383	$5,239	$3,602	38,956	$5,042	$3,991	-$586	-11.2	0.001	-$886	-$285	-$944	-$227
PGP	23,416	$4,541	$2,873	16,238	$4,660	$3,237	-$246	-5.4	0.263	-$607	$116	-$677	$186

Note: See the first page of this appendix for data sources and more information.

Exhibit H.4: Impact of BPCI Advanced on IRF Payments Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	257,303	$1,003	$1,066	274,333	$1,015	$1,501	-$423	-42.2	<0.001	-$506	-$340	-$522	-$325
Medical	198,165	$871	$1,056	220,760	$911	$1,389	-$294	-33.7	<0.001	-$378	-$210	-$394	-$194
Hospital	170,378	$824	$983	181,726	$891	$1,358	-$308	-37.3	<0.001	-$396	-$220	-$412	-$203
PGP	32,783	$1,025	$1,328	53,275	$936	$1,508	-$268	-26.2	0.062	-$504	-$32	-$550	$13
Surgical	59,138	$1,558	$1,256	53,573	$1,484	$2,023	-$841	-54.0	<0.001	-$1,021	-$662	-$1,055	-$627
Hospital	37,383	$1,766	$1,577	38,956	$1,640	$2,283	-$832	-47.1	<0.001	-$1,060	-$603	-$1,104	-$559
PGP	23,416	$1,055	$644	16,238	$1,088	$1,437	-$760	-72.0	<0.001	-$1,064	-$456	-$1,123	-$397

Note: See the first page of this appendix for data sources and more information.

Exhibit H.5: Impact of BPCI Advanced on HH Payments Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	257,303	$1,368	$1,417	274,333	$1,310	$1,384	-$25	-1.8	0.294	-$65	$14	-$72	$22
Medical	198,165	$1,270	$1,461	220,760	$1,231	$1,395	$27	2.1	0.060	$3	$50	-$1	$54
Hospital	170,378	$1,282	$1,472	181,726	$1,236	$1,405	$21	1.7	0.141	-$3	$45	-$7	$50
PGP	32,783	$1,227	$1,420	53,275	$1,212	$1,373	$32	2.6	0.417	-$33	$96	-$45	$109
Surgical	59,138	$1,808	$1,413	53,573	$1,631	$1,409	-$173	-9.6	0.040	-$311	-$35	-$338	-$8
Hospital	37,383	$1,718	$1,590	38,956	$1,584	$1,373	$83	4.8	0.292	-$46	$212	-$71	$236
PGP	23,416	$2,049	$1,247	16,238	$1,775	$1,533	-$560	-27.3	0.005	-$888	-$232	-$951	-$169

Note: See the first page of this appendix for data sources and more information.

Exhibit H.6: Impact of BPCI Advanced on Readmissions Payments Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	257,303	$3,607	$4,065	274,333	$3,585	$4,032	$11	0.3	0.766	-$51	$74	-$63	$85
Medical	198,165	$4,060	$4,654	220,760	$4,039	$4,604	$30	0.7	0.499	-$43	$102	-$57	$116
Hospital	170,378	$4,103	$4,706	181,726	$4,089	$4,648	$44	1.1	0.363	-$35	$123	-$50	$138
PGP	32,783	$3,906	$4,457	53,275	$3,843	$4,452	-$59	-1.5	0.545	-$218	$101	-$249	$132
Surgical	59,138	$1,617	$1,686	53,573	$1,556	$1,644	-$19 ‡	-1.1	0.671	-$90	$53	-$104	$67
Hospital	37,383	$1,837	$1,906	38,956	$1,747	$1,853	-$36 ‡	-2.0	0.521	-$129	$57	-$147	$74
PGP	23,416	$1,113	$1,195	16,238	$1,097	$1,151	$28	2.5	0.654	-$75	$130	-$95	$150

Note: See the first page of this appendix for data sources and more information.

Exhibit H.7: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Overall	250,823	28.6	21.8	267,665	27.7	22.6	-1.73	-6.1	<0.001	-2.42	-1.05	-2.55	-0.92
Medical	198,165	26.1	22.1	220,760	25.4	22.1	-0.69	-2.6	0.009	-1.12	-0.26	-1.21	-0.17
Hospital	170,378	26.2	22.1	181,726	25.4	22.1	-0.83	-3.2	0.005	-1.31	-0.35	-1.40	-0.26
PGP	32,783	25.2	22.3	53,275	25.0	22.2	-0.06	-0.2	0.929	-1.12	1.00	-1.32	1.20
Surgical	52,658	41.4	24.5	46,905	38.4	26.9	-5.38	-13.0	<0.001	-7.32	-3.44	-7.69	-3.07
Hospital	32,000	42.6	27.6	33,118	40.1	29.5	-4.38	-10.3	0.007	-7.04	-1.72	-7.55	-1.21
PGP	22,289	38.9	19.3	15,300	35.7	22.0	-5.94	-15.3	<0.001	-8.51	-3.37	-9.00	-2.87

Note: See the first page of this appendix for data sources and more information.

Exhibit H.8: Impact of BPCI Advanced on Number of Days in SNF Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Overall	62,509	33.3	29.1	63,245	33.4	32.1	-2.82 ‡	-8.5	<0.001	-3.24	-2.39	-3.33	-2.30
Medical	51,095	34.0	30.2	53,430	34.1	33.0	-2.68 ‡	-7.9	<0.001	-3.14	-2.21	-3.23	-2.12
Hospital	44,223	33.8	30.0	44,163	34.1	33.2	-2.91 ‡	-8.6	<0.001	-3.41	-2.41	-3.50	-2.31
PGP	8,050	34.2	32.0	12,753	33.8	32.1	-0.51	-1.5	0.419	-1.56	0.53	-1.76	0.73
Surgical	11,414	30.2	24.5	9,815	30.5	28.0	-3.19	-10.6	<0.001	-4.00	-2.38	-4.15	-2.23
Hospital	7,780	32.0	26.0	7,281	31.5	29.2	-3.58	-11.2	<0.001	-4.50	-2.66	-4.68	-2.49
PGP	3,916	26.0	21.3	2,798	27.6	25.2	-2.28	-8.8	0.023	-3.92	-0.63	-4.24	-0.32

Note: See the first page of this appendix for data sources and more information. The *MJRUE* CE was included in the corresponding CESLG and pooled grouping results for the outcome.

B. Hospital Individual Clinical Episode Service Line Group Impact Estimate

Exhibit H.9: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	34,416	$24,783	$25,338	37,120	$24,377	$25,574	-$642	-2.6	0.005	-$1,015	-$269	-$1,087	-$197
	GI Care	10,839	$20,828	$22,593	11,100	$20,802	$22,657	-$89	-0.4	0.750	-$552	$373	-$641	$462
	M&C Care	113,943	$25,862	$28,496	121,778	$25,628	$29,086	-$824	-3.2	<0.001	-$1,122	-$527	-$1,179	-$470
	Neurological Care	11,180	$30,157	$31,671	11,728	$30,113	$32,574	-$947	-3.1	0.036	-$1,688	-$206	-$1,831	-$64
Surgical	Cardiac Procedures	8,015	$28,376	$29,796	8,678	$27,668	$29,937	-$850	-3.0	0.028	-$1,485	-$215	-$1,607	-$93
	GI Surgery	1,221	$38,114	$38,601	1,224	$37,636	$38,156	-$33 ‡	-0.1	0.977	-$1,965	$1,899	-$2,341	$2,276
	Orthopedics	20,960	$32,143	$30,471	22,144	$30,952	$31,091	-$1,811	-5.6	<0.001	-$2,566	-$1,057	-$2,711	-$912
	Spinal Procedures	7,187	$36,818	$36,240	6,910	$36,451	$37,706	-$1,833	-5.0	0.025	-$3,174	-$493	-$3,433	-$234

Note: See the first page of this appendix for data sources and more information.

Exhibit H.10: Impact of BPCI Advanced on Total Paid Payments During the Anchor Stay and 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	34,416	$21,640	$21,937	37,120	$21,272	$22,107	-$537	-2.5	0.009	-$875	-$199	-$940	-$134
	GI Care	10,839	$17,907	$19,383	11,100	$17,873	$19,405	-$55	-0.3	0.827	-$473	$362	-$553	$442
	M&C Care	113,943	$22,566	$24,901	121,778	$22,359	$25,395	-$701	-3.1	<0.001	-$969	-$433	-$1,021	-$382
	Neurological Care	11,180	$26,568	$28,003	11,728	$26,482	$28,694	-$777	-2.9	0.061	-$1,459	-$95	-$1,590	$36
Surgical	Cardiac Procedures	8,015	$25,067	$26,043	8,678	$24,443	$26,242	-$824	-3.3	0.023	-$1,417	-$231	-$1,531	-$116
	GI Surgery	1,221	$34,406	$34,837	1,224	$33,937	$34,418	-$50 ‡	-0.1	0.962	-$1,793	$1,692	-$2,132	$2,032
	Orthopedics	20,960	$28,563	$26,420	22,144	$27,452	$26,934	-$1,624	-5.7	<0.001	-$2,385	-$863	-$2,532	-$717
	Spinal Procedures	7,187	$33,637	$32,982	6,910	$33,328	$34,379	-$1,704	-5.1	0.029	-$2,989	-$420	-$3,237	-$172

Note: See the first page of this appendix for data sources and more information.

Exhibit H.11: Impact of BPCI Advanced on SNF Payments Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	34,416	$3,858	$3,220	37,120	$3,719	$3,473	-$391	-10.1	<0.001	-$552	-$230	-$583	-$200
	GI Care	10,839	$3,031	$2,745	11,100	$3,026	$3,035	-$293	-9.7	0.036	-$523	-$64	-$568	-$19
	M&C Care	113,943	$5,077	$5,020	121,778	$4,904	$5,277	-$430	-8.5	<0.001	-$592	-$267	-$623	-$236
	Neurological Care	11,180	$6,812	$5,376	11,728	$6,846	$6,059	-$649	-9.5	0.007	-$1,044	-$254	-$1,120	-$178
Surgical	Cardiac Procedures	8,015	$1,448	$987	8,678	$1,274	$1,145	-$332	-22.9	<0.001	-$488	-$175	-$518	-$145
	GI Surgery	1,221	$4,519	$3,651	1,224	$4,319	$3,360	$92 ‡	2.0	0.861	-$774	$957	-$943	$1,126
	Orthopedics	20,960	$8,266	$5,735	22,144	$7,930	$6,347	-$948	-11.5	<0.001	-$1,401	-$496	-$1,488	-$409
	Spinal Procedures	7,187	$2,291	$1,532	6,910	$2,137	$1,620	-$242	-10.5	0.162	-$526	$43	-$581	$98

Note: See the first page of this appendix for data sources and more information.

Exhibit H.12: Impact of BPCI Advanced on IRF Payments Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	34,416	$557	$558	37,120	$583	$888	-$304	-54.6	<0.001	-$408	-$200	-$428	-$180
	GI Care	10,839	$375	$478	11,100	$344	$556	-$109	-29.1	0.087	-$214	-$4	-$234	$16
	M&C Care	113,943	$554	$748	121,778	$639	$1,144	-$311	-56.0	<0.001	-$405	-$216	-$423	-$198
	Neurological Care	11,180	$4,793	$5,149	11,728	$4,894	$5,667	-$417	-8.7	0.126	-$866	$32	-$952	$118
Surgical	Cardiac Procedures	8,015	$492	$485	8,678	$597	$784	-$194 ‡	-39.4	0.043	-$352	-$36	-$382	-$6
	GI Surgery	1,221	$878	$875	1,224	$806	$1,079	-$276 ‡	-31.4	0.314	-$728	$176	-$816	$265
	Orthopedics	20,960	$2,219	$1,979	22,144	$1,820	$2,661	-$1,080	-48.7	<0.001	-$1,451	-$710	-$1,522	-$638
	Spinal Procedures	7,187	$2,485	$2,232	6,910	$2,488	$2,998	-$764	-30.7	0.005	-$1,211	-$316	-$1,298	-$229

Note: See the first page of this appendix for data sources and more information.

Exhibit H.13: Impact of BPCI Advanced on HH Payments Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	34,416	$1,309	$1,460	37,120	$1,248	$1,381	$17	1.3	0.484	-$24	$58	-$31	$66
	GI Care	10,839	$891	$1,009	11,100	$835	$968	-$14	-1.6	0.622	-$63	$34	-$72	$43
	M&C Care	113,943	$1,286	$1,515	121,778	$1,247	$1,452	$24	1.9	0.126	-$2	$51	-$7	$56
	Neurological Care	11,180	$1,531	$1,600	11,728	$1,479	$1,489	$59	3.9	0.124	-$4	$122	-$16	$135
Surgical	Cardiac Procedures	8,015	$749	$723	8,678	$655	$699	-$70	-9.3	0.037	-$125	-$15	-$135	-$4
	GI Surgery	1,221	$1,449	$1,541	1,224	$1,421	$1,487	$25	1.7	0.815	-$154	$205	-$189	$240
	Orthopedics	20,960	$2,344	$2,125	22,144	$2,203	$1,773	$211	9.0	0.077	$15	$408	-$23	$446
	Spinal Procedures	7,187	$1,284	$1,249	6,910	$1,188	$1,267	-$115	-9.0	0.160	-$250	$20	-$276	$46

Note: See the first page of this appendix for data sources and more information.

Exhibit H.14: Impact of BPCI Advanced on Readmissions Payments Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	34,416	$5,025	$5,512	37,120	$5,010	$5,368	$130	2.6	0.219	-$44	$304	-$78	$338
	GI Care	10,839	$3,856	$4,279	11,100	$3,948	$4,292	$79	2.0	0.579	-$155	$313	-$200	$358
	M&C Care	113,943	$3,960	$4,626	121,778	$3,940	$4,583	$23	0.6	0.676	-$69	$116	-$87	$133
	Neurological Care	11,180	$2,866	$3,401	11,728	$2,826	$3,415	-$53	-1.8	0.677	-$261	$156	-$301	$196
Surgical	Cardiac Procedures	8,015	$2,380	$2,599	8,678	$2,261	$2,456	$23	1.0	0.866	-$204	$250	-$248	$294
	GI Surgery	1,221	$3,406	$3,234	1,224	$3,266	$3,126	-$32	-0.9	0.926	-$598	$534	-$708	$645
	Orthopedics	20,960	$1,530	$1,559	22,144	$1,458	$1,548	-$61	-4.0	0.372	-$175	$52	-$197	$74
	Spinal Procedures	7,187	$1,714	$1,737	6,910	$1,586	$1,624	-$15	-0.9	0.922	-$263	$234	-$312	$282

Note: See the first page of this appendix for data sources and more information.

Exhibit H.15: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	34,416	20.2	15.1	37,120	19.3	14.9	-0.80	-4.0	0.032	-1.41	-0.19	-1.53	-0.07
	GI Care	10,839	15.3	13.2	11,100	14.8	12.3	0.37	2.4	0.448	-0.43	1.18	-0.59	1.33
	M&C Care	113,943	27.4	23.7	121,778	26.7	23.9	-0.88	-3.2	0.011	-1.45	-0.31	-1.56	-0.20
	Neurological Care	11,180	43.7	36.8	11,728	43.0	37.5	-1.34	-3.1	0.105	-2.71	0.02	-2.97	0.28
Surgical	Cardiac Procedures	4,602	16.9	10.9	4,777	16.0	12.3	-2.22	-13.1	0.009	-3.62	-0.81	-3.89	-0.55
	GI Surgery	1,221	29.6	19.5	1,224	28.8	20.1	-1.41	-4.8	0.409	-4.23	1.40	-4.77	1.94
	Orthopedics	20,960	53.6	35.0	22,144	49.5	36.4	-5.58	-10.4	0.023	-9.63	-1.54	-10.41	-0.76
	Spinal Procedures	5,217	32.7	21.1	4,973	32.5	24.6	-3.67 ‡	-11.2	0.011	-6.06	-1.29	-6.52	-0.83

Note: See the first page of this appendix for data sources and more information.

Exhibit H.16: Impact of BPCI Advanced on Number of Days in SNF Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,024	30.6	27.8	7,106	31.1	31.0	-2.72 ‡	-8.9	<0.001	-3.57	-1.88	-3.74	-1.71
	GI Care	1,861	32.9	28.7	1,793	34.0	33.1	-3.42	-10.4	<0.001	-4.92	-1.91	-5.21	-1.62
	M&C Care	32,216	34.2	30.2	32,179	34.3	33.2	-2.91 ‡	-8.5	<0.001	-3.49	-2.33	-3.60	-2.22
	Neurological Care	3,122	38.6	33.4	3,085	39.6	37.8	-3.41	-8.8	<0.001	-4.80	-2.02	-5.06	-1.76
Surgical	Cardiac Procedures	491	27.5	23.1	487	27.6	27.4	-4.21	-15.3	0.005	-6.64	-1.79	-7.11	-1.32
	GI Surgery	208	29.1	27.4	211	30.2	28.5	0.12	0.4	0.956	-3.34	3.57	-4.02	4.25
	Orthopedics	6,294	33.5	26.9	5,761	32.9	30.0	-3.74	-11.2	<0.001	-4.84	-2.63	-5.05	-2.42
	Spinal Procedures	787	25.2	22.1	822	24.4	24.7	-3.37	-13.4	0.008	-5.46	-1.28	-5.86	-0.88

Note: See the first page of this appendix for data sources and more information.

C. PGP Individual CESLG Impact Estimate

Exhibit H.17: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,360	$24,511	$25,825	14,890	$23,759	$24,878	$195	0.8	0.616	-$446	$837	-$570	$961
	GI Care	2,509	$20,021	$21,556	3,554	$20,235	$22,293	-$522	-2.6	0.381	-$1,505	$462	-$1,696	$653
	M&C Care	20,388	$24,922	$27,525	30,150	$24,035	$27,517	-$880	-3.5	0.007	-$1,417	-$343	-$1,520	-$240
	Neurological Care	2,526	$31,109	$33,116	4,681	$30,605	$34,357	-$1,745	-5.6	0.029	-$3,050	-$440	-$3,303	-$186
Surgical	Orthopedics	20,655	$26,961	$24,993	13,949	$26,413	$26,192	-$1,747	-6.5	<0.001	-$2,455	-$1,039	-$2,592	-$902
	Spinal Procedures	2,761	$29,616	$28,408	2,289	$31,214	$30,008	-$2	0.0	0.999	-$2,661	$2,658	-$3,188	$3,185

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.18: Impact of BPCI Advanced on Total Paid Payments During the Anchor Stay and 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,360	$21,420	$22,446	14,890	$20,746	$21,553	$218	1.0	0.546	-$378	$814	-$493	$930
	GI Care	2,509	$17,183	$18,475	3,554	$17,375	$19,139	-$472	-2.7	0.394	-$1,387	$443	-$1,565	$621
	M&C Care	20,388	$21,737	$23,972	30,150	$20,940	$24,009	-$834	-3.8	0.004	-$1,314	-$355	-$1,406	-$262
	Neurological Care	2,526	$27,499	$29,380	4,681	$26,984	$30,395	-$1,529	-5.6	0.040	-$2,752	-$307	-$2,990	-$69
Surgical	Orthopedics	20,655	$24,028	$21,289	13,949	$23,450	$22,406	-$1,695	-7.1	<0.001	-$2,414	-$977	-$2,553	-$838
	Spinal Procedures	2,761	$26,876	$25,484	2,289	$28,413	$26,976	$43	0.2	0.977	-$2,438	$2,525	-$2,930	$3,017

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.19: Impact of BPCI Advanced on SNF Payments Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,360	$3,754	$3,460	14,890	$3,631	$3,274	$63	1.7	0.723	-$231	$358	-$288	$414
	GI Care	2,509	$2,718	$2,431	3,554	$2,792	$2,772	-$266	-9.8	0.349	-$734	$203	-$825	$294
	M&C Care	20,388	$4,955	$5,184	30,150	$4,736	$4,992	-$26 ‡	-0.5	0.900	-$372	$319	-$438	$386
	Neurological Care	2,526	$6,961	$6,037	4,681	$7,190	$6,430	-$165	-2.4	0.679	-$824	$494	-$952	$622
Surgical	Orthopedics	20,655	$5,049	$3,214	13,949	$5,174	$3,561	-$224	-4.4	0.338	-$609	$161	-$683	$236
	Spinal Procedures	2,761	$1,376	$922	2,289	$1,554	$1,338	-$239 ‡	-17.3	0.458	-$773	$295	-$879	$401

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.20: Impact of BPCI Advanced on IRF Payments Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,360	$574	$812	14,890	$460	$744	-$45	-7.8	0.709	-$244	$154	-$282	$192
	GI Care	2,509	$441	$643	3,554	$338	$634	-$94	-21.3	0.513	-$330	$143	-$376	$189
	M&C Care	20,388	$587	$850	30,150	$532	$1,132	-$337	-57.4	0.032	-$596	-$79	-$645	-$29
	Neurological Care	2,526	$5,776	$6,701	4,681	$5,469	$6,968	-$573	-9.9	0.306	-$1,498	$351	-$1,677	$531
Surgical	Orthopedics	20,655	$1,010	$644	13,949	$933	$1,415	-$848	-83.9	<0.001	-$1,186	-$510	-$1,251	-$445
	Spinal Procedures	2,761	$1,295	$527	2,289	$2,018	$1,496	-$247	-19.1	0.470	-$816	$321	-$928	$434

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.21: Impact of BPCI Advanced on HH Payments Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,360	$1,245	$1,404	14,890	$1,215	$1,388	-$13	-1.1	0.828	-$112	$86	-$132	$105
	GI Care	2,509	$847	$1,024	3,554	$819	$918	$78	9.2	0.156	-$13	$169	-$30	$186
	M&C Care	20,388	$1,215	$1,443	30,150	$1,207	$1,407	$27	2.2	0.495	-$39	$93	-$51	$106
	Neurological Care	2,526	$1,602	$1,724	4,681	$1,548	$1,491	$180	11.3	0.011	$65	$296	$42	$318
Surgical	Orthopedics	20,655	$2,221	$1,342	13,949	$1,924	$1,629	-$584	-26.3	0.008	-$941	-$227	-$1,010	-$157
	Spinal Procedures	2,761	$1,044	$788	2,289	$804	$855	-$307	-29.4	0.031	-$538	-$76	-$584	-$30

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.22: Impact of BPCI Advanced on Readmissions Payments Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	7,360	$4,833	$5,423	14,890	$4,789	$5,209	$171	3.5	0.391	-$158	$499	-$221	$562
	GI Care	2,509	$3,560	$3,868	3,554	$3,708	$4,484	-$468	-13.1	0.255	-$1,147	$211	-$1,279	$343
	M&C Care	20,388	$3,747	$4,311	30,150	$3,658	$4,309	-$87	-2.3	0.423	-$266	$92	-$300	$126
	Neurological Care	2,526	$2,665	$3,185	4,681	$2,572	$3,238	-$145	-5.5	0.547	-$544	$253	-$622	$331
Surgical	Orthopedics	20,655	$1,090	$1,165	13,949	$1,046	$1,125	-$5	-0.4	0.945	-$116	$107	-$138	$129
	Spinal Procedures	2,761	$1,228	$1,353	2,289	$1,427	$1,311	$241	19.6	0.218	-$82	$564	-$146	$628

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.23: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,360	19.4	15.8	14,890	19.1	14.9	0.63	3.2	0.434	-0.69	1.94	-0.94	2.20
	GI Care	2,509	13.4	11.2	3,554	13.9	11.8	-0.23	-1.7	0.825	-1.95	1.49	-2.28	1.82
	M&C Care	20,388	26.1	23.4	30,150	25.9	23.9	-0.64	-2.4	0.407	-1.90	0.63	-2.15	0.87
	Neurological Care	2,526	45.3	42.1	4,681	46.1	42.6	0.32	0.7	0.849	-2.46	3.10	-3.00	3.64
Surgical	Orthopedics	20,655	40.1	20.0	13,949	36.5	22.2	-5.85	-14.6	<0.001	-8.54	-3.15	-9.06	-2.63
	Spinal Procedures	1,634	24.8	12.2	1,351	27.8	20.1	-4.93	-19.9	0.158	-10.69	0.82	-11.79	1.92

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.24: Impact of BPCI Advanced on Number of Days in SNF Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
Medical	Cardiac Care	1,462	30.9	28.8	2,953	30.8	29.6	-0.83	-2.7	0.424	-2.55	0.89	-2.88	1.22
	GI Care	349	33.8	30.7	558	32.4	30.3	-1.03	-3.0	0.614	-4.40	2.34	-5.05	3.00
	M&C Care	5,557	34.4	32.4	7,996	33.7	32.0	-0.27 ‡	-0.8	0.702	-1.44	0.90	-1.67	1.12
	Neurological Care	682	40.1	35.6	1,246	40.8	38.5	-2.26	-5.6	0.065	-4.27	-0.25	-4.67	0.14
Surgical	Orthopedics	3,727	26.2	21.3	2,608	27.7	25.1	-2.20	-8.4	0.027	-3.83	-0.57	-4.14	-0.25
	Spinal Procedures	189	21.6	20.2	190	24.5	25.5	-2.38	-11.0	0.352	-6.63	1.88	-7.49	2.74

Note: See the first page of this appendix for data sources and more information. The *MJRUE* CE was included in the corresponding CESLG results for the outcome. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

D. Pooled Parallel Trends

Exhibit H.25: Results of Parallel Trends Tests, Payment Outcomes, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Total Episode Payments		Total Paid Payments		SNF Payments		IRF Payments		HH Payments		Readmissions Payments	
	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
All Clinical Episodes	-$8	0.323	-$5	0.454	-$8 ‡	0.077	$2	0.505	$0	0.732	$0	0.990
Medical	-$11	0.198	-$8	0.299	-$9 ‡	0.046	$3	0.400	$0	0.682	-$2	0.572
Hospital	-$8	0.316	-$6	0.460	-$8	0.112	$2	0.546	-$1	0.462	$0	0.880
PGP	-$34 ‡	0.099	-$30	0.119	-$20 ‡	0.092	-$1	0.924	$3	0.246	-$9	0.203
Surgical	$3	0.836	$2	0.874	$0	0.977	-$1	0.922	-$1	0.707	$7 ‡	0.070
Hospital	$8	0.696	$8	0.672	-$3	0.767	$2	0.864	$0	0.963	$8 ‡	0.094
PGP	-$6	0.795	-$11	0.631	$17	0.310	-$14	0.251	-$9	0.278	$7	0.196

Note: See the first page of this appendix for data sources and more information.

Exhibit H.26: Results of Parallel Trends Tests, Utilization Outcomes, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	First Discharge to Institutional PAC Setting		SNF Days	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient	P-Value
All Clinical Episodes	-0.01	0.661	-0.05 ‡	0.012
Medical	-0.01	0.662	-0.05 ‡	0.019
Hospital	0.00	0.815	-0.06 ‡	0.013
PGP	-0.07	0.127	-0.05	0.382
Surgical	-0.07	0.407	-0.03	0.402
Hospital	-0.01	0.912	-0.07	0.142
PGP	-0.19	0.207	0.02	0.657

Note: See the first page of this appendix for data sources and more information. The *MJRUE* CE was included in the corresponding CESLG and pooled grouping results for the SNF Days outcome.

E. Hospital Individual CESLG Parallel Trends

Exhibit H.27: Results of Parallel Trends Tests, Payment Outcomes, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		Total Episode Payments		Total Paid Payments		SNF Payments		IRF Payments		HH Payments		Readmissions Payments	
		Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
Medical	Cardiac Care	-$10	0.551	-$7	0.639	-$11	0.160	$5	0.130	$0	0.804	-$4	0.582
	GI Care	-$19	0.384	-$13	0.506	-$10	0.350	$1	0.827	$1	0.754	-$4	0.702
	M&C Care	-$5	0.580	-$3	0.722	-$6	0.299	$2	0.550	-$1	0.554	$1	0.863
	Neurological Care	-$21	0.544	-$17	0.582	-$12	0.499	-$10	0.552	-$4	0.197	$4	0.658
Surgical	Cardiac Procedures	$38	0.156	$33	0.216	-$4	0.714	$17 ‡	0.001	-$1	0.821	$13	0.241
	GI Surgery	$187 ‡	0.045	$168 ‡	0.049	$61 ‡	0.094	$33 ‡	0.099	$6	0.494	$45	0.162
	Orthopedics	-$5	0.859	$0	0.993	-$15	0.409	$2	0.918	$2	0.650	$8	0.159
	Spinal Procedures	$1	0.990	$0	0.992	$0	0.978	-$9	0.650	-$3	0.493	-$1	0.898

Note: See the first page of this appendix for data sources and more information.

Exhibit H.28: Results of Parallel Trends Tests, Utilization Outcomes, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		First Discharge to Institutional PAC Setting		SNF Days	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient	P-Value
Medical	Cardiac Care	-0.02	0.467	-0.09 ‡	0.016
	GI Care	-0.01	0.762	-0.10	0.169
	M&C Care	0.02	0.351	-0.05 ‡	0.064
	Neurological Care	-0.10	0.180	-0.05	0.446
Surgical	Cardiac Procedures	0.12	0.116	-0.02	0.848
	GI Surgery	0.11	0.518	0.22	0.197
	Orthopedics	-0.04	0.724	-0.08	0.106
	Spinal Procedures	-0.21 ‡	0.096	-0.04	0.704

Note: See the first page of this appendix for data sources and more information.

F. PGP Individual CESLG Parallel Trends

Exhibit H.29: Results of Parallel Trends Tests, Payment Outcomes, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		Total Episode Payments		Total Paid Payments		SNF Payments		IRF Payments		HH Payments		Readmissions Payments	
		Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
Medical	Cardiac Care	-$18	0.541	-$19	0.472	$6	0.701	$4	0.608	$4	0.346	-$17	0.214
	GI Care	-$24	0.534	-$24	0.509	-$24	0.209	-$10	0.272	-$2	0.562	-$6	0.745
	M&C Care	-$38	0.183	-$31	0.228	-$32 ‡	0.026	$3	0.799	$3	0.257	-$6	0.491
	Neurological Care	-$23	0.718	-$24	0.698	$15	0.679	-$36	0.457	$4	0.585	$4	0.806
Surgical	Orthopedics	-$8	0.748	-$14	0.559	$28	0.117	-$20	0.121	-$10	0.283	$5	0.390
	Spinal Procedures	-$70	0.400	-$66	0.391	-$40 ‡	0.018	-$3	0.848	-$2	0.796	$10	0.387

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.30: Results of Parallel Trends Tests, Utilization Outcomes, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		First Discharge to Institutional PAC Setting		SNF Days	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient	P-Value
Medical	Cardiac Care	-0.02	0.780	0.14	0.106
	GI Care	-0.11	0.198	-0.16	0.371
	M&C Care	-0.08	0.165	-0.13 ‡	0.070
	Neurological Care	-0.11	0.438	0.03	0.831
Surgical	Orthopedics	-0.19	0.230	0.04	0.488
	Spinal Procedures	-0.34	0.155	-0.29	0.162

Note: See the first page of this appendix for data sources and more information. The *MJRUE* CE was included in the corresponding CESLG results for the SNF Days outcome. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

G. Pooled Impact Estimate and Sensitivity Analysis

Exhibit H.31: BPCI Advanced Impact Estimate and Sensitivity Test Results, Total Episode Payments During the Anchor Stay and 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Result	BPCI Advanced			Comparison			DiD	90% LCI	90% UCI
		MY5 Episodes (N)	Baseline	MY5	MY5 Episodes (N)	Baseline	MY5			
All Clinical Episodes	BPCI Advanced Impact Estimate	257,303	$26,453	$27,703	274,333	$26,098	$28,362	-$1,014	-$1,250	-$777
	No BPCI-C Episodes	257,303	$26,490	$27,752	274,333	$26,140	$28,408	-$1,005	-$1,241	-$769
	ITT	300,337	$26,493	$27,830	316,276	$26,140	$28,442	-$965	-$1,191	-$739
Medical	BPCI Advanced Impact Estimate	198,165	$25,456	$27,510	220,760	$25,153	$27,952	-$745	-$969	-$522
	No BPCI-C Episodes	198,165	$25,470	$27,515	220,760	$25,153	$27,958	-$759	-$983	-$535
	ITT	233,613	$25,500	$27,599	255,175	$25,197	$28,022	-$725	-$940	-$511
Hospital	BPCI Advanced Impact Estimate	170,378	$25,591	$27,635	181,726	$25,348	$28,163	-$771	-$1,024	-$518
	No BPCI-C Episodes	170,378	$25,615	$27,646	181,726	$25,346	$28,173	-$796	-$1,050	-$542
	ITT	201,523	$25,639	$27,710	213,363	$25,397	$28,222	-$755	-$994	-$515
PGP	BPCI Advanced Impact Estimate	32,783	$24,980	$27,135	53,275	$24,260	$27,012	-$596 ‡	-$1,044	-$149
	No BPCI-C Episodes	32,783	$24,924	$27,084	53,275	$24,198	$26,944	-$585	-$1,043	-$128
	ITT	37,683	$25,008	$27,277	59,438	$24,289	$27,124	-$565 ‡	-$1,016	-$115
Surgical	BPCI Advanced Impact Estimate	59,138	$30,781	$29,570	53,573	$30,185	$30,668	-$1,694	-$2,154	-$1,235
	No BPCI-C Episodes	59,138	$31,182	$30,057	53,573	$30,682	$31,153	-$1,596	-$2,074	-$1,118
	ITT	66,724	$30,807	$29,711	61,101	$30,217	$30,743	-$1,622	-$2,060	-$1,184
Hospital	BPCI Advanced Impact Estimate	37,383	$32,258	$31,597	38,956	$31,532	$32,399	-$1,527	-$2,128	-$926
	No BPCI-C Episodes	37,383	$32,475	$31,880	38,956	$31,826	$32,682	-$1,451	-$2,063	-$839
	ITT	43,331	$32,274	$31,692	44,812	$31,557	$32,453	-$1,478	-$2,049	-$906
PGP	BPCI Advanced Impact Estimate	23,416	$27,351	$25,464	16,238	$27,097	$26,725	-$1,515	-$2,242	-$787
	No BPCI-C Episodes	23,416	$27,763	$26,065	16,238	$27,775	$27,339	-$1,262	-$2,127	-$397
	ITT	25,249	$27,376	$25,569	18,236	$27,128	$26,788	-$1,466	-$2,158	-$774

Note: See the first page of this appendix for data sources and more information.

Exhibit H.32: BPCI Advanced Impact Estimate and National Comparison Sample Sensitivity Test Results, Total Episode Payments Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Result	BPCI Advanced			Comparison			DiD	90% LCI	90% UCI
		MY5 Episodes (N)	Baseline	MY5	MY5 Episodes (N)	Baseline	MY5			
Medical	BPCI Advanced Impact Estimate	198,165	$25,456	$27,510	220,760	$25,153	$27,952	-$745	-$969	-$522
	National Comparison Group	227,744	$25,370	$27,452	1,114,702	$24,685	$27,501	-$734 ‡	-$916	-$552
Surgical	BPCI Advanced Impact Estimate	59,138	$30,781	$29,570	53,573	$30,185	$30,668	-$1,694	-$2,154	-$1,235
	National Comparison Group	54,201	$31,124	$30,237	605,555	$30,121	$31,525	-$2,290 ‡	-$2,589	-$1,991

Note: See the first page of this appendix for data sources and more information.

Exhibit H.33: BPCI Advanced Impact Estimate and Sensitivity Test Results, Proportion of Episodes First Discharged to Institutional PAC Setting Through the 90-day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
All Clinical Episodes	BPCI Advanced Impact Estimate	250,823	28.6	21.8	267,665	27.7	22.6	-1.73	-2.42	-1.05
	No BPCI-C Episodes	250,823	28.4	21.8	267,665	27.6	22.5	-1.53	-2.18	-0.88
	ITT	292,888	28.7	22.1	308,726	27.7	22.7	-1.58	-2.23	-0.93
Medical	BPCI Advanced Impact Estimate	198,165	26.1	22.1	220,760	25.4	22.1	-0.69	-1.12	-0.26
	No BPCI-C Episodes	198,165	26.0	22.1	220,760	25.3	22.1	-0.72	-1.16	-0.27
	ITT	233,613	26.1	22.2	255,175	25.5	22.2	-0.66	-1.09	-0.23
Hospital	BPCI Advanced Impact Estimate	170,378	26.2	22.1	181,726	25.4	22.1	-0.83	-1.31	-0.35
	No BPCI-C Episodes	170,378	26.2	22.0	181,726	25.4	22.1	-0.85	-1.34	-0.37
	ITT	201,523	26.3	22.1	213,363	25.5	22.2	-0.83	-1.30	-0.36
PGP	BPCI Advanced Impact Estimate	32,783	25.2	22.3	53,275	25.0	22.2	-0.06	-1.12	1.00
	No BPCI-C Episodes	32,783	25.0	22.2	53,275	24.7	22.0	-0.09	-1.18	1.01
	ITT	37,683	25.2	22.6	59,438	25.0	22.3	0.11	-0.94	1.16
Surgical	BPCI Advanced Impact Estimate	52,658	41.4	24.5	46,905	38.4	26.9	-5.38	-7.32	-3.44
	No BPCI-C Episodes	52,658	41.0	24.9	46,905	39.4	27.4	-4.05	-5.84	-2.26
	ITT	59,275	41.4	24.8	53,551	38.5	26.9	-5.07	-6.97	-3.16
Hospital	BPCI Advanced Impact Estimate	32,000	42.6	27.6	33,118	40.1	29.5	-4.38	-7.04	-1.72
	No BPCI-C Episodes	32,000	42.2	27.9	33,118	40.9	29.7	-3.11	-5.58	-0.64
	ITT	37,156	42.6	27.8	38,206	40.2	29.5	-4.18	-6.76	-1.60
PGP	BPCI Advanced Impact Estimate	22,289	38.9	19.3	15,300	35.7	22.0	-5.94	-8.51	-3.37
	No BPCI-C Episodes	22,289	37.9	19.8	15,300	36.9	22.8	-3.93	-6.45	-1.42
	ITT	23,943	38.9	19.5	17,103	35.7	22.0	-5.70	-8.27	-3.13

Note: See the first page of this appendix for data sources and more information.

H. Hospital Individual CESLG Impact Estimate and Sensitivity Analysis

Exhibit H.34: BPCI Advanced Impact Estimate and Sensitivity Test Results, Total Episode Payments Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD	90% LCI	90% UCI
		MY5 Episodes (N)	Baseline	MY5	MY5 Episodes (N)	Baseline	MY5			
Cardiac Care	BPCI Advanced Impact Estimate	34,416	$24,783	$25,338	37,120	$24,377	$25,574	-$642	-$1,015	-$269
	No BPCI-C Episodes	34,416	$24,805	$25,334	37,120	$24,329	$25,570	-$711	-$1,087	-$336
	ITT	40,151	$24,828	$25,435	43,474	$24,425	$25,690	-$659	-$1,014	-$303
GI Care	BPCI Advanced Impact Estimate	10,839	$20,828	$22,593	11,100	$20,802	$22,657	-$89	-$552	$373
	No BPCI-C Episodes	10,839	$20,865	$22,626	11,100	$20,819	$22,682	-$101	-$565	$362
	ITT	12,797	$20,868	$22,663	13,029	$20,846	$22,671	-$30	-$462	$401
M&C Care	BPCI Advanced Impact Estimate	113,943	$25,862	$28,496	121,778	$25,628	$29,086	-$824	-$1,122	-$527
	No BPCI-C Episodes	113,943	$25,898	$28,518	121,778	$25,647	$29,106	-$840	-$1,138	-$541
	ITT	135,349	$25,910	$28,563	142,984	$25,677	$29,121	-$792	-$1,072	-$511
Neurological Care	BPCI Advanced Impact Estimate	11,180	$30,157	$31,671	11,728	$30,113	$32,574	-$947	-$1,688	-$206
	No BPCI-C Episodes	11,180	$30,081	$31,609	11,728	$30,065	$32,511	-$918	-$1,666	-$171
	ITT	13,226	$30,194	$31,717	13,876	$30,146	$32,669	-$1,000	-$1,687	-$314
Cardiac Procedures	BPCI Advanced Impact Estimate	8,015	$28,376	$29,796	8,678	$27,668	$29,937	-$850	-$1,485	-$215
	No BPCI-C Episodes	8,015	$28,315	$29,737	8,678	$27,600	$29,877	-$855	-$1,492	-$218
	ITT	9,270	$28,408	$29,759	10,013	$27,691	$29,886	-$844	-$1,439	-$249
GI Surgery	BPCI Advanced Impact Estimate	1,221	$38,114	$38,601	1,224	$37,636	$38,156	-$33	-$1,965	$1,899
	No BPCI-C Episodes	1,221	$38,101	$38,597	1,224	$37,619	$38,155	-$40	-$1,969	$1,890
	ITT	1,358	$38,175	$38,761	1,331	$37,697	$38,106	$177	-$1,691	$2,046
Orthopedics	BPCI Advanced Impact Estimate	20,960	$32,143	$30,471	22,144	$30,952	$31,091	-$1,811	-$2,566	-$1,057
	No BPCI-C Episodes	20,960	$32,759	$31,212	22,144	$31,711	$31,818	-$1,655	-$2,400	-$909
	ITT	24,420	$32,126	$30,584	25,568	$30,956	$31,162	-$1,748	-$2,486	-$1,010
Spinal Procedures	BPCI Advanced Impact Estimate	7,187	$36,818	$36,240	6,910	$36,451	$37,706	-$1,833	-$3,174	-$493
	No BPCI-C Episodes	7,187	$36,507	$36,000	6,910	$36,180	$37,469	-$1,795	-$3,138	-$453
	ITT	8,283	$36,900	$36,444	7,900	$36,546	$37,898	-$1,807	-$3,052	-$563

Note: See the first page of this appendix for data sources and more information.

Exhibit H.35: BPCI Advanced Impact Estimate and Sensitivity Test Results, Proportion of Episodes First Discharged to Institutional PAC Setting Through the 90-day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
Cardiac Care	BPCI Advanced Impact Estimate	34,416	20.2	15.1	37,120	19.3	14.9	-0.80	-1.41	-0.19
	No BPCI-C Episodes	34,416	20.2	14.7	37,120	19.1	14.5	-0.89	-1.56	-0.23
	ITT	40,151	20.3	15.3	43,474	19.3	15.1	-0.76	-1.36	-0.16
GI Care	BPCI Advanced Impact Estimate	10,839	15.3	13.2	11,100	14.8	12.3	0.37	-0.43	1.18
	No BPCI-C Episodes	10,839	15.4	13.2	11,100	14.8	12.2	0.42	-0.43	1.27
	ITT	12,797	15.4	13.2	13,029	14.8	12.4	0.28	-0.48	1.05
M&C Care	BPCI Advanced Impact Estimate	113,943	27.4	23.7	121,778	26.7	23.9	-0.88	-1.45	-0.31
	No BPCI-C Episodes	113,943	27.4	23.4	121,778	26.7	23.6	-0.93	-1.53	-0.34
	ITT	135,349	27.5	23.8	142,984	26.8	24.0	-0.88	-1.44	-0.33
Neurological Care	BPCI Advanced Impact Estimate	11,180	43.7	36.8	11,728	43.0	37.5	-1.34	-2.71	0.02
	No BPCI-C Episodes	11,180	43.5	36.5	11,728	42.9	37.1	-1.22	-2.66	0.22
	ITT	13,226	43.7	36.9	13,876	43.0	37.5	-1.33	-2.59	-0.07
Cardiac Procedures	BPCI Advanced Impact Estimate	4,602	16.9	10.9	4,777	16.0	12.3	-2.22 ‡	-3.62	-0.81
	No BPCI-C Episodes	4,602	16.8	10.5	4,777	16.0	12.0	-2.29 ‡	-3.82	-0.77
	ITT	5,362	16.9	11.3	5,634	16.0	12.1	-1.70 ‡	-3.04	-0.36
GI Surgery	BPCI Advanced Impact Estimate	1,221	29.6	19.5	1,224	28.8	20.1	-1.41	-4.23	1.40
	No BPCI-C Episodes	1,221	29.7	19.6	1,224	28.7	19.9	-1.37	-4.25	1.51
	ITT	1,358	29.6	19.9	1,331	28.8	20.3	-1.26	-3.89	1.38
Orthopedics	BPCI Advanced Impact Estimate	20,960	53.6	35.0	22,144	49.5	36.4	-5.58	-9.63	-1.54
	No BPCI-C Episodes	20,960	54.4	36.6	22,144	51.8	37.9	-3.83	-7.54	-0.13
	ITT	24,420	53.5	35.0	25,568	49.4	36.3	-5.43	-9.35	-1.51
Spinal Procedures	BPCI Advanced Impact Estimate	5,217	32.7	21.1	4,973	32.5	24.6	-3.67 ‡	-6.06	-1.29
	No BPCI-C Episodes	5,217	32.7	21.3	4,973	32.8	24.8	-3.44 ‡	-5.85	-1.04
	ITT	6,016	32.8	21.2	5,673	32.7	24.8	-3.68 ‡	-6.01	-1.35

Note: See the first page of this appendix for data sources and more information.

I. PGP Individual CESLG Impact Estimate and Sensitivity Analysis

Exhibit H.36: BPCI Advanced Impact Estimate and Sensitivity Test Results, Total Episode Payments Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD	90% LCI	90% UCI
		MY5 Episodes (N)	Baseline	MY5	MY5 Episodes (N)	Baseline	MY5			
Cardiac Care	BPCI Advanced Impact Estimate	7,360	$24,511	$25,825	14,890	$23,759	$24,878	$195	-$446	$837
	No BPCI-C Episodes	7,360	$24,411	$25,748	14,890	$23,672	$24,761	$248	-$406	$902
	ITT	8,276	$24,535	$26,056	16,166	$23,787	$25,073	$235	-$384	$854
GI Care	BPCI Advanced Impact Estimate	2,509	$20,021	$21,556	3,554	$20,235	$22,293	-$522	-$1,505	$462
	No BPCI-C Episodes	2,509	$20,014	$21,548	3,554	$20,213	$22,241	-$494	-$1,473	$484
	ITT	2,784	$20,036	$21,470	3,964	$20,254	$22,292	-$604	-$1,525	$318
M&C Care	BPCI Advanced Impact Estimate	20,388	$24,922	$27,525	30,150	$24,035	$27,517	-$880	-$1,417	-$343
	No BPCI-C Episodes	20,388	$24,966	$27,557	30,150	$24,047	$27,528	-$889	-$1,441	-$338
	ITT	23,735	$24,957	$27,649	34,260	$24,069	$27,547	-$786	-$1,334	-$238
Neurological Care	BPCI Advanced Impact Estimate	2,526	$31,109	$33,116	4,681	$30,605	$34,357	-$1,745	-$3,050	-$440
	No BPCI-C Episodes	2,526	$30,854	$32,939	4,681	$30,427	$34,148	-$1,636	-$3,002	-$271
	ITT	2,888	$31,132	$33,156	5,048	$30,632	$34,638	-$1,982	-$3,261	-$703
Orthopedics	BPCI Advanced Impact Estimate	20,655	$26,961	$24,993	13,949	$26,413	$26,192	-$1,747 ‡	-$2,455	-$1,039
	No BPCI-C Episodes	20,655	$27,498	$25,725	13,949	$27,188	$26,936	-$1,521 ‡	-$2,376	-$667
	ITT	22,009	$26,969	$25,048	15,577	$26,430	$26,220	-$1,711 ‡	-$2,393	-$1,029
Spinal Procedures	BPCI Advanced Impact Estimate	2,761	$29,616	$28,408	2,289	$31,214	$30,008	-$2 ‡	-$2,661	$2,658
	No BPCI-C Episodes	2,761	$29,075	$27,902	2,289	$30,693	$29,484	$35 ‡	-$2,609	$2,680
	ITT	3,240	$29,689	$28,778	2,659	$31,295	$30,331	$53 ‡	-$2,431	$2,537

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit H.37: BPCI Advanced Impact Estimate and Sensitivity Test Results, Proportion of Episodes First Discharged to Institutional PAC Setting Through the 90-day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
Cardiac Care	BPCI Advanced Impact Estimate	7,360	19.4	15.8	14,890	19.1	14.9	0.63 pp	-0.69	1.94
	No BPCI-C Episodes	7,360	19.3	15.8	14,890	18.9	14.8	0.57 pp	-0.78	1.91
	ITT	8,276	19.4	16.1	16,166	19.1	15.1	0.72 pp	-0.57	2.00
GI Care	BPCI Advanced Impact Estimate	2,509	13.4	11.2	3,554	13.9	11.8	-0.23 pp	-1.95	1.49
	No BPCI-C Episodes	2,509	13.4	11.1	3,554	13.7	11.7	-0.26 pp	-1.96	1.44
	ITT	2,784	13.5	11.2	3,964	13.9	12.0	-0.41 pp	-2.03	1.20
M&C Care	BPCI Advanced Impact Estimate	20,388	26.1	23.4	30,150	25.9	23.9	-0.64 pp	-1.90	0.63
	No BPCI-C Episodes	20,388	26.1	23.4	30,150	25.8	23.7	-0.60 pp	-1.93	0.72
	ITT	23,735	26.1	23.6	34,260	25.9	23.9	-0.44 pp	-1.70	0.83
Neurological Care	BPCI Advanced Impact Estimate	2,526	45.3	42.1	4,681	46.1	42.6	0.32 pp	-2.46	3.10
	No BPCI-C Episodes	2,526	44.2	41.2	4,681	45.1	41.6	0.48 pp	-2.39	3.36
	ITT	2,888	45.3	42.1	5,048	46.1	42.4	0.49 pp	-2.13	3.10
Orthopedics	BPCI Advanced Impact Estimate	20,655	40.1	20.0	13,949	36.5	22.2	-5.85 pp ‡	-8.54	-3.15
	No BPCI-C Episodes	20,655	39.5	20.9	13,949	38.1	23.3	-3.79 pp ‡	-6.38	-1.19
	ITT	22,009	40.1	20.1	15,577	36.5	22.3	-5.73 pp ‡	-8.44	-3.02
Spinal Procedures	BPCI Advanced Impact Estimate	1,634	24.8	12.2	1,351	27.8	20.1	-4.93 pp ‡	-10.69	0.82
	No BPCI-C Episodes	1,634	23.4	11.3	1,351	26.9	19.2	-4.36 pp ‡	-9.95	1.23
	ITT	1,934	25.0	12.6	1,526	28.0	19.7	-4.11 pp ‡	-9.43	1.22

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Appendix I: Medicare Program Savings – Results

Exhibits I.1 – I.6 display Medicare Program Savings (MPS) results assessed in this report. Net savings to Medicare is the estimated reduction in nonstandardized payments minus reconciliation payments paid to or received from participants. The estimate of the reduction in nonstandardized payments is based on a risk-adjusted difference-in-differences (DiD) model.[1] Adjusted reconciliation amounts account for quality adjustments and stop-loss or stop-gain limits, while unadjusted amounts do not; Exhibit I.7 displays results with and without this adjustment. Please refer to **Appendix C** for additional information on methods.

Net savings are reported such that a positive value indicates savings to Medicare and a negative value indicates losses to Medicare. Reconciliation payments are reported such that a positive value indicates payment made from CMS to participants, and a negative value indicates payments made from participants to CMS. Results expressed as a percentage are calculated as a percentage of the BPCI Advanced counterfactual.[2] Some numbers are presented in millions of dollars (denoted by "M"). Please refer to **Appendix A** for the definitions of all other acronyms used within the following appendix.

The sample size reported is the "evaluation count," which is the number of episodes that we multiplied by the per-episode payment reduction from the DiD model to obtain the total reduction in nonstandardized payments. This N differs from the number of episodes included in reconciliation; for example, the evaluation count includes episodes excluded from reconciliation because the patient was diagnosed with COVID-19 during the episode. This N is also greater than the number of BPCI Advanced episodes in the intervention included in the DiD models, due to various exclusions including failure to find a suitable match during comparison group construction. The sample size as a percentage represents the evaluation count in a given grouping divided by the total evaluation count across all groupings.

Results for smaller groupings may not add up to results for larger groupings – for example, the estimated savings for medical episodes and surgical episodes may not sum to the estimated savings for all episodes. This discrepancy is because the reductions in payments are estimated using separate models, and risk adjustment may differ.

Results reflect the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period), and episodes with anchor stays or procedures beginning on or after January 1, 2022, and ending on or before December 31, 2022 (Model Year 5) for BPCI Advanced and matched comparison hospitals and PGPs. Results are based on clinical episodes with sufficient sample size for evaluation. Reconciliation results reflect the CMS reconciliation data for BPCI Advanced hospitals and PGPs from Model Year 5.[3]

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1 The DiD model is based on standardized Part A and B Medicare paid amounts, which exclude beneficiary cost sharing.

2 The counterfactual is an estimate of what payments would have been absent the BPCI Advanced Model. The BPCI Advanced counterfactual is calculated as the average risk-adjusted BPCI Advanced nonstandardized payments in the baseline plus the change in the average risk-adjusted nonstandardized payments for the comparison group from baseline to intervention (where all averages are risk-adjusted to the overall set of evaluated episodes).

3 Data are from the second True-Up for all Performance Periods.

Exhibit I.1: Net Medicare Savings, BPCI Advanced Hospital and PGP Participants, January 1, 2022 – December 31, 2022

Clinical Episode Type	Reduction in Nonstandardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	95% LCI (M)	95% UCI (M)
All Evaluated Clinical Episodes (n=314,622)	$317.75	-$26.32	$344.08	$263.51	$424.65	$248.06	$440.09
Medical (n=75%)	$165.28	-$52.07	$217.34	$164.62	$270.07	$154.51	$280.18
Hospitals (n=62%)	$141.36	-$34.94	$176.30	$126.65	$225.94	$117.13	$235.46
PGPs (n=13%)	$23.91	-$17.12	$41.04	$23.24	$58.83	$19.82	$62.25
Surgical (n=25%)	$140.91	$25.74	$115.17	$73.63	$156.70	$65.66	$164.67
Hospitals (n=12%)	$57.19	-$0.44	$57.62	$32.16	$83.09	$27.27	$87.98
PGPs (n=14%)	$67.77	$26.18	$41.59	$8.26	$74.92	$1.82	$81.36

Note: See the first page of this appendix for data sources and more information.

Exhibit I.2: Net Medicare Savings, Expressed as a Percentage of the BPCI Advanced Counterfactual, BPCI Advanced Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Reduction in Nonstandardized Payments (%)	Reconciliation Payments (%)	Savings to Medicare (%)	90% LCI (%)	90% UCI (%)	95% LCI (%)	95% UCI (%)
All Evaluated Clinical Episodes (n=314,622)	3.6	-0.3	3.9	3.0	4.9	2.8	5.0
Medical (n=75%)	2.6	-0.8	3.4	2.6	4.2	2.4	4.4
Hospitals (n=62%)	2.6	-0.7	3.3	2.4	4.2	2.2	4.4
PGPs (n=13%)	2.3	-1.6	3.9	2.2	5.6	1.9	5.9
Surgical (n=25%)	5.8	1.1	4.8	3.1	6.5	2.7	6.8
Hospitals (n=12%)	4.8	0.0	4.8	2.7	6.9	2.3	7.3
PGPs (n=14%)	6.3	2.4	3.9	0.8	7.0	0.2	7.6

Note: See the first page of this appendix for data sources and more information.

Exhibit I.3: Net Medicare Savings per Episode, BPCI Advanced Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Reduction in Nonstandardized Payments per Episode	Reconciliation Payments per Episode	Savings to Medicare per Episode	90% LCI	90% UCI	95% LCI	95% UCI
All Evaluated Clinical Episodes (n=314,622)	$1,010	-$84	$1,094	$838	$1,350	$788	$1,399
Medical (n=75%)	$705	-$222	$927	$702	$1,152	$659	$1,195
Hospitals (n=62%)	$727	-$180	$906	$651	$1,161	$602	$1,210
PGPs (n=13%)	$600	-$429	$1,029	$583	$1,475	$497	$1,561
Surgical (n=25%)	$1,757	$321	$1,436	$918	$1,954	$819	$2,054
Hospitals (n=12%)	$1,542	-$12	$1,554	$867	$2,241	$735	$2,373
PGPs (n=14%)	$1,572	$607	$965	$192	$1,738	$42	$1,887

Note: See the first page of this appendix for data sources and more information.

Exhibit I.4: Net Medicare Savings, BPCI Advanced Hospitals and PGPs, October 1, 2018 – December 31, 2022

Clinical Episode Type	MY 1&2			MY3			MY4			MY5		
	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)
All Evaluated Clinical Episodes	-$65.75	-$152.00	$20.50	-$113.74	-$207.36	-$20.12	$464.72	$376.62	$552.82	$344.08	$263.51	$424.65
Medical	-$275.02	-$342.92	-$207.11	-$200.49	-$272.76	-$128.22	$305.98	$237.50	$374.46	$217.34	$164.62	$270.07
Hospitals	-$241.93	-$291.62	-$192.24	-$166.60	-$222.05	-$111.15	$223.54	$164.60	$282.48	$176.30	$126.65	$225.94
PGPs	-$48.34	-$93.88	-$2.81	-$60.41	-$103.37	-$17.46	$84.78	$52.53	$117.03	$41.04	$23.24	$58.83
Surgical	$204.40	$153.90	$254.89	$71.32	$31.38	$111.26	$147.12	$111.72	$182.52	$115.17	$73.63	$156.70
Hospitals	$41.48	$29.35	$53.60	$6.25	-$14.05	$26.56	$79.93	$55.96	$103.91	$57.62	$32.16	$83.09
PGPs	$157.10	$109.18	$205.03	$58.56	$26.66	$90.46	$62.18	$35.95	$88.41	$41.59	$8.26	$74.92

Note: See the first page of this appendix for data sources and more information.

Exhibit I.5: Net Medicare Savings by CESLG, BPCI Advanced Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode Type	CESLG	Reduction in Nonstandardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	95% LCI (M)	95% UCI (M)	Savings as a Percent (%)	90% LCI (%)	90% UCI (%)
Medical	Cardiac Care (n=12%)	$21.99	$14.86	$7.13	-$6.71	$20.98	-$9.37	$23.64	0.8	-0.7	2.3
	GI Care (n=4%)	$0.68	-$9.32	$10.00	$4.87	$15.14	$3.88	$16.12	4.2	2.0	6.3
	M&C Care (n=42%)	$102.25	-$32.06	$134.31	$95.20	$173.41	$87.70	$180.91	3.6	2.6	4.6
	Neurological Care (n=5%)	$13.85	-$8.42	$22.27	$10.11	$34.43	$7.78	$36.76	4.3	2.0	6.7
Surgical	Cardiac Procedures (n=2%)	$6.71	$2.18	$4.53	-$0.30	$9.37	-$1.23	$10.30	2.1	-0.1	4.3
	GI Surgery (n=<1%)	$0.07	-$3.73	$3.80	$1.41	$6.20	$0.94	$6.67	7.9	2.9	12.9
	Orthopedics (n=7%)	$37.87	$2.33	$35.54	$17.80	$53.29	$14.39	$56.70	5.4	2.7	8.1
	Spinal Procedures (n=2%)	$14.26	-$1.21	$15.47	$4.72	$26.21	$2.65	$28.29	5.3	1.6	9.0

Note: See the first page of this appendix for data sources and more information.

Exhibit I.6: Net Medicare Savings by CESLG, BPCI Advanced PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	CESLG	Reduction in Nonstandardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	95% LCI (M)	95% UCI (M)	Savings as a Percent (%)	90% LCI (%)	90% UCI (%)
Medical	Cardiac Care (n=3%)	-$2.17	-$4.25	$2.07	-$3.86	$8.01	-$5.01	$9.16	0.9	-1.7	3.6
	GI Care (n=1%)	$1.42	-$1.47	$2.88	$0.14	$5.63	-$0.40	$6.17	5.1	0.2	9.9
	M&C Care (n=8%)	$23.20	-$8.94	$32.13	$18.80	$45.46	$16.23	$48.03	4.7	2.7	6.6
	Neurological Care (n=1%)	$4.62	-$2.47	$7.09	$3.40	$10.79	$2.68	$11.51	7.6	3.6	11.5
Surgical	Orthopedics (n=12%)	$68.51	$21.33	$47.18	$18.16	$76.19	$12.55	$81.81	5.1	2.0	8.2
	Spinal Procedures (n=2%)	-$0.24	$4.85	-$5.09	-$18.92	$8.74	-$21.66	$11.48	-3.6	-13.3	6.2

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit I.7: Comparison of Net Medicare Savings Results Using Adjusted and Unadjusted Reconciliation Payments, January 1, 2022 – December 31, 2022

Clinical Episode Type	Adjustment to Reconciliation Payments	Reduction in Nonstandardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	95% LCI (M)	95% UCI (M)	Savings as a Percent (%)
All Evaluated Clinical Episodes	Adjusted	$317.75	-$26.32	$344.08	$263.51	$424.65	$248.06	$440.09	3.9
	Unadjusted	$317.75	-$35.24	$352.99	$272.42	$433.56	$256.98	$449.01	4.0
Medical	Adjusted	$165.28	-$52.07	$217.34	$164.62	$270.07	$154.51	$280.18	3.4
	Unadjusted	$165.28	-$60.95	$226.23	$173.50	$278.96	$163.39	$289.07	3.5
Hospitals	Adjusted	$141.36	-$34.94	$176.30	$126.65	$225.94	$117.13	$235.46	3.3
	Unadjusted	$141.36	-$40.82	$182.17	$132.53	$231.82	$123.01	$241.34	3.4
PGPs	Adjusted	$23.91	-$17.12	$41.04	$23.24	$58.83	$19.82	$62.25	3.9
	Unadjusted	$23.91	-$20.14	$44.05	$26.25	$61.84	$22.83	$65.26	4.2
Surgical	Adjusted	$140.91	$25.74	$115.17	$73.63	$156.70	$65.66	$164.67	4.8
	Unadjusted	$140.91	$25.71	$115.20	$73.66	$156.73	$65.69	$164.70	4.8
Hospitals	Adjusted	$57.19	-$.44	$57.62	$32.16	$83.09	$27.27	$87.98	4.8
	Unadjusted	$57.19	-$1.26	$58.45	$32.99	$83.92	$28.10	$88.81	4.9
PGPs	Adjusted	$67.77	$26.18	$41.59	$8.26	$74.92	$1.82	$81.36	3.9
	Unadjusted	$67.77	$26.98	$40.79	$7.46	$74.12	$1.02	$80.56	3.8

Note: See the first page of this appendix for data sources and more information.

Appendix J: Exhibits of Impact Estimate Results for Quality and Related Claims-Based Measures

The following exhibits in Sections A through C display the risk adjusted difference-in-differences (DiD) results for all quality and related measures assessed in this report. The "DiD as a Percent" refers to the DiD estimate as a percentage of the BPCI Advanced baseline mean. For this report, we excluded outpatient back and neck except spinal fusion and major joint replacement of the upper extremity episodes from analyses of quality and related claims-based outcomes, due to the low occurrence of mortality and readmissions.

The exhibits in Sections D through F display the risk-adjusted parallel trends test results associated with the impact estimates for quality and related measures evaluated. As described in **Appendix C**, we tested the null hypothesis that BPCI Advanced and comparison hospitals and physician group practices (PGPs) had parallel trends during the baseline period at the 10% level of statistical significance. We noted with the dagger symbol ("‡") estimates where we reject the null hypothesis that there were parallel trends in the baseline, indicating a parallel trends failure for this result. A failure of the parallel trends test indicates that BPCI Advanced and matched comparison hospitals and PGPs did not have the same trends for that outcome in the baseline period. This result may indicate that the impact estimate partially reflects a continuation of preexisting trends and does not solely reflect the impact of the BPCI Advanced Model.

The exhibits in Sections G through I display both the BPCI Advanced impact estimates for quality and related measures, and the sensitivity tests to understand whether the reported impact estimates were robust with respect to the episode sample used. First, we tested if our results are robust while excluding episodes initiated by hospitals and PGPs participating in the BPCI Initiative (referred to as "No BPCI-C Episodes"). We also estimated the intention-to-treat (ITT) results including episodes for all matched BPCI Advanced hospitals and PGPs and their matched comparisons, regardless of if the BPCI Advanced hospital or PGP withdrew from the model prior to the end of Model Year 5 (2022).

All Model Year 5 results are based on the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2022, and ending on or before December 31, 2022 for BPCI Advanced and comparison hospitals and PGPs and matched comparison providers.

Please refer to **Appendix A** for the definitions of all acronyms and symbols used within the following appendix. Please refer to **Appendix C** for additional information on outcome definitions and other methods.

A. Pooled Impact Estimates

Exhibit J.1: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Overall	255,081	27.6	27.3	272,185	27.3	26.9	0.13	0.5	0.444	-0.15	0.42	-0.21	0.48
Medical	195,988	30.9	30.7	218,635	30.7	30.3	0.23	0.8	0.241	-0.09	0.56	-0.16	0.62
Hospital	168,477	31.2	31.0	179,939	31.0	30.6	0.24	0.8	0.261	-0.11	0.59	-0.18	0.66
PGP	32,464	29.6	29.7	52,830	29.6	29.7	0.00	0.0	0.996	-0.74	0.73	-0.88	0.87
Surgical	59,093	13.3	12.3	53,550	12.6	11.8	-0.18	-1.4	0.487	-0.62	0.25	-0.70	0.33
Hospital	37,346	14.8	13.7	38,936	14.0	13.1	-0.17 ‡	-1.1	0.619	-0.73	0.39	-0.84	0.50
PGP	23,407	9.9	9.0	16,234	9.4	8.7	-0.17	-1.7	0.659	-0.79	0.46	-0.91	0.58

Note: See the first page of this appendix for data sources and more information.

Exhibit J.2: Impact of BPCI Advanced on Unplanned Readmission Rate Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Overall	255,081	26.3	25.9	272,185	26.0	25.5	0.21	0.8	0.234	-0.08	0.49	-0.13	0.55
Medical	195,988	29.6	29.4	218,635	29.4	28.9	0.31	1.1	0.118	-0.02	0.64	-0.08	0.70
Hospital	168,477	29.9	29.7	179,939	29.7	29.2	0.33	1.1	0.117	-0.02	0.68	-0.08	0.75
PGP	32,464	28.3	28.4	52,830	28.2	28.3	0.00	0.0	0.997	-0.75	0.75	-0.89	0.90
Surgical	59,093	12.1	11.0	53,550	11.4	10.5	-0.14	-1.1	0.562	-0.53	0.25	-0.60	0.33
Hospital	37,346	13.4	12.2	38,936	12.7	11.6	-0.11	-0.8	0.723	-0.61	0.40	-0.71	0.49
PGP	23,407	9.0	8.2	16,234	8.3	7.9	-0.30	-3.4	0.377	-0.87	0.26	-0.97	0.37

Note: See the first page of this appendix for data sources and more information.

Exhibit J.3: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Overall	260,581	15.1	14.5	278,806	14.9	14.4	-0.15	-1.0	0.364	-0.43	0.12	-0.48	0.18
Medical	205,335	17.5	16.8	228,673	17.2	16.7	-0.18	-1.0	0.358	-0.50	0.14	-0.57	0.20
Hospital	176,620	17.6	17.0	188,599	17.5	16.8	-0.02	-0.1	0.903	-0.34	0.29	-0.40	0.35
PGP	33,908	17.1	16.2	54,708	16.2	15.7	-0.48	-2.8	0.425	-1.47	0.51	-1.66	0.70
Surgical	55,246	3.4	3.3	50,133	3.5	3.3	-0.03	-0.8	0.834	-0.23	0.18	-0.27	0.22
Hospital	35,463	3.8	3.6	37,049	3.8	3.7	-0.09	-2.3	0.597	-0.35	0.18	-0.40	0.23
PGP	21,413	2.4	2.4	14,593	2.6	2.4	0.10	4.2	0.581	-0.20	0.40	-0.26	0.46

Note: See the first page of this appendix for data sources and more information.

Exhibit J.4: Impact of BPCI Advanced on Proportion of Episodes with One or More ED Visits During the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Overall	255,081	22.2	22.4	272,185	22.8	22.8	0.21 ‡	0.9	0.260	-0.10	0.52	-0.16	0.58
Medical	195,988	23.5	23.8	218,635	24.2	24.2	0.34 ‡	1.4	0.117	-0.02	0.69	-0.08	0.76
Hospital	168,477	22.9	23.3	179,939	23.9	23.9	0.39 ‡	1.7	0.082	0.02	0.75	-0.05	0.82
PGP	32,464	25.6	25.9	52,830	25.9	25.4	0.79	3.1	0.137	-0.08	1.66	-0.25	1.82
Surgical	59,093	16.6	16.0	53,550	16.8	16.5	-0.20	-1.2	0.479	-0.68	0.27	-0.77	0.36
Hospital	37,346	17.5	17.1	38,936	17.5	17.2	-0.08 ‡	-0.5	0.807	-0.63	0.47	-0.74	0.57
PGP	23,408	14.5	13.5	16,234	15.1	14.6	-0.51	-3.5	0.318	-1.36	0.33	-1.52	0.49

Note: See the first page of this appendix for data sources and more information.

B. Hospital Individual Clinical Episode Service Line Group (CESLG) Impact Estimates

Exhibit J.5: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	33,931	35.8	34.4	36,694	35.5	33.9	0.20	0.5	0.653	-0.52	0.92	-0.66	1.05
	GI Care	10,705	29.4	28.8	10,989	29.6	28.7	0.34	1.1	0.626	-0.80	1.47	-1.02	1.69
	M&C Care	112,793	30.5	30.8	120,636	30.4	30.3	0.33	1.1	0.169	-0.06	0.73	-0.14	0.81
	Neurological Care	11,048	25.0	24.5	11,620	24.7	24.6	-0.44	-1.8	0.506	-1.52	0.65	-1.73	0.85
Surgical	Cardiac	7,999	18.2	17.4	8,667	17.6	16.1	0.65	3.6	0.287	-0.35	1.65	-0.54	1.84
	GI Surgery	1,217	26.3	23.6	1,222	25.0	21.7	0.67	2.6	0.737	-2.62	3.97	-3.25	4.60
	Orthopedics	20,947	13.0	12.1	22,139	12.1	11.5	-0.33 ‡	-2.5	0.493	-1.12	0.46	-1.27	0.61
	Spinal Procedures	7,183	13.3	11.8	6,908	12.3	11.7	-0.82	-6.2	0.264	-2.02	0.39	-2.25	0.62

Note: See the first page of this appendix for data sources and more information.

Exhibit J.6: Impact of BPCI Advanced on Unplanned Readmission Rate Through the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	33,931	34.3	32.6	36,694	34.0	32.1	0.17 ‡	0.5	0.698	-0.54	0.87	-0.67	1.00
	GI Care	10,705	27.4	26.9	10,989	27.7	26.7	0.49	1.8	0.487	-0.67	1.65	-0.89	1.87
	M&C Care	112,793	29.4	29.7	120,636	29.2	29.1	0.42	1.4	0.079	0.03	0.82	-0.05	0.90
	Neurological Care	11,048	23.5	22.9	11,620	23.2	22.7	-0.09	-0.4	0.887	-1.14	0.96	-1.34	1.16
Surgical	Cardiac	7,999	16.8	15.9	8,667	16.2	14.6	0.64	3.8	0.264	-0.30	1.59	-0.48	1.77
	GI Surgery	1,217	23.1	20.5	1,222	22.1	19.6	-0.05	-0.2	0.977	-2.93	2.82	-3.48	3.38
	Orthopedics	20,947	12.2	10.9	22,139	11.3	10.4	-0.37	-3.0	0.375	-1.05	0.31	-1.18	0.45
	Spinal Procedures	7,183	10.8	9.6	6,908	10.2	9.2	-0.24	-2.2	0.693	-1.24	0.76	-1.43	0.95

Note: See the first page of this appendix for data sources and more information.

Exhibit J.7: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	34,397	15.8	13.8	37,256	15.9	13.8	0.12	0.7	0.690	-0.37	0.60	-0.46	0.69
	GI Care	10,845	11.2	10.4	11,113	11.1	9.6	0.70	6.3	0.093	0.01	1.40	-0.12	1.53
	M&C Care	119,700	18.8	18.7	127,997	18.5	18.5	-0.16	-0.8	0.504	-0.54	0.23	-0.62	0.30
	Neurological Care	11,678	18.2	17.1	12,233	17.9	16.9	-0.08	-0.4	0.890	-0.98	0.83	-1.16	1.00
Surgical	Cardiac Procedures	8,065	3.2	3.0	8,736	3.4	3.1	0.05	1.7	0.857	-0.44	0.55	-0.54	0.65
	GI Surgery	1,271	9.5	10.2	1,262	9.5	9.4	0.77 ‡	8.1	0.493	-1.08	2.63	-1.44	2.99
	Orthopedics	20,902	4.3	4.0	22,065	4.3	4.3	-0.33	-7.6	0.133	-0.69	0.03	-0.76	0.10
	Spinal Procedures	5,225	1.2	1.5	4,986	1.3	1.1	0.38	30.6	0.103	0.00	0.76	-0.08	0.83

Note: See the first page of this appendix for data sources and more information.

Exhibit J.8: Impact of BPCI Advanced on Proportion of Episodes with One or More ED Visits During the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	33,931	23.7	23.8	36,694	24.7	24.4	0.43 ‡	1.8	0.275	-0.22	1.09	-0.35	1.21
	GI Care	10,705	21.3	22.2	10,989	22.1	22.1	0.83 ‡	3.9	0.186	-0.20	1.86	-0.40	2.06
	M&C Care	112,793	22.8	23.4	120,636	23.6	24.0	0.30 ‡	1.3	0.234	-0.11	0.71	-0.19	0.79
	Neurological Care	11,048	23.9	23.8	11,620	24.5	24.1	0.33 ‡	1.4	0.595	-0.70	1.36	-0.89	1.55
Surgical	Cardiac	7,999	21.2	20.5	8,667	21.5	21.1	-0.38 ‡	-1.8	0.643	-1.73	0.97	-1.99	1.23
	GI Surgery	1,217	18.7	18.5	1,222	20.0	18.3	1.56	8.3	0.362	-1.25	4.36	-1.79	4.90
	Orthopedics	20,947	15.6	15.5	22,139	15.4	15.3	0.02	0.2	0.955	-0.67	0.71	-0.80	0.85
	Spinal Procedures	7,183	17.7	17.1	6,908	17.6	17.5	-0.45	-2.5	0.529	-1.63	0.73	-1.85	0.95

Note: See the first page of this appendix for data sources and more information.

Exhibit J.9: Impact of BPCI Advanced on Proportion of Episodes with Hip or Knee Revisions During the 90-Day PDP, MJRLE Clinical Episode, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
MJRLE	11,517	1.0	0.9	12,564	0.7	0.9	-0.21	-21.3	0.193	-0.47	0.06	-0.52	0.11

Note: See the first page of this appendix for data sources and more information.

C. PGP Individual CESLG Impact Estimates

Exhibit J.10: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,267	34.5	33.4	14,762	34.0	33.1	-0.22	-0.6	0.801	-1.65	1.21	-1.93	1.49
	GI Care	2,478	26.7	26.8	3,521	27.5	27.3	0.33 ‡	1.3	0.763	-1.49	2.16	-1.84	2.51
	M&C Care	20,210	28.8	29.4	29,907	28.9	29.4	0.06	0.2	0.909	-0.84	0.96	-1.01	1.14
	Neurological Care	2,509	23.6	23.8	4,640	23.0	23.5	-0.24	-1.0	0.846	-2.31	1.82	-2.70	2.22
Surgical	Orthopedics	20,651	9.7	8.8	13,946	9.0	8.6	-0.52	-5.3	0.202	-1.19	0.15	-1.32	0.28
	Spinal Procedures	2,756	10.3	10.1	2,288	12.0	9.9	1.90	18.4	0.101	-0.01	3.82	-0.37	4.18

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.11: Impact of BPCI Advanced on Unplanned Readmission Rate Through the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,267	33.2	31.5	14,762	32.5	31.3	-0.57	-1.7	0.534	-2.06	0.93	-2.35	1.21
	GI Care	2,478	24.8	25.5	3,521	25.6	25.5	0.83	3.4	0.442	-0.95	2.61	-1.29	2.95
	M&C Care	20,210	27.8	28.3	29,907	27.8	28.4	0.01	0.0	0.985	-0.90	0.92	-1.07	1.09
	Neurological Care	2,509	21.6	22.4	4,640	21.4	21.9	0.31	1.4	0.816	-1.87	2.48	-2.28	2.89
Surgical	Orthopedics	20,651	9.0	8.2	13,946	8.2	7.9	-0.56	-6.2	0.132	-1.17	0.05	-1.29	0.17
	Spinal Procedures	2,756	8.4	8.2	2,288	9.4	7.9	1.34	16.0	0.181	-0.31	2.98	-0.62	3.29

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.12: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,375	16.5	14.4	14,956	16.4	13.7	0.58	3.5	0.411	-0.58	1.74	-0.81	1.97
	GI Care	2,515	10.2	9.3	3,542	9.8	9.2	-0.38	-3.7	0.608	-1.59	0.84	-1.83	1.07
	M&C Care	21,427	18.0	17.7	31,299	16.5	17.3	-1.06	-5.9	0.171	-2.32	0.21	-2.57	0.46
	Neurological Care	2,591	18.0	15.6	4,911	18.5	18.7	-2.58	-14.4	0.007	-4.17	-1.00	-4.47	-0.70
Surgical	Orthopedics	19,781	2.6	2.5	13,242	2.7	2.6	0.11	4.3	0.579	-0.22	0.44	-0.28	0.50
	Spinal Procedures	1,543	.9	.6	1,283	1.0	.8	-0.06	-7.1	0.775	-0.42	0.30	-0.49	0.36

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.13: Impact of BPCI Advanced on Proportion of Episodes with One or More ED Visits During the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,267	26.8	27.9	14,762	26.7	25.7	2.05 ‡	7.6	0.014	0.68	3.41	0.42	3.67
	GI Care	2,478	23.3	24.8	3,521	23.3	22.3	2.52	10.8	0.018	0.77	4.27	0.44	4.61
	M&C Care	20,210	25.4	25.7	29,907	25.8	26.1	-0.10	-0.4	0.877	-1.12	0.93	-1.32	1.13
	Neurological Care	2,509	24.9	24.2	4,640	25.7	25.0	-0.07	-0.3	0.959	-2.26	2.13	-2.68	2.55
Surgical	Orthopedics	20,651	14.3	13.3	13,946	14.7	14.2	-0.51	-3.6	0.364	-1.43	0.41	-1.61	0.59
	Spinal Procedures	2,757	16.1	14.8	2,286	17.3	16.9	-0.81	-5.0	0.486	-2.73	1.11	-3.10	1.47

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.14: Impact of BPCI Advanced on Proportion of Episodes with Hip or Knee Revisions During the 90-Day PDP, MJRLE Clinical Episode, PGPs, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
MJRLE	13,006	0.7	0.6	8,740	0.6	0.7	-0.08	-11.6	0.577	-0.31	0.15	-0.36	0.20

Note: See the first page of this appendix for data sources and more information.

D. Pooled Parallel Trends

Exhibit J.15: Results of Parallel Trends Test, Readmission Outcomes, BPCI Advanced Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Readmission Rate		Unplanned Readmission Rate	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
All Clinical Episodes	0.01	0.663	0.01	0.399
Medical	0.00	0.935	0.01	0.589
Hospital	0.01	0.534	0.02	0.305
PGP	-0.02	0.493	-0.01	0.704
Surgical	0.03	0.180	0.03	0.169
Hospital	0.05 ‡	0.099	0.04	0.114
PGP	0.00	0.945	0.01	0.748

Note: See the first page of this appendix for data sources and more information.

Exhibit J.16: Results of Parallel Trends Test, Mortality and ED Use Outcomes, BPCI Advanced Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Mortality Rate		ED Use	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
All Clinical Episodes	0.01	0.665	0.05 ‡	<0.001
Medical	0.01	0.439	0.05 ‡	<0.001
Hospital	0.01	0.671	0.05 ‡	0.003
PGP	-0.01	0.900	0.04	0.273
Surgical	-0.02	0.180	0.04	0.149
Hospital	-0.02	0.148	0.07 ‡	0.023
PGP	0.00	0.971	-0.04	0.316

Note: See the first page of this appendix for data sources and more information.

E. Hospital Individual CESLG Parallel Trends

Exhibit J.17: Results of Parallel Trends Test, Readmissions Outcomes, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		Readmission Rate		Unplanned Readmission Rate	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
Medical	Cardiac Care	0.04	0.220	0.06 ‡	0.095
	GI Care	0.02	0.782	0.03	0.559
	M&C Care	0.00	0.977	0.00	0.912
	Neurological Care	-0.01	0.863	0.00	0.971
Surgical	Cardiac Procedures	0.02	0.728	0.00	0.959
	GI Surgery	-0.02	0.929	-0.03	0.894
	Orthopedics	0.08 ‡	0.048	0.06	0.103
	Spinal Procedures	0.00	0.994	0.05	0.375

Note: See the first page of this appendix for data sources and more information.

Exhibit J.18: Results of Parallel Trends Test, Mortality and ED Use Outcomes, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		Mortality Rate		ED Use	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
Medical	Cardiac Care	-0.02	0.533	0.11 ‡	<0.001
	GI Care	-0.05	0.160	0.09 ‡	0.072
	M&C Care	0.02	0.270	0.04 ‡	0.033
	Neurological Care	0.01	0.838	-0.09 ‡	0.090
Surgical	Cardiac Procedures	-0.02	0.610	0.15 ‡	0.033
	GI Surgery	-0.29 ‡	0.031	0.27	0.110
	Orthopedics	-0.01	0.804	0.02	0.562
	Spinal Procedures	-0.04	0.103	0.06	0.371

Note: See the first page of this appendix for data sources and more information.

Exhibit J.19: Results of Parallel Trends Test, Proportion of Episodes with Hip or Knee Revisions, MRJLE Clinical Episode, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	Proportion of Episodes with Hip or Knee Revisions	
	Linear Trend Coefficient (pp)	P-Value
MJRLE	0.01	0.389

Note: See the first page of this appendix for data sources and more information.

F. PGP Individual CESLG Parallel Trends

Exhibit J.20: Results of Parallel Trends Test, Readmissions Outcomes, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		Readmission Rate		Unplanned Readmission Rate	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
Medical	Cardiac Care	-0.05	0.477	-0.02	0.755
	GI Care	-0.15 ‡	0.094	-0.11	0.202
	M&C Care	0.00	0.962	0.00	0.970
	Neurological Care	0.06	0.495	0.04	0.643
Surgical	Orthopedics	0.01	0.798	0.03	0.476
	Spinal Procedures	-0.07	0.456	-0.07	0.417

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.21: Results of Parallel Trends Test, Mortality and ED Use Outcomes, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		Mortality		ED Use	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
Medical	Cardiac Care	-0.01	0.844	0.11 ‡	0.093
	GI Care	-0.02	0.736	-0.10	0.234
	M&C Care	0.00	0.961	0.03	0.560
	Neurological Care	0.00	1.000	0.04	0.731
Surgical	Orthopedics	-0.01	0.813	-0.02	0.661
	Spinal Procedures	0.06	0.161	-0.17	0.170

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.22: Results of Parallel Trends Test, Proportion of Episodes with Hip or Knee Revisions, MRJLE Clinical Episode, PGPs, January 1, 2022 – December 31, 2022

Clinical Episode	Proportion of Episodes with Hip or Knee Revisions	
	Linear Trend Coefficient (pp)	P-Value
MJRLE	0.91	0.633

Note: See the first page of this appendix for data sources and more information.

G. Pooled Impact Estimate and Sensitivity Analysis Results

Exhibit J.23: BPCI Advanced Impact Estimate and Sensitivity Test Results, Readmission Rate Through the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
All Clinical Episodes	BPCI Advanced Impact Estimate	255,081	27.6	27.3	272,185	27.3	26.9	0.13	-0.15	0.42
	No BPCI-C Episodes	255,081	27.8	27.5	272,185	27.6	27.1	0.14	-0.15	0.44
	ITT	297,794	27.6	27.2	313,794	27.3	26.8	0.15	-0.13	0.43
Medical	BPCI Advanced Impact Estimate	195,988	30.9	30.7	218,635	30.7	30.3	0.23	-0.09	0.56
	No BPCI-C Episodes	195,988	30.9	30.8	218,635	30.7	30.3	0.23	-0.10	0.56
	ITT	231,122	30.9	30.6	252,721	30.7	30.2	0.23	-0.08	0.55
Hospital	BPCI Advanced Impact Estimate	168,477	31.2	31.0	179,939	31.0	30.6	0.24	-0.11	0.59
	No BPCI-C Episodes	168,477	31.2	31.0	179,939	31.0	30.6	0.23	-0.12	0.58
	ITT	199,344	31.2	30.9	211,267	31.0	30.5	0.25	-0.09	0.58
PGP	BPCI Advanced Impact Estimate	32,464	29.6	29.7	52,830	29.6	29.7	0.00	-0.74	0.73
	No BPCI-C Episodes	32,464	29.6	29.7	52,830	29.5	29.6	0.01	-0.75	0.76
	ITT	37,323	29.6	29.5	58,945	29.6	29.6	-0.08	-0.81	0.64
Surgical	BPCI Advanced Impact Estimate	59,093	13.3	12.3	53,550	12.6	11.8	-0.18	-0.62	0.25
	No BPCI-C Episodes	59,093	13.7	12.7	53,550	13.1	12.2	-0.13 ‡	-0.58	0.32
	ITT	66,672	13.3	12.3	61,073	12.6	11.8	-0.13	-0.55	0.29
Hospital	BPCI Advanced Impact Estimate	37,346	14.8	13.7	38,936	14.0	13.1	-0.17 ‡	-0.73	0.39
	No BPCI-C Episodes	37,346	15.0	14.0	38,936	14.3	13.4	-0.05 ‡	-0.63	0.54
	ITT	43,288	14.8	13.7	44,787	14.0	13.0	-0.10 ‡	-0.64	0.45
PGP	BPCI Advanced Impact Estimate	23,407	9.9	9.0	16,234	9.4	8.7	-0.17	-0.79	0.46
	No BPCI-C Episodes	23,407	10.1	9.4	16,234	9.7	9.0	-0.16	-0.78	0.47
	ITT	25,239	9.9	9.0	18,232	9.4	8.7	-0.13	-0.73	0.47

Note: See the first page of this appendix for data sources and more information.

Exhibit J.24: BPCI Advanced Impact Estimate and Sensitivity Test Results, Mortality Rate During the Anchor Stay and 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
All Clinical Episodes	BPCI Advanced Impact Estimate	260,581	15.1	14.5	278,806	14.9	14.4	-0.15	-0.43	0.12
	No BPCI-C Episodes	260,581	15.5	14.9	278,806	15.2	14.8	-0.20	-0.48	0.09
	ITT	304,416	15.2	14.5	321,389	15.0	14.4	-0.11	-0.38	0.16
Medical	BPCI Advanced Impact Estimate	205,335	17.5	16.8	228,673	17.2	16.7	-0.18	-0.50	0.14
	No BPCI-C Episodes	205,335	17.8	17.0	228,673	17.4	16.9	-0.23	-0.56	0.10
	ITT	242,101	17.6	16.8	264,200	17.3	16.7	-0.14	-0.45	0.18
Hospital	BPCI Advanced Impact Estimate	176,620	17.6	17.0	188,599	17.5	16.8	-0.02	-0.34	0.29
	No BPCI-C Episodes	176,620	17.8	17.1	188,599	17.6	17.0	-0.07	-0.39	0.24
	ITT	208,987	17.7	17.0	221,296	17.6	16.8	0.03	-0.28	0.33
PGP	BPCI Advanced Impact Estimate	33,908	17.1	16.2	54,708	16.2	15.7	-0.48	-1.47	0.51
	No BPCI-C Episodes	33,908	17.6	16.6	54,708	16.6	16.2	-0.61	-1.64	0.42
	ITT	38,928	17.2	16.2	61,044	16.2	15.7	-0.50	-1.47	0.48
Surgical	BPCI Advanced Impact Estimate	55,246	3.4	3.3	50,133	3.5	3.3	-0.03	-0.23	0.18
	No BPCI-C Episodes	55,246	3.6	3.5	50,133	3.7	3.6	-0.01	-0.23	0.22
	ITT	62,315	3.4	3.3	57,189	3.5	3.3	0.02	-0.18	0.21
Hospital	BPCI Advanced Impact Estimate	35,463	3.8	3.6	37,049	3.8	3.7	-0.09	-0.35	0.18
	No BPCI-C Episodes	35,463	3.9	3.7	37,049	4.0	3.8	-0.06	-0.34	0.22
	ITT	41,120	3.8	3.6	42,623	3.8	3.7	-0.02	-0.27	0.23
PGP	BPCI Advanced Impact Estimate	21,413	2.4	2.4	14,593	2.6	2.4	0.10	-0.20	0.40
	No BPCI-C Episodes	21,413	2.7	2.7	14,593	2.9	2.7	0.11	-0.23	0.45
	ITT	23,020	2.4	2.4	16,321	2.6	2.4	0.11	-0.17	0.39

Note: See the first page of this appendix for data sources and more information.

H. Hospital Individual CESLG Impact Estimate and Sensitivity Analysis Results

Exhibit J.25: BPCI Advanced Impact Estimate and Sensitivity Test Results, Readmission Rate Through the 90-Day PDP, Hospital CESLGs, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
Cardiac Care	BPCI Advanced Impact Estimate	33,931	35.8	34.4	36,694	35.5	33.9	0.20	-0.52	0.92
	No BPCI-C Episodes	33,931	35.7	34.3	36,694	35.4	33.9	0.18	-0.55	0.90
	ITT	39,606	35.9	34.5	42,964	35.5	33.9	0.27	-0.42	0.96
GI Care	BPCI Advanced Impact Estimate	10,705	29.4	28.8	10,989	29.6	28.7	0.34	-0.80	1.47
	No BPCI-C Episodes	10,705	29.4	28.9	10,989	29.6	28.7	0.34	-0.80	1.48
	ITT	12,639	29.4	28.9	12,891	29.6	28.6	0.49	-0.55	1.52
M&C Care	BPCI Advanced Impact Estimate	112,793	30.5	30.8	120,636	30.4	30.3	0.33	-0.06	0.73
	No BPCI-C Episodes	112,793	30.6	30.8	120,636	30.4	30.3	0.33	-0.07	0.73
	ITT	134,021	30.5	30.6	141,665	30.4	30.2	0.29	-0.08	0.67
Neurological Care	BPCI Advanced Impact Estimate	11,048	25.0	24.5	11,620	24.7	24.6	-0.44	-1.52	0.65
	No BPCI-C Episodes	11,048	25.0	24.5	11,620	24.7	24.6	-0.42	-1.50	0.67
	ITT	13,078	25.0	24.6	13,747	24.7	24.5	-0.31	-1.34	0.71
Cardiac Procedures	BPCI Advanced Impact Estimate	7,999	18.2	17.4	8,667	17.6	16.1	0.65	-0.35	1.65
	No BPCI-C Episodes	7,999	18.1	17.3	8,667	17.5	16.1	0.65	-0.35	1.65
	ITT	9,251	18.2	17.3	9,998	17.6	16.1	0.55	-0.44	1.54
GI Surgery	BPCI Advanced Impact Estimate	1,217	26.3	23.6	1,222	25.0	21.7	0.67	-2.62	3.97
	No BPCI-C Episodes	1,217	26.2	23.6	1,222	24.9	21.7	0.67	-2.62	3.96
	ITT	1,354	26.3	23.7	1,329	25.0	21.6	0.82	-2.25	3.90
Orthopedics	BPCI Advanced Impact Estimate	20,947	13.0	12.1	22,139	12.1	11.5	-0.33 ‡	-1.12	0.46
	No BPCI-C Episodes	20,947	13.3	12.5	22,139	12.6	11.9	-0.05 ‡	-0.89	0.79
	ITT	24,406	13.0	12.1	25,562	12.1	11.5	-0.28 ‡	-1.03	0.48
Spinal Procedures	BPCI Advanced Impact Estimate	7,183	13.3	11.8	6,908	12.3	11.7	-0.82	-2.02	0.39
	No BPCI-C Episodes	7,183	13.2	11.7	6,908	12.2	11.6	-0.86	-2.07	0.35
	ITT	8,277	13.3	12.1	7,898	12.3	11.6	-0.51	-1.64	0.62

Note: See the first page of this appendix for data sources and more information.

Exhibit J.26: BPCI Advanced Impact Estimate and Sensitivity Test Results, Mortality Rate During the Anchor Stay and 90-Day PDP, Hospital CESLGs, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
Cardiac Care	BPCI Advanced Impact Estimate	34,397	15.8	13.8	37,256	15.9	13.8	0.12	-0.37	0.60
	No BPCI-C Episodes	34,397	15.8	13.6	37,256	15.9	13.6	0.07	-0.47	0.60
	ITT	40,168	15.8	13.8	43,617	16.0	13.7	0.17	-0.29	0.63
GI Care	BPCI Advanced Impact Estimate	10,845	11.2	10.4	11,113	11.1	9.6	0.70	0.01	1.40
	No BPCI-C Episodes	10,845	11.2	10.5	11,113	11.1	9.6	0.80	0.05	1.56
	ITT	12,794	11.3	10.4	13,056	11.1	9.8	0.47	-0.19	1.13
M&C Care	BPCI Advanced Impact Estimate	119,700	18.8	18.7	127,997	18.5	18.5	-0.16	-0.54	0.23
	No BPCI-C Episodes	119,700	19.0	18.9	127,997	18.7	18.7	-0.18	-0.60	0.23
	ITT	142,186	18.9	18.7	150,116	18.6	18.4	-0.06	-0.43	0.31
Neurological Care	BPCI Advanced Impact Estimate	11,678	18.2	17.1	12,233	17.9	16.9	-0.08	-0.98	0.83
	No BPCI-C Episodes	11,678	18.3	17.1	12,233	18.0	16.8	0.05	-0.90	1.00
	ITT	13,839	18.3	17.2	14,507	18.0	17.2	-0.36	-1.20	0.49
Cardiac Procedures	BPCI Advanced Impact Estimate	8,065	3.2	3.0	8,736	3.4	3.1	0.05	-0.44	0.55
	No BPCI-C Episodes	8,065	3.2	3.0	8,736	3.3	3.0	0.07	-0.47	0.60
	ITT	9,332	3.2	3.1	10,087	3.4	3.2	0.03	-0.46	0.53
GI Surgery	BPCI Advanced Impact Estimate	1,271	9.5	10.2	1,262	9.5	9.4	0.77 ‡	-1.08	2.63
	No BPCI-C Episodes	1,271	9.6	10.2	1,262	9.5	9.1	0.95 ‡	-0.93	2.84
	ITT	1,413	9.6	9.9	1,372	9.5	9.2	0.63 ‡	-1.11	2.37
Orthopedics	BPCI Advanced Impact Estimate	20,902	4.3	4.0	22,065	4.3	4.3	-0.33	-0.69	0.03
	No BPCI-C Episodes	20,902	4.7	4.4	22,065	4.7	4.6	-0.26	-0.61	0.10
	ITT	24,352	4.3	4.1	25,474	4.3	4.2	-0.15	-0.48	0.19
Spinal Procedures	BPCI Advanced Impact Estimate	5,225	1.2	1.5	4,986	1.3	1.1	0.38	0.00	0.76
	No BPCI-C Episodes	5,225	1.3	1.6	4,986	1.3	1.1	0.49	0.04	0.95
	ITT	6,023	1.2	1.4	5,690	1.3	1.2	0.25	-0.11	0.61

Note: See the first page of this appendix for data sources and more information.

I. PGP Individual CESLG Impact Estimate and Sensitivity Analysis Results

Exhibit J.27: BPCI Advanced Impact Estimate and Sensitivity Test Results, Readmission Rate Through the 90-Day PDP, PGP CESLGs, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
Cardiac Care	BPCI Advanced Impact Estimate	7,267	34.5	33.4	14,762	34.0	33.1	-0.22	-1.65	1.21
	No BPCI-C Episodes	7,267	34.7	33.5	14,762	34.1	33.1	-0.26	-1.70	1.19
	ITT	8,172	34.6	33.5	16,025	34.1	33.2	-0.18	-1.54	1.18
GI Care	BPCI Advanced Impact Estimate	2,478	26.7	26.8	3,521	27.5	27.3	0.33 ‡	-1.49	2.16
	No BPCI-C Episodes	2,478	26.7	26.8	3,521	27.6	27.2	0.43	-1.37	2.22
	ITT	2,751	26.7	26.7	3,924	27.5	27.3	0.22 ‡	-1.63	2.07
M&C Care	BPCI Advanced Impact Estimate	20,210	28.8	29.4	29,907	28.9	29.4	0.06	-0.84	0.96
	No BPCI-C Episodes	20,210	28.8	29.4	29,907	28.9	29.4	0.06	-0.87	0.98
	ITT	23,532	28.8	29.0	33,991	28.9	29.1	0.02	-0.83	0.86
Neurological Care	BPCI Advanced Impact Estimate	2,509	23.6	23.8	4,640	23.0	23.5	-0.24	-2.31	1.82
	No BPCI-C Episodes	2,509	23.6	23.9	4,640	23.1	23.6	-0.21	-2.29	1.87
	ITT	2,868	23.6	23.7	5,005	23.0	23.7	-0.58	-2.60	1.44
Orthopedics	BPCI Advanced Impact Estimate	20,651	9.7	8.8	13,946	9.0	8.6	-0.52	-1.19	0.15
	No BPCI-C Episodes	20,651	10.1	9.2	13,946	9.2	8.9	-0.60	-1.25	0.05
	ITT	22,005	9.8	8.7	15,574	9.0	8.5	-0.51	-1.16	0.15
Spinal Procedures	BPCI Advanced Impact Estimate	2,756	10.3	10.1	2,288	12.0	9.9	1.90	-0.01	3.82
	No BPCI-C Episodes	2,756	10.1	10.0	2,288	11.9	9.8	1.96	0.06	3.86
	ITT	3,234	10.3	10.3	2,658	12.0	9.9	2.12	0.45	3.80

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit J.28: BPCI Advanced Impact Estimate and Sensitivity Test Results, Mortality Rate During the Anchor Stay and 90-Day PDP, PGP CESLGs, January 1, 2022 – December 31, 2022

CESLG	Result	BPCI Advanced			Comparison			DiD (pp)	90% LCI (pp)	90% UCI (pp)
		MY5 Episodes (N)	Baseline (%)	MY5 (%)	MY5 Episodes (N)	Baseline (%)	MY5 (%)			
Cardiac Care	BPCI Advanced Impact Estimate	7,375	16.5	14.4	14,956	16.4	13.7	0.58	-0.58	1.74
	No BPCI-C Episodes	7,375	16.8	14.5	14,956	16.5	13.9	0.38	-0.80	1.57
	ITT	8,289	16.5	14.6	16,243	16.4	13.9	0.58	-0.58	1.74
GI Care	BPCI Advanced Impact Estimate	2,515	10.2	9.3	3,542	9.8	9.2	-0.38	-1.59	0.84
	No BPCI-C Episodes	2,515	10.3	9.4	3,542	9.9	9.3	-0.35	-1.56	0.86
	ITT	2,788	10.3	9.3	3,954	9.9	9.4	-0.54	-1.73	0.65
M&C Care	BPCI Advanced Impact Estimate	21,427	18.0	17.7	31,299	16.5	17.3	-1.06	-2.32	0.21
	No BPCI-C Episodes	21,427	18.7	18.4	31,299	17.1	18.0	-1.14	-2.47	0.19
	ITT	24,887	18.1	17.6	35,547	16.6	17.1	-0.97	-2.21	0.26
Neurological Care	BPCI Advanced Impact Estimate	2,591	18.0	15.6	4,911	18.5	18.7	-2.58	-4.17	-1.00
	No BPCI-C Episodes	2,591	18.4	16.1	4,911	19.0	19.3	-2.60	-4.28	-0.92
	ITT	2,964	18.1	15.3	5,300	18.5	18.8	-2.98	-4.69	-1.28
Orthopedics	BPCI Advanced Impact Estimate	19,781	2.6	2.5	13,242	2.7	2.6	0.11	-0.22	0.44
	No BPCI-C Episodes	19,781	2.9	2.9	13,242	3.1	3.0	0.12	-0.26	0.51
	ITT	21,089	2.6	2.5	14,795	2.7	2.6	0.09	-0.21	0.39
Spinal Procedures	BPCI Advanced Impact Estimate	1,543	.9	.6	1,283	1.0	.8	-0.06	-0.42	0.30
	No BPCI-C Episodes	1,543	.9	.6	1,283	1.0	.8	-0.04	-0.41	0.32
	ITT	1,826	.9	.9	1,453	1.0	.7	0.25	-0.17	0.66

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Appendix K: Patient Survey – Results

The following exhibits display the respondents' results to the patient survey, which provides information regarding self-reported changes in functional status, care experiences, and satisfaction for patients with episodes in Model Years 4 through 6 (2021 through 2023).[1, 2] The estimates are the result of cross-sectional logistic regression models for binary or trinary indicators, controlling for patient, hospital, and neighborhood characteristics. All responses were weighted for non-response and sampling design. Results are reported in percentage point terms. The exhibits in Section A show estimates pooled across all 34 clinical episodes, as well as separate estimates for medical and surgical episodes. We report all three sets of results (all episodes, medical, surgical) pooled across hospitals and physician group practices (PGPs), as well as separately by hospitals and PGPs. Subsequent exhibits, in Section B, show results by clinical episode service line group (CESLG) for hospitals and PGPs for CESLGs with a minimum detectable difference of 10.0 or less. Lastly, in Section C, we report results for domain-level joint hypothesis tests that indicate the statistical significance of all outcomes together within a domain for select samples.

In the exhibits below, the lower confidence interval (LCI) and upper confidence interval (UCI) are displayed for the 5% and 10% level of statistical significance. We also report p-values to indicate statistical significance, which for measures with trinary outcomes indicate the joint statistical significance for the multiple outcomes of the measure. All results are based on the BPCI Advanced evaluation team's analysis of BPCI Advanced and comparison patient survey responses for episodes that began July or August 2021, July or August 2022, or April, May, June, July, August, or September 2023.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix. Please refer to **Appendix C** for additional information on outcome definitions and other methods.

[1] Results for the patient survey from Model Year 4 are presented in the BPCI Advanced Fourth Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

[2] Results for the patient survey from Model Year 5 (2022) are presented in the BPCI Advanced Fifth Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

A. Patient Survey Aggregate Results

Exhibit K.1: Patient Survey Outcomes, All Clinical Episodes, January 1, 2021- December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	61.7	61.6	0.03	-1.39	1.45	-1.16	1.22	0.926
		Maintained	14.4	14.2	0.20	-0.94	1.34	-0.76	1.15	
		Declined	23.9	24.2	-0.23	-1.64	1.18	-1.41	0.95	
	Planning regular tasks	Improvement	62.1	63.0	-0.92	-2.30	0.47	-2.08	0.24	0.365
		Maintained	12.2	12.1	0.05	-1.06	1.15	-0.88	0.97	
		Declined	25.7	24.9	0.87	-0.45	2.19	-0.24	1.98	
	Use of mobility device	Improvement	40.7	41.3	-0.54	-1.85	0.77	-1.63	0.56	0.638
		Maintained	13.3	12.9	0.38	-0.65	1.41	-0.48	1.25	
		Declined	46.0	45.8	0.16	-1.23	1.54	-1.00	1.32	
	Walking without rest	Improvement	34.7	34.9	-0.23	-1.62	1.16	-1.40	0.93	0.666
		Maintained	22.6	23.0	-0.39	-1.66	0.88	-1.45	0.67	
		Declined	42.7	42.1	0.62	-0.77	2.02	-0.55	1.79	
	Going up or down stairs	Improvement	33.6	34.7	-1.13	-2.53	0.26	-2.30	0.04	0.253
		Maintained	24.3	24.1	0.25	-1.12	1.61	-0.90	1.39	
		Declined	42.1	41.2	0.89	-0.53	2.30	-0.30	2.07	
	Physical/emotional problems limiting social activities	Improvement	48.4	49.7	-1.28	-2.97	0.42	-2.70	0.14	0.331
		Maintained	22.5	21.8	0.65	-0.90	2.20	-0.65	1.95	
		Declined	29.1	28.5	0.63	-1.05	2.30	-0.78	2.03	
	Pain limiting regular activities	Improvement	46.7	46.7	-0.03	-1.79	1.73	-1.50	1.45	0.839
		Maintained	28.4	28.0	0.44	-1.21	2.08	-0.94	1.82	
		Declined	24.9	25.3	-0.41	-2.09	1.27	-1.82	1.00	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	89.9	91.0	-1.03	-2.24	0.18	-2.04	-0.01	0.095
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	85.7	87.4	-1.69	-3.13	-0.26	-2.90	-0.49	0.021
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	89.4	90.3	-0.85	-2.07	0.37	-1.88	0.17	0.171
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.5	89.8	-0.26	-1.52	0.99	-1.31	0.79	0.683
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	89.9	90.7	-0.90	-2.18	0.39	-1.97	0.18	0.171
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.9	93.5	0.40	-0.61	1.41	-0.45	1.25	0.436
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	86.4	87.6	-1.22	-2.66	0.21	-2.43	-0.02	0.094
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	72.1	71.8	0.25	-2.06	2.57	-1.69	2.19	0.831
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	58.9	59.5	-0.64	-2.29	1.02	-2.03	0.75	0.451
	Rating of all care received after leaving the hospital	9-10	56.9	58.9	-2.06	-3.96	-0.15	-3.65	-0.46	0.032
		7-8	24.0	24.0	0.02	-1.58	1.62	-1.32	1.36	
		0-6	19.1	17.0	2.04	0.44	3.63	0.70	3.37	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.2: Patient Survey Outcomes, Medical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	57.3	57.3	0.08	-1.64	1.81	-1.36	1.53	0.827
		Maintained	16.3	15.9	0.38	-1.04	1.80	-0.82	1.57	
		Declined	26.4	26.8	-0.46	-2.21	1.29	-1.93	1.00	
	Planning regular tasks	Improvement	56.8	57.7	-0.97	-2.71	0.77	-2.43	0.49	0.468
		Maintained	13.7	13.7	0.00	-1.39	1.39	-1.16	1.17	
		Declined	29.5	28.6	0.97	-0.68	2.62	-0.41	2.35	
	Use of mobility device	Improvement	36.7	37.6	-0.94	-2.53	0.66	-2.28	0.40	0.461
		Maintained	13.9	13.4	0.53	-0.75	1.80	-0.54	1.60	
		Declined	49.4	49.0	0.41	-1.29	2.11	-1.02	1.84	
	Walking without rest	Improvement	29.2	29.6	-0.44	-2.15	1.27	-1.87	1.00	0.642
		Maintained	24.1	24.5	-0.39	-1.95	1.16	-1.70	0.91	
		Declined	46.7	45.9	0.83	-0.90	2.57	-0.62	2.29	
	Going up or down stairs	Improvement	28.7	30.2	-1.55	-3.24	0.14	-2.97	-0.14	0.195
		Maintained	24.9	24.3	0.57	-1.12	2.25	-0.84	1.98	
		Declined	46.5	45.5	0.99	-0.78	2.75	-0.49	2.46	
	Physical/emotional problems limiting social activities	Improvement	44.2	45.6	-1.32	-3.45	0.82	-3.11	0.47	0.480
		Maintained	24.2	23.6	0.62	-1.30	2.54	-0.99	2.23	
		Declined	31.6	30.9	0.70	-1.40	2.79	-1.06	2.45	
	Pain limiting regular activities	Improvement	41.5	41.8	-0.30	-2.49	1.90	-2.14	1.55	0.864
		Maintained	31.4	30.8	0.56	-1.46	2.57	-1.14	2.25	
		Declined	27.1	27.4	-0.26	-2.37	1.85	-2.03	1.51	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	89.1	90.2	-1.09	-2.59	0.42	-2.35	0.18	0.157
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	84.0	86.0	-1.98	-3.77	-0.19	-3.49	-0.48	0.030
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	88.4	89.2	-0.87	-2.42	0.68	-2.17	0.43	0.273
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	88.4	88.6	-0.19	-1.78	1.40	-1.52	1.14	0.817
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	88.7	89.6	-0.90	-2.55	0.75	-2.28	0.49	0.286
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.4	92.7	0.70	-0.60	2.00	-0.39	1.79	0.291
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	84.4	86.0	-1.57	-3.41	0.26	-3.11	-0.03	0.093
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	70.3	70.4	-0.19	-2.99	2.60	-2.53	2.15	0.892
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	55.4	55.7	-0.30	-2.39	1.79	-2.05	1.45	0.777
	Rating of all care received after leaving the hospital	9-10	53.3	55.3	-2.05	-4.42	0.33	-4.04	-0.06	0.052
		7-8	25.4	25.8	-0.36	-2.34	1.62	-2.02	1.30	
		0-6	21.3	18.9	2.41	0.45	4.37	0.76	4.05	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.3: Patient Survey Outcomes, Surgical Episodes, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	77.4	77.4	-0.08	-1.60	1.44	-1.36	1.19	0.593
		Maintained	7.5	8.0	-0.45	-1.46	0.56	-1.30	0.39	
		Declined	15.1	14.6	0.53	-0.90	1.97	-0.67	1.74	
	Planning regular tasks	Improvement	81.4	82.2	-0.82	-2.18	0.54	-1.96	0.32	0.498
		Maintained	6.6	6.3	0.28	-0.65	1.21	-0.50	1.06	
		Declined	12.0	11.5	0.54	-0.65	1.73	-0.45	1.53	
	Use of mobility device	Improvement	55.4	54.3	1.07	-0.74	2.88	-0.44	2.58	0.499
		Maintained	11.2	11.4	-0.16	-1.41	1.09	-1.21	0.88	
		Declined	33.4	34.3	-0.91	-2.66	0.85	-2.38	0.57	
	Walking without rest	Improvement	54.3	53.7	0.64	-1.15	2.44	-0.86	2.15	0.780
		Maintained	17.3	17.5	-0.30	-1.89	1.30	-1.64	1.04	
		Declined	28.4	28.8	-0.35	-1.90	1.21	-1.65	0.96	
	Going up or down stairs	Improvement	51.1	50.6	0.48	-1.55	2.51	-1.22	2.18	0.590
		Maintained	22.5	23.5	-0.92	-2.72	0.88	-2.43	0.59	
		Declined	26.4	26.0	0.44	-1.18	2.05	-0.92	1.79	
	Physical/emotional problems limiting social activities	Improvement	63.4	64.5	-1.12	-3.04	0.79	-2.73	0.48	0.480
		Maintained	16.4	15.6	0.78	-0.82	2.37	-0.56	2.11	
		Declined	20.3	19.9	0.35	-1.33	2.03	-1.06	1.76	
	Pain limiting regular activities	Improvement	65.4	64.4	0.98	-0.86	2.81	-0.57	2.52	0.414
		Maintained	17.7	17.7	-0.01	-1.61	1.58	-1.35	1.33	
		Declined	16.9	17.8	-0.96	-2.45	0.53	-2.21	0.29	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	92.8	93.7	-0.87	-1.94	0.20	-1.77	0.03	0.112
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	91.5	92.2	-0.61	-1.91	0.68	-1.70	0.47	0.352
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	92.9	93.6	-0.69	-1.74	0.36	-1.57	0.19	0.198
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	93.2	93.8	-0.53	-1.64	0.58	-1.46	0.40	0.347
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	93.6	94.5	-0.85	-1.93	0.23	-1.75	0.06	0.123
	Able to manage your health needs since returning home	Strongly Agree or Agree	95.8	96.5	-0.61	-1.48	0.25	-1.34	0.11	0.166
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	92.6	92.8	-0.12	-1.37	1.14	-1.17	0.94	0.858
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	78.7	76.6	2.10	-0.72	4.92	-0.26	4.47	0.144
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	71.2	73.0	-1.80	-3.63	0.03	-3.34	-0.27	0.054
	Rating of all care received after leaving the hospital	9-10	69.9	72.0	-2.09	-3.95	-0.22	-3.65	-0.52	0.089
		7-8	19.0	17.6	1.39	-0.22	3.00	0.04	2.74	
		0-6	11.1	10.4	0.70	-0.61	2.00	-0.40	1.79	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.4: Patient Survey Outcomes, All Clinical Episodes, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	59.7	59.6	0.06	-1.62	1.74	-1.35	1.47	0.961
		Maintained	15.0	14.9	0.15	-1.20	1.51	-0.98	1.29	
		Declined	25.3	25.5	-0.21	-1.90	1.48	-1.63	1.20	
	Planning regular tasks	Improvement	59.7	61.0	-1.27	-2.94	0.40	-2.67	0.13	0.313
		Maintained	12.9	12.6	0.28	-1.03	1.59	-0.82	1.38	
		Declined	27.4	26.4	0.99	-0.58	2.56	-0.33	2.31	
	Use of mobility device	Improvement	38.9	39.8	-0.92	-2.47	0.63	-2.22	0.38	0.362
		Maintained	13.6	12.9	0.71	-0.52	1.94	-0.32	1.74	
		Declined	47.5	47.3	0.21	-1.45	1.87	-1.18	1.60	
	Walking without rest	Improvement	32.5	32.8	-0.32	-1.99	1.34	-1.72	1.07	0.782
		Maintained	23.0	23.3	-0.27	-1.77	1.22	-1.52	0.98	
		Declined	44.6	44.0	0.60	-1.07	2.26	-0.80	1.99	
	Going up or down stairs	Improvement	31.3	33.0	-1.77	-3.43	-0.11	-3.16	-0.37	0.109
		Maintained	24.6	24.0	0.56	-1.04	2.15	-0.78	1.89	
		Declined	44.2	43.0	1.21	-0.48	2.91	-0.21	2.63	
	Physical/emotional problems limiting social activities	Improvement	46.5	48.0	-1.52	-3.56	0.53	-3.23	0.20	0.346
		Maintained	23.2	22.5	0.74	-1.11	2.60	-0.81	2.30	
		Declined	30.3	29.5	0.77	-1.24	2.79	-0.92	2.47	
	Pain limiting regular activities	Improvement	44.3	44.7	-0.38	-2.49	1.72	-2.15	1.38	0.803
		Maintained	29.4	28.8	0.65	-1.29	2.60	-0.97	2.28	
		Declined	26.2	26.5	-0.27	-2.30	1.75	-1.97	1.43	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	89.4	90.6	-1.19	-2.64	0.26	-2.40	0.03	0.107
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	84.8	86.8	-2.04	-3.76	-0.32	-3.48	-0.60	0.020
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	88.8	89.7	-0.92	-2.40	0.56	-2.16	0.32	0.222
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.0	89.5	-0.47	-1.98	1.04	-1.73	0.80	0.543
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	89.2	90.2	-1.00	-2.55	0.55	-2.30	0.30	0.207
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.8	93.3	0.48	-0.74	1.69	-0.54	1.50	0.439
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	85.3	87.0	-1.63	-3.36	0.10	-3.08	-0.18	0.065
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	71.3	71.3	0.02	-2.71	2.75	-2.27	2.31	0.990
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	57.2	57.9	-0.76	-2.74	1.22	-2.42	0.90	0.453
	Rating of all care received after leaving the hospital	9-10	55.0	57.7	-2.66	-4.94	-0.37	-4.57	-0.74	0.030
		7-8	24.9	24.6	0.29	-1.63	2.21	-1.32	1.90	
		0-6	20.1	17.8	2.36	0.47	4.26	0.77	3.96	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.5: Patient Survey Outcomes, Medical Episodes, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	57.2	56.9	0.34	-1.56	2.24	-1.26	1.94	0.890
		Maintained	16.1	15.9	0.13	-1.44	1.70	-1.18	1.45	
		Declined	26.7	27.2	-0.47	-2.41	1.46	-2.10	1.15	
	Planning regular tasks	Improvement	56.6	57.7	-1.06	-2.99	0.87	-2.68	0.56	0.540
		Maintained	13.8	13.6	0.21	-1.31	1.74	-1.07	1.49	
		Declined	29.6	28.7	0.85	-0.96	2.67	-0.67	2.37	
	Use of mobility device	Improvement	36.7	37.6	-0.94	-2.73	0.85	-2.44	0.56	0.407
		Maintained	14.0	13.2	0.82	-0.59	2.24	-0.36	2.01	
		Declined	49.3	49.2	0.11	-1.79	2.02	-1.48	1.71	
	Walking without rest	Improvement	29.3	29.5	-0.19	-2.11	1.73	-1.80	1.42	0.795
		Maintained	23.9	24.3	-0.43	-2.15	1.28	-1.87	1.00	
		Declined	46.8	46.2	0.63	-1.31	2.56	-1.00	2.25	
	Going up or down stairs	Improvement	28.4	30.3	-1.87	-3.75	0.02	-3.45	-0.29	0.151
		Maintained	25.0	24.2	0.76	-1.09	2.61	-0.79	2.31	
		Declined	46.6	45.5	1.11	-0.84	3.05	-0.52	2.74	
	Physical/emotional problems limiting social activities	Improvement	44.3	45.6	-1.39	-3.77	0.99	-3.39	0.60	0.516
		Maintained	24.2	23.5	0.66	-1.49	2.80	-1.14	2.46	
		Declined	31.6	30.8	0.74	-1.61	3.08	-1.23	2.70	
	Pain limiting regular activities	Improvement	41.5	42.0	-0.46	-2.90	1.98	-2.51	1.59	0.812
		Maintained	31.2	30.5	0.73	-1.50	2.96	-1.14	2.60	
		Declined	27.3	27.5	-0.27	-2.62	2.08	-2.24	1.70	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	88.9	90.2	-1.28	-2.95	0.40	-2.68	0.13	0.135
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	83.7	86.0	-2.29	-4.29	-0.30	-3.96	-0.63	0.024
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	88.2	89.2	-1.01	-2.74	0.73	-2.46	0.45	0.255
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	88.3	88.7	-0.43	-2.20	1.33	-1.91	1.04	0.629
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	88.5	89.6	-1.05	-2.89	0.78	-2.59	0.49	0.261
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.4	92.7	0.67	-0.75	2.10	-0.52	1.87	0.356
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	84.2	86.1	-1.90	-3.93	0.13	-3.61	-0.20	0.066
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	70.1	70.6	-0.51	-3.58	2.55	-3.08	2.06	0.743
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	55.2	55.7	-0.48	-2.80	1.85	-2.42	1.47	0.688
	Rating of all care received after leaving the hospital	9-10	53.0	55.6	-2.56	-5.21	0.09	-4.78	-0.34	0.045
		7-8	25.5	25.6	-0.13	-2.34	2.07	-1.98	1.72	
		0-6	21.5	18.8	2.69	0.52	4.87	0.87	4.52	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.6: Patient Survey Outcomes, Surgical Episodes, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	74.4	76.0	-1.60	-3.51	0.32	-3.20	0.01	0.255
		Maintained	8.7	8.4	0.28	-0.96	1.53	-0.76	1.32	
		Declined	16.9	15.6	1.32	-0.50	3.13	-0.20	2.83	
	Planning regular tasks	Improvement	77.9	80.5	-2.56	-4.16	-0.96	-3.90	-1.21	0.005
		Maintained	7.7	7.1	0.65	-0.57	1.86	-0.38	1.67	
		Declined	14.4	12.4	1.91	0.53	3.29	0.76	3.07	
	Use of mobility device	Improvement	52.3	52.9	-0.61	-2.65	1.44	-2.32	1.11	0.826
		Maintained	11.0	11.0	0.00	-1.37	1.38	-1.15	1.15	
		Declined	36.7	36.1	0.61	-1.43	2.65	-1.10	2.32	
	Walking without rest	Improvement	51.2	52.1	-0.84	-2.99	1.32	-2.64	0.97	0.656
		Maintained	17.8	17.0	0.80	-1.06	2.67	-0.76	2.37	
		Declined	31.0	30.9	0.03	-1.90	1.96	-1.59	1.65	
	Going up or down stairs	Improvement	48.2	49.0	-0.85	-3.10	1.40	-2.74	1.03	0.359
		Maintained	22.2	22.8	-0.65	-2.63	1.32	-2.31	1.00	
		Declined	29.7	28.1	1.50	-0.56	3.57	-0.23	3.23	
	Physical/emotional problems limiting social activities	Improvement	59.5	61.8	-2.27	-4.50	-0.04	-4.14	-0.40	0.131
		Maintained	17.7	16.4	1.24	-0.62	3.10	-0.32	2.80	
		Declined	22.8	21.8	1.03	-1.00	3.05	-0.67	2.72	
	Pain limiting regular activities	Improvement	60.9	60.8	0.10	-2.14	2.33	-1.78	1.97	0.938
		Maintained	19.1	18.8	0.23	-1.68	2.15	-1.37	1.84	
		Declined	20.1	20.4	-0.33	-2.27	1.61	-1.96	1.30	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	92.5	93.2	-0.66	-1.78	0.45	-1.60	0.27	0.244
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	91.3	91.8	-0.50	-2.02	1.03	-1.78	0.78	0.523
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	92.3	92.6	-0.34	-1.63	0.94	-1.42	0.73	0.601
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	93.2	93.8	-0.60	-1.85	0.66	-1.65	0.46	0.353
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	93.2	93.8	-0.63	-1.93	0.67	-1.72	0.46	0.342
	Able to manage your health needs since returning home	Strongly Agree or Agree	96.0	96.6	-0.54	-1.43	0.34	-1.29	0.20	0.229
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	91.4	91.5	-0.05	-1.63	1.53	-1.38	1.27	0.948
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	78.7	75.3	3.42	-0.06	6.89	0.50	6.33	0.054
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	68.8	71.2	-2.36	-4.57	-0.14	-4.22	-0.50	0.037
	Rating of all care received after leaving the hospital	9-10	66.7	70.0	-3.22	-5.54	-0.90	-5.16	-1.27	0.014
		7-8	21.0	18.2	2.84	0.80	4.88	1.13	4.55	
		0-6	12.2	11.8	0.38	-1.25	2.01	-0.99	1.74	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.7: Patient Survey Outcomes, All Clinical Episodes, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	69.9	70.0	-0.05	-1.92	1.82	-1.62	1.52	0.862
		Maintained	11.8	11.4	0.36	-1.00	1.73	-0.78	1.51	
		Declined	18.3	18.6	-0.32	-2.16	1.53	-1.87	1.23	
	Planning regular tasks	Improvement	72.0	71.6	0.37	-1.35	2.08	-1.08	1.81	0.474
		Maintained	9.1	9.9	-0.87	-2.26	0.52	-2.03	0.30	
		Declined	18.9	18.4	0.50	-1.27	2.27	-0.98	1.98	
	Use of mobility device	Improvement	48.3	47.3	1.00	-1.07	3.08	-0.74	2.74	0.394
		Maintained	12.2	13.2	-0.99	-2.51	0.52	-2.27	0.28	
		Declined	39.5	39.5	-0.01	-2.01	1.99	-1.69	1.67	
	Walking without rest	Improvement	43.7	43.6	0.12	-1.96	2.19	-1.62	1.86	0.666
		Maintained	21.2	21.9	-0.74	-2.58	1.10	-2.29	0.80	
		Declined	35.1	34.5	0.62	-1.16	2.41	-0.88	2.12	
	Going up or down stairs	Improvement	43.1	41.7	1.43	-0.77	3.64	-0.41	3.28	0.422
		Maintained	23.4	24.5	-1.08	-3.16	1.00	-2.83	0.66	
		Declined	33.4	33.8	-0.35	-2.27	1.57	-1.96	1.26	
	Physical/emotional problems limiting social activities	Improvement	56.5	56.8	-0.32	-2.59	1.95	-2.22	1.58	0.932
		Maintained	19.4	19.0	0.35	-1.55	2.25	-1.25	1.95	
		Declined	24.1	24.1	-0.03	-2.13	2.07	-1.79	1.73	
	Pain limiting regular activities	Improvement	56.6	55.1	1.44	-0.81	3.69	-0.45	3.33	0.409
		Maintained	24.1	24.5	-0.44	-2.58	1.70	-2.23	1.36	
		Declined	19.4	20.4	-1.00	-2.94	0.93	-2.62	0.62	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	91.9	92.3	-0.42	-1.84	1.00	-1.62	0.77	0.559
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	89.5	89.7	-0.22	-1.88	1.45	-1.61	1.18	0.800
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	91.9	92.4	-0.54	-1.95	0.87	-1.73	0.64	0.449
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	91.3	90.8	0.52	-0.96	2.00	-0.72	1.76	0.492
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	92.3	92.7	-0.38	-1.82	1.06	-1.58	0.83	0.607
	Able to manage your health needs since returning home	Strongly Agree or Agree	94.6	94.5	0.07	-1.10	1.24	-0.91	1.05	0.904
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	90.5	90.1	0.40	-1.33	2.13	-1.06	1.85	0.653
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	75.3	73.8	1.44	-1.59	4.48	-1.10	3.99	0.350
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	65.9	66.0	-0.11	-2.27	2.05	-1.92	1.70	0.918
	Rating of all care received after leaving the hospital	9-10	64.8	64.3	0.44	-1.93	2.81	-1.55	2.43	0.546
		7-8	20.7	21.7	-1.06	-3.08	0.96	-2.76	0.63	
		0-6	14.6	13.9	0.62	-1.27	2.52	-0.96	2.21	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.8: Patient Survey Outcomes, Medical Episodes, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	58.2	60.1	-1.89	-4.81	1.03	-4.34	0.55	0.136
		Maintained	17.9	15.7	2.24	-0.06	4.55	0.31	4.18	
		Declined	23.8	24.2	-0.35	-3.32	2.61	-2.84	2.14	
	Planning regular tasks	Improvement	57.6	58.2	-0.56	-3.30	2.18	-2.86	1.73	0.368
		Maintained	13.2	14.6	-1.40	-3.73	0.94	-3.35	0.56	
		Declined	29.2	27.2	1.96	-1.06	4.97	-0.57	4.49	
	Use of mobility device	Improvement	36.9	37.6	-0.73	-3.25	1.80	-2.84	1.39	0.117
		Maintained	13.1	14.9	-1.75	-3.84	0.34	-3.50	0.00	
		Declined	50.0	47.5	2.48	-0.14	5.09	0.29	4.67	
	Walking without rest	Improvement	28.4	30.5	-2.10	-4.92	0.71	-4.46	0.26	0.210
		Maintained	26.0	26.0	0.02	-2.72	2.77	-2.27	2.32	
		Declined	45.5	43.4	2.08	-0.51	4.66	-0.09	4.25	
	Going up or down stairs	Improvement	30.7	30.1	0.62	-2.18	3.41	-1.73	2.96	0.829
		Maintained	23.9	24.8	-0.85	-3.76	2.05	-3.29	1.58	
		Declined	45.3	45.1	0.24	-2.82	3.29	-2.32	2.80	
	Physical/emotional problems limiting social activities	Improvement	44.1	45.0	-0.87	-4.15	2.41	-3.62	1.88	0.865
		Maintained	24.4	23.8	0.55	-2.36	3.45	-1.89	2.98	
		Declined	31.5	31.2	0.32	-2.93	3.57	-2.40	3.04	
	Pain limiting regular activities	Improvement	41.2	40.4	0.76	-2.64	4.17	-2.09	3.62	0.899
		Maintained	32.7	33.3	-0.65	-4.14	2.85	-3.57	2.28	
		Declined	26.2	26.3	-0.12	-3.31	3.07	-2.79	2.55	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	90.5	90.2	0.31	-1.84	2.47	-1.49	2.12	0.774
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	86.9	86.3	0.54	-2.15	3.23	-1.71	2.79	0.694
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	89.8	89.7	0.12	-2.18	2.42	-1.80	2.05	0.917
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	88.8	87.2	1.64	-0.86	4.14	-0.45	3.74	0.198
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	90.1	89.6	0.59	-1.76	2.94	-1.38	2.56	0.621
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.3	92.3	0.94	-1.05	2.92	-0.73	2.60	0.356
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	85.9	84.8	1.12	-1.95	4.20	-1.46	3.70	0.474
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	71.4	68.8	2.59	-1.89	7.07	-1.16	6.35	0.256
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	57.1	56.1	1.03	-2.16	4.22	-1.64	3.70	0.526
	Rating of all care received after leaving the hospital	9-10	55.3	53.4	1.82	-1.82	5.45	-1.23	4.87	0.435
		7-8	24.9	26.9	-2.05	-5.25	1.15	-4.73	0.63	
		0-6	19.9	19.6	0.23	-2.89	3.35	-2.39	2.85	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.9: Patient Survey Outcomes, Surgical Episodes, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	80.8	79.1	1.74	-0.58	4.06	-0.20	3.69	0.157
		Maintained	6.1	7.4	-1.34	-2.82	0.14	-2.58	-0.10	
		Declined	13.1	13.5	-0.40	-2.52	1.71	-2.18	1.37	
	Planning regular tasks	Improvement	85.3	84.1	1.23	-0.91	3.38	-0.56	3.03	0.469
		Maintained	5.4	5.5	-0.09	-1.43	1.25	-1.22	1.03	
		Declined	9.3	10.4	-1.14	-3.02	0.74	-2.72	0.44	
	Use of mobility device	Improvement	58.9	55.9	2.99	-0.09	6.07	0.41	5.57	0.125
		Maintained	11.5	11.7	-0.22	-2.39	1.95	-2.03	1.60	
		Declined	29.6	32.3	-2.78	-5.64	0.09	-5.18	-0.37	
	Walking without rest	Improvement	57.9	55.6	2.32	-0.62	5.26	-0.14	4.79	0.283
		Maintained	16.7	18.2	-1.51	-3.93	0.92	-3.54	0.53	
		Declined	25.5	26.3	-0.82	-3.26	1.62	-2.86	1.23	
	Going up or down stairs	Improvement	54.3	52.4	1.96	-1.41	5.33	-0.86	4.79	0.519
		Maintained	23.0	24.2	-1.17	-4.19	1.84	-3.70	1.36	
		Declined	22.7	23.4	-0.79	-3.16	1.58	-2.78	1.20	
	Physical/emotional problems limiting social activities	Improvement	67.8	67.6	0.25	-2.84	3.34	-2.34	2.84	0.917
		Maintained	14.9	14.6	0.29	-2.22	2.80	-1.81	2.39	
		Declined	17.3	17.8	-0.54	-3.16	2.09	-2.74	1.67	
	Pain limiting regular activities	Improvement	70.7	68.7	1.99	-0.85	4.83	-0.39	4.38	0.235
		Maintained	16.2	16.4	-0.22	-2.67	2.22	-2.27	1.82	
		Declined	13.2	14.9	-1.77	-3.94	0.40	-3.59	0.05	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	93.3	94.3	-1.00	-2.92	0.91	-2.61	0.60	0.305
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	91.8	92.6	-0.81	-2.82	1.19	-2.49	0.87	0.427
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	93.6	94.7	-1.05	-2.72	0.62	-2.45	0.35	0.219
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	93.2	93.8	-0.54	-2.27	1.18	-1.99	0.90	0.537
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	94.1	95.3	-1.24	-2.89	0.40	-2.62	0.13	0.137
	Able to manage your health needs since returning home	Strongly Agree or Agree	95.7	96.3	-0.67	-2.10	0.77	-1.87	0.53	0.361
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	94.0	94.2	-0.21	-1.98	1.56	-1.69	1.27	0.817
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	78.7	78.3	0.45	-3.64	4.55	-2.98	3.88	0.829
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	74.0	75.1	-1.12	-4.03	1.79	-3.56	1.32	0.449
	Rating of all care received after leaving the hospital	9-10	73.5	74.3	-0.80	-3.78	2.17	-3.30	1.69	0.598
		7-8	16.7	17.0	-0.26	-2.75	2.24	-2.35	1.84	
		0-6	9.8	8.7	1.06	-0.99	3.11	-0.66	2.78	

Note: See the first page of this appendix for data sources and more information.

B. Patient Survey CESLG Results

Exhibit K.10: Patient Survey Outcomes, *Cardiac Care* CESLG, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	60.1	61.2	-1.14	-4.14	1.86	-3.66	1.37	0.624
		Maintained	19.6	18.5	1.07	-1.34	3.47	-0.95	3.08	
		Declined	20.3	20.3	0.08	-2.91	3.06	-2.43	2.58	
	Planning regular tasks	Improvement	61.4	63.8	-2.41	-5.23	0.42	-4.78	-0.04	0.191
		Maintained	14.9	14.7	0.18	-2.25	2.62	-1.86	2.23	
		Declined	23.7	21.4	2.22	-0.50	4.95	-0.06	4.51	
	Use of mobility device	Improvement	37.3	40.1	-2.85	-5.52	-0.17	-5.09	-0.61	0.084
		Maintained	15.6	15.5	0.04	-2.27	2.34	-1.89	1.97	
		Declined	47.1	44.3	2.81	-0.02	5.65	0.44	5.19	
	Walking without rest	Improvement	28.3	30.5	-2.18	-5.06	0.70	-4.60	0.24	0.249
		Maintained	27.6	27.6	0.01	-2.77	2.78	-2.32	2.33	
		Declined	44.0	41.9	2.17	-0.76	5.11	-0.29	4.64	
	Going up or down stairs	Improvement	28.6	30.2	-1.56	-4.37	1.26	-3.92	0.81	0.259
		Maintained	29.1	26.8	2.34	-0.60	5.28	-0.13	4.80	
		Declined	42.3	43.1	-0.78	-3.98	2.41	-3.46	1.90	
	Physical/emotional problems limiting social activities	Improvement	48.6	47.8	0.75	-2.96	4.46	-2.36	3.86	0.856
		Maintained	24.1	24.9	-0.88	-4.07	2.31	-3.55	1.80	
		Declined	27.4	27.2	0.13	-3.30	3.56	-2.75	3.00	
	Pain limiting regular activities	Improvement	44.2	44.7	-0.44	-4.20	3.31	-3.59	2.71	0.969
		Maintained	31.8	31.7	0.09	-3.29	3.47	-2.75	2.92	
		Declined	24.0	23.6	0.36	-2.96	3.67	-2.42	3.13	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	92.6	92.5	0.04	-1.91	2.00	-1.60	1.68	0.966
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	87.1	86.3	0.75	-2.07	3.57	-1.62	3.11	0.603
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	89.2	91.1	-1.98	-4.40	0.45	-4.01	0.06	0.110
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.5	89.8	-0.35	-2.83	2.14	-2.43	1.74	0.785
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	90.8	91.0	-0.17	-2.49	2.15	-2.11	1.78	0.887
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.0	93.1	-0.10	-2.10	1.90	-1.78	1.58	0.923
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	85.3	83.6	1.75	-1.30	4.80	-0.80	4.31	0.259
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	69.7	68.3	1.36	-3.42	6.15	-2.65	5.38	0.576
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	56.4	56.0	0.42	-2.88	3.72	-2.34	3.18	0.803
	Rating of all care received after leaving the hospital	9-10	58.0	54.0	3.97	0.10	7.85	0.73	7.22	0.078
		7-8	24.9	25.8	-0.91	-4.30	2.48	-3.75	1.93	
		0-6	17.1	20.1	-3.07	-6.14	0.00	-5.64	-0.49	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.11: Patient Survey Outcomes, *Gastrointestinal Care* CESLG, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	68.6	68.2	0.43	-4.39	5.24	-3.61	4.46	0.278
		Maintained	12.3	14.8	-2.55	-5.89	0.80	-5.35	0.26	
		Declined	19.1	17.0	2.12	-2.29	6.53	-1.58	5.81	
	Planning regular tasks	Improvement	65.2	66.1	-0.85	-5.02	3.32	-4.35	2.64	0.922
		Maintained	15.8	15.4	0.40	-3.03	3.84	-2.48	3.28	
		Declined	19.0	18.5	0.45	-3.53	4.43	-2.89	3.78	
	Use of mobility device	Improvement	44.9	49.7	-4.83	-9.19	-0.47	-8.48	-1.18	0.015
		Maintained	14.6	16.2	-1.63	-5.07	1.81	-4.51	1.25	
		Declined	40.6	34.1	6.46	2.08	10.84	2.79	10.13	
	Walking without rest	Improvement	36.7	36.4	0.35	-3.96	4.67	-3.26	3.97	0.294
		Maintained	30.7	27.8	2.83	-1.24	6.91	-0.58	6.25	
		Declined	32.6	35.8	-3.19	-7.80	1.43	-7.06	0.68	
	Going up or down stairs	Improvement	36.1	39.4	-3.27	-8.20	1.66	-7.40	0.86	0.265
		Maintained	28.1	28.3	-0.19	-4.74	4.36	-4.01	3.62	
		Declined	35.8	32.3	3.46	-0.99	7.92	-0.27	7.20	
	Physical/emotional problems limiting social activities	Improvement	49.8	49.3	0.49	-5.22	6.21	-4.29	5.28	0.810
		Maintained	21.7	23.2	-1.56	-6.31	3.19	-5.54	2.42	
		Declined	28.5	27.5	1.07	-4.88	7.01	-3.91	6.05	
	Pain limiting regular activities	Improvement	43.4	43.6	-0.20	-6.17	5.78	-5.20	4.81	0.772
		Maintained	31.0	29.2	1.82	-3.56	7.20	-2.69	6.33	
		Declined	25.6	27.2	-1.62	-7.50	4.26	-6.55	3.30	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	90.8	93.2	-2.43	-5.78	0.92	-5.24	0.38	0.155
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	87.3	89.5	-2.21	-6.42	2.01	-5.74	1.32	0.304
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	90.1	90.5	-0.46	-4.17	3.26	-3.57	2.66	0.809
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.3	91.0	-1.67	-5.52	2.19	-4.90	1.56	0.396
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	89.5	92.7	-3.15	-6.76	0.45	-6.17	-0.13	0.086
	Able to manage your health needs since returning home	Strongly Agree or Agree	94.0	94.3	-0.30	-3.16	2.56	-2.70	2.09	0.837
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	81.4	84.9	-3.51	-9.26	2.25	-8.33	1.32	0.232
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	63.1	68.4	-5.29	-13.33	2.74	-12.02	1.43	0.196
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	65.7	62.7	3.07	-2.38	8.52	-1.50	7.63	0.270
	Rating of all care received after leaving the hospital	9-10	60.5	58.4	2.17	-3.82	8.17	-2.85	7.19	0.614
		7-8	24.1	24.0	0.13	-5.16	5.43	-4.30	4.57	
		0-6	15.3	17.6	-2.31	-7.02	2.41	-6.26	1.64	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.12: Patient Survey Outcomes, *Medical and Critical Care* CESLG, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	55.8	55.4	0.37	-2.20	2.95	-1.78	2.53	0.935
		Maintained	15.9	15.7	0.11	-2.01	2.23	-1.67	1.89	
		Declined	28.4	28.9	-0.48	-3.09	2.12	-2.67	1.70	
	Planning regular tasks	Improvement	55.6	56.6	-1.04	-3.67	1.58	-3.25	1.16	0.734
		Maintained	13.6	13.3	0.27	-1.81	2.35	-1.48	2.01	
		Declined	30.8	30.0	0.77	-1.75	3.30	-1.34	2.89	
	Use of mobility device	Improvement	35.6	35.8	-0.20	-2.64	2.24	-2.24	1.85	0.625
		Maintained	13.8	12.9	0.95	-1.00	2.90	-0.68	2.59	
		Declined	50.5	51.3	-0.76	-3.36	1.85	-2.94	1.43	
	Walking without rest	Improvement	28.5	28.7	-0.24	-2.78	2.31	-2.37	1.89	0.708
		Maintained	23.1	23.9	-0.78	-3.17	1.61	-2.78	1.22	
		Declined	48.4	47.4	1.02	-1.56	3.59	-1.15	3.18	
	Going up or down stairs	Improvement	27.3	29.7	-2.45	-5.07	0.18	-4.65	-0.25	0.168
		Maintained	24.1	23.5	0.59	-1.91	3.09	-1.50	2.68	
		Declined	48.6	46.7	1.86	-0.75	4.46	-0.33	4.04	
	Physical/emotional problems limiting social activities	Improvement	42.9	45.6	-2.75	-5.90	0.40	-5.39	-0.11	0.229
		Maintained	24.8	23.4	1.40	-1.54	4.35	-1.07	3.87	
		Declined	32.3	30.9	1.34	-1.81	4.49	-1.30	3.99	
	Pain limiting regular activities	Improvement	40.8	41.6	-0.79	-4.06	2.47	-3.53	1.94	0.800
		Maintained	31.3	30.3	1.02	-2.08	4.11	-1.58	3.61	
		Declined	27.9	28.1	-0.22	-3.40	2.96	-2.89	2.45	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	87.7	90.1	-2.35	-4.66	-0.04	-4.29	-0.41	0.046
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	82.1	85.6	-3.56	-6.31	-0.80	-5.87	-1.24	0.012
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	87.7	88.6	-0.93	-3.39	1.54	-3.00	1.14	0.462
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	87.8	88.4	-0.59	-3.10	1.93	-2.69	1.52	0.647
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	87.7	89.1	-1.41	-4.02	1.20	-3.60	0.78	0.290
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.5	92.4	1.05	-0.92	3.02	-0.60	2.70	0.294
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	83.7	87.0	-3.28	-6.04	-0.52	-5.60	-0.96	0.020
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	70.7	71.4	-0.77	-4.86	3.32	-4.20	2.66	0.713
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	54.2	55.4	-1.17	-4.38	2.04	-3.86	1.52	0.474
	Rating of all care received after leaving the hospital	9-10	50.7	56.0	-5.35	-8.84	-1.86	-8.28	-2.43	0.001
		7-8	26.0	25.7	0.24	-2.86	3.34	-2.36	2.84	
		0-6	23.4	18.2	5.11	2.16	8.07	2.63	7.59	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.13: Patient Survey Outcomes, *Neurological Care* CESLG, Hospitals January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	54.8	50.7	4.14	-0.26	8.55	0.45	7.83	0.139
		Maintained	10.5	12.3	-1.82	-4.73	1.09	-4.26	0.62	
		Declined	34.7	37.0	-2.32	-6.88	2.23	-6.14	1.49	
	Planning regular tasks	Improvement	46.7	44.7	1.99	-2.42	6.41	-1.71	5.69	0.653
		Maintained	11.3	11.4	-0.05	-3.29	3.19	-2.76	2.67	
		Declined	42.0	43.9	-1.95	-6.53	2.64	-5.79	1.89	
	Use of mobility device	Improvement	39.0	38.6	0.42	-4.16	5.00	-3.41	4.26	0.153
		Maintained	10.3	7.5	2.77	-0.09	5.63	0.37	5.17	
		Declined	50.7	53.9	-3.19	-8.32	1.94	-7.49	1.11	
	Walking without rest	Improvement	33.7	28.9	4.73	0.54	8.93	1.22	8.25	0.086
		Maintained	16.0	17.2	-1.13	-4.29	2.03	-3.77	1.52	
		Declined	50.3	53.9	-3.61	-8.15	0.93	-7.41	0.20	
	Going up or down stairs	Improvement	32.6	28.7	3.90	-0.27	8.07	0.41	7.39	0.184
		Maintained	19.5	20.5	-0.93	-4.79	2.92	-4.16	2.29	
		Declined	47.9	50.8	-2.97	-7.60	1.66	-6.85	0.91	
	Physical/emotional problems limiting social activities	Improvement	40.8	37.4	3.45	-1.59	8.50	-0.77	7.68	0.388
		Maintained	20.4	20.7	-0.27	-4.67	4.13	-3.96	3.41	
		Declined	38.8	41.9	-3.18	-8.77	2.41	-7.86	1.50	
	Pain limiting regular activities	Improvement	40.5	36.7	3.76	-1.52	9.04	-0.66	8.19	0.370
		Maintained	28.8	29.8	-0.94	-5.80	3.92	-5.02	3.13	
		Declined	30.7	33.5	-2.82	-8.40	2.76	-7.50	1.86	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	88.4	82.9	5.56	1.07	10.04	1.80	9.32	0.015
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	87.1	85.4	1.64	-2.38	5.66	-1.73	5.01	0.424
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	88.7	87.4	1.29	-2.41	5.00	-1.81	4.40	0.493
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.1	87.1	2.02	-1.63	5.67	-1.03	5.07	0.277
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	88.8	87.5	1.31	-2.46	5.08	-1.85	4.47	0.496
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.0	92.3	0.73	-2.43	3.89	-1.92	3.38	0.651
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	86.6	86.7	-0.05	-4.37	4.28	-3.67	3.58	0.983
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	69.0	72.8	-3.76	-10.05	2.52	-9.03	1.50	0.240
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	53.4	52.8	0.60	-4.55	5.76	-3.72	4.92	0.819
	Rating of all care received after leaving the hospital	9-10	56.0	53.8	2.11	-3.48	7.71	-2.58	6.81	0.746
		7-8	24.4	25.1	-0.67	-5.76	4.42	-4.94	3.60	
		0-6	19.7	21.1	-1.45	-6.47	3.58	-5.65	2.76	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.14: Patient Survey Outcomes, *Cardiac Procedures* CESLG, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	86.2	85.6	0.60	-1.96	3.16	-1.55	2.75	0.745
		Maintained	5.4	6.1	-0.69	-2.48	1.10	-2.19	0.81	
		Declined	8.3	8.3	0.09	-2.24	2.42	-1.86	2.04	
	Planning regular tasks	Improvement	81.2	82.9	-1.61	-4.55	1.33	-4.08	0.85	0.445
		Maintained	7.6	7.5	0.11	-2.10	2.31	-1.74	1.95	
		Declined	11.1	9.6	1.51	-0.90	3.92	-0.51	3.53	
	Use of mobility device	Improvement	68.2	69.4	-1.21	-4.20	1.77	-3.71	1.29	0.358
		Maintained	12.6	10.8	1.85	-0.68	4.38	-0.27	3.97	
		Declined	19.1	19.8	-0.64	-3.38	2.10	-2.93	1.66	
	Walking without rest	Improvement	59.1	59.5	-0.43	-4.84	3.99	-4.13	3.27	0.981
		Maintained	23.7	23.4	0.31	-3.44	4.06	-2.83	3.45	
		Declined	17.2	17.1	0.12	-3.07	3.31	-2.55	2.79	
	Going up or down stairs	Improvement	53.4	54.5	-1.06	-5.39	3.26	-4.68	2.56	0.683
		Maintained	28.0	26.4	1.55	-1.98	5.09	-1.40	4.51	
		Declined	18.6	19.1	-0.49	-3.77	2.78	-3.24	2.25	
	Physical/emotional problems limiting social activities	Improvement	65.8	66.7	-0.93	-4.87	3.00	-4.22	2.36	0.593
		Maintained	20.3	18.5	1.72	-1.65	5.08	-1.10	4.54	
		Declined	14.0	14.8	-0.79	-3.98	2.41	-3.46	1.89	
	Pain limiting regular activities	Improvement	56.8	56.7	0.17	-4.19	4.52	-3.48	3.81	0.978
		Maintained	25.7	25.5	0.20	-4.45	4.85	-3.69	4.09	
		Declined	17.4	17.8	-0.37	-3.81	3.08	-3.25	2.52	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	97.3	97.6	-0.33	-1.73	1.07	-1.50	0.84	0.645
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	92.9	92.0	0.90	-1.66	3.46	-1.24	3.04	0.489
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	94.3	93.2	1.10	-1.09	3.29	-0.73	2.93	0.325
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	95.3	94.1	1.20	-0.96	3.36	-0.61	3.01	0.277
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	93.8	94.1	-0.33	-2.59	1.93	-2.23	1.56	0.772
	Able to manage your health needs since returning home	Strongly Agree or Agree	96.6	97.9	-1.36	-2.94	0.22	-2.69	-0.04	0.091
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	89.9	89.3	0.60	-2.82	4.03	-2.26	3.47	0.729
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	68.6	65.4	3.24	-4.80	11.28	-3.49	9.96	0.429
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	76.8	78.4	-1.61	-5.52	2.30	-4.89	1.66	0.418
	Rating of all care received after leaving the hospital	9-10	71.0	73.6	-2.52	-6.97	1.94	-6.25	1.21	0.190
		7-8	19.2	15.9	3.33	-0.35	7.00	0.25	6.40	
		0-6	9.8	10.6	-0.81	-3.65	2.04	-3.19	1.57	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.15: Patient Survey Outcomes, *Orthopedics* CESLG, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	68.1	70.6	-2.53	-5.11	0.05	-4.69	-0.37	0.158
		Maintained	9.6	9.1	0.50	-1.29	2.29	-1.00	2.00	
		Declined	22.3	20.3	2.03	-0.64	4.70	-0.21	4.27	
	Planning regular tasks	Improvement	74.6	77.7	-3.13	-5.31	-0.96	-4.95	-1.31	0.019
		Maintained	7.8	6.8	1.05	-0.59	2.69	-0.32	2.43	
		Declined	17.6	15.5	2.08	-0.03	4.19	0.31	3.85	
	Use of mobility device	Improvement	43.3	44.8	-1.47	-4.32	1.38	-3.86	0.92	0.581
		Maintained	9.3	9.3	0.05	-1.72	1.83	-1.44	1.54	
		Declined	47.3	45.9	1.41	-1.45	4.28	-0.99	3.81	
	Walking without rest	Improvement	44.8	45.8	-1.06	-3.92	1.79	-3.45	1.33	0.748
		Maintained	14.1	13.5	0.64	-1.75	3.04	-1.37	2.65	
		Declined	41.1	40.7	0.42	-2.35	3.19	-1.91	2.74	
	Going up or down stairs	Improvement	42.8	43.4	-0.69	-3.64	2.26	-3.16	1.78	0.067
		Maintained	18.7	21.2	-2.52	-5.22	0.17	-4.78	-0.26	
		Declined	38.6	35.4	3.21	0.24	6.18	0.72	5.70	
	Physical/emotional problems limiting social activities	Improvement	55.8	58.7	-2.90	-5.89	0.09	-5.40	-0.39	0.160
		Maintained	16.3	15.2	1.10	-1.48	3.68	-1.06	3.26	
		Declined	27.9	26.1	1.80	-0.88	4.48	-0.45	4.04	
	Pain limiting regular activities	Improvement	58.9	58.9	-0.05	-3.21	3.11	-2.70	2.60	0.900
		Maintained	18.1	17.6	0.53	-2.12	3.19	-1.69	2.76	
		Declined	23.0	23.5	-0.48	-3.20	2.24	-2.76	1.80	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	90.5	91.6	-1.13	-2.93	0.68	-2.64	0.39	0.222
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	91.5	91.9	-0.37	-2.48	1.75	-2.14	1.40	0.733
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	91.9	92.4	-0.48	-2.38	1.42	-2.07	1.11	0.621
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	92.8	93.5	-0.66	-2.49	1.16	-2.19	0.87	0.475
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	93.6	93.5	0.11	-1.62	1.84	-1.34	1.56	0.902
	Able to manage your health needs since returning home	Strongly Agree or Agree	96.6	96.3	0.35	-0.87	1.57	-0.67	1.37	0.574
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	92.1	93.4	-1.28	-3.19	0.63	-2.88	0.32	0.189
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	82.7	78.4	4.33	0.37	8.29	1.01	7.65	0.032
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	66.8	70.5	-3.66	-6.63	-0.70	-6.15	-1.18	0.016
	Rating of all care received after leaving the hospital	9-10	66.6	69.3	-2.69	-5.92	0.54	-5.40	0.02	0.206
		7-8	21.0	18.4	2.57	-0.45	5.60	0.04	5.11	
		0-6	12.4	12.3	0.12	-2.21	2.45	-1.83	2.07	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.16: Patient Survey Outcomes, *Spinal Procedures* CESLG, Hospitals, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	75.8	77.5	-1.69	-5.59	2.20	-4.96	1.57	0.695
		Maintained	11.7	10.9	0.82	-2.17	3.80	-1.68	3.32	
		Declined	12.5	11.6	0.88	-2.29	4.05	-1.77	3.53	
	Planning regular tasks	Improvement	81.6	83.5	-1.94	-4.90	1.03	-4.42	0.55	0.431
		Maintained	8.5	7.9	0.62	-1.67	2.91	-1.29	2.54	
		Declined	9.9	8.6	1.31	-1.24	3.87	-0.83	3.45	
	Use of mobility device	Improvement	56.7	55.1	1.61	-2.59	5.81	-1.90	5.13	0.744
		Maintained	14.3	14.9	-0.65	-3.32	2.03	-2.89	1.59	
		Declined	29.0	30.0	-0.96	-4.80	2.88	-4.18	2.25	
	Walking without rest	Improvement	59.8	58.5	1.23	-2.92	5.38	-2.24	4.71	0.274
		Maintained	20.2	18.8	1.45	-1.89	4.79	-1.35	4.25	
		Declined	20.0	22.7	-2.68	-6.10	0.74	-5.55	0.19	
	Going up or down stairs	Improvement	55.5	56.6	-1.10	-6.05	3.85	-5.25	3.04	0.250
		Maintained	25.7	22.8	2.84	-1.07	6.74	-0.43	6.11	
		Declined	18.8	20.5	-1.73	-5.16	1.69	-4.60	1.14	
	Physical/emotional problems limiting social activities	Improvement	63.7	64.9	-1.18	-5.71	3.35	-4.97	2.62	0.717
		Maintained	19.2	17.8	1.49	-2.10	5.09	-1.52	4.51	
		Declined	17.0	17.4	-0.32	-3.99	3.36	-3.40	2.76	
	Pain limiting regular activities	Improvement	71.4	70.2	1.21	-2.81	5.23	-2.15	4.58	0.535
		Maintained	14.4	16.2	-1.80	-4.98	1.39	-4.46	0.87	
		Declined	14.2	13.6	0.58	-2.56	3.73	-2.05	3.21	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	91.6	91.3	0.39	-2.09	2.87	-1.69	2.47	0.757
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	89.5	90.2	-0.63	-3.57	2.31	-3.09	1.83	0.674
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	91.9	90.6	1.26	-1.19	3.70	-0.79	3.30	0.313
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	92.7	93.2	-0.50	-2.87	1.87	-2.49	1.48	0.678
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	93.1	92.9	0.21	-2.15	2.57	-1.76	2.19	0.861
	Able to manage your health needs since returning home	Strongly Agree or Agree	94.2	95.0	-0.73	-2.85	1.39	-2.51	1.05	0.499
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	91.2	91.0	0.12	-2.63	2.87	-2.18	2.42	0.933
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	72.2	70.4	1.74	-5.49	8.97	-4.31	7.79	0.637
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	61.4	63.2	-1.76	-6.54	3.02	-5.77	2.24	0.469
	Rating of all care received after leaving the hospital	9-10	63.4	67.4	-3.94	-8.73	0.85	-7.95	0.07	0.271
		7-8	22.0	19.9	2.04	-1.63	5.72	-1.03	5.12	
		0-6	14.6	12.7	1.90	-1.42	5.21	-0.88	4.67	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.17: Patient Survey Outcomes, *Cardiac Care* CESLG, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	61.0	59.4	1.61	-3.69	6.91	-2.83	6.04	0.487
		Maintained	18.0	20.6	-2.60	-6.86	1.66	-6.16	0.97	
		Declined	21.0	20.0	0.99	-4.14	6.12	-3.31	5.29	
	Planning regular tasks	Improvement	65.4	62.8	2.57	-2.65	7.79	-1.80	6.95	0.284
		Maintained	13.2	16.3	-3.10	-7.05	0.84	-6.41	0.20	
		Declined	21.4	20.9	0.53	-4.57	5.63	-3.75	4.80	
	Use of mobility device	Improvement	37.6	37.8	-0.24	-4.96	4.49	-4.19	3.72	0.269
		Maintained	14.1	17.2	-3.10	-7.15	0.95	-6.49	0.29	
		Declined	48.3	45.0	3.33	-1.80	8.46	-0.96	7.63	
	Walking without rest	Improvement	28.3	31.1	-2.80	-8.04	2.45	-7.19	1.59	0.578
		Maintained	30.4	29.1	1.33	-3.80	6.46	-2.97	5.63	
		Declined	41.3	39.8	1.47	-3.85	6.79	-2.99	5.93	
	Going up or down stairs	Improvement	28.4	31.9	-3.55	-8.94	1.83	-8.06	0.96	0.206
		Maintained	28.6	24.2	4.36	-0.77	9.49	0.07	8.65	
		Declined	43.1	43.9	-0.81	-6.37	4.76	-5.47	3.85	
	Physical/emotional problems limiting social activities	Improvement	43.8	44.0	-0.20	-6.46	6.06	-5.45	5.04	0.983
		Maintained	26.6	27.0	-0.33	-5.97	5.32	-5.05	4.40	
		Declined	29.6	29.1	0.53	-5.37	6.43	-4.41	5.47	
	Pain limiting regular activities	Improvement	41.2	40.3	0.92	-4.97	6.80	-4.01	5.84	0.624
		Maintained	34.9	33.0	1.86	-3.73	7.45	-2.82	6.54	
		Declined	23.9	26.7	-2.78	-8.58	3.02	-7.63	2.08	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	91.4	91.6	-0.16	-3.68	3.35	-3.11	2.78	0.927
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	89.1	85.8	3.23	-1.55	8.02	-0.77	7.24	0.185
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	91.9	91.0	0.98	-2.84	4.80	-2.22	4.18	0.614
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.9	90.4	-0.48	-4.63	3.68	-3.95	3.00	0.821
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	90.5	92.6	-2.19	-5.99	1.62	-5.37	1.00	0.259
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.9	92.3	1.64	-2.36	5.64	-1.71	4.98	0.421
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	85.3	83.8	1.47	-4.01	6.96	-3.12	6.06	0.598
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	69.4	70.0	-0.69	-8.29	6.90	-7.05	5.66	0.858
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	55.2	55.2	-0.06	-5.91	5.80	-4.96	4.85	0.985
	Rating of all care received after leaving the hospital	9-10	58.6	58.8	-0.12	-6.57	6.32	-5.52	5.27	0.842
		7-8	23.0	21.7	1.34	-3.98	6.65	-3.11	5.79	
		0-6	18.3	19.5	-1.21	-6.62	4.19	-5.74	3.31	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.18: Patient Survey Outcomes, *Medical and Critical Care* CESLG, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	57.1	59.2	-2.12	-5.80	1.56	-5.20	0.97	0.032
		Maintained	19.2	15.1	4.06	1.03	7.08	1.52	6.59	
		Declined	23.7	25.7	-1.94	-5.58	1.71	-4.99	1.12	
	Planning regular tasks	Improvement	55.9	56.8	-0.88	-4.38	2.63	-3.81	2.06	0.856
		Maintained	13.6	13.7	-0.13	-2.77	2.50	-2.34	2.08	
		Declined	30.5	29.5	1.01	-2.66	4.68	-2.07	4.09	
	Use of mobility device	Improvement	36.5	36.8	-0.35	-3.78	3.08	-3.22	2.52	0.247
		Maintained	13.1	15.1	-2.00	-4.68	0.69	-4.25	0.26	
		Declined	50.4	48.0	2.34	-1.10	5.79	-0.54	5.23	
	Walking without rest	Improvement	27.8	30.0	-2.18	-5.60	1.24	-5.05	0.69	0.391
		Maintained	26.0	25.7	0.33	-3.06	3.73	-2.51	3.18	
		Declined	46.1	44.3	1.85	-1.44	5.14	-0.91	4.61	
	Going up or down stairs	Improvement	30.1	29.2	0.88	-2.65	4.41	-2.08	3.84	0.884
		Maintained	23.4	23.7	-0.30	-3.82	3.21	-3.25	2.64	
		Declined	46.5	47.1	-0.58	-4.06	2.91	-3.49	2.34	
	Physical/emotional problems limiting social activities	Improvement	44.4	44.8	-0.37	-4.33	3.58	-3.69	2.94	0.852
		Maintained	24.8	23.7	1.10	-2.72	4.91	-2.10	4.29	
		Declined	30.8	31.5	-0.72	-4.96	3.51	-4.27	2.82	
	Pain limiting regular activities	Improvement	41.4	41.0	0.44	-3.89	4.77	-3.19	4.07	0.882
		Maintained	31.8	32.9	-1.09	-5.46	3.29	-4.75	2.58	
		Declined	26.8	26.2	0.65	-3.27	4.56	-2.64	3.93	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	90.0	88.7	1.34	-1.56	4.25	-1.09	3.77	0.365
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	85.7	86.1	-0.34	-3.81	3.12	-3.25	2.56	0.845
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	88.9	89.3	-0.41	-3.39	2.58	-2.91	2.10	0.790
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	87.7	85.9	1.85	-1.51	5.21	-0.96	4.66	0.280
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	89.1	88.3	0.82	-2.29	3.93	-1.79	3.43	0.606
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.4	92.1	1.30	-1.10	3.70	-0.71	3.31	0.289
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	85.6	84.6	0.91	-2.90	4.72	-2.28	4.11	0.639
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	72.1	70.5	1.61	-3.82	7.04	-2.93	6.16	0.560
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	57.8	54.8	3.05	-0.98	7.08	-0.33	6.43	0.138
	Rating of all care received after leaving the hospital	9-10	53.4	51.8	1.63	-2.92	6.17	-2.18	5.43	0.343
		7-8	25.8	28.8	-2.99	-7.04	1.07	-6.38	0.41	
		0-6	20.7	19.4	1.36	-2.45	5.16	-1.83	4.55	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.19: Patient Survey Outcomes, *Orthopedics* CESLG, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	80.6	79.1	1.50	-1.02	4.02	-0.62	3.61	0.253
		Maintained	5.7	7.0	-1.31	-2.94	0.32	-2.68	0.06	
		Declined	13.7	13.9	-0.19	-2.52	2.14	-2.14	1.77	
	Planning regular tasks	Improvement	84.9	84.1	0.78	-1.52	3.09	-1.15	2.71	0.637
		Maintained	5.4	5.2	0.21	-1.26	1.67	-1.02	1.43	
		Declined	9.7	10.7	-0.99	-3.04	1.07	-2.71	0.73	
	Use of mobility device	Improvement	58.2	54.9	3.37	-0.07	6.80	0.49	6.25	0.150
		Maintained	10.8	11.5	-0.68	-3.13	1.76	-2.73	1.37	
		Declined	31.0	33.7	-2.68	-5.93	0.56	-5.40	0.03	
	Walking without rest	Improvement	57.7	55.3	2.37	-0.91	5.65	-0.38	5.11	0.339
		Maintained	15.4	17.0	-1.61	-4.34	1.11	-3.90	0.67	
		Declined	26.9	27.7	-0.76	-3.50	1.99	-3.05	1.54	
	Going up or down stairs	Improvement	54.1	51.7	2.39	-1.37	6.14	-0.76	5.53	0.459
		Maintained	22.2	23.8	-1.59	-4.99	1.82	-4.44	1.27	
		Declined	23.7	24.5	-0.80	-3.48	1.88	-3.05	1.45	
	Physical/emotional problems limiting social activities	Improvement	67.8	67.4	0.38	-3.08	3.85	-2.52	3.29	0.901
		Maintained	13.8	14.4	-0.65	-3.49	2.18	-3.03	1.72	
		Declined	18.4	18.2	0.27	-2.69	3.23	-2.21	2.75	
	Pain limiting regular activities	Improvement	70.5	68.5	1.98	-1.18	5.15	-0.67	4.64	0.271
		Maintained	15.7	15.8	-0.04	-2.75	2.66	-2.31	2.22	
		Declined	13.8	15.7	-1.94	-4.38	0.50	-3.98	0.11	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	92.9	94.4	-1.43	-3.53	0.66	-3.19	0.32	0.178
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	92.0	93.1	-1.04	-3.21	1.13	-2.85	0.78	0.348
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	93.8	95.4	-1.69	-3.53	0.15	-3.23	-0.15	0.071
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	93.0	94.4	-1.40	-3.29	0.50	-2.98	0.19	0.149
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	94.0	95.6	-1.51	-3.32	0.30	-3.03	0.01	0.102
	Able to manage your health needs since returning home	Strongly Agree or Agree	95.9	96.8	-0.93	-2.48	0.63	-2.23	0.38	0.243
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	94.5	94.9	-0.39	-2.26	1.49	-1.96	1.18	0.686
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	80.2	79.6	0.61	-3.83	5.06	-3.11	4.34	0.786
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	74.5	75.4	-0.87	-4.15	2.41	-3.62	1.88	0.604
	Rating of all care received after leaving the hospital	9-10	74.4	74.7	-0.29	-3.58	3.00	-3.04	2.47	0.823
		7-8	16.4	16.8	-0.41	-3.19	2.38	-2.74	1.93	
		0-6	9.2	8.6	0.70	-1.59	2.99	-1.22	2.62	

Note: See the first page of this appendix for data sources and more information.

Exhibit K.20: Patient Survey Outcomes, *Spinal Procedures* CESLG, PGPs, January 1, 2021 - December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improvement	80.8	80.2	0.63	-4.20	5.46	-3.41	4.67	0.841
		Maintained	9.5	10.5	-1.02	-4.52	2.48	-3.95	1.91	
		Declined	9.7	9.3	0.39	-3.35	4.13	-2.74	3.52	
	Planning regular tasks	Improvement	90.0	85.5	4.53	-0.05	9.11	0.69	8.37	0.103
		Maintained	4.0	7.7	-3.63	-7.12	-0.14	-6.55	-0.71	
		Declined	5.9	6.8	-0.90	-3.96	2.17	-3.46	1.67	
	Use of mobility device	Improvement	62.0	61.7	0.31	-6.07	6.69	-5.03	5.65	0.551
		Maintained	14.4	12.4	1.94	-2.28	6.17	-1.59	5.48	
		Declined	23.6	25.9	-2.26	-7.93	3.42	-7.00	2.49	
	Walking without rest	Improvement	62.4	58.0	4.39	-2.38	11.15	-1.27	10.05	0.445
		Maintained	21.7	23.8	-2.14	-7.26	2.97	-6.42	2.14	
		Declined	15.9	18.2	-2.25	-7.51	3.02	-6.65	2.16	
	Going up or down stairs	Improvement	58.2	59.1	-0.89	-7.71	5.93	-6.60	4.81	0.436
		Maintained	27.4	24.5	2.94	-2.33	8.22	-1.47	7.36	
		Declined	14.4	16.5	-2.05	-7.05	2.95	-6.23	2.13	
	Physical/emotional problems limiting social activities	Improvement	69.4	68.5	0.98	-5.83	7.79	-4.71	6.67	0.274
		Maintained	19.9	17.2	2.69	-3.00	8.39	-2.07	7.45	
		Declined	10.7	14.4	-3.67	-8.59	1.25	-7.79	0.44	
	Pain limiting regular activities	Improvement	75.0	73.7	1.37	-4.68	7.42	-3.69	6.43	0.875
		Maintained	16.9	18.2	-1.36	-6.52	3.81	-5.68	2.97	
		Declined	8.1	8.1	-0.01	-3.51	3.49	-2.94	2.92	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	93.7	93.1	0.67	-2.78	4.12	-2.21	3.56	0.702
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	89.3	89.4	-0.08	-4.67	4.51	-3.92	3.76	0.974
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	92.3	91.2	1.11	-2.42	4.63	-1.84	4.06	0.537
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	95.1	91.3	3.81	0.56	7.06	1.10	6.53	0.022
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	94.4	92.9	1.42	-1.88	4.73	-1.34	4.19	0.397
	Able to manage your health needs since returning home	Strongly Agree or Agree	94.8	92.5	2.36	-0.96	5.69	-0.41	5.14	0.162
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	91.3	88.3	3.00	-1.14	7.13	-0.46	6.46	0.155
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	66.2	68.5	-2.29	-10.99	6.40	-9.56	4.97	0.604
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	70.0	70.9	-0.97	-7.08	5.14	-6.08	4.14	0.755
	Rating of all care received after leaving the hospital	9-10	68.9	73.6	-4.64	-10.75	1.47	-9.75	0.47	0.138
		7-8	18.1	17.2	0.84	-4.40	6.08	-3.54	5.22	
		0-6	13.0	9.2	3.80	-0.10	7.70	0.54	7.07	

Note: See the first page of this appendix for data sources and more information.

C. Domain-Level Joint Statistical Test Results

Exhibit K.21: Domain-Level Joint Statistical Test Results, January 1, 2021 - December 31, 2023

Domain	Sample	P-Value
Change in Functional Status	All Clinical Episodes	0.811
	Medical Episodes	0.824
	Surgical Episodes	0.705
Care Experience & Satisfaction	All Clinical Episodes	0.025
	Medical Episodes	0.076
	Surgical Episodes	0.018

Note: See the first page of this appendix for data sources and more information.

Appendix L: Exhibits of Impact Estimate Results for BPCI Advanced Overlap With ACOs

The exhibits in Sections A through E contain both Model Year 5 (2022) and Model Year 4 (2021) results. The exhibits display the risk-adjusted impacts (DiD) and difference in impact results for total episode payments, utilization, quality, and primary care measures assessed in the report for the BPCI Advanced and accountable care organizations (ACO) overlap analyses. Medicare payments were standardized to remove the effects of geographic differences in wages, extra amounts to account for teaching programs, and other policy factors. Model Year 4 results are provided as supplemental information, as ACO overlap impact estimates is one of the new analyses performed for the sixth annual report. All Model Year 5 results are based on the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015 and ending on or before September 30, 2018 (baseline period), and episodes with anchor stays or procedures beginning on or after January 1, 2022 and ending on or before December 31, 2022 (Model Year 5) for BPCI Advanced and matched comparison hospitals and PGPs. All Model Year 4 results are for the same baseline period as Model Year 5 but for anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (Model Year 4).

The overlap between BPCI Advanced and Medicare Shared Savings Program (SSP) ACOs is defined at two levels: the patient level and the strictly defined patient and hospital level. The patient overlap analysis has two sub-groups: patients aligned to an SSP ACO (SSP) and those not aligned to any ACO (Non-ACO), regardless of the ACO status of the hospital. Episodes that are aligned to other ACOs are removed from the Non-ACO group.

For the strictly defined patient and hospital overlap, the overlap is defined both at the patient and hospital level. The ACO sample includes only SSP ACO patients whose anchor stay or procedure was at a hospital that is part of the same SSP ACO (SSP) and the Non-ACO sample includes only Non-ACO patients whose anchor stay or procedure was at a hospital that was not participating in SSP (Non-SSP). Similar to the patient overlap, episodes that are aligned to other ACOs are removed from the Non-SSP group. This analysis excludes episodes that are not part of the strictly defined SSP and Non-SSP sample. We present only Model Year 5 results here as a sensitivity analysis. [1]

The exhibits in Section F display the risk-adjusted parallel trends tests results associated with the impact and difference in impact estimates. As described in **Appendix C**, we tested the null hypothesis that BPCI Advanced and comparison hospitals and PGPs had parallel trends during the baseline period at the 10% level of statistical significance. We noted with the dagger symbol ("‡") estimates where we reject the null hypothesis that there were parallel trends in the baseline, indicating a parallel trends failure for this result. A failure of the parallel trends test indicates that BPCI Advanced and matched comparison hospitals and PGPs did not have the same trends for that outcome in the baseline period. This may indicate that the impact estimate partially reflects a

[1] We used the provider-level RIFs to identify hospitals and PGPs in both the BPCI Advanced Model and Medicare Shared Savings Program ACOs and CMS MDM to identify patients aligned to an ACO.

continuation of preexisting trends and does not solely reflect the impact of the BPCI Advanced Model.

The exhibits in Section G present BPCI Advanced and ACO provider-level overlap descriptives for Model Year 4 data following the same methods used in this annual report. These numbers are different from the ones reported in the Annual Evaluation Report 5 due to updated methodology on how we count alignment to an ACO.

Please refer to **Appendix A** for the definitions of all acronyms and symbols used within the following appendix. Please refer to **Appendix C** for additional information on outcome definitions and other methods.

A. Pooled Impact Estimate - Total Episode Payments

1. Patient Overlap, Model Year 5

Exhibit L.1: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean						
Medical	SSP	80,269	$25,042	$26,633	88,805	$24,694	$26,947	-$662	<0.001	-$954	-$371	-$1,009	-$315
	Non-ACO	104,328	$25,646	$28,238	115,671	$25,382	$28,758	-$785	<0.001	-$1,072	-$499	-$1,127	-$444
Surgical	SSP	27,479	$30,602	$29,154	24,446	$29,822	$30,269	-$1,895	<0.001	-$2,410	-$1,381	-$2,509	-$1,282
	Non-ACO	27,699	$30,920	$29,972	25,855	$30,384	$31,047	-$1,611	<0.001	-$2,152	-$1,070	-$2,256	-$966

Note: See the first page of this appendix for data sources and more information.

Exhibit L.2: Difference in Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD)	Impact on Non-ACO Patients (DiD)	Difference in Impact	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
Medical	-$662	-$785	$123	0.584	-$247	$493	-$318	$564
Surgical	-$1,895	-$1,611	-$285	0.365	-$802	$232	-$901	$332

Note: See the first page of this appendix for data sources and more information.

2. Patient Overlap, Model Year 4

Exhibit L.3: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY4 Episodes (N)	Baseline Mean	MY4 Mean	MY4 Episodes (N)	Baseline Mean	MY4 Mean						
Medical	SSP	122,409	$25,147	$26,245	122,806	$24,814	$26,707	-$795	<0.001	-$1,027	-$562	-$1,072	-$518
	Non-ACO	207,504	$25,719	$27,359	200,152	$25,495	$27,836	-$701 ‡	<0.001	-$909	-$493	-$949	-$453
Surgical	SSP	30,431	$30,878	$29,192	25,881	$30,206	$30,591	-$2,070	<0.001	-$2,496	-$1,644	-$2,578	-$1,563
	Non-ACO	39,995	$31,128	$29,848	36,807	$30,741	$31,393	-$1,933	<0.001	-$2,358	-$1,507	-$2,440	-$1,425

Note: See the first page of this appendix for data sources and more information.

Exhibit L.4: Difference in Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Impact on SSP Patients (DiD)	Impact on Non-ACO Patients (DiD)	Difference in Impact	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
Medical	-$795	-$701 ‡	-$94	0.584	-$376	$188	-$430	$242
Surgical	-$2,070	-$1,933	-$137	0.624	-$599	$324	-$687	$412

Note: See the first page of this appendix for data sources and more information.

3. Patient and Hospital Overlap, Model Year 5

Exhibit L.5: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean						
Medical	SSP	15,979	$24,675	$26,442	22,506	$23,915	$26,910	-$1,228	<0.001	-$1,773	-$684	-$1,878	-$579
	Non-SSP	49,275	$25,497	$28,142	58,026	$25,432	$28,904	-$827 ‡	0.002	-$1,256	-$398	-$1,338	-$316
Surgical	SSP	5,529	$30,073	$28,834	5,904	$29,365	$30,257	-$2,131	<0.001	-$2,830	-$1,432	-$2,965	-$1,298
	Non-SSP	11,826	$31,103	$30,199	12,967	$30,781	$31,482	-$1,604	0.003	-$2,491	-$717	-$2,662	-$546

Note: See the first page of this appendix for data sources and more information.

Exhibit L.6: Difference in Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD)	Impact on Non-SSP Patients (DiD)	Difference in Impact	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
Medical	-$1,228	-$827 ‡	-$402	0.338	-$1,091	$288	-$1,223	$420
Surgical	-$2,131	-$1,604	-$527	0.436	-$1,643	$588	-$1,857	$802

Note: See the first page of this appendix for data sources and more information.

B. Pooled Impact Estimate - Primary Care Use Through the 90-Day PDP

1. Patient Overlap, Model Year 5

Exhibit L.7: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	80,269	74.7	79.8	88,805	74.1	78.0	1.27	0.009	0.48	2.07	0.32	2.22
	Non-ACO	104,328	65.2	71.4	115,671	65.1	70.5	0.95	0.052	0.15	1.76	-0.01	1.92
Surgical	SSP	27,479	69.2	72.2	24,446	67.3	71.7	-1.34 ‡	0.323	-3.55	0.88	-3.98	1.31
	Non-ACO	27,699	63.2	65.9	25,855	60.8	66.1	-2.52	0.027	-4.40	-0.65	-4.76	-0.29

Note: See the first page of this appendix for data sources and more information.

Exhibit L.8: Difference in Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	1.27	0.95	0.32	0.630	-0.77	1.41	-0.98	1.62
Surgical	-1.34 ‡	-2.52	1.19	0.280	-0.62	3.00	-0.97	3.34

Note: See the first page of this appendix for data sources and more information.

2. Patient Overlap, Model Year 4

Exhibit L.9: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)						
Medical	SSP	122,409	74.1	78.0	122,806	73.7	76.8	0.73	0.077	0.05	1.41	-0.08	1.54
	Non-ACO	207,504	64.9	70.2	200,152	64.7	68.9	1.10	0.004	0.47	1.74	0.35	1.86
Surgical	SSP	30,431	68.7	70.9	25,881	67.5	68.9	0.84	0.393	-0.78	2.47	-1.09	2.78
	Non-ACO	39,995	62.8	65.6	36,807	60.7	65.0	-1.40	0.075	-2.68	-0.11	-2.93	0.14

Note: See the first page of this appendix for data sources and more information.

Exhibit L.10: Difference in Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	0.73	1.10	-0.37	0.512	-1.32	0.57	-1.50	0.75
Surgical	0.84	-1.40	2.24	0.023	0.62	3.86	0.31	4.17

Note: See the first page of this appendix for data sources and more information.

3. Patient and Hospital Overlap, Model Year 5

Exhibit L.11: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit Through the 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	15,979	76.1	80.4	22,506	76.3	78.7	1.90 ‡	0.100	0.00	3.79	-0.36	4.16
	Non-SSP	49,275	65.2	71.0	58,026	65.1	70.6	0.28	0.661	-0.78	1.34	-0.98	1.55
Surgical	SSP	5,529	69.2	71.0	5,904	68.2	73.3	-3.25	0.170	-7.14	0.64	-7.89	1.39
	Non-SSP	11,826	62.5	66.2	12,967	60.7	64.8	-0.41	0.782	-2.86	2.04	-3.33	2.51

Note: See the first page of this appendix for data sources and more information.

Exhibit L.12: Difference in Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit Through the 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-SSP Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	1.90 ‡	0.28	1.61 ‡	0.218	-0.54	3.77	-0.95	4.18
Surgical	-3.25	-0.41	-2.84	0.305	-7.39	1.71	-8.26	2.59

Note: See the first page of this appendix for data sources and more information.

C. Pooled Impact Estimate - Readmission Rate Through the 90-Day PDP

1. Patient Overlap, Model Year 5

Exhibit L.13: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	79,595	30.5	30.4	88,117	30.3	29.9	0.22	0.463	-0.27	0.71	-0.36	0.80
	Non-ACO	102,995	31.0	31.1	114,359	30.8	30.6	0.33	0.196	-0.09	0.74	-0.17	0.82
Surgical	SSP	27,462	13.1	12.3	24,437	12.5	12.0	-0.20	0.598	-0.82	0.42	-0.94	0.54
	Non-ACO	27,673	13.4	12.4	25,841	12.8	11.6	0.10	0.761	-0.46	0.66	-0.56	0.77

Note: See the first page of this appendix for data sources and more information.

Exhibit L.14: Difference in Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	0.22	0.33	-0.11	0.770	-0.72	0.50	-0.84	0.62
Surgical	-0.20	0.10	-0.30	0.524	-1.09	0.48	-1.24	0.63

Note: See the first page of this appendix for data sources and more information.

2. Patient Overlap, Model Year 4

Exhibit L.15: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)						
Medical	SSP	121,162	30.6	30.5	121,787	30.3	30.0	0.20	0.413	-0.20	0.61	-0.28	0.68
	Non-ACO	204,721	31.0	30.6	197,793	30.8	30.2	0.20	0.293	-0.11	0.50	-0.17	0.56
Surgical	SSP	30,417	13.4	12.6	25,864	12.9	12.0	0.02	0.959	-0.53	0.57	-0.64	0.67
	Non-ACO	39,954	13.6	12.7	36,780	13.0	12.0	0.03	0.918	-0.47	0.54	-0.57	0.63

Note: See the first page of this appendix for data sources and more information.

Exhibit L.16: Difference in Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	0.20	0.20	0.01	0.984	-0.47	0.48	-0.56	0.58
Surgical	0.02	0.03	-0.01	0.973	-0.71	0.68	-0.84	0.81

Note: See the first page of this appendix for data sources and more information.

3. Patient and Hospital Overlap, Model Year 5

Exhibit L.17: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	15,864	29.7	31.0	22,353	29.9	30.1	1.02	0.102	0.00	2.05	-0.20	2.25
	Non-SSP	48,643	31.2	31.1	57,339	31.2	31.0	0.22	0.527	-0.35	0.79	-0.46	0.90
Surgical	SSP	5,522	12.3	11.5	5,903	12.2	11.6	-0.33	0.692	-1.71	1.05	-1.97	1.31
	Non-SSP	11,813	13.3	12.1	12,958	12.7	11.8	-0.27	0.645	-1.24	0.70	-1.43	0.89

Note: See the first page of this appendix for data sources and more information.

Exhibit L.18: Difference in Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-SSP Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	1.02	0.22	0.80	0.261	-0.37	1.98	-0.60	2.20
Surgical	-0.33	-0.27	-0.06	0.954	-1.74	1.62	-2.06	1.94

Note: See the first page of this appendix for data sources and more information.

D. Pooled Impact Estimate - Mortality Rate During the Anchor Stay and 90-Day PDP

1. Patient Overlap, Model Year 5

Exhibit L.19: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	82,693	15.6	15.1	91,420	15.4	15.3	-0.38	0.148	-0.81	0.05	-0.90	0.14
	Non-ACO	108,618	18.3	18.3	120,488	18.0	18.1	-0.10	0.678	-0.51	0.30	-0.59	0.38
Surgical	SSP	25,596	3.1	2.8	22,844	3.0	3.1	-0.32	0.080	-0.63	-0.02	-0.69	0.04
	Non-ACO	25,932	3.6	3.7	24,269	3.7	3.6	0.18 ‡	0.301	-0.11	0.46	-0.16	0.52

Note: See the first page of this appendix for data sources and more information.

Exhibit L.20: Difference in Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.38	-0.10	-0.28	0.380	-0.80	0.24	-0.90	0.34
Surgical	-0.32	0.18 ‡	-0.50 ‡	0.041	-0.91	-0.10	-0.99	-0.02

Note: See the first page of this appendix for data sources and more information.

2. Patient Overlap, Model Year 4

Exhibit L.21: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)						
Medical	SSP	127,382	15.8	16.6	127,619	15.5	16.5	-0.21	0.288	-0.54	0.12	-0.61	0.18
	Non-ACO	218,077	18.5	19.3	210,394	18.2	19.3	-0.28	0.169	-0.62	0.06	-0.69	0.12
Surgical	SSP	28,376	3.2	3.2	23,994	3.1	3.2	-0.04	0.830	-0.32	0.24	-0.37	0.30
	Non-ACO	37,485	3.8	3.7	34,641	3.8	3.9	-0.15 ‡	0.274	-0.38	0.08	-0.42	0.12

Note: See the first page of this appendix for data sources and more information.

Exhibit L.22: Difference in Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021– December 31, 2021

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.21	-0.28	0.07	0.782	-0.34	0.48	-0.42	0.55
Surgical	-0.04	-0.15 ‡	0.11 ‡	0.603	-0.25	0.47	-0.31	0.54

Note: See the first page of this appendix for data sources and more information.

3. Patient and Hospital Overlap, Model Year 5

Exhibit L.23: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	16,515	15.8	15.0	23,144	15.1	15.0	-0.61	0.241	-1.47	0.25	-1.64	0.41
	Non-SSP	51,312	18.4	17.9	60,357	17.8	17.6	-0.30	0.372	-0.85	0.25	-0.96	0.36
Surgical	SSP	5,162	3.1	2.8	5,527	3.3	3.1	-0.22	0.596	-0.91	0.46	-1.04	0.60
	Non-SSP	11,015	3.6	3.8	12,367	3.6	3.4	0.34 ‡	0.218	-0.11	0.78	-0.20	0.87

Note: See the first page of this appendix for data sources and more information.

Exhibit L.24: Difference in Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-SSP Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.61	-0.30	-0.31	0.610	-1.32	0.69	-1.51	0.89
Surgical	-0.22	0.34 ‡	-0.56	0.275	-1.39	0.28	-1.56	0.44

Note: See the first page of this appendix for data sources and more information.

E. Pooled Impact Estimate – Proportion of Episodes First Discharged to Institutional PAC Setting

1. Patient Overlap, Model Year 5

Exhibit L.25: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	80,269	24.9	20.6	88,805	24.2	20.8	-0.92	0.018	-1.56	-0.28	-1.68	-0.16
	Non-ACO	104,328	26.6	23.4	115,671	25.9	23.2	-0.57	0.076	-1.09	-0.04	-1.19	0.06
Surgical	SSP	24,429	41.1	23.4	21,403	36.8	26.0	-6.88	<0.001	-9.15	-4.61	-9.58	-4.18
	Non-ACO	24,691	41.6	25.4	22,619	38.8	27.8	-5.13	<0.001	-7.09	-3.17	-7.46	-2.80

Note: See the first page of this appendix for data sources and more information.

Exhibit L.26: Difference in Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.92	-0.57	-0.35	0.432	-1.09	0.39	-1.23	0.53
Surgical	-6.88	-5.13	-1.75	0.079	-3.39	-0.11	-3.70	0.21

Note: See the first page of this appendix for data sources and more information.

2. Patient Overlap, Model Year 4

Exhibit L.27: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)						
Medical	SSP	122,409	24.9	20.6	122,806	24.2	20.6	-0.72	0.024	-1.25	-0.19	-1.35	-0.09
	Non-ACO	207,504	26.6	23.0	200,152	25.8	22.8	-0.63	0.007	-1.01	-0.24	-1.09	-0.17
Surgical	SSP	26,305	41.5	25.6	21,834	37.6	28.3	-6.61 ‡	<0.001	-8.58	-4.64	-8.96	-4.26
	Non-ACO	34,729	41.8	27.4	31,273	39.7	29.9	-4.52	<0.001	-6.04	-3.00	-6.33	-2.71

Note See the first page of this appendix for data sources and more information.

Exhibit L.28: Difference in Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Patient Overlap, Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-ACO Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.72	-0.63	-0.09	0.791	-0.66	0.48	-0.77	0.59
Surgical	-6.61 ‡	-4.52	-2.09	0.018	-3.54	-0.64	-3.82	-0.36

Note: See the first page of this appendix for data sources and more information.

3. Patient and Hospital Overlap, Model Year 5

Exhibit L.29: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Population	BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	SSP	15,979	24.5	20.2	22,506	23.2	21.5	-2.66	<0.001	-3.97	-1.34	-4.22	-1.09
	Non-SSP	49,275	26.1	23.0	58,026	25.4	22.8	-0.53	0.242	-1.28	0.22	-1.42	0.36
Surgical	SSP	5,006	39.1	23.7	5,325	35.0	26.5	-6.87	<0.001	-10.16	-3.58	-10.79	-2.95
	Non-SSP	10,783	41.3	26.0	11,147	40.4	29.4	-4.27	0.014	-7.13	-1.41	-7.68	-0.87

Note: See the first page of this appendix for data sources and more information.

Exhibit L.30: Difference in Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Strictly Defined Patient and Hospital Overlap, Patients Aligned to SSP ACO at an SSP Hospital and Patients Not Aligned to Any ACO at Non-SSP Hospital, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on SSP Patients (DiD) (pp)	Impact on Non-SSP Patients (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-2.66	-0.53	-2.13	0.019	-3.62	-0.64	-3.90	-0.35
Surgical	-6.87	-4.27	-2.60	0.332	-7.02	1.81	-7.86	2.66

Note: See the first page of this appendix for data sources and more information.

F. Parallel Trends

1. Patient Overlap, Model Year 5

Exhibit L.31: Parallel Trends Results for Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Model Year 5, January 1, 2022 – December 31, 2022

Outcomes	Clinical Episode	SSP Patients		Non-ACO Patients		Difference in Impacts	
		Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
Total Allowed Payments	Medical	-$3	0.871	-$16	0.129	$14	0.515
	Surgical	-$12	0.623	$11	0.568	-$24	0.414
Readmission Rate	Medical	0.01 pp	0.772	0.00 pp	0.864	0.01 pp	0.732
	Surgical	0.02 pp	0.604	0.04 pp	0.147	-0.02 pp	0.613
Mortality Rate	Medical	0.00 pp	0.850	0.01 pp	0.752	0.00 pp	0.980
	Surgical	0.01 pp	0.545	-0.03 pp	0.033	0.05 pp	0.049
First Discharge to Institutional PAC Setting	Medical	0.02 pp	0.672	-0.02 pp	0.418	0.04 pp	0.445
	Surgical	-0.16 pp	0.285	-0.07 pp	0.431	-0.09 pp	0.499
Primary Care Use (90-Day PDP)	Medical	0.03 pp	0.595	0.01 pp	0.791	0.02 pp	0.797
	Surgical	0.14 pp ‡	0.095	0.00 pp	0.934	0.13 pp	0.180

Note: See the first page of this appendix for data sources and more information.

2. Patient Overlap, Model Year 4

Exhibit L.32: Parallel Trends Results for Patients Aligned to SSP ACO and Patients Not Aligned to Any ACO, Model Year 4, January 1, 2021 – December 31, 2021

Outcomes	Clinical Episode	SSP Patients		Non-ACO Patients		Difference in Impacts	
		Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
Total Allowed Payments	Medical	$0	0.973	-$15 ‡	0.094	$16	0.374
	Surgical	-$21	0.338	-$6	0.739	-$15	0.549
Readmission Rate	Medical	0.03 pp	0.332	0.01 pp	0.608	0.02 pp	0.577
	Surgical	-0.02 pp	0.511	0.03 pp	0.235	-0.05 pp	0.194
Mortality Rate	Medical	0.02 pp	0.397	0.00 pp	0.760	0.02 pp	0.357
	Surgical	0.01 pp	0.414	-0.03 pp	0.049	0.04 pp	0.043
First Discharge to Institutional PAC Setting	Medical	0.01 pp	0.680	0.00 pp	0.982	0.01 pp	0.736
	Surgical	-0.26 pp ‡	0.034	-0.09 pp	0.217	-0.17 pp	0.150
Primary Care Use (90-Day PDP)	Medical	0.03 pp	0.478	0.02 pp	0.476	0.01 pp	0.878
	Surgical	0.11 pp	0.138	0.00 pp	0.988	0.11 pp	0.215

Note: See the first page of this appendix for data sources and more information.

3. Patient and Hospital Overlap, Model Year 5

Exhibit L.33: Parallel Trends Results for Patients Aligned to the Anchor Hospital's SSP ACO and Patients Not Aligned to Any ACO at Non-SSP Hospital, Model Year 5, January 1, 2022 – December 31, 2022

Outcomes	Clinical Episode	SSP Patients		Non-ACO Patients		Difference in Impacts	
		Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
Total Allowed Payments	Medical	-$36	0.310	-$33 ‡	0.047	-$3	0.930
	Surgical	$58	0.329	-$44	0.117	$103	0.117
Readmission Rate	Medical	0.05 pp	0.433	-0.02 pp	0.469	0.08 pp	0.316
	Surgical	0.11 pp	0.175	0.01 pp	0.736	0.10 pp	0.296
Mortality Rate	Medical	0.05 pp	0.384	0.02 pp	0.542	0.03 pp	0.589
	Surgical	-0.01 pp	0.754	-0.04 pp ‡	0.067	0.03 pp	0.573
First Discharge to Institutional PAC Setting	Medical	-0.10 pp	0.245	-0.02 pp	0.601	-0.08 pp	0.372
	Surgical	0.29 pp	0.360	-0.20 pp	0.118	0.49 pp	0.146
Primary Care Use (90-Day PDP)	Medical	0.25 pp ‡	0.028	0.03 pp	0.526	0.22 pp ‡	0.071
	Surgical	0.14 pp	0.482	-0.04 pp	0.642	0.18 pp	0.390

Note: See the first page of this appendix for data sources and more information.

G. ACO Provider Overlap Descriptives, Model Year 4

Exhibit L.34: Number of BPCI Advanced Hospitals and PGPs in Shared Savings Program and Next Generation ACOs, January 1, 2021 – December 31, 2021

Participant Type	Number of Model Year 4 Episode Initiators	BPCI Advanced Hospitals and PGPs Participating in the Shared Savings Program		BPCI Advanced Hospitals and PGPs Participating in the Next Generation ACO Model	
		Number	Percent (%)	Number	Percent (%)
Hospital	679	178	26.2	23	3.4
PGP	346	33	9.5	15	4.3
Total	1,025	211	20.6	38	3.7

Note: See the first page of this appendix for data sources and more information.

Exhibit L.35: BPCI Advanced Episodes by Shared Savings Program Participation Status, January 1, 2021 – December 31, 2021

BPCI Advanced and ACO Participation	Total BPCI Advanced Episodes	BPCI Advanced Episodes Attributed to a Shared Savings Program ACO	
	Number	Number	Percent (%)
Hospitals and PGPs in BPCI Advanced and a Shared Savings Program ACO	130,975	60,739	46.4
Hospitals and PGPs in BPCI Advanced Only	390,985	70,236	18.0

Note: See the first page of this appendix for data sources and more information.

Exhibit L.36: BPCI Advanced Episodes by ACO Attribution, January 1, 2021 – December 31, 2021

Clinical Episode Type	Number of BPCI Advanced Episodes	Percentage of BPCI Advanced Episodes for Beneficiaries Attributed to Medicare ACOs			
		All ACOs (%)	Shared Savings Program ACOs (%)	ACO REACH (%)	Other ACOs (%)
All Clinical Episodes	521,960	40.0	35.6	3.2	1.3
Medical	417,256	38.7	34.4	3.0	1.3
Surgical	104,704	45.3	40.5	3.6	1.1

Note: See the first page of this appendix for data sources and more information.

Appendix M: Exhibits of Impact Estimate Results for Primary Care

The following exhibits display the results from analyses of primary care use outcome variables. Section A through Section C includes risk-adjusted difference-in-differences (DiD) results for the primary care outcome measures assessed in this report. The "DiD as a Percent" refers to the DiD estimate as a percentage of the BPCI Advanced baseline mean. Primary care use within the episode indicates an outcome of at least one primary care visit within the episode, either during the first week of, or at any time during the 90-day post discharge period.

The exhibits in Section D through Section F display the risk-adjusted parallel trends tests results associated with the impact estimates for the primary care use measures evaluated. As described in **Appendix C**, we tested the null hypothesis that BPCI Advanced participants and comparison hospitals had parallel trends during the baseline period at the 10% level of statistical significance. We noted with the dagger symbol ("‡") estimates where we reject the null hypothesis that there were parallel trends in the baseline, indicating a parallel trends failure for this result. A failure of the parallel trends test indicates that BPCI Advanced and matched comparison hospitals and PGPs did not have the same trends for that outcome in the baseline period. This may indicate that the impact estimate partially reflects a continuation of preexisting trends and does not solely reflect the impact of the BPCI Advanced Model.

The exhibits below contain both Model Year 5 (2022) and Model Year 4 (2021) results. Model Year 4 results are provided as supplemental information, as primary care use descriptives and impact estimates are new analyses performed for the sixth annual report. The All Model Year 5 results are based on the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015 and ending on or before September 30, 2018 (baseline period), and episodes with anchor stays or procedures beginning on or after January 1, 2022 and ending on or before December 31, 2022 for BPCI Advanced and matched comparison hospitals and PGPs. All Model Year 4 results are for the same baseline period as Model Year 5 but for anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021.

Please refer to **Appendix A** for the definitions of all acronyms and symbols used within the following appendix. Please refer to **Appendix C** for additional information on outcome definitions and other methods.

A. Pooled Impact Estimate

1. Primary Care Outcomes, Model Year 5

Exhibit M.1: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
All Clinical Episodes	257,300	17.1	24.7	274,331	16.9	23.8	0.82	4.8	0.215	-0.27	1.90	-0.48	2.11
Medical	198,165	19.4	26.3	220,760	19.4	25.1	1.24	6.4	0.002	0.57	1.92	0.44	2.05
Surgical	59,135	6.7	14.9	53,571	6.2	16.0	-1.71 ‡	-25.4	0.462	-5.54	2.12	-6.28	2.85

Note: See the first page of this appendix for data sources and more information.

Exhibit M.2: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, Patients with No Prior Primary Care, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
All Clinical Episodes	14,248	3.5	7.5	16,261	3.2	7.0	0.31	9.1	0.470	-0.40	1.03	-0.54	1.17
Medical	12,405	3.6	7.4	14,179	3.4	6.8	0.45	12.5	0.242	-0.18	1.07	-0.30	1.19
Surgical	1,843	2.6	8.1	2,082	1.8	8.1	-0.64 ‡	-25.2	0.727	-3.67	2.38	-4.25	2.96

Note: See the first page of this appendix for data sources and more information.

Exhibit M.3: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
All Clinical Episodes	257,303	67.5	74.3	274,333	67.2	73.5	0.45	0.7	0.231	-0.17	1.07	-0.29	1.19
Medical	198,165	68.1	75.6	220,760	68.1	74.4	1.19	1.7	<0.001	0.60	1.77	0.49	1.88
Surgical	59,138	65.1	69.3	53,573	63.1	69.1	-1.84	-2.8	0.089	-3.62	-0.06	-3.96	0.28

Note: See the first page of this appendix for data sources and more information.

Exhibit M.4: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, Patients with No Prior Primary Care, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
All Clinical Episodes	14,268	19.1	29.6	16,284	18.7	27.8	1.41	7.4	0.041	0.28	2.54	0.06	2.76
Medical	12,405	19.1	30.1	14,179	18.9	28.1	1.74	9.1	0.013	0.58	2.90	0.36	3.13
Surgical	1,863	18.8	27.3	2,105	17.2	26.7	-1.03	-5.5	0.650	-4.76	2.70	-5.48	3.42

Note: See the first page of this appendix for data sources and more information.

2. Pooled Impact Estimate, Model Year 4

Exhibit M.5: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)							
All Clinical Episodes	420,672	16.9	23.1	409,253	16.9	22.0	1.20	7.1	<0.001	0.64	1.76	0.53	1.86
Medical	346,581	19.1	25.3	343,252	19.2	24.0	1.34	7.0	<0.001	0.85	1.84	0.75	1.93
Surgical	74,091	6.6	12.5	66,001	6.3	11.9	0.27	4.1	0.831	-1.79	2.33	-2.19	2.72

Note: See the first page of this appendix for data sources and more information.

Exhibit M.6: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, Patients with No Prior Primary Care, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)							
All Clinical Episodes	26,793	3.4	6.8	26,866	3.2	5.7	0.93	27.7	<0.001	0.47	1.39	0.38	1.48
Medical	24,017	3.5	7.0	23,880	3.3	5.8	1.06	30.6	<0.001	0.57	1.55	0.47	1.65
Surgical	2,776	2.6	5.8	2,986	1.9	5.2	-0.05 ‡	-2.1	0.946	-1.32	1.22	-1.57	1.46

Note: See the first page of this appendix for data sources and more information.

Exhibit M.7: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)							
All Clinical Episodes	420,672	67.2	72.0	409,253	67.0	71.3	0.52	0.8	0.064	0.06	0.98	-0.03	1.07
Medical	346,581	67.8	72.9	343,252	67.8	72.1	0.83	1.2	0.004	0.36	1.30	0.27	1.39
Surgical	74,091	64.8	67.7	66,001	63.2	66.7	-0.55	-0.8	0.456	-1.76	0.66	-1.99	0.89

Note: See the first page of this appendix for data sources and more information.

Exhibit M.8: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, Patients with No Prior Primary Care, Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)	MY4 Episodes (N)	Baseline Mean (%)	MY4 Mean (%)							
All Clinical Episodes	26,811	18.8	26.4	26,899	18.4	24.9	1.18	6.3	0.016	0.37	1.98	0.22	2.14
Medical	24,017	18.7	26.8	23,880	18.5	25.2	1.46	7.8	0.004	0.62	2.30	0.46	2.46
Surgical	2,794	18.7	23.9	3,019	17.3	23.6	-1.08	-5.8	0.469	-3.52	1.37	-3.99	1.84

Note: See the first page of this appendix for data sources and more information.

B. Hospital Individual Clinical Episode Service Line Group (CESLG) Impact Estimates

Exhibit M.9: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	34,416	21.6	28.4	37,120	21.5	27.4	0.93	4.3	0.200	-0.27	2.13	-0.49	2.36
	GI Care	10,839	22.1	27.0	11,100	21.0	27.0	-0.99	-4.5	0.237	-2.37	0.39	-2.64	0.65
	M&C Care	113,943	19.0	26.0	121,778	18.5	24.2	1.31	6.9	0.004	0.57	2.05	0.43	2.20
	Neurological Care	11,180	14.9	23.1	11,728	14.7	20.8	2.04	13.7	0.014	0.67	3.41	0.41	3.67
Surgical	Cardiac Procedures	8,015	16.5	20.0	8,678	14.3	16.6	1.21 ‡	7.4	0.317	-0.78	3.20	-1.16	3.59
	GI Surgery	1,221	9.4	13.5	1,224	7.9	12.1	-0.08	-0.8	0.964	-3.01	2.85	-3.57	3.41
	Orthopedics	20,960	4.1	15.4	22,144	3.9	19.9	-4.65	-114.0	0.312	-12.23	2.92	-13.68	4.37
	Spinal Procedures	7,185	5.4	8.8	6,908	5.6	8.9	0.10	1.9	0.907	-1.31	1.51	-1.58	1.78

Note: See the first page of this appendix for data sources and more information.

Exhibit M.10: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	34,416	72.1	79.9	37,120	71.5	78.7	0.51	0.7	0.332	-0.36	1.38	-0.52	1.55
	GI Care	10,839	72.3	78.0	11,100	71.3	77.5	-0.47 ‡	-0.7	0.510	-1.65	0.71	-1.88	0.93
	M&C Care	113,943	67.2	74.5	121,778	66.5	73.0	0.79	1.2	0.040	0.16	1.43	0.03	1.55
	Neurological Care	11,180	65.1	74.7	11,728	64.9	72.0	2.41	3.7	0.005	1.01	3.81	0.74	4.08
Surgical	Cardiac Procedures	8,015	75.5	79.2	8,678	72.5	76.2	0.04	0.1	0.968	-1.68	1.77	-2.01	2.10
	GI Surgery	1,221	69.4	74.6	1,224	66.1	74.8	-3.51	-5.1	0.062	-6.60	-0.42	-7.19	0.18
	Orthopedics	20,960	60.8	66.8	22,144	59.5	68.0	-2.51 ‡	-4.1	0.271	-6.26	1.24	-6.97	1.96
	Spinal Procedures	7,187	67.6	70.7	6,910	66.2	69.9	-0.63	-0.9	0.551	-2.36	1.10	-2.69	1.44

Note: See the first page of this appendix for data sources and more information.

C. PGP Individual CESLG Impact Estimate

Exhibit M.11: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,360	22.5	28.6	14,890	23.7	28.5	1.23	5.5	0.499	-1.76	4.22	-2.34	4.80
	GI Care	2,509	22.5	29.9	3,554	24.1	28.4	3.14	13.9	0.132	-0.29	6.57	-0.95	7.22
	M&C Care	20,388	18.8	26.1	30,150	20.8	26.1	2.01	10.7	0.088	0.07	3.94	-0.30	4.31
	Neurological Care	2,526	15.0	21.5	4,681	15.7	22.1	0.07	0.5	0.960	-2.31	2.45	-2.77	2.91
Surgical	Orthopedics	20,655	4.3	14.8	13,949	4.2	15.2	-0.57	-13.4	0.858	-5.84	4.69	-6.85	5.70
	Spinal Procedures	2,759	6.1	8.3	2,288	5.0	10.3	-3.13	-51.2	0.173	-6.90	0.64	-7.62	1.37

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Exhibit M.12: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
Medical	Cardiac Care	7,360	70.8	78.8	14,890	73.5	78.9	2.56	3.6	0.051	0.40	4.72	-0.02	5.13
	GI Care	2,509	71.7	78.2	3,554	73.5	77.7	2.37 ‡	3.3	0.141	-0.28	5.01	-0.78	5.52
	M&C Care	20,388	65.7	73.2	30,150	68.1	73.1	2.55	3.9	0.024	0.69	4.40	0.34	4.75
	Neurological Care	2,526	63.4	73.9	4,681	66.6	72.8	4.32	6.8	0.006	1.73	6.92	1.23	7.42
Surgical	Orthopedics	20,655	61.5	65.7	13,949	60.4	66.0	-1.43	-2.3	0.479	-4.74	1.89	-5.38	2.52
	Spinal Procedures	2,761	65.9	68.9	2,289	64.9	70.7	-2.81	-4.3	0.109	-5.70	0.07	-6.25	0.62

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

D. Pooled Parallel Trends

1. Primary Care Outcomes, Model Year 5

Exhibit M.13: Results of Parallel Trends Test, Primary Care Outcomes, BPCI Advanced Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Primary Care Use within 1-Week of Anchor		Primary Care Use within Episode		Primary Care Use within 1-Week of Anchor, No Prior Primary Care		Primary Care Use within Episode, No Prior Primary Care	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
All Clinical Episodes	0.01	0.606	0.00	0.898	0.03	0.207	0.00	0.959
Medical	0.00	0.934	-0.01	0.849	0.01	0.728	-0.02	0.610
Surgical	0.06 ‡	0.084	0.03	0.558	0.16 ‡	0.003	0.16	0.177

Note: See the first page of this appendix for data sources and more information.

2. Primary Care Outcomes, Model Year 4

Exhibit M.14: Results of Parallel Trends Test, Primary Care Outcomes, BPCI Advanced Hospitals and PGPs, January 1, 2021 – December 31, 2021

Clinical Episode Type	Primary Care Use within 1-Week of Anchor		Primary Care Use within Episode		Primary Care Use within 1-Week of Anchor, No Prior Primary Care		Primary Care Use within Episode, No Prior Primary Care	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
All Clinical Episodes	0.00	0.996	0.00	0.942	0.02	0.203	0.00	0.926
Medical	0.00	0.711	0.00	0.927	0.01	0.581	-0.02	0.582
Surgical	0.03	0.307	0.01	0.753	0.12 ‡	0.017	0.13	0.174

Note: See the first page of this appendix for data sources and more information.

E. Hospital Individual CESLG Parallel Trends

Exhibit M.15: Results of Parallel Trends Tests, Primary Care Outcomes, CESLGs, Hospitals, January 1, 2022 – December 31, 2022

CESLG		Primary Care Use within 1-Week of Anchor		Primary Care Use within Episode	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
Medical	Cardiac Care	0.02	0.669	-0.02	0.721
	GI Care	0.05	0.427	0.16 ‡	0.009
	M&C Care	-0.01	0.812	-0.03	0.400
	Neurological Care	0.08	0.166	-0.04	0.586
Surgical	Cardiac Procedures	0.27 ‡	0.010	0.01	0.931
	GI Surgery	-0.08	0.592	-0.04	0.857
	Orthopedics	0.03	0.654	0.13 ‡	0.096
	Spinal Procedures	-0.01	0.790	-0.09	0.314

Note: See the first page of this appendix for data sources and more information.

F. PGP Individual CESLG Parallel Trends

Exhibit M.16: Results of Parallel Trends Tests, Primary Care Outcomes, CESLGs, PGPs, January 1, 2022 – December 31, 2022

CESLG		Primary Care Use within 1-Week of Anchor		Primary Care Use within Episode	
		Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
Medical	Cardiac Care	0.09	0.476	0.15	0.175
	GI Care	0.08	0.593	0.30 ‡	0.008
	M&C Care	0.05	0.449	0.12	0.130
	Neurological Care	-0.04	0.641	0.14	0.369
Surgical	Orthopedics	0.04	0.573	0.02	0.889
	Spinal Procedures	-0.06	0.448	-0.07	0.698

Note: See the first page of this appendix for data sources and more information. The *cardiac procedures* and *gastrointestinal procedures* CESLGs were not reported as there was not a sufficient sample size to construct comparison groups in any clinical episodes within those CESLGs. For clinical episodes for which outcomes were rare, we excluded the clinical episode from the corresponding CESLG and pooled grouping results for that outcome.

Appendix N: Exhibits of Impact Estimate Results for Subgroups

The exhibits in Sections A–D display the risk-adjusted impacts (difference-in-differences [DiD]) and difference in impact results for total episode payments, utilization, and quality measures assessed in this report. Section E includes an exhibit with parallel trends test results. Medicare payments were standardized to remove the effects of geographic differences in wages, extra amounts to account for teaching programs, and other policy factors. All results are based on the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning January 1, 2022, and ending on or before December 31, 2022 (Model Year 5) for BPCI Advanced participants and matched comparison providers.

The dual eligibility indicator comes from Medicare enrollment data. The means reported below are risk-adjusted. However, the difference in risk-adjusted means between two subpopulations should not be interpreted as a measure of the disparity between these groups in relation to the outcome. The risk adjusters used to evaluate the impacts of the BPCI Advanced Model, and potential disparities in those impacts, may not be suitable for estimating disparities in the outcome variables themselves.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix. Please refer to **Appendix C** for details of the risk adjustment methodology, outcome definitions, and additional information on methods.

A. Pooled Impact Estimates – Total Episode Payments

Exhibit N.1: Impact of BPCI Advanced on Total Episode Payments Through the 90-Day PDP, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Population		BPCI Advanced			Comparison			Impact (DiD)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
		MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean						
Medical	Dually Eligible	45,881	$25,432	$28,553	50,583	$25,339	$29,344	-$884	<0.001	-$1,309	-$458	-$1,390	-$377
	Non-Dually Eligible	152,284	$25,465	$27,191	170,177	$25,086	$27,533	-$721 ‡	<0.001	-$930	-$511	-$970	-$471
Surgical	Dually Eligible	4,828	$31,776	$31,768	4,888	$31,239	$32,509	-$1,278	0.010	-$2,097	-$459	-$2,254	-$302
	Non-Dually Eligible	54,310	$30,656	$29,327	48,685	$30,044	$30,445	-$1,730	<0.001	-$2,196	-$1,264	-$2,286	-$1,175

Note: See the first page of this appendix for data sources and more information.

Exhibit N.2: Difference in Impact of BPCI Advanced on Total Episode Payments Through the 90-Day PDP, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on Patients who are Dually Eligible (DiD)	Impact on Patients who are Non-Dually Eligible (DiD)	Difference in Impact	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
Medical	-$884	-$721 ‡	-$163	0.501	-$562	$236	-$638	$312
Surgical	-$1,278	-$1,730	$453	0.341	-$329	$1,234	-$479	$1,384

Note: See the first page of this appendix for data sources and more information.

B. Pooled Impact Estimate - All Readmission Rate Through the 90-Day PDP

Exhibit N.3: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Population		BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	Dually Eligible	44,939	30.9	30.9	49,677	31.0	30.9	0.18	0.584	-0.37	0.74	-0.48	0.84
	Non-Dually Eligible	151,049	30.9	30.7	168,958	30.6	30.2	0.23	0.291	-0.13	0.58	-0.20	0.65
Surgical	Dually Eligible	4,812	14.2	13.1	4,877	13.3	12.5	-0.23 ‡	0.735	-1.32	0.87	-1.53	1.08
	Non-Dually Eligible	54,281	13.1	12.1	48,673	12.5	11.7	-0.17	0.537	-0.63	0.28	-0.71	0.37

Note: See the first page of this appendix for data sources and more information.

Exhibit N.4: Difference in Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on Patients who are Dually Eligible (DiD) (pp)	Impact on Patients who are Non-Dually Eligible (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	0.18	0.23	-0.04	0.903	-0.62	0.54	-0.74	0.65
Surgical	-0.23 ‡	-0.17	-0.05	0.938	-1.21	1.10	-1.43	1.32

Note: See the first page of this appendix for data sources and more information.

C. Pooled Impact Estimate - Mortality Rate During the Anchor Stay and 90-Day PDP

Exhibit N.5: Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Patients who are Dually Eligible and who are Non-Dually Eligible Hospitals and PGPs, January 1, 2022 – December 31, 2022

Population		BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	Dually Eligible	47,075	17.7	17.9	51,917	17.4	17.6	-0.04	0.908	-0.58	0.50	-0.68	0.60
	Non-Dually Eligible	158,260	17.5	16.5	176,756	17.2	16.4	-0.23	0.263	-0.58	0.11	-0.64	0.18
Surgical	Dually Eligible	4,659	3.5	3.5	4,648	3.6	3.9	-0.25	0.458	-0.81	0.31	-0.92	0.42
	Non-Dually Eligible	50,587	3.4	3.2	45,485	3.4	3.3	0.00	0.977	-0.22	0.22	-0.26	0.27

Note: See the first page of this appendix for data sources and more information.

Exhibit N.6: Difference in Impact of BPCI Advanced on Mortality Rate During the Anchor Stay and 90-Day PDP, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on Patients who are Dually Eligible (DiD) (pp)	Impact on Patients who are Non-Dually Eligible (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.04	-0.23	0.19	0.558	-0.35	0.74	-0.46	0.85
Surgical	-0.25	0.00	-0.26	0.476	-0.85	0.34	-0.96	0.45

Note: See the first page of this appendix for data sources and more information.

D. Pooled Impact Estimates – Proportion of Episodes First Discharged to Institutional Post-Acute Care (PAC) Setting

Exhibit N.7: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Population		BPCI Advanced			Comparison			Impact (DiD) (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
		MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)						
Medical	Dually Eligible	45,881	28.9	26.0	50,583	28.8	26.3	-0.44	0.269	-1.10	0.22	-1.23	0.34
	Non-Dually Eligible	152,284	25.1	20.9	170,177	24.3	20.8	-0.78	0.005	-1.24	-0.32	-1.33	-0.24
Surgical	Dually Eligible	4,454	44.9	30.4	4,305	43.5	33.0	-4.05	0.004	-6.35	-1.74	-6.79	-1.30
	Non-Dually Eligible	48,204	41.0	23.8	42,600	37.8	26.2	-5.59	<0.001	-7.63	-3.56	-8.02	-3.17

Note: See the first page of this appendix for data sources and more information.

Exhibit N.8: Difference in Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Patients who are Dually Eligible and who are Non-Dually Eligible, Hospitals and PGPs, January 1, 2022 – December 31, 2022

Clinical Episode Type	Impact on Patients who are Dually Eligible (DiD) (pp)	Impact on Patients who are Non-Dually Eligible (DiD) (pp)	Difference in Impact (pp)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
Medical	-0.44	-0.78	0.34	0.400	-0.32	1.00	-0.45	1.13
Surgical	-4.05	-5.59	1.55	0.281	-0.81	3.91	-1.27	4.36

Note: See the first page of this appendix for data sources and more information.

E. Parallel Trends

Exhibit N.9: Parallel Trends Results by Dual Eligibility Status for Average Episode Payments, Readmission Rate, Mortality Rate, and Proportion of Episodes First Discharged to Institutional PAC Setting, January 1, 2022 – December 31, 2022

Outcomes	Clinical Episode Type	Dually Eligible		Non-Dually Eligible		Difference in Impacts	
		Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value	Linear Trend Coefficient	P-Value
Total Allowed Payments	Medical	$9	0.500	-$18 ‡	0.042	$27 ‡	0.051
	Surgical	$15	0.688	$2	0.908	$13	0.718
Readmission Rate	Medical	0.02 pp	0.385	-0.01 pp	0.692	0.03 pp	0.299
	Surgical	0.14 pp ‡	0.040	0.02 pp	0.443	0.12 pp ‡	0.083
Mortality Rate	Medical	0.02 pp	0.317	0.01 pp	0.657	0.02 pp	0.528
	Surgical	-0.04 pp	0.251	-0.01 pp	0.310	-0.03 pp	0.448
First Discharge to Institutional PAC Setting	Medical	0.03 pp	0.349	-0.02 pp	0.297	0.05 pp ‡	0.095
	Surgical	0.06 pp	0.602	-0.09 pp	0.306	0.15 pp	0.182

Note: See the first page of this appendix for data sources and more information.

Appendix O: Tables of Impact Estimate Results for Subgroups

The following exhibits display the respondents' results to the patient survey, which provides self-reported changes in functional status, care experiences, and satisfaction for patients with episodes in Model Years 4 through 6 (2021 through 2023).[1, 2]

The estimates are the result of cross-sectional logistic regression models for binary or trinary indicators, controlling for patient, hospital, and neighborhood characteristics. All responses were weighted for non-response and sampling design and are reported in percentage point (pp) terms.

In total, we mailed 14,858 surveys to patients who are dually eligible (out of 31,911). Response rates for dually eligible patients were notably lower than our aggregate BPCI Advanced response rate of 29.2%. Patients who are dually eligible had a 13.2% response rate, yielding an analytic sample of 1,957 BPCI Advanced respondents who are dually eligible, with similar numbers of comparison respondents.

Exhibits O.1–O.3 show results for dually eligible patients, while Exhibits O.4–O.6 compare results for patients who are dually eligible with results from patients who are not dually eligible. Lastly, Exhibit O.7 reports results for domain-level joint hypothesis tests that indicate the statistical significance of all outcomes together within a domain. The lower confidence interval (LCI) and upper confidence interval (UCI) are displayed for the 5% and 10% level of statistical significance. We also report p-values to indicate statistical significance, which for measures with trinary outcomes indicate the joint significance for the multiple outcomes of the measure. All results are based on the BPCI Advanced evaluation team's analysis of BPCI Advanced and comparison patient survey responses for episodes that began July or August 2021, July or August 2022, or May, June, July, August, or September 2023.

Please refer to **Appendix A** for the definitions of all acronyms used within the following appendix. Please refer to **Appendix C** for details of the risk adjustment methodology, outcome definitions, and additional information on methods.

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[1] Results for the patient survey from Model Year 4 (2021) are presented in the BPCI Advanced Fourth Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

[2] Results for the patient survey from Model Year 5 (2022) are presented in the BPCI Advanced Fifth Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

Exhibit O.1: Patient Survey Outcomes, Respondents who are Dually Eligible, All Clinical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improved	55.5	56.5	-0.96	-4.44	2.52	-3.88	1.96	0.777
		Maintained	14.6	13.9	0.65	-1.51	2.82	-1.16	2.47	
		Declined	29.9	29.6	0.31	-3.24	3.86	-2.67	3.29	
	Planning regular tasks	Improved	55.3	59.0	-3.70	-7.16	-0.25	-6.61	-0.80	0.004
		Maintained	11.8	13.5	-1.74	-4.01	0.53	-3.64	0.16	
		Declined	32.9	27.5	5.44	2.17	8.71	2.70	8.19	
	Use of mobility device	Improved	38.6	41.3	-2.71	-6.72	1.30	-6.07	0.66	0.236
		Maintained	15.6	13.4	2.16	-0.64	4.96	-0.19	4.50	
		Declined	45.9	45.3	0.55	-3.31	4.41	-2.69	3.79	
	Walking without rest	Improved	32.1	34.2	-2.17	-6.36	2.02	-5.68	1.35	0.221
		Maintained	22.5	23.8	-1.30	-5.01	2.41	-4.41	1.81	
		Declined	45.4	42.0	3.47	-0.44	7.38	0.19	6.75	
	Going up or down stairs	Improved	30.8	33.4	-2.60	-6.91	1.72	-6.21	1.02	0.410
		Maintained	25.5	25.2	0.33	-3.57	4.24	-2.94	3.61	
		Declined	43.7	41.4	2.26	-1.54	6.07	-0.93	5.45	
	Physical/emotional problems limiting social activities	Improved	46.2	48.6	-2.35	-6.96	2.25	-6.22	1.51	0.601
		Maintained	24.2	22.9	1.34	-2.43	5.11	-1.82	4.50	
		Declined	29.6	28.5	1.01	-2.79	4.82	-2.18	4.21	
	Pain limiting regular activities	Improved	42.5	41.4	1.05	-3.41	5.52	-2.69	4.80	0.760
		Maintained	31.2	30.7	0.44	-3.57	4.44	-2.92	3.80	
		Declined	26.4	27.9	-1.49	-5.45	2.47	-4.81	1.83	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	90.8	91.3	-0.53	-2.92	1.85	-2.53	1.47	0.661
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	86.0	86.5	-0.51	-3.68	2.66	-3.17	2.15	0.753
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	90.8	90.5	0.30	-2.39	2.99	-1.96	2.56	0.827
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	90.6	91.1	-0.50	-3.21	2.20	-2.77	1.77	0.715
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	91.2	91.2	-0.06	-2.88	2.76	-2.43	2.31	0.967
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.8	93.1	0.76	-1.41	2.93	-1.06	2.58	0.491
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	86.2	86.8	-0.59	-4.18	3.00	-3.60	2.43	0.748
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	74.1	75.5	-1.35	-6.05	3.35	-5.30	2.59	0.573
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	61.2	61.0	0.24	-3.83	4.31	-3.17	3.65	0.908
	Rating of all care received after leaving the hospital	9-10	52.9	55.6	-2.74	-7.43	1.96	-6.68	1.20	0.479
		7-8	25.3	24.4	0.92	-3.20	5.03	-2.53	4.37	
		0-6	21.8	20.0	1.82	-1.89	5.53	-1.29	4.94	

Note: See the first page of this appendix for data sources and more information.

Exhibit O.2: Patient Survey Outcomes, Respondents who are Dually Eligible, Medical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improved	51.3	52.7	-1.41	-5.24	2.42	-4.62	1.80	0.624
		Maintained	16.4	15.3	1.06	-1.49	3.61	-1.08	3.20	
		Declined	32.4	32.0	0.35	-3.65	4.36	-3.01	3.71	
	Planning regular tasks	Improved	50.1	53.7	-3.64	-7.59	0.31	-6.95	-0.32	0.012
		Maintained	13.1	15.1	-2.00	-4.69	0.70	-4.26	0.27	
		Declined	36.8	31.2	5.63	1.85	9.41	2.46	8.80	
	Use of mobility device	Improved	35.0	37.7	-2.70	-6.91	1.52	-6.23	0.84	0.291
		Maintained	16.4	14.3	2.11	-0.95	5.18	-0.46	4.68	
		Declined	48.5	47.9	0.59	-3.58	4.76	-2.91	4.08	
	Walking without rest	Improved	27.2	29.1	-1.90	-6.27	2.48	-5.56	1.77	0.314
		Maintained	23.9	25.4	-1.47	-5.62	2.67	-4.95	2.00	
		Declined	48.9	45.5	3.37	-0.97	7.71	-0.27	7.01	
	Going up or down stairs	Improved	27.1	30.5	-3.33	-7.76	1.10	-7.05	0.39	0.264
		Maintained	25.5	25.2	0.34	-3.77	4.45	-3.10	3.78	
		Declined	47.3	44.4	2.99	-1.20	7.18	-0.53	6.50	
	Physical/emotional problems limiting social activities	Improved	42.2	45.2	-3.06	-8.22	2.10	-7.38	1.27	0.493
		Maintained	26.1	24.2	1.95	-2.32	6.21	-1.63	5.52	
		Declined	31.7	30.6	1.11	-3.23	5.46	-2.53	4.76	
	Pain limiting regular activities	Improved	37.7	37.2	0.48	-4.47	5.44	-3.68	4.64	0.924
		Maintained	34.1	33.7	0.43	-4.13	5.00	-3.40	4.27	
		Declined	28.2	29.2	-0.92	-5.44	3.60	-4.71	2.88	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	90.4	91.1	-0.73	-3.34	1.88	-2.92	1.46	0.584
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	84.7	85.0	-0.26	-3.91	3.39	-3.33	2.80	0.888
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	90.0	89.7	0.35	-2.80	3.49	-2.29	2.98	0.829
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	89.8	90.1	-0.24	-3.38	2.89	-2.87	2.39	0.879
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	90.1	90.1	0.05	-3.31	3.41	-2.76	2.87	0.976
	Able to manage your health needs since returning home	Strongly Agree or Agree	93.3	92.2	1.16	-1.30	3.61	-0.90	3.22	0.356
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	84.2	85.3	-1.03	-5.23	3.18	-4.56	2.50	0.632
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	72.5	74.1	-1.63	-6.91	3.66	-6.06	2.80	0.546
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	58.4	58.2	0.24	-4.29	4.76	-3.56	4.03	0.919
	Rating of all care received after leaving the hospital	9-10	49.3	52.2	-2.94	-8.15	2.27	-7.31	1.43	0.465
		7-8	26.6	26.0	0.60	-3.97	5.17	-3.23	4.44	
		0-6	24.2	21.8	2.34	-1.93	6.60	-1.24	5.91	

Note: See the first page of this appendix for data sources and more information.

Exhibit O.3: Patient Survey Outcomes, Respondents who are Dually Eligible, Surgical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improved	71.7	69.2	2.52	-3.98	9.02	-2.93	7.97	0.526
		Maintained	7.6	9.5	-1.87	-5.35	1.61	-4.79	1.05	
		Declined	20.6	21.3	-0.65	-6.87	5.57	-5.87	4.56	
	Planning regular tasks	Improved	71.9	77.4	-5.59	-11.28	0.11	-10.36	-0.81	0.046
		Maintained	7.5	8.2	-0.73	-3.87	2.41	-3.36	1.90	
		Declined	20.7	14.4	6.32	1.30	11.33	2.11	10.52	
	Use of mobility device	Improved	52.8	53.5	-0.73	-9.28	7.81	-7.90	6.43	0.647
		Maintained	10.6	8.5	2.10	-2.37	6.57	-1.65	5.85	
		Declined	36.6	38.0	-1.37	-9.59	6.85	-8.26	5.53	
	Walking without rest	Improved	49.6	53.5	-3.95	-12.52	4.63	-11.14	3.25	0.466
		Maintained	17.7	17.9	-0.23	-6.72	6.25	-5.67	5.20	
		Declined	32.8	28.6	4.18	-2.48	10.84	-1.40	9.76	
	Going up or down stairs	Improved	44.1	38.8	5.27	-3.90	14.45	-2.42	12.97	0.364
		Maintained	25.5	26.3	-0.77	-9.25	7.70	-7.88	6.33	
		Declined	30.4	34.9	-4.50	-11.31	2.31	-10.21	1.21	
	Physical/emotional problems limiting social activities	Improved	61.2	58.0	3.20	-5.67	12.08	-4.24	10.64	0.578
		Maintained	17.2	20.9	-3.68	-10.60	3.24	-9.48	2.12	
		Declined	21.6	21.1	0.48	-6.79	7.74	-5.62	6.57	
	Pain limiting regular activities	Improved	59.4	54.4	4.92	-3.76	13.61	-2.36	12.21	0.240
		Maintained	20.1	19.1	1.05	-6.33	8.43	-5.14	7.24	
		Declined	20.5	26.5	-5.97	-12.93	0.99	-11.81	-0.13	

Outcome		Response Category	BPCI Advanced Rate (%)	Comparison Rate (%)	Difference in Rate (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	91.8	90.1	1.69	-3.64	7.01	-2.78	6.15	0.534
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	89.6	92.3	-2.70	-7.76	2.36	-6.95	1.54	0.295
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	92.9	92.7	0.21	-4.81	5.23	-4.00	4.42	0.934
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	91.8	94.8	-3.00	-7.79	1.79	-7.02	1.02	0.220
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	94.1	94.7	-0.61	-4.83	3.61	-4.15	2.93	0.777
	Able to manage your health needs since returning home	Strongly Agree or Agree	94.3	96.8	-2.49	-5.69	0.71	-5.17	0.19	0.127
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	92.4	89.7	2.73	-3.45	8.90	-2.45	7.91	0.386
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	80.8	79.5	1.28	-6.85	9.41	-5.54	8.09	0.758
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	68.8	69.4	-0.67	-9.55	8.21	-8.11	6.77	0.882
	Rating of all care received after leaving the hospital	9-10	65.2	66.9	-1.65	-9.71	6.41	-8.41	5.11	0.484
		7-8	22.0	18.2	3.82	-3.26	10.90	-2.12	9.75	
		0-6	12.7	14.9	-2.17	-7.67	3.33	-6.78	2.44	

Note: See the first page of this appendix for data sources and more information.

Exhibit O.4: Differences in Patient Survey Outcomes Between BPCI Advanced and Comparison Respondents, Respondents who are Dually Eligible and who are Non-Dually Eligible, All Clinical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improved	-0.96	0.36	-1.32	-5.03	2.40	-4.44	1.80	0.642
		Maintained	0.65	-0.35	1.01	-1.47	3.48	-1.07	3.08	
		Declined	0.31	-0.01	0.31	-3.56	4.19	-2.94	3.57	
	Planning regular tasks	Improved	-3.70	-0.17	-3.53	-7.27	0.21	-6.67	-0.39	0.006
		Maintained	-1.74	0.46	-2.20	-4.76	0.36	-4.35	-0.05	
		Declined	5.44	-0.29	5.73	2.10	9.37	2.68	8.78	
	Use of mobility device	Improved	-2.71	-0.38	-2.33	-6.61	1.96	-5.92	1.27	0.290
		Maintained	2.16	-0.16	2.31	-0.71	5.34	-0.23	4.85	
		Declined	0.55	0.54	0.01	-4.08	4.10	-3.42	3.44	
	Walking without rest	Improved	-2.17	-0.19	-1.98	-6.37	2.41	-5.66	1.70	0.281
		Maintained	-1.30	0.13	-1.43	-5.41	2.54	-4.77	1.90	
		Declined	3.47	0.05	3.41	-0.78	7.61	-0.11	6.94	
	Going up or down stairs	Improved	-2.60	-0.71	-1.89	-6.41	2.64	-5.68	1.91	0.602
		Maintained	0.33	0.42	-0.09	-4.16	3.98	-3.50	3.33	
		Declined	2.26	0.29	1.97	-2.12	6.07	-1.46	5.41	
	Physical/emotional problems limiting social activities	Improved	-2.35	-0.96	-1.40	-6.35	3.55	-5.55	2.75	0.842
		Maintained	1.34	0.35	0.99	-3.06	5.04	-2.41	4.39	
		Declined	1.01	0.61	0.41	-3.78	4.60	-3.10	3.92	
	Pain limiting regular activities	Improved	1.05	-0.34	1.39	-3.40	6.18	-2.62	5.41	0.824
		Maintained	0.44	0.72	-0.28	-4.72	4.15	-4.00	3.43	
		Declined	-1.49	-0.38	-1.11	-5.36	3.14	-4.67	2.46	

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	-0.53	-1.14	0.60	-2.02	3.23	-1.60	2.80	0.652
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	-0.51	-1.80	1.29	-2.25	4.83	-1.68	4.26	0.476
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	0.30	-1.26	1.56	-1.47	4.59	-0.98	4.10	0.314
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	-0.50	-0.30	-0.20	-3.21	2.82	-2.73	2.33	0.897
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	-0.06	-1.22	1.16	-1.91	4.23	-1.41	3.74	0.457
	Able to manage your health needs since returning home	Strongly Agree or Agree	0.76	0.07	0.69	-1.71	3.09	-1.33	2.70	0.574
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	-0.59	-1.41	0.82	-2.96	4.59	-2.35	3.99	0.672

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience (continued)	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	-1.35	0.00	-1.35	-6.60	3.90	-5.75	3.06	0.615
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	0.24	-0.49	0.73	-3.65	5.11	-2.94	4.41	0.743
	Rating of all care received after leaving the hospital	9-10	-2.74	-1.93	-0.81	-5.73	4.12	-4.94	3.33	0.929
		7-8	0.92	0.08	0.83	-3.61	5.28	-2.90	4.56	
		0-6	1.82	1.85	-0.03	-4.06	4.00	-3.41	3.35	

Note: See the first page of this appendix for data sources and more information.

Exhibit O.5: Differences in Patient Survey Outcomes Between BPCI Advanced and Comparison Respondents, Respondents who are Dually Eligible and who are Non-Dually Eligible, Medical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improved	-1.41	0.63	-2.04	-6.22	2.14	-5.55	1.46	0.497
		Maintained	1.06	-0.33	1.39	-1.58	4.36	-1.10	3.88	
		Declined	0.35	-0.30	0.65	-3.80	5.10	-3.08	4.39	
	Planning regular tasks	Improved	-3.64	-0.22	-3.42	-7.77	0.94	-7.07	0.23	0.019
		Maintained	-2.00	0.56	-2.56	-5.67	0.56	-5.17	0.05	
		Declined	5.63	-0.34	5.97	1.66	10.28	2.36	9.59	
	Use of mobility device	Improved	-2.70	-0.83	-1.87	-6.46	2.73	-5.72	1.99	0.429
		Maintained	2.11	-0.06	2.17	-1.21	5.54	-0.66	5.00	
		Declined	0.59	0.89	-0.30	-4.80	4.20	-4.07	3.47	

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status (continued)	Walking without rest	Improved	-1.90	-0.44	-1.46	-6.13	3.21	-5.38	2.46	0.430
		Maintained	-1.47	0.21	-1.68	-6.19	2.83	-5.46	2.10	
		Declined	3.37	0.23	3.14	-1.61	7.89	-0.85	7.13	
	Going up or down stairs	Improved	-3.33	-1.09	-2.24	-7.00	2.52	-6.23	1.75	0.489
		Maintained	0.34	0.80	-0.46	-4.85	3.94	-4.15	3.23	
		Declined	2.99	0.29	2.70	-1.91	7.31	-1.17	6.56	
	Physical/emotional problems limiting social activities	Improved	-3.06	-0.80	-2.26	-7.91	3.40	-7.00	2.49	0.690
		Maintained	1.95	0.18	1.76	-2.91	6.44	-2.16	5.69	
		Declined	1.11	0.62	0.49	-4.40	5.38	-3.61	4.59	
	Pain limiting regular activities	Improved	0.48	-0.61	1.09	-4.35	6.53	-3.48	5.65	0.925
		Maintained	0.43	0.93	-0.49	-5.66	4.68	-4.83	3.84	
		Declined	-0.92	-0.32	-0.60	-5.53	4.34	-4.74	3.55	
Care Experience	Felt prepared to leave the hospital	Very or somewhat	-0.73	-1.27	0.54	-2.50	3.57	-2.01	3.08	0.728
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	-0.26	-2.14	1.88	-2.28	6.03	-1.61	5.36	0.376
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	0.35	-1.43	1.78	-1.84	5.39	-1.26	4.81	0.335
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	-0.24	-0.26	0.02	-3.59	3.63	-3.01	3.05	0.992

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience (continued)	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	0.05	-1.23	1.28	-2.43	4.99	-1.83	4.39	0.499
	Able to manage your health needs since returning home	Strongly Agree or Agree	1.16	0.33	0.82	-1.99	3.64	-1.53	3.18	0.566
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	-1.03	-1.60	0.58	-3.91	5.06	-3.18	4.34	0.801
	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	-1.63	-0.56	-1.06	-7.11	4.98	-6.14	4.01	0.730
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	0.24	-0.07	0.31	-4.63	5.25	-3.84	4.45	0.903
	Rating of all care received after leaving the hospital	9-10	-2.94	-1.92	-1.02	-6.58	4.54	-5.68	3.64	0.928
		7-8	0.60	-0.25	0.85	-4.21	5.91	-3.39	5.09	
		0-6	2.34	2.17	0.17	-4.55	4.89	-3.79	4.13	

Note: See the first page of this appendix for data sources and more information.

Exhibit O.6: Differences in Patient Survey Outcomes Between BPCI Advanced and Comparison Respondents, Respondents who are Dually Eligible and who are Non-Dually Eligible, Surgical Episodes, January 1, 2021 – December 31, 2023

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Change in Functional Status	Bathing, dressing, using the toilet, or eating	Improved	2.52	-0.41	2.94	-3.91	9.78	-2.81	8.68	0.597
		Maintained	-1.87	-0.27	-1.60	-5.30	2.10	-4.70	1.50	
		Declined	-0.65	0.68	-1.34	-7.75	5.08	-6.72	4.05	
	Planning regular tasks	Improved	-5.59	-0.10	-5.48	-11.27	0.30	-10.33	-0.64	0.046
		Maintained	-0.73	0.21	-0.94	-4.19	2.30	-3.66	1.78	
		Declined	6.32	-0.11	6.43	1.31	11.54	2.14	10.72	
	Use of mobility device	Improved	-0.73	0.88	-1.62	-10.38	7.14	-8.96	5.73	0.560
		Maintained	2.10	-0.45	2.55	-2.10	7.21	-1.35	6.45	
		Declined	-1.37	-0.43	-0.94	-9.46	7.59	-8.09	6.21	
	Walking without rest	Improved	-3.95	0.55	-4.50	-13.37	4.38	-11.94	2.94	0.410
		Maintained	-0.23	0.05	-0.29	-6.84	6.27	-5.78	5.21	
		Declined	4.18	-0.60	4.78	-2.26	11.83	-1.13	10.69	
	Going up or down stairs	Improved	5.27	0.51	4.77	-4.45	13.98	-2.96	12.50	0.372
		Maintained	-0.77	-0.80	0.02	-8.45	8.49	-7.08	7.12	
		Declined	-4.50	0.29	-4.79	-11.78	2.20	-10.66	1.08	
	Physical/emotional problems limiting social activities	Improved	3.20	-1.38	4.58	-4.65	13.81	-3.16	12.32	0.432
		Maintained	-3.68	0.95	-4.63	-11.77	2.51	-10.62	1.36	
		Declined	0.48	0.43	0.05	-7.43	7.52	-6.22	6.32	
	Pain limiting regular activities	Improved	4.92	0.62	4.30	-4.66	13.26	-3.21	11.81	0.355
		Maintained	1.05	0.07	0.98	-6.71	8.67	-5.47	7.43	
		Declined	-5.97	-0.69	-5.28	-12.51	1.96	-11.35	0.79	

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience	Felt prepared to leave the hospital	Very or somewhat	1.69	-0.74	2.43	-2.96	7.82	-2.09	6.95	0.376
	Medical staff took your preferences into account in deciding what health care services you should have after you left the hospital	Strongly Agree or Agree	-2.70	-0.74	-1.96	-7.03	3.11	-6.21	2.29	0.448
	Good understanding of how to take care of self before going home	Strongly Agree or Agree	0.21	-0.86	1.08	-4.03	6.18	-3.21	5.36	0.680
	Medical staff clearly explained how to take medications before going home	Strongly Agree or Agree	-3.00	-0.40	-2.60	-7.39	2.19	-6.61	1.42	0.288
	Medical staff clearly explained what follow-up appointments or treatments would be needed before going home	Strongly Agree or Agree	-0.61	-1.08	0.47	-3.83	4.78	-3.14	4.08	0.829
	Able to manage your health needs since returning home	Strongly Agree or Agree	-2.49	-0.63	-1.86	-5.13	1.41	-4.60	0.88	0.265
	Medical staff talked with you about whether you would have the help you needed when you got home	Yes	2.73	-0.81	3.54	-2.71	9.78	-1.70	8.77	0.267

Outcome		Response Category	Difference (Respondents who are Dually Eligible) (pp)	Difference (Respondents who are Non-Dually Eligible) (pp)	Relative Difference (pp)	95% LCI (pp)	95% UCI (pp)	90% LCI (pp)	90% UCI (pp)	P-Value
Care Experience (continued)	If you needed help at home to manage your health, medical staff arranged services for you at home to help manage your health	Yes	1.28	1.75	-0.47	-9.09	8.15	-7.70	6.76	0.915
Satisfaction with Care	Overall satisfaction with recovery	Quite a bit or Extreme	-0.67	-1.65	0.98	-8.34	10.29	-6.84	8.79	0.837
	Rating of all care received after leaving the hospital	9-10	-1.65	-2.03	0.39	-7.96	8.73	-6.62	7.39	0.498
		7-8	3.82	1.12	2.70	-4.57	9.97	-3.39	8.80	
		0-6	-2.17	0.92	-3.09	-8.84	2.66	-7.91	1.74	

Note: See the first page of this appendix for data sources and more information.

Exhibit O.7: Domain-Level Joint Statistical Test Results, January 1, 2021 – December 31, 2023

Domain	Sample	P-Value
Change in Functional Status	Respondents who are Dually Eligible, All Clinical Episodes	0.086
	Respondents who are Dually Eligible, Medical Episodes	0.164
	Respondents who are Dually Eligible, Surgical Episodes	0.055
Care Experience & Satisfaction	Respondents who are Dually Eligible, All Clinical Episodes	0.922
	Respondents who are Dually Eligible, Medical Episodes	0.891
	Respondents who are Dually Eligible, Surgical Episodes	0.402

Note: See the first page of this appendix for data sources and more information.

Appendix P: Results for Select Surgical Clinical Episodes

The following exhibits in Section A display the BPCI Advanced impact estimates for select claims-based payment, utilization outcomes, and quality measures calculated for the five select surgical clinical episodes (coronary artery bypass graft [CABG], hip and femur procedures except major joint [hip & femur], major bowel procedure, major joint replacement of the lower extremity [MJRLE], and spinal fusion). The exhibits in Section B display the risk-adjusted parallel trends test results for the same select claims-based payment, utilization outcomes, and quality measures.

The exhibits P.12-P.15 in Section C display Medicare program savings (MPS) results for these five clinical episodes, net savings to Medicare is the estimated reduction in non-standardized payments minus reconciliation payments paid to or received from participants. The content within the exhibits is calculated using the same methodology as the overall MPS exhibits, found in **Appendix I**. The estimate of the reduction in non-standardized payments is based on a risk-adjusted difference-in-differences (DiD) model.[1] Adjusted reconciliation amounts account for quality adjustments and stop-loss/stop-gain limits, while unadjusted amounts do not; Exhibits P.14 and P.15 display select CE-level results without this adjustment.[2] Exhibit P.16 provides the count and share of hospitals within brackets of average unadjusted net payment reconciliation amount (NPRA) per episode, shown separately for the five clinical episodes.

All Model Year 5 (2022) results are based on the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2022, and ending on or before December 31, 2022 (Model Year 5) for BPCI Advanced and matched comparison hospitals and PGPs.

We note that while these five episodes will be included in the upcoming Transforming Episode Accountability Model (TEAM), impacts of the BPCI Advanced model may not generalize to TEAM due to several factors, including differences in model design (e.g., 30-day vs 90-day episodes, different episode definitions) and participation (mandatory vs. voluntary).

Please refer to **Appendix A** for the definitions of all acronyms and symbols used within the following appendix. Please refer to **Appendix C** for additional information on outcome definitions and other methods.

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1 The DiD model is based on standardized Part A and B Medicare paid amounts, which exclude beneficiary cost sharing.

2 Reconciliation data at the clinical episode level does not account for various adjustments that occur across clinical episodes (composite quality score and stop-gain/stop-loss). To account for these adjustments, we calculated an adjusted reconciliation amount that approximates these adjustments at the clinical episode level for each hospital and PGP by applying a ratio of final (adjusted) reconciliation amounts to intermediate reconciliation amounts provided at the parent BPID (convener) level.

A. Impact Estimate for Select Surgical Clinical Episodes

Exhibit P.1: Impact of BPCI Advanced on Total Episode Payments During the Anchor Stay and 90-Day PDP, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD	DiD as a Percent (%)	P-Value	90% LCI	90% UCI	95% LCI	95% UCI
	MY5 Episodes (N)	Baseline Mean	MY5 Mean	MY5 Episodes (N)	Baseline Mean	MY5 Mean							
CABG	936	$52,202	$55,816	922	$50,859	$58,913	-$4,440	-8.5	0.005	-$6,977	-$1,903	-$7,476	-$1,404
Hip & Femur	3,944	$47,196	$46,925	3,691	$46,834	$50,114	-$3,550	-7.5	0.000	-$4,804	-$2,296	-$5,046	-$2,054
Major Bowel Procedure	1,221	$38,114	$38,601	1,224	$37,636	$38,156	-$33 ‡	-0.1	0.977	-$1,965	$1,899	-$2,341	$2,276
MJRLE	11,524	$27,693	$25,706	12,566	$26,058	$25,947	-$1,877	-6.8	0.000	-$2,690	-$1,063	-$2,848	-$906
Spinal Fusion	5,217	$46,161	$44,930	4,973	$45,748	$47,034	-$2,517	-5.5	0.021	-$4,300	-$733	-$4,646	-$388

Note: See the first page of this appendix for data sources and more information.

Exhibit P.2: Impact of BPCI Advanced on Proportion of Episodes First Discharged to Institutional PAC Setting, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI(pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
CABG	936	33.1	19.8	922	35.4	28.1	-6.09	-18.4	0.036	-10.83	-1.35	-11.76	-0.42
Hip & Femur	3,944	87.5	80.0	3,691	87.1	82.3	-2.72	-3.1	0.026	-4.73	-0.71	-5.11	-0.33
Major Bowel Procedure	1,221	29.7	19.6	1,224	28.7	19.9	-1.36	-4.6	0.436	-4.24	1.53	-4.80	2.09
MJRLE	11,524	43.1	21.5	12,566	37.3	23.7	-7.91	-18.3	0.019	-13.46	-2.36	-14.53	-1.29
Spinal Fusion	5,217	32.7	20.5	4,973	32.5	24.1	-3.74 ‡	-11.5	0.014	-6.24	-1.25	-6.72	-0.76

Note: See the first page of this appendix for data sources and more information.

Exhibit P.3: Impact of BPCI Advanced on Readmission Rate Through the 90-Day PDP, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
CABG	936	21.9	18.3	920	20.3	16.6	0.21	1.0	0.897	-2.50	2.92	-3.04	3.46
Hip & Femur	3,942	21.1	18.8	3,691	20.0	19.8	-2.15	-10.2	0.054	-3.98	-0.31	-4.33	0.04
Major Bowel Procedure	1,217	26.3	23.6	1,222	25.0	21.6	0.68	2.6	0.739	-2.68	4.03	-3.33	4.68
MJRLE	11,517	9.9	10.2	12,564	8.9	9.1	0.18 ‡	1.9	0.764	-0.83	1.20	-1.02	1.39
Spinal Fusion	5,213	15.2	14.0	4,971	13.9	13.5	-0.85	-5.6	0.369	-2.41	0.71	-2.71	1.01

Note: See the first page of this appendix for data sources and more information.

Exhibit P.4: Impact of BPCI Advanced on Unplanned Readmission Rate Through the 90-Day PDP, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
CABG	936	20.5	17.6	920	19.1	15.1	1.01	4.9	0.557	-1.84	3.85	-2.40	4.41
Hip & Femur	3,942	20.1	18.0	3,691	19.0	18.6	-1.77	-8.8	0.103	-3.55	0.02	-3.89	0.36
Major Bowel Procedure	1,217	23.1	20.5	1,222	22.1	19.5	-0.08	-0.3	0.964	-3.00	2.84	-3.57	3.41
MJRLE	11,517	9.2	8.4	12,564	8.3	7.6	-0.11	-1.2	0.811	-0.90	0.67	-1.05	0.82
Spinal Fusion	5,213	12.6	11.4	4,971	11.6	10.5	-0.05	-0.4	0.952	-1.39	1.29	-1.65	1.55

Note: See the first page of this appendix for data sources and more information.

Exhibit P.5: Impact of BPCI Advanced of Mortality Rate During the Anchor Stay and 90-Day PDP, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
CABG	950	3.3	3.3	932	3.4	2.3	1.10	33.3	0.124	-0.08	2.27	-0.31	2.50
Hip & Femur	3,913	11.1	10.6	3,644	11.1	11.8	-1.32	-11.9	0.074	-2.54	-0.10	-2.78	0.13
Major Bowel Procedure	1,271	9.6	10.2	1,262	9.4	9.1	0.94 ‡	9.8	0.409	-0.94	2.83	-1.31	3.19
MJRLE	11,508	2.1	1.7	12,538	2.0	1.8	-0.24	-11.5	0.230	-0.57	0.09	-0.64	0.15
Spinal Fusion	5,225	1.2	1.5	4,986	1.3	1.1	0.48	38.7	0.086	0.02	0.94	-0.07	1.03

Note: See the first page of this appendix for data sources and more information.

Exhibit P.6: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the First Week of the PDP, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
CABG	936	12.3	19.7	922	6.8	10.3	3.91	31.8	0.171	-0.80	8.62	-1.73	9.54
Hip & Femur	3,944	3.7	13.8	3,691	3.5	10.8	2.85	77.1	0.031	0.67	5.02	0.26	5.44
Major Bowel Procedure	1,221	9.4	13.5	1,224	7.9	12.1	-0.01	-0.1	0.994	-2.99	2.97	-3.58	3.55
MJRLE	11,524	4.0	15.4	12,566	4.0	20.4	-5.02	-126.0	0.367	-14.22	4.17	-15.99	5.94
Spinal Fusion	5,217	5.4	9.0	4,973	5.3	9.5	-0.64	-11.7	0.427	-1.96	0.69	-2.21	0.94

Note: See the first page of this appendix for data sources and more information.

Exhibit P.7: Impact of BPCI Advanced on Proportion of Episodes with a Primary Care Visit During the 90-Day PDP, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	BPCI Advanced			Comparison			DiD (pp)	DiD as a Percent (%)	P-Value	90% LCI (pp)	90% UCI (pp)	95% LCI (pp)	95% UCI (pp)
	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)	MY5 Episodes (N)	Baseline Mean (%)	MY5 Mean (%)							
CABG	936	80.9	84.7	922	74.0	79.0	-1.17	-1.4	0.634	-5.23	2.90	-6.03	3.70
Hip & Femur	3,944	56.4	69.2	3,691	55.9	65.7	3.03	5.4	0.062	0.36	5.71	-0.15	6.22
Major Bowel Procedure	1,221	69.4	74.6	1,224	66.1	74.7	-3.45	-5.0	0.077	-6.66	-0.25	-7.28	0.38
MJRLE	11,524	62.6	66.3	12,566	60.5	67.4	-3.13	-5.0	0.241	-7.53	1.27	-8.39	2.12
Spinal Fusion	5,217	68.9	71.4	4,973	67.9	72.2	-1.78	-2.6	0.133	-3.73	0.17	-4.11	0.55

Note: See the first page of this appendix for data sources and more information.

B. Parallel Trends for Select Surgical Clinical Episodes

Exhibit P.8: Results of Parallel Trends Tests, Expenditure Outcomes, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	90-Day Total Episode		First Discharge to Institutional PAC Setting	
	Linear Trend Coefficient	P-Value	Linear Trend Coefficient (pp)	P-Value
CABG	$137	0.201	0.37	0.189
Hip & Femur	-$27	0.677	0.12	0.168
Major Bowel Procedure	$187 ‡	0.045	0.11	0.518
MJRLE	-$22	0.412	-0.17	0.238
Spinal Fusion	-$3	0.963	-0.21 ‡	0.096

Note: See the first page of this appendix for data sources and more information.

Exhibit P.9: Results of Parallel Trends Test, Readmissions Outcomes, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	90-Day Readmission Rate		90-Day Unplanned Readmission Rate	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
CABG	0.02	0.924	0.01	0.939
Hip & Femur	0.07	0.475	0.04	0.639
Major Bowel Procedure	-0.02	0.929	-0.03	0.894
MJRLE	0.08 ‡	0.085	0.06	0.104
Spinal Fusion	-0.03	0.700	0.03	0.666

Note: See the first page of this appendix for data sources and more information.

Exhibit P.10: Results of Parallel Trends Test, Mortality Outcomes, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	90-Day Mortality	
	Linear Trend Coefficient (pp)	P-Value
CABG	-0.11	0.217
Hip & Femur	0.07	0.336
Major Bowel Procedure	-0.29 ‡	0.031
MJRLE	0.00	0.784
Spinal Fusion	-0.04	0.103

Note: See the first page of this appendix for data sources and more information.

Exhibit P.11: Results of Parallel Trends Tests, Primary Care Outcomes, Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	Primary Care Use Within 7 Days		Primary Care Use Within 90 Days	
	Linear Trend Coefficient (pp)	P-Value	Linear Trend Coefficient (pp)	P-Value
CABG	-0.04	0.784	0.15	0.522
Hip & Femur	0.04	0.604	0.23	0.111
Major Bowel Procedure	-0.08	0.592	-0.04	0.857
MJRLE	0.02	0.780	0.08	0.380
Spinal Fusion	0.00	0.969	-0.13	0.199

Note: See the first page of this appendix for data sources and more information.

C. Medicare Program Savings for Select Surgical Clinical Episodes

Exhibit P.12: Net Medicare Savings, BPCI Advanced Hospitals, January 1, 2022 – December 31, 2022

Clinical Episode	Reduction in Nonstandardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	95% LCI (M)	95% UCI (M)
CABG (n = 835)	$3.90	$0.21	$3.69	$1.47	$5.91	$1.03	$6.35
Hip & Femur (n = 4,401)	$14.62	$0.72	$13.90	$8.37	$19.43	$7.31	$20.50
Major Bowel Procedures (n = 1,250)	$0.07	-$3.73	$3.80	$1.41	$6.20	$0.94	$6.67
MJRLE (n = 14,783)	$30.16	$0.31	$29.86	$16.75	$42.96	$14.21	$45.50
Spinal Fusion (n = 5,506)	$14.39	-$1.12	$15.50	$5.04	$25.96	$3.02	$27.99

Note: See the first page of this appendix for data sources and more information. The difference in adjusted and unadjusted reconciliation amounts for major bowel procedures is driven by a single outlier hospital, whose adjusted amounts change statistically significantly after application of the adjusted to unadjusted ratio of reconciliation amounts from its parent BPID. The difference in adjusted and unadjusted reconciliation amounts has a larger effect on savings to Medicare for major bowel procedures compared to other clinical episodes due to the relatively small reduction in nonstandardized payments.

Exhibit P.13: Net Medicare Savings, Expressed as a Percentage of the BPCI Advanced Counterfactual, BPCI Advanced Hospital Participants, January 1, 2022 – December 31, 2022

Clinical Episode	Reduction in Nonstandardized Payments (%)	Reconciliation Payments (%)	Savings to Medicare (%)	90% LCI (%)	90% UCI (%)	95% LCI (%)	95% UCI (%)
CABG (n = 835)	7.6	0.4	7.2	2.9	11.5	2.0	12.3
Hip & Femur (n = 4,401)	6.8	0.3	6.4	3.9	9.0	3.4	9.5
Major Bowel Procedures (n = 1,250)	0.1	-7.8	7.9	2.9	12.9	2.0	13.9
MJRLE (n = 14,783)	7.6	0.1	7.5	4.2	10.8	3.6	11.4
Spinal Fusion (n = 5,506)	5.4	-0.4	5.8	1.9	9.7	1.1	10.5

Note: See the first page of this appendix for data sources and more information.

Exhibit P.14: Net Medicare Savings, Unadjusted, BPCI Advanced Hospital Participants, January 1, 2022 – December 31, 2022

Clinical Episode	Reduction in Nonstandardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	90% LCI (M)	90% UCI (M)	95% LCI (M)	95% UCI (M)
CABG (n = 835)	$3.90	-$0.49	$4.39	$2.17	$6.61	$1.73	$7.05
Hip & Femur (n = 4,401)	$14.62	$1.85	$12.77	$7.24	$18.30	$6.17	$19.37
Major Bowel Procedures (n = 1,250)	$0.07	-$0.87	$0.94	-$1.45	$3.34	-$1.92	$3.81
MJRLE (n = 14,783)	$30.16	$0.27	$29.89	$16.78	$43.00	$14.25	$45.53
Spinal Fusion (n = 5,506)	$14.39	-$1.37	$15.75	$5.29	$26.21	$3.27	$28.24

Note: See the first page of this appendix for data sources and more information.

Exhibit P.15: Net Medicare Savings, Unadjusted, Expressed as a Percentage of the BPCI Advanced Counterfactual, BPCI Advanced Hospital Participants, January 1, 2022 – December 31, 2022

Clinical Episode	Reduction in Nonstandardized Payments (%)	Reconciliation Payments (%)	Savings to Medicare (%)	90% LCI (%)	90% UCI (%)	95% LCI (%)	95% UCI (%)
CABG (n = 835)	7.6	-1.0	8.5	4.2	12.9	3.4	13.7
Hip & Femur (n = 4,401)	6.8	0.9	5.9	3.4	8.5	2.9	9.0
Major Bowel Procedures (n = 1,250)	0.1	-1.8	2.0	-3.0	7.0	-4.0	7.9
MJRLE (n = 14,783)	7.6	0.1	7.5	4.2	10.8	3.6	11.4
Spinal Fusion (n = 5,506)	5.4	-0.5	5.9	2.0	9.8	1.2	10.6

Note: See the first page of this appendix for data sources and more information.